Miller Pacific
ENGINEERING GROUP

504 Redwood Blvd.
Suite 220
Novato, California 94947
T 415 / 382-3444
F 415 / 382-3450

November 3, 2010
File: 1680.01altr.doc

Fairfax Center Properties, LLC
PO Box 633
Ross, California 94957

Attn: Mr. Rich Hall

Re: Geotechnical Investigation & Recommendations
Fairfax Grocery Store
Fairfax, California

Introduction

This letter summarizes our geotechnical investigation for the proposed grocery store improvements project in Fairfax, California. The site location is shown on Figure 1, Site Map. Our work is being performed in accordance with our Agreement for Professional Services dated October 15, 2010. We understand the project consists of upgrading the existing vacant grocery store. The improvements include the construction of a new 1,500-gallon grease trap, structural improvements to the grocery store, and parking lot improvements.

Regional Seismicity & Geology

The regional topography is characterized by northwest-southeast trending mountain ridges and intervening valleys that were formed by movement between the North American and the Pacific Plates. Continued deformation and erosion during the late Tertiary and Quaternary Age (the last several million years) formed the prominent Marin coastal ridges and the inland depression that is now the San Francisco Bay. The more recent seismic activity within the Coast Range Geomorphic Province is concentrated along the San Andreas Fault zone, a complex group of generally north to northwest trending faults.

Regional geologic mapping[1] shows the site is located near a geologic contact between alluvial and colluvial soils. Alluvial soils consist of gravel, sand and silt that are poorly to moderately sorted and deposited via streams and rivers. Colluvium generally consists of poorly sorted clays, sands, and gravels deposited due to the weathering of nearby slopes.

Site Conditions

The site is relatively flat, gently sloping to the southeast, and is currently developed with an abandoned grocery store and parking areas, as shown on Figure 2, Site Plan. An approximate 8-foot tall cut slope inclined at approximately 1.5:1 (horizontal:vertical) is located to the north of the existing structure. The asphalt paved parking lot is located to the east and west of the existing structure. The asphalt is in poor condition, most likely due to age, heavy traffic loading and surface water intrusion.

[1] California Department of Conservation Division of Mines and Geology, "Geology for Planning: Central and Southeast Marin County, California," DMG Open File Report 76-2, 1976

Document Review

We reviewed a Geotechnical Investigation performed by Anderson & Associates, Inc. dated January 18, 2008. Anderson & Associates explored subsurface conditions two soil borings in the general vicinity of the existing grocery store, as shown on Figure 2. Based on the boring logs, the subsurface soils consist of varying layers of stiff sandy silts, stiff sandy clays, and very dense silty sands. Bedrock was observed in Boring 2 at 10-feet below the ground surface. Groundwater was not observed during Anderson & Associates' subsurface exploration. Copies of Anderson & Associates' boring logs are presented on Figures 3 and 4.

Subsurface Exploration and Laboratory Testing

We performed a subsurface exploration on October 27, 2010 with four pavement cores in the parking area and two shallow borings excavated inside the grocery store. The approximate locations of our subsurface exploration are shown on Figure 2.

The pavement cores were drilled in the existing asphalt parking lot. Bulk samples of the upper 2-feet of subgrade material was collected and composited into one sample. The composite sample was tested to determine the R-value of the subgrade material. The result of the R-Value test is presented on Figure 5 and a summary of our pavement coring is presented below in Table A:

TABLE A
Pavement Core Results
Fairfax Grocery Store Improvements
Fairfax, California

Core #	AC[1] Thickness	AB[2] Thickness	Subgrade
B-1	7.0-inches[3]	6.0-inches	Sandy Clay (CL) damp, low plasticity
B-2	7.0-inches	5.0-inches	Sandy Clay (CL) damp, low plasticity
B-3	6.0-inches	4.0-inches	Sandy Clay (CL) damp, low plasticity
B-4	5.5-inches	9.5-inches	Clay with Sand (CL) damp, medium to high plasticity

Notes:
1. Asphalt Concrete
2. Aggregate Baserock
3. A layer of fabric was observed 3-inches below the top of the asphalt elevation. This indicates the original section consisted of 4-inches of asphalt and was later overlaid with 3-inches of asphalt.

Two shallow borings were excavated inside the existing building beneath the existing concrete slab-on-grade. The subsurface conditions consisted of a 4.5-inch concrete slab overlying a 1.5 to 2.0-feet of medium dense clayey sand fill material. Stiff, silty sand with gravel colluvium was observed underlying the fill.

Select soil samples were obtained from our borings for laboratory testing. Laboratory testing included, dry density, moisture content, and unconfined compressive strength tests of selected samples. The results of our laboratory tests are presented on Table B below:

TABLE B
Laboratory Test Results
Fairfax Grocery Store Improvements
Fairfax, California

Boring	Soil Type	Depth	Moisture Content	Dry Density	U.C.[1]
B-5	Clayey Sand (SC)	0.5-feet	16.6%	110 pcf	---
B-5	Clayey Sand (SC)	1.5-feet	16.3%	99 pcf	450 psf
B-5	Silty Sand (SM)	2.0-feet	15.7%	99 pcf	500 psf
B-6	Clayey Sand (SC)	1.0-feet	14.6%	105 pcf	450 psf
B-6	Silty Sand (SM)	1.5-feet	16.0%	107 pcf	750 psf
B-6	Silty Sand (SM)	2.0-feet	16.8%	110 pcf	1750 psf

Note:

1. Unconfined Compressive Strength

Geologic Hazards

We have reviewed and evaluated various geologic hazards that may impact the project site including; fault surface rupture, seismic ground shaking, liquefaction, seismic induced ground settlement, lurching, erosion, flooding, expansive soils, settlement, and slope stability. We concluded that the only significant geologic hazard that affects the site is seismic ground shaking.

The potential for strong seismic shaking at the project site is high. The San Andreas Fault, San Gregorio and Hayward Faults present the highest potential for severe ground shaking. The significant adverse impact associated with strong seismic shaking is potential damage to structures and improvements. Recommended mitigation measures include designing new structures in accordance with the provisions of the California Building Code (CBC), as discussed in the Seismic Design section of this letter.

Conclusions and Recommendations

We judge that the proposed pavement and store improvements are feasible from a geotechnical standpoint. The primary geotechnical engineering concerns for the project are strong ground shaking during future earthquakes and providing uniform foundation support.

Site Grading

We do not anticipate significant fills will be required for the proposed improvements. However, site preparation and grading should conform to the following recommendations and criteria:

1. Surface Preparation – Saw cut and remove existing pavement from areas that will be within the construction site. Excavate loose soil to expose firm natural soils. Any construction debris or abandoned utilities encountered during site grading should be removed from the site. Utilities could also be abandoned in place in many cases provided cement grout completely fills any void in the utility. Rocks or concrete pieces larger than 6 inches encountered during subgrade preparation or site grading should be removed from the site.

2. Materials – Clean, non-expansive soil and rock mixtures generated from on-site excavations may be suitable for use as fill provided the material is well mixed, maximum particle sizes are less than 6 inches, and have a maximum PI of 20. Processing will include removal and/or crushing of rock, mixing and moisture conditioning as described below.

If imported fill is required, the material shall consist of soil and rock mixtures that: (1) are free of organic material, (2) have a Liquid Limit less than 40 and a Plasticity Index of less than 20, (3) have a minimum R-Value of 20, and (4) have a maximum particle size of 4 inches. Any imported fill material needs to be tested to determine its suitability for use as fill material.

3. Compacted Fill – Where fills or structures are planned, the subgrade surface should be scarified to a depth of 8 inches, moisture conditioned to near optimum moisture content and compacted to a minimum of 90 percent relative compaction[1]. In areas that will be paved the subgrade should be compacted to 95 percent relative compaction and to a firm and unyielding surface.

4. Excavation Conditions – Based on the subsurface conditions encountered during our field exploration, it is our opinion that most of the planned excavations can be accomplished with conventional grading equipment (i.e. large dozer, backhoe, or excavator). The Occupational Safety and Health Administration (OSHA) has promulgated rules for Excavations, 29 CFR Part 1926, October 31, 1989. OSHA dictates allowable slope configurations and minimum shoring requirements based on categorized soil types. In conformance with OSHA's categorization, the on-site clayey fill and colluvial soils would classify as "Type C". The contractor may elect to use a variety of shoring configurations, but his operations must conform to Federal and State OSHA regulations. Additionally, it should be made clear that the safety of construction excavations, slopes, construction operations, and personnel are the sole responsibility of the Contractor.

[1] Relative compaction refers to the ratio in percent of the in-situ dry density to the maximum laboratory density. The maximum laboratory dry density and optimum moisture content of fill materials should be determined in accordance with ASTM Test Method D-1557, "Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using a 10-lb. Rammer and 18-in. Drop".

Seismic Design

Mitigation of seismic ground shaking, at a minimum, includes seismic design of the structure in conformance with provisions of the California Building Code (CBC). Based on the interpreted subsurface conditions, and closest fault type and distance, we recommend the following CBC Coefficients to calculate the design base shear of the proposed improvements.

TABLE C
2007 CBC Seismic Design Factors
Fairfax Grocery Store Improvements
Fairfax, California

Factor Name	Coefficient	CBC Table[1]	Site Specific Value
Site Class	$S_{A,B,C,D,E, or F}$	1613.5.2	S_D[2]
Spectral Acc. (short)	S_s	1613.5.1	1.50 g
Spectral Acc. (1-sec)	S_1	1613.5.1	0.65 g
Site Coefficient[2]	F_a	1613.5.3 (1)	1.0
Site Coefficient	F_v	1613.5.3 (2)	1.5

(1) For facilities regulated by the Division of the State Architect – Structural Safety (DSA-SS), the Office of Statewide Health Planning and Development (OSHPD), or other agencies (e.g. schools, hospitals, etc.) use the "A" equations and tables in lieu of the equations and tables noted above. "Site specific" values in the table apply to all structures.

(2) Soil Profile Type S_D Description: Stiff Soil, Shear Wave Velocity between 600 (180) and 1200 (365) feet per second (m/s), Standard Penetration Test N value between 15 and 50, and Undrained Shear Strength between 1000 (50) and 2000 (100) psf (kPa).

Foundations

We understand the Structural Engineer will utilize the existing concrete slab-on-grade to support the new structural upgrades. Based on our subsurface exploration, the existing concrete slab-on-grade is approximately 4.5-inches thick. The Structural Engineer should utilize the concrete slab-on-grade design recommendations given in Table D below to verify the structural integrity of the existing structure. If new foundations are required, they should be designed utilizing the shallow foundation design criteria given in Table D.

TABLE D
Concrete Slab-on-Grade Design Criteria
Fairfax Grocery Store Improvements
Fairfax, California

Mat Slab	
Minimum thickness:	4 inches
Modulus of Subgrade Reaction, k_s:	125 pci
Minimum unsupported interior span:	8 feet
Minimum unsupported edge(corner) cantilever:	4 feet
Shallow Foundations	
Minimum Width[1]:	12 inches
Minimum Depth:	12 inches
Allowable Bearing Pressure[2,3]:	1,500 psf
Lateral Passive Resistance[4,5]:	200 pcf
Base Friction Coefficient:	0.30

Notes:
1. Size footing widths to avoid significantly different foundation pressures.
2. Dead plus live loads. Can increase values by 1/3 for total loads including seismic.
3. The ultimate shallow bearing capacity for the fill and Bay Mud is 3,000 and 1,500 psf, respectively.
4. Neglect upper 6-inches unless concrete or asphalt surfacing exists adjacent to foundation.
5. Equivalent Fluid Pressure, not to exceed 2,000 psf.

We observed a highly deteriorated layer of plastic underlying the existing concrete slab followed by an approximate 6-inch layer of sand. Presumably, this section acted as the original vapor barrier when the structure was originally constructed, however based on our observations we cannot confirm its effectiveness of inhibiting moisture intrusion through the concrete slab.

Current construction practices utilize water-based adhesives to attach flooring to a concrete slab. Any water that may infiltrate through the concrete slab may de-laminate flooring tiles attached with a water based adhesive. Therefore, to improve the performance of the flooring, we recommend a water sealant be applied to the concrete slab prior to placing a water based adhesive. Consultation with the flooring manufacturer is recommended.

Subsurface Structures

We understand a subsurface 1,500 gallon grease interceptor will be constructed on-site. The walls of the interceptor should be designed to resist the lateral soil and hydrostatic pressures given below on Table E.

TABLE E
Lateral Earth Pressures
Fairfax Grocery Store Improvements
Fairfax, California

Restrained Earth Pressure Pressure[1,2]:	60 pcf
Lateral Passive Resistance:	200 pcf
Hydrostatic Pressure[1,3]:	63 pcf
Earthquake Surcharge [3,4]:	11 x H psf

Notes:
1. Equivalent Fluid Pressure, assumes small rotation can occur at the top of the wall.
2. Assumes rotation cannot occur at the top of the wall.
3. Assume water level begins 5-feet below the ground surface. Hydrostatic pressure may be neglected if subsurface drainage is provided.
4. Rectangular Pressure Distribution. H = wall height in feet.
5. Resultant force acts at a distance of 0.6 * H feet above the base. The factor of safety for short-term seismic conditions can be reduced to 1.0 or greater.

Asphalt Pavement Recommendations

Reportedly, the asphalt parking lot was constructed approximately 20 to 30-years ago. Currently, the asphalt is in poor condition with significant cracking and areas of significant wear. We understand the pavement will be improved as part of the grocery store improvements project. Various options to repair the parking lot are described below:

Option 1 – Slurry/Chip Seal: The parking lot may be overlain with a layer of slurry or chip seal. This is the least costly of the options that will effectively cover the existing cracks in the pavement. However, the slurry seal will not add structural strength to the existing pavement section. Additionally, this option will not allow for any site grading that may be required to improve the drainage conditions. The failed pavement areas should be re-constructed prior to applying the slurry seal. The addition of a slurry/chip seal is not a long term mitigation, cracks may occur within a couple of years after construction.

Option 2 – Asphalt Overlay: The existing asphalt parking lot may be overlaid to improve its current performance. The overlay will consist of grinding the upper 2-inches of existing asphalt and replacing with new asphalt. Localized complete removal of asphalt will be required in areas that have experienced severe cracking.

This option will slightly improve the performance of the parking lot. However, reflection cracking may still surface over time. To further improve performance, a pavement fabric such as Glassgrid may be placed prior to the new asphalt. The glass grid will reduce the amount of reflection cracks that will form.

Option 3 – New Asphalt Section: The most robust option is to completely replace the existing asphalt section. Typically, asphalt pavement sections are designed utilizing two variable, the R-

Value (a measure of the subgrade resistance) and the Traffic Index (a measure of the amount of daily traffic). We back calculated the existing pavement section based on the R-Value results and determined the existing pavement section is rated for a traffic index of 5.0. Typically auto parking stalls should have a minimum Traffic Index (TI) of 5.0 and the drive aisles and loading docks should be designed with a minimum TI of 6.0 or 7.0.

We have calculated pavement sections for the project site in accordance with Caltrans procedures for flexible pavement design utilizing various TI's. The results of the R-Value test indicate the subgrade soils may be designed with an R-Value of 13. However, due to variable fill materials, a design R-Value of 10 was utilized to develop pavement design sections. Additionally, based on Caltrans[1] recommendations placing a biaxial geogrid (i.e., Tensar BX 1200, or approved equivalent) on a properly prepared subgrade the R-Value of the subgrade may be increased to 20. The resulting supplemental pavement sections are presented on Table A below.

TABLE A
ASPHALT PAVEMENT SECTION
Fairfax Grocery
Fairfax, California

			Biaxial Geogrid Included	
T.I.	Asphalt Concrete	Aggregate Base Rock	Asphalt Concrete	Aggregate Base Rock
5.0	3.0 inches	9.0 inches	3.0 inches	8.0 inches
6.0	3.5 inches	12.0 inches	3.5 inches	10.0 inches
7.0	4.0 inches	15.0 inches	4.0 inches	12.0 inches

To thin the asphalt section, the 1-inch of asphalt equals 2-inches of aggregate baserock rule may be applied. For example 3-inches of asphalt over 9-inches of aggregated baserock (total thickness of 12-inches) may be reduced to 5-inches of asphalt over 5-inches of aggregate baserock (total thickness of 10-inches).

The Aggregate Base should conform to Caltrans Class 2 Aggregate Base, Section 26 of the Caltrans Standard Specifications. The base rock shall be placed in layers on a properly prepared and firm and unyielding subgrade as described in the previously discussed grading recommendations. The Class 2 Aggregate Base Rock shall be compacted to at least 95 percent relative compaction. Additionally, the Class 2 Aggregate Base section should be firm and unyielding under heavy construction equipment.

[1] California Department of Transportation, "Guide for designing Subgrade Enhancement Geotextiles," April 28, 2009

Supplemental Geotechnical Services

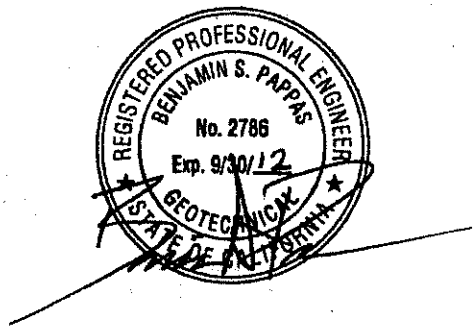
We must review the plans and specifications for the project when they are nearing completion to confirm that the intent of our geotechnical recommendations has been incorporated and provide supplemental recommendations, if needed.

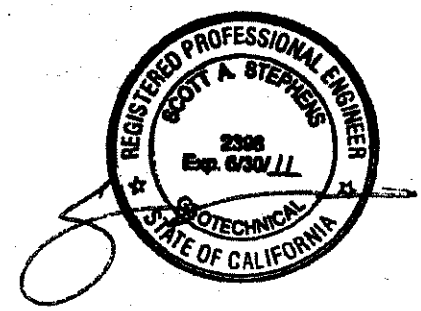
During construction, we need to observe and/or test site preparation and grading. We also need to observe foundation excavations for the structures and associated improvements to confirm that the soils encountered during construction are consistent with the design criteria.

We hope this addresses your concerns at this time. Please do not hesitate to contact us with any questions or concerns.

Very truly yours,
MILLER PACIFIC ENGINEERING GROUP

REVIEWED BY





Benjamin S. Pappas
Geotechnical Engineer No. 2786
(Expires 9/30/12)

Scott Stephens
Geotechnical Engineer No. 2398
(Expires 6/30/11)

2 copies submitted

Attachments: Figures 1 through 5

cc: Mike Brown, Brown & Brown Construction
(3 copies)

SITE LOCATION

SCALE

0 1000 2000 4000 FEET

0 500 1000 METERS

NORTH

REFERENCE: DeLorme 3D TopoQuads, 1999

Miller Pacific ENGINEERING GROUP	504 Redwood Blvd. Suite 220 Novato, CA 94947 T 415 / 382-3444 F 415 / 382-3450 www.millerpac.com	SITE LOCATION MAP	1 FIGURE
FILE: 1680.01 SLM.dwg		Fairfax Grocery Improvements Fairfax, California Project No. 1680.01 Date: 10/29/10	Drawn JSC Checked

Boring performed by MPEG, October 2010

Boring performed by Anderson & Assoc, Inc., December 2007

NORTH

Ref: Google Earth, imagery date October, 2009.

Miller Pacific ENGINEERING GROUP	504 Redwood Blvd. Suite 220 Novato, CA 94947 T 415 / 382-3444 F 415 / 382-3450 www.millerpac.com	SITE PLAN		
		Fairfax Grocery Improvements Fairfax, California	Drawn JSC Checked	2 FIGURE
		Project No. 1680.01 Date: 10/29/10		

FILE: 1680 01.dwg

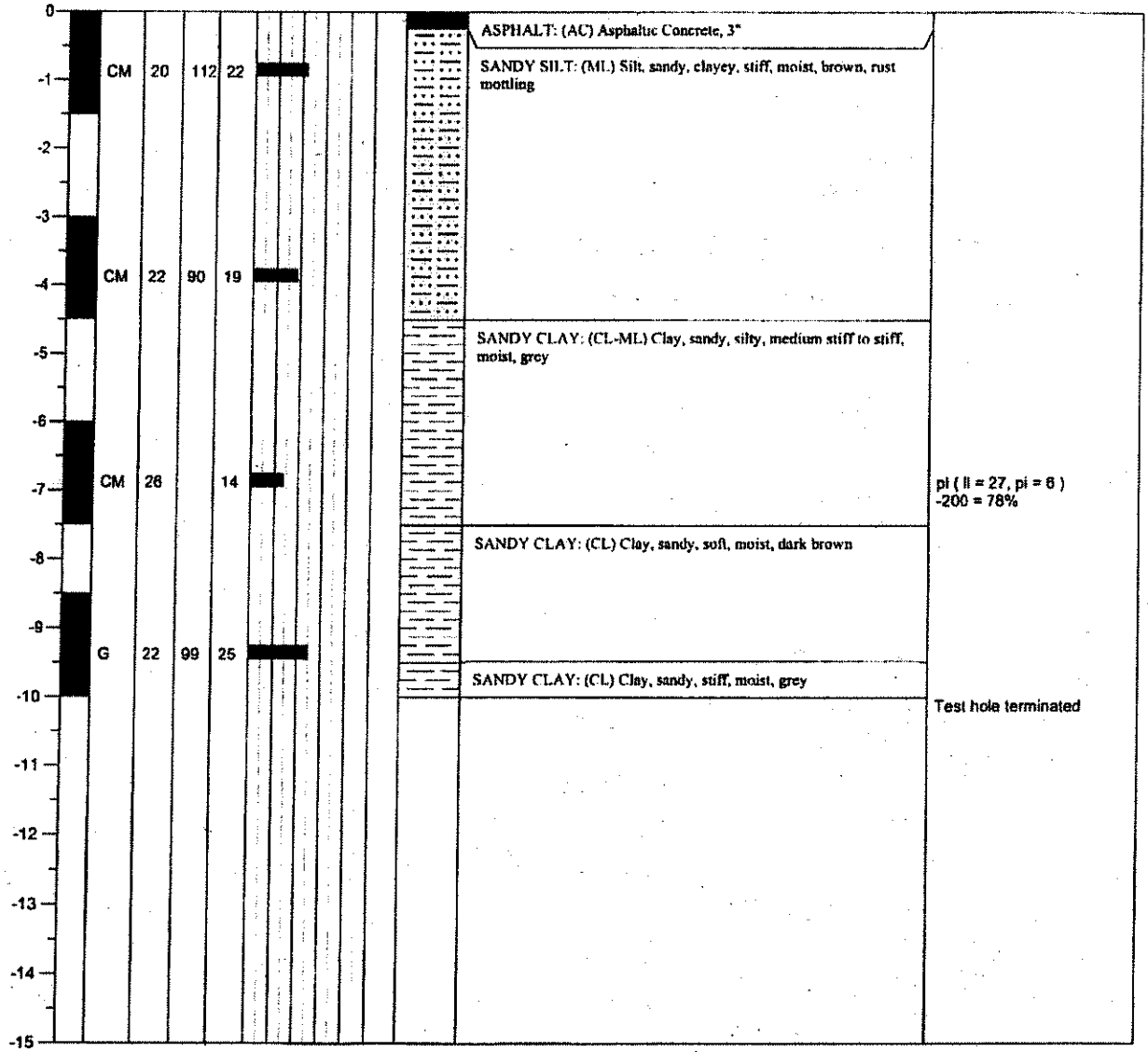
Neil O. Anderson & Assoc., Inc. 1190 Burnett Ave, Suite A, Concord, CA 94520 (925)609-7224 Fax (925)609-6324	**LOG OF TEST BORING**	BOREHOLE NUMBER **B1**

PROJECT NUMBER: WGG0051 — DATE DRILLED: 12/28/07

PROJECT NAME: FAIR-ANSELM PROPERTY — GROUND SURFACE ELEVATION: 0.0 Feet

LOCATION: CENTER ROAD, FAIRFAX, CA

DRILLING EQUIP.: B-24 TRUCK MOUNTED DRILL RIG — **PLATE NO. 2**



Miller Pacific ENGINEERING GROUP	504 Redwood Blvd. Suite 220 Novato, CA 94947 T 415 / 382-3444 F 415 / 382-3450 www millerpac.com	ANDERSON & ASSOC. BORING 1 Fairfax Grocery Improvements Fairfax, California Project No. 1680.01 Date: 10/29/10	Drawn BSP Checked	3 FIGURE

FILE: 1680.01AABorings.dwg

Neil O. Anderson & Assoc., Inc.
1190 Burnett Ave, Suite A, Concord, CA 94520
(925)609-7224 Fax (925)609-6324

LOG OF TEST BORING

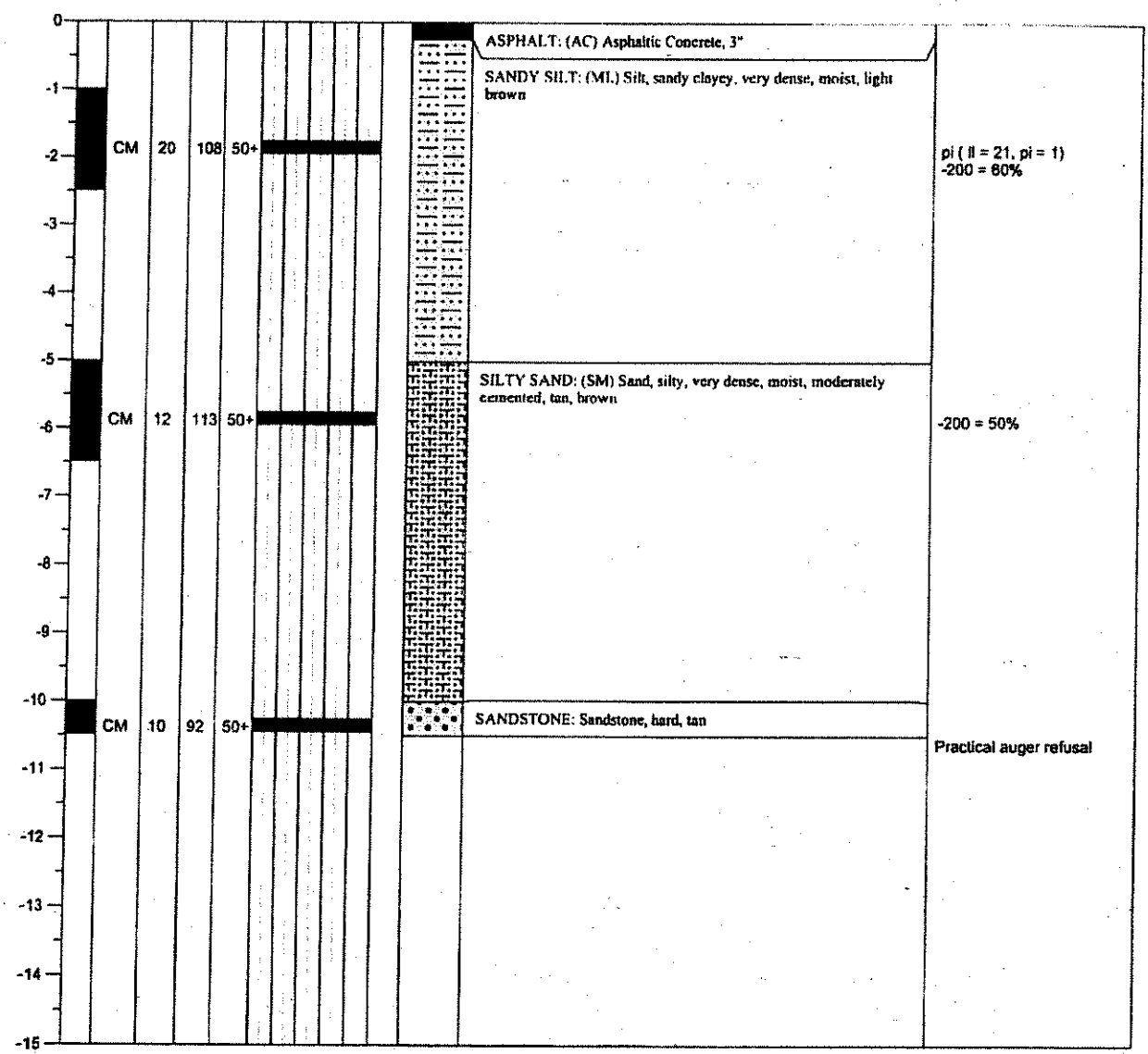
BOREHOLE NUMBER

B2

PROJECT NUMBER: WGG0051
PROJECT NAME: FAIR-ANSELM PROPERTY
LOCATION: CENTER ROAD, FAIRFAX, CA
DRILLING EQUIP.: B-24 TRUCK MOUNTED DRILL RIG

DATE DRILLED: 12/28/07
GROUND SURFACE ELEVATION: 0.0 Feet

PLATE NO. 3



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ENGINEERING GROUP

FILE: 1680.01AABorings.dwg

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ANDERSON & ASSOC. BORING 2

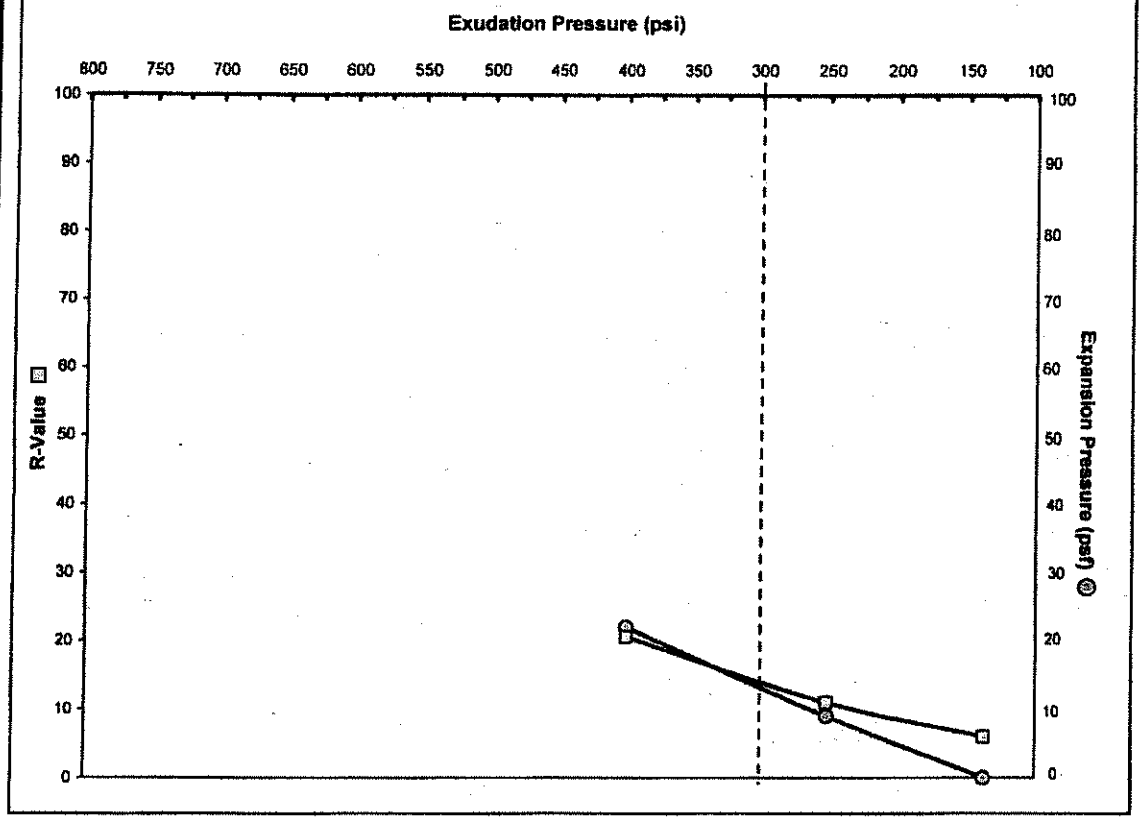
Fairfax Grocery Improvements
Fairfax, California

Drawn BSP
Checked

Project No. 1680.01 Date: 10/29/10

4
FIGURE

R-VALUE TEST REPORT



Test Data & Conditions for Each Point		Wet Weight, gm:		668.7, 694.3, 549.6		Total Weight, gm:		3119.0, 3085.0, 3067.0	
		Dry Weight, gm:		582.2, 610.0, 488.7		Mold Weight, gm:		1971.0, 1965.0, 1956.0	
		Tare Weight, gm:		101.8, 103.2, 102.5		Exudate Load (lbs.):		1730, 3160, 5030	
Test Point	Moisture %	Density pcf	Sample Ht. in.	Horizontal Pres. @ 160 psi	Compaction Pressure	Expansion Pressures	Exudation Pressure	R Value	R-Value (corrected)
1	18.0	110.5	2.67	140	100 psi	0 psf	138 psi	6	6
2	16.6	112.8	2.58	130	200 psi	9 psf	251 psi	10	11
3	15.8	117.3	2.48	121	330 psi	22 psf	400 psi	21	21
Sample No.:		04176-1		Sample Description:	Brown Cayey Sand w/ Gravel (SC)		Exp.Pres. @ 300 psi		13 psf
							R Value @ 300 psi Exudate Pressure		13

Environmental Technical Services	R-VALUE TEST		Sample Source:	Plate:
	Client:	Miller Pacific Engineering Group 504 Redwood Blvd., #220, Novato, CA	Albertson's Supermarket	1
	Location/Job:	Albertson's Supermarket, Fairfax, CA	Sample Type:	
	Project No.: 1680.01	Date: 8/26/10	TP-1-4 @ 1-3'	

Miller Pacific ENGINEERING GROUP	504 Redwood Blvd. Suite 220 Novato, CA 94947 T 415 / 382-3444 F 415 / 382-3450 www.millerpac.com	R-VALUE TEST RESULTS		
		Fairfax Grocery Improvements Fairfax, California	Drawn BSP Checked	5 FIGURE
		Project No. 1680.01 Date: 11/03/10		

FILE: 1680 01R-Value.dwg

BUILDING ENERGY ANALYSIS REPORT / TITLE 24

PROJECT:

Good Earth Natural Foods
720 Center Blvd.
Fairfax, CA

Report Prepared by:

David L. Morgan
Red Tape Express
6015 Bear Creek Court
Elk Grove, CA 95758
(916) 690-0312

Job Number:

LED211A1

Date:

4/17/2011

The EnergyPro computer program has been used to perform the calculations summarized in this compliance report. This program has approval and is authorized by the California Energy Commission for use with both the Residential and Nonresidential 2008 Building Energy Efficiency Standards.

This program developed by EnergySoft, LLC – www.energysoft.com.

TABLE OF CONTENTS

DELCON
Heating - Air Conditioning Inc.
52 Wright Brothers Avenue, Livermore, California 94551-9496
Telephone: (408) 436-8880 Fax (408) 436-8302
Contractors License No. 493271

CDM
444 Airport Blvd Ste 203
Watsonville, CA 95076

RE: Title 24 Standards

ATN: John Fry

We are sending this notice to inform you that our Design of the Mechanical HVAC System for Good Earth Market, located in Fairfax, California, will be in accordance with SMACNA standards, as well as California Title 24 standards. All work shall be completed in accordance with all applicable government and local codes.

Thank you,

David L. Chavez
President

CERTIFICATE OF COMPLIANCE (Part 1 of 4) LTG-1C

Project Name			Date
Good Earth Natural Foods			*4/17/2011*
Project Address	**Climate Zone**	**Total Cond. Floor Area**	**Unconditioned Floor Area**
720 Center Blvd. Fairfax	*2*	*22,848*	*0*

GENERAL INFORMATION

Building Type:	☑ Nonresidential	☐ High-Rise Residential	☐ Hotel/Motel Guest Room	
☐ School	☐ Relocatable Public School	☑ Conditioned Spaces	☐ Unconditioned Spaces	
Phase of Construction:	☑ New Construction	☐ Addition	☐ Alteration	
Method of Compliance:	☑ Complete Building	☐ Area Category	☐ Tailored	

Documentation Author's Declaration Statement

I certify that this Certificate of Compliance documentation is accurate and complete.

Name: *David L. Morgan*	Signature:
Company: *Red Tape Express*	Date: *4/17/2011*
Address: *6015 Bear Creek Court*	CEA # / CEPE #
City/State/Zip: *Elk Grove, CA 95758*	Phone: *(916) 690-0312*

The Principal Lighting Designer's Declaration Statement

- I am eligible under Division 3 of the California Business and Professional Code to accept responsibility for the lighting design.
- This Certificate of Compliance identifies the lighting features and performance specifications required for compliance with Title 24, Pages 1 and 6 of the California Code of Regulations.
- The design features represented on this Certificate of Compliance are consistent with the information provided to document this design on the other applicable compliance forms, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Name	Signature
Company	Phone
Address	License #
City/State/Zip	Date

Lighting Mandatory Measures
Indicate location on building plans of Mandatory Measures Note Block: **See Electrical Drawings**

LIGHTING COMPLIANCE FORMS & WORKSHEETS (check box if worksheets is included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms; please refer to the Nonresidential Manual published by the California Energy Commission.

☑	LTG-1C Pages 1 through 4	Certificate of Compliance. All Pages required on plans for all submittals.
☑	LTG-2C	Lighting Controls Credit Worksheet
☑	LTG-3C	Indoor Lighting Power Allowance
☐	LTG-4C Pages 1 through 4	Tailored Method Worksheet
☐	LTG-5C Pages 1 and 2	Line Voltage Track Lighting Worksheet

CERTIFICATE OF COMPLIANCE (Part 2 of 4) LTG-1C

Project Name: *Good Earth Natural Foods*

Date: *4/17/2011*

INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Installation Certificate, LTG-1- INST (Retain a copy and verify form is completed and signed.) **Field Inspector** ☐

Certificate of Acceptance, LTG-2A and LTG-3A (Retain a copy and verify form is completed and signed.) **Field Inspector** ☐

A separate Lighting Schedule Must Be Filled Out for Conditioned and Unconditioned Spaces Installed Lighting Power listed on this Lighting Schedule is only for:

☑ **CONDITIONED SPACE** ☐ **UNCONDITIONED SPACE**

☑ The actual indoor lighting power listed below includes all installed permanent and portable lighting systems in accordance with §146(a).

☑ Only for offices: Up to the first 0.2 watts per square foot of portable lighting shall not be required to be included in the calculation of actual indoor lighting power density in accordance with the Exception to §146(a). All portable lighting in excess of 0.2 watts per square foot is totaled below.

	Luminaire (Type, Lamps, Ballasts)	Installed Watts						
A	B	C	D	E		F	G	H
				How wattage Was determined				Field Inspector[2]
None or Item Tag	Complete Luminaire Description[1] (i.e, 3 lamp fluorescent troffer, F32T8, one dimmable electronic ballasts)		Watts per Luminaire[1]	CEC Default From NA8	According To §130 (d or e)	Number of Luminaires	Installed Watts (D X F)	Pass / Fail
A	*(4) 4 ft Fluorescent T8 Rapid Start Elec*		*118.0*	☑	☐	*17*	*2,006*	☐ ☐
B	*12 - LEDS*		*14.0*	☑	☐	*100*	*1,400*	☐ ☐
C	*45w per ft Track Light*		*45.0*	☑	☐	*121*	*5,445*	☐ ☐
D	*45w per ft Track Light*		*45.0*	☑	☐	*90*	*4,050*	☐ ☐
F	*45w per ft Track Light*		*45.0*	☑	☐	*214*	*9,630*	☐ ☐
G	*45w per ft Track Light*		*45.0*	☑	☐	*44*	*1,980*	☐ ☐
H	*(3) 4 ft Fluorescent T8 Rapid Start Elec*		*89.0*	☑	☐	*17*	*1,513*	☐ ☐
I	*(4) 4 ft Fluorescent T8 Rapid Start Elec*		*118.0*	☑	☐	*14*	*1,652*	☐ ☐
I1	*(2) 4 ft Fluorescent T8 Rapid Start Elec*		*59.0*	☑	☐	*3*	*177*	☐ ☐
J	*(1) 26w Compact Fluorescent*		*28.0*	☑	☐	*16*	*448*	☐ ☐
K	*(2) 40w Compact Fluorescent*		*76.0*	☑	☐	*6*	*456*	☐ ☐
L	*(2) 2 ft U-Tube T8 Elec*		*59.0*	☑	☐	*1*	*59*	☐ ☐
M	*(4) 26w Compact Fluorescent*		*112.0*	☑	☐	*4*	*448*	☐ ☐
N	*(1) 26w Compact Fluorescent*		*28.0*	☑	☐	*4*	*112*	☐ ☐
O	*(2) 4 ft Fluorescent T8 Rapid Start Elec*		*59.0*	☑	☐	*2*	*118*	☐ ☐
P	*(4) 26w Compact Fluorescent*		*112.0*	☑	☐	*1*	*112*	☐ ☐
R	*(2) 4 ft Fluorescent T8 Rapid Start Elec*		*59.0*	☑	☐	*21*	*1,239*	☐ ☐
S	*(3) 4 ft Fluorescent T8 Rapid Start Elec*		*89.0*	☑	☐	*9*	*801*	☐ ☐
Z	*1200 watt Decorative Lighting by Owner*		*1,200.0*	☑	☐	*1*	*1,200*	☐ ☐
				☐	☐			☐ ☐
						Installed Watts Page Total:	*32,846*	

Building total number of pages: _____

Installed Watts Building Total (Sum of all pages) *32,846*

Enter into LTG-1C Page 4 of 4

1. Wattage shall be determined according to Section 130 (d and e). Wattage shall be rating of light fixture, not rating of bulb.
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

Project Name	Date
Good Earth Natural Foods	*4/17/2011*

INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Fill in controls for all spaces: a) area controls, b) multi-level controls, c) manual daylighting controls for daylit areas > 250 ft^2, automatic daylighting controls for daylit areas > 2,500 ft^2, d) shut-off controls, e) display lighting controls, f) tailored lighting controls – general lighting controlled separately from display, ornamental and display case lighting and g) demand responsive automatic controls for retail stores > 50,000 ft^2, in accordance with Section 131.

MANDATORY LIGHTING CONTROLS – FIELD INSPECTION ENERGY CHECKLIST

Type/ Description	Number of Units	Location in Building	Special Features	Field Inspector Pass	Field Inspector Fail
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐

SPECIAL FEATURES INSPECTION CHECKLIST (See Page 2 of 4 of LTG-1C)

The local enforcement agency should pay special attention to the items specified in this checklist. These items require special written justification and documentation, and special verification. The local enforcement agency determines the adequacy of the justification, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation submitted.

Field Inspector's Notes or Discrepancies:

CERTIFICATE OF COMPLIANCE (Part 4 of 4) LTG-1C

Project Name	Date
Good Earth Natural Foods	*4/17/2011*

CONDITIONED AND UNCONDITIONED SPACE LIGHTING MUST NOT BE COMBINED FOR COMPLIANCE

Indoor Lighting Power for Conditioned Spaces		Watts	Indoor Lighting Power for Unconditioned Spaces		Watts
Installed Lighting (from Conditioned LTG-1C, Page 2)		*32,846*	**Installed** Lighting (from Unconditioned LTG-1C, Page 2)		*0*
Lighting Control Credit Conditioned Spaces (from LTG-2C)	-	*0*	Lighting Control Credit Unconditioned Spaces (from LTG-2C)	-	*0*
Adjusted **Installed** Lighting Power	=	*32,846*	Adjusted **Installed** Lighting Power	=	*0*
Complies if **Installed ≤ Allowed**		↕	Complies if **Installed ≤ Allowed**		↕
Allowed Lighting Power Conditioned Spaces (from LTG-3C or PERF-1)		*34,272*	**Allowed** Lighting Power Unconditioned Spaces (from LTG-3C)		*0*

Required Acceptance Tests

Designer:

This form is to be used by the designer and attached to the plans. Listed below is the acceptance test for the Lighting system, **LTG-2A and LTG-3A**. The designer is required to check the acceptance tests and list all control devices serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance. If all the lighting system or control of a certain type requires a test, list the different lighting and the number of systems. The NA7 Section in the Appendix of the Nonresidential Reference Appendices Manual describes the test. Since this form will be part of the plans, completion of this section will allow the responsible party to budget for the scope of work appropriately. **Forms can be grouped by type of Luminaire controlled.**

Enforcement Agency:

Systems Acceptance. Before Occupancy Permit is granted for a newly constructed building or space or when ever new lighting system with controls is installed in the building or space shall be certified as meeting the Acceptance Requirements.
The **LTG-2A and LTG-3A** forms are not considered complete forms and are not to be accepted by the enforcement agency unless the boxes are checked and/or filled and signed. In addition, a Certificate of Acceptance forms shall be submitted to the enforcement agency that certifies plans, specifications, installation certificates, and operating and maintenance information meet the requirements of §10-103(b) of Title 24 Part 6. The field inspector must receive the properly filled out and signed forms before the building can receive final occupancy. A copy of the **LTG-2A and LTG-3A** for each different lighting luminaire control(s) must be provided to the owner of the building for their records.

Luminaires Controlled				LTG-2A and LTG-3A
Equipment Requiring Testing	Description	Number of Luminaires controlled	Location	Controls and Sensors and Automatic Daylighting Controls Acceptance
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐
				☐

INDOOR LIGHTING POWER ALLOWANCE — LTG-3C

Project Name: *Good Earth Natural Foods*

Date: *4/17/2011*

ALLOWED LIGHTING POWER (Chose One Method)

A Separate LTG-3C must be filled out for Conditioned and Unconditioned Spaces. Indoor Lighting Power Allowances listed on this page are only for:

☑ CONDITIONED SPACES ☐ UNCONDITIONED SPACES

COMPLETE BUILDING METHOD

BUILDING CATEGORY (From §146 Table 146-E)	WATTS PER (ft^2)	X	COMPLETE BLDG. AREA	=	ALLOWED WATTS
Comp Bldg Grocery	*1.50*		*22,848*		*34,272*
	TOTALS		AREA		WATTS

AREA CATEGORY METHOD

BUILDING CATEGORY (From §146 Table 146-F)	WATTS PER (ft^2)	X	Area ft^2	=	ALLOWED WATTS
	TOTALS		AREA		WATTS

TAILORED METHOD

Total Allowed Watts using the Tailored Method taken from LTG-4C (Page 1 of 4) Row 3	

The indoor lighting power allowance using the Tailored Method of compliance shall be determined using the LTG-4C set of forms. A separate set of LTG-4C forms shall be filled out for CONDITIONED and UNCONDITIONED spaces

LIGHTING MANDATORY MEASURES: NONRESIDENTIAL — LTG-MM

Project Name	Date
Good Earth Natural Foods	*4/17/2011*

Indoor Lighting Measures:

§131(d):	**Shut-off Controls**
1.	For every floor, all interior lighting systems shall be equipped with a separate automatic control to shut off the lighting. This automatic control shall meet the requirements of Section 119 and may be an occupancy sensor, automatic time switch, or other device capable of automatically shutting off the lighting.
2.	Override for Building Lighting Shut-off: The automatic building shut-off system is provided with a manual, accessible override switch in sight of the lights. The area of override is not to exceed 5,000 square feet.
§119(h):	Automatic Control Devices Certified: All automatic control devices specified are certified, all alternate equipment shall be certified and installed as directed by the manufacturer.
§111:	Fluorescent Ballast and Luminaires Certified: All fluorescent fixtures specified for the project are certified and listed in the Directory. All installed fixtures shall be certified.
§131(a):	Individual Room/Area Controls: Each room and area in this building is equipped with a separate switch or occupancy sensor device for each area with floor-to-ceiling walls.
§131(b):	Uniform Reduction for Individual Rooms: All rooms and areas greater than 100 square feet and more than 0.8 watts per square foot of lighting load shall be controlled with bi-level switching for uniform reduction of lighting within the room.
§131(c):	Daylight Area Control: All rooms with windows and skylights that are greater than 250 square feet and that allow for the effective use of daylight in the area shall have 50% of the lamps in each daylit area controlled by a separate switch; or the effective use of daylight cannot be accomplished because the windows are continuously shaded by a building on the adjacent lot. Diagram of shading during different times of the year is included on plans.
§131(c):	Display Lighting. Display lighting shall be separately switched on circuits that are 20 amps or less.6.

Outdoor Lighting Measures:

§130(c)1:	Mandatory lighting power determination for medium base sockets without permanently installed ballasts
§132(a):	All permanently installed luminaires with lamps rated over 100 Watts either have a lamp efficacy of at least 60 lumens per Watt or are controlled by a motion sensor.
§132(b):	All Luminaires with lamps rated greater than 175 Watts in hardscape area, including parking lots, building entrances, canopies, and all outdoor sales areas meet the Cutoff Requirements.
§132(c)1:	All permanently installed outdoor lighting meets the control requirements listed.
§132(c):	Building facades, parking lots, garages, canopies, and outdoor sales areas meet the Multi-Level Lighting Requirements listed.

CERTIFICATE OF COMPLIANCE (Part 1 of 4) OLTG-1C

Project Name	Date
Good Earth Natural Foods	*4/17/2011*
Project Address	**Total Illuminated Area**
720 Center Blvd. Fairfax, CA	*59,159*

GENERAL INFORMATION

Phase of Construction: ☑ New Construction ☐ Addition ☐ Alteration

Documentation Author's Declaration Statement

I certify that this Certificate of Compliance documentation is accurate and complete.

Name: *David L. Morgan*	Signature:
Company: *Red Tape Express*	Date: *4/17/2011*
Address: *6015 Bear Creek Court*	CEA # / CEPE # CABEC
City/State/Zip: *Elk Grove, CA 95758*	Phone: *(916) 690-0312*

Principal Lighting Designer's Declaration Statement

- I am eligible under Division 3 of the California Business and Professional Code to accept responsibility for the lighting design.
- This Certificate of Compliance identifies the lighting features and performance specifications required for compliance with Title 24, Pages 1 and 6 of the California Code of Regulations.
- The design features represented on this Certificate of Compliance are consistent with the information provided to document this design on the other applicable compliance forms, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.

Name	Signature
Company	Phone
Address	License #
City/State/Zip	Date

Principal Lighting Designer's Declaration

☑ I certify that this Certificate of Compliance documentation is accurate and complete, and accounts for all outdoor lighting power, including building mounted, pole mounted, as well as all other lighting designed for the site, and that Additional Lighting Power Allowances for Specific Applications or Additional Lighting Power Allowances for Ordinance Requirements have not been counted more than one time for the same area, in accordance with Section 147 of the Standards.

Outdoor Lighting Mandatory Measures
Indicate location on building plans of Mandatory Measures Note Block: **See Electrical Drawings**

LIGHTING COMPLIANCE FORMS & WORKSHEETS (check box if worksheets is included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms; please refer to the Nonresidential Manual published by the California Energy Commission.

☑	OLTG-1C	Certificate of Compliance. All 4 pages required on plans for all submittals.
☑	OLTG-2C	(Pages 1 of 3) Lighting Wattage Allowances for General Hardscape, Sales Frontage, or Ornamental Lighting. Optional on plans.
☑	OLTG-2C	(Pages 2 of 3) Lighting Wattage Allowance for Per Application or Per Area. Optional on plans.
☐	OLTG-2C	(Pages 3 of 3) Additional Lighting Power Allowance for Ordinance Requirements. Optional on plans.

CERTIFICATE OF COMPLIANCE (Part 2 of 4) OLTG-1C

Project Name	Date
Good Earth Natural Foods	*4/17/2011*

COMPLIANCE FIXTURE / LIGHTING CONTROL SCHEDULE and FIELD INSPECTION CHECKLIST

INSTALLATION CERTIFICATE, OLTG-1INST (Retain a copy and verify form is completed and signed.) **Field Inspection** ☐

CERTIFICATE OF ACCEPTANCE, OLTG-2A (Retain a copy and verify form is completed and signed.) **Field Inspection** ☐

Luminaire Schedule			Installed Watts							
A	B	C	D	E	F		G	H	I	
Name or Item Tag	Luminaire Description[1] See footnote below (i.e.: 1 lamp pole-top shoe-box 400 watt metal halide)	Cutoff Designation	Watts per Luminaire	Special Features	How wattage was determined: Default from NA-8	How wattage was determined: According to §130 (D or E)	Number of Luminaires	Installed Watts (D X G)	Field Inspector[2]: Pass	Field Inspector[2]: Fail
AA	*150w High Pressure Sodium*		*170.0*	☐	☑	☐	*12*	*2,040*	☐	☐
BB	*(2) 150w High Pressure Sodium*		*340.0*	☐	☑	☐	*6*	*2,040*	☐	☐
Y	*150w High Pressure Sodium*		*170.0*	☐	☑	☐	*7*	*1,190*	☐	☐
U	*(2) 35w Halogen*		*70.0*	☐	☑	☐	*8*	*560*	☐	☐
V	*(2) 26w Compact Fluorescent*		*56.0*	☐	☑	☐	*7*	*392*	☐	☐
W	*(1) 26w Compact Fluorescent*		*28.0*	☐	☑	☐	*9*	*252*	☐	☐
X	*(1) 26w Compact Fluorescent*		*28.0*	☐	☑	☐	*5*	*140*	☐	☐
T	*(1) 4 ft Fluorescent T8 Rapid Start Elec*		*30.0*	☐	☑	☐	*40*	*1,200*	☐	☐
				☐	☐	☐			☐	☐
							Enter total into OLTG-1C; Page 4 of 4: Row H; Total Installed Watts:		*7,814*	

1. Type of luminaire (i.e.: post top, wall pack, surface, shoe box); for non-incandescent luminaires, indicate nominal lamp wattage and lamp type (i.e.: fluorescent, incandescent, HID); ballast type (i.e.: electronic or magnetic); number of lamps and number of ballasts per luminaire. For incandescent luminaires, the luminaire wattage listed in column D shall be the maximum relamping rated wattage on a permanent factory-installed label on the luminaire, NOT the wattage of the lamp (bulb) used, in accordance with Section 130(d or e).
2. If Fail then describe on Page 2 of the Inspection Checklist Form and take appropriate action to correct. Verify building plans if necessary.

EXEMPT LUMINAIRES **Field Inspection** ☐

Name or Symbol	Description of exempt luminaires in accordance with §147

MANDATORY CONTROLS **Field Inspection** ☐

#	Description	Location	#	Description	Location

SPECIAL FEATURES INSPECTION CHECKLIST (See Page 2 of 4 of OLTG-1C)

The local enforcement agency should pay special attention to the items specified in this checklist. These items require special written justification and documentation, and special verification. The local enforcement agency determines the adequacy of the justification, and may reject a building or design that otherwise complies based on the adequacy of the special justification and documentation submitted.

Filed Inspector Notes or Discrepancies:

CERTIFICATE OF COMPLIANCE (Part 3 of 4) OLTG-1C

Project Name	Date
Good Earth Natural Foods	*4/17/2011*

A. OUTDOOR LIGHTING ZONE

OUTDOOR LIGHTING ZONE: ☐ OLZ 1 ☐ OLZ 2 ☑ OLZ 3 ☐ OLZ 4

Is the Outdoor Lighting Zone: ☑ Default in accordance with §10-114, or ☐ Amended by JHA

Complete the information below if the default Outdoor Lighting Zone has been amended by the local jurisdiction having authority (JHA):

- ☐ The site is a government designated park, recreational area, wildlife preserve, or portion thereof, and has been designated as LZ2 or LZ3, in accordance with Table 10-114-A, because the site is contained within such a zone.
- ☐ The local jurisdiction having authority has officially adopted a change to the State Default Lighting Zone and has notified the Energy Commission by providing the materials required in §10-114(d) to the Executive Director.
- ☐ The adopted change is posted on the Energy Commission website.

B. ADDITIONAL LIGHTING POWER ALLOWANCE FOR ORDINANCE REQUIREMENTS

Are additional lighting power allowances for ordinance in Table 147-C used? ☐ Yes ☑ No

Complete the information below if additional lighting power allowances for ordinance requirements are used:

- ☐ The local jurisdiction having authority has officially adopted specific outdoor light levels, which are expressed as average or minimum footcandle levels, by following a public process that allowed for formal public notification, review, and comment about the proposed change.
- ☐ The local jurisdiction having authority which adopted specific outdoor light levels and has notified the Commission by providing the following materials required §10-114(f) to the Executive Director.

C. ACCEPTANCE FORMS

Required Acceptance Tests

Designer:

This form is to be used by the designer and attached to the plans. Listed below is the acceptance test for the Lighting system, **OLTG-2A**. The designer is required to check the acceptance tests and list all control devices serving the building or space shall be certified as meeting the Acceptance Requirements for Code Compliance. If all the lighting system or control of a certain type requires a test, list the different lighting and the number of systems. The NA7 Section in the Appendix of the Nonresidential Reference Appendices Manual describes the test. Since this form will be part of the plans, completion of this section will allow the responsible party to budget for the scope of work appropriately. **Forms can be grouped by type of Luminaire controlled.**

Enforcement Agency:

Systems Acceptance. Before Occupancy Permit is granted for a newly constructed building or space or when ever new lighting system with controls is installed in the building or space shall be certified as meeting the Acceptance Requirements.
The **OLTG-2A** form is not considered a complete form and is not to be accepted by the enforcement agency unless the boxes are checked and/or filled and signed. In addition, a Certificate of Acceptance forms shall be submitted to the enforcement agency that certifies plans, specifications, installation certificates, and operating and maintenance information meet the requirements of §10-103(b) of Title 24 Part 6. The field inspector must receive the properly filled out and signed forms before the building can receive final occupancy. A copy of the **OLTG-2A** for each different lighting luminaire control(s) must be provided to the owner of the building for their records.

Certificate of Acceptance

	Luminaires Controlled			OLTG-2A[1]
Equipment Requiring Testing	Description	Qty. of Like Controls	Location	Outdoor Lighting Acceptance Tests

1. Insert: **OMS** for Outdoor Motion Sensor; **OLSC** for Outdoor Lighting Shutoff Controls; **OP** for Outdoor Photocontrol; **ATS** for Astronomical Time Switch; and, **STS** for Standard (non-astronomical) Time Switch acceptance.

CERTIFICATE OF COMPLIANCE (Part 4 of 4) OLTG-1C

Project Name	Date
Good Earth Natural Foods	*4/17/2011*

ALLOWED AND INSTALLED OUTDOOR LIGHTING POWER

		Lighting Wattage Power Allowance
A	Lighting power allowance for general hardscape (from OLTG-2C Page 1 of 3)	*8,023*
B	Specific application lighting wattage allowance per unit length (from OLTG-2C Page 1 of 3)	*0*
C	Specific application lighting wattage allowance for ornamental lighting (from OLTG-2C Page 1 of 3)	*0*
D	Specific application lighting wattage allowance per application (from OLTG-2C Page 2 of 3)	*0*
E	Specific application lighting wattage allowance per area (from OLTG-2C Page 2 of 3)	*1,256*
F	Specific application lighting wattage allowance for ordinance requirements (from OLTG-2C Page 3 of 3)	*0*
G	Total Allowed Wattage = Sum of rows A through F:	*9,279*
H	Total installed watts (from Compliance Fixture Schedule, (from OLTG-2C Page 1 of 3)	*7,814*

Complies if wattage in row H is less than or equal to the wattages in row G	☑ Yes	☐ No

OUTDOOR LIGHTING WORKSHEET

(Part 1 of 3) **OLTG-2C**

Project Name: *Good Earth Natural Foods*

Date: *4/17/2011*

A. LIGHTING POWER ALLOWANCE FOR GENERAL HARDSCAPE

AREA WATTAGE ALLOWANCE (AWA)			LINEAR WATTAGE ALLOWANCE (LWA)			INITIAL WATTAGE ALLOWANCE	TOTAL GENERAL HARDSCAPE LIGHTING ALLOWANCE
A	B	C	D	E	F	G	H
Illuminated Hardscape Area	AWA Per Square Foot	AWA (A X B)	Perimeter Length of General Hardscape	LWA Per Linear Foot	LWA (D X E)	IWA (Watts)	C + F + G
50,059	*0.092*	*4,605*	*1,699*	*0.920*	*1,563*	*770*	*6,939*
4,917	*0.092*	*452*	*687*	*0.920*	*632*	*0*	*1,084*

Enter total into OLTG-1C; Page 4 of 4; Row A; Lighting Power Allowance for General Hardscape: *8,023*

☑ **Yes** **AWA, LWA, and IWA from Table 147-A was used as appropriate for the Outdoor Lighting Zone**

B. SPECIFIC APPLICATION LIGHTING WATTAGE ALLOWANCE PER UNIT LENGTH (Available only for sales frontage)

DETERMINE WATTAGE ALLOWANCE				LUMINAIRE TYPE		DESIGN WATTS			
A	B	C	D	E	F	G	H	I	J
Specific Lighting Application	Linear Foot of Frontage	Sales Frontage Allowance for OLZ (Watts per LF)	Wattage Allowance (B X C)	Name or Symbol	Luminaire Type	Lumin QTY	Watts Per Luminaire	Design Watts (G X H)	Allowed Watts Minimum of D or I

Enter total into OLTG-1C; Page 4 of 4; Row B; Specific Application Lighting Wattage Allowance Per Unit Length: *0*

C. SPECIFIC APPLICATION WATTAGE ALLOWANCE FOR ORNAMENTAL LIGHTING

DETERMINE WATTAGE ALLOWANCE				LUMINAIRE TYPE		DESIGN WATTS			
A	B	C	D	E	F	G	H	I	J
Specific Lighting Application	Square feet of Harscape	Ornamental Lighting Allowance for OLZ (Watts per ft^2)	Wattage Allowance (B X C)	Name or Symbol	Luminaire Type	Lumin QTY	Watts Per Luminaire	Design Watts (G X H)	Allowed Watts Minimum of D or I

Enter total into OLTG-1C; Page 4 of 4; Row C; Specific Application Wattage for Ornamental Lighting: *0*

OUTDOOR LIGHTING WORKSHEET (Part 2 of 3) OLTG-2C

Project Name: *Good Earth Natural Foods*

Date: *4/17/2011*

D. SPECIFIC APPLICATION LIGHTING WATTAGE ALLOWANCE PER APPLICATION

DETERMINE WATTAGE ALLOWANCE				DESIGN WATTS					ALLOWANCE
A	B	C	D	E	F	G	H	I	J
Specific Lighting Application	Number of Applications	Specific Application Allowance (watts)	Wattage Allowance (B X C)	Luminaire Symbol	Luminaire Type	Lumin QTY	Watts Per Luminaire	Design Watts (G X H)	Allowed Watts Minimum of D or I

Enter total into OLTG-1C; Page 4 of 4; Row D; Specific Application Wattage Allowance Per Application: *0*

E. SPECIFIC APPLICATION LIGHTING WATTAGE ALLOWANCE PER AREA

DETERMINE WATTAGE ALLOWANCE				LUMINAIRE TYPE		DESIGN WATTS			
A	B	C	D	E	F	G	H	I	J
Specific Lighting Application	Illuminated Area of Application	Specific Application Allowance (watts per ft^2)	Wattage Allowance (B X C)	Code for Luminaire Type	Luminaire Type	Lumin QTY	Watts Per Luminaire	Design Watts (G X H)	Allowed Watts Minimum of D or I
Dining	*723*	*0.258*	*187*	*W*	*(1) 26w Compact Fluorescent*	*2*	*28.0*	*56*	*56*
Facade @ Clearstory	*3,460*	*0.350*	*1,211*	*T*	*(1) 4 ft Fluorescent T8 Rapid Start Elec*	*40*	*30.0*	*1,200*	*1,200*

Enter total into OLTG-1C; Page 4 of 4; Row E; Specific Application Lighting Wattage Allowance Per Area: *1,256*

TRAFFIC IMPACT ANALYSIS

For

GOOD EARTH MARKET

Fairfax, California

Prepared For:

FAIRFAX CENTER PROPERTIES, LLC
P.O. Box 633
Ross, CA 94957

Prepared By:

KD Anderson & Associates, Inc.
3853 Taylor Road, Suite G
Loomis, CA 95650
(916) 660-1555

March 1, 2011

3225-01

Good Earth Market Fairfax.rpt

TRAFFIC IMPACT ANALYSIS FOR
GOOD EARTH MARKET
Fairfax, California

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March 1, 2011

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TRAFFIC IMPACT ANALYSIS FOR GOOD EARTH MARKET

Fairfax, California

INTRODUCTION

This report summarizes **KD Anderson & Associates, Inc.** analysis of the potential traffic impacts associated with development of the **Good Earth Market** proposed in Fairfax, California. As currently envisioned, the project involves relocation of the existing Good Earth Market from its current site at Sir Francis Drake Blvd / Claus Drive to a currently vacant building at Center Blvd / Pastori Avenue. The proposed project will increase the size of the store from its current 8,400 sf to a new total of 21,000 sf. Access to the new store will be via driveways on Center Blvd and Pastori Avenue. The location of the project site is presented in Figure 1, while the layout of the project site is Figure 2.

Study Scope. The purpose of this analysis is to present an assessment of potential project specific and short term cumulative traffic impacts associated with the project and to suggest feasible measures for mitigating identified impacts. The analysis includes evaluation of existing circulation conditions in the area based on current weekday a.m. and p.m. peak hour traffic. The characteristics of the proposed project have been determined in comparison to the current store operation, including estimated trip generation plus the directional distribution and assignment of project traffic. The net increase in traffic accompanying the new project has been identified, and by superimposing project trips onto existing traffic volumes, the impact of project traffic on operating conditions of streets and intersections in the area of the store have been identified.

This report also considers the impacts of the project within the context of short term future conditions. The "Adjusted Year 2016" horizon assumes adjustment to current traffic volumes to account for seasonal traffic variation and to address background growth occurring in 5 years. Future traffic volume forecasts were developed using the Marin County countywide travel demand forecasting model.

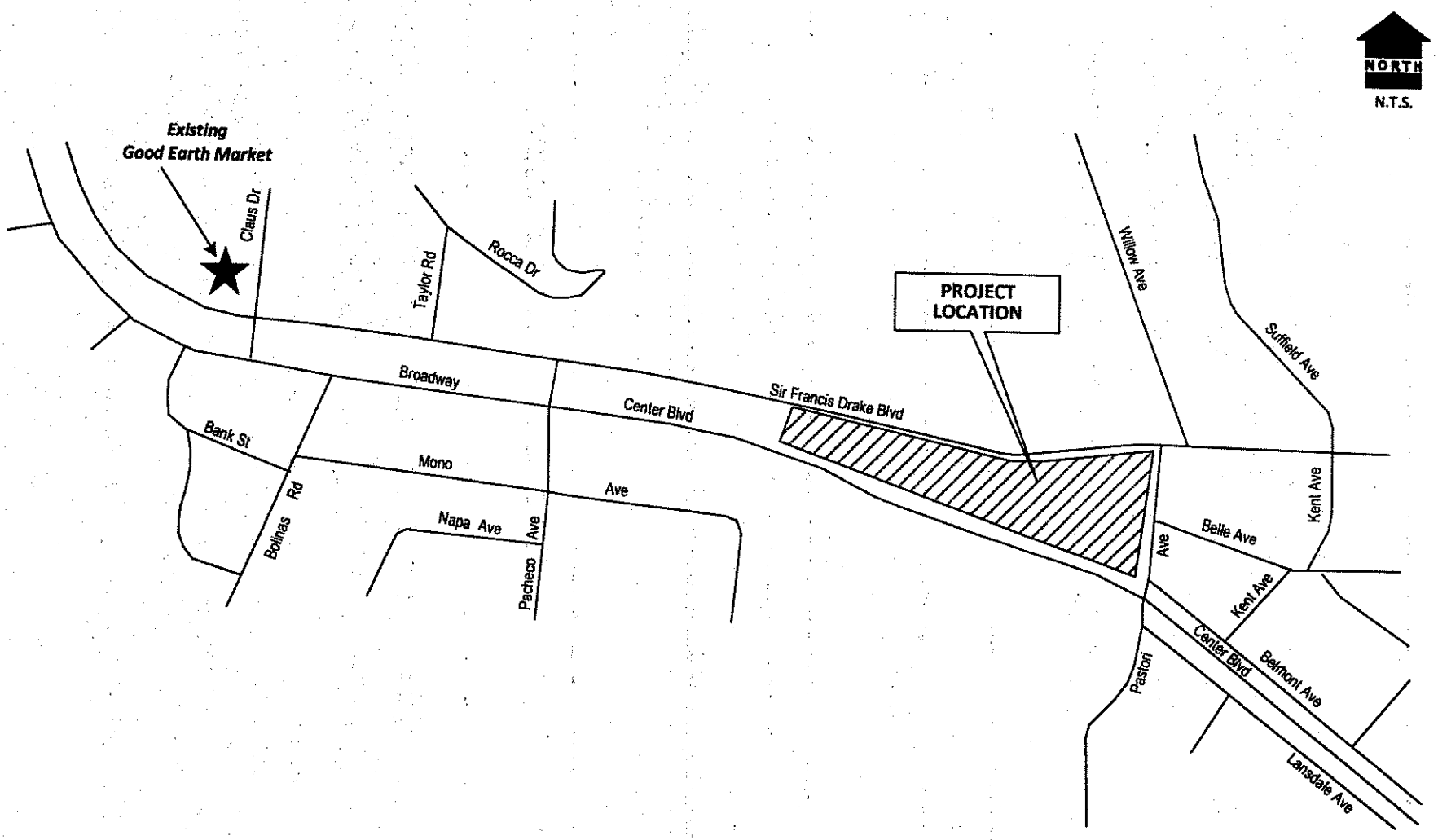
Six existing intersections and seven roadway segments were identified for investigation during the study scoping process. The study intersections include:

1. Sir Francis Drake Blvd / Claus Drive
2. Broadway / Bolinas Road
3. Sir Francis Drake Blvd / Pacheco Avenue
4. Center Blvd / Pacheco Avenue
5. Sir Francis Drake Blvd / Pastori Avenue
6. Center Blvd / Pastori Avenue

The roadway segments addressed in this report were:

1. Sir Francis Drake Blvd from Claus Drive to Pacheco Avenue
2. Sir Francis Drake Blvd from Pacheco Avenue to Pastori Avenue
3. Sir Francis Drake Blvd from Pastori Avenue to San Anselmo Avenue
4. Center Blvd from Pacheco Avenue to Pastori Avenue
5. Center Blvd from Pastori Avenue to San Anselmo Avenue
6. Pastori Avenue from Sir Francis Drake Blvd to Center Blvd

The analysis also considers the project's potential impacts to alternative transportation modes, including facilities serving pedestrians, cyclists and transit users.



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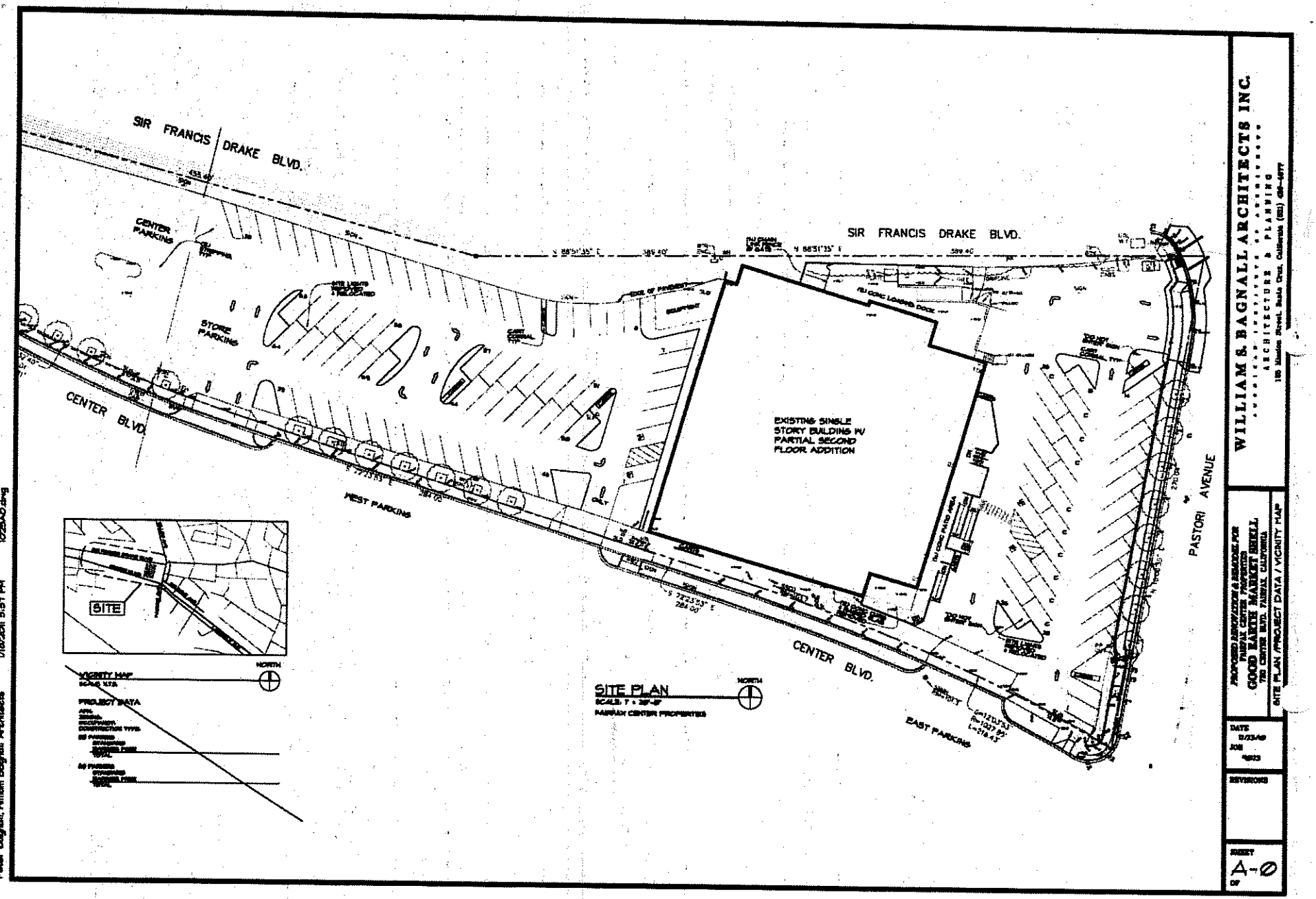
VICINITY MAP

figure 1



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SITE PLAN

figure 2

EXECUTIVE SUMMARY / RECOMMENDATIONS

Existing Conditions. Under existing conditions, the intersections on the major street system adjacent to the proposed project deliver peak hour traffic conditions that meet adopted Town of Fairfax minimum standard for Level of Service (LOS). Based on analysis of new weekday peak hour traffic counts made in January 2011, the two signalized intersections on Sir Francis Drake Blvd at Claus Drive and at Pastori Avenue operate at LOS C and LOS B, respectively. The three all-way stop controlled intersections on Center Blvd at Bolinas Road, Pacheco Avenue and Pastori Avenue operate at LOS C, C-D and B-C respectively. At the unsignalized intersection of Sir Francis Drake Blvd / Pacheco Avenue motorists waiting to turn left onto Sir Francis Drake Blvd experience long delays that are indicative of LOS F.

Traffic counts conducted in January 2011 indicated that Sir Francis Drake Blvd carries 16,215 vehicles per day east of Claus Drive, with this volume increasing to 20,460 in the area east of Pastori Avenue. The daily traffic volume on Center Blvd ranges from 9,985 between Pacheco Avenue and Pastori Avenue to 9,380 east of Pastori Avenue. Pastori Avenue carries 1,980 vehicles per day between Sir Francis Drake Blvd and Center Blvd.

Non-automotive facilities have been identified. Bicycle lanes exist on Center Blvd from Pacheco Avenue to Pastori Avenue, and these lanes are connected through the Pastori Avenue intersection to the Lansdale Avenue bicycle route. Sidewalks exist on both sides of Center Blvd west of Pastori Avenue and on Sir Francis Drake Blvd east and west (north side only) of Pastori Avenue. Today sidewalks do not exist on Pastori Avenue, but a new 5' west side sidewalk is included in the Town's CIP and will be installed by the Town as the Good Earth project proceeds.

Project Characteristics. The proposed project involves replacement of a 8,400 sf market with a 21,200 sf store. Based on data provided by the Institute of Transportation Engineers (ITE), the larger store could generate 2,811 vehicle trip ends each day, with 36% of those trips attracted to the site from the stream of traffic already passing on Sir Francis Drake or Center Blvd. While the new store would generate more traffic than the existing store, on a daily basis the larger store is only expected to add a total of 548 new daily trip ends onto Fairfax streets (i.e., 274 inbound and 274 outbound).

The Good Earth Market would continue to attract patrons from Fairfax and from neighboring Marin County communities. Based on census data for locations within the markets trade area it is expected that the store's traffic will be most heavily oriented to the east (70%).

Project Impacts Traffic Impacts. The net trips generated by this project (project trips less traffic from existing Good Earth Market) were superimposed onto the Year 2011 background condition, and "Existing plus Project" traffic conditions were identified to determine the significance of project impacts. Development of the project does not result in any new locations exceeding the Town's LOS D minimum standard.

Project Access. Motorists trying to exit by turning left from the eastern parking lot driveways

may find their route blocked by traffic queuing at adjoining intersections. The simplest corrective actions are recommended, and these include moving the Pastori Avenue driveway as far from Sir Francis Drake Blvd as is practical (i.e., 20 feet from Sir Francis Drake Blvd) and signing both of the two driveways from the east parking lot as "right turn only".

Project Impacts to Alternative Transportation Modes. The project would increase vehicular traffic through the Center Blvd / Pastori Avenue intersection in the area of the unique link between the Center Blvd bike lanes and the Lansdale Avenue bicycle route. However, the increase in traffic accompanying the project is not great enough to significantly increase automobile / bicycle conflicts.

The project will add vehicular traffic on Pastori Avenue where sidewalks do not exist. However, this deficiency will be corrected by the Town of Fairfax which will install a 5' concrete sidewalk on the west side of the street in 2011 before the new store is operational.

Existing Plus Project Mitigation Measures. The project will mitigate its immediate impacts by implementing the flowing measures:

1. Sign the two exits from the eastern parking lot as "right turn only".
2. Move the Pastori Avenue driveway as far to the south from Sir Francis Drake Blvd as is feasible (i.e., 20 feet from Sir Francis Drake Blvd).
3. Provide on-site bicycle parking facilities, including rack space for 20 bicycles. Provide a Bike Rider Rest Station, air pump, and area bike trail map as indicated on the Landscape Plan.

Adjusted Year 2016 Conditions. The volume of traffic on study area roads may increase under the Adjusted Year 2016 future condition, regardless of the development of the proposed project. The best available data suggests that "Average" traffic volumes adjusted to account for seasonal variation could be 8% higher than the volumes observed in January 2011. While comparison of year 2007 and year 2011 traffic counts suggest that recent count trends are actually downward due to the current economic climate, the Marin County regional travel demand model suggests that year 2016 volume might be 5% higher than year 2011 volumes if long term trends are realized. Adjusted Year 2016 background volumes were created by applying these two growth rates.

Two intersections would approach or exceed the limits of the Town's LOS D threshold during peak traffic hours under Adjusted Year 2016 conditions without the proposed project. The **Broadway / Center Blvd / Pacheco Avenue intersection** would reach LOS E in the p.m. peak hour, and the **Center Blvd / Pastori Avenue intersection** would reach LOS D-E. It is likely that the standard would be exceeded for a portion of the p.m. peak hour and would remain within standard for the balance of the day. Each location would require a capacity improvement such as signalization or reconstruction as a roundabout intersection in order to satisfy the minimum LOS D standard. Due to its proximity to Central Blvd, the Sir Francis Drake Blvd / Pacheco Avenue intersection would require the same control as the Center Blvd intersection.

Additional analysis, including evaluation of right of way, would be needed before traffic signals or a roundabout intersection would be recommended. Traffic signals can create their own safety issues, and may not be consistent with the character of the community.

The addition of project traffic would exacerbate the background traffic conditions forecasts for the Year 2016, and the Level of Service at each of these intersections would reach LOS F whether the existing Good Earth Market is re-used or not. The improvements required to deliver LOS D would not change.

Year 2016 Mitigation Measures. The project will mitigate its traffic impacts by completing the following mitigation measures.

4. If the Town affirms traffic signals or alternative improvement as part of its long term circulation plan, then the Good Earth Market project shall contribute its "fair share" to the cost of improving the three intersections where LOS deficiencies are projected in Year 2016. The fair share should be based on the project's traffic as a percentage of the total volume occurring in the future. The net new trips generated by the project are 4.2% of the total traffic through the Broadway / Center Blvd / Pacheco Avenue intersection under Adjusted Year 2016 condition. For example, the project should contribute 4.2% of the cost of signalizing the Pacheco Avenue intersections on Center Blvd and on Sir Francis Drake Blvd, which is estimated at roughly $500,000. Thus, the project's fair share is $21,000. The net new trips generated by the Good Earth Market project 9.1% of the total traffic through the Center Blvd / Pastori Avenue intersection under Adjusted Year 2016 condition. The cost of signalizing this intersection is roughly $250,000, making the project's share $22,750

EXISTING SETTING

This report section describes current traffic volume levels and accompanying traffic operations on the roadways and intersections within the study area.

Existing Street System

Regional access to the both the current and proposed Good Earth Market occurs via important regional roads such as Sir Francis Drake Blvd, Broadway, Center Blvd and Bolinas Avenue. Direct access to the project site occurs via Pastori Avenue and Center Blvd. The text that follows describes these facilities.

Sir Francis Drake Blvd. Sir Francis Drake Blvd is an important east-west route serving Marin County. Sir Francis Drake Blvd originates at an interchange on I-580 at the Richmond-San Rafael Bridge and continues westerly under US 101 for about 4 miles to Fairfax. Sir Francis Drake Blvd then extends another 6 miles to the west into Golden Gate National Recreation Area.

Within the Town of Fairfax Sir Francis Drake Blvd is designated a two lane Arterial street (General Plan Table C-1) with auxiliary turn lanes at major intersections. Sidewalks are available along most of the street, but sidewalk is absent on the south side of Sir Francis Drake Blvd from Pacheco Avenue to Pastori Avenue due to adjoining topography. On-street parking is permitted east of Pastori Avenue but is prohibited in the area from Pacheco Avenue to Pastori Avenue. The posted speed limit on Sir Francis Drake Blvd is 25 mph in the vicinity of the proposed project.

Broadway – Center Blvd. Broadway and Center Blvd are designated Arterial streets in the Fairfax General Plan. These streets run parallel to and south of Sir Francis Drake Blvd through Fairfax. Broadway begins on an intersection with Sir Francis Drake Blvd at the northern end of Fairfax's downtown core and continues easterly for about ½ mile to the Pacheco Avenue intersection. Center Blvd begins at that intersection, extends easterly along the project's frontage and then continues for about 1 mile beyond Pastori Avenue to the Sir Francis Drake Blvd / Red Hill Avenue intersection in San Anselmo.

In the vicinity of the proposed Good Earth Market, Center Blvd is a two lane street. This portion of Center Blvd was recently reconstructed. Sidewalks (10 to 15 feet wide) are present on both sides of the street and bike lanes (4 feet wide) are striped in both directions. On-street parking is permitted. The posted speed limit on Center Blvd is 25 mph.

Bolinas Road. Bolinas Road is designated an Arterial street in the Fairfax General Plan and links Fairfax with Highway 1. Within the downtown area Bolinas Street is a two lane street with on-street parking permitted and sidewalks are present.

Pastori Avenue. Pastori Avenue is a local street that links Sir Francis Drake Blvd with Center Blvd in eastern Fairfax. South of Center Blvd Pastori Avenue continues into the Marin Town and Country Club site.

Pastori Avenue is a two lane street along the project frontage. Sidewalks are limited to the area immediately adjoining Center Blvd, although an unpaved area on the east side of the street is available. The street is too narrow for striped bike lanes, and on-street parking is prohibited. The prima facia speed limit on Pastori Avenue is 25 mph.

Pacheco Avenue. Pacheco Avenue is a collector / local street which connects Sir Francis Drake Blvd with Broadway - Center Blvd in the area immediately west of the project site. This connection is only 40 feet long, but two lanes are provided in each direction. Pacheco Avenue continues southerly from Center Blvd into an existing residential neighborhood.

Belle Avenue. Belle Avenue is a local street that provides access to the residential area immediately east of Pastori Avenue. Belle Avenue extends east to an intersection with Kent Avenue, which in turn intersects Sir Francis Drake Blvd at a signalized intersection. Like many local streets in Fairfax, Belle Avenue is narrow, and on-street parking is permitted on only one side (north) of the street. Sidewalk also exists on the north side of the street.

Lansdale Avenue and Belmont Avenue. Lansdale Avenue and Belmont Avenue are local streets that run parallel to and are immediately adjacent to Center Blvd in the area east of Pastori Avenue. Belmont Avenue ends about 750 feet east of Pastori Avenue, but Lansdale Avenue extends into San Anselmo where the route continues as San Anselmo Avenue. Each street intersects Pastori Avenue in close proximity to Center Blvd, which requires motorists to coordinate their movement with vehicles using that major intersection. There are no sidewalks on either street, but on-street parking is permitted on one side.

Existing Daily Traffic Volumes

New 24 hour weekday traffic counts were made on study area streets in January 2011. The results of these traffic counts are noted in Table 1. Daily traffic volumes can vary from day to day, and the actual volumes are often rounded off to account for this variation. In this case, the counts have only been rounded to the nearest 5 vehicles rather than to the nearest 100 vehicles to best address the incremental change associated with the project.

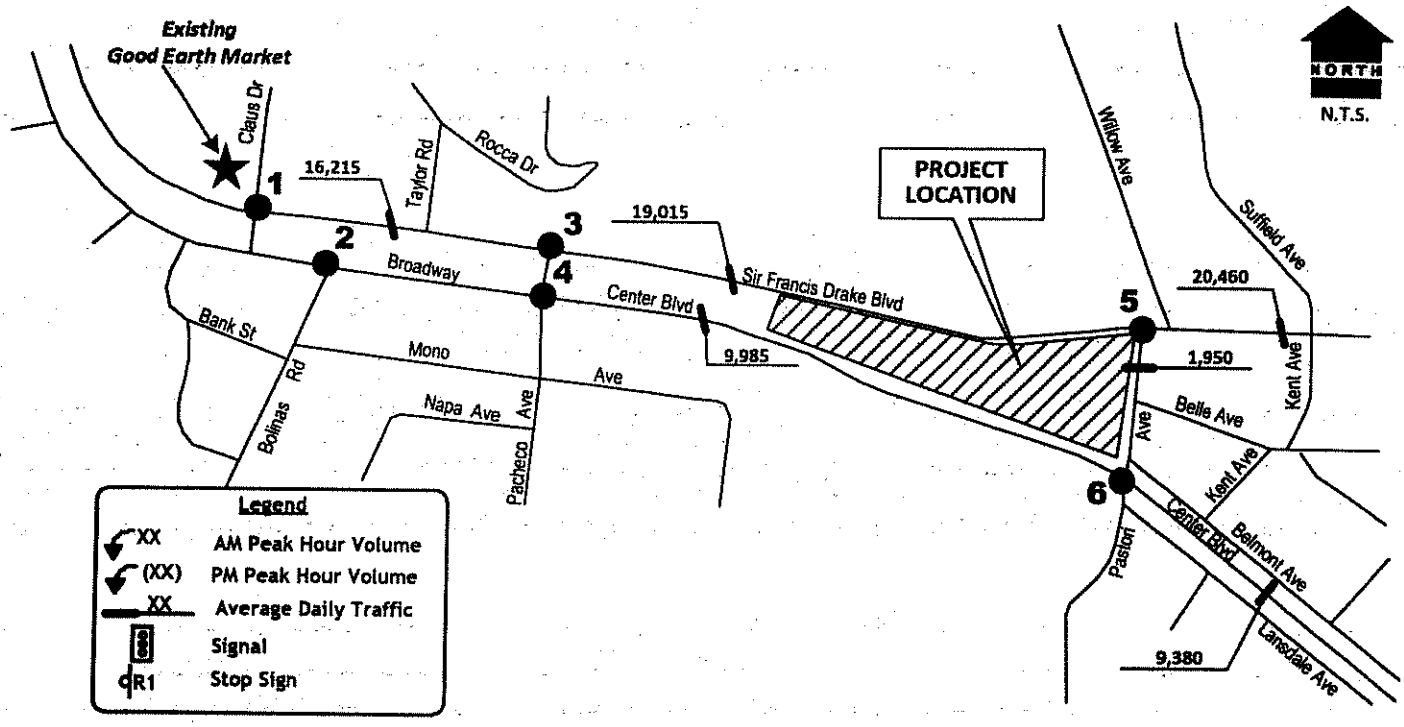
TABLE 1
DAILY TRAFFIC VOLUMES

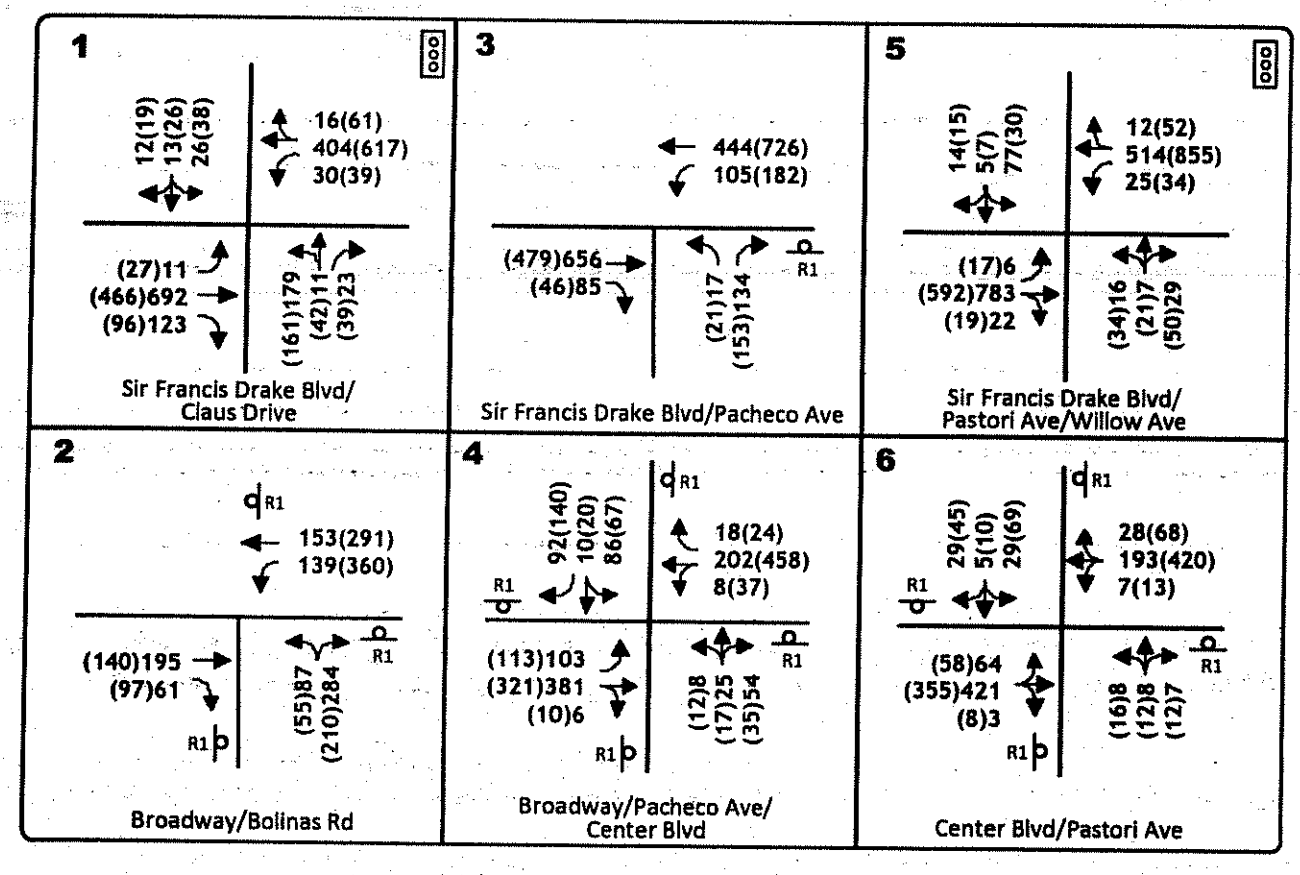
Street	From	To	Daily Traffic Volume
Sir Francis Drake Blvd	Claus Drive	Pacheco Avenue	16,215
Sir Francis Drake Blvd	Pacheco Avenue	Pastori Avenue	19,015
Sir Francis Drake Blvd	Pastori Avenue	Butterfield Road	20,460
Center Blvd	Pacheco Avenue	Pastori Avenue	9,985
Center Blvd	Pastori Avenue	San Anselmo Avenue	9,380
Pastori Avenue	Sir Francis Drake Blvd	Center Blvd	1,950

Existing Peak Hour Traffic Volumes

To evaluate the quality of existing traffic conditions and provide a basis for evaluating project impacts, new a.m. and p.m. peak hour traffic counts were made by the consultant at study intersections in January 2011. The weekday a.m. and p.m. peak hours were selected as being representative of typical "worst case" background traffic conditions. Weekday peak hour traffic counts made in January / February are the basis for the Town's 2010 General Plan Update and the 2010 Parkade Area Circulation Plan. The traffic volumes observed in 2011 are presented in Figure 3.

Vehicular traffic volumes on major roads are generally less on weekends than on weekday. In Fairfax the amount of pedestrian and bicycle traffic in the downtown area is appreciably greater on weekends than on weekdays.





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EXISTING TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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figure 3

Level of Service: Methodology and Standards

"Levels of Service" were determined at study area intersections to quantitatively evaluate traffic conditions and to provide a basis for comparison of operating conditions with and without project generated traffic.

"Level of Service" (LOS) is a quantitative measure of traffic operating conditions whereby a letter grade "A" through "F" is assigned to an intersection. LOS "A" through "F" represents progressively worsening traffic conditions. The characteristics associated with the various LOS for intersections are presented in Table 2.

The Town of Fairfax General Plan Circulation Element establishes the minimum allowable Level of Service standard for streets in the community. Level of Service D is the standard.

TABLE 2
LEVEL OF SERVICE DEFINITIONS

Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a single-signal cycle. Delay ≤ 10.0 sec	Little or no delay. Delay ≤ 10 sec/veh	Completely free flow.
"B"	Uncongested operations, all queues clear in a single cycle. Delay > 10.0 sec and ≤ 20.0 sec	Short traffic delays. Delay > 10 sec/veh and ≤ 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. Delay > 20.0 sec and ≤ 35.0 sec	Average traffic delays. Delay > 15 sec/veh and ≤ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestions of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 35.0 sec and ≤ 55.0 sec	Long traffic delays. Delay > 25 sec/veh and ≤ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). Delay > 55.0 sec and ≤ 80.0 sec	Very long traffic delays, failure, extreme congestion. Delay > 35 sec/veh and ≤ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. Delay > 80.0 sec	Intersection blocked by external causes. Delay > 50 sec/veh	Forced flow, breakdown.

Sources: 2000 Highway Capacity Manual.

Levels of Service were calculated for different intersection control types using the applicable methodology contained in the 2000 Highway Capacity Manual. Using the procedures outlined as follows:

Signalized Intersections. Procedures used for calculating Levels of Service at signalized intersections are as presented in the Highway Capacity Manual, 2000 edition. In addition to traffic volume, these procedures make use of information regarding intersection lanes and traffic signal timing data to estimate delay by approach and overall delay.

Unsignalized Intersections. The procedure for calculating the Level of Service at unsignalized intersections is based on the relative availability of gaps in traffic and the delay experienced for each movement that must yield the right-of-way at an intersection. The number of gaps is related to delay and is a function of the volume and speed of conflicting traffic, type of control (stop or yield), and qualitative intersection geometrics. Like signalized intersections where overall traffic operation is described by one Level of Service grade, an overall Level of Service is calculated for un-signalized intersections. Level of Service can also be calculated for each movement yielding the right-of-way to others.

Traffic Signal Warrants Criteria

While the un-signalized Level of Service may indicate very long delays for some individual movements (i.e., LOS "E") traffic conditions are generally not assumed to be unacceptable unless a significant number of motorists are delayed. For this analysis, the satisfaction of traffic signal warrants has been used to suggest the significance of un-signalized Level of Service. Meeting one or more signal warrants may signify that an intersection could benefit from the installation of a traffic signal, but it does not mean that installing a signal is the only way to mitigate unacceptable operations. It is often possible to improve an intersection with additional lanes or improved geometrics so that signalization is not necessary. In other cases, accepting a short period of less-than-idea motor vehicle traffic operations, e.g., one hour, may be acceptable. The signal warrant criteria employed for this study are those presented in the California edition of the Manual of Uniform Traffic Control Devices (CMUTCD).

It is important to note that satisfying peak hour traffic signal warrants, as is the criteria for traffic impact analysis, does not by itself prove that traffic signals are the preferable action at a particular location. Review of the other warrants included in the CMUTC is needed, as signalization can create its own safety problems. Traffic signals may not be consistent with the character of small communities.

Peak Hour Intersection Operations

Current Levels of Service. Current a.m. and p.m. peak hour Levels of Service were calculated at the study intersections (Refer to the Appendix for calculation worksheets) and are summarized in Table 3. Current Levels of Service were compared to adopted Town standards to determine whether existing conditions are satisfactory.

TABLE 3
EXISTING PEAK HOUR INTERSECTION LEVELS OF SERVICE

Intersection	Intersection Control	A.M. Peak Hour				P.M. Peak Hour			
		Operations		Peak Hour Signal Warrants Met		Operations		Peak Hour Signal Warrants Met?	
		Average Delay (sec/veh)	LOS	Volume	Delay	Average Delay (sec/veh)	LOS	Volume	Delay
1. Sir Francis Drake Blvd / Claus Drive	signal	18.0	C	n.a.		20.3	C	n.a.	
2. Broadway / Bolinas Road	All-way stop	16.9	C	No	No	19.0	C	No	No
3. Sir Francis Drake Blvd / Pacheco Ave (overall) NB left turn NB right turn WB left turn	NB Stop	(2.7) **35.1** 17.2 10.0	(A) **E** C B	No	No	(3.1) **55.6** 13.8 9.4	(A) **F** B A	No	No
4. Broadway / Center Blvd / Pacheco Ave	All-way Stop	15.2	C	No	No	26.9	D	No	No
5. Sir Francis Drake Blvd / Pastori Ave	Signal	14.9	B	n.a.		15.9	B	n.a.	
6. Center Blvd / Pastori Ave	All-Way Stop	15.0	B	No	no	20.6	C	No	no

As indicated, all study intersections operate with an overall Level of Service of LOS D or better, but at one intersection the Level of Service for some individual turning movements exceed LOS D. At the Sir Francis Drake Blvd / Pacheco Avenue intersection motorists waiting to make left turns experience delays that are indicative of LOS F conditions. However, the number of vehicles experiencing LOS F conditions is relatively small (i.e., 17 am and 21 p.m. peak hour vehicles).

The Levels of Service under Year 2011 conditions are consistent with those values presented in other recent studies. Similar Levels of Service are documented in the Town's General Plan Update Circulation Element and in the Parkade Area Circulation Plan, although the average delays reported in all three studies vary slightly.

Traffic Signal Warrants. The significance of existing conditions was also determined relative to traffic signal warrants. Of the un-signalized intersections, the Broadway / Center Blvd / Pacheco Avenue intersection approaches but does not reach peak hour traffic volumes satisfying the minimum requirements of CMUTCD peak hour warrants.

Seasonal Traffic Variation

Traffic study guidelines contained in Town of Fairfax code acknowledge that traffic volumes may vary throughout the year and suggest that observed volumes should be "adjusted" to account for seasonal variation. However, the new General Plan Circulation Element's analysis of year 2007 conditions makes use of January – February data, and no adjustment was made.

At a General Plan level the choice of analysis period is typically made by local agencies based on consideration of the costs of delivering adequate traffic operations. On an annual basis, the lowest traffic counts in most jurisdictions occur in winter months after the Holiday shopping season, and the highest volumes typically occur during summer months or during the Holiday shopping season. However, few communities base their circulation element goals / polices on seasonal "peak" conditions as the extra cost of providing improvements that are need for peak periods but are not needed for the majority of the year can be prohibitive.

Our research revealed that limited traffic volume data is available to identify seasonal traffic variation in the study area. The *2009 Marin County Congestion Management Plan (CMP) Update* makes use of October – November traffic volume data, but provides no indication of seasonal variation and excludes locations in the study area. A.m. peak hour traffic data was collected at one study intersection in October 2009 as part of a traffic study conducted for the Ross Valley School District. That count identified a total entering traffic volume of 865 vehicles at the Center Blvd / Pastori Avenue intersection under what might be considered to be an "average" condition. In comparison, the count in January 2011 at the same location totaled 802 vehicles, and the October count was 8% higher than the January count.

The California Department of Transportation (Caltrans) provides data regarding vehicle travel on state highways. That data includes an estimate of the total Vehicle Miles of Travel (VMT)

occurring on all state highways on a month by month basis, as noted in Table 4. Review of the latest available data indicates that total VMT was lowest in January, and that October data was close to the average for all twelve months. The average value was roughly 8% higher than the value for January.

TABLE 4
HISTORICAL MONTHLY VEHICLE MILES OF TRAVEL 2008

	January	Average Month	October	Peak Month (August)	Average Month / January
Total Vehicle Miles (billions)	13.55	14.69	14.55	15.80	1.084
Source: California Department of Transportation, Traffic Operations Branch http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/monthly/VMTHIST1.pdf					

Based on this data, the intersection volumes observed in January were adjusted upwards by 8% to reflect an "average" condition which accounts for seasonal variation.

5 Year Future Conditions

Traffic study guidelines in Town of Fairfax code suggest that project impacts be evaluated within the context of traffic conditions occurring 5 years in the future. Traffic conditions on major streets in Fairfax could be different in the future as a result of completion of development within the Town, regional traffic growth occurring between Marin County communities or the construction of roadway improvements that may alter local or regional travel patterns.

These issues were discussed with Town staff, and the following assumptions were made regarding 5 year conditions.

1. There are no approved projects in eastern Fairfax that would generate traffic and appreciably alter weekday peak hour traffic volumes in the study area.
2. Because Fairfax is for the most part "built out" there is relatively little residential development expected in the near term that would bring new traffic to the community.
3. While various Downtown Fairfax circulation system improvements have been discussed at a General Plan level, none have moved to the point of identifying specific effects on local traffic volumes. Identification of changes to travel patterns accompanying improvements in the Bank-Bolinas Road-Elsie Drive-Mono Avenue area is beyond the scope of this traffic study. Re-opening the Creek Road bridge to Dominga Avenue has been discussed, and while this action could increase traffic on Pacheco Avenue, public opinion regarding the benefits of this action varies greatly, and no decision has been made to actually open the bridge.

4. Regional background traffic growth could be based on comparison of new year 2011 traffic counts and year 2007 data presented in the General Plan Circulation Element, or based on long term traffic volume growth rates implied form the Marin County regional travel demand forecasting model.

Comparison of Year 2007 and Year 2011 Traffic Volumes. To identify a short term growth rate based on recent trends January / February Year 2007 a.m. and p.m. peak hour traffic volumes on Sir Francis Drake Blvd and on Center Blvd were identified and compared to new 2011 peak hour counts, as noted in Table 5. Because these sets of counts were conducted during the same time of the year, the relative difference should be indicative of the traffic growth occurring over the last 4 years.

As shown, in nearly every instance, year 2011 counts were lower than their 2007 counterpart. The only location where 2011 volumes were greater was on Sir Francis Drake Blvd east of Pacheco Avenue.

Many California communities have seen traffic volumes decrease over the last few years, particularly during peak traffic hours due to economic conditions. The effects of the current economic climate have included a reduction in employee commute traffic, with the effects particularly noticeable on regional routes.

TABLE 5
RECENT TRAFFIC GROWTH TRENDS

Street	Location	Time	Peak Hour Volume			
			2007	2011	2011/2007	5 year factor
Sir Francis Drake Blvd	West of Claus Drive	Am	1,490	1,420	0.953	-
		Pm	1,475	1,385	0.939	-
Sir Francis Drake Blvd	East of Claus Drive	Am	1,230	1,190	0.968	-
		Pm	1,270	1,260	0.992	-
Sir Francis Drake Blvd	East of Pacheco Avenue	Am	1,360	1,340	0.985	-
		Pm	1,440	1,540	1.069	1.088
Center Blvd	West of Pacheco Avenue	Am	920	790	0.859	-
		Pm	1,092	1,055	0.966	-
Center Blvd	East of Pacheco Ave	Am	805	750	0.932	-
		Pm	1,008	940	0.933	-
Bolinas Road	South of Broadway	Am	715	570	0.799	-
		Pm	840	725	0.860	-

County-wide Traffic Model Forecasts. Various sources of future traffic volume projections for the Fairfax area were consulted. The Marin County General Plan includes forecasts for Sir Francis Drake Blvd, but not for locations in the study area. Alternatively, the Marin County Department of Public Works maintains a regional travel demand forecasting model that projects future traffic volumes on major streets based on assumptions for regional development and circulation system improvements. While a regional model excludes many of the minor streets that form the circulation system in the San Anselmo – Fairfax area, the model does provide an indication of the overall growth rate that could be expected on major roads such as Sir Francis Drake Blvd, Center Blvd and Bolinas Road

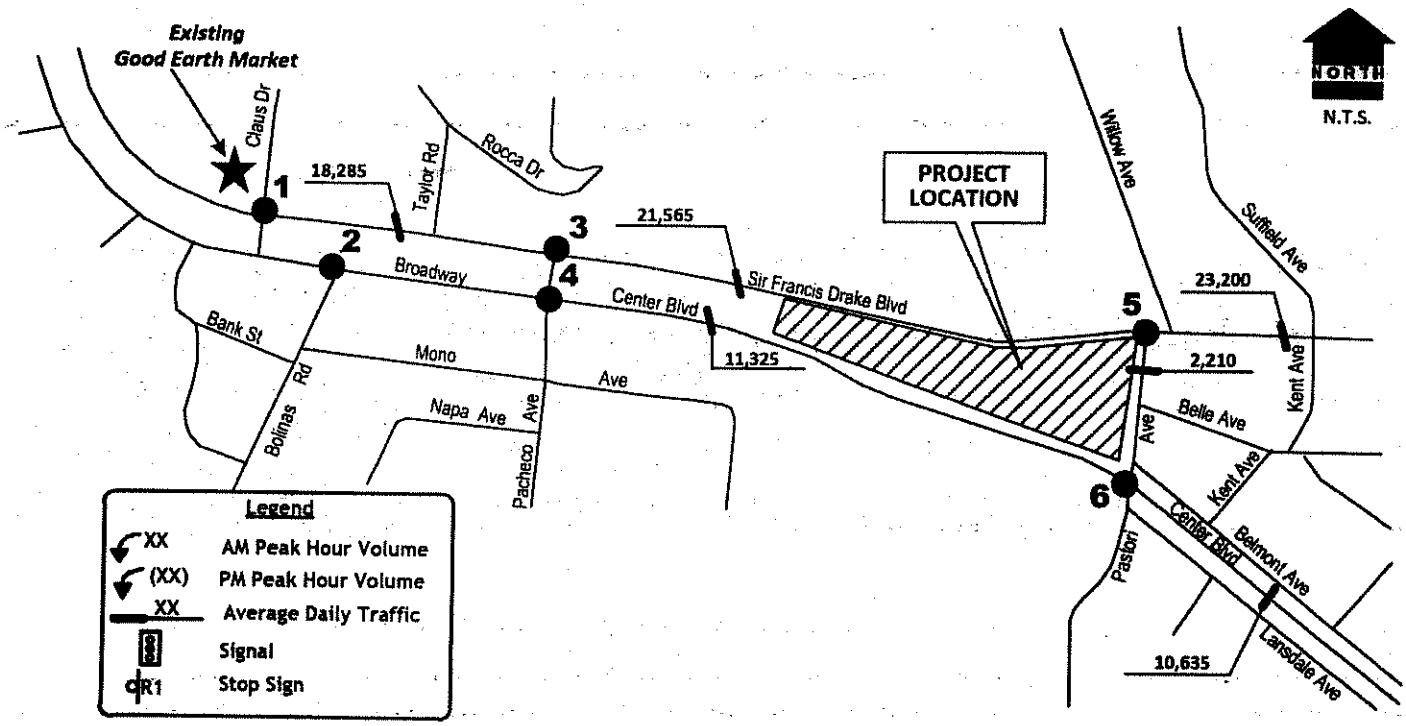
By comparing baseline and Year 2030 model forecasts, it is possible to suggest short term growth rates, as noted in Table 6. In this case, the volume of traffic on Sir Francis Drake Blvd could be expected to increase by roughly 1% annually if long term growth rates are experienced over the next 5 years. A higher growth rate is projected on Center Blvd, where an annual growth rate of roughly 1.8% is identified. Traffic volume on Sir Francis Drake Blvd and on Bolinas Road is expected to increase by less than 1% annually according to the traffic model.

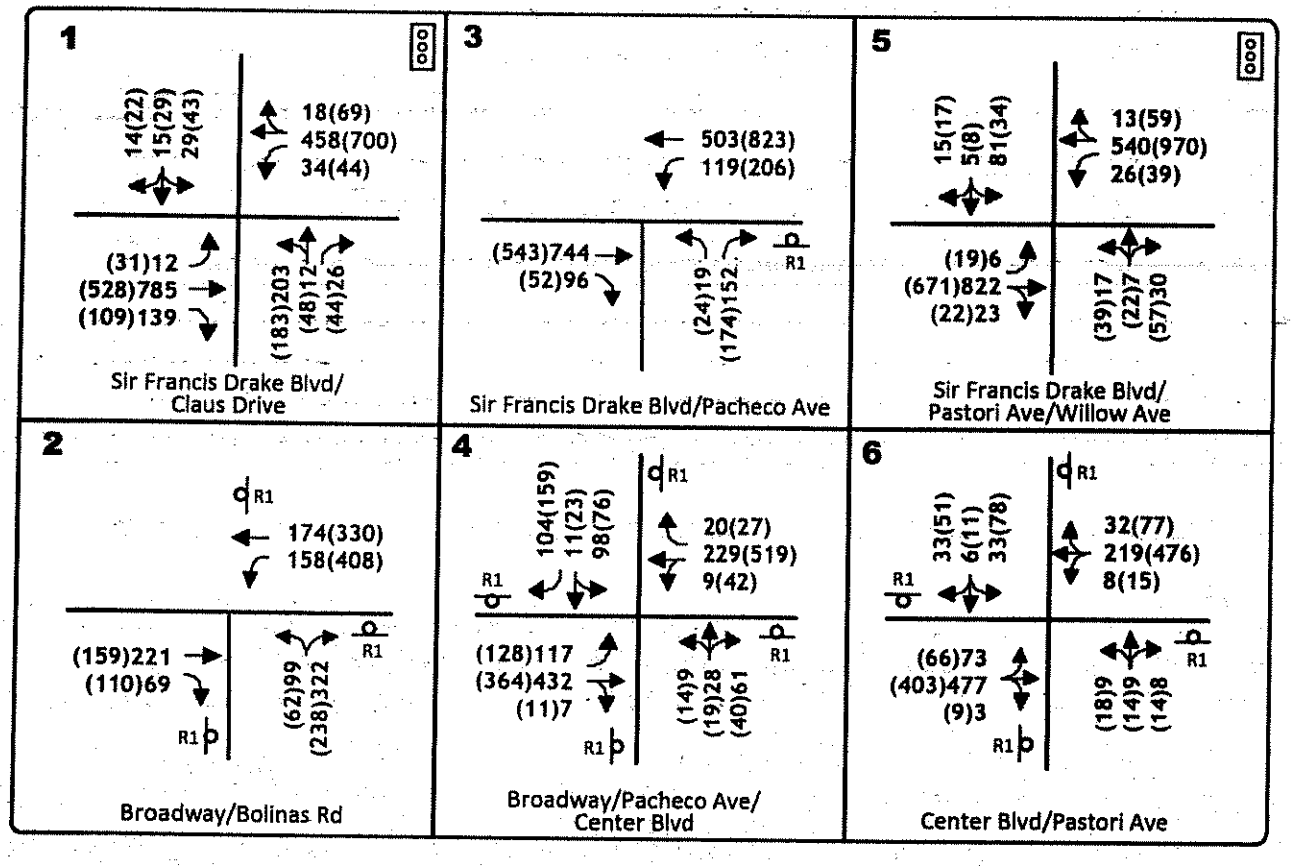
TABLE 6
LONG TERM TRAFFIC GROWTH

Street	Growth Rate (2005-2030)					
	A.M. Peak Hour			P.M. Peak Hour		
	25 year factor	Annual rate	5 year factor	25 year factor	Annual rate	5 year factor
Sir Francis Drake Blvd east of Pastori Ave	1.16	0.6%	1.03	1.27	1.0%	1.05
Center Blvd near Pastori Avenue	1.53	1.7%	1.09	1.57	1.8%	1.09
Bolinas Road near Porteous Avenue	1.25	0.9%	1.05	1.25	0.9%	1.05

Because recent traffic volume growth trends have been greatly influenced by the economy, it was assumed that the rates implied by the Marin County traffic model are a better predictor of future conditions than rates derived from review of recent counts. For this analysis it has been assumed that all observed traffic volumes will increase by 5% by the year 2016, although the Town of Fairfax will need to monitor future traffic conditions to confirm that Year 2026 conditions actually reach projected levels and identified improvements are needed. .

Resulting "Year 2016 – No Project" traffic volumes after accounting for both seasonal variation (i.e., 8%) and for 5 year growth (5%), or a total increase of 13.4% are shown in Figure 4





ADJUSTED YEAR 2016-NO PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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figure 4

Alternative Transportation Modes

Bicycle Facilities. Bicycling is an extremely popular transportation mode in Marin County in General and in Fairfax - San Anselmo in particular. Facilities to accommodate cyclists exist in various locations throughout Fairfax, and the 2008 Fairfax Pedestrian and Bicycle Master Plan provides information regarding existing and planned bicycles facilities.

Sources of information regarding pedestrian and bicycle use in Marin County were consulted, including the 2009 CMP and WalkBikemarin.org. However, neither source had information relating to bicycle use on study area streets. Bicyclists were counted at the Center Blvd / Pastori Avenue intersection as part of this study.

Classification. Bicycle facilities fall into three general classifications:

Class I: Separated bicycle paths / trails
Class II: Bicycle lanes along vehicular travel ways
Class III: Bicycle routes where bicycles mix with other transportation modes, including automobiles.

Bicycle facilities are present in the study area. The Town of Fairfax's recent Center Blvd Reconstruction Project included creation of bicycle lanes in the area between Pacheco Avenue and Pastori Avenue, and bike lanes exist on Sir Francis Drake Blvd west of Claus Drive. Many streets in area of the proposed project are designated as bicycle routes (Class III), where cyclists and automobiles are expected to share the road. Broadway from Sir Francis Drake Blvd to Pacheco Avenue, Lansdale Avenue from Center Blvd to the Fairfax Town limits and Center Blvd east of Pastori Avenue are Class III routes.

Center Blvd / Pastori Avenue Bicycle Facilities. The Lansdale Avenue bicycle route is an important part of the regional circulation system as it continues outside the Town limits on San Anselmo Avenue through San Anselmo to San Rafael. This route is used by residents and visitors and is particularly popular on weekends. The connection from Lansdale Avenue onto the westbound Center Blvd bicycle lanes is striped diagonally across the Center Blvd / Pastori Avenue intersection.

The number of cyclists passing through the Center Blvd / Pastori Avenue intersection was identified during weekday peak hour traffic counts conducted in January 2011. A total of 74 cyclists traversed the intersection from 7:00 a.m. to 9:00 a.m., and the majority of these cyclists traveled eastbound on Center Blvd onto Lansdale Avenue. The bicycle count was lower during the p.m. peak hours (4:00 to 6:00 p.m.) when 67 bicycles passed through the intersection in this two hour period. While weekend bicycle counts were not conducted, casual observation suggested that the number of recreational cyclists in this area is much higher on weekends. The project site's western parking lot was observed to be used as a staging / parking area for regional cycling activity.

The interaction between bicyclists and automobiles was observed at the Center Blvd / Pastori Avenue intersection. While most cyclists obey the rules of the road, many do not fully stop at the all-way stop controls on the northbound entry from Pastori Avenue into the bike crossing. The elevation of both Lansdale Avenue and southern Pastori Avenue is lower than that of the intersection itself, and as a result westbound cyclists must ride slightly uphill on the short Pastori Avenue segment before entering the intersection. This may make it difficult to fully stop before entering the intersection due to the potential of lost momentum and falling over, as well as clipped shoes in pedals.

The extent to which this activity creates a safety problem has been considered. Because automobiles must stop, vehicular traffic is moving slowly. Most drivers are aware of bicycle activity, either from experience or by observing the bike lane striped across the intersection. Because the distance through the intersection is short, bicyclists who cross without coming to a full stop are only in the intersection for a short period of time and do not create an appreciable problem for other traffic. Measures to encourage cyclists to stop might be considered, but are unlikely to be effective. Devices to provide additional warning of the presence of the bike crossing might be considered, but at present do not appear to be needed.

The project does include measures to encourage bicycle use. The Landscape Plan presents a Bike Rider Rest Station, air pump, and area bike trail map. In addition rack space for 20 bicycles will be provided.

Pedestrian Facilities. Facilities for pedestrians in Fairfax consist of concrete sidewalks and rural trails. As with facilities for bicycles, pedestrian facilities are somewhat limited due to the Town's narrow streets. In the area of the proposed project, there are sidewalks at the following locations noted in Table 7.

TABLE 7
EXISTING PEDESTRIAN FACILITIES

Street	from	to	Facility
Center Blvd	Pacheco Avenue	Pastori Avenue	New (10-15') sidewalk on both sides of street
Center Blvd	Pastori Avenue	Town limits	(4') Sidewalk on north side of the street
Pastori Avenue	Sir Francis Drake Blvd	Center Blvd	No paved sidewalk
Sir Francis Drake Blvd	Pacheco Avenue	Pastori Avenue	(4') Sidewalk on north side only
	Pastori Avenue	Butterfield Road	(4') Sidewalk on both sides of the street

As shown, today there are no sidewalks on Pastori Avenue adjoining the project site. Sidewalk on Fairfax Avenue is included in the Town's Capital Improvement Program (CIP), and the Town of Fairfax has agreed to install a 5' sidewalk on the west side of the street from Center Blvd to Sir Francis Drake Blvd when the proposed project proceeds.

Traffic control features to facilitate pedestrian activity exist at most study area intersections and at some mid-block locations. The Town's recent Center Blvd Reconstruction Project included crosswalk improvements at the Center Blvd / Pastori Avenue intersection. Illuminated crosswalk with in-pavement flashers were also installed at two mid-block locations on Center Blvd along the project frontage. In-pavement flashers do not force automobiles to stop, but they do help inform drivers of the presence of a pedestrian in the crosswalk. The new uncontrolled crosswalks include pedestrian signing, but the supplemental plates say AHEAD instead of having down arrows pointing to the crosswalks. The supplemental plates should be replaced. If feasible, advance crosswalk warning signs should be installed and PED XING pavement stencils should be considered for installation by the Town.

Crosswalks also exist at the signalized intersections on Sir Francis Drake Blvd at Claus Drive-Bank Street and at Pastori Avenue-Willow Avenue and at the Center Blvd intersections with Pacheco Avenue and Bolinas Road (all-way stop controls).

Transit facilities. Golden Gate Transit runs the #24 into San Francisco AM and back to Fairfax PM. There is presently no direct transit connection from Fairfax to the Larkspur ferry: Marin Transit sponsored #29 provides service to the Ferry Terminal, but has no coordination with ferry departures and arrivals. Commuting to the East Bay requires getting to San Rafael and transferring to a #40/#42. To travel to Petaluma or northwards requires getting to San Rafael and transferring to a #80. Local transit to and through Fairfax is governed by the county-wide agency Marin Transit, which contracts with the Golden Gate Bridge Highway and Transportation District GGBH&TD to provide local bus service via the #23 connecting to the San Rafael Transit Center, and with West Marin Stage providing service via Fairfax to San Geronimo Valley and Point Reyes. Currently there is no neighborhood transit service, except for the limited service for the elderly and the disabled, by appointment, via Whistlestop Wheels. Other private and non-profit operators provide other specialized transportation.

Parking

The project is served by two adjoining parking lots. Both are owned and leased by Fairfax Center Properties to Good Earth Market. In addition, there is a cross use agreement in the Good Earth lease to have overflow parking into the other parking areas.

There are ninety (90) parking spaces assigned to the grocery store in the area north of Center Blvd. This parking supply provides a parking ratio of 4.3 spaces per 1,000 gross square feet of building, which slightly exceeds the requirement of 4 spaces / 1,000sf. This parking is distributed between the east parking lot (38 spaces) and the west parking lot (52 spaces). In addition, there is cross-parking availability for the store with the remainder of the Anselmo-Fairfax Center.

The parking lots current parking layout will be modified as part of the project. The east parking lot will incorporate one-way drive aisles and parking spaces at 45 degrees. The aisle paralleling the building will be one way going south and the aisle paralleling Pastori Avenue will be one way going north. This layout reverses the current direction of traffic. In addition, a grocery pick-up loading zone next to the building in the east parking lot minimizes shopping carts rolling across the parking lot. The traffic pattern in the west parking lot will also be one way with 45 degree angled parking.

PROJECT IMPACTS

The relative traffic impacts of the proposed project have been determined by estimating the amount of new traffic generated by the larger store, distributing that traffic to the regional street system and re-calculating Levels of Service at intersections and at project driveways.

Project Characteristics

Trip Generation. To quantify the amount of vehicular traffic generated by the proposed project and by other approved projects, peak hour trip generation rates presented in the 8th Edition of the ITE publication Trip Generation were consulted. Applicable rates are indicated in Table 8.

ITE research has suggested that on a per 1,000 sf basis the trip generation rates associated with retail uses decrease as the size of an establishment increases. As noted in Table 8, rates are available for supermarkets and for retail shopping centers. As shown, the rates for supermarkets are higher, and this analysis conservatively uses the rates for supermarkets.

TABLE 8
TRIP GENERATION RATES

Land Use	Unit	Weekday Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
Supermarket (21 ksf)	ksf	132.59	61%	39%	3.59	51%	49%	15.79
Supermarket (8 ksf)	ksf	232.62	61%	39%	3.59	51%	49%	22.62
Shopping Center (21 ksf)	Ksf	116.87	61&	39%	2.91	49%	51%	10.61
Shopping Center (7 ksf)	Ksf	170.56	61%	39%	4.52	49%	51%	15.15
Ksf is 1,000 sf								

This analysis addresses the project's impacts based on the amount of traffic occurring during weekday peak hours. Saturday trip generation rates for supermarkets were reviewed to confirm that this choice is reasonable. In this case, the reported rate for the peak hour on Saturday (i.e., 10.85 trips per 1,000 sf) is less than weekday p.m. peak hour rate. Thus, the project's impacts would be greater during the weekday pm peak hour, and further analysis of weekend conditions was not conducted.

Table 9 presents estimated site trip generation under the current development proposal and for the current Good Earth Market at Claus Drive. As indicated, a 21.2 ksf market can be expected to generate 2,811 daily trips. A smaller market (i.e., 7.2 ksf) would likely generate 1,874 daily trips.

TABLE 9
TRIP GENERATION FORECASTS

Land Use	Quantity	Weekday Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
			In	Out	Total	In	Out	Total
Proposed Project								
Supermarket	21.2 ksf	2,811	46	30	76	171	164	335
Pass-by (36%)		1,012	17	10	27	62	58	120
Net Primary		1,799	29	20	49	109	106	215
Supermarket	7.2 ksf	1,954	18	12	30	97	93	190
Pass-by (36%)		703	7	4	11	35	33	68
Net Primary		1,251	11	8	19	62	60	122
Net New Trips		**548**	**18**	**12**	**30**	**47**	**46**	**93**

Re-Use of Existing Store. The extent to which the trips associated with the new project replace trips already generated by the existing store is dependent on the subsequent use of the existing site. If a similar retail use replaces the Good Earth Market then all of the primary trips at the new site would have to be considered "new" to the street system. However, if the existing store is replaced by a new use generating relatively little traffic, then only the difference between the primary trips generated by current and proposed uses would be "new".

Because the exact nature of the future use of the existing store is speculative, this analysis of traffic impacts addresses two alternatives: 1) no re-use and 2) re-use as a retail store.

Trip Distribution and Assignment. The distribution of project trips will reflect the nature of the project. A share of the project's traffic will be drawn from traffic already passing the site (i.e., pass-by trips) on Sir Francis Drake Blvd and on Center Blvd. Other trips (primary trips) will be drawn from the residences within the project's trade area located both east and west of the site.

Pass-By Trips. The share of project traffic that may be classified as "pass-by" has been determined from information contained in the ITE Trip Generation Handbook, 2nd Edition. That resource document identifies average "pass-by" rates for small shopping centers and for supermarkets. As with overall trip generation, the "pass-by percentage for shopping centers decreases as the size of the shopping center increases. Theoretically, the average "pass-by" rates for a 21.2 ksf center is 60%, and the rate for a smaller center (i.e., 8.4 ksf) is 80%. However, the average "pass-by" percentage for shopping centers is 36%. To provide a conservative estimate of the project's impacts, the lower "pass-by" rate associated with supermarkets has been used.

Primary Trips. The amount of "new" traffic accompanying the proposed project can be understood by comparing the number of "primary" trips generated by the proposed and existing stores. After discount for "pass-by" trips, the new store could generate 1,799 primary trips, while the existing store is projected to generate 1,251 primary trips. The difference, or 548 daily trips, is the increase in traffic that would be experienced on streets beyond the immediate environs of the new store. A similar calculation for weekday peak hour trips suggests that the project could add 30 trips to the area street system in the a.m. peak hour and 93 trips during the p.m. peak hour.

Distribution of "Pass-By" Trips. To apply the pass-by rates reasonably it was necessary to determine the local traffic streams that will be the source of project trips. A share of the pass-by traffic will be drawn from traffic passing the site on Center Blvd. Alternatively, other "pass-by" trips will be drawn from traffic that today uses Sir Francis Drake Blvd. Because the project lacks a driveway on that street trips drawn from Sir Francis Drake Blvd might technically be termed" diverted" trips. For this analysis it has been assumed that pass-by traffic will be drawn from both streets in proportion to the volume of traffic on each street during peak hours, as shown in Table 10.

TABLE 10
PASS BY TRIP ALLOCATION

Street	Direction	Total Pass by	AM Peak Hour			PM Peak Hour		
			Volume	% of Passing Traffic	% of all Trips	Volume	% of Passing Traffic	% of all Trips
Center Blvd	EB	36%	488	23.5%	8.5%	421	17.3%	6.2%
	WB		230	11.1%	4.0%	481	19.8%	7.1%
Sir Francis Drake	EB		811	39.1%	14.0%	628	25.8%	9.3%
Blvd	WB		544	26.2%	9.5%	904	37.1%	13.4%
Total			2,073	100.0%	36.0%	2,434	100.0%	36.0%

Distribution of Primary Trips. The balance of the site trip generation has been assumed to be "primary" trips assumed to be drawn to the site from residential areas within the project's trade area. Census tract data was reviewed by block, and the share of primary tips drawn from each area was assumed to be in proportion to the year 2000 population. Table 11 identifies the resulting distribution of primary trips, and supporting census tract information is included in the appendix to this report.

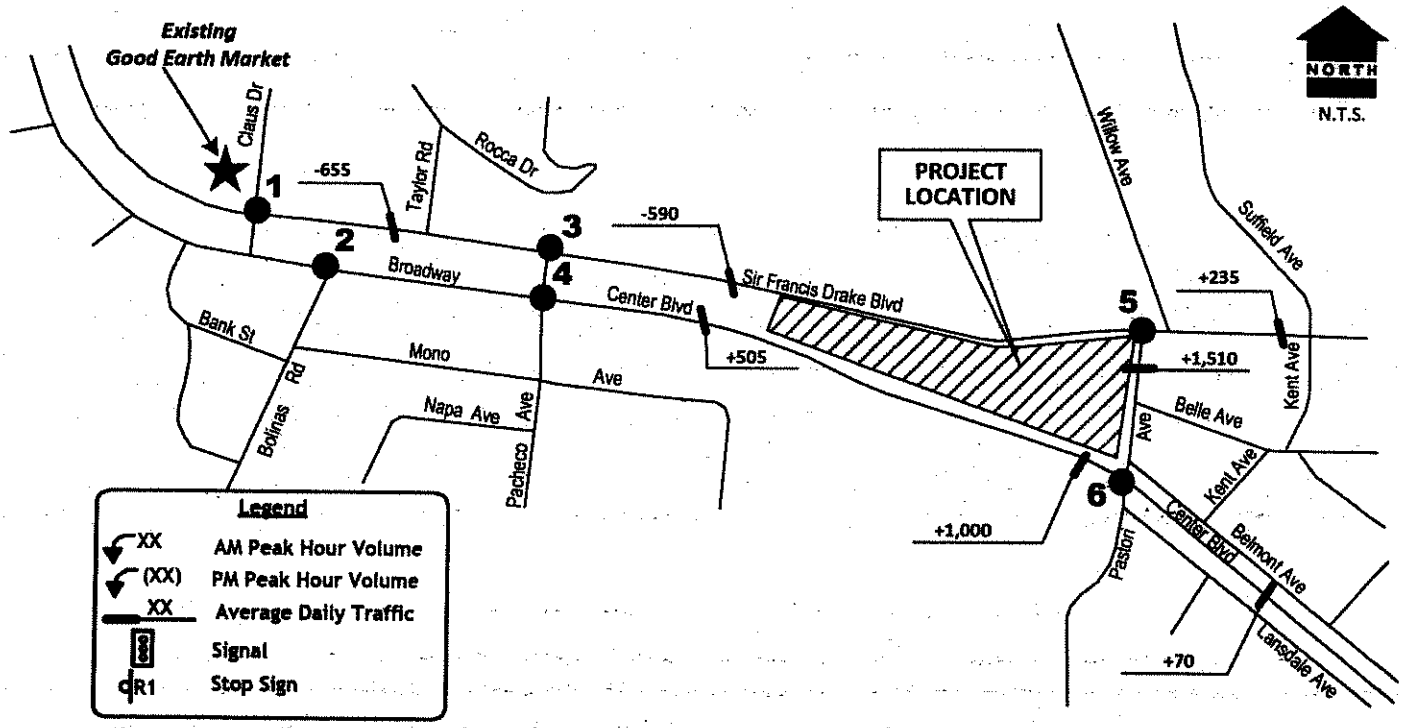
TABLE 11
DIRECTIONAL PRIMARY TRIP DISTRIBUTION

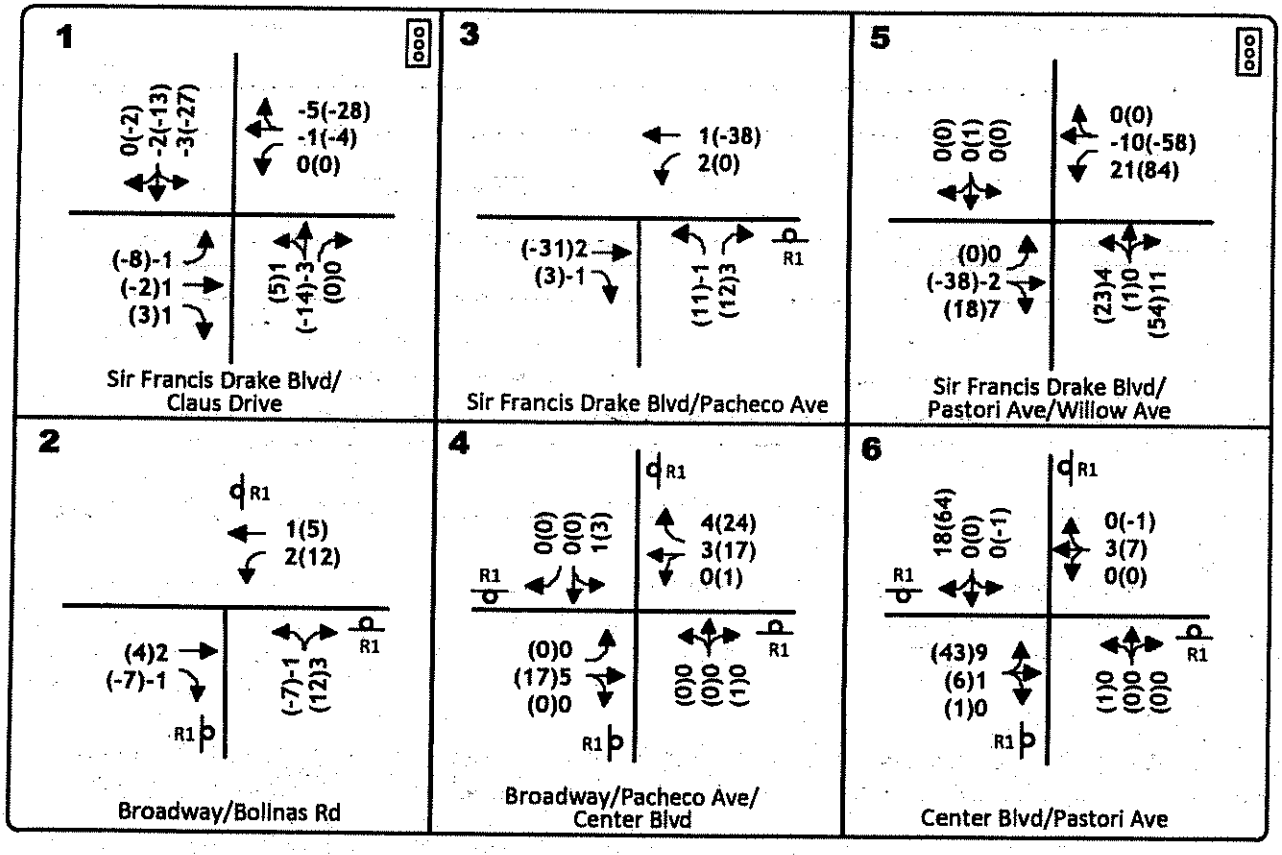
Direction	Census Tract	Population	Primary Route	% of primary trips (population / total population)	% of all trips (% primary trips x 64%)
North	11500	7,048	Butterfield Drive	17%	10.9%
East	117000	3,565	Sir Francis Drake Blvd	40%	25.6%
	109000	7,778			
	111000	5,528			
	116000	3,004	Center Blvd	13%	8.3%
	118100	2,329			
West	113000	3,797	Sir Francis Drake Blvd	17%	10.9%
	114,200	3,092			
South	114100	5,142	Bolinas Road	13%	8.3%
	118200	319			
Total		41,602		100%	64.0%

Assignment of Project Trips. Having determined the directional distribution of project trips it was necessary to assign that traffic to the study area system. The trips assignment accounted for factors such as the location of project parking, the location of parking access and the traffic controls at that access, as well the relative time spend along alternative routes.

On-site parking supply is located on both sides of the store, and roughly 30% of the parking supply is on the east side of the building and 70% is on the west side of the building. However, because most of the site traffic will be arriving from the east and the building entrance is on that side, it has been assumed that 40% of the trips will use the eastern parking lot and 60% will use the western lot. Full access has been assumed at each driveway, except at the driveway immediately adjoining the west side of the building. This driveway is to be limited to "inbound traffic only".

Resulting "Project Only" traffic volumes at study locations are noted in Figure 5. As indicated, these projections reflect the "net" effect of elimination of the trips generated by the existing Good Earth Market and the addition of trips accompanying re-use that site.





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PROJECT ONLY TRAFFIC VOLUMES AND LANE CONFIGURATIONS

figure 5

Existing Plus Project Traffic Impacts

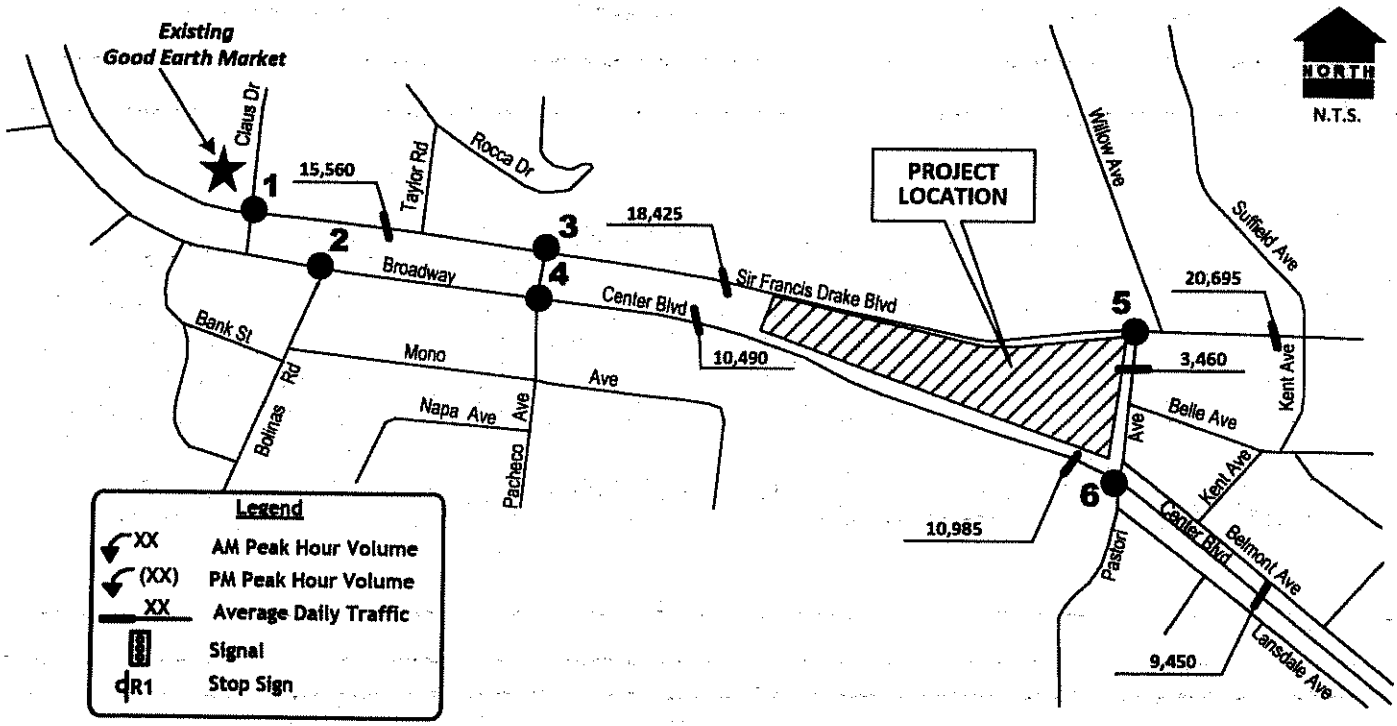
The Evaluation of "Existing Plus Project impacts considers a scenario whereby the proposed project is built, the existing Good Earth Market remains vacant and the observed Year 2011 traffic volumes are the background condition.

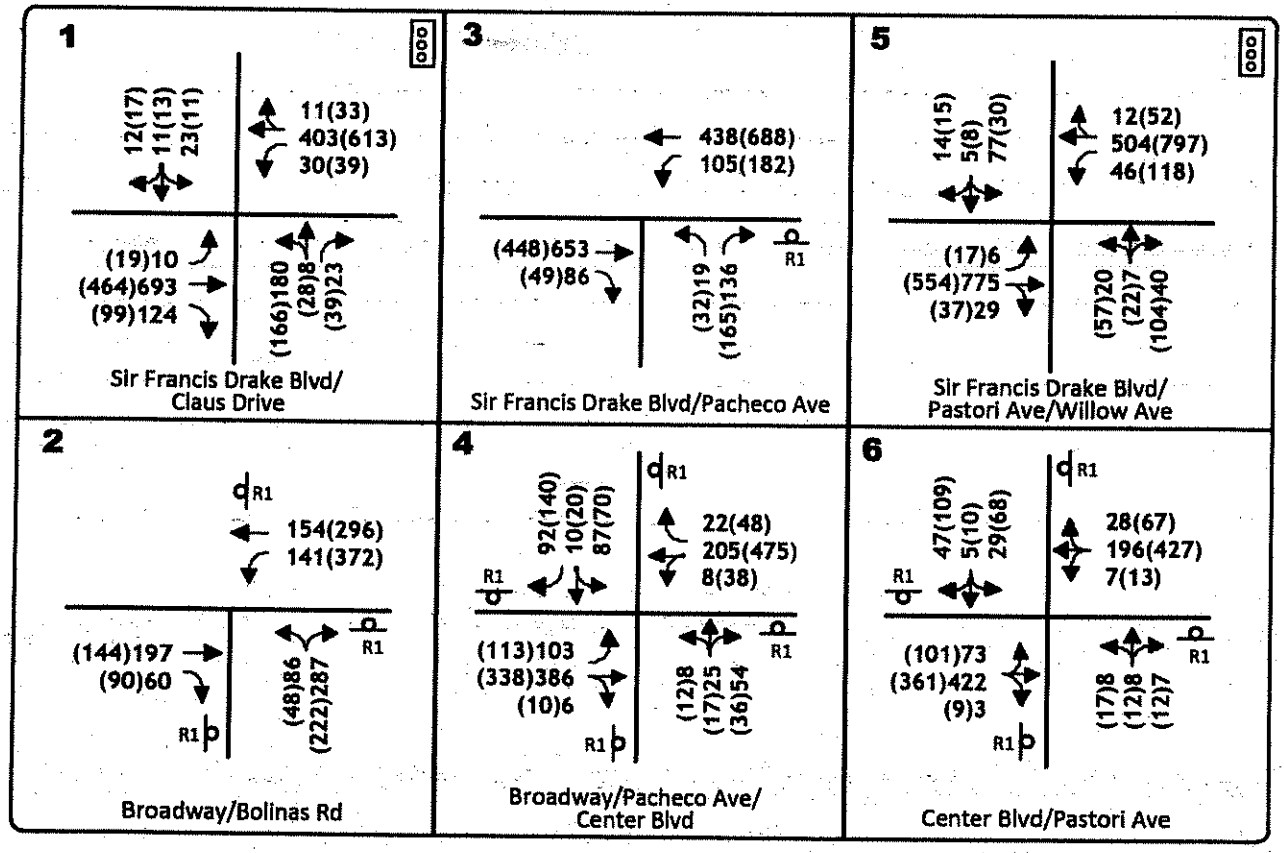
Existing Plus Project Volumes. Project generated automobile trips were superimposed onto current background traffic, and resulting peak hour and daily traffic volumes are presented in Figure 6. These volumes were used to suggest project impacts based on intersection Level of Service. Traffic volumes at site access intersections are noted in the Level of Service calculations included in the appendix to this report.

Daily Traffic Volumes. Table 12 identifies existing traffic volumes, the net traffic increase resulting from the proposed project if the existing Good Earth Market remains vacant, and the resulting total traffic volume under "Existing Plus Project" conditions. As shown, the daily volume on Sir Francis Drake Blvd west of Pastori Avenue will likely drop if the Good Earth Market project proceeds. This reduction is expected for several reasons. Traffic originating east of Fairfax will no longer drive beyond Pastori Avenue to reach the existing Good Earth Market, . Trips from the new store headed west will have two routes available (i.e., Center Blvd and Sir Francis Drake Blvd). Pass-by trips drawn from Sir Francis Drake Blvd may bypass a portion of the street as they return to their original trip. However, daily traffic volumes on Center Blvd and on Pastori Avenue will increase.

TABLE 12
PROJECT CONTRIBUTION TO DAILY TRAFFIC VOLUMES

Street	From	To	Daily Traffic Volume		
			2010	Project Net Only	Total
Sir Francis Drake Blvd	Claus Drive	Pacheco Avenue	16,215	-655	15,560
Sir Francis Drake Blvd	Pacheco Avenue	Pastori Avenue	19,015	-590	18,425
Sir Francis Drake Blvd	Pastori Avenue	Butterfield Road	20,460	235	20,695
Center Blvd	Pacheco Avenue	Project Access	9,985	505	10,490
Center Blvd	Project Access	Pastori Avenue	9,985	1,000	10,985
Center Blvd	Pastori Avenue	San Anselmo Avenue	9,380	70	9,450
Pastori Avenue	Sir Francis Drake Blvd	Project Access	1,950	1,510	3,460
Pastori Avenue	Project Access	Center Blvd	1,950	870	2,920





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EXISTING PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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figure 6

Impacts to Intersection Levels of Service. Comparison of Existing (Year 2011) and "Existing Plus Project" peak hour traffic volumes and Levels of Service identifies the impacts of development of the proposed project. Resulting Levels of Service are shown in Table 13.

As shown, the length of delays at the Sir Francis Drake Blvd / Claus Drive intersection near the existing store will be shortened if the proposed project proceeds, but the intersections near the new store will see longer delays, particularly in the evening peak hour. However, projected Levels of Service will remain with the Town's LOS D threshold.

The project will add traffic to the Broadway / Center Blvd / Pacheco Avenue intersection, but the resulting totals would not satisfy peak hour warrants for signalization.

Project Access Operations. There are three issues to be considered in evaluating the adequacy of the project's driveways. The first issue is the operating Level of Service at the driveway. The second issue is the effect on exiting vehicles of traffic queuing back from adjoining intersections past the parking lot driveways. The third is the possibility of entering traffic being delayed at the driveway and blocking through traffic.

Level of Service. As noted in Table 13, the projected traffic volumes at each driveway intersection would result in Levels of Service that satisfy the Town's minimum LOS D policy under "worst case" conditions. Thus, the volume of traffic forecast at each driveway can be accommodated by the proposed design.

Through Traffic Queues. Because some of the project's driveways are in close proximity to major intersections, the extent to which site access may be blocked by queuing traffic is a consideration. Exiting the site can be difficult if outbound turns are blocked by the queue of traffic. In this case, the length of average peak hour queues occurring on northbound Pastori Avenue approaching the Sir Francis Drake Blvd intersection, on southbound Pastori Avenue approaching Center Blvd and on eastbound Center Blvd approaching the Pastori Avenue intersection has been evaluated to determine their effect on site traffic.

Table 14 identifies the lengths of peak period queues on Center Blvd and on Pastori Avenue under Existing Plus Project conditions and compares those values to the distance between project driveways and the crosswalks at adjoining intersections. These estimates represent the longest queues occurring during peak traffic hours, and queues occurring at other times of the day would be shorter when background traffic is lower.

TABLE 13
EXISTING PLUS PROJECT PEAK HOUR INTERSECTION LEVELS OF SERVICE

Intersection	Intersection Control	AM Peak Hour				PM Peak Hour			
		Existing		Existing Plus Project		Existing		Existing Plus Project	
		Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1. Sir Francis Drake Blvd / Claus Drive	Signal	18.0	C	17.7	C	20.3	C	17.5	B
2. Broadway / Bolinas Road	All-way stop	16.9	C	17.1	C	19.0	C	19.7	C
3. Sir Francis Drake Blvd / Pacheco Ave (overall)	NB Stop	(2.7)	(A)	(2.8)	(B)	(3.1)	(A)	(3.7)	(A)
NB left turn		**35.2**	**E**	**35.1**	**E**	**55.6**	**F**	**55.9**	**F**
NB right turn		17.2	C	17.2	C	13.8	B	13.6	B
WB left turn		10.0	B	10.0	B	9.4	A	9.2	A
4. Broadway / Center Blvd / Pacheco Ave	All-way Stop	15.2	C	15.5	C	26.9	D	30.9	D
5. Sir Francis Drake Blvd / Pastori Ave	Signal	14.9	B	16.6	B	15.9	B	21.5	C
6. Center Blvd / Pastori Ave	All-Way Stop	15.0	C	16.0	C	20.6	C	28.8	D
7. Center Blvd / West Access	SB Stop	-	-	13.8	B	-	-	20.6	C
8. Center Blvd / Central Access	In only	-	-	7.9	A	-	-	8.8	A
9. Center Blvd / East Access	SB Stop	-	-	14.0	B	-	-	18.7	C
10. Pastori Avenue / Access	EB Stop	-	-	9.3	A	-	-	10.6	B

Bold is conditions in excess of LOS D

TABLE 14
RELATIONSHIP BETWEEN GOOD EARTH DRIVEWAYS AND ADJOINING INTERSECTIONS
YEAR 2011 PLUS PROJECT CONDITIONS

Street	Direction	No Project			Storage to Driveway		With project		
		PM Volume	Average Queue				PM Volume	Average Queue	
			Vehicles	Distance (feet)	Vehicles	Distance (feet)		Vehicles	Distance (feet)
Center Blvd	Eastbound	421	2	50	3	80	471	4	100
Pastori Avenue	Northbound	95	5	125	2	55	183	7	175
	Southbound	124	<1	<25	10	260	187	<1	<25

KDA

As noted in Table 14, without the proposed project the average northbound queue on Pastori Avenue approaching Sir Francis Drake Blvd during the p.m. peak hour is estimated at 5 vehicles. The distance that this queue occupies is 125 feet, and the queue extends beyond the location of the proposed project driveway. Under Year 2011 conditions the eastbound queue on Center Blvd is estimated to contain 2 vehicles and would not extend to the project's eastern driveway. The southbound queue on Pastori Avenue contains less than 1 vehicle and would not extend to the driveway on that street nor significantly affect traffic using Belmont Avenue.

Under "Year 2011 Plus Project" conditions, adding project traffic increases the length of queues occurring under Year 2011 conditions. The northbound queue on Pastori Avenue and the eastbound queue on Center Avenue would each be 2 vehicles longer. This extra length would result in the eastbound queue reaching the project's driveway on Center Blvd.

While these queues would not affect inbound customers, and access to the western parking lot is not affected by queuing traffic, the effects of peak period queues could be noticeable for motorists leaving the eastern parking lot. Motorists intending to turn left during peak periods onto either Center Blvd or onto Pastori Avenue to reach the Sir Francis Drake Blvd / Pastori Avenue intersection are likely to find their route blocked by queuing traffic. Motorists waiting to turn left could block all outbound traffic. Some of these motorists may instead turn right onto Pastori Avenue and use Center Blvd to travel east in greater numbers than assumed in this analysis or use an adjoining local street (Belle Avenue) to reach the signalized Sir Francis Drake Blvd / Kent Avenue intersection. While Center Blvd could accommodate additional traffic, residents of Belle Avenue would likely be sensitive to through traffic on this local street.

Exit signing is probably the easiest corrective action to implement and would be consistent with the character of Fairfax. Signs indicating "right turn only" would help exiting motorists understand that left turns are not feasible and that they must turn right to exit. This would reduce the possibility of left turning motorists blocking the access for all exiting traffic

Prohibiting outbound left turns from the two eastern driveways would affect the travel of roughly 53 outbound vehicles during the p.m. peak hour. Of that total 39 vehicles would be added to southbound traffic on Pastori Avenue, and 12 vehicles would be added to the traffic turning right from the driveway Center Blvd driveway. Most of this traffic would find its way to Center Blvd, and the volume of traffic using Center Blvd east of Pastori Avenue would increase slightly. As suggested earlier, a portion of this diverted traffic may find its way onto Belle Avenue. However, the overall diversion relating to left turn prohibitions would be too small to change the projected Level of Service at study intersections, which would remain within the Town's LOS D minimum.

Other measures to improve site access have been considered. As noted under the evaluation of Adjusted Year 2016 intersection Level of Service, a traffic signal could eventually be needed at the Center Blvd / Pastori Avenue intersection. However, a traffic signal would not necessarily reduce the length of queues occurring on Center Blvd and would have no effect on Pastori Avenue queuing.

Modifying the project site plan to create a new Pastori Avenue driveway at a location midway between Sir Francis Drake Blvd and Center Blvd would create an exit that would not be blocked by queues, and the resulting route would be clear to Sir Francis Drake Blvd. However, there is a difference in elevation between the site and Pastori Avenue the mid-point which would make it difficult to construct a new driveway, and creating an additional driveway would eliminate 2-3 parking spaces planned in the eastern parking lot. Moving the existing driveway as far south as is practical would be beneficial although it would not solve the queuing problem at all times.

Some portion of the 39 peak hour vehicles turning right from the Pastori Avenue driveway may use Belle Avenue to reach Sir Francis Drake Blvd rather than continuing to Center Blvd. Measures to reduce possible "cut-through" traffic on Belle Avenue resulting from turn prohibitions or delays might be considered. Like many local streets in Fairfax, Belle Avenue is not wide enough for two vehicles to pass when on-street parking is used. Making Belle Avenue one-way westbound would eliminate the possibility of exiting traffic leaving the eastern parking lot and immediately turning onto Belle Avenue to reach Sir Francis Drake Blvd. However, this is a relatively drastic action, the "solution" may impact the neighborhood to a greater degree than the problem, and neighborhood residents may not desire one-way traffic flow on their street.

Entrance Design / Driveway Throat Depth. The extent to which entering traffic affects off-site travel patterns is dependent on the room available to store incoming traffic at decision points. Motorists stop at on-site locations where they must yield the right of way or while they wait for a parking place to clear. The distance between the street and this decision point (driveway throat depth) must be long enough to avoid being blocked by exiting queues.

At each driveway, the project site plan has been designed so that entering traffic is not in conflict with exiting traffic. At each location entering traffic turns away from the exiting queue to circulate through the site, and as a result, entering traffic will not be affected.

In the west driveway the possibility exists that traffic entering from Center Blvd into the central driveway will stop to wait for a vehicle exiting one of the seven parking spaces located along the western side of the building. The plan places two handicap spaces roughly 30 feet from the Center Blvd sidewalk, and the first regular parking space is roughly 70 feet from the sidewalk. There is room for two entering vehicles to wait on-site while a vehicle backs out of the first regular space, but a vehicle waiting for a car exiting the handicap spaces may stopped on the sidewalk.

The likelihood of entering traffic queuing back onto Center Blvd is dependent on the number of entering vehicles and the turnover rate in the spaces along the west side of the building. Seventy five customers are expected to enter at the central driveway during the p.m. peak hour, or on average a car every 48 seconds.

On average, dividing the 335 project trip end by the 90 parking spaces associated with the project suggest that each space will turnover twice during the p.m. peak hour, although the spaces closest to the front door may see greater use for quicker trips. The seven parking spaces along the west side of the building could turnover once every 20 to 30 minutes. Thus, while it is likely that there will be a

car entering the parking lot when a vehicle is exiting one of these spaces, entering vehicles would only see an exiting car 14 to 20 times each hour. Thus while it may be desirable to eliminate the parking along the building to facilitate inbound traffic this change is not mandatory.

Truck Access / Circulation. The project will occasionally need to be serviced by full size trucks, and the designated loading area is at the northeast corner of the building. Trucks would arrive and depart via the Pastori Avenue / Sir Francis Drake Blvd intersection, and deliveries are normally scheduled for off-peak hours when intersection queuing is not an issue. A wide driveway is provided on Pastori Avenue for trucks, and the project site plan provides enough room in this area of the site to permit trucks to reach designated loading areas and to exit the site.

Impacts to Non - Automotive Circulation

The development of a retail use in this area may incrementally increase demand for the area's non-automotive transportation facilities.

Pedestrian Activity. When the project is completed, there may be increased pedestrian activity may occur between the site and nearby residences and businesses. However, with construction of a sidewalk on the west side of Pastori Avenue, there is no appreciable gap in the system of pedestrian facilities needed to serve this use. While there may be some pedestrian activity across Pastori Avenue at the uncontrolled Belle Avenue intersection, a safety problem is not expected since the volume of traffic on Pastori Avenue will remain relatively low and the number of pedestrians originating in this neighborhood is also low.

Bicycle Activity. The project will attract cyclists to the site, but while many of these customers would be cyclists that are already using Fairfax streets to reach the existing store, this kind of project may encourage more persons to make shopping trips by bicycle. The project should encourage its customers to cycle, both as a marketing strategy and as a way to reduce the amount of vehicular traffic to and from the site. According to the project proponents, encouragement will include creation of bicycle racks to accommodate 20 bicycles along with other amenities, including a Bike Rider Rest Station, air pump, and area bike trail map

The project would increase the amount of vehicular traffic through the Center Blvd / Fairfax Avenue intersection where cyclists sometimes create conflicts with automobiles by not coming to a complete stop. However, the increase in vehicular traffic is not so great as to appreciable exacerbate current conflicts.

Transit Services. The project would be unlikely to create an appreciable demand for the transit services in Fairfax.

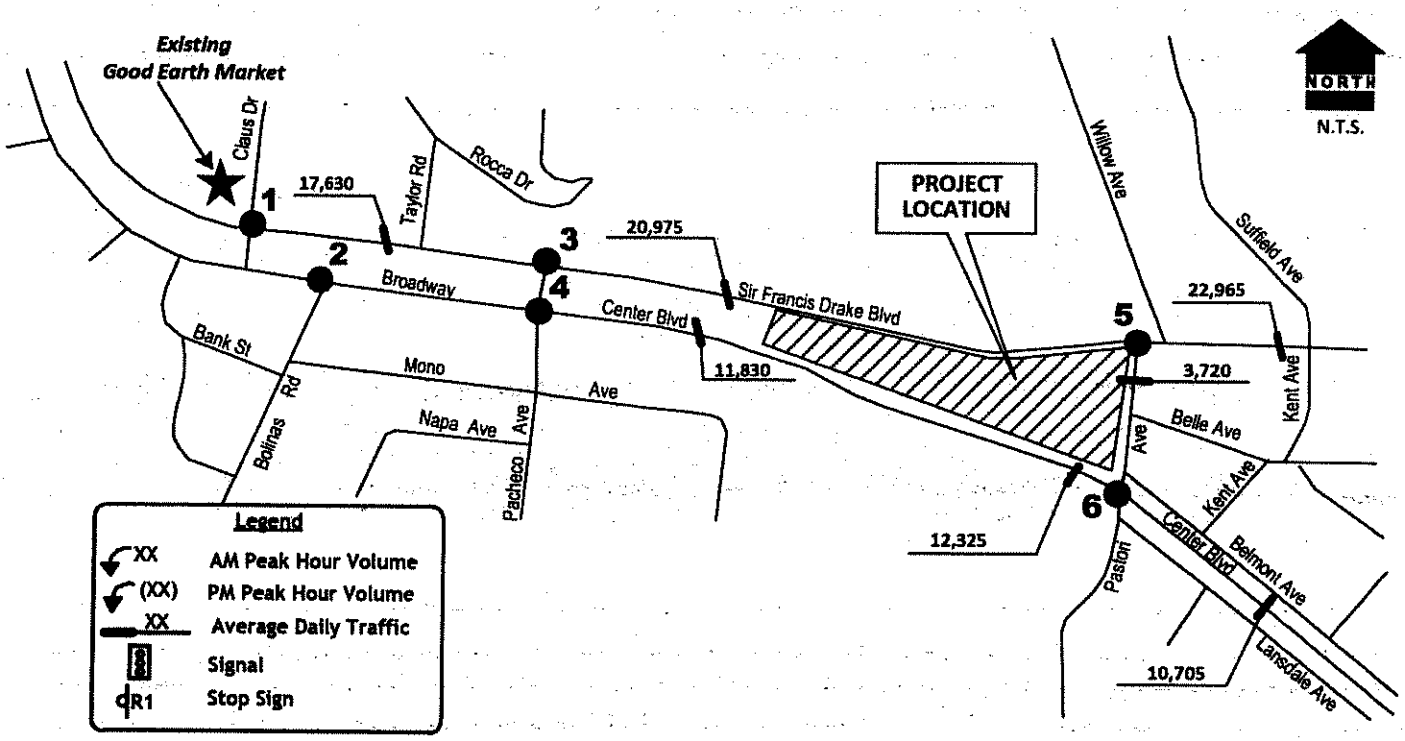
ADJUSTED YEAR 2016 PLUS PROJECT TRAFFIC IMPACTS

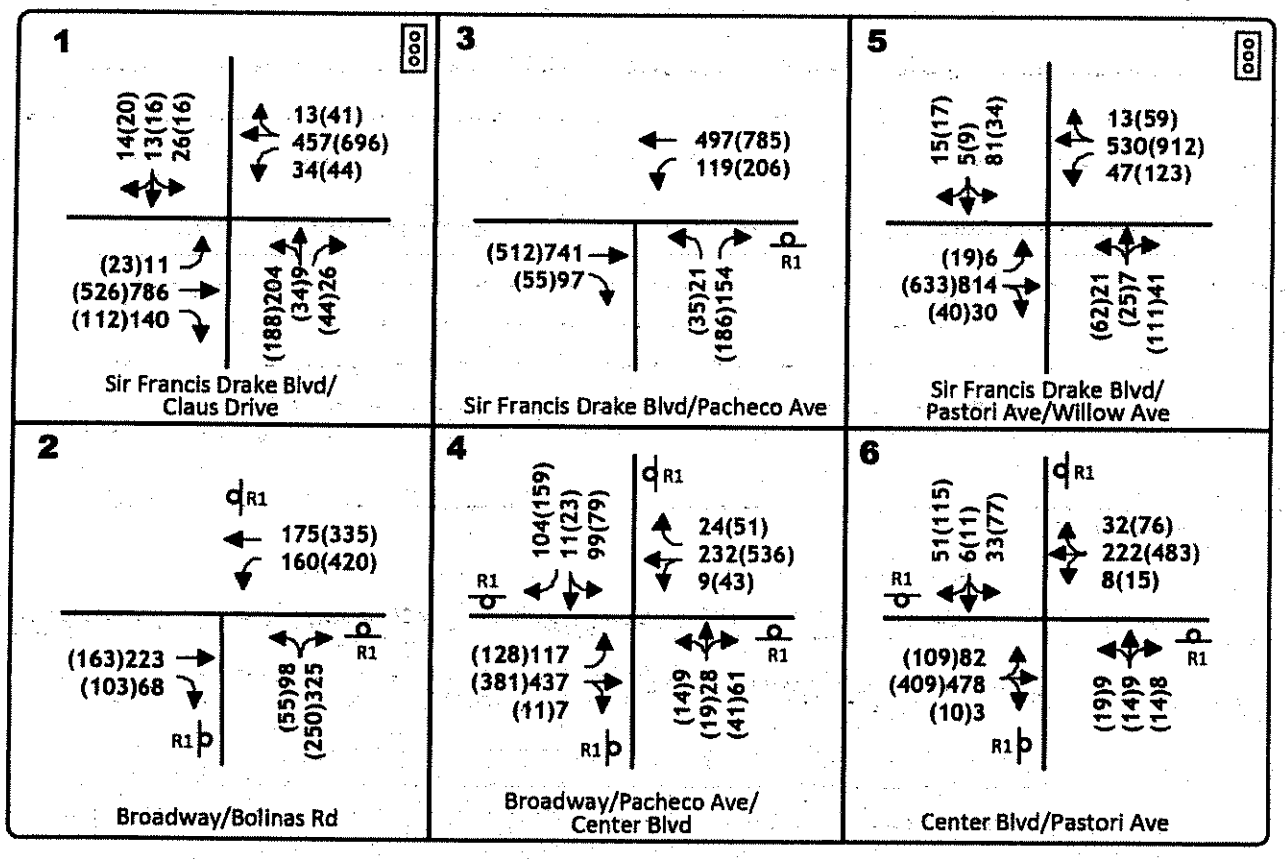
The evaluation of project impacts considers a scenario whereby background traffic is adjusted to address seasonal traffic variation as well as possible regional growth. This scenario also considers the possibility that the existing Good Earth Market is occupied by a retail store with similar trip generation rates.

Year 2016 Conditions

Adjusted Year 2016 Plus Project Traffic Volumes. Observed January traffic volumes were increased by 8% to account for seasonal adjustment to average conditions and by another 5% to account of background traffic growth occurring over the next 5 years. Project generated automobile trips were superimposed onto current background traffic, and resulting Year 2016 Plus Project peak hour and daily traffic volumes are presented in Figure 7. These volumes were used to suggest project impacts based on daily traffic volume and intersection Level of Service under two scenarios. One scenario assumes that the existing Good Earth Market remains vacant or is occupied by a low-generating (i.e., non-retail) use. Alternatively, Figure 8 presents Year 2016 Plus Project traffic volumes assuming that the existing store is occupied by a retail use with trip generation characteristics that are similar to the existing store.

Daily Traffic Volumes. Table 15 identifies adjusted background Year 2016 traffic volumes, the net traffic increase resulting from the proposed project if the existing Good Earth Market remains vacant, and the resulting total traffic volume. Similarly, the traffic increase accompanying the project if the existing store is re-used is also presented along with the resulting total volume. This data represents the range of traffic impacts.



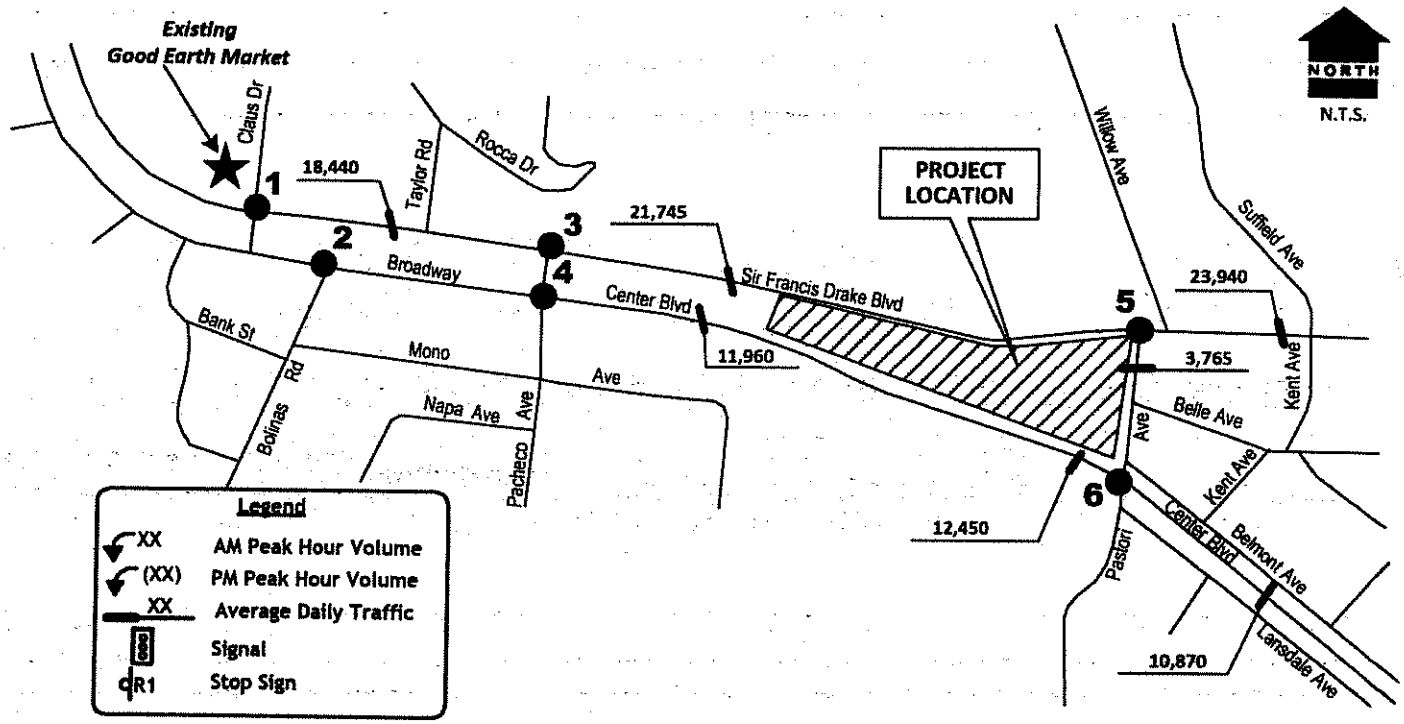


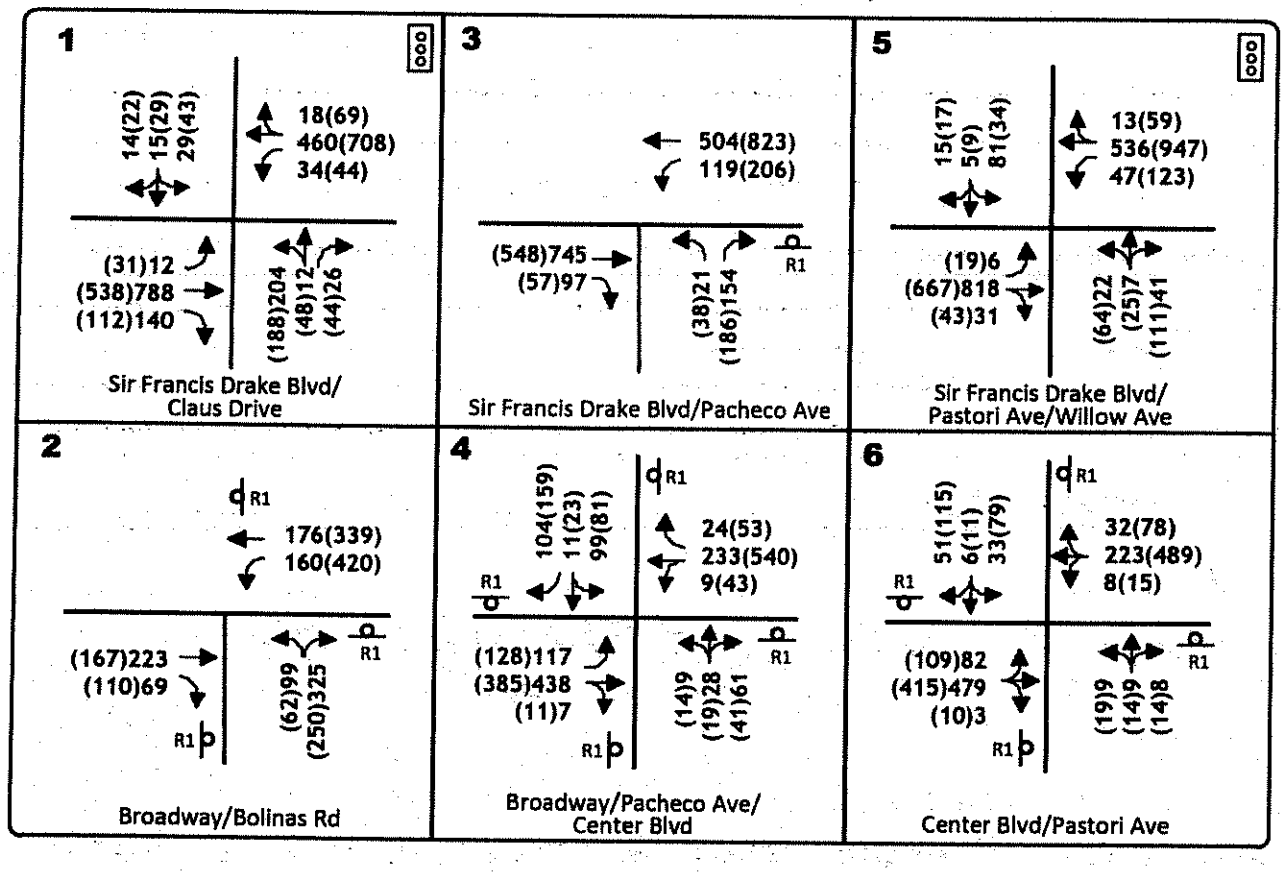
ADJUSTED YEAR 2016 PLUS PROJECT TRAFFIC VOLUMES AND LANE CONFIGURATIONS

KD Anderson & Associates, Inc.
Transportation Engineers

3225-01.VSD 3/2/2011

figure 7





ADJUSTED YEAR 2016 PLUS PROJECT AND REUSE OF EXISTING GOOD EARTH SITE TRAFFIC VOLUMES AND LANE CONFIGURATIONS

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3225-01.VSD 3/2/2011

figure 8

TABLE 15
PROJECT CONTRIBUTION TO YEAR 2016 DAILY TRAFFIC VOLUMES

Street	From	To	Year 2016 Daily Traffic Volume					
			Without Existing Store Re-Use			With Existing Store Re-Use		
			Adjusted 2016	Project Net Only	Total	Adjusted 2016	Total Project	Total
Sir Francis Drake Blvd	Claus Drive	Pacheco Avenue	18,285	-655	17,630	18,285	155	18,440
Sir Francis Drake Blvd	Pacheco Avenue	Pastori Avenue	21,565	-590	20,975	21,565	180	21,745
Sir Francis Drake Blvd	Pastori Avenue	Butterfield Road	23,200	235	22,965	23,200	940	23,940
Center Blvd	Pacheco Avenue	Project Access	11,325	505	11,830	11,325	635	11,960
Center Blvd	Project Access	Pastori Avenue	11,325	1,000	12,325	11,325	1,125	12,450
Center Blvd	Pastori Avenue	San Anselmo Avenue	10,635	70	10,705	10,635	235	10,870
Pastori Avenue	Sir Francis Drake Blvd	Project Access	2,210	1,510	3,720	2,210	1,555	3,765
Pastori Avenue	Project Access	Center Blvd	2,210	870	3,80	2,210	915	3,125

Peak Hour Intersection Level of Service. Tables 16 and 17 compare Adjusted Year 2016 Levels of Service with and without the project, again assuming that the existing store is either vacant or re-occupied.

Background Conditions. As shown, if background traffic volumes increase as projected for the Year 2016, then traffic conditions will remain acceptable in the a.m. peak hour, but two locations will exceed or approach the Town's minimum LOS D threshold whether the proposed project proceeds or not. Motorists waiting to make left turns at the Sir Francis Drake Blvd / Pacheco Avenue intersection will continue to experience delays that are indicative of LOS F. During the p.m. peak hour the Level of service at the **Center Blvd / Broadway / Pacheco Avenue intersection** will drop to LOS E. The volume of traffic at the intersection will reach a level that satisfies peak hour traffic signal warrant requirements. Without the proposed project the Level of Service at the **Center Blvd / Pastori Avenue intersection** during the p.m. peak hour will be LOS D but average delays at the intersection will be within a fraction of a second (i.e., 0.2 seconds) of exceeding LOS D and reaching LOS E. The volume of traffic at this location would not satisfy traffic signal warrants.

Project Impacts. The addition of project traffic will increase delays at study intersections and exacerbate the poor background conditions expected at the three intersections that fail to meet the City's LOS D standard. The additional traffic accompanying the project would result in LOS F conditions at the Broadway / Center Blvd / Pacheco Avenue intersection, regardless of re-use of the existing Good Earth Market. Similarly, the additional traffic at the Center Blvd / Pastori Avenue intersection will result in LOS F conditions whether the existing store is re-used or not. The volume of traffic projected at this intersection would satisfy peak hour traffic signal warrants.

Improvement Options. The feasibility of improvements to deliver satisfactory Levels of Service at study intersections has been evaluated.

Traffic Signals and roundabout intersections are typically considered when all-way stop intersections lack the capacity to accommodate projected traffic volumes, although simply reaching traffic signal warrants is not itself a justification for installing a signal. In this case, there are design issues. Improving the Broadway / Center Blvd / Pacheco Avenue intersection will be complicated by its close proximity to the Sir Francis Drake / Pacheco Avenue intersection. Because the intersections are so close, it will be necessary to signalize both intersections and to operate them in a coordinate manner in order to avoid having the queues from one location extend back into an adjacent intersection. Similarly, if a roundabout was considered, it would be necessary to use a roundabout at both intersections.

Improving the Center Blvd / Pastori Avenue intersection may also be complicated by the proximity of Lansdale Avenue on the south and Belmont Avenue on the north. These local streets intersect the intersection at locations which would make full access to a roundabout difficult and maintaining access to the local streets would complicate a normal traffic signal.

TABLE 16
ADJUSTED YEAR 2016 AM PEAK HOUR INTERSECTION LEVELS OF SERVICE

Intersection	Intersection Control	AM Peak Hour					
		Background Adjusted Year 2016		Year 2016 Plus Project			
				Without Store Re-Use		With Store Re-Use	
		Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1. Sir Francis Drake Blvd / Claus Drive	Signal	20.8	C	20.3	C	20.9	C
2. Broadway / Bolinas Road	All-way stop	20.1	C	20.3	C	20.4	C
3. Sir Francis Drake Blvd / Pacheco Ave (overall)	NB Stop	(3.3)	(A)	(3.4)	(B)	(3.4)	(B)
NB left turn		**48.7**	**E**	**49.0**	**F**	**50.0**	**F**
NB right turn		20.9	C	21.0	C	21.1	C
WB left turn		10.7	B	10.7	B	10.8	B
4. Broadway / Center Blvd / Pacheco Avenue	All-way Stop	20.1	C	20.7	C	20.9	C
5. Sir Francis Drake Blvd / Pastori Ave	Signal	20.5	C	23.1	C	23.5	C
6. Center Blvd / Pastori Ave	All-Way Stop	20.4	C	22.4	C	22.6	C
7. Center Blvd / West Access	SB Stop	-	-	14.9	B	15.0	B
8. Center Blvd / Central Access	In only	-	-	7.9	A	7.9	A
9. Center Blvd / East Access	SB Stop	-	-	15.1	C	15.1	C
10. Pastori Avenue / Access	EB Stop	-	-	9.4	A	9.4	A

Bold is conditions in excess of LOS D.

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TABLE 17
ADJUSTED YEAR 2016 PM PEAK HOUR INTERSECTION LEVELS OF SERVICE

Intersection	Intersection Control	PM Peak Hour					
		Background Adjusted Year 2016		Year 2016 Plus Project			
				Without Store Re-Use		With Store Re-Use	
		Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1. Sir Francis Drake Blvd / Claus Drive	signal	23.4	C	19.7	B	23.8	C
2. Broadway / Bolinas Road	All-way stop	23.3	C	24.4	C	24.9	C
3. Sir Francis Drake Blvd / Pacheco Ave	NB Stop						
(overall)		(3.8)	(A)	(4.6)	(B)	(5.3)	(A)
NB left turn		**91.2**	**F**	**96.2**	**F**	**>100**	**F**
NB right turn		15.6	C	15.3	C	16.2	C
WB left turn		9.9	A	9.7	B	9.9	A
	Signal					19.3	B
4. Broadway / Center Blvd / Pacheco Avenue	All-way Stop	**47.1**	**E**	**54.4**	**F**	**56.1**	**F**
	Signal					38.0	D
5. Sir Francis Drake Blvd / Pastori Ave	Signal	20.8	C	27.4	C	29.8	C
6. Center Blvd / Pastori Ave	All-Way Stop	**34.8**	**D-E**	**55.2**	**F**	**59.1**	**F**
	Signal					15.0	B
7. Center Blvd / West Access	SB Stop	-	-	24.8	C	25.4	D
8. Center Blvd / Central Access	In only	-	-	9.1	A	9.1	A
9. Center Blvd / East Access	SB Stop	-	-	21.5	C	21.8	C
10. Pastori Avenue / Access	EB Stop	-	-	10.8	A	10.9	B

Bold is conditions in excess of LOS D.

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Project Access Operations. The three issues considered in evaluating the adequacy of the project's driveways were also reviewed under Year 2016 conditions. .

Level of Service. As noted in Tables 16 and 17, the projected traffic volumes at each driveway intersection would result in Levels of Service that satisfy the Town's minimum LOS D policy under "worst case" conditions. Thus, the volume of traffic forecast at each driveway can be accommodated by the proposed design.

Through Traffic Queues. Queues would also be longer under Adjusted Year 2016 Plus Project conditions, as noted in Table 18. If the new market is in operation, the eastbound queue on Center Blvd could be 8 vehicles long, and this 200 foot long queue would reach well beyond the eastern driveway. However, the actions to alleviate this problem would not be appreciable different from those identified for "Existing Plus Project" conditions.

TABLE 18
RELATIONSHIP BETWEEN GOOD EARTH DRIVEWAYS AND ADJOINING INTERSECTIONS
YEAR 2016 PLUS PROJECT CONDITIONS

Street	Direction	No Project			Storage to Driveway		With Project		
		PM Volume	Queue				PM Volume	Queue	
			Vehicles	Distance (feet)	Vehicles	Distance (feet)		Vehicles	Distance (feet)
Center Blvd	eastbound	478	4	100	3	80	529	8	200
Pastori Avenue	northbound	120	6	150	2	55	198	8	200
	southbound	140	<1	<25	10	260	203	<1	<25

MITIGATIONS

The text that follows describes mitigation measures that would need to be considered in response to the traffic impacts described earlier.

Existing Plus Project Conditions

Development of the project does not significantly change the operating Level of Service at any of the study intersections, and the City's LOS D minimum would be maintained.

The only appreciable issue associated with immediate development of the project is the conflict between vehicles exiting the east parking lot and peak period queues on Pastori Avenue and on Center Blvd. To address this issue, two mitigations are proposed:

1. Sign the two exits from the eastern parking lot as "right turn only".
2. Move the Pastori Avenue driveway as far to the south from Sir Francis Drake Blvd as is feasible (20 feet).

Development of the project will also result in the bicycle traffic to and from the site. To address this issue one mitigation is proposed:

3. Provide on-site bicycle parking facilities, as proposed, including racks space for 20 bikes, a Bike Rider Rest Station, air pump, and area bike trail map

Adjusted Year 2016 Conditions

If background traffic increases as assumed under the Adjusted Year 2016 conditions, then the following mitigations would be applicable.

4. The project shall contribute its "fair share" to the cost of improving the two intersections where LOS deficiencies are projected in Year 2016 whether the project proceeds or not. The fair share should be based on the project's traffic as a percentage of the total volume occurring in the future. For example, the net new trips generated by the project are **4.2%** of the total traffic through the Broadway / Center Blvd / Pacheco Avenue intersection under adjusted Year 2016 condition. If a traffic signal was selected, the Good Earth project should contribute 4.2% of the cost of signalizing the Pacheco Avenue intersections on Center Blvd and on Sir Francis Drake Blvd, which is estimated at roughly $500,000. Thus, the project's fair share is $21,000.

   Similarly, the net new trips generated by the Good Earth project are 9.1% of the total traffic through the Center Blvd / Pastori Avenue intersection under adjusted Year 2016 conditions. If a traffic signal is selected as the ultimate solution, the cost of signalizing this intersection is roughly $250,000, making the project's share $22,750.

TECHNICAL APPENDIX

Traffic Counts

Year 2010 Census and Marin County Traffic Model Output Data

Level of Service Calculation worksheets

KD Anderson & Associates, Inc.
Transportation Engineers

April 29, 2011

Mr. John U. Fry, Project Manager / Owners Representative
CDM
444 Airport Blvd, Suite 203
Watsonville, CA 95076

RE: GOOD EARTH MARKET, FAIRFAX, CA: SUPPLEMENTAL INFORMATION REGARDING TRIP GENERATION / TRAVEL CHARACTERISTICS.

Dear Mr. Fry:

As we have discussed, our Traffic Impact Analysis for the Good Earth Market Project identified the potential impacts associated with moving the store from its existing site near Claus Drive to a new location on Center Blvd. While the analysis adheres to standard traffic engineering practice and makes use of typical data sources, the project and its location in Fairfax are somewhat unique with regards to automobile and bicycle circulation and with regards to weekend traffic conditions. You have asked that we assemble additional information regarding the characteristics of the existing store and of weekend traffic in order to help validate the traffic impact analysis' assumptions and conclusions.

Trip Generation Rates. The traffic impact analysis makes use of data published by the *Institute of Transportation Engineers* (ITE) to estimate the amount of automobile traffic associated with both the existing Good Earth Market at Sir Francis Drake Blvd / Claus Drive with the larger store proposed at 720 Center Blvd. ITE provides information for a variety of land use categories, and of the available choices, the Good Earth Market was assumed to fall into the freestanding Supermarket category. The data within this category was collected at 40 locations nationwide that include stores ranging in size from 18,000 to 120,000 sf.

While this is the best available data, because the size of the existing store would lie at the lower end of the range of the sample data, it may be asked whether the estimates for the existing store are reasonable.

To provide a reasonableness check, we observed automobile traffic to and from the existing store during a typical weekday p.m. peak hour. We monitored customers using the on-street parking supply along Claus Drive, the parking in the spaces in front of the store and the spaces adjoining the old gas station on the west side of the store. We observed all activity during the period between 4:00 and 6:00 p.m. on March 10, 2011.

The results of our investigation are noted in Table 1. As shown, we observed a total of 230 vehicle trips to and from the site. This compares favorably with the 190 trips estimated using ITE rates for supermarkets.

TABLE 1
PM PEAK HOUR TRIP GENERATION FOR EXISTING GOOD EARTH STORE

Land Use	Size	Total PM / Peak Hour trips					
		Estimated from ITE Rates			Observed 3/10/11		
		In	Out	Total	In	Out	Total
Good Earth Market	8.4 ksf	97	93	190	118	112	230

The amount of traffic generated on Saturdays was also determined by monitoring activity at the existing store. The highest midday hourly total was 216 vehicles, which was similar to but slightly less than the weekday p.m. peak hour volume.

Weekend Traffic. As noted in the traffic impact analysis, weekday p.m. peak hour traffic operating conditions typically represent the "worst case" condition employed for environmental analysis, and this time period has been the basis for all previous Fairfax area traffic studies. However, Fairfax attracts an appreciable amount of commercial traffic on weekends, and recreational bicycle use is also high during that time.

To help affirm the use of weekday traffic as the basis of analysis, we monitored background weekend traffic and bicycle activity near the proposed Good Earth Market site at 720 Center Blvd. Typically, in recreation / commercial areas weekend traffic volumes are high during the midday. This time period captures lunch activity, shopping and recreational cycling.

As shown in Table 2, the background automobile traffic volume through the Center Blvd / Pastori Avenue intersection is highest during the weekday p.m. peak hour. The volume of bicyclist through the intersection is higher on Saturday.

TABLE 2
COMPARISON OF WEEKDAY AND WEEKEND CONDITIONS AT CENTER BLVD / PASTORI AVENUE INTERSECTION

Data Set	Time Period		
	Weekday AM Peak (7:00 to 9:00 am)	Weekday PM (4:00 to 6:00 p.m.)	Saturday Peak (Noon)
Total Hourly Automobiles	802	1,086	991
Total Hourly Bicyclists	74	67	334
Average Delay (Level of Service)	15.0 sec (B)	20.6 sec (C)	14.6 sec (B)

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Modal Choice. Various transportation modes are available in Fairfax and each is used at various times for varying purposes. While automobiles remain the primary mode, an appreciable number of residents and visitors use bicycles or walk. These choices will likely be made by patrons of the new Good Earth Market.

Modal choice at the existing Good Earth Market was established by observation during the traffic counts conducted at that site, and I understand that a customer survey identifying modal choice will also be administered by the store. Based on our observation, roughly 5% of the arriving customers came by bicycle during the weekday 4:00 to 6:00 p.m. peak period. This finding is reasonable since many Good Earth customers stop at the store as part of their commute home from work and the private automobile remains the primary commute option.

Customer Survey Results. To provide additional information regarding the Good Earth Market, the project proponent administered a customer survey. Customers were asked questions regarding their mode of travel and regarding their overall travel pattern to and from the store.

As shown in Table 3, more than 17% of the Good Earth Market customers reported using transportation modes other than the private automobile (i.e., bicycles 8.5%, Bus/Public Transportation 1.8%, Walk 6.7%). The choice of alternative modes for shopping trips appears higher in Fairfax than in many other communities.

TABLE 3
GOOD EARTH CUSTOMER TRAVEL MODES SURVEY RESULTS

	Saturday (12:00 to 6:00 pm)		Tuesday (4:00 to 7:00 p.m.)		Combined	
How did you travel to our store today?						
Automobile	62	83.8%	74	82.1%	136	82.9%
Bicycle	4	5.4%	10	11.1%	14	8.5%
Bus / Public Transportation	1	1.4%	2	2.2%	3	1.8%
Walk	7	9.5%	4	4.4%	11	6.7%
Total	74	100.0%	90	100.0%	164	100.0%

Table 4 summarizes answers to how the trip to Good Earth related to other travel. As shown, most customers visited Good Earth as part of a multi-purpose trip, and few shoppers (i.e., 14%) made a trip exclusively to Good Earth.

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TABLE 4 GOOD EARTH CUSTOMER TRAVEL CHARACTERISTICS SURVEY RESULTS						
	Saturday (12:00 to 6:00 pm)		**Tuesday (4:00 to 7:00 p.m.)**		**Combined**	
Your stop at Good Earth today was:						
on the way to work	2	2.7%	10	11.1%	12	7.3%
the last stop on the way home	46	62.2%	38	42.2%	84	51.2%
on the way to other stop(s) before going home	23	31.1%	22	24.4%	45	27.4%
Direct from home to this store and return home	3	4.1%	20	22.2%	23	14.0%
Total	74	100.0%	90	100.0%	164	100.0%

Finally, Table 5 summarizes responses to the location of the residences of Good Earth customers. As shown, most Good Earth customers reside in Fairfax or in areas east of Fairfax. This conclusion is consistent with the assumptions made for the traffic study.

TABLE 5 GOOD EARTH CUSTOMER RESIDENCE SURVEY RESULTS						
	Saturday (12:00 to 6:00 pm)		**Tuesday (4:00 to 7:00 p.m.)**		**Combined**	
I live...						
in Fairfax - immediate area	14	18.9%	27	30.0%	41	25.0%
west of Fairfax	22	29.7%	27	30.0%	59	29.9%
east of Fairfax	38	51.4%	36	40.%	74	45.11%
Total	74	100.0%	90	100.0%	164	100.0%

Please feel free to contact me if you have any questions or need additional information

Sincerely,

KD Anderson & Associates, Inc.

Kenneth D. Anderson, P.E.
President

KDA