Maloney, Mike

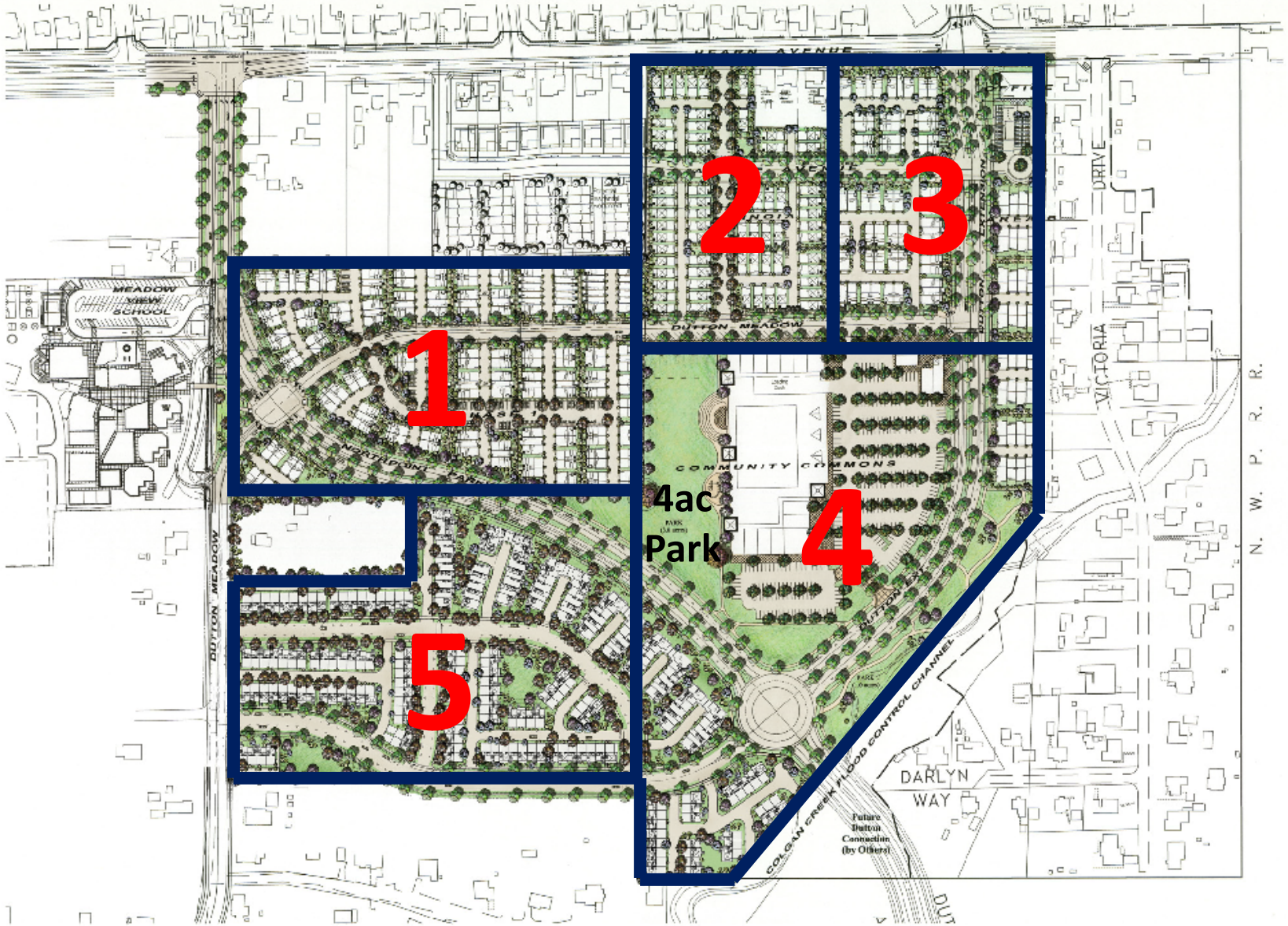
From: Maloney, Mike
Sent: Wednesday, December 8, 2021 8:46 AM
To: _PLANCOM - Planning Commission
Cc: Ross, Adam
Subject: FW: Re: December 9, 2021, Planning Commission Meeting - Item 9.2 - Dutton Meadow Subdivision
Attachments: Applicant Presentation.pdf

*****Please do not reply to all*****

Chair Weeks and Members of the Commission,

The applicant provided their presentation to Staff yesterday (Tuesday, December 7, 2021) after having technical difficulties sending it through email. Please find the applicant's presentation attached to this email. This will be added to the agenda item shortly.

Adam Ross | City Planner
Planning and Economic Development |100 Santa Rosa Avenue, Room 3 | Santa Rosa, CA 95404
Tel. (707) 543-4705 | aross@srcity.org



CONCEPTUAL BUILD-OUT PLAN
OF MASTER DEVELOPMENT PLAN

Santa Rosa,
Sonoma County,
California

Trumark Companies

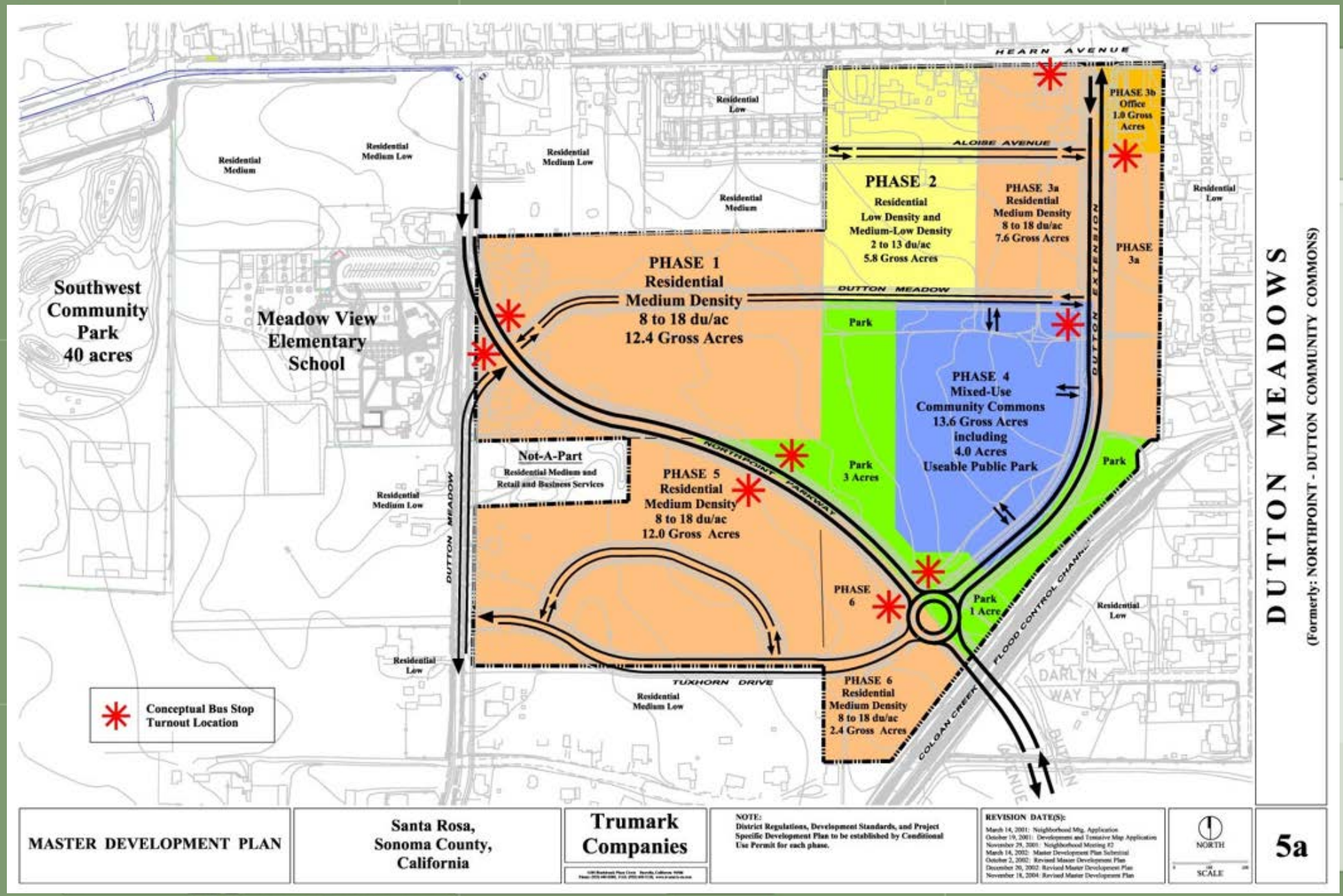
CONSULTANTS:

KTGY GROUP, INC.
ARCHITECTURE PLANNING

0 50 100 200

6a


Dutton Meadows
Context Aerial Photo
February 2021
Legend
Air Gas
Extended Stay America Hotel Santa Rosa -
Feature 1
Feature 2
Feature 3
Greater Power House Church
Hearn Ave
Hearn Ave.
Meadow View Elementary School
Southwest Community Park
Steve-O's Meat & Deli
Phase 1
Phase 2
Phase 3
Phase 4
Phase 5
4ac Park
Hearn Ave
Redwood Hwy
101



Dutton Meadows

Dutton Meadows

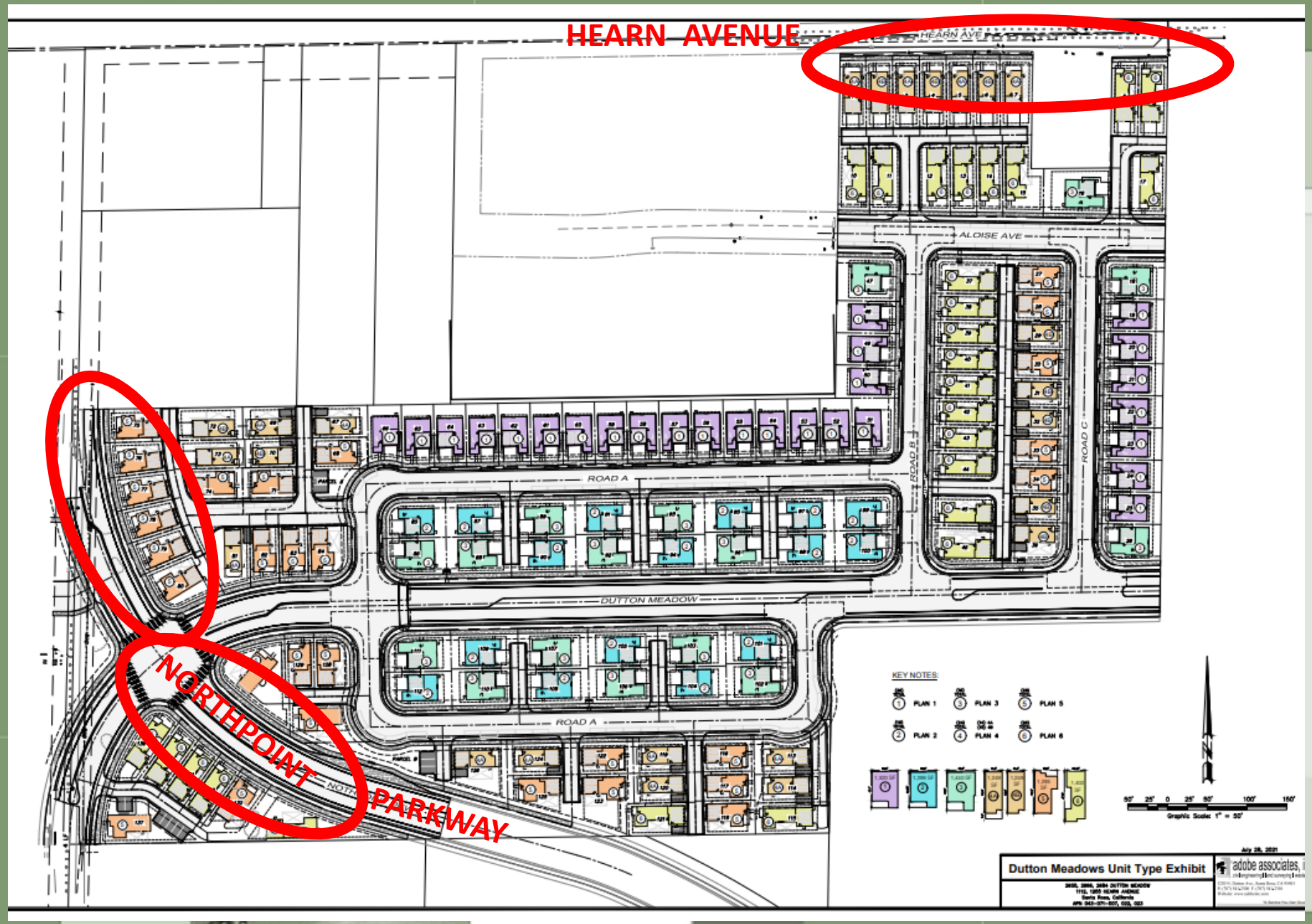
Traditional Front-loaded Homes

STREET SCENE 3: ALONG STREET B

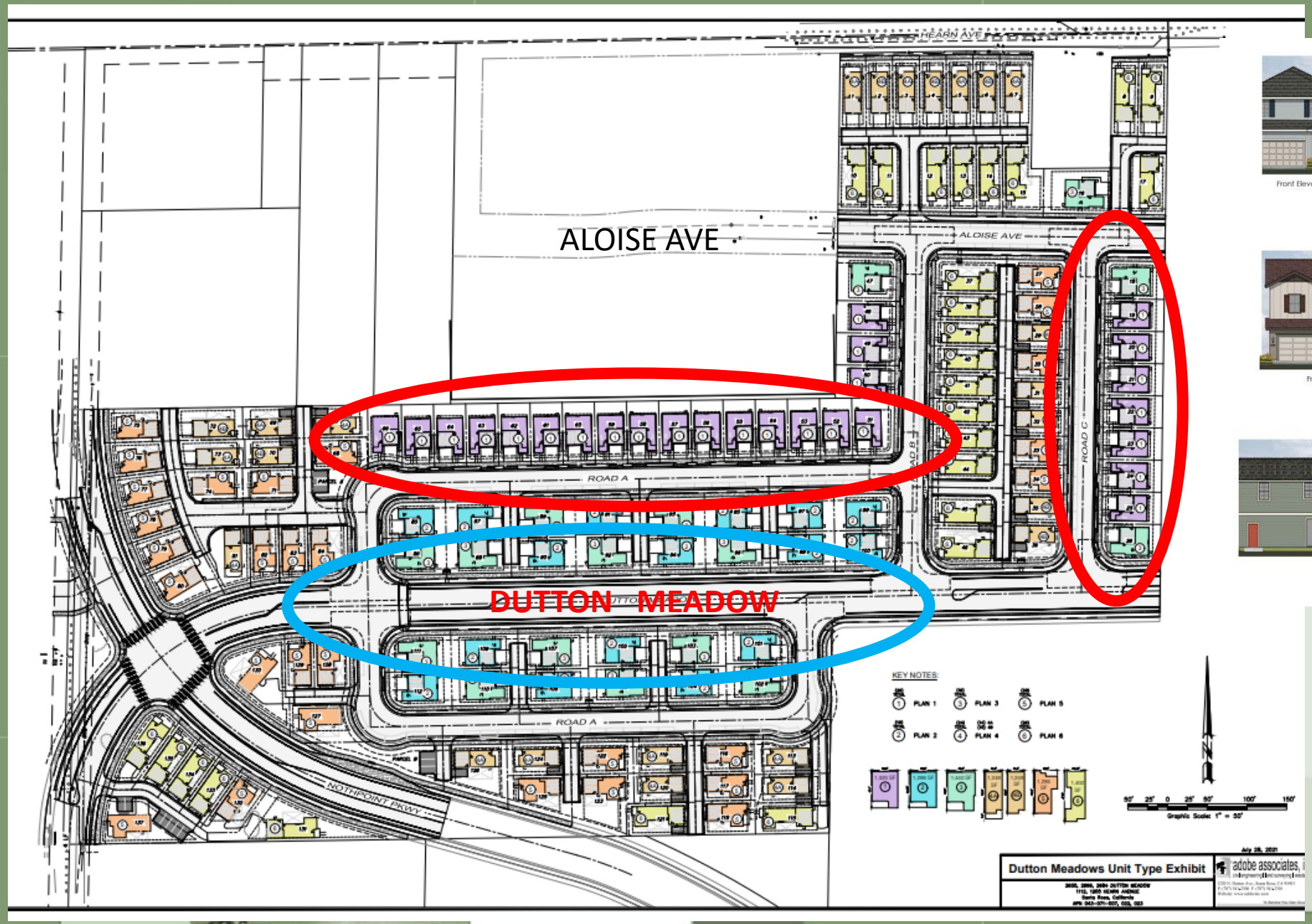
Alley-loaded Homes

STREET SCENE 4: ALONG HEARN AVE.

Dutton Meadows – Traditional Homes



Dutton Meadows



Dutton Meadows

STREET SCENE 1: ALONG DUTTON MEADOW NEAR STREET A (LOOKING NORTH)

STREET SCENE 2: ALONG DUTTON MEADOW (LOOKING NORTH)

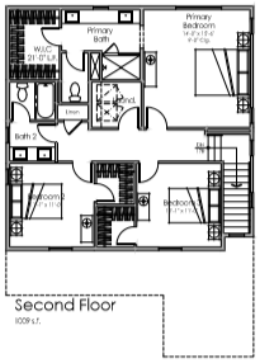
Dutton Meadows – Alley-Loaded Homes

Front Elevation
1A Vineyard

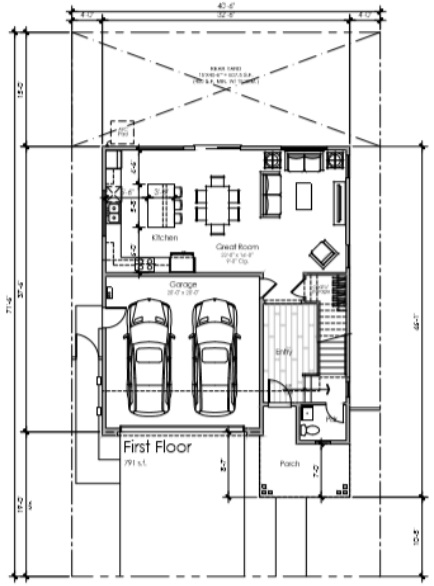
VINEYARD
Composition Shingle Roofing
Stucco Finish
Cementitious Board & Batt Siding
Shutters
Enhanced Sills
Decorative Gable End Details

Front Elevation
1B Farmhouse

FARMHOUSE
Composition Shingle Roofing
Cementitious Lap Siding
Shutters
Enhanced Sills
Wood Posts



Second Floor



First Floor

kitley | Architecture + Planning

TRUMARK HOMES

DUTTON MEADOW

SCHEMATIC DESIGN

3 BEDROOMS
2.5 BATHS
1,800 S.F.

FLOOR PLAN 1A
CONVENTIONAL FRONT LOADED

A1.1

Front Elevation 3A Vineyard

VINEYARD
Composition Shingle Roofing
Stucco Finish
Cementitious Board & Batt Siding
Shutters
Enhanced Sills
Decorative Gable End Details
Wood Posts

Front Elevation 3B Farmhouse

FARMHOUSE
Composition Shingle Roofing
Cementitious Lap Siding
Shutters
Enhanced Sills
Wood Posts

Right Elevation

Right Elevation

Front Elevation
2A Vineyard

VINEYARD
Composition Shingle Roofing
Stucco Finish
Cementitious Board & Batt Siding
Shutters
Enhanced Sills
Decorative Gable End Details
Wood Posts

Front Elevation
2B Farmhouse

FARMHOUSE
Composition Shingle Roofing
Cementitious Lap Siding
Shutters
Enhanced Sills
Wood Posts

Right Elevation

Right Elevation

Front Elevation
1A Vineyard

VINEYARD
Composition Shingle Roofing
Stucco Finish
Cementitious Board & Batt Siding
Shutters
Enhanced Sills
Decorative Gable End Details
Wood Posts

Front Elevation
1B Farmhouse

FARMHOUSE
Composition Shingle Roofing
Cementitious Lap Siding
Shutters
Enhanced Sills
Wood Posts

VINEYARD
Composition Shingle Roofing
Stucco Finish
Cementitious Board & Batt Siding
Shutters
Enhanced Sills
Decorative Gable End Details
Wood Posts

Front Elevation 3A Vineyard

FARMHOUSE
Composition Shingle Roofing
Cementitious Lap Siding
Shutters
Enhanced Sills
Wood Posts

Front Elevation 3B Farmhouse

Right Elevation

Right Elevation

VINEYARD
Composition Shingle Roofing
Stucco Finish
Cementitious Board & Batt Siding
Shutters
Enhanced Sills
Decorative Gable End Details
Wood Posts

Front Elevation
2A Vineyard

FARMHOUSE
Composition Shingle Roofing
Cementitious Lap Siding
Shutters
Enhanced Sills
Wood Posts

Front Elevation
2B Farmhouse

Right Elevation

Right Elevation

Front Elevation
4A Vineyard

VINEYARD
Composition Shingle Roofing
Stucco Finish
Cementitious Board & Batt Siding
Enhanced Sills
Decorative Gable End Details
Wood Posts

Front Elevation
4B Farmhouse

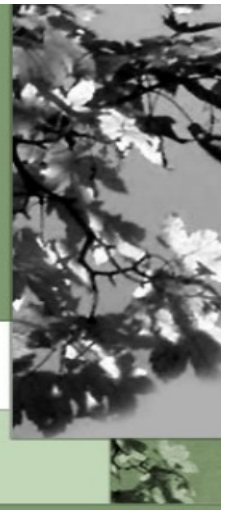
FARMHOUSE
Composition Shingle Roofing
Cementitious Lap Siding
Enhanced Sills
Wood Posts

Front Elevation
5A Vineyard

VINEYARD
Composition Shingle Roofing
Stucco Finish
Cementitious Board & Batt Siding
Shutters
Enhanced Sills
Decorative Gable End Details
Wood Posts

Front Elevation
5B Farmhouse

FARMHOUSE
Composition Shingle Roofing
Cementitious Lap Siding
Shutters
Enhanced Sills
Wood Posts

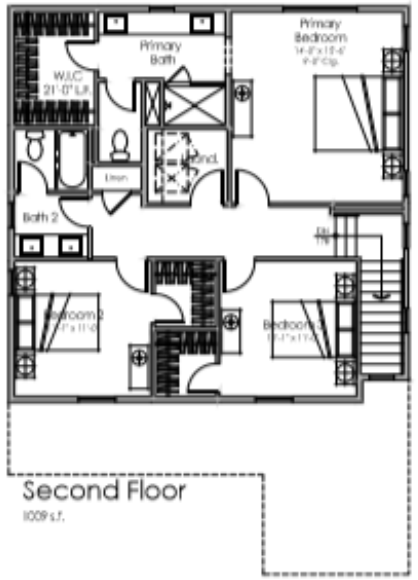


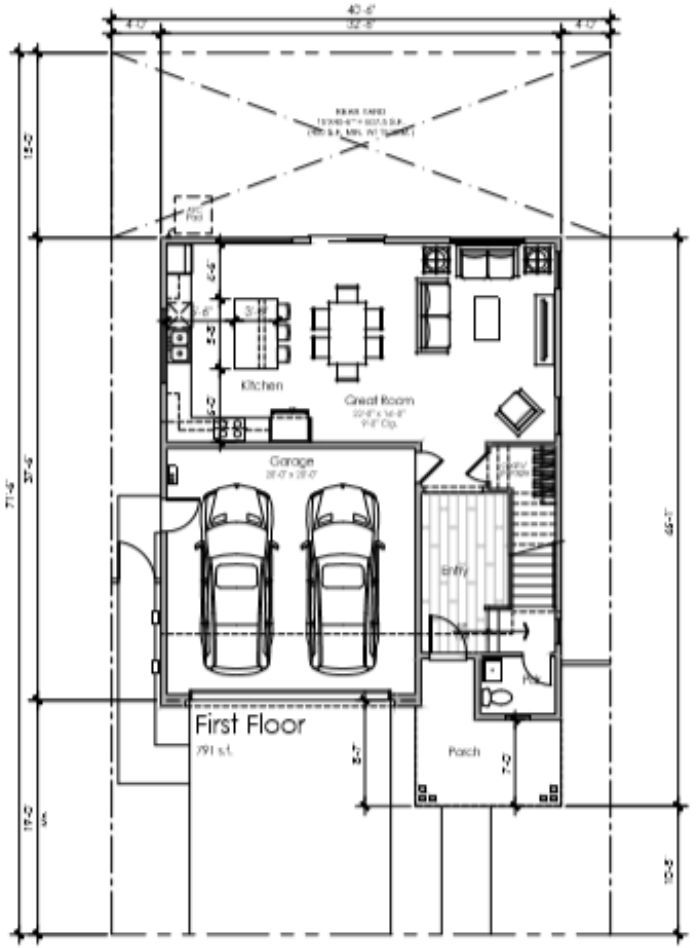
Front Elevation
6A Vineyard

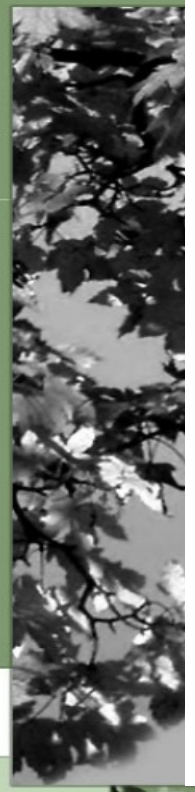
VINEYARD
Composition Shingle Roofing
Stucco Finish
Cementitious Board & Batt Siding
Shutters
Enhanced Sills
Decorative Gable End Details
Wood Posts

Front Elevation
6B Farmhouse

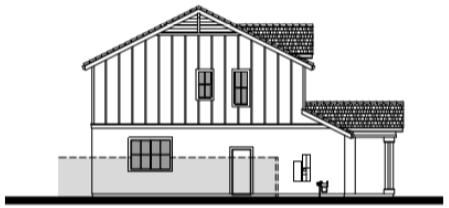
FARMHOUSE
Composition Shingle Roofing
Cementitious Lap Siding
Shutters
Enhanced Sills
Wood Posts



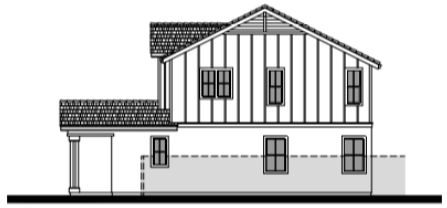


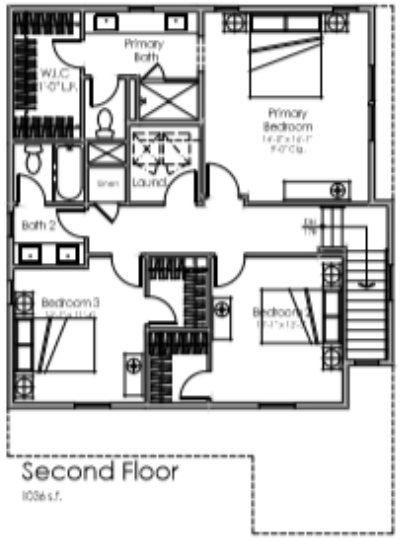


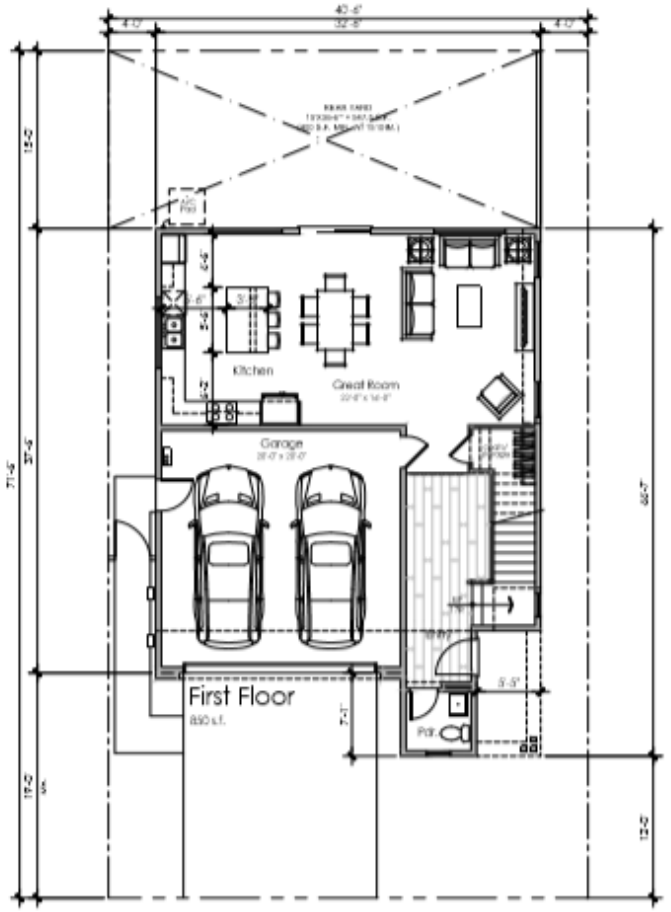
kitgy | TRUMARKHOMES | DUTTON MEADOW | SCHEMATIC DESIGN | 3 BEDROOMS 2.5 BATHS 1,800 S.F. | FLOOR PLAN 1A | A1.1

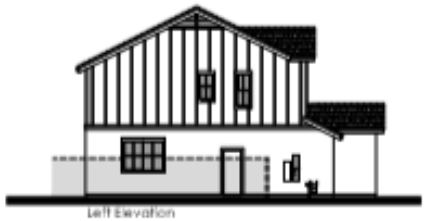

Left Elevation


Rear Elevation


Right Elevation







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TRUMARK HOMES

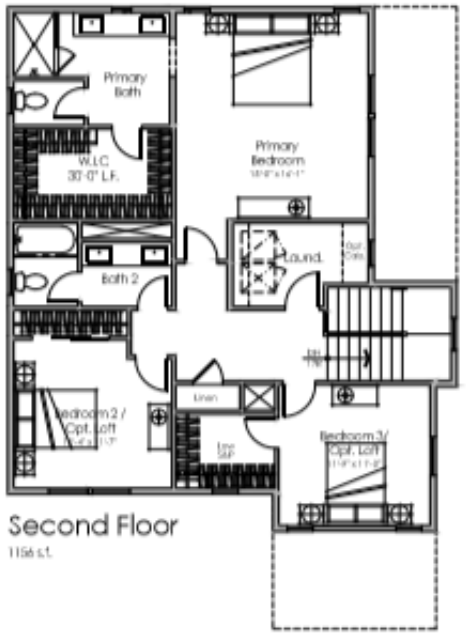
DUTTON MEADOW

SCHEMATIC DESIGN

3 BEDROOMS
2.5 BATHS
1,886 S.F.

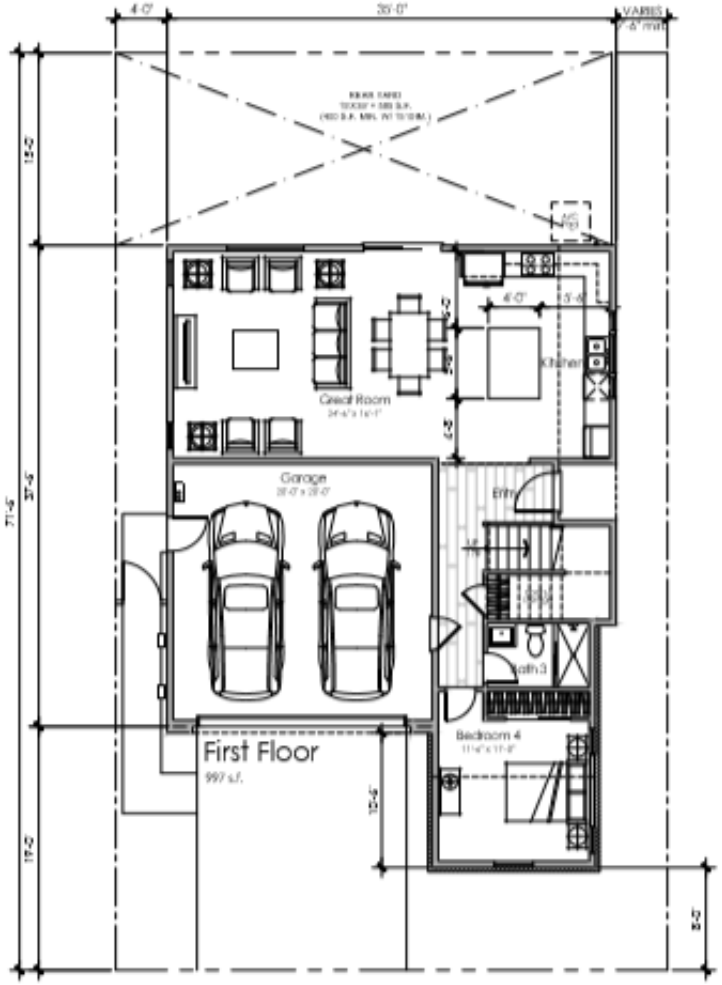
FLOOR PLAN 2A

A2.1



Second Floor

1156 s.f.



First Floor

997 s.f.

kitgv Architecture + Planning

TRUMARKHOMES

DUTTON MEADOW

SCHEMATIC DESIGN

4 BEDROOMS
3 BATHS
OPT. LOFT
2,153 S.F.

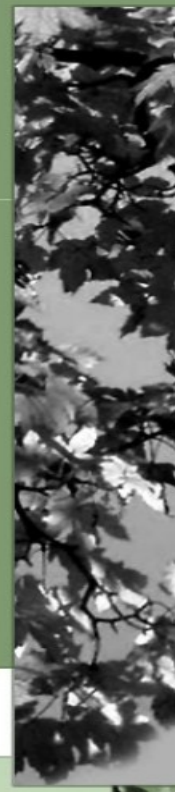
FLOOR PLAN 3

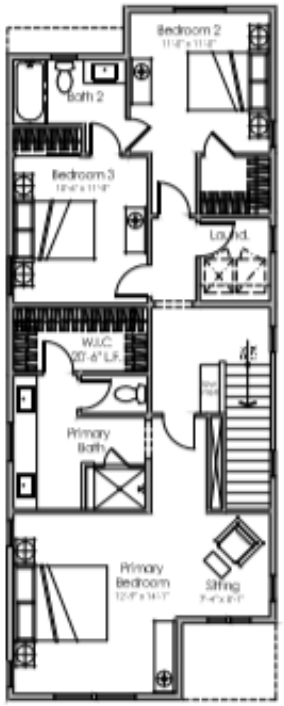
A3.1

Left Elevation

Rear Elevation

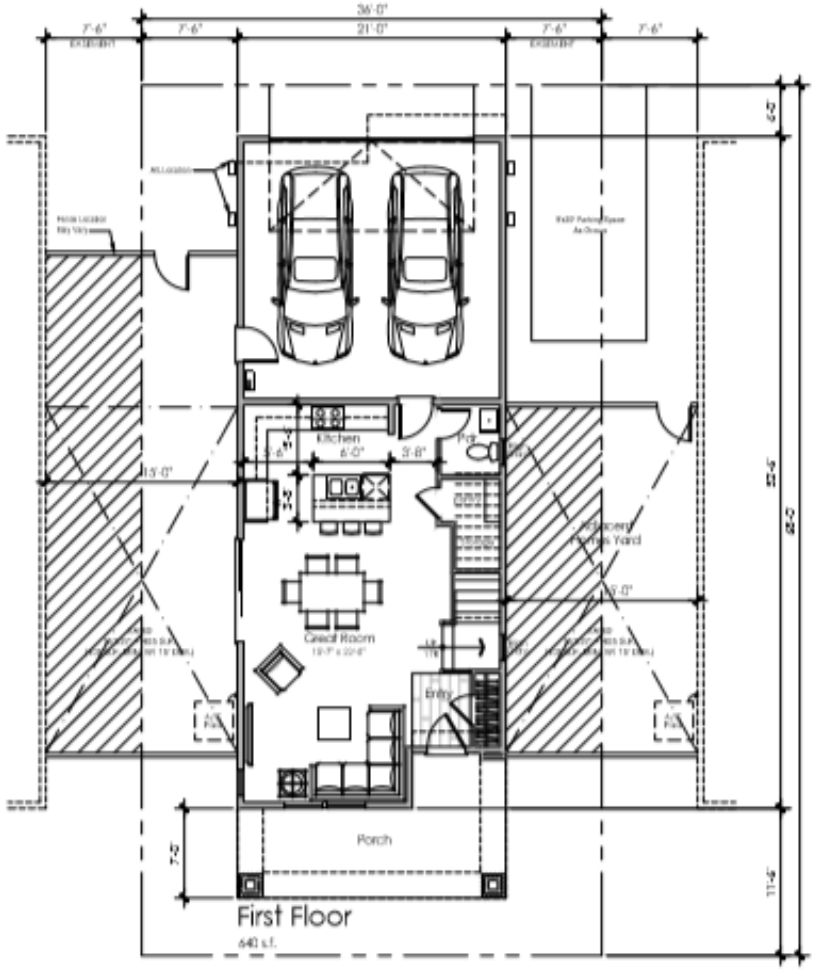
Right Elevation





Second Floor

1040 s.f.



First Floor

640 s.f.

ktgy Architecture + Planning

TRUMARKHOMES

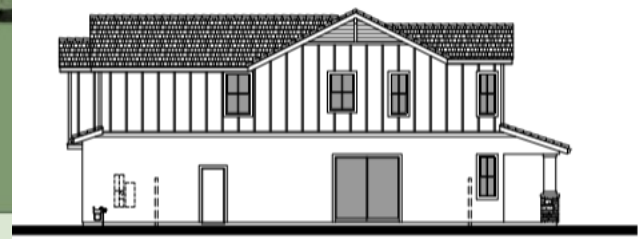
DUTTON MEADOW

SCHEMATIC DESIGN

3 BEDROOMS
2.5 BATHS
1,680 S.F.

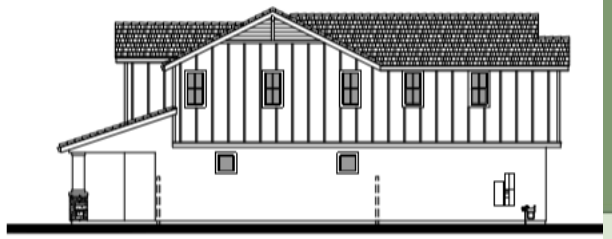
FLOOR PLAN 4

A4.1

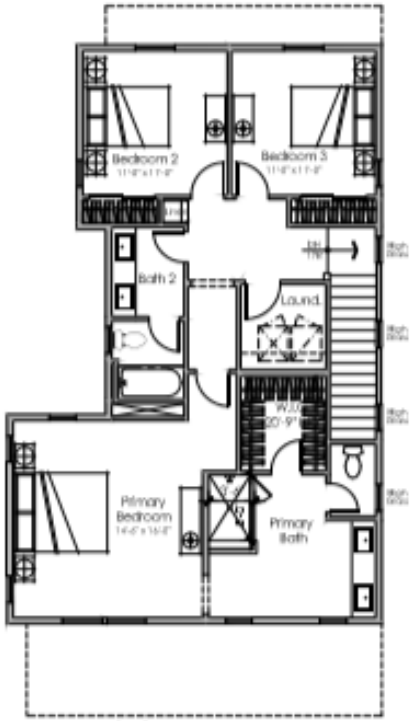


Left Elevation

Rear Elevation

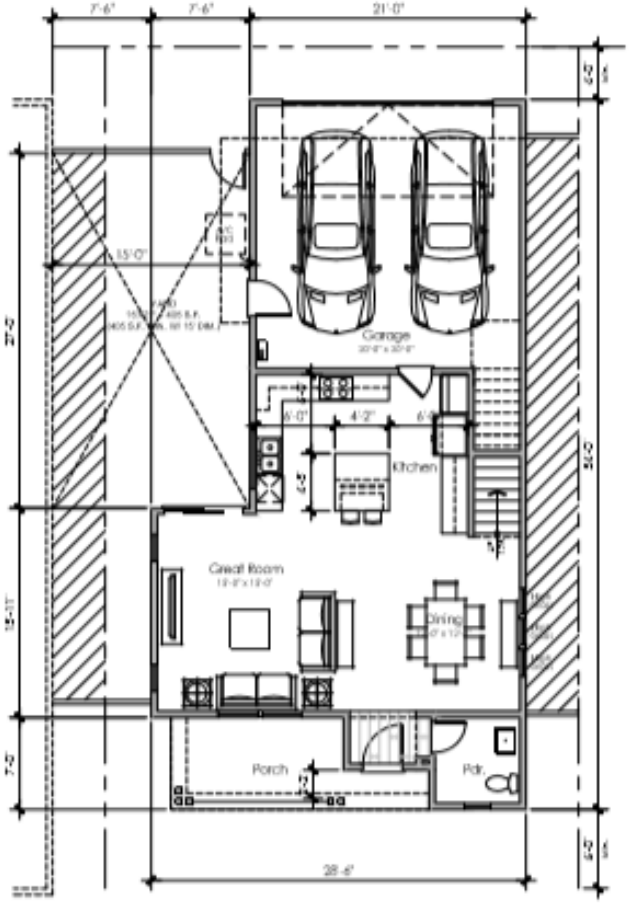


Right Elevation



Second Floor

1057 s.f.



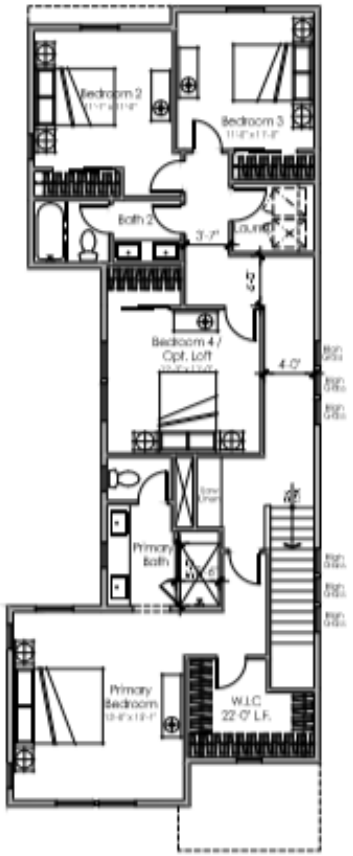
First Floor

729 s.f.

Left Elevation

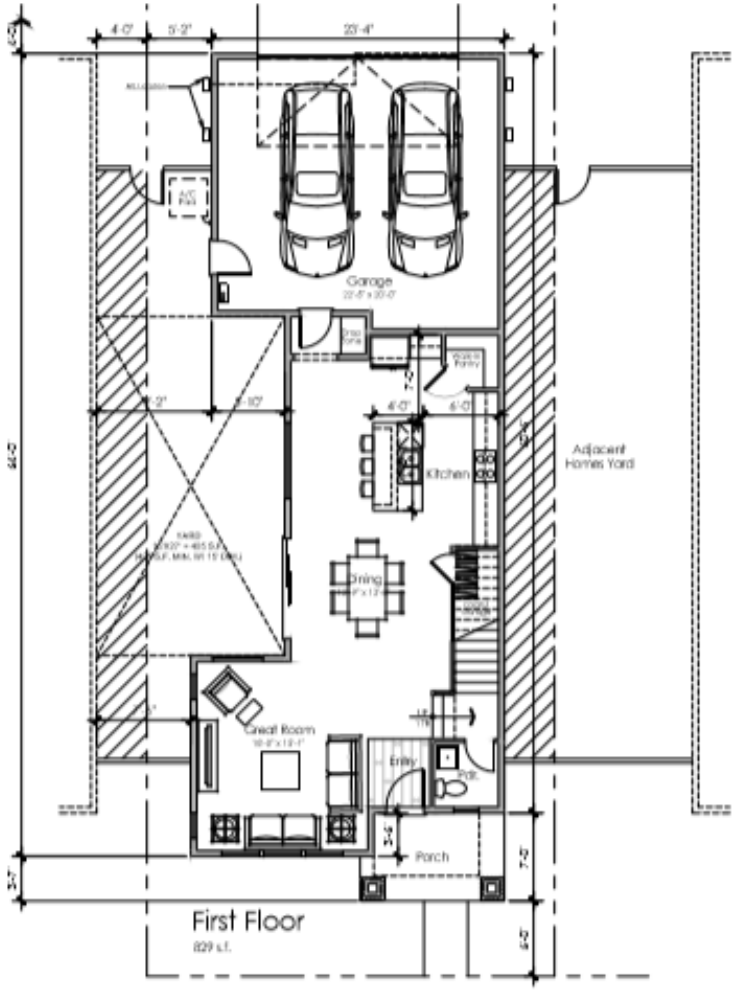
Rear Elevation

Right Elevation



Second Floor

1271 s.f.



First Floor

829 s.f.

kitgv Architecture + Planning

TRUMARKHOMES

DUTTON MEADOW

SCHEMATIC DESIGN

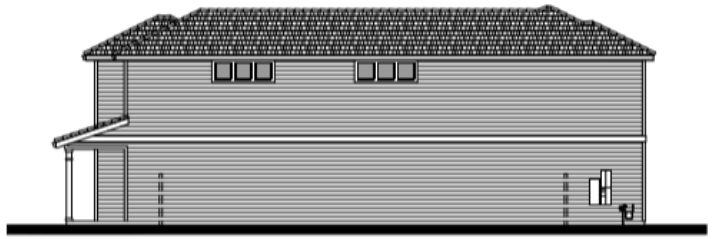
4 BEDROOMS
OPT. LOFT
2.5 BATHS
2,100 S.F.

FLOOR PLAN 6

A6.1

Left Elevation

Rear Elevation



Right Elevation

Dutton Meadows

TREES

SHRUBS, STORMWATER SHRUBS, VINES, GROUNDCOVER

TREE PALETTE

STREET TREES

SYMBOL	BOTANICAL NAME	COMMON NAME	CONT.	WATER USE	MATURE HEIGHT & SPREAD
	ACER RUBRUM 'GERLING'	GERLING RED MAPLE	15 GAL.	M	35'H X 25'W
	CARPINUS BETULUS 'FASTIGIATA'	EUROPEAN HORNBEAM	15 GAL.	M	35'H X 25'W
	CERCIS CANADENSIS	EASTERN REDBUD	15 GAL.	M	25'-35'H X 25'-35'W
	CHITALPA TASHKENTENSIS	CHITALPA	15 GAL.	L	35'H X 35'W
	GINKGO BILOBA	MAIDENHAIR TREE	15 GAL.	M	35'-50'H X 25'-40'W
	KOELREUTERIA BIPINNATA	CHINESE FLAME TREE	15 GAL.	M	25'-35'H X 25'-35'W
	LAURUS X 'SARATOGA'	SARATOGA HYBRID LAUREL	15 GAL.	L	25'-35'H X 25'-35'W
	QUERCUS ILEX	HOLLY OAK	15 GAL.	L	35-50'H X 30-50'W

MEDIUM ACCENT TREES

SYMBOL	BOTANICAL NAME	COMMON NAME	CONT.	WATER USE	MATURE HEIGHT & SPREAD
	GINKGO BILOBA 'PRINCETON SENTRY'	MAIDENHAIR TREE	15 GAL.	M	45'H X 25'W
	LAURUS NOBILIS 'SARATOGA'	SWEET BAY	15 GAL.	L	35'H X 25'W
	LYONOTHAMNUS FLORIBUNDUS	IRONWOOD	15 GAL.	L	35'H x 20'W
	ROBINIA 'PURPLE ROBE'	LOCUST	15 GAL.	L	40'H X 30'W
	PISTACIA CHINENSIS	CHINESE PISTACHE	15 GAL.	L	35'H X 35'W

SMALL ACCENT TREES

SYMBOL	BOTANICAL NAME	COMMON NAME	CONT.	WATER USE	MATURE HEIGHT & SPREAD
	ACER PALMATUM 'SANGO KAKU'	CORAL BARK MAPLE	15 GAL.	M	25'H X 25'W
	GEIJERA PARVIFLORA	AUSTRALIAN WILLOW	15 GAL.	L	25'H X 25'W
	LAGERSTROEMIA 'MUSKOGEE'	CRAPE MYRTLE	15 GAL.	L	25'H X 15'W
	MAGNOLIA X SOULANGEANA	SAUCER MAGNOLIA	15 GAL.	M	25'H X 25'W
	PRUNUS YEDOENSIS 'AKEBONO'	FLOWERING CHERRY	15 GAL.	M	25'H X 25'W
	RHUS LANCEA	AFRICAN SUMAC	15 GAL.	L	25'H X 25'W

SHRUB,STORM WATER SHRUB, VINE, & GROUNDCOVER PALETTE

SHRUBS

SYMBOL	BOTANICAL NAME	COMMON NAME	CONT.	WATER USE	MATURE HEIGHT & SPREAD
LARGE					
	LAVATERA ASSURGENTIFLORA	MALLOW	5 GAL	L	10'H X 10'W
	NANDINA DOMESTICA	HEAVENLY BAMBOO	5 GAL	L	6'H X 4'W
	PITTOSPORUM TOBIRA 'VARIEGATA'	VARIEGATED TOBIRA	5 GAL	L	5'H X 5'W
	PRUNUS CAROLINIANA 'BRIGHT 'N TIGHT'	CAROLINA LAUREL	5 GAL	L	8'H x 7'W
	RHAPHIOLEPIS INDICA 'SPRINGTIME'	INDIAN HAWTHORN	5 GAL	L	5'H X 5'W
	XYLOSMA CONGESTUM	SHINY XYLOSMA	5 GAL	L	10'H X 10'W
MEDIUM					
	ARBUTUS X HYPOMANDARUM	CAPE WILLOW	5 GAL	M	4'H X 4'W
	ASPIDISTRA ELATIOR	CAST IRON PLANT	1 GAL	L	2'H X 2'W
	CAMELLIA SASANQUA 'SHISHI GASHIRA'	SHISHI GASHIRA CAMELLIA	5 GAL	M	2'H X 5'W
	COLEONEMA PULCHRUM	PINK BREATH OF HEAVEN	5 GAL	M	5'H X 5'W
	DIETES BICOLOR	FORTNIGHT LILY	1 GAL	L	3'H X 3'W
	EUPHORBIA SPECIES	SPURGE	5 GAL	L	4'H X 4'W
	FESTUCA RIMOSA	ATLAS FESCUE	1 GAL	L	3'H X 3'W
	GREVILLEA 'MOLLIS'	GREVILLEA	5 GAL	L	4'H X 5'W
	LAVANDULA ANGUSTIFOLIA	ENGLISH LAVENDER	1 GAL	L	2'H X 3'W
	LOMANDRA LONGIFOLIA 'BREEZE'	DWARF MAT RUSH	1 GAL	L	3'H X 3'W
	LORAPETALUM 'SHANG-WHITE'	EMERALD SNOW FRINGE	5 GAL	L	4'H X 3'W
	NEPHROLEPIS CORDIFOLIA	SOUTHERN SWORD FERN	1 GAL	M	3'H X 3'W
	PHORMIUM HYBRIDS	FLAX	5 GAL	L	4'H X 3'W
	PIERIS JAPONICA 'PRELUDE'	JAPANESE PIERIS	5 GAL	M	3'H X 3'W
	ROSA 'FLOWER CARPET PINK'	GROUNDCOVER ROSE	2 GAL	M	2'H X 3'W
	ROSA FLORIBUNDAS 'ICEBERG'	ICEBERG ROSE	5 GAL	M	4'H X 4'W
	ROSMARINUS OFFICINALIS 'TUSCAN BLUE'	ROSEMARY	5 GAL	L	6'H X 3'W
	SALVIA SPECIES	SAGE	5 GAL	L	3-4'H X 3'
	WESTRINGIA FRUTICOSA 'MORNING LIGHT'	COASTAL ROSEMARY	5 GAL	L	3-4'H X 3-4'W
SMALL					
	AGAPANTHUS SPECIES	LILY OF THE NILE	1 GAL	M	2'H X 2'W
	CALLISTEMON 'LITTLE JOHN'	BOTTLE BRUSH	1 GAL	L	3'H X 3'W
	FESTUCA OVINA GLAUCA	BLUE FESCUE	1 GAL	L	1'H X 1'W
	LANTANA 'DWARF YELLOW'	DWARF LANTANA	1 GAL	L	2'H X 3'W
	LIRIOPE MUSCARI	LILYTURF	1 GAL	M	2'H X 2'W
	PHORMIUM HYBRIDS 'TONEY TIGER'	FLAX	1 GAL	L	2'H X 2'W
	SANTOLINA VIRENS	GREEN LAVENDER COTTON	1 GAL	L	2-3'H X 2-3'W

STORMWATER TREATMENT

SYMBOL	BOTANICAL NAME	COMMON NAME	CONT.	WATER USE	MATURE HEIGHT & SPREAD
	ACHILLEA MILLEFOLIUM	COMMON YARROW	1 GAL	L	3'H X 3'W
	CAREX PRAEGRACILIS	FIELD SEDGE	1 GAL	M	1'H X 1'W
	CHONDROPETALUM TECTORUM	CAPE RUSH	1 GAL	L	3'H X 3'W
	DESCHAMPSIA C. 'NORTHERN LIGHTS'	TUFTED HAIRGRASS	1 GAL	L	1'H X 1'W
	FESTUCA RIMOSA	ATLAS FESCUE	1 GAL	L	24'H X 3'W
	FESTUCA 'NO MOW'	NO MOW FESCUE	1 GAL	L	2'H X 2'W
	JUNCUS PATENS	CALIFORNIA RUSH	1 GAL	L	2'H X 2'W
	LOMANDRA 'BREEZE'	DWARF MAT RUSH	1 GAL	L	3'H X 3'W
	MAHONIA REPENS	CREEPING OREGON GRAPE	1 GAL	M	1'H X 3'W

VINES

Dutton Meadows

PROJECT BENEFITS

- Fulfil two more phases of the 5-phase Dutton Meadows Master Plan
  - The Dutton Meadows Master Plan, when completed, provides:
    - A network of public streets to allow future connections intended to relieve traffic in Southwest Santa Rosa per the General Plan.
    - New sidewalks replace dirt shoulders safely connecting homes to Meadow View Elementary.
    - A new bus stop replacing the old bus stop on Dutton Meadows.
    - Signalizing the intersection in front of Meadow View Elementary for added student and parent safety.
    - Dedication of California Tiger Salamander and Wetland mitigation habitat
    - A grocery store anchored Community Commons shopping center
- Project provides Over $10,000,000 in total City fees, including,
- Over $850,000 in school fees to the Roseland School District

Dutton Meadows

Ross, Adam

From: Ross, Adam
Sent: Tuesday, December 7, 2021 12:31 PM
To: Mike Maloney (MMaloney@srcity.org)
Subject: Re: Planning Commission Meeting of 12-9-21 - Item 9.2 - Dutton Meadow Subdivision
Attachments: PD 06-001.pdf

Chair Weeks and Members of the Commission,

Please do not reply to all

A few questions by the Commission was provided to Staff regarding the Dutton Meadow Subdivision Project for this Thursday, December 9, 2021. The questions are identified with the bullet points, and Staff has provided a response for each of them under each individual question.

- Can you provide a diagram or description showing phases 3a, 3b, 4a and 4b of the Dutton Meadows master plan and a probable timeline for completion?

  Staff Response: Please see PD 06-001, which shows the different phases of the development plan. There is no probable timetable until a development proposal is submitted to the City.

- Do we have the same requirement for 19 feet clear off of the public right of way in small lot subdivisions/alley accessed parking like we do for driveways in R-1-6 developments? I'm having a difficult time envisioning where the parking spaces beyond those shown inside in garages will be if both Northpoint Parkway and Dutton Meadows will not allow on street parking.

  Staff Response: Zoning Code Section 20-42.140(F)(4)(d) allows garage setbacks be 3-5 feet from the edge of alley, or 19-feet. In this case, three feet is proposed. There are a few lots (75-79, 81-84) which do not have on street parking directly fronting the lot. However, as noted in the Parking Study (Attachment 11), accompanied by the Parking Exhibit (Attachment 10), these lots are within 300 feet of street parking or additional parking spaces provided throughout the subdivision on small parking lots.

- If the houses off of Road H (west of the NP/DM intersection) are some of the units that will need to rely on nearby on street parking to meet the parking requirements, will those parking spaces be located east of that future major intersection?

  Staff Response: There are three lots (133, 134, 135) off Road H that are deficient in overall parking supply. However, there are 7 additional parking spaces provided in the area as shown on the Parking Exhibit. Other lots off Street H comply with the 4 parking space requirements found in Table 3-4 of Zoning Code Section 20-36.040.

- One of the issues raised in the public correspondence alleges that the developer is relying on "variances" regarding road widths and street planter widths. Is this correct? I think I noted one description of the planter width along Hearn being 6 feet wide instead of 8 feet. Is this the only location?

  Staff Response: The applicant has formally applied for a variance that includes the following requests:

  - Reduction of the planter strips on Street A, B, and C from 6' to 4'
  - Removal of the street parking on one side of Street A, B and C
  - Allow the private street to maintain a minimum width of 20'.

- Allow the distance between certain roadway intersections within the development to reduce below the 200' separation listed in the standards.
- Reduce the planned half width section of Hearn Avenue to allow for a narrower median and travel lane, as well as a reduced planter of 5'. The proposed dimensions are consistent with the existing sections of Hearn.
- Reduction of the planter strip along the Northpoint Parkway and Dutton Meadow extensions from 8' to 6'

Many of these items are shown on the current tentative map. All items addressed above were analyzed by staff during the review of the tentative map application and staff has recommended that the City Engineer approve the variance as proposed by the applicant.

- Can you let us know the status of pending and planned improvements for Hearn and the Hearn overcrossing?

  Staff Response: Rob Sprinkle, Deputy Director of Traffic Engineering, stated that, "the City was just notified in late November that we were not successful in our RAISE grant application requesting $14M in funding to fill the funding gap for the US 101 Hearn Interchange project. We currently have about $14M set aside and need the additional $14M for the construction phase. We have cleared the environmental and the design is complete for the project and we are actively seeking funding opportunities." In short, it is planned, but new funding is being pursued.

- On pages 17 and 21 of the Mitigation Monitoring Report in Attachment 15, the city of Santa Rosa and not the developer is noted as the responsible party for impacts 3.4.1 and 3.4.4. Is this correct?

  Staff Response: The language is from the Roseland Area Sebastopol Road Specific MMRP, which identifies the need to adopt the Santa Rosa Plain Conservation Strategy and the USFWS Programmatic Biological Opinion, as conditions of approval for projects in or near areas. This means that the applicant is required to obtain the proper permits from the US Department of Fish and Wildlife Services (USDFWS), US Army Corps of Engineers (USACOE), and Regional Water Quality Control Board (RWQCB) permits and conduct all necessary mitigations identified by the USDFWS, USACOE, and RWQCB. Essentially, projects have to study whether or not they will have an impact on CTS, Sonoma Sunshine, Sebastopol Meadowfoam, and Burke's goldfields. In this case, the impacts to potential habitat for federally-listed and state-listed plants have been mitigated by the Applicant via the purchase of mitigation credits from the Gobbi Preserve. In compliance with the conditions in the USFWS's Biological Opinion (BO) for the Specific Plan Area, and with CDFG's (now CDFW) Agreement with Gobbi Mitigation Preserve LLC, impacts to CTS were fully Dutton Meadows Project - Specific Plan Conformity Assessment Page 56 mitigated for this project via the purchase of mitigation credits from the Gobbi Preserve which is located within the Llano Crescent-Stony Point "Core Area." This information can be found on page 55 and 56 of the CEQA 15182 Specific Plan Consistency Determination (Attachment 15).

- Have the park fees and dedications been paid to the City and if so, how much?

  Staff Response: A Parks Agreement titled, "Agreement regarding Park Fees Credit for dedication of Park land in the Dutton Meadow Planned Development," was completed on January 26, 2012. That Parks agreement remains in place and fees and/or dedications have been paid but it is undetermined how much has been paid and/or dedicated to the City. Typical of any development project, Park fees are paid prior to issuance of a building permit. Additionally, the Project has been conditioned to 1) identify when park fees are paid and 2) require the applicant to submit what fees were previously paid, credited, and or what land was dedicated for Parkland per the City Council Ordinance dated March 14, 2006. Both conditions are located on page 38 of the DAC report, dated November 23, 2021, Conditions of Approval 191 and 192.

Adam Ross | **City Planner**
Planning and Economic Development |100 Santa Rosa Avenue, Room 3 | Santa Rosa, CA 95404

Tel. (707) 543-4705 | aross@srcity.org

PD DISTRICT NO. 06-001

Location: Various

Project Name: Dutton Meadows

Policy Statement Dated: 12/16/05 (Attached) None

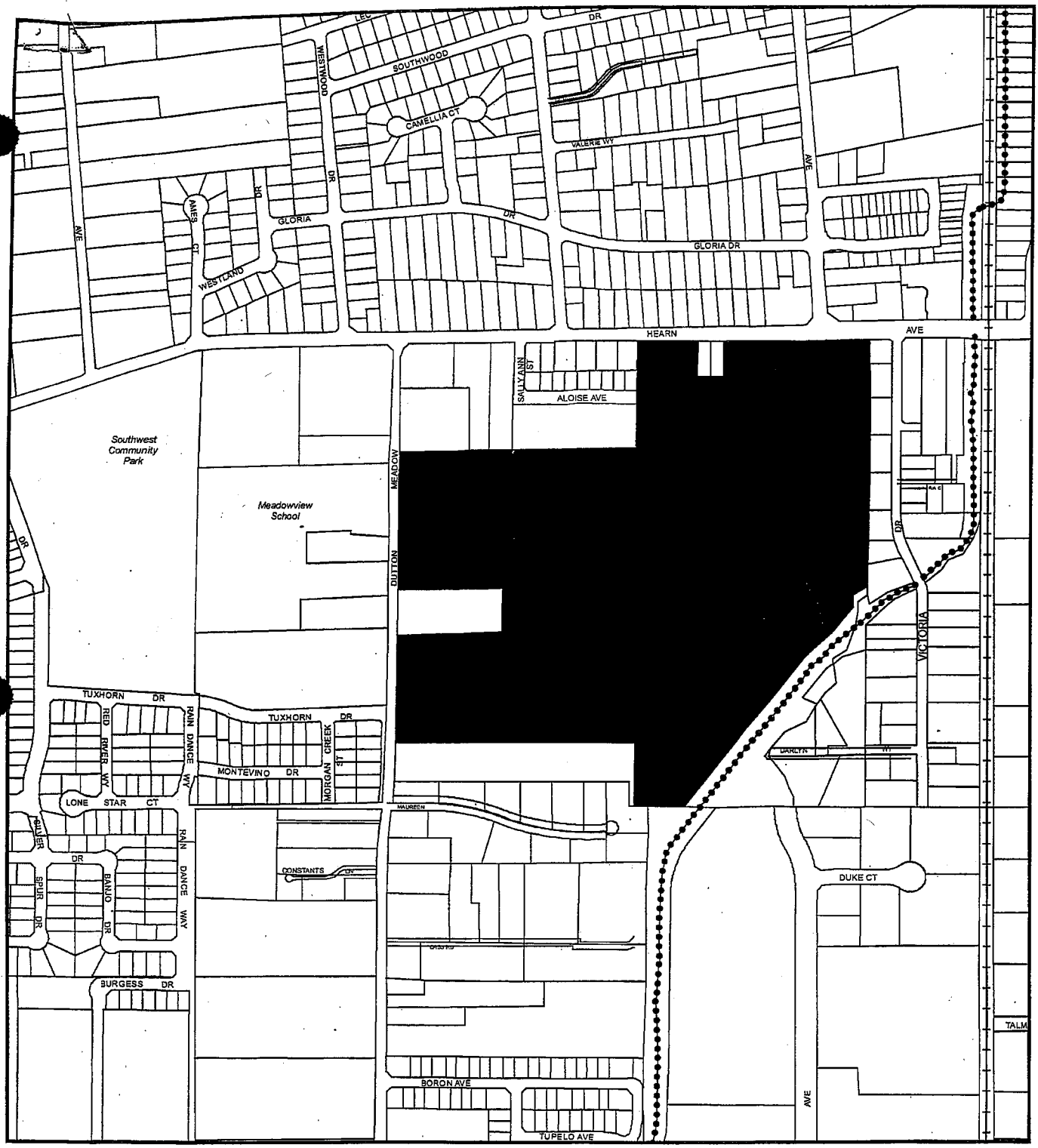
Conditional Use Permit Dated: _____ Attached None 1-9-03

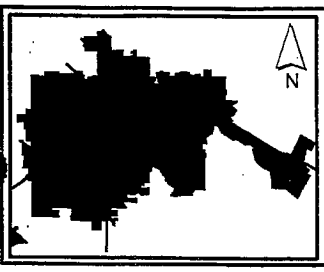
Master Development Plan Dated: 10/18/05 (Attached) None

General Notes:

All development is required to adopt a C.U.P ~~for~~ prior to development

PD06-001
2nd Page





DUTTON MEADOW
2650 AND 1130 HEARN AVENUE
FILE NUMBER REZ01-029

CITY OF SANTA ROSA
COMMUNITY DEVELOPMENT DEPARTMENT

PD06-001

December 16, 2005

PD No. _____

POLICY STATEMENT

Northpoint-Dutton Community Commons District
Revised October, 2005
by Council Ordinance Number _____

Location: Approximately 56.3 acres of land generally situated south of Hearn Avenue between Colgan Creek to the east and Dutton Meadow to the west.

Zone: PD District

APN's: 043-071-007; -022; -023; -029,
043-191-016; -018; -019; -020; -021; -024,
043-200-004

General Plan: Low Density Residential, Medium Low Density Residential, Medium Density Residential, Community Shopping Center; Neighborhood Park; and Public/Institutional land use designations.

I. Purpose

A. To provide for a PD, (Planned Development) that is in harmony with the Santa Rosa 2020 General Plan, in compliance with applicable Housing Allocation requirements, the provisions of the Santa Rosa Zoning Code and to provide development which implements The Santa Rosa Design Guidelines by the creation of defined neighborhoods that offer a variety of housing types to be served by interconnecting public streets with supporting pedestrian, bicycle and transit uses.

B. To modify and supercede the adopted "Northpoint-Dutton Community Commons Policy Statement," dated August 22, 1996 by the adoption of a revised "PD" policy statement. The proposed policy statement modifications are to enhance the viability of the development area which was designated in the Southwest Area Plan as "Community Commons" and through these revisions, to render the provisions of the Northpoint-Dutton Community Commons Policy Statement consistent with the Santa Rosa Zoning Code revisions adopted on August 3, 2004 and revised March 1, 2005.

C. To provide variety of development within the Dutton Meadows PD District by establishing Land Use Areas within the district, as shown on the "Development Area Plan Submittal – Dutton Meadows" (the "Development Plan") prepared by Trumark Companies dated June 10, 2005. Each Land Use Area includes its own development standards. The Land Use Areas, or "neighborhoods", are illustrated on pages 5a and 5b of the Development Plan (dated October 11, 2005) as phases of development.

II. Allowed Uses and Permit Requirements

Allowed Land Uses and Permit Requirements	P = Permitted Use, Zoning Clearance required MUP = Minor Use Permit required CUP = Conditional Use Permit required – = Not permitted S = See specific requirement in Zoning Code				
Land Use	Permit Required by Land Use Area*				
	LD/MLDR	MDR	O	MU	P
RECREATION, EDUCATION & PUBLIC ASSSEMBLY USES					
Library/Museum	MUP	MUP	P	P	–
Meeting facility, public or private	MUP	MUP	MUP	MUP	–
Park/playground, public or quasi public	MUP	MUP	P	P	P
Private residential recreation facility	MUP	MUP	–	P	–
Public buildings	MUP	MUP	MUP	MUP	MUP
Public safety facility	MUP	MUP	MUP	MUP	–
School, public or private	MUP	MUP	MUP	MUP	–
RESIDENTIAL USES					
Community care facility-6 or fewer clients	MUP	MUP	P	–	–
Community care facility-7 or more clients	MUP	MUP	MUP	MUP	–
Home Occupation	S	S	S	–	–
Live/Work Units	–	–	–	P	–
Multi-family dwellings	MUP	P	MUP	–	–
Residential accessory structures and uses	P	P	P	–	–
Residential component of a mixed use project	MUP	MUP	MUP	MUP	–
Rooming or boarding house	P	P	P	P	–
Rooming or boarding, accessory	P	P	P	P	–
Second dwelling unit	S	S	S	MUP	–
Single-family dwelling-attached, townhomes and/or Condominiums	CUP	P	CUP	P	–
Single-family dwelling-detached	P	–	–	–	–
Small lot residential project	CUP	CUP	–	–	–
Utility infrastructure	P	P	P	P	P

* Land Use Areas as depicted on pages 5a and 5b of the Development Plan:

LD/MLDR	=	Low Density and Low Medium Density Residential
MDR	=	Medium Density Residential
O	=	Office
MU	=	Mixed Use/Community Commons
P	=	Park

Allowed Land Uses and Permit Requirements	P = Permitted Use, Zoning Clearance required MUP = Minor Use Permit required CUP = Conditional Use Permit required – = Not permitted S = See specific requirement in Zoning Code				
Land Use	Permit Required by Land Use Area				
	LD/MLDR	MDR	O	MU	P
RETAIL TRADE					
Alcoholic beverage sales	–	–	–	CUP	–
Artisan/craft product manufacturing	–	–	–	P	–
Bank, financial services	–	–	–	P	–
Bar/tavern	–	–	–	CUP	–
Building and landscape material sales-indoor	–	–	–	P	–
Building and landscape material sales-outdoor	–	–	–	MUP	–
Business support services	–	–	–	P	–
Child day care center-15 or more clients	–	–	–	CUP	–
Drive-through retail sales	–	–	–	CUP	–
Emergency Shelter	–	–	–	CUP	–
Extended hour retail (11:00 p.m. to 6:00 a.m.)	–	–	–	MUP	–
Gas station	–	–	–	CUP	–
General retail—Up to 29,000 sf. of floor area	–	–	–	P	–
Groceries, specialty foods 55,000 sf. or less	–	–	–	P	–
Health/Fitness facility	MUP	MUP	–	P	–
Medical service—clinic, lab, urgent care	–	–	P	P	–
Medical service—Doctor office	–	–	P	P	–
Night Club	–	–	–	CUP	–
Office-Accessory	–	–	P	MUP	–
Office-Business/service	–	–	P	P	–
Office-Government	–	–	P	MUP	–
Office-Processing	–	–	P	P	–
Office-Professional	–	–	P	P	–
Office supporting retail	–	–	–	P	–
Outdoor display and sales	–	–	–	CUP	–
Pharmacy, restaurant, café, coffee shop, counter ordering	–			P	
Restaurant, café, coffee shop—Outdoor dining	–	–	–	MUP	–
Second hand store	–	–	–	MUP	–
Studio—Art, dance, martial arts, music, etc.					
Similar uses determined by CD Director per criteria set forth in Zoning Code	–	–	MUP	MUP	–
Veterinary clinics and animal hospitals	–	–	–	MUP	–
Warehouse retail	–	–	–	CUP	–
Work/Live	–	–	–	MUP	–
Other Uses that are similar in nature and in intensity to those listed Policy Statement determined by the Director of Community Development to be consistent	MUP	MUP	MUP	MUP	MUP

* Land Use Areas as depicted on pages 5a and 5b of the Development Plan:

LD/MLDR	=	Low Density and Low Medium Density Residential
MDR	=	Medium Density Residential
O	=	Office
MU	=	Mixed Use/Community Commons
P	=	Park

III. Accessory Uses

Accessory uses, as set forth in Section 20-70.020(A) of the City of Santa Rosa Zoning Code, are permitted in all land use areas.

IV. Site Planning and Development Standards/District Regulations

A. The disposition and allocation of uses, densities and development of transportation/circulation facilities shall be in conformance with the adopted Development Plan. Site development plans for properties within the boundaries of the Development Plan must graphically delineate proposed uses, densities, and integrate vehicular, bicycle and pedestrian circulation consistent with the Development Plan.

B. District regulations shall be as set forth in the following table:

Development Feature	Requirement by Land Use District				
	LD/MLDR	MDR	O	MU	P
Minimum Lot Size	6,000 sq ft int. 7,000 sq ft cor. Smaller lots per CUP	None	6,000 sq. ft. int 7,000 sq. ft. cor	None	None
Maximum residential Density	LD=8 du/ac MLD=13 du/ac	18 du/ac	30 du/ac	30 du/ac	N/A
Setbacks, primary structures	*Minimum setbacks required. Lesser setbacks per CUP*				
Front	7 ft	As determined by Design Review, MUP, or CUP, except for Phase 3b as shown on the Dutton Meadows Master Development Plan shall be subject to additional restrictions (1)	15 ft.	As determined by Design Review, Minor Use Permit, or Conditional Use Permit, which ever may be applicable	None Required
Side-Interior	3 ft.; 0 ft. for attached and zero lot line units		5 ft.		
Side-Corner	7 ft.		15 ft.		
Rear	15 ft.		1-story bldg – 5' 2-story bldg – 10' 3-story bldg – 15'		

* Land Use Areas as depicted on pages 5a and 5b of the Development Plan:

LD/MLDR	=	Low Density and Low Medium Density Residential
MDR	=	Medium Density Residential
O	=	Office
MU	=	Mixed Use/Community Commons
P	=	Park

Development Feature	Requirement by Land Use District				
	LD/MLDR	MDR	O	MU	P
Garage/carport front	Garages/carports opening onto a public street shall have a minimum distance of 19 feet from the property line. Garages and/or carports opening on to private streets, alleys, or common driveways shall have a minimum separation distance as measured from the face of garage doors to the face of opposite facing garage doors of 25 feet for 2-story dwellings and 28 feet for 3-story dwellings		N/A		
Setbacks, accessory structures	*Minimum setbacks for accessory structures. Lesser setbacks per CUP*				
Front	7 ft.	As determined by Design Review, Minor Use Permit, or Conditional Use Permit, whichever may be applicable			
Side-Interior	3 ft.; 0 ft. for attached and zero lot line units				
Side-Corner	7 ft.				
Rear	5 ft.				
Alley	3 – 5 ft, or 19 ft. when used for parking with direct access to alley				
Lot Coverage	65%, excluding townhomes and other similar structures, which can be 100%	As determined by Design Review, Minor Use Permit, or Conditional Use Permit, whichever may be applicable	65%	As determined by Design Review, Minor Use Permit, or Conditional Use Permit, whichever may be applicable	None
Height Limit			35 ft.		None
Primary Structures	45 ft.				
Accessory Structures	16 ft.				
Fences, walls, & hedges	Fences, hedges and walls may be erected three feet in any required front and exterior yard area and to a height not to exceed six feet in any other location on residential lots, unless otherwise approved by Minor Use Permit		None required		
	Requirement by Land Use District				

Development Feature	LD/MLDR	MDR	O	MU	P

Landscaping	See Zoning Code Article 20-34 (Landscaping Standards)	
Parking	Studio and one-bedroom units: 1 covered space plus 0.5 visitor space per unit. Visitor space may be tandem or on-street abutting site, except on Northpoint Parkway	See Zoning Code Article 20-36 (Parking and Loading)
	Two-or more bedroom units: 2 spaces required; one of which must be covered plus 0.5 space per unit. Visitor space may be tandem or on-street abutting site, except on Northpoint Parkway	
Signs	See Zoning Code Article 20-38 (Signs)	

(1) Setbacks for all residential development abutting the eastern-most property line separating Phase 3b from the adjacent Victoria Drive neighborhood shall be as follows:

(a) A 10-foot setback to the first floor of primary structures adjacent to the eastern-most property line.
(b) A 15-foot setback to the second floor of primary structures adjacent to the eastern-most property line.

V. Implementation

A. Park Land. - All lands designated as "Park" on pages 5a and 5b of the Development Plan shall be offered for dedication to the City of Santa Rosa prior to, or in conjunction with, approval of the first Tentative Map. The offer of dedication shall be in a recordable format.

B. Allocated Housing

1. Basic Allocation Requirement. – All residential development within all land use areas depicted on the development Plan shall provide allocated housing units on site as set forth in the City of Santa Rosa Housing Allocation Plan (Section 21.02-050 of the Santa Rosa City Code). The allocated units shall be equal to 15 per cent of the total dwelling units with a development.

2. Land Dedication or Conveyance Alternative. – As an alternative to providing allocated units on site, a residential development may offer to dedicate or convey land to the City situated on site to meet its obligations under the City's Housing Allocation Plan, pursuant to Section 21-02.090 of that Plan.

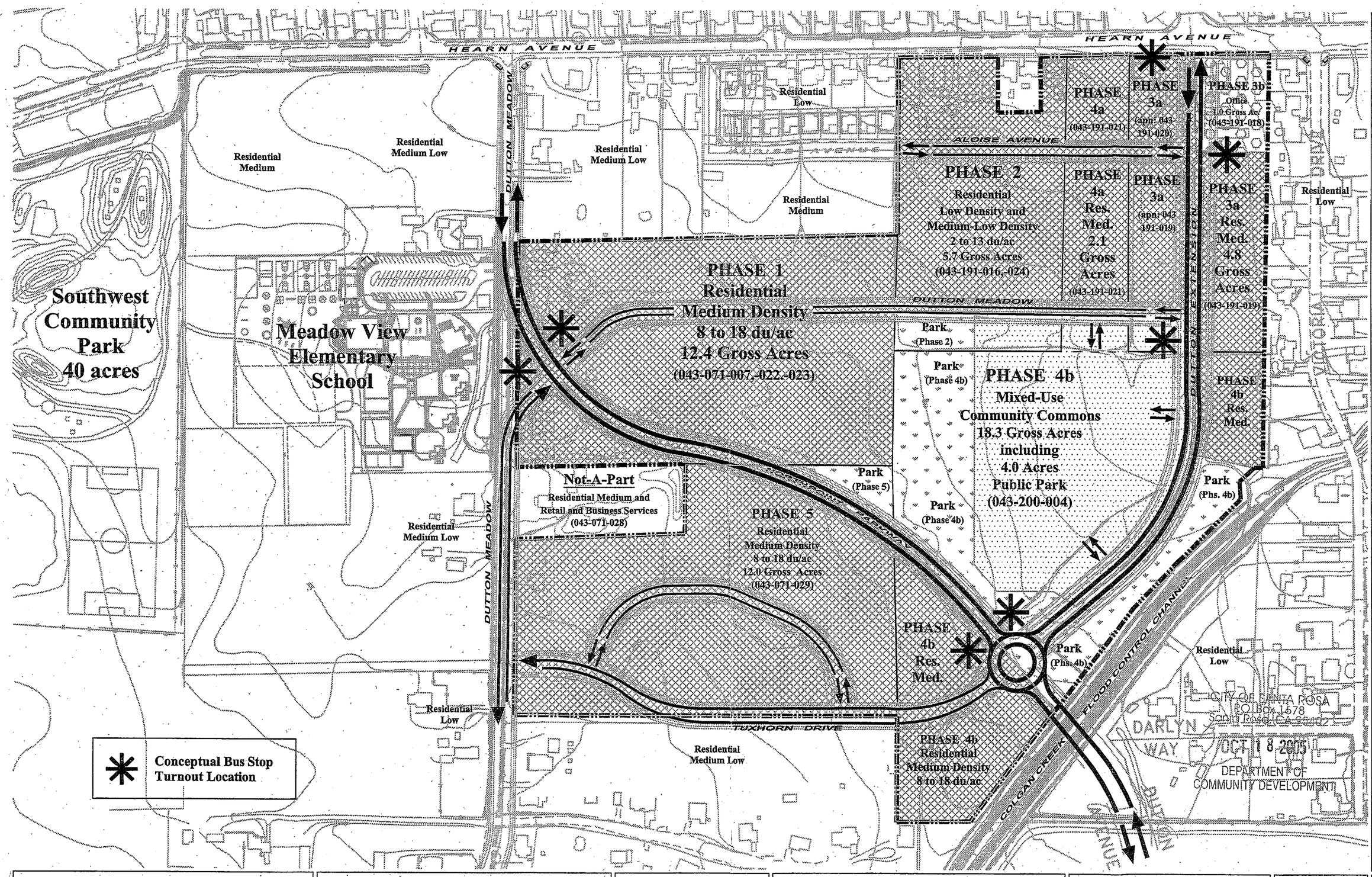
3. The term "on-site" used in Sections 1 and 2, above, shall mean on land(s) located anywhere within the boundaries of the 56.32± acre "Dutton Meadow" Development Plan.

V. Modifications to the PD Policy Statement and Development Plan

Proposed modifications to the Northpoint-Dutton Community Commons Policy Statement and Development Plan shall be subject to public hearings and City Council action in the same manner as any other proposed change of zone and shall be considered against the original development plan and policy statement and conditions previously established, except that minor modifications which would not increase the approved density, change the approved use, or its conditions, change the general appearance of the original project and do not result in objections by affected parties within or adjacent to the Northpoint-Dutton Community Commons District and the Dutton Meadows Development Plan that have been legally noticed of the proposed minor modification(s), may be allowed by Conditional Use Permit and acted on administratively.

DUTTON MEADOWS

(Formerly: NORTHPOINT - DUTTON COMMUNITY COMMONS)



MASTER DEVELOPMENT PLAN	Santa Rosa, Sonoma County, California	Trumark Companies 4185 Blackhawk Plaza Circle Danville, California 94506 Phone: (925) 648-8393, FAX: (925) 648-3130, www.trumark-co.com	NOTE: District Regulations, Development Standards, and Project Specific Development Plan to be established by Conditional Use Permit for each phase.	REVISION DATE(S): March 14, 2001: Neighborhood Mtg. Application October 19, 2001: Development and Tentative Map Application November 29, 2001: Neighborhood Meeting #2 March 14, 2002: Master Development Plan Submittal September 17, 2002: Revisions per 8/30/02 Traffic Impact Study January 2003: Planning Commission Continuance October 12, 2005: Revised Master Development Plan Submittal	NORTH 0 100 200 SCALE	5b

ORDINANCE NO. 3770

ORDINANCE OF THE COUNCIL OF THE CITY OF SANTA ROSA AMENDING CHAPTER 20 OF THE SANTA ROSA CITY CODE - RECLASSIFICATION OF PROPERTY LOCATED AT 2650 DUTTON MEADOW AND 1130 HEARN AVENUE (DUTTON MEADOWS) - FILE NUMBER REZ01-029

THE PEOPLE OF THE CITY OF SANTA ROSA DO ENACT AS FOLLOWS:

Section 1. The Council finds, based on the evidence and records presented that the reclassification to the PD District is appropriate for the property identified in Section 2, due to subject property's physical configuration and its location adjacent to established development.

The Council further finds and determines that the reclassification of the subject property from the PD, OSC, CO, R-3-18, and R-1-6 Districts to the PD (Planned Development) District is consistent with the Santa Rosa General Plan in that:

A. The rezoning is consistent with the Low Density Residential, Medium-Low Density Residential, Medium Density Residential, Office, Neighborhood Park, Retail and Business Service and Mixed-Use Community Shopping Center General Plan land use designations.

B. The Development Plan furthers the General Plan Goals and Policies in that:

1. The project would produce a livable neighborhood by establishing a mix of residential uses around and within a Community Commons consisting of anchor retail, office, mixed uses and a neighborhood park.

2. The project would maintain a diversity of neighborhoods and varied housing stock to satisfy a wide range of needs in that a variety of housing will be provided consistent with the Santa Rosa Housing Allocation Plan.

3. The project would promote mixed use sites and centers south of Hearn Avenue in that the Dutton Meadows development Plan provides for a mix of rental housing built above future Community Commons retail uses and Live/Work housing built in conjunction with office uses.

4. The project would provide a convenient and attractive commercial center in that the future Dutton Meadows Community Commons will be subject to Design Review and compliance with the Santa Rosa Design Guidelines.

5. The project would preserve and enhance Santa Rosa's scenic character, including its natural waterways in that it would contribute to the restoration of the abutting reach of Colgan Creek flood control channel with landscaping and pedestrian and bike ways.

6. The project would maintain and enhance the diverse character of Santa Rosa's neighborhoods in that each phase of the Dutton Meadows will include differing housing types integrated by a system of interconnected streets, pedestrian and bike paths.

7. The project would meet the housing needs of all Santa Rosa residents in that the project will comply with Santa Rosa's affordable housing policies and with the City's Housing Allocation Plan.

8. The project will provide a safe, efficient, free-flowing circulation system in that the Dutton Meadows project will result in the construction of new streets that will serve the development and also provide key links in the backbone circulation system of Santa Rosa's Southwest Area.

9. The project will reduce traffic volumes and speeds in its future neighborhoods in that access to primary residential areas will be from smaller, neighborhood streets and will be designed to implement applicable policies of the Design Guidelines.

10. The project would develop a safe, convenient and continuous network of pedestrian sidewalks and pathways that link neighborhoods with schools, parks, shopping and employment areas in that he Dutton Meadows Master Plan is designed to promote an integrated circulation system linking pedestrians and cyclists to the planned neighborhood park, shopping center, to the abutting future creek trail system, and to schools and parks.

C. The rezoning is within the scope of the previously certified Southwest Area Plan Final Environmental Impact report and the certified Dutton Meadows Project Final Subsequent Environmental Impact report as modified by the Addendum to the Dutton Meadows Project Environmental Impact Report.

D. The EIR identified significant environmental impacts and Section 15091 and 15093 of the California Environmental Quality Act (CEQA) require the City to make one or written findings for the each of those significant effects, accompanied by a brief explanation of the rational for each finding. As described in Section 1.2 of the *Dutton Meadows Project Draft Subsequent EIR* (Draft SEIR), the environmental review of the project tiers from three programmatic EIRs: the *Southwest Santa Rosa Area Plan Final EIR*, the *Southwest Santa Rosa Redevelopment Plan Final EIR*, and the *Santa Rosa 2020: General Plan Final EIR*. Potential impacts from the Dutton Meadows Project that were adequately addressed in those previous EIRs were not evaluated further in the Draft SEIR, but were incorporated by reference into the Draft SEIR. Findings and statements of overriding consideration were adopted for these impacts at the time the Plans were approved. The findings for these EIRs that are applicable to the Dutton Meadows Project are included in the

DUTTON MEADOWS

(Formerly: NORTHPOINT - DUTTON COMMUNITY COMMONS)

HEARN AVENUE

ALOISE AVENUE

DUTTON MEADOW

DUTTON EXTENSION

NORTHPOINT PARKWAY

TUXHORN DRIVE

DARLYN WAY

VICTORIA DRIVE

FLOOD CONTROL CHANNEL

COLGAN CREEK

Southwest Community Park 40 acres

Meadow View Elementary School

Residential Medium

Residential Medium Low

Residential Low

PHASE 1
Residential
Medium Density
8 to 18 du/ac
12.4 Gross Acres
(043-071-007,-022,-023)

PHASE 2
Residential
Low Density and
Medium-Low Density
2 to 13 du/ac
5.7 Gross Acres
(043-191-016,-024)

PHASE 4a
(043-191-021)

PHASE 3a
(apn: 043-191-020)

PHASE 3b
Office
1.0 Gross Ac.
(043-191-018)

PHASE 4a
Res.
Med.
2.1
Gross
Acres
(043-191-021)

PHASE 3a
(apn: 043-191-019)

PHASE 3a
Res.
Med.
4.8
Gross
Acres
(043-191-019)

PHASE 4b
Res.
Med.

PHASE 4b
Mixed-Use
Community Commons
18.3 Gross Acres
including
4.0 Acres
Public Park
(043-200-004)

Park (Phase 2)

Park (Phase 4b)

Park (Phase 5)

Park (Phs. 4b)

Not-A-Part
Residential Medium and
Retail and Business Services
(043-071-028)

PHASE 5
Residential
Medium Density
8 to 18 du/ac
12.0 Gross Acres
(043-071-029)

PHASE 4b
Res.
Med.

PHASE 4b
Residential
Medium Density
8 to 18 du/ac

* Conceptual Bus Stop Turnout Location

CITY OF SANTA ROSA
POST Box
Santa Rosa, CA 95402

OCT 16

DEPARTMENT OF
COMMUNITY DEVELOPMENT

MASTER DEVELOPMENT PLAN	**Santa Rosa, Sonoma County, California**	**Trumark Companies** 4185 Blackhawk Plaza Circle Danville, California 94506 Phone: (925) 648-8300, FAX: (925) 648-3130, www.trumark-co.com	**NOTE:** District Regulations, Development Standards, and Project Specific Development Plan to be established by Conditional Use Permit for each phase.	**REVISION DATE(S):** March 14, 2001: Neighborhood Mtg. Application October 19, 2001: Development and Tentative Map Application November 29, 2001: Neighborhood Meeting #2 March 14, 2002: Master Development Plan Submittal October 2, 2002: Revised Master Development Plan December 20, 2002: Revised Master Development Plan October 12, 2005: Revised Master Development Plan	NORTH 0 100 200 SCALE	**5a**

findings for the Dutton Meadows Project and summarized in the attached table (Dutton Meadows EIR Findings).

1. The Dutton Meadows EIR findings are attached that identify the significant impacts, mitigation measures and includes a finding and explanation for each of the significant impacts identified in the Dutton Meadows Project Final Subsequent Environmental Impact Report.

2. The City Council adopts a Mitigation Monitoring Program included as a part of the Dutton Meadows Project Final Subsequent Environmental impact report and shall be included as conditions of approval for each development within Dutton Meadows.

3. A Statement of Overriding Considerations was adopted for this rezoning that states the specific reasons that support the rezoning based upon the final EIR and other information in the record stating the benefits of the project.

4. All records regarding the Dutton Meadows are available at the Department of Community Development, Room 3, Santa Rosa City Hall.

E. The rezoning from a PD, R-1-6, OSC, PD and the R-3-18 Districts to a PD district will promote the development of a distinctive project of the highest quality as evidenced by the following:

1. The project will enhance natural amenities including Colgan Creek in that the Dutton Meadows Development Plan includes provisions for the rehabilitation of Colgan Creek flood control channel as part of the project's park development.

2. The project will create new amenities including open space, a public park and a centralized community shopping center.

3. The project will create diversity in its proposed mix of housing types and densities by the planned development of attached single-family, multi-family and live/work units consistent with the city's Housing Allocation Plan.

4. The project will contribute to the protection of the quality of living for areas surrounding the proposed planned development in that higher densities are oriented to the more intense use Community Commons area and will be developed in compliance with the Design Guidelines.

In addition to any other conditions that are deemed appropriate or necessary at the time a use permit or other development permit is applied for, any development approval for this property shall be expressly conditioned to require the applicant to fulfill all of the following condition:

Sewer connections for this development, or any part thereof, will be allowed only in accordance with the requirements of the California Regional Water Quality Control Board, North Coast Region, in effect at the time, or thereafter, that the building permit(s) for this development, or any part thereof, are issued.

Section 3. Environmental Determination. The Council has reviewed and considered the approved and adopted the Dutton Meadows Subsequent Environmental Impact Report for this project and determines the following:

A. The proposed reclassification is consistent with the with the goals and policies of all elements of the General Plan,

B. The proposed reclassification would not be detrimental to the public interest, health, safety, convenience, or welfare of the City;

C. The proposed project has been reviewed in compliance with the California Environmental Quality Act (CEQA) and the Dutton Meadows Final EIR was certified for this project.

D. The site is physically suitable (including absence of physical constraints, access, compatibility with adjoining land uses, and provision of utilities) for the requested zoning designations and anticipated land uses/developments.

E. A Statement of Overriding Considerations has been adopted for the significant unavoidable impacts identified in the Dutton Meadows Final EIR.

F. Whereas the City Council finds that the significant adverse impacts on the environment were documented by the Final Dutton Meadows EIR and that Section 15091 of the California Environmental Quality Act requires the City to make certain findings prior to approving a project with an EIR that identified significant impacts.

Section 4. Severability. If any section, subsection, sentence, clause, phrase or word of this ordinance is for any reason held to be invalid and/or unconstitutional by a court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this ordinance.

5. The project is designed for the accommodation of non-auto oriented modes of transportation including pedestrian walkways, bicycle paths and transit stops, in that all of these transportation modes have been included as design determinants of the Dutton Meadows Development Plan.

F. The rezoning will allow the development compatible with the surrounding neighborhood in that the Dutton Meadows Development Plan and Policy Statement provide for a phased development with density allocations consistent with the General Plan and all development would be subject to the Design Guidelines.

1. The Zoning authorizes a mix of residential, commercial/retail, office and live/work Use in conformance with the Land Use Element of the City's General Plan, which designates the site for Low Density Residential Land Use.

2. Adequate City services can be provided for the proposed development.

Section 2. All conditions required by law having been satisfied and all findings with relation thereto having been made, Chapter 20 of the Santa Rosa City Code is amended by amending the "Zoning Map of the City of Santa Rosa," as described in Section 20-64.020, for property situated at 2650 Dutton Meadow from the 1130 Hearn Avenue District to the PD District including a Policy Statement and Development Plan October 18, 2005, said property more precisely described as: Assessor's Parcel Numbers 043-071, 022, 023,-029,-043-191-016,-018,-019,-020,-021,-024, and 043-200-004 subject to the following conditions.

1. Developments within the Dutton Meadows shall incorporate mitigations measures included in the Final Dutton Meadows EIR. A mitigation monitoring plan shall be adopted as a part of the approval of each development within Dutton Meadows.

2. As Dutton Meadows is residential development exceeding 15 acres, each phase within Dutton Meadows is required to construct housing units or provide land for affordable housing as required by the City's Housing Allocation Plan.

3. Prior to the approval of any development within Dutton Meadows, the land for the neighborhood park shall be offered for dedication to the City of Santa Rosa.

4. As streets are constructed within Dutton Meadows, the developer and/or property owners shall install a 32 square foot sign on each street frontage indicating the future land uses adjacent to the newly constructed street, i.e. neighborhood park, low income housing, shopping center.

Section 5. Effective Date. This ordinance shall take effect on the 31st day following its adoption.

IN COUNCIL DULY PASSED AND ADOPTED this 14th day of March, 2006

AYES: (4) Councilmembers Condron, Martini, Rabinowitsh, Sawyer

NOES: (0)

ABSENT: (0)

ABSTAIN: (3) Mayor Bender; Councilmembers Blanchard, Pierce

ATTEST: _____
City Clerk

APPROVED: _____
Mayor

APPROVED AS TO FORM:

_____
City Attorney

Ross, Adam

From: Ross, Adam
Sent: Monday, December 6, 2021 8:55 AM
To: Mike Maloney (MMaloney@srcity.org)
Subject: Re: 12-0-21 Planning Commission Meeting - Item 9.2 - Dutton Meadows Subdivision Response to Question
Attachments: Late Correspondence as of 12.6.21.pdf

Chair Weeks and Members of the Planning Commission,

Please do not reply to all,

A Commissioner inquired about the location of the Traffic Impact Study (TIS) for this Project and whether or not Sally Ann is to be vacated as public right-of-way after a future connection from Aloise Avenue to Hearn Avenue is created based on Conditions of Approval from the Western Gardens Tentative Map approved in 1998 and extended 2002.

Staff Response: The TIS is included as pages 470-535 of the CEQA Consistency Determination as Appendix G. Staff made a copy of the TIS, which does include analysis of trips on Sally Ann as a result of the Dutton Meadow Subdivision Project. Additionally, the closure of Sally Ann was not a Condition of Approval identified in the scope of the Traffic Impact Study based on the direction from Traffic Engineering and Planning Staff. However, Planning Staff is reaching out to Traffic Engineering to review the question further and see if there is any further response we are able to provide during the public hearing.

Adam Ross | City Planner
Planning and Economic Development |100 Santa Rosa Avenue, Room 3 | Santa Rosa, CA 95404
Tel. (707) 543-4705 | aross@srcity.org

June 22, 2021

Mr. Robin Miller
Trumark Homes
3001 Bishop Drive, Suite 100
San Ramon, CA 94583

Addendum to the *Traffic Impact Study for the Revised Dutton Meadows Phase II Project*

Dear Mr. Miller;

As requested by City staff, W-Trans has completed this Addendum to the *Traffic Impact Study for the Revised Dutton Meadows Phase II Project* (TIS), May 20, 2021. The specific concern identified that is addressed in this addendum is the potential for distribution assumptions via Aloise Avenue to change under future conditions upon the completion of the Dutton Avenue extension. All other information in the 2021 TIS remains valid for the project as currently proposed.

Trip Distribution

In the traffic study it was assumed that under Future Conditions, with planned improvements including the Northpoint Parkway connection as well as the Dutton Avenue Extension, trips to and from Hearn Avenue to the east would occur predominantly along Dutton Avenue rather than Dutton Meadow, as assumed for short-term conditions. However, consideration was not given to the volume of project traffic assigned to Aloise Avenue under short-term conditions that would also be rerouted given the convenience of using the proposed new street connection under future conditions. Upon further review it was determined that it is reasonable to expect that fewer trips would use Aloise once Dutton Avenue is completed.

The distribution assumptions anticipated under these future conditions with the reduced assignment to Aloise Avenue are shown in this updated version of Table 7. The 12 percent of trips previously assigned to Aloise Avenue were reassigned to the Dutton Avenue Extension.

Table 7 – Future Trip Distribution Assumptions (modified)

Route	Percent
To/From Hearn Ave east of Dutton Ave via Dutton Ave Extension	67
To/From Hearn Ave east of Dutton Ave via Aloise Ave	3
To/From Hearn Ave west of Dutton Meadow via Northpoint Pkwy	12
To/From Hearn Ave west of Dutton Meadow via Aloise Ave	3
To/From Dutton Ave north of Hearn Ave via Dutton Ave Extension	8
To/From Dutton Ave north of Hearn Ave via Aloise Ave	2
To/From Dutton Ave south of Hearn Ave via Northpoint Pkwy	5
TOTAL	**100**

Future plus Project Conditions

It is noted that even with this variation to the distribution assumptions and associated trips through the Dutton Avenue/Hearn Avenue intersection, given that the analysis in this report is for a larger iteration of the project, and the change in distribution would result in no change to the total number of project trips entering the intersection

but rather reallocation of fewer than ten trips each from through movements to turning movements, the plus project analysis would still be conservative and representative of the currently proposed project with fewer units.

We hope this additional information adequately addresses the concern submitted to the City. Thank you for giving us the opportunity to provide these services.

Sincerely,

Briana Byrne, TE
Associate Engineer

Dalene J. Whitlock, PE, PTOE
Senior Principal

DJW/bkb/SRO461.L1

Memorandum

Date: August 19, 2021

Project: SRO461

To: Robin Miller
Trumark

From: Dalene J. Whitlock
dwhitlock@w-trans.com

Subject: Compliance with Arterial Operation Policies in the *Traffic Impact Study for the Revised Dutton Meadows Phase II Project*

A question has arisen regarding whether the analysis presented in the *Traffic Impact Study for the Revised Dutton Meadows Phase II* (TIS) project complies with the City of Santa Rosa's standards and policies as presented in the *Roseland Area/ Sebastopol Road Specific Plan EIR* (RASRSP EIR). It is noted that when this EIR was prepared the City was using an arterial service level exclusively and did not have an operational standard for intersections. The policy has since been modified and the City has returned to applying an intersection Level of Service standard.

While some of the policies and mitigation measures in the RASRSP EIR refer to corridor service levels, the TIS relies on an analysis of intersection operation, in keeping with the standards in effect at the time of its preparation. However, because intersections are the points of the greatest conflict and reflect the highest levels of delay, it is typical for operation of a corridor to be at least as good as, if not better than, the intersection with the greatest delay. Since all of the intersections evaluated in the TIS are currently operating at LOS D or better and they are all expected to continue operating acceptably at LOS D or better with project traffic added to both current and future volumes, it is reasonable to conclude that arterial operation is and will continue to be acceptable. As a result, there is no need to perform arterial operation analysis to determine whether the project is consistent with policies related to arterial operation.

DJW/djw/SRO461.M1

Traffic Impact Study for the Revised Dutton Meadows Phase II Project

Prepared for the City of Santa Rosa

Submitted by
W-Trans

May 20, 2021

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Executive Summary

The proposed Dutton Meadows Phase II project would include the construction of 137 single-family dwelling units. The project site primarily vacant, with 18.4 acres located east of Dutton Meadow and south of Hearn Avenue. The project would generate an average of 1,274 net new daily trips; of which 100 would occur during the morning peak hour and 134 during the evening peak hour. The project differs from the project previously approved for the site which included 191 single family dwelling units and also includes fewer units than included in the *Roseland Area/Sebastopol Road Specific Plan*. The anticipated peak hour trip generation for the project as currently proposed is lower than that of the approved project. The project would have access points at Dutton Meadows and Hearn Avenue via Aloise Avenue and the future planned Northpoint Parkway.

The project includes the new planned intersection of Dutton Meadow/Northpoint Parkway wherein the Northpoint Parkway extension would be a northwest-southeast street. South of Meadowview Elementary, Dutton Meadow would curve towards the east, intersect with Northpoint Parkway, and traverse the project site. Under existing conditions, the study intersections operate at acceptable service levels. With the proposed project, including the new Northpoint Parkway/Dutton Meadow intersection, the service levels would continue to be acceptable. Under the future scenario, without and with the project, with the planned configuration of Northpoint Parkway, all study intersections would operate at acceptable service levels. A signal is not warranted at the intersection of Sally Ann Street/Hearn Avenue with the addition of the project trips to either the existing or future projected volumes.

Per the *Dutton Meadows Project Draft Subsequent Environmental Impact Report,* CH2M Hill, 2004, the need for connected sidewalks as well as bike lanes on Northpoint Parkway was identified. The proposed project would provide continuous pedestrian facilities on-site as well as bike lanes along Northpoint Parkway. Per the *Roseland Area/Sebastopol Road Specific Plan Environmental Impact Report,* Michael Baker International, 2016, there are two Traffic and Transportation impacts and mitigations identified and the project is not expected to conflict with either. The proposed facilities for pedestrians, bicyclists, and transit users would be adequate with implementation of the recommendation that the proposed bus stop near the Northpoint Parkway/Dutton Meadows intersection include a bench for transit users.

Since the Dutton Meadows/Northpoint Parkway configuration would result in a change to the internal circulation at the Meadowview Elementary, it is recommended that the internal circulation for the school be modified.

Sight lines along the new section of Dutton Meadows through the project site were reviewed. At each project roadway or driveway that intersects with Dutton Meadows, there would be adequate sight lines for speeds of up to 25 mph based on corner or stopping sight distance criteria, as applicable. In order to maintain these sight lines, any vegetation or landscaping should be low-lying or have trees with canopies maintained above seven feet.

To prevent conflicts at two locations where intersections are located less than 200 feet, centerline to centerline, it is recommended that sight lines be maintained at both locations. For the intersection about 800 feet east of the Northpoint Parkway/Dutton Meadows intersection and on the south side of Dutton Meadows, it is recommended that the median extend through the intersection, restricting access to right-turns in and out only.

Introduction

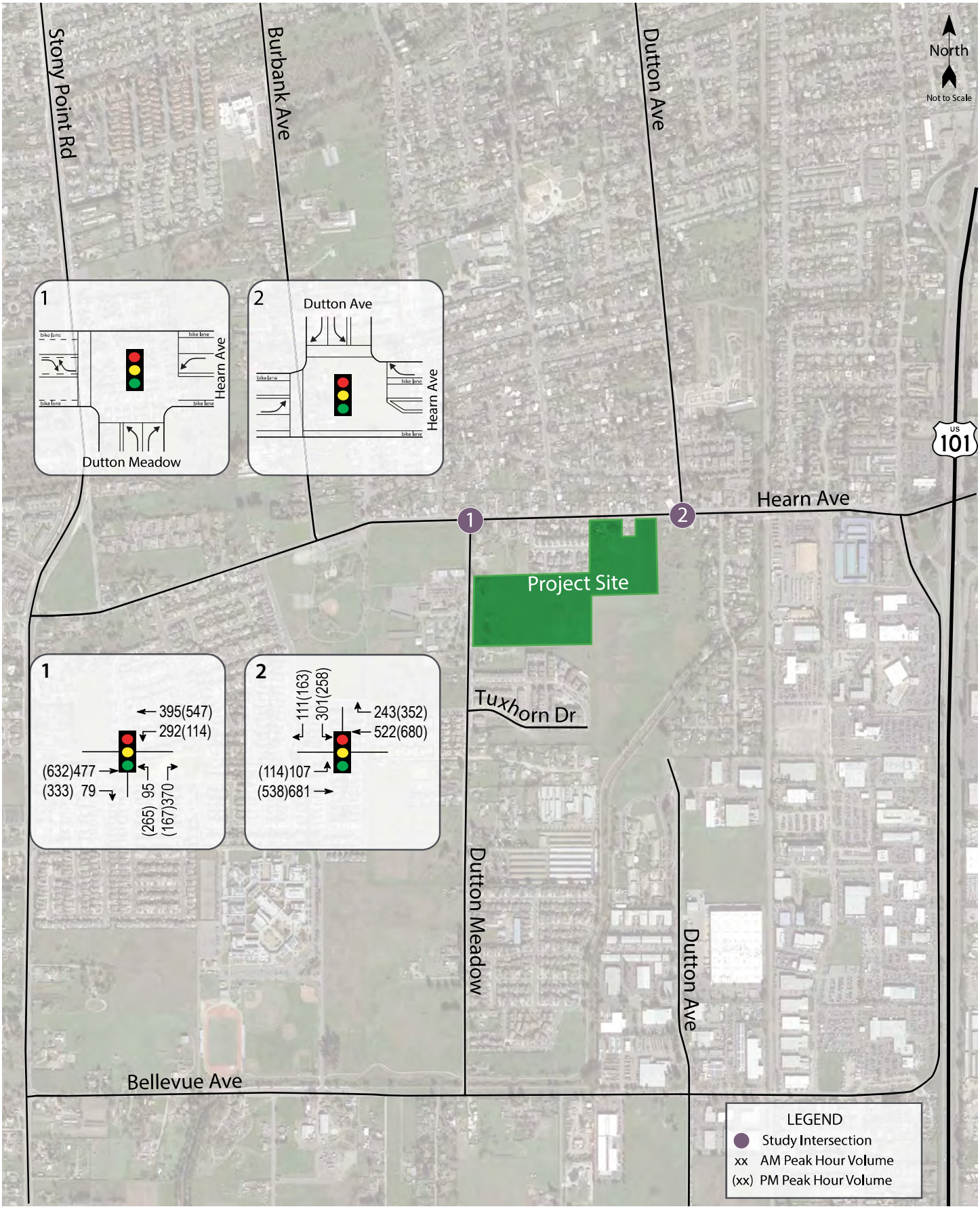
This report presents an analysis of the potential traffic impacts that would be associated with development of a proposed 137 single family homes to be located east of Dutton Meadow and south of Hearn Avenue in the City of Santa Rosa. The project as proposed differs from what was previously analyzed in that it is less intense and the portion of the planned Northpoint Parkway extension that traverses the site is consistent with the layout indicated in the General Plan. The traffic study was completed in accordance with the criteria established by the City of Santa Rosa and is consistent with standard traffic engineering techniques. The scope of work was reviewed and approved by City staff.

Prelude

The purpose of a traffic impact study is to provide City staff and policy makers with data that they can use to make an informed decision regarding the potential traffic impacts of a proposed project, and any associated improvements that would be required to mitigate these impacts to a level of insignificance as defined by the City's General Plan or other policies. Vehicular traffic impacts are typically evaluated by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on existing travel patterns or anticipated travel patterns specific to the proposed project, then analyzing the impact the new traffic would be expected to have on critical intersections or roadway segments. Impacts relative to access for pedestrians, bicyclists, and to transit are also addressed.

Project Profile

The project consists of 137 single-family dwellings. Currently, there are two single-family houses on the proposed project site; most of the project site is open field. The Dutton Meadows Phase II project previously approved by the City for this site included 191 single family dwelling units and this land use is reflected in the General Plan. The project was evaluated as part of the *Roseland Area/Sebastopol Road Specific Plan* EIR. For that analysis, approximately 22 multi-family units and 143 single family units were assumed for the site. The project site is located east of Dutton Meadow and south of Hearn Avenue, as shown in Figure 1.



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Traffic Impact Study for the Revised Dutton Meadows Phase II Project

Figure 1 – Study Area, Existing Lane Configurations and Existing Traffic Volumes

Transportation Setting

Operational Analysis

Study Area and Periods

The study area consists of the following intersections:

1. Hearn Avenue/Dutton Meadow
2. Hearn Avenue/Dutton Avenue
3. Northpoint Parkway/Dutton Meadow (new intersection created by project)

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute.

Study Intersections

Hearn Avenue/Dutton Meadow is a three-legged signalized intersection with two lanes on the northbound and westbound approaches, and one lane on the eastbound approach. The westbound left-turn has protected phasing, along with overlap phasing for the northbound right-turn movement. The west leg has a crosswalk and curb ramps. Hearn Avenue has bike lanes in both directions.

Hearn Avenue/Dutton Avenue is a four-legged signalized intersection with two lanes on all approaches except the northbound approach. This northbound approach is a placeholder for a future road connection, with some facilities already in place; however, the intersection essentially operates as a three-legged intersection without the south leg. There are right-turn overlap phases for the westbound and southbound approaches which operate concurrently with the southbound and eastbound left-turns, respectively. The west and north legs have crosswalks and curb ramps, and Hearn Avenue has bike lanes.

Northpoint Parkway/Dutton Meadow is a planned intersection that would be constructed as part of the proposed project. According to the City of Santa Rosa General Plan and the *Roseland Area/Sebastopol Road Specific Plan* (RASRSP), City of Santa Rosa, 2016, the intersection would be a four-legged intersection with Northpoint Parkway in the northwest-southeast direction and Dutton Meadow as the minor cross-street. Per the General Plan, Northpoint Parkway would be a four-lane arterial, though the RASRSP indicates that one lane in each direction with a two-way left-turn lane or median would be adequate given the decrease in anticipated demand. The intersection would be signalized. It is understood that the intersection as proposed would be consistent with the City's plans.

The locations of the existing study intersections and the existing lane configurations and controls are shown in Figure 1.

Capacity Analysis

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2010. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The study intersections are all currently controlled by a traffic signal, or are expected to be in the future, and were evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, the signal timing for the existing intersections, under the existing and future scenarios, provided by the City for the *Roseland Area/Sebastopol Road Specific Plan*, were applied for the analysis.

The ranges of delay associated with the various levels of service are indicated in Table 1.

Table 1 – Intersection Level of Service Criteria

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

Reference: *Highway Capacity Manual,* Transportation Research Board, 2010

Traffic Operation Standards

Section 5.8 Transportation Goals & Policy of the *Santa Rosa General Plan 2035* states:

T-D-1 *– Maintain a Level of Service (LOS) D or better along all major corridors. Exceptions to meeting the standard include:*

- Within downtown;
- Where attainment would result in significant degradation;
- Where topography or impacts makes the improvement impossible; or
- Where attainment would ensure loss of an area's unique character.

The LOS is to be calculated using the average traffic demand over the highest 60-minute period.

Traffic Engineering Division will require a level of service evaluation of arterial and collector corridors if deemed necessary.

T-D-2 *– Monitor level of service at intersections to assure that improvements or alterations to improve corridor level of service do not cause severe impacts at any single intersection.*

General interpretation of Policy T-D-2. The impact to an intersection is considered adverse if the project related and/or future trips result in:

1. The level of service (LOS) at an intersection degrading from LOS D or better to LOS E or F, OR
2. An increase in average vehicle delay of greater than 5 seconds at a signalized intersection where the current LOS operates at either LOS E or F.
3. Queuing impacts based on a comparative analysis between the design queue length and the available queue storage capacity. Impacts include, but are not limited to, spillback queue at project access locations (both ingress and egress), turn lanes at intersections, lane drops, spill back that impacts upstream intersections or interchange ramps.
4. Exceptions may be granted under the following conditions:
    a. Within downtown,
    b. Where attainment would result in significant degradation,
    c. Where topography or impacts makes the improvement impossible; or
    d. Where attainment would ensure loss of an area's unique character.

Because the City of Santa Rosa's policies emphasize capacity on the through streets and at signalized intersections, operation of uncontrolled intersections was considered acceptable if the average delay for the intersection as a whole reflects LOS D operation, or better. Attempting to achieve LOS D or better operation on all minor side-street approaches would result in degradation of the overall operation of the system through installation of traffic signals at locations where they would not otherwise be necessary.

T-C-3 *– Implement traffic calming techniques on streets subject to high speed and/or cut-through traffic, in order to improve neighborhood livability, Techniques Include:*

- Narrow Streets
- On-street parking
- Choker or diverters

- Decorative crosswalks
- Planted islands

General interpretation of Policy T-C-3. An impact is considered adverse if the project has the potential to alter community character by significantly increasing cut-through traffic, unexpected vehicle maneuvers or commercial vehicle trips in a residential area.

T-H-3 *– Require new development to provide transit improvements, where a rough proportionality to demand from the project is established. Transit improvements may include:*

- Direct and paved pedestrian access to transit stops
- Bus turnouts and shelters
- Lane width to accommodate buses.

General interpretation of Policy T-H-3. An impact is considered significant if the project has the potential to disrupt existing transit operations or establishes transit facilities and equipment such that it creates a sight distance deficiency or vehicle conflict point.

T-J *– Provide attractive and safe streets for pedestrian and bicyclists.*

General interpretation of Policy T-J. An impact is considered significant if the project generates 20 pedestrians in any single hour at an unsignalized intersection, mid-block crossing or where no crossing has been established.

An impact is further considered significant if the project interrupts existing or proposed pedestrian, bicycle and transit facilities, path or travel, direct access resulting in excessive rerouting or creates a vehicle conflict condition which affects the safety of other roadway users.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the a.m. and p.m. peak periods. This condition does not include project-generated traffic volumes. Volume data was collected April 17, 2018 when while local schools, specifically Meadow View Elementary School, were in session. With the updated project analysis, new data collection was considered but ultimately decided against given the reduced vehicle volumes on the roadways due to COVID-19 stay-at-home orders.

Intersection Levels of Service

Under these conditions, the two existing study intersections are operating acceptably at LOS C or better during both peak hours. Since the intersection of Northpoint Parkway/Dutton Meadow would either be completed under the future scenario or with the project, no service level was determined for this location under existing conditions. The existing traffic volumes are shown in Figure 1. A summary of the intersection level of service calculations is contained in Table 2, and copies of the Level of Service calculations are provided in Appendix A.

Table 2 – Existing Peak Hour Intersection Levels of Service				
Study Intersection	**AM Peak**		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**
1. Hearn Ave/Dutton Meadow	12.3	B	33.6	C
2. Hearn Ave/Dutton Ave	21.4	C	19.3	B
3. Northpoint Pkwy/Dutton Meadow	-	-	-	-

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Future Conditions

Future Volumes

Future peak hour volume projections were taken from a build out analysis which is contained in the RASRSP ; this scenario represents cumulative traffic conditions that would be expected upon build out of the land uses identified in the City's General Plan.

It should be noted that some of the projected future volumes from the RASRSP are less than existing volumes. This can be attributed to the planned improvements in the area that would result in changes to the circulation system. However, to be consistent with the Specific Plan, the volumes from the Plan were applied. Further, though development of the project site was assumed and trips included in the SCTA model volumes applied in the Specific Plan analysis, these trips were not subtracted out of the future volumes for the "without project" scenario, resulting in a more conservative analysis.

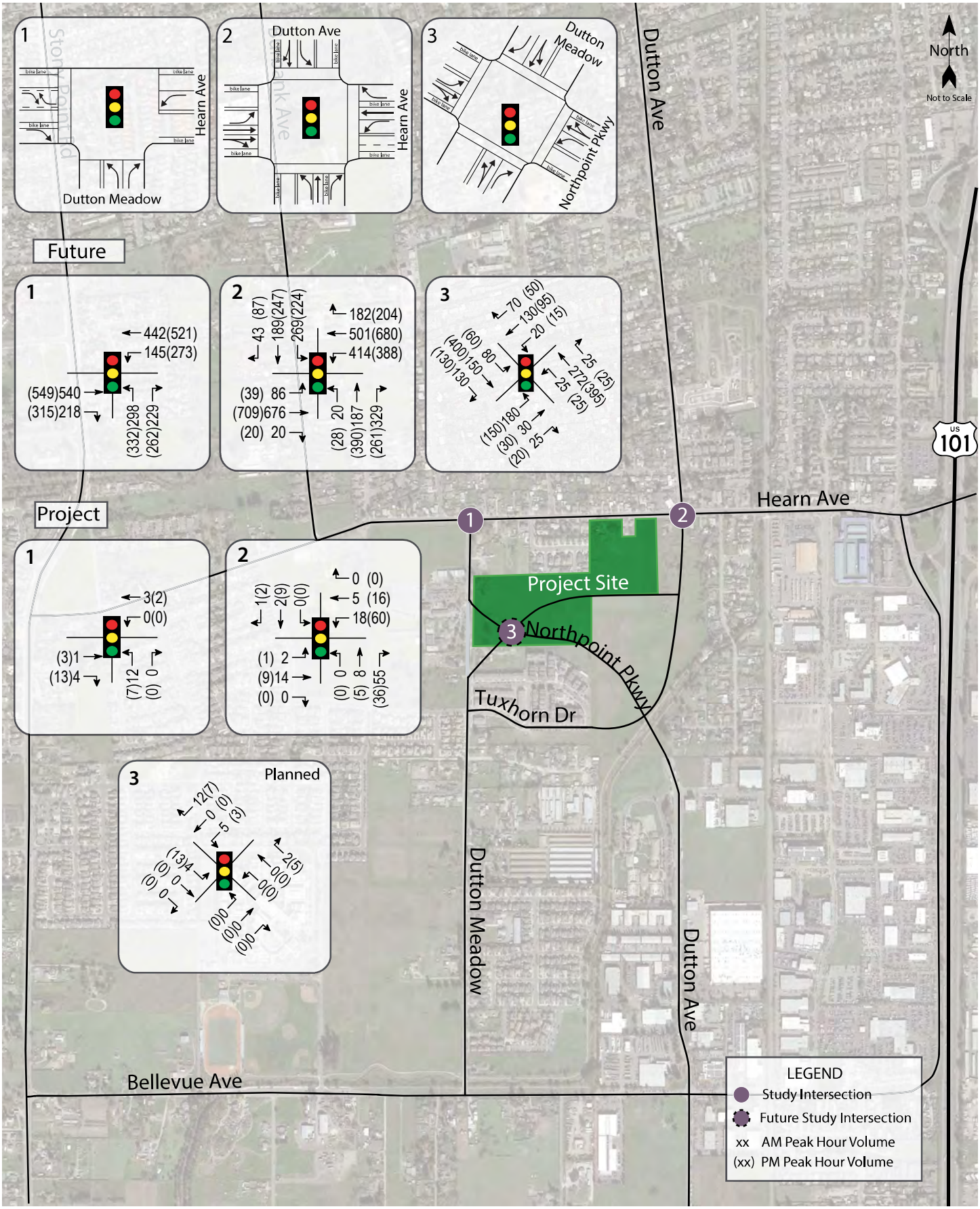
Future Infrastructure

As mentioned, there are network improvements within the study area that were applied to the analysis based on the RASRSP. Improvements include extending the Dutton Avenue from its current terminus near Duke Court to a planned roundabout where drivers would turn right to continue to the existing Dutton Avenue/Hearn Avenue intersection resulting in the planned four-legged intersection. Other improvements at that intersection would be a new westbound left turn lane, a new eastbound through lane, and reassigning the southbound right-turn lane into a southbound through/right-turn lane.

As planned, Northpoint Parkway would begin where Dutton Avenue turns right at the roundabout, continuing north to intersect with Hearn Avenue, replacing part of Dutton Meadow, which would curve northeast beginning near Meadowview Elementary School, extend through the project site, and end at the Dutton Avenue extension south of Hearn Avenue. Per the Specific Plan, the roadway would have three lanes, with one lane in each direction and either a two-way left-turn lane or median. The plan notes that the City's General Plan indicates that Northpoint Parkway would be a four-lane street but based on the planned decrease in demand, three lanes would be sufficient.

Additionally, the Plan suggests adding an eastbound right-turn pocket at Hearn Avenue and Northpoint Parkway, previously Dutton Meadow.

Under the anticipated Future volumes, with the planned improvements, the study intersections are expected to operate acceptably at LOS D or better. At the Hearn Avenue/Dutton Meadow intersection, with the addition of the eastbound right-turn lane, the delay is expected to significantly decrease during the p.m. peak hour. Future volumes, planned intersection geometries, and the planned circulation network are shown in Figure 2; operating conditions are summarized in Table 3.



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Traffic Impact Study for the Revised Dutton Meadows Phase II Project

Figure 2 – Future Lane Configurations and Traffic Volumes

W-Trans

Table 3 – Planned Future Peak Hour Intersection Levels of Service				
Study Intersection	**AM Peak**		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**
1. Hearn Ave/Dutton Meadow	11.3	B	14.4	B
2. Hearn Ave/Dutton Ave	47.1	D	46.6	D
3. Northpoint Pkwy/Dutton Meadow	16.7	B	17.3	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Project Description

The project consists of 137 single-family houses. The 18.4-acre project site is located along the east side of Dutton Meadow and south side of Hearn Avenue. There would be several access points to the site. Under the existing conditions, access to the site would be from a newly constructed intersection on Dutton Meadow and connection to Hearn Avenue via Aloise Avenue. Under the future scenario, with further circulation improvements to be constructed with development of other parcels in the area, there would be an additional connection to the Dutton Avenue extension east of the project site. With the proposed project, two single-family dwellings would be eliminated, though most of the land is open field. The site plan is shown in Figure 3.

The project, as previously approved and incorporated in the General Plan, included a total of 191 single-family dwellings. The project was also evaluated as part of the RASRSP. For that analysis, approximately 22 multi-family units and 143 single family units were assumed for the site. The calculation for this unit approximation is included in Appendix B.

Trip Generation

The anticipated trip generations for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10th Edition, 2017 for single-family detached housing (Land Use #210); rates for apartments (Land Use #220) were applied to the accessory dwelling units that were previously proposed.

The project has been analyzed several times at varying densities. The project was first approved with 191 single family homes. As part of the RASRSP, the approximate unit count used for the analysis was 22 multi-family units and 143 single family units. The calculation for this approximation is included in the Appendix B. Compared to the Specific Plan, the currently proposed project, which includes 137 dwelling units, is expected to generate 218 fewer new trips daily, including 15 less during the morning peak hour and 18 fewer during the evening peak hour. These results are summarized in Table 4.

Source: Trumark Homes 10/20

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Figure 3 – Site Plan

Table 4 – Project Iterations Trip Generation Summary											
Land Use	**Units**	**Daily**		**AM Peak Hour**				**PM Peak Hour**			
		Rate	**Trips**	**Rate**	**Trips**	**In**	**Out**	**Rate**	**Trips**	**In**	**Out**
Approved											
Single-Family Homes	191 du	9.44	1,803	0.74	141	35	106	0.99	189	119	70
Roseland Specific Plan											
Single-Family Homes	143 du	9.44	1,350	0.74	106	26	80	0.99	142	89	53
Apartment (ADU)	22 du	7.32	161	0.46	10	2	8	0.56	12	8	4
RASRSP Subtotal			**1,511**		**116**	**28**	**88**		**154**	**97**	**57**
Currently Proposed											
Single-Family Homes	137 du	9.44	1,293	0.74	101	25	76	0.99	136	85	51
Net Difference (Current-RSP)			***-218***		***-15***	***-3***	***-12***		***-18***	***-12***	***-6***

Note: du = dwelling unit; RASRSP = *Roseland Area/Sebastopol Road Specific Plan*

It should be noted that the following analysis was performed for a previous, larger iteration of the project. Since the previous analysis did not result in any identified operational deficiencies, the previous analysis is considered conservative. With deductions taken into account for the two existing single family homes that would be removed with the project, the currently proposed project is expected to generate a net average of 1,274 trips per day, including 100 a.m. peak hour trips and 134 trips during the p.m. peak hour. Compared to what was previously analyzed, the project is expected to generate 527 fewer daily trips, with 32 fewer during the morning and 38 less during the evening. Table 5 provides a summary of the trip generation for the project as currently proposed versus that assumed for the analysis.

Table 5 – Proposed Versus Analyzed Trip Generation Summary											
Land Use	**Units**	**Daily**		**AM Peak Hour**				**PM Peak Hour**			
		Rate	**Trips**	**Rate**	**Trips**	**In**	**Out**	**Rate**	**Trips**	**In**	**Out**
Existing											
Single-Family Homes	-2 du	9.44	-19	0.74	-1	0	-1	0.99	-2	-1	-1
Previously Analyzed											
Single-Family Homes	130 du	9.44	1,227	0.74	96	24	72	0.99	129	81	48
Apartment (ADU)	81 du	7.32	593	0.46	37	9	28	0.56	45	29	16
Previous Subtotal			**1,820**		**133**	**33**	**100**		**174**	**110**	**64**
Previous Net Increase			***1,801***		***132***	***33***	***99***		***172***	***109***	***63***
Currently Proposed											
Single-Family Homes	137 du	9.44	1,293	0.74	101	25	76	0.99	136	85	51
Current Net Increase			**1,274**		**100**	**25**	**75**		**134**	**84**	**50**
Net Difference (Current-Previous)			***-527***		***-32***	***-8***	***-24***		***-38***	***-25***	***-13***

Note: du = dwelling unit

Trip Distribution

Existing Conditions

The pattern used to allocate new project trips to the street network under existing conditions was determined by assessing employment patterns for residents in the southwest quadrant of Santa Rosa as indicated by the U.S. Census Bureau using data from 2015. The applied assumptions are shown in Table 6.

Table 6 – Existing with Project Trip Distribution Assumptions

Route	Percent
To/From Hearn Ave east of Dutton Ave via Dutton Meadow	55
To/From Hearn Ave east of Dutton Ave via Aloise Ave	15
To/From Hearn Ave west of Dutton Meadow via Dutton Meadow	12
To/From Hearn Ave west of Dutton Meadow via Aloise Ave	3
To/From Dutton Ave north of Hearn Ave via Dutton Meadow	8
To/From Dutton Ave north of Hearn Ave via Aloise Ave	2
To/From Dutton Meadow south of Hearn Ave	5
TOTAL	**100**

Future Conditions

Planned improvements including the Northpoint Parkway connection as well as the Dutton Avenue Extension were taken into consideration to determine the distribution and routing of new project trips to the planned and proposed street network under future conditions. The distribution assumptions used for evaluating future conditions are shown in Table 7.

Table 7 – Future Trip Distribution Assumptions

Route	Percent
To/From Hearn Ave east of Dutton Ave via Dutton Ave Extension	55
To/From Hearn Ave east of Dutton Ave via Aloise Ave	15
To/From Hearn Ave west of Dutton Meadow via Northpoint Pkwy	12
To/From Hearn Ave west of Dutton Meadow via Aloise Ave	3
To/From Dutton Ave north of Hearn Ave via Dutton Ave Extension	8
To/From Dutton Ave north of Hearn Ave via Aloise Ave	2
To/From Dutton Ave south of Hearn Ave via Northpoint Pkwy	5
TOTAL	**100**

Intersection Operation

Existing plus Project Conditions

Upon adding trips associated with the project as previously proposed to existing volumes, with the new intersection of Northpoint Parkway/Dutton Meadow, the study intersections are expected to continue operating acceptably. These results are summarized in Table 8. Project traffic volumes, along with the roadway network used for the Existing plus Project analysis, are shown in Figure 4.

Table 8 – Existing and Existing plus Project Peak Hour Intersection Levels of Service

Study Intersection	Existing Conditions				Existing plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Hearn Ave/Dutton Meadow	12.3	B	33.6	C	13.2	B	49.9	D
2. Hearn Ave/Dutton Ave	21.4	C	19.3	B	19.6	B	19.6	B
3. Northpoint Pkwy/Dutton Meadow	-	-	-	-	11.1	B	7.9	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

With the addition of project-related traffic volumes, average delay at the intersection of Hearn Avenue/Dutton Avenue is projected to decrease during the a.m. peak hour. While this is counter-intuitive, this condition occurs when a project adds trips to movements that are currently underutilized or have delays that are below the intersection average, resulting in a better balance between approaches and lower overall average delay. The project adds traffic predominantly to the eastbound and westbound through movements, which have average delays lower than the average for the intersection, resulting in a slight reduction in the overall average delay. The conclusion could incorrectly be drawn that the project improves operation based on this data alone; however, it is more appropriate to conclude that the project trips are expected to make use of excess capacity, so drivers will experience little, if any, change in conditions because of the project.

Finding – The study intersections are expected to continue operating acceptably at the same or better service levels with project traffic added to existing volumes.

Future plus Project Conditions

Upon the addition of project-generated traffic to the anticipated Future volumes and with the planned future expansion of the local network, the study intersections are expected to operate acceptably. The Future plus Project traffic volumes and the planned street system are shown in Figure 5. The Future plus Project operating conditions are summarized in Table 9.

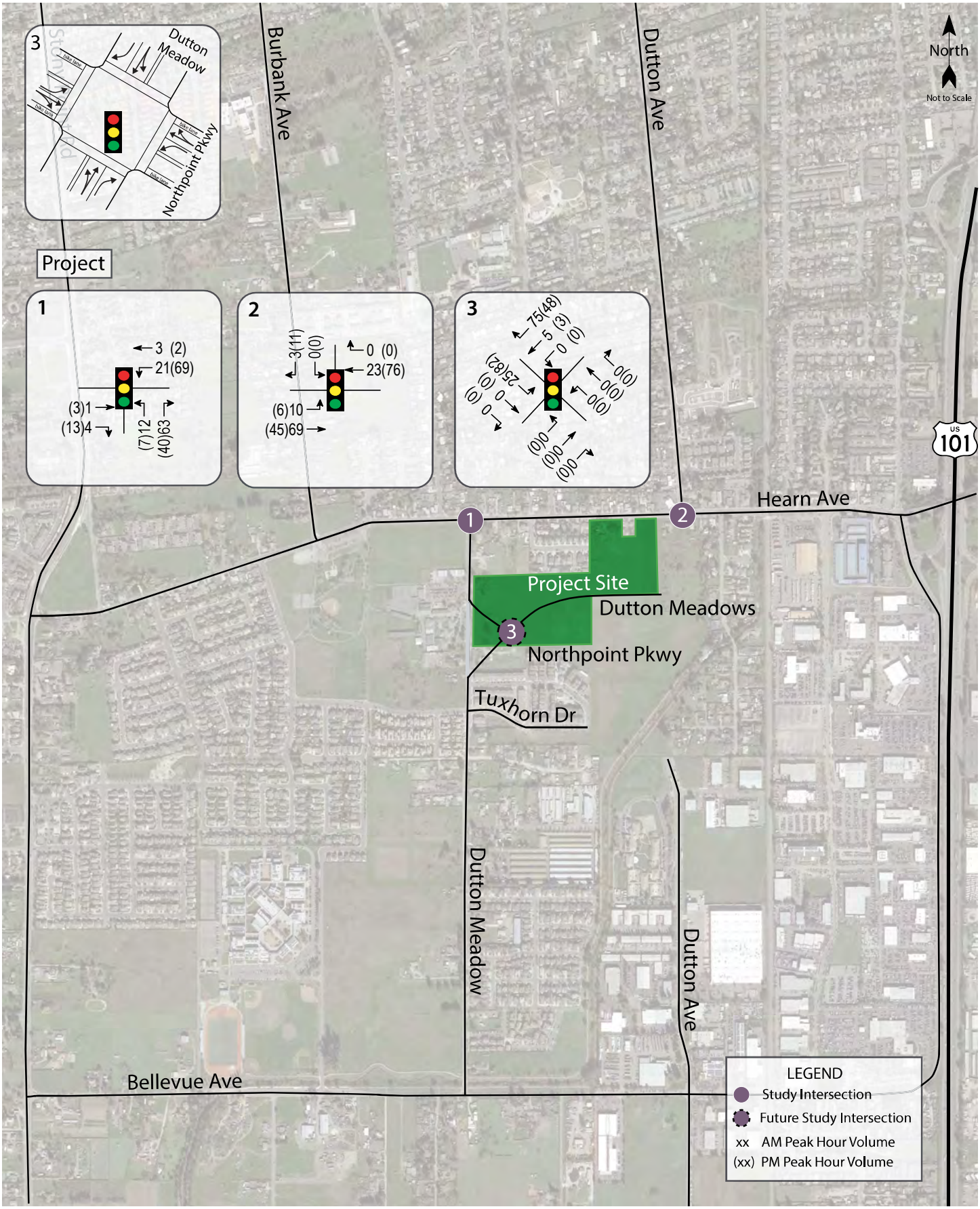

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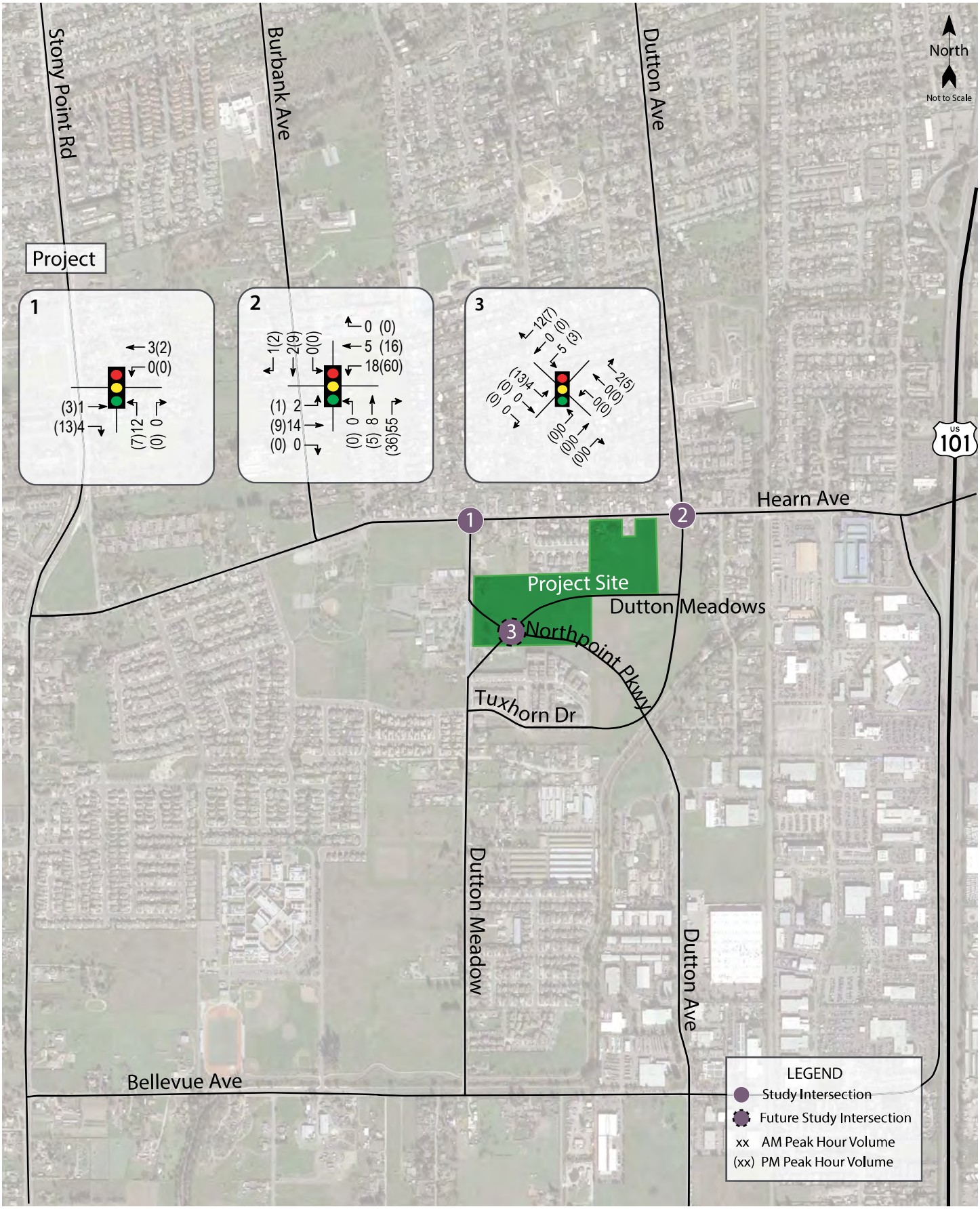
Figure 4 – Existing Study Area with Project and Project Volumes

W-Trans



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Traffic Impact Study for the Revised Dutton Meadows Phase II Project

Figure 5 – Future Study Area with Project and Project Volumes

Table 9 – Planned Future and Future plus Project Peak Hour Intersection Levels of Service								
Study Intersection	**Future Conditions**				**Future plus Project**			
	AM Peak		**PM Peak**		**AM Peak**		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. Hearn Ave/Dutton Meadow	11.3	B	14.4	B	11.6	B	14.8	B
2. Hearn Ave/Dutton Ave	47.1	D	46.6	D	49.5	D	51.3	D
3. Northpoint Pkwy/Dutton Meadow	16.7	B	17.3	B	16.9	B	16.2	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

It should be noted that under the Future and Future plus Project scenarios the delay at the intersection of Hearn Avenue/Dutton Meadow is less than under existing conditions. This can be attributed to the planned future improvements at the intersection including the addition of an eastbound right-turn pocket. With the change in roadway geometry in addition to the projected growth, it would be reasonable to assume the signal timing would be updated and as such, result in reduced delays.

Finding – The study intersections will continue operating acceptably with project traffic added to future volumes. The intersection of Northpoint Parkway/Dutton Meadow, with either the planned or proposed configuration, would be expected to operate at an acceptable service level.

Vehicle Miles Traveled

As noted previously, the Dutton Meadows project was included in the *Roseland Area/Sebastopol Road Specific Plan* EIR. At the time it was analyzed and certified, California's Environmental Quality Act (CEQA) used Level of Service as the metric for determining a transportation impact. As of July 1, 2020, the metric was updated to include Vehicle Miles Traveled (VMT); however, since the project was included in that analysis with more units than currently proposed, the project can rely on that environmental document's findings. As such, no VMT analysis was performed for the project.

Access and Circulation

The planned roadway alignment would bisect the site in such a way as to create a large, triangular-shaped parcel. As planned, Northpoint Parkway would be a regional arterial street and would act as an alternate route for traffic in the Southwest quadrant of Santa Rosa. Where the existing surrounding street network is predominantly north-south and east-west streets, Northpoint Parkway would be a northwest-southeast street.

Alternative Modes

Pedestrians

Within the Dutton Meadows project site, there would be a continuous pedestrian network. The configuration of Northpoint Parkway/Dutton Meadow would include pedestrian crossings on each leg of the intersection. From the Northpoint Parkway/Dutton Meadow intersection, sidewalks would be constructed and conform to the existing pedestrian network on Dutton Meadows which includes separated pedestrian paths on the westerly side of Dutton Meadows.

The site's internal circulation as well as the need for a pedestrian crossing of Dutton Meadows, potentially with enhancements, was reviewed. The intent of a crosswalk is to guide pedestrians to a specific location to cross the street though, per the *California Vehicle Code*, a driver must yield to any pedestrian crossing the roadway within any unmarked crosswalk at an intersection. With the project there would be several intersections along Dutton Meadows where pedestrians would legally be able to cross, regardless of whether it had a marked or unmarked crosswalk. When more sections of Northpoint Parkway are constructed to the east, there will likely be more intersections, and potentially a land use that will attract pedestrian trips.

Guidance from the National Cooperative Highway Research Program (NCHRP) Report 552, *Guidelines for Analysis of Investments in Bicycle Facilities*, considers pedestrian volumes, walking speed, crossing distance, and roadway volumes and ultimately leads to recommendations for an appropriate level of crossing enhancements. Upon reviewing the expected volumes for the roadway, and assuming that there would be at least 20 pedestrians crossing, which is the minimum number for which enhancements would be warranted, only a striped crosswalk would be recommended based on the guidance.

Considering that there is currently no land use that is expected to attract pedestrian crossings of Dutton Meadows that could not be accommodated with the proposed crosswalks at Dutton Meadows/Northpoint Parkway intersection, that pedestrians could still legally cross Dutton Meadows at any of the proposed intersections, and that only a marked crosswalk is warranted based on the expected roadway volumes, no crosswalk east of Northpoint Parkway on Dutton Meadows is recommended. When Northpoint Parkway is extended east of the project site, it is likely that there may be a future need for one or more crosswalks but placing a crosswalk at this time without a demonstrated or specific anticipated need is not recommended.

Bicyclists

As proposed the new sections of Northpoint Parkway and Dutton Meadows would have bike lanes. This is consistent with the RASRSP as well as the *Santa Rosa Bicycle and Pedestrian Master Plan Update 2018*.

Transit

As part of the project, a new bus stop location is proposed on the southeast corner of the new Dutton Meadows/Northpoint Parkway intersection. The bus stop should include a shelter and bench.

Identified Mitigation

Based on the *Dutton Meadows Project Draft Subsequent Environmental Impact Report,* CH2M Hill, 2004, the need for a connected sidewalk system and implementation of planned bicycle facilities were identified. The proposed project would provide continuous pedestrian facilities in the site as well as bike lanes along Northpoint Parkway and Dutton Meadows.

The two Traffic and Transportation mitigations detailed in the RASRSP were to provide construction traffic control plans to the City prior to construction and for the City to monitor queueing at the Dutton Avenue westbound off-ramp to address a cumulatively considered impact. The project is not expected to conflict with either mitigation.

Sight Distance

At unsignalized intersections a substantially clear line of sight should be maintained between the driver of a vehicle waiting at the crossroad and the driver of an approaching vehicle. Adequate time should be provided for the waiting vehicle to either cross, turn left, or turn right, without requiring the through traffic to radically alter their speed. Sight distance was considered for the stop-controlled approaches along the new Dutton Meadows Alignment. Sight distance was evaluated based on the criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distance at intersections of public streets is based on corner sight distances while the recommended sight distances for a driveway are based on stopping sight distance. Both use the approach travel speeds as the basis for determining the recommended sight distance. Additionally, the stopping sight distance needed for a following driver to stop if there is a vehicle waiting to turn into a side street or driveway is evaluated based on stopping sight distance criterion and the approach speed on the major street. For the purposes of the analysis, each of the parcel boundaries were assumed as a potential obstruction location.

As proposed, there would be four unsignalized intersections east of the Dutton Meadows/Northpoint Parkway approximately 250, 800, 925, and 1,145 feet away. As proposed, there would be a private driveway 250 feet southwest of the Dutton Meadows/Northpoint Parkway intersection on Dutton Meadows.

At the intersection approximately 250 east of the signalized intersection, from the north leg of the intersection, a driver would have a clear line of sight to the west through the Northpoint Parkway intersection, which is adequate for an approach speed of 25 mph. Since Dutton Meadows is the minor street at the signalized intersection, vehicles exiting the signalized intersection eastbound would typically be traveling at a speed of less than 25 mph at the point where they first acquire sight of the intersection. From the south leg of the unsignalized intersection, which would be located on the inside of the proposed curve in Dutton Meadow, the line of sight would be only about 225 feet to the west along Dutton Meadows but a 325-foot clear line of sight would be available to the southbound left-turn movement at the signalized Northpoint Parkway intersection. These distances assume the eye of the driver is set back 15 feet from the edge of travel way and that there could be a vertical obstruction on the adjacent parcel's plots. Since the minimum recommended corner sight distance for posted speed of 25 mph is 275 feet, the line of sight from 15-foot setback would not meet the recommended line of sight for this speed, but would be adequate for the lower speeds of drivers exiting the signalized intersection and increasing speeds from a stopped position. Often where a line of sight is obstructed, drivers intuitively approach the edge of travel. Measuring the line of sight assuming that the vehicle abutted the travel lane on Dutton Meadow, 275 feet sight line could be achieved; however, any landscaping or landmarks on the two parcels east of the intersection would need to be low-lying and no fencing or other vertical elements greater than three feet in height installed. From either the north or south leg of this unsignalized intersection there would be a clear line of sight to the east for a posted speed limit of 25 mph.

East of the Dutton Meadows/Northpoint Parkway intersection, Dutton Meadows is proposed to straighten out. For the other three project roads that intersect with the straight section of Dutton Meadows, there would be a clear line of sight in both directions adequate for a posted speed limit of 25 mph. Where there would be project

roads and access points on both sides of the Dutton Meadows extension, there would be a clear line of sight from both.

From the proposed project driveway about 250 feet southwest of the Dutton Meadows/Northpoint Parkway intersection, there would be a clear line of sight to the north through the intersection for about 250 feet and since the roadway is flat and straight to the south, the line of sight is more than 430 feet. Since private driveways are based on stopping sight distance, the line of sight to the north would be adequate for a posted speed of 35 mph and to the south, for a posted speed of 50 mph.

In order to maintain clear lines of sight it is recommended that any landscaping along the Dutton Meadows frontages in these areas be low-lying vegetation no more than three feet above the elevation of the roadway, and any tree canopies be trimmed and maintained to be no less than seven feet above the roadway elevation.

Sight Distance exhibits are included in Appendix C.

Internal Street System Design

The proposed site plan was reviewed for consistency with applicable design standards. Based on the City's standard, side streets proposed with less than 200 feet between their centerlines require review as part of the traffic analysis. There are two locations where two roadway centerlines are less than 200 feet apart. The first instance of this is the two intersections located approximately 800 and 925 feet east from the Northpoint Parkway intersection and subsequently called Location 1. The second location, called Location 2, involves the intersection 925 feet from Northpoint Parkway and the intersection 150 feet to the north. Both locations are identified on the site plan provided in Figure 3.

At Location 1, given the direction of the offset, there would be the potential for head-on collisions between eastbound and westbound vehicles turning left into the adjacent side streets. To eliminate the potential for conflicts at Location 1, it is recommended that the median on Dutton Meadows extend through the intersection 800 feet from and on the south side of Northpoint Parkway resulting in right-turn access/egress only at this location. Given the proposed configuration, there would be full access to that street via the Dutton Meadows intersection 250 feet from Northpoint Parkway. From the stop-controlled approaches at these intersections, there would be clear lines of sight from one intersection to the other. By restricting the intersection 800 feet from Northpoint Parkway to right-turn access only, both intersections would be expected to operate acceptably.

For Location 2, the potential conflicts would be between drivers entering the north-south project street from either the stop-controlled eastbound side-street approach or Dutton Meadows. Based on the stopping sight distance criteria, 150 feet is an adequate stopping sight distance for speeds of up to 25 miles per hour. Since northbound drivers would have just completed either an eastbound left-turn or westbound right-turn, they would likely not be traveling more than 25 mph so there would be a sufficient distance for a northbound driver to respond to a conflicting eastbound left-turning vehicle. To maintain adequate lines of sight between the two intersections, all landscaping or fences should be low-lying. Any tree canopies should be maintained at seven feet above the street elevation.

Signal Warrant

A signal warrant analysis was performed to determine potential need for a traffic signal at Hearn Avenue/Sally Ann Street intersection.

Chapter 4C of the *California Manual on Uniform Traffic Control Devices* (CA-MUTCD) provides guidance on when a traffic signal should be considered. There are nine different warrants, or criteria, presented but Warrant 3 was applied as it is often the first warrant to be met.

Warrant 3, has a notice that this signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time. Under the Peak Hour Warrant the need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:

A. If all three of the following conditions exist for the same one hour (any four consecutive 15-minute periods) of an average day:

    1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: four vehicle-hours for a one-lane approach; or five vehicle-hours for a two-lane approach, and
    2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes, and
    3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for one hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.

Under the existing and projected future volumes, with and without the project added trips, the peak hour signal warrant is not met. The signal warrant sheets are included in Appendix D.

Meadowview Elementary School Frontage

With the planned roadway configuration, access to and from the Meadowview elementary would change. There are currently three driveways, the most northerly for the parking lot with the other two for the one-way pick-up and drop-off loop used by the buses. With the planned Northpoint Parkway intersection geometry, the inbound driveway to the pick-up drop-off loop would be removed but the roadway would conform with the other two driveways. Therefore, with the planned intersection configuration, the internal circulation for the school would need to be reconstructed.

It is reasonable to assume that some residents of the proposed project would have children that attend the Meadowview Elementary school and would want to walk to the school. Crosswalks with pedestrian crossing time were assumed for each approach and would provide adequate access to the school site.

Conclusions and Recommendations

Conclusions

- The project is expected to generate 1,274 net new trips daily, including 100 during the morning peak hour and 134 during the evening peak hour. The peak trip generation for the proposed project would be less than that associated with what was previously approved for the site and analyzed for the site in the *Roseland Area/Sebastopol Road Specific Plan*.

- The study intersections are expected to operate acceptably under both Existing and future conditions. With the addition of the project trips, the study intersections and the new Dutton Meadow/Northpoint Parkway intersection would operate at acceptable service levels.

- The project would provide continuous pedestrian facilities as well as bike lanes along Northpoint Parkway and the new section of Dutton Meadows. A marked crosswalk on Dutton Meadows east of its intersection with Northpoint Parkway is not recommended.

- From each of the projects access points there is a clear line of sight for a posted speed of 25 mph. For the south leg of the unsignalized intersection 250 feet east of the Northpoint Parkway intersection, the driver would need to approach the travel land and the two adjacent parcels on the southerly side of Dutton Meadows would need to keep any vertical elements clear of the line of sight.

- There are two locations where intersections are less than 200 feet apart, which does not comply with the City's design standards.

- A signal is not warranted at the intersection of Sally Ann Street/Hearn Avenue under existing and future peak hour volumes, with and without the project.

- For the planned configuration for Dutton Meadow/Northpoint Parkway, the school's internal circulation would need to be modified.

Recommendations

- In order to maintain a clear line of sight, any landscaping in the median on Northpoint Parkway or in the public space between the sidewalk and the roadway, should be low lying vegetation and maintained to be no more than three feet above the elevation of the roadway. Any trees should have their canopies trimmed to be no less than seven feet above the elevation of the roadway. For the parcels on the south side of Dutton Meadows between the Northpoint Parkway intersection and the first access road to the project site, there should be no vertical obstructions on the parcel between the patio and the roadway.

- The proposed bus stop near the intersection of Northpoint Parkway/Dutton Meadows should include a bench and shelter.

- In order to avoid potential conflicts between the two intersections located 800 and 950 feet from the Northpoint Parkway/Dutton Meadows intersection, the median on Dutton Meadow should extend through the intersection 800 feet from Northpoint Parkway resulting in right-turn only access and egress. Landscaping and fences between the intersections located 950 feet from the Northpoint Parkway/Dutton Meadows intersection and the one 150 feet to the north should be low-lying to maintain adequate sight lines.

Study Participants and References

Study Participants

Principal in Charge	Dalene J. Whitlock, PE, PTOE
Associate Engineers	Briana Byrne, TE, Kevin Carstens, PE, TE
Graphics/Editing/Formatting	Alex Scrobonia, Katia Wolfe, Hannah Yung-Boxdell
Quality Control	Dalene J. Whitlock, PE, PTOE

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Appendix A

Intersection Level of Service Calculations

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HCM 2010 Signalized Intersection Summary
1: Dutton Meadow & Hearn Ave

10/18/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	477	79	292	395	95	370
Future Volume (veh/h)	477	79	292	395	95	370
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	518	77	317	429	103	380
Adj No. of Lanes	1	0	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	646	96	386	1313	269	585
Arrive On Green	0.41	0.41	0.22	0.70	0.15	0.15
Sat Flow, veh/h	1580	235	1774	1863	1774	1583
Grp Volume(v), veh/h	0	595	317	429	103	380
Grp Sat Flow(s),veh/h/ln	0	1815	1774	1863	1774	1583
Q Serve(g_s), s	0.0	13.3	7.8	4.1	2.4	0.0
Cycle Q Clear(g_c), s	0.0	13.3	7.8	4.1	2.4	0.0
Prop In Lane		0.13	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	742	386	1313	269	585
V/C Ratio(X)	0.00	0.80	0.82	0.33	0.38	0.65
Avail Cap(c_a), veh/h	0	1183	771	1313	964	1205
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	12.0	17.1	2.6	17.6	12.0
Incr Delay (d2), s/veh	0.0	2.1	1.7	0.1	0.9	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.0	4.0	2.1	1.2	4.1
LnGrp Delay(d),s/veh	0.0	14.1	18.8	2.7	18.5	13.3
LnGrp LOS		B	B	A	B	B
Approach Vol, veh/h	595			746	483	
Approach Delay, s/veh	14.1			9.6	14.4	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.6	22.4				36.0		10.0
Change Period (Y+Rc), s	3.6	* 3.6				3.6		3.0
Max Green Setting (Gmax), s	20.0	* 30				30.0		25.0
Max Q Clear Time (g_c+I1), s	9.8	15.3				6.1		4.4
Green Ext Time (p_c), s	0.4	3.6				2.7		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	12.3
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
2: Hearn Ave & Dutton Ave

10/18/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	681	0	0	522	243	0	0	0	301	0	111
Future Volume (veh/h)	107	681	0	0	522	243	0	0	0	301	0	111
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	114	724	0	0	555	250	0	0	0	320	0	73
Adj No. of Lanes	1	1	0	0	1	1	0	1	0	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	139	1388	0	0	1186	1285	0	2	0	356	0	426
Arrive On Green	0.08	0.74	0.00	0.00	0.64	0.64	0.00	0.00	0.00	0.20	0.00	0.20
Sat Flow, veh/h	1774	1863	0	0	1863	1520	0	1863	0	1774	0	1503
Grp Volume(v), veh/h	114	724	0	0	555	250	0	0	0	320	0	73
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1863	1520	0	1863	0	1774	0	1503
Q Serve(g_s), s	7.7	19.6	0.0	0.0	18.7	3.9	0.0	0.0	0.0	21.3	0.0	4.5
Cycle Q Clear(g_c), s	7.7	19.6	0.0	0.0	18.7	3.9	0.0	0.0	0.0	21.3	0.0	4.5
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	139	1388	0	0	1186	1285	0	2	0	356	0	426
V/C Ratio(X)	0.82	0.52	0.00	0.00	0.47	0.19	0.00	0.00	0.00	0.90	0.00	0.17
Avail Cap(c_a), veh/h	235	1388	0	0	1186	1285	0	246	0	411	0	472
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.9	6.4	0.0	0.0	11.4	1.9	0.0	0.0	0.0	47.2	0.0	33.0
Incr Delay (d2), s/veh	3.1	1.0	0.0	0.0	1.3	0.3	0.0	0.0	0.0	20.5	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	10.2	0.0	0.0	10.0	3.7	0.0	0.0	0.0	12.4	0.0	1.9
LnGrp Delay(d),s/veh	58.0	7.4	0.0	0.0	12.7	2.3	0.0	0.0	0.0	67.6	0.0	33.2
LnGrp LOS	E	A			B	A				E		C
Approach Vol, veh/h		838			805			0			393	
Approach Delay, s/veh		14.3			9.5			0.0			61.2	
Approach LOS		B			A						E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		93.7		27.3	13.1	80.6		0.0
Change Period (Y+Rc), s		3.6		3.0	3.6	3.6		4.0
Max Green Setting (Gmax), s		66.4		28.0	16.0	46.8		16.0
Max Q Clear Time (g_c+I1), s		21.6		23.3	9.7	20.7		0.0
Green Ext Time (p_c), s		6.2		1.0	0.1	4.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	21.4
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
1: Dutton Meadow & Hearn Ave

10/18/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	632	333	114	547	265	167
Future Volume (veh/h)	632	333	114	547	265	167
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	672	340	121	582	282	146
Adj No. of Lanes	1	0	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	649	328	163	1313	353	460
Arrive On Green	0.56	0.56	0.09	0.70	0.20	0.20
Sat Flow, veh/h	1158	586	1774	1863	1774	1583
Grp Volume(v), veh/h	0	1012	121	582	282	146
Grp Sat Flow(s),veh/h/ln	0	1744	1774	1863	1774	1583
Q Serve(g_s), s	0.0	38.4	4.6	9.2	10.4	0.0
Cycle Q Clear(g_c), s	0.0	38.4	4.6	9.2	10.4	0.0
Prop In Lane		0.34	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	977	163	1313	353	460
V/C Ratio(X)	0.00	1.04	0.74	0.44	0.80	0.32
Avail Cap(c_a), veh/h	0	977	699	1313	828	885
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	15.1	30.3	4.3	26.1	19.0
Incr Delay (d2), s/veh	0.0	38.3	2.5	0.2	4.2	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	28.6	2.3	4.8	5.5	2.2
LnGrp Delay(d),s/veh	0.0	53.4	32.8	4.6	30.3	19.4
LnGrp LOS		F	C	A	C	B
Approach Vol, veh/h	1012			703	428	
Approach Delay, s/veh	53.4			9.4	26.6	
Approach LOS	D			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.9	42.0				51.9		16.6
Change Period (Y+Rc), s	3.6	* 3.6				3.6		3.0
Max Green Setting (Gmax), s	27.0	* 38				38.4		32.0
Max Q Clear Time (g_c+I1), s	6.6	40.4				11.2		12.4
Green Ext Time (p_c), s	0.1	0.0				4.2		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	33.6
HCM 2010 LOS	C

Notes

HCM 2010 Signalized Intersection Summary
2: Hearn Ave & Dutton Ave

10/18/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	538	0	0	680	352	0	0	0	258	0	163
Future Volume (veh/h)	114	538	0	0	680	352	0	0	0	258	0	163
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		1.00	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	118	555	0	0	701	351	0	0	0	266	0	125
Adj No. of Lanes	1	1	0	0	1	1	0	1	0	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	1435	0	0	1229	1281	0	2	0	311	0	390
Arrive On Green	0.08	0.77	0.00	0.00	0.66	0.66	0.00	0.00	0.00	0.18	0.00	0.18
Sat Flow, veh/h	1774	1863	0	0	1863	1521	0	1863	0	1774	0	1496
Grp Volume(v), veh/h	118	555	0	0	701	351	0	0	0	266	0	125
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1863	1521	0	1863	0	1774	0	1496
Q Serve(g_s), s	7.9	11.8	0.0	0.0	24.8	6.0	0.0	0.0	0.0	17.6	0.0	8.2
Cycle Q Clear(g_c), s	7.9	11.8	0.0	0.0	24.8	6.0	0.0	0.0	0.0	17.6	0.0	8.2
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	143	1435	0	0	1229	1281	0	2	0	311	0	390
V/C Ratio(X)	0.82	0.39	0.00	0.00	0.57	0.27	0.00	0.00	0.00	0.86	0.00	0.32
Avail Cap(c_a), veh/h	182	1435	0	0	1229	1281	0	246	0	381	0	449
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.10	0.10	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.8	4.5	0.0	0.0	11.2	2.1	0.0	0.0	0.0	48.4	0.0	36.5
Incr Delay (d2), s/veh	2.0	0.1	0.0	0.0	1.9	0.5	0.0	0.0	0.0	14.7	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	6.0	0.0	0.0	13.3	5.4	0.0	0.0	0.0	9.9	0.0	3.5
LnGrp Delay(d),s/veh	56.7	4.6	0.0	0.0	13.2	2.7	0.0	0.0	0.0	63.1	0.0	37.0
LnGrp LOS	E	A			B	A				E		D
Approach Vol, veh/h		673			1052			0			391	
Approach Delay, s/veh		13.8			9.7			0.0			54.8	
Approach LOS		B			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		96.8		24.2	13.4	83.4		0.0
Change Period (Y+Rc), s		3.6		3.0	3.6	3.6		4.0
Max Green Setting (Gmax), s		68.4		26.0	12.4	52.4		16.0
Max Q Clear Time (g_c+I1), s		13.8		19.6	9.9	26.8		0.0
Green Ext Time (p_c), s		4.3		1.1	0.0	6.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
1: Northpoint Parkway & Hearn Ave

10/18/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	540	218	145	442	298	229
Future Volume (veh/h)	540	218	145	442	298	229
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	540	210	145	442	298	209
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	745	620	235	1145	416	581
Arrive On Green	0.40	0.40	0.13	0.61	0.23	0.23
Sat Flow, veh/h	1863	1549	1774	1863	1774	1583
Grp Volume(v), veh/h	540	210	145	442	298	209
Grp Sat Flow(s),veh/h/ln	1863	1549	1774	1863	1774	1583
Q Serve(g_s), s	10.7	4.1	3.4	5.3	6.8	0.0
Cycle Q Clear(g_c), s	10.7	4.1	3.4	5.3	6.8	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	745	620	235	1145	416	581
V/C Ratio(X)	0.72	0.34	0.62	0.39	0.72	0.36
Avail Cap(c_a), veh/h	2016	1676	607	2781	1134	1222
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.1	9.1	18.0	4.3	15.4	10.1
Incr Delay (d2), s/veh	1.4	0.3	1.0	0.2	2.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	1.8	1.7	2.6	3.6	1.9
LnGrp Delay(d),s/veh	12.5	9.4	18.9	4.5	17.7	10.5
LnGrp LOS	B	A	B	A	B	B
Approach Vol, veh/h	750			587	507	
Approach Delay, s/veh	11.6			8.0	14.7	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.4	21.1				30.5		13.3
Change Period (Y+Rc), s	3.6	* 3.6				3.6		3.0
Max Green Setting (Gmax), s	15.0	* 47				65.4		28.0
Max Q Clear Time (g_c+I1), s	5.4	12.7				7.3		8.8
Green Ext Time (p_c), s	0.1	4.8				3.2		1.5

Intersection Summary	
HCM 2010 Ctrl Delay	11.3
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
2: Dutton Ave & Hearn Ave

10/18/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	676	20	414	501	182	20	187	329	269	189	43
Future Volume (veh/h)	86	676	20	414	501	182	20	187	329	269	189	43
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	86	676	20	414	501	174	20	187	329	269	189	1
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	108	1028	30	436	890	722	51	344	681	257	556	3
Arrive On Green	0.06	0.29	0.29	0.25	0.48	0.48	0.03	0.18	0.18	0.14	0.30	0.30
Sat Flow, veh/h	1774	3506	104	1774	1863	1510	1774	1863	1583	1774	1851	10
Grp Volume(v), veh/h	86	341	355	414	501	174	20	187	329	269	0	190
Grp Sat Flow(s),veh/h/ln	1774	1770	1840	1774	1863	1510	1774	1863	1583	1774	0	1861
Q Serve(g_s), s	5.5	19.2	19.3	26.2	21.9	7.8	1.3	10.4	17.0	16.5	0.0	9.1
Cycle Q Clear(g_c), s	5.5	19.2	19.3	26.2	21.9	7.8	1.3	10.4	17.0	16.5	0.0	9.1
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	108	519	540	436	890	722	51	344	681	257	0	559
V/C Ratio(X)	0.79	0.66	0.66	0.95	0.56	0.24	0.39	0.54	0.48	1.05	0.00	0.34
Avail Cap(c_a), veh/h	110	519	540	436	890	722	109	433	757	257	0	588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.8	35.3	35.3	42.3	21.3	17.6	54.4	42.1	23.4	48.8	0.0	31.1
Incr Delay (d2), s/veh	25.7	5.1	4.9	30.7	2.6	0.8	4.8	1.3	0.5	69.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	10.1	10.5	16.5	11.9	3.4	0.7	5.5	7.5	13.0	0.0	4.7
LnGrp Delay(d),s/veh	78.5	40.3	40.2	73.0	23.8	18.4	59.2	43.5	23.9	117.9	0.0	31.4
LnGrp LOS	E	D	D	E	C	B	E	D	C	F		C
Approach Vol, veh/h		782			1089			536			459	
Approach Delay, s/veh		44.4			41.6			32.0			82.1	
Approach LOS		D			D			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.0	37.4	6.8	37.8	11.0	58.5	20.0	24.6
Change Period (Y+Rc), s	4.0	4.0	3.5	3.5	4.0	4.0	3.5	3.5
Max Green Setting (Gmax), s	28.0	28.0	7.0	36.0	7.1	48.9	16.5	26.5
Max Q Clear Time (g_c+I1), s	28.2	21.3	3.3	11.1	7.5	23.9	18.5	19.0
Green Ext Time (p_c), s	0.0	2.4	0.0	1.1	0.0	4.1	0.0	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	47.1
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
3: Northpoint Parkway & Dutton Meadow

10/18/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	30	25	20	130	70	25	272	25	80	150	130
Future Volume (veh/h)	180	30	25	20	130	70	25	272	25	80	150	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	180	30	25	20	130	70	25	272	25	80	150	130
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	43	264	32	210	299	420	436	40	401	205	177
Arrive On Green	0.17	0.17	0.17	0.13	0.13	0.13	0.10	0.26	0.26	0.06	0.22	0.22
Sat Flow, veh/h	1531	255	1583	247	1604	1583	1774	1681	155	1774	922	799
Grp Volume(v), veh/h	210	0	25	150	0	70	25	0	297	80	0	280
Grp Sat Flow(s),veh/h/ln	1786	0	1583	1850	0	1583	1774	0	1835	1774	0	1722
Q Serve(g_s), s	4.6	0.0	0.6	3.2	0.0	1.6	0.4	0.0	5.9	1.4	0.0	6.3
Cycle Q Clear(g_c), s	4.6	0.0	0.6	3.2	0.0	1.6	0.4	0.0	5.9	1.4	0.0	6.3
Prop In Lane	0.86		1.00	0.13		1.00	1.00		0.08	1.00		0.46
Lane Grp Cap(c), veh/h	298	0	264	242	0	299	420	0	476	401	0	382
V/C Ratio(X)	0.70	0.00	0.09	0.62	0.00	0.23	0.06	0.00	0.62	0.20	0.00	0.73
Avail Cap(c_a), veh/h	688	0	610	713	0	702	934	0	1193	512	0	663
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.3	0.0	14.7	17.1	0.0	14.3	10.3	0.0	13.6	11.5	0.0	15.0
Incr Delay (d2), s/veh	3.0	0.0	0.2	2.6	0.0	0.4	0.1	0.0	1.3	0.2	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.3	1.8	0.0	0.7	0.2	0.0	3.1	0.7	0.0	3.2
LnGrp Delay(d),s/veh	19.4	0.0	14.8	19.7	0.0	14.7	10.4	0.0	15.0	11.8	0.0	17.8
LnGrp LOS	B		B	B		B	B		B	B		B
Approach Vol, veh/h		235			220			322			360	
Approach Delay, s/veh		18.9			18.1			14.6			16.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.4	14.8		10.9	8.0	13.2		9.4
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	5.0	27.0		16.0	16.0	16.0		16.0
Max Q Clear Time (g_c+I1), s	3.4	7.9		6.6	2.4	8.3		5.2
Green Ext Time (p_c), s	0.0	1.6		0.8	0.0	0.9		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	16.7
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
1: Northpoint Parkway & Hearn Ave

10/22/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	549	315	273	521	332	262
Future Volume (veh/h)	549	315	273	521	332	262
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	549	307	273	521	332	242
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	717	596	332	1189	429	679
Arrive On Green	0.39	0.39	0.19	0.64	0.24	0.24
Sat Flow, veh/h	1863	1549	1774	1863	1774	1583
Grp Volume(v), veh/h	549	307	273	521	332	242
Grp Sat Flow(s),veh/h/ln	1863	1549	1774	1863	1774	1583
Q Serve(g_s), s	14.1	8.3	8.1	7.7	9.6	0.0
Cycle Q Clear(g_c), s	14.1	8.3	8.1	7.7	9.6	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	717	596	332	1189	429	679
V/C Ratio(X)	0.77	0.51	0.82	0.44	0.77	0.36
Avail Cap(c_a), veh/h	1372	1141	744	2255	873	1076
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.7	12.9	21.4	5.0	19.4	10.6
Incr Delay (d2), s/veh	1.7	0.7	2.0	0.3	3.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	3.6	4.1	4.0	5.0	2.5
LnGrp Delay(d),s/veh	16.4	13.6	23.4	5.2	22.4	10.9
LnGrp LOS	B	B	C	A	C	B
Approach Vol, veh/h	856			794	574	
Approach Delay, s/veh	15.4			11.5	17.6	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.9	24.7				38.6		16.2
Change Period (Y+Rc), s	3.6	* 3.6				3.6		3.0
Max Green Setting (Gmax), s	23.0	* 40				66.4		27.0
Max Q Clear Time (g_c+I1), s	10.1	16.1				9.7		11.6
Green Ext Time (p_c), s	0.3	5.0				3.9		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	14.6
HCM 2010 LOS	B

Notes
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
2: Dutton Ave & Hearn Ave

10/22/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	709	20	388	680	204	28	390	261	224	247	87
Future Volume (veh/h)	39	709	20	388	680	204	28	390	261	224	247	87
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	39	709	20	388	680	196	28	390	261	224	247	45
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	936	26	415	851	689	64	421	729	251	505	92
Arrive On Green	0.04	0.27	0.27	0.23	0.46	0.46	0.04	0.23	0.23	0.14	0.33	0.33
Sat Flow, veh/h	1774	3511	99	1774	1863	1508	1774	1863	1583	1774	1523	277
Grp Volume(v), veh/h	39	357	372	388	680	196	28	390	261	224	0	292
Grp Sat Flow(s),veh/h/ln	1774	1770	1840	1774	1863	1508	1774	1863	1583	1774	0	1801
Q Serve(g_s), s	2.5	21.1	21.2	24.4	35.6	9.2	1.8	23.4	12.1	14.1	0.0	14.7
Cycle Q Clear(g_c), s	2.5	21.1	21.2	24.4	35.6	9.2	1.8	23.4	12.1	14.1	0.0	14.7
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	77	472	491	415	851	689	64	421	729	251	0	597
V/C Ratio(X)	0.50	0.76	0.76	0.93	0.80	0.28	0.44	0.93	0.36	0.89	0.00	0.49
Avail Cap(c_a), veh/h	110	472	491	436	851	689	109	433	739	257	0	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.3	38.4	38.4	42.8	26.5	19.3	53.8	43.2	19.9	48.1	0.0	30.4
Incr Delay (d2), s/veh	3.8	8.3	8.0	26.9	7.7	1.0	4.6	25.5	0.3	29.3	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	11.4	11.8	15.1	20.2	4.1	0.9	15.0	5.3	9.0	0.0	7.4
LnGrp Delay(d),s/veh	57.1	46.7	46.5	69.7	34.2	20.4	58.4	68.6	20.2	77.4	0.0	31.0
LnGrp LOS	E	D	D	E	C	C	E	E	C	E		C
Approach Vol, veh/h		768			1264			679			516	
Approach Delay, s/veh		47.1			43.0			49.6			51.1	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.7	34.4	7.6	41.3	9.0	56.1	19.7	29.3
Change Period (Y+Rc), s	4.0	4.0	3.5	3.5	4.0	4.0	3.5	3.5
Max Green Setting (Gmax), s	28.0	28.0	7.0	36.0	7.1	48.9	16.5	26.5
Max Q Clear Time (g_c+I1), s	26.4	23.2	3.8	16.7	4.5	37.6	16.1	25.4
Green Ext Time (p_c), s	0.2	1.9	0.0	1.7	0.0	4.2	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	46.7
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
3: Dutton Meadow & Northpoint Parkway

10/22/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	30	20	15	95	50	25	395	25	60	400	130
Future Volume (veh/h)	150	30	20	15	95	50	25	395	25	60	400	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	150	30	20	15	95	50	25	395	25	60	400	130
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	43	227	25	156	230	43	595	38	84	494	161
Arrive On Green	0.14	0.14	0.14	0.10	0.10	0.10	0.02	0.34	0.34	0.05	0.37	0.37
Sat Flow, veh/h	1490	298	1583	252	1598	1583	1774	1734	110	1774	1348	438
Grp Volume(v), veh/h	180	0	20	110	0	50	25	0	420	60	0	530
Grp Sat Flow(s),veh/h/ln	1788	0	1583	1850	0	1583	1774	0	1843	1774	0	1785
Q Serve(g_s), s	4.2	0.0	0.5	2.5	0.0	1.2	0.6	0.0	8.4	1.4	0.0	11.6
Cycle Q Clear(g_c), s	4.2	0.0	0.5	2.5	0.0	1.2	0.6	0.0	8.4	1.4	0.0	11.6
Prop In Lane	0.83		1.00	0.14		1.00	1.00		0.06	1.00		0.25
Lane Grp Cap(c), veh/h	257	0	227	181	0	230	43	0	633	84	0	655
V/C Ratio(X)	0.70	0.00	0.09	0.61	0.00	0.22	0.59	0.00	0.66	0.71	0.00	0.81
Avail Cap(c_a), veh/h	658	0	583	681	0	658	163	0	890	245	0	944
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.7	0.0	16.2	18.8	0.0	16.4	21.0	0.0	12.1	20.4	0.0	12.4
Incr Delay (d2), s/veh	3.5	0.0	0.2	3.3	0.0	0.5	12.2	0.0	1.2	10.6	0.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.2	1.4	0.0	0.6	0.4	0.0	4.4	0.9	0.0	6.2
LnGrp Delay(d),s/veh	21.2	0.0	16.3	22.1	0.0	16.9	33.2	0.0	13.3	31.0	0.0	15.9
LnGrp LOS	C		B	C		B	C		B	C		B
Approach Vol, veh/h		200			160			445			590	
Approach Delay, s/veh		20.7			20.5			14.5			17.4	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	18.9		10.2	5.0	19.9		8.3
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	6.0	21.0		16.0	4.0	23.0		16.0
Max Q Clear Time (g_c+I1), s	3.4	10.4		6.2	2.6	13.6		4.5
Green Ext Time (p_c), s	0.0	1.8		0.7	0.0	2.3		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	17.3
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
1: Dutton Meadow & Hearn Ave

10/18/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Volume (veh/h)	478	83	313	398	107	433		
Future Volume (veh/h)	478	83	313	398	107	433		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	520	81	340	433	116	449		
Adj No. of Lanes	1	0	1	1	1	1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	2	2		
Cap, veh/h	642	100	408	1331	261	597		
Arrive On Green	0.41	0.41	0.23	0.71	0.15	0.15		
Sat Flow, veh/h	1569	244	1774	1863	1774	1583		
Grp Volume(v), veh/h	0	601	340	433	116	449		
Grp Sat Flow(s),veh/h/ln	0	1813	1774	1863	1774	1583		
Q Serve(g_s), s	0.0	14.0	8.7	4.1	2.8	0.8		
Cycle Q Clear(g_c), s	0.0	14.0	8.7	4.1	2.8	0.8		
Prop In Lane		0.13	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	0	741	408	1331	261	597		
V/C Ratio(X)	0.00	0.81	0.83	0.33	0.45	0.75		
Avail Cap(c_a), veh/h	0	1142	745	1331	931	1195		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	12.4	17.5	2.5	18.5	12.9		
Incr Delay (d2), s/veh	0.0	2.6	1.7	0.1	1.2	1.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	7.4	4.4	2.1	1.5	5.3		
LnGrp Delay(d),s/veh	0.0	15.0	19.2	2.7	19.7	14.9		
LnGrp LOS		B	B	A	B	B		
Approach Vol, veh/h	601			773	565			
Approach Delay, s/veh	15.0			9.9	15.9			
Approach LOS	B			A	B			

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.6	23.1				37.6		10.0
Change Period (Y+Rc), s	3.6	* 3.6				3.6		3.0
Max Green Setting (Gmax), s	20.0	* 30				30.0		25.0
Max Q Clear Time (g_c+I1), s	10.7	16.0				6.1		4.8
Green Ext Time (p_c), s	0.4	3.5				2.8		1.9

Intersection Summary	
HCM 2010 Ctrl Delay	13.2
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
2: Hearn Ave & Dutton Ave

10/18/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	750	0	0	545	243	0	0	0	301	0	114
Future Volume (veh/h)	117	750	0	0	545	243	0	0	0	301	0	114
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	121	773	0	0	562	243	0	0	0	310	0	75
Adj No. of Lanes	1	1	0	0	1	1	0	1	0	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	148	1379	0	0	1162	1265	0	2	0	354	0	432
Arrive On Green	0.08	0.74	0.00	0.00	0.62	0.62	0.00	0.00	0.00	0.20	0.00	0.20
Sat Flow, veh/h	1774	1863	0	0	1863	1520	0	1863	0	1774	0	1502
Grp Volume(v), veh/h	121	773	0	0	562	243	0	0	0	310	0	75
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1863	1520	0	1863	0	1774	0	1502
Q Serve(g_s), s	7.4	20.3	0.0	0.0	17.9	3.7	0.0	0.0	0.0	18.6	0.0	4.1
Cycle Q Clear(g_c), s	7.4	20.3	0.0	0.0	17.9	3.7	0.0	0.0	0.0	18.6	0.0	4.1
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	148	1379	0	0	1162	1265	0	2	0	354	0	432
V/C Ratio(X)	0.82	0.56	0.00	0.00	0.48	0.19	0.00	0.00	0.00	0.87	0.00	0.17
Avail Cap(c_a), veh/h	200	1379	0	0	1162	1265	0	102	0	419	0	487
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.64	0.64	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.6	6.3	0.0	0.0	11.1	2.0	0.0	0.0	0.0	42.7	0.0	29.7
Incr Delay (d2), s/veh	8.6	1.1	0.0	0.0	1.4	0.3	0.0	0.0	0.0	16.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	10.7	0.0	0.0	9.5	3.4	0.0	0.0	0.0	10.7	0.0	1.7
LnGrp Delay(d),s/veh	58.2	7.4	0.0	0.0	12.6	2.4	0.0	0.0	0.0	58.9	0.0	29.9
LnGrp LOS	E	A			B	A				E		C
Approach Vol, veh/h		894			805			0			385	
Approach Delay, s/veh		14.3			9.5			0.0			53.3	
Approach LOS		B			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		85.0		25.0	12.8	72.2		0.0
Change Period (Y+Rc), s		3.6		3.0	3.6	3.6		3.0
Max Green Setting (Gmax), s		68.4		26.0	12.4	52.4		6.0
Max Q Clear Time (g_c+I1), s		22.3		20.6	9.4	19.9		0.0
Green Ext Time (p_c), s		7.0		1.0	0.0	5.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.6
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
3: Dutton Meadow & Elem School D/W/Northpoint Parkway

10/18/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	0	42	5	0	75	0	438	0	25	301	0
Future Volume (veh/h)	70	0	42	5	0	75	0	438	0	25	301	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	70	0	42	5	0	75	0	438	0	25	301	0
Adj No. of Lanes	1	1	0	0	1	1	0	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	132	0	118	108	0	272	0	582	0	490	993	0
Arrive On Green	0.07	0.00	0.07	0.06	0.00	0.06	0.00	0.31	0.00	0.11	0.53	0.00
Sat Flow, veh/h	1774	0	1583	1774	0	1583	0	1863	0	1774	1863	0
Grp Volume(v), veh/h	70	0	42	5	0	75	0	438	0	25	301	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	1583	0	1863	0	1774	1863	0
Q Serve(g_s), s	1.4	0.0	0.9	0.1	0.0	1.5	0.0	7.7	0.0	0.3	3.3	0.0
Cycle Q Clear(g_c), s	1.4	0.0	0.9	0.1	0.0	1.5	0.0	7.7	0.0	0.3	3.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	132	0	118	108	0	272	0	582	0	490	993	0
V/C Ratio(X)	0.53	0.00	0.36	0.05	0.00	0.28	0.00	0.75	0.00	0.05	0.30	0.00
Avail Cap(c_a), veh/h	784	0	699	784	0	874	0	926	0	490	1337	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.1	0.0	15.9	16.0	0.0	13.1	0.0	11.2	0.0	6.3	4.7	0.0
Incr Delay (d2), s/veh	3.2	0.0	1.8	0.2	0.0	0.5	0.0	2.0	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.5	0.1	0.0	0.7	0.0	4.2	0.0	0.1	1.7	0.0
LnGrp Delay(d),s/veh	19.4	0.0	17.7	16.2	0.0	13.6	0.0	13.2	0.0	6.4	4.9	0.0
LnGrp LOS	B		B	B		B		B		A	A	
Approach Vol, veh/h		112			80			438			326	
Approach Delay, s/veh		18.8			13.8			13.2			5.0	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.0	15.3		6.7		23.3		6.2
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s	4.0	18.0		16.0		26.0		16.0
Max Q Clear Time (g_c+I1), s	2.3	9.7		3.4		5.3		3.5
Green Ext Time (p_c), s	0.0	1.7		0.3		1.6		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	11.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
1: Dutton Meadow & Hearn Ave

10/18/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	635	346	183	549	272	207
Future Volume (veh/h)	635	346	183	549	272	207
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1863
Adj Flow Rate, veh/h	676	354	195	584	289	188
Adj No. of Lanes	1	0	1	1	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	599	314	239	1319	358	533
Arrive On Green	0.52	0.52	0.13	0.71	0.20	0.20
Sat Flow, veh/h	1143	599	1774	1863	1774	1583
Grp Volume(v), veh/h	0	1030	195	584	289	188
Grp Sat Flow(s),veh/h/ln	0	1742	1774	1863	1774	1583
Q Serve(g_s), s	0.0	38.4	7.8	9.8	11.4	0.0
Cycle Q Clear(g_c), s	0.0	38.4	7.8	9.8	11.4	0.0
Prop In Lane		0.34	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	913	239	1319	358	533
V/C Ratio(X)	0.00	1.13	0.82	0.44	0.81	0.35
Avail Cap(c_a), veh/h	0	913	654	1319	775	905
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	17.4	30.8	4.5	27.9	18.3
Incr Delay (d2), s/veh	0.0	71.7	2.6	0.2	4.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	36.4	4.0	5.0	6.0	2.9
LnGrp Delay(d),s/veh	0.0	89.2	33.4	4.8	32.2	18.7
LnGrp LOS		F	C	A	C	B
Approach Vol, veh/h	1030			779	477	
Approach Delay, s/veh	89.2			11.9	26.9	
Approach LOS	F			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.5	42.0				55.5		17.8
Change Period (Y+Rc), s	3.6	* 3.6				3.6		3.0
Max Green Setting (Gmax), s	27.0	* 38				38.4		32.0
Max Q Clear Time (g_c+I1), s	9.8	40.4				11.8		13.4
Green Ext Time (p_c), s	0.2	0.0				4.2		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	49.9
HCM 2010 LOS	D

Notes

HCM 2010 Signalized Intersection Summary
2: Hearn Ave & Dutton Ave

10/18/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	583	0	0	756	352	0	0	0	258	0	174
Future Volume (veh/h)	120	583	0	0	756	352	0	0	0	258	0	174
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.96	1.00		1.00	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1900	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	124	601	0	0	779	351	0	0	0	266	0	138
Adj No. of Lanes	1	1	0	0	1	1	0	1	0	0	1	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	1434	0	0	1222	1276	0	2	0	311	0	396
Arrive On Green	0.08	0.77	0.00	0.00	0.66	0.66	0.00	0.00	0.00	0.18	0.00	0.18
Sat Flow, veh/h	1774	1863	0	0	1863	1521	0	1863	0	1774	0	1496
Grp Volume(v), veh/h	124	601	0	0	779	351	0	0	0	266	0	138
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1863	1521	0	1863	0	1774	0	1496
Q Serve(g_s), s	8.3	13.3	0.0	0.0	29.9	6.1	0.0	0.0	0.0	17.6	0.0	9.1
Cycle Q Clear(g_c), s	8.3	13.3	0.0	0.0	29.9	6.1	0.0	0.0	0.0	17.6	0.0	9.1
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	149	1434	0	0	1222	1276	0	2	0	311	0	396
V/C Ratio(X)	0.83	0.42	0.00	0.00	0.64	0.28	0.00	0.00	0.00	0.85	0.00	0.35
Avail Cap(c_a), veh/h	182	1434	0	0	1222	1276	0	246	0	381	0	455
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.5	4.7	0.0	0.0	12.3	2.2	0.0	0.0	0.0	48.4	0.0	36.5
Incr Delay (d2), s/veh	2.1	0.1	0.0	0.0	2.6	0.5	0.0	0.0	0.0	14.6	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	6.7	0.0	0.0	16.0	5.4	0.0	0.0	0.0	9.9	0.0	3.8
LnGrp Delay(d),s/veh	56.7	4.8	0.0	0.0	14.9	2.8	0.0	0.0	0.0	63.0	0.0	37.1
LnGrp LOS	E	A			B	A				E		D
Approach Vol, veh/h		725			1130			0			404	
Approach Delay, s/veh		13.7			11.1			0.0			54.1	
Approach LOS		B			B						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		96.8		24.2	13.8	83.0		0.0
Change Period (Y+Rc), s		3.6		3.0	3.6	3.6		4.0
Max Green Setting (Gmax), s		68.4		26.0	12.4	52.4		16.0
Max Q Clear Time (g_c+I1), s		15.3		19.6	10.3	31.9		0.0
Green Ext Time (p_c), s		4.8		1.2	0.0	7.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	19.6
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
3: Dutton Meadow & Elem School D/W/Northpoint Parkway

10/18/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	4	3	0	48	0	429	0	82	440	0
Future Volume (veh/h)	8	0	4	3	0	48	0	429	0	82	440	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1900	1863	1863	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	8	0	4	3	0	48	0	429	0	82	440	0
Adj No. of Lanes	1	1	0	0	1	1	0	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	22	0	20	81	0	269	0	596	0	556	1059	0
Arrive On Green	0.01	0.00	0.01	0.05	0.00	0.05	0.00	0.32	0.00	0.12	0.57	0.00
Sat Flow, veh/h	1774	0	1583	1774	0	1583	0	1863	0	1774	1863	0
Grp Volume(v), veh/h	8	0	4	3	0	48	0	429	0	82	440	0
Grp Sat Flow(s),veh/h/ln	1774	0	1583	1774	0	1583	0	1863	0	1774	1863	0
Q Serve(g_s), s	0.1	0.0	0.1	0.1	0.0	0.8	0.0	6.5	0.0	0.8	4.3	0.0
Cycle Q Clear(g_c), s	0.1	0.0	0.1	0.1	0.0	0.8	0.0	6.5	0.0	0.8	4.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	22	0	20	81	0	269	0	596	0	556	1059	0
V/C Ratio(X)	0.36	0.00	0.20	0.04	0.00	0.18	0.00	0.72	0.00	0.15	0.42	0.00
Avail Cap(c_a), veh/h	883	0	788	883	0	985	0	1043	0	556	1506	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.7	0.0	15.7	14.7	0.0	11.4	0.0	9.7	0.0	5.3	3.9	0.0
Incr Delay (d2), s/veh	9.3	0.0	4.8	0.2	0.0	0.3	0.0	1.7	0.0	0.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.1	0.0	0.0	0.4	0.0	3.6	0.0	0.4	2.2	0.0
LnGrp Delay(d),s/veh	25.1	0.0	20.5	14.9	0.0	11.7	0.0	11.3	0.0	5.5	4.2	0.0
LnGrp LOS	C		C	B		B		B		A	A	
Approach Vol, veh/h		12			51			429			522	
Approach Delay, s/veh		23.5			11.9			11.3			4.4	
Approach LOS		C			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		8
Phs Duration (G+Y+Rc), s	8.0	14.3		4.4		22.3		5.5
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		4.0
Max Green Setting (Gmax), s	4.0	18.0		16.0		26.0		16.0
Max Q Clear Time (g_c+I1), s	2.8	8.5		2.1		6.3		2.8
Green Ext Time (p_c), s	0.0	1.7		0.0		2.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.9
HCM 2010 LOS	A

HCM 2010 Signalized Intersection Summary
1: Northpoint Parkway & Hearn Ave

10/18/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	541	222	145	445	310	229
Future Volume (veh/h)	541	222	145	445	310	229
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	541	214	145	445	310	209
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	744	618	233	1139	427	588
Arrive On Green	0.40	0.40	0.13	0.61	0.24	0.24
Sat Flow, veh/h	1863	1549	1774	1863	1774	1583
Grp Volume(v), veh/h	541	214	145	445	310	209
Grp Sat Flow(s),veh/h/ln	1863	1549	1774	1863	1774	1583
Q Serve(g_s), s	10.9	4.3	3.4	5.4	7.2	0.0
Cycle Q Clear(g_c), s	10.9	4.3	3.4	5.4	7.2	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	744	618	233	1139	427	588
V/C Ratio(X)	0.73	0.35	0.62	0.39	0.73	0.36
Avail Cap(c_a), veh/h	1984	1649	598	2737	1116	1204
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.3	9.3	18.3	4.4	15.6	10.1
Incr Delay (d2), s/veh	1.4	0.3	1.0	0.2	2.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	1.8	1.8	2.8	3.7	1.9
LnGrp Delay(d),s/veh	12.7	9.7	19.3	4.6	17.9	10.5
LnGrp LOS	B	A	B	A	B	B
Approach Vol, veh/h	755			590	519	
Approach Delay, s/veh	11.8			8.2	14.9	
Approach LOS	B			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	9.4	21.4				30.8		13.7
Change Period (Y+Rc), s	3.6	* 3.6				3.6		3.0
Max Green Setting (Gmax), s	15.0	* 47				65.4		28.0
Max Q Clear Time (g_c+I1), s	5.4	12.9				7.4		9.2
Green Ext Time (p_c), s	0.1	4.8				3.2		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	11.6
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
2: Dutton Ave & Hearn Ave

10/18/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	690	20	432	506	182	20	195	384	269	191	44
Future Volume (veh/h)	88	690	20	432	506	182	20	195	384	269	191	44
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	88	690	20	432	506	174	20	195	384	269	191	2
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	957	28	436	850	688	51	382	714	257	591	6
Arrive On Green	0.06	0.27	0.27	0.25	0.46	0.46	0.03	0.21	0.21	0.14	0.32	0.32
Sat Flow, veh/h	1774	3508	102	1774	1863	1508	1774	1863	1583	1774	1839	19
Grp Volume(v), veh/h	88	348	362	432	506	174	20	195	384	269	0	193
Grp Sat Flow(s),veh/h/ln	1774	1770	1840	1774	1863	1508	1774	1863	1583	1774	0	1858
Q Serve(g_s), s	5.6	20.3	20.3	27.7	23.1	8.1	1.3	10.6	20.0	16.5	0.0	9.0
Cycle Q Clear(g_c), s	5.6	20.3	20.3	27.7	23.1	8.1	1.3	10.6	20.0	16.5	0.0	9.0
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		0.01
Lane Grp Cap(c), veh/h	110	483	502	436	850	688	51	382	714	257	0	597
V/C Ratio(X)	0.80	0.72	0.72	0.99	0.60	0.25	0.39	0.51	0.54	1.05	0.00	0.32
Avail Cap(c_a), veh/h	110	483	502	436	850	688	109	433	757	257	0	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.7	37.5	37.5	42.9	23.2	19.1	54.4	40.2	22.7	48.8	0.0	29.3
Incr Delay (d2), s/veh	26.6	7.2	7.0	40.8	3.1	0.9	4.8	1.1	0.7	69.2	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	10.9	11.3	18.5	12.5	3.5	0.7	5.6	8.8	13.0	0.0	4.7
LnGrp Delay(d),s/veh	79.3	44.7	44.5	83.6	26.2	19.9	59.2	41.3	23.4	117.9	0.0	29.6
LnGrp LOS	E	D	D	F	C	B	E	D	C	F		C
Approach Vol, veh/h		798			1112			599			462	
Approach Delay, s/veh		48.4			47.5			30.4			81.0	
Approach LOS		D			D			C			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.0	35.1	6.8	40.1	11.1	56.0	20.0	26.9
Change Period (Y+Rc), s	4.0	4.0	3.5	3.5	4.0	4.0	3.5	3.5
Max Green Setting (Gmax), s	28.0	28.0	7.0	36.0	7.1	48.9	16.5	26.5
Max Q Clear Time (g_c+I1), s	29.7	22.3	3.3	11.0	7.6	25.1	18.5	22.0
Green Ext Time (p_c), s	0.0	2.1	0.0	1.1	0.0	4.1	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	49.5
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
3: Northpoint Parkway & Dutton Meadow

10/18/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	30	25	25	130	82	25	272	27	84	150	130
Future Volume (veh/h)	180	30	25	25	130	82	25	272	27	84	150	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	180	30	25	25	130	82	25	272	27	84	150	130
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	255	43	264	41	211	310	416	427	42	397	204	177
Arrive On Green	0.17	0.17	0.17	0.14	0.14	0.14	0.09	0.26	0.26	0.06	0.22	0.22
Sat Flow, veh/h	1531	255	1583	298	1550	1583	1774	1668	166	1774	922	799
Grp Volume(v), veh/h	210	0	25	155	0	82	25	0	299	84	0	280
Grp Sat Flow(s),veh/h/ln	1786	0	1583	1848	0	1583	1774	0	1834	1774	0	1722
Q Serve(g_s), s	4.7	0.0	0.6	3.3	0.0	1.8	0.4	0.0	6.1	1.5	0.0	6.3
Cycle Q Clear(g_c), s	4.7	0.0	0.6	3.3	0.0	1.8	0.4	0.0	6.1	1.5	0.0	6.3
Prop In Lane	0.86		1.00	0.16		1.00	1.00		0.09	1.00		0.46
Lane Grp Cap(c), veh/h	298	0	264	251	0	310	416	0	470	397	0	381
V/C Ratio(X)	0.71	0.00	0.09	0.62	0.00	0.26	0.06	0.00	0.64	0.21	0.00	0.74
Avail Cap(c_a), veh/h	682	0	604	705	0	698	925	0	1181	503	0	657
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.5	0.0	14.8	17.1	0.0	14.3	10.4	0.0	13.9	11.7	0.0	15.2
Incr Delay (d2), s/veh	3.1	0.0	0.2	2.5	0.0	0.5	0.1	0.0	1.4	0.3	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.3	1.9	0.0	0.8	0.2	0.0	3.3	0.7	0.0	3.2
LnGrp Delay(d),s/veh	19.6	0.0	14.9	19.5	0.0	14.8	10.5	0.0	15.3	11.9	0.0	18.0
LnGrp LOS	B		B	B		B	B		B	B		B
Approach Vol, veh/h		235			237			324			364	
Approach Delay, s/veh		19.1			17.9			14.9			16.6	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.5	14.7		11.0	8.0	13.3		9.7
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	5.0	27.0		16.0	16.0	16.0		16.0
Max Q Clear Time (g_c+I1), s	3.5	8.1		6.7	2.4	8.3		5.3
Green Ext Time (p_c), s	0.0	1.6		0.8	0.0	0.9		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	16.9
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
1: Northpoint Parkway & Hearn Ave

10/18/2018

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	552	328	273	523	339	262
Future Volume (veh/h)	552	328	273	523	339	262
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	552	320	273	523	339	242
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	719	598	332	1187	434	683
Arrive On Green	0.39	0.39	0.19	0.64	0.24	0.24
Sat Flow, veh/h	1863	1549	1774	1863	1774	1583
Grp Volume(v), veh/h	552	320	273	523	339	242
Grp Sat Flow(s),veh/h/ln	1863	1549	1774	1863	1774	1583
Q Serve(g_s), s	14.4	8.9	8.3	7.9	10.0	0.0
Cycle Q Clear(g_c), s	14.4	8.9	8.3	7.9	10.0	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	719	598	332	1187	434	683
V/C Ratio(X)	0.77	0.54	0.82	0.44	0.78	0.35
Avail Cap(c_a), veh/h	1348	1121	731	2216	858	1062
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	13.3	21.8	5.1	19.7	10.7
Incr Delay (d2), s/veh	1.8	0.7	2.0	0.3	3.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	3.9	4.2	4.0	5.2	2.5
LnGrp Delay(d),s/veh	16.7	14.0	23.8	5.4	22.8	11.0
LnGrp LOS	B	B	C	A	C	B
Approach Vol, veh/h	872			796	581	
Approach Delay, s/veh	15.7			11.7	17.9	
Approach LOS	B			B	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.0	25.1				39.2		16.6
Change Period (Y+Rc), s	3.6	* 3.6				3.6		3.0
Max Green Setting (Gmax), s	23.0	* 40				66.4		27.0
Max Q Clear Time (g_c+I1), s	10.3	16.4				9.9		12.0
Green Ext Time (p_c), s	0.3	5.1				3.9		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	14.8
HCM 2010 LOS	B

Notes

HCM 2010 Signalized Intersection Summary
2: Dutton Ave & Hearn Ave

10/18/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	718	20	448	696	204	28	395	297	224	256	89
Future Volume (veh/h)	40	718	20	448	696	204	28	395	297	224	256	89
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	40	718	20	448	696	196	28	395	297	224	256	47
Adj No. of Lanes	1	2	0	1	1	1	1	1	1	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	888	25	436	847	685	64	425	750	251	508	93
Arrive On Green	0.04	0.25	0.25	0.25	0.45	0.45	0.04	0.23	0.23	0.14	0.33	0.33
Sat Flow, veh/h	1774	3512	98	1774	1863	1508	1774	1863	1583	1774	1521	279
Grp Volume(v), veh/h	40	362	376	448	696	196	28	395	297	224	0	303
Grp Sat Flow(s),veh/h/ln	1774	1770	1840	1774	1863	1508	1774	1863	1583	1774	0	1800
Q Serve(g_s), s	2.5	21.9	21.9	28.0	37.1	9.3	1.8	23.7	13.9	14.1	0.0	15.4
Cycle Q Clear(g_c), s	2.5	21.9	21.9	28.0	37.1	9.3	1.8	23.7	13.9	14.1	0.0	15.4
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	78	448	465	436	847	685	64	425	750	251	0	601
V/C Ratio(X)	0.51	0.81	0.81	1.03	0.82	0.29	0.44	0.93	0.40	0.89	0.00	0.50
Avail Cap(c_a), veh/h	110	448	465	436	847	685	109	433	757	257	0	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.3	40.0	40.0	43.0	27.1	19.5	53.8	43.1	19.4	48.1	0.0	30.4
Incr Delay (d2), s/veh	3.8	11.2	10.9	50.5	8.9	1.0	4.6	26.3	0.3	29.3	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	12.0	12.5	19.8	21.0	4.1	0.9	15.3	6.1	9.0	0.0	7.8
LnGrp Delay(d),s/veh	57.1	51.2	50.8	93.5	35.9	20.5	58.4	69.4	19.8	77.4	0.0	31.1
LnGrp LOS	E	D	D	F	D	C	E	E	B	E		C
Approach Vol, veh/h		778			1340			720			527	
Approach Delay, s/veh		51.3			52.9			48.5			50.8	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.0	32.8	7.6	41.5	9.0	55.8	19.7	29.5
Change Period (Y+Rc), s	4.0	4.0	3.5	3.5	4.0	4.0	3.5	3.5
Max Green Setting (Gmax), s	28.0	28.0	7.0	36.0	7.1	48.9	16.5	26.5
Max Q Clear Time (g_c+I1), s	30.0	23.9	3.8	17.4	4.5	39.1	16.1	25.7
Green Ext Time (p_c), s	0.0	1.7	0.0	1.8	0.0	3.9	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	51.3
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
3: Northpoint Parkway & Dutton Meadow

10/18/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	30	20	18	95	57	25	395	30	73	400	130
Future Volume (veh/h)	150	30	20	18	95	57	25	395	30	73	400	130
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	150	30	20	18	95	57	25	395	30	73	400	130
Adj No. of Lanes	0	1	1	0	1	1	1	1	0	1	1	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	214	43	227	30	158	246	292	575	44	391	493	160
Arrive On Green	0.14	0.14	0.14	0.10	0.10	0.10	0.02	0.34	0.34	0.05	0.37	0.37
Sat Flow, veh/h	1490	298	1583	294	1554	1583	1774	1710	130	1774	1348	438
Grp Volume(v), veh/h	180	0	20	113	0	57	25	0	425	73	0	530
Grp Sat Flow(s),veh/h/ln	1788	0	1583	1848	0	1583	1774	0	1840	1774	0	1785
Q Serve(g_s), s	4.2	0.0	0.5	2.6	0.0	1.4	0.4	0.0	8.7	1.1	0.0	11.7
Cycle Q Clear(g_c), s	4.2	0.0	0.5	2.6	0.0	1.4	0.4	0.0	8.7	1.1	0.0	11.7
Prop In Lane	0.83		1.00	0.16		1.00	1.00		0.07	1.00		0.25
Lane Grp Cap(c), veh/h	256	0	227	188	0	246	292	0	618	391	0	653
V/C Ratio(X)	0.70	0.00	0.09	0.60	0.00	0.23	0.09	0.00	0.69	0.19	0.00	0.81
Avail Cap(c_a), veh/h	653	0	578	675	0	663	412	0	882	538	0	937
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.9	0.0	16.3	18.8	0.0	16.2	10.4	0.0	12.6	9.4	0.0	12.5
Incr Delay (d2), s/veh	3.5	0.0	0.2	3.1	0.0	0.5	0.1	0.0	1.4	0.2	0.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.2	1.4	0.0	0.6	0.2	0.0	4.6	0.6	0.0	6.4
LnGrp Delay(d),s/veh	21.4	0.0	16.4	21.9	0.0	16.7	10.5	0.0	13.9	9.7	0.0	16.1
LnGrp LOS	C		B	C		B	B		B	A		B
Approach Vol, veh/h		200			170			450			603	
Approach Delay, s/veh		20.9			20.2			13.7			15.4	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.4	18.7		10.3	5.0	20.0		8.4
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	6.0	21.0		16.0	4.0	23.0		16.0
Max Q Clear Time (g_c+I1), s	3.1	10.7		6.2	2.4	13.7		4.6
Green Ext Time (p_c), s	0.0	1.8		0.7	0.0	2.3		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	16.2
HCM 2010 LOS	B

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Appendix B

Roseland Specific Plan – Dutton Meadows Unit Count Calculation

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APN	Acreage	LU	Units/acres	Units	MF	SF
043-071-007-000	4.82	M-L	10	48.2	7.23	40.97
043-071-022-000	6.66	M-L	10	66.6	9.99	56.61
043-071-023-000	0.52	M-L	10	5.2	0.78	4.42
043-191-016-000	1.84	M-L	10	18.4	2.76	15.64
043-191-024-000	4.59	Mixed				
est. 0.63		M-L	10	6.3	0.945	5.355
est. 3.96		L	5	19.8		19.8
	18.43				21.705	142.795
					22	**143**

		Multi-Family	Single-Family
M-L	Med-Low Density Housing	15%	85%
L	Low-Density Housing	-	100%

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Appendix C

Sight Distance

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DUTTON MEADOWS

SRO461

SIGHT DISTANCE

FEBRUARY 2021

PROJECT SUMMARY:
Total Number of Homes: 137 du

Product A: Front-Load

(26)	Plan 1A	40'-6"'x71'-6" lot	3bd/2.5ba	1692 sf

Product B: Court

(16)	Plan 2A	40'-6"x71'-6" lot	3bd/2.5ba	1767 sf
(16)	Plan 2B	43'x71'-6" lot	4bd/3ba	2181 sf

Product C: Alley-Load

(24)	Plan 3A	36'x68' lot	3bd/2.5ba	1680 sf
(29)	Plan 3B	36'x62'-6" lot	3bd/2.5ba	1820 sf
(26)	Plan 3C	32'-6"x77'-6" lot	3bd+Loft/2.5ba	2065 sf

Acreage: 18.43
Density: 7.43 du/ac

Parking:

In-garage:	274 spaces
On-street:	116 spaces
On-driveway:	136 spaces
On-lot:	29 spaces
Total:	535 spaces
Ratio:	4.05 sp/du

79
80
57'-0"
24'-0"
32'-0"
81
82
83
84
63'-0"
85
86
W-Trans
275.7'
4.0'
129
128
130
127
111
109
112
110
R=35'
R=35'

DUTTON MEADOWS

SRO461

SIGHT DISTANCE

FEBRUARY 2021


DUTTON MEADOW
NORTHPOINT PKWY
251.5'
434.8'

Appendix D

Signal Warrant Calculations Sheets

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Warrant 3: Peak-Hour Volumes and Delay

Hearn Avenue & Sally Ann Street
Santa Rosa

Project Name: TIS for the Updated Dutton Meadows Phase II Project

Intersection: 1

	Major Street	Minor Street
Street Name	Hearn Avenue	Sally Ann Street
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	30	25

Population less than 10,000? No
Date of Count: Tuesday, April 17, 2018
Scenario: AM Existing

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.2 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 33 vph

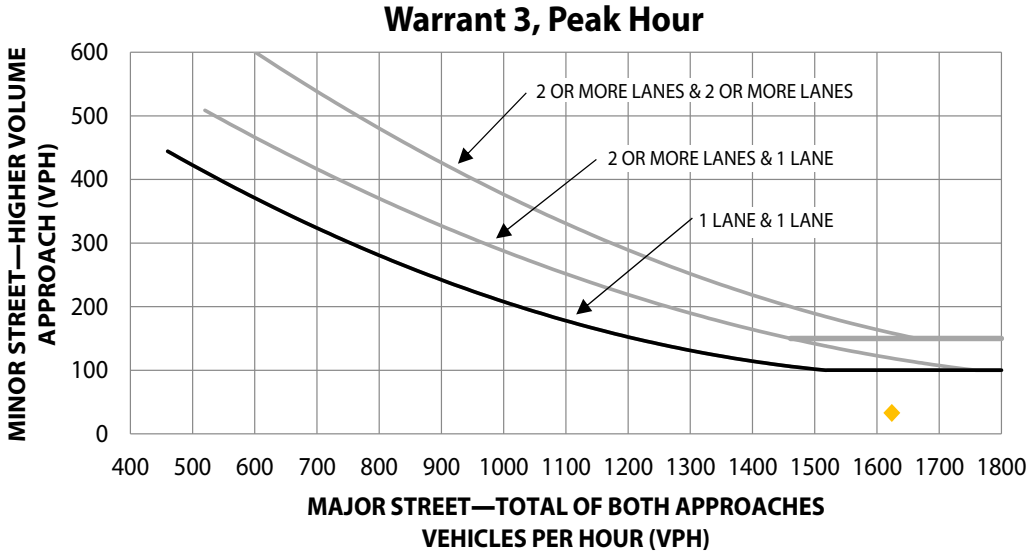
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1657 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Hearn Avenue & Sally Ann Street
Santa Rosa

Project Name: TIS for the Updated Dutton Meadows Phase II Project

Intersection: 1

	Major Street	Minor Street
Street Name	Hearn Avenue	Sally Ann Street
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	30	25

Population less than 10,000? No
Date of Count: Tuesday, April 17, 2018
Scenario: PM Existing

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.12 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 22 vph

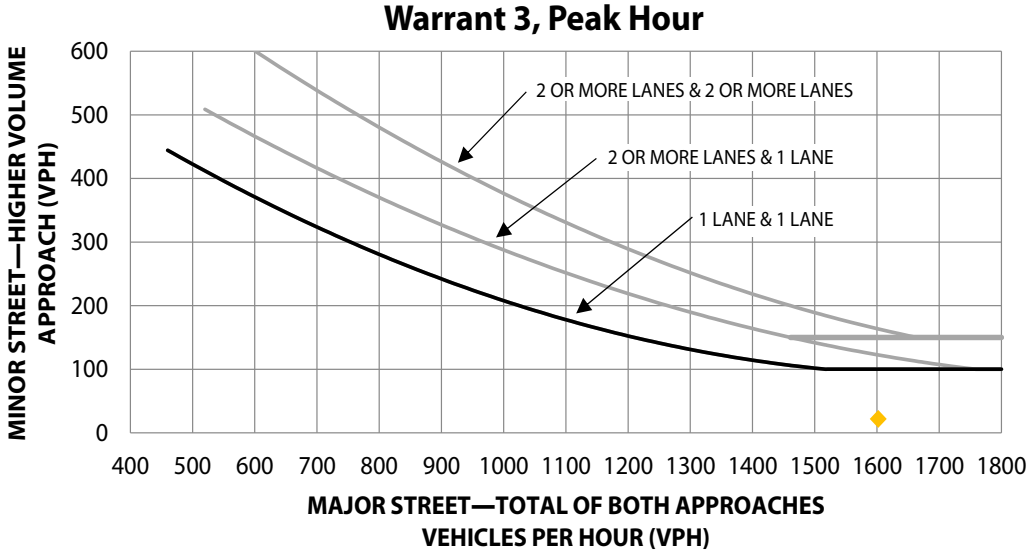
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1624 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Hearn Avenue & Sally Ann Street
Santa Rosa

Project Name: TIS for the Updated Dutton Meadows Phase II Project

Intersection: 1

	Major Street	Minor Street
Street Name	Hearn Avenue	Sally Ann Street
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	30	25

Population less than 10,000? No
Date of Count: Tuesday, April 17, 2018
Scenario: AM Future

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.16 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 33 vph

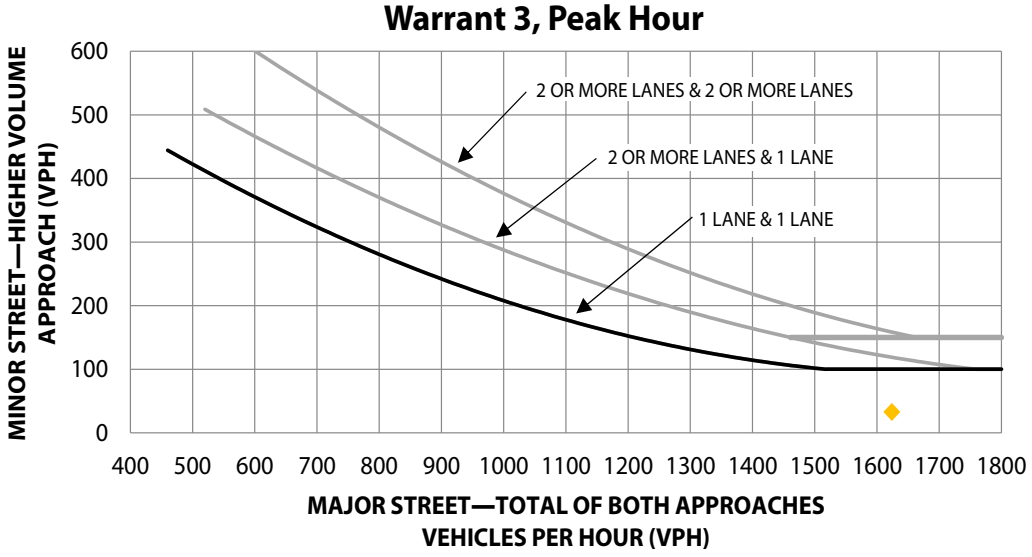
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1657 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Hearn Avenue & Sally Ann Street
Santa Rosa

Project Name: TIS for the Updated Dutton Meadows Phase II Project

Intersection: 1

	Major Street	Minor Street
Street Name	Hearn Avenue	Sally Ann Street
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	30	25

Population less than 10,000? No
Date of Count: Tuesday, April 17, 2018
Scenario: PM Future

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.12 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 22 vph

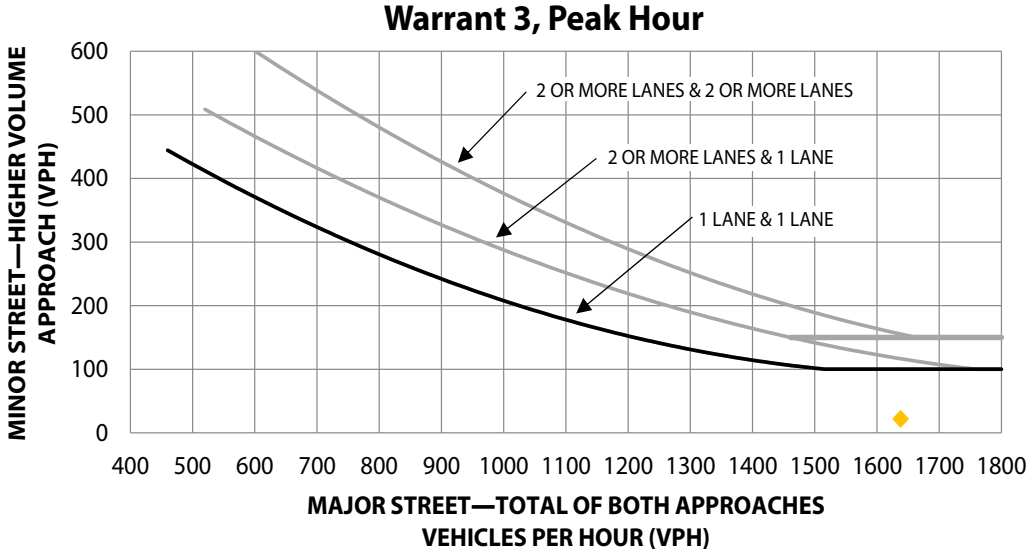
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1660 vph

Condition B — Not Met

The plotted point falls above the curve



Appendix E

Pedestrian Crossing Worksheet

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TCRP Report 112 - NCHRP Report 562 - Pedestrian Crossing Treatment Worksheet
Worksheet 1: Peak-Hour, 35 MPH or Less

Analyst and Site Information

Analyst:	BKB	Major Street:	Dutton Meadow
Analysis Date:	1-Apr-21	Minor Street or Location:	East of Northpoint Parkway
Data Collection Date:		Peak Hour:	Future AM Peak with Project

Step 1: Select worksheet (speed reflects posted or statutory speed limit or 85th percentile speed on the major street):
a) Worksheet 1 - 35 mph or less
b) Worksheet 2- exceeds 35 mph, communities with less than 10,000, or where major transit stop exists

Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a TCD type of treatment?

2a	Peak-hour pedestrian volume (ped/h), vp	**2a**	20
	○If 2a ≥ 20 ped/h, then go to Step 3.		
	○If 2a < 20 ped/h, then consider median refuge islands, curb extensions, traffic calming, etc. as feasible.		

Step 3: Does the crossing meet the pedestrian volume warrant for a traffic signal?

3a	Major road volume, total of both approaches during peak hour (veh/h), V maj-s	**3a**	378
3b	○Minimum signal warrant volume for peak hour (use 3a for Vmaj-s), SC	**3b**	645.52
	•SC = 0.00021 Vmaj-s² - 0.74072 Vmaj-s + 734.125)/0.75 **OR**		
	•[(0.00021 3a² - 0.74072 3a + 734.125)/0.75]		
3c	○If 3b< 133, then enter 133. If 3b ≥ 133, then enter 3b.	**3c**	645.5179733
3d	○If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce 3c by up to 50 percent; otherwise enter 3c.	**3d**	645.5179733
	○If 2a ≥ 3d, then the warrant has been met and a traffic signal should be considered if not within 300 ft of another traffic signal. Otherwise, the warrant has not been met. Go to Step 4.		

Step 4: Estimate pedestrian delay.

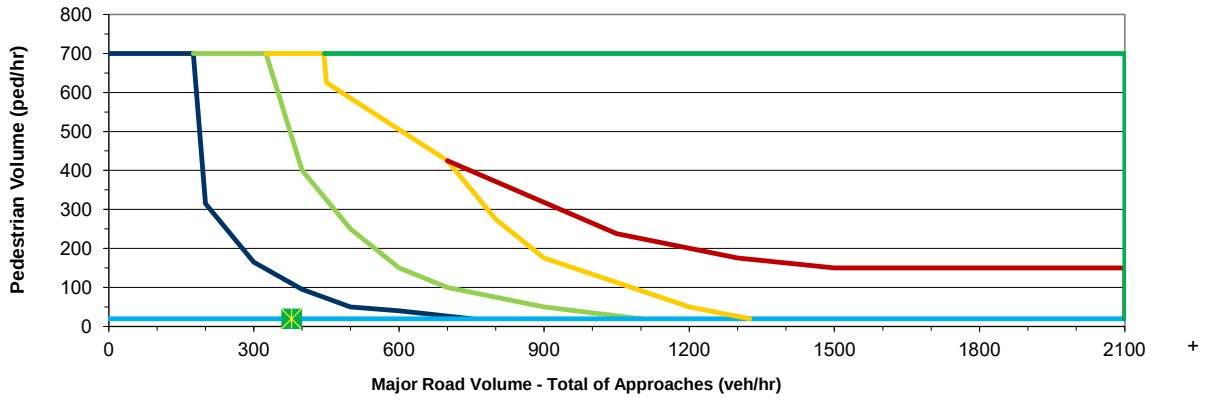
4a	Pedestrian crossing distance, curb to curb (ft), L	**4a**	50
4b	Pedestrian walking speed (ft.s), Sp	**4b**	3.5
4c	Pedestrian start-up time and end clearance time (s), ts	**4c**	7
4d	○Critical gap required for crossing pedestrian (s), tc= (L/Sp) + ts OR [(4a/4b) + 4c)]	**4d**	21.29
4e	Major road volume, total of both approaches or approach being crossed if median refuge island is present during peak hour (veh.h), Vmaj-d	**4e**	378
4f	○Major road flow rate (veh/s), v = Vmaj-d/3600 OR [4e/3600]	**4f**	0.11
4g	○Average pedestrian delay (s/person), dp = $(e^{v\,tc}$ - v tc - 1) / v OR [$(e^{4f \times 4d}$-4f x 4d - 1) / 4f]	**4g**	58.20
4h	○Total pedestrian delay (h), Dp=(dp x Vp) / 3600 OR [(4g x 2a) / 3600]	**4h**	0.32
	(this is estimated delayfor all pedestrians crossing the major roadway without a crossing treatment - assumes 05 compliance). This calculated value can be replaced with the actual total pedestrian delay measured at the site.		

Step 5: Select treatment based upon total pedestrian delay and expected motorist compliance.

5a	Expected motorist compliance at pedestrian crossings in region, Comp = high or low	**5a**	LOW

Total Pedestrian Delay Dp (**4h**) and Comp (**5a**)	**Treatment Category** (see Descriptions of Sample Treatments for examples)
Dp ≥21.3h (Comp = high or low) OR 5.3h≤Dp<21.3 h and Comp = low	DO NOT USE RED
1.3h ≤ Dp < 21.3h and Comp = high or low) OR 5.3 ≤ Dp < 21.3 h and Comp = high	DO NOT USE ACTIVE OR ENHANCED
Dp < 1.3 h (Comp = high or low)	USE CROSSWALK

Roadway Configuration: 50' Wide, <35 mph, Vped = 3.5 ft/s



LEGEND
Study Intersection
Signal
Enhanced-High Visibility/Active when Present
Red
Enhanced-High Visibility/Active when Present (if high compliance expected) OR Red (if low compliance expected)
Striped Crosswalk
No Treatment

DESCRIPTIONS OF TREATMENT TYPE

RED	ENHANCED-HIGH VISIBILITY/ACTIVE WHEN PRESENT	
	Active When Present	**Enhanced/High Visibility**
• Midblock Signal	• In Roadway Warning Lights	• In-Street Crossing Signs
		• High Visibility Signs/Markings
	• Passive/Pushbutton Flashing Beacons	• Pedestrian Refuge Islands
• Half Signal		• Raised Crosswalks
	• Pedestrian Crossing Flags	• Curb Extensions
		• Advanced Signage
• HAWK	• Rapid Rectangular Flashing Beacons	• Advanced Stop/Yield Lines
		• Constant Flashing Yellow Beacons

TCRP Report 112 - NCHRP Report 562 - Pedestrian Crossing Treatment Worksheet
Worksheet 1: Peak-Hour, 35 MPH or Less

Analyst and Site Information

Analyst:	BKB	Major Street:	Dutton Meadow
Analysis Date:	1-Apr-21	Minor Street or Location:	East of Northpoint Parkway
Data Collection Date:		Peak Hour:	Future PM Peak with Project

Step 1: Select worksheet (speed reflects posted or statutory speed limit or 85th percentile speed on the major street):
a) Worksheet 1 - 35 mph or less
b) Worksheet 2- exceeds 35 mph, communities with less than 10,000, or where major transit stop exists

Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a TCD type of treatment?

2a	Peak-hour pedestrian volume (ped/h), vp	**2a**	20
	○If 2a ≥ 20 ped/h, then go to Step 3.		
	○If 2a < 20 ped/h, then consider median refuge islands, curb extensions, traffic calming, etc. as feasible.		

Step 3: Does the crossing meet the pedestrian volume warrant for a traffic signal?

3a	Major road volume, total of both approaches during peak hour (veh/h), V maj-s	**3a**	303
3b	○Minimum signal warrant volume for peak hour (use 3a for Vmaj-s), SC	**3b**	705.29
	•SC = 0.00021 Vmaj-s² - 0.74072 Vmaj-s + 734.125)/0.75 **OR**		
	•[(0.00021 3a² - 0.74072 3a + 734.125)/0.75]		
3c	○If 3b< 133, then enter 133. If 3b ≥ 133, then enter 3b.	**3c**	705.2889733
3d	○If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce 3c by up to 50 percent; otherwise enter 3c.	**3d**	705.2889733
	○If 2a ≥ 3d, then the warrant has been met and a traffic signal should be considered if not within 300 ft of another traffic signal. Otherwise, the warrant has not been met. Go to Step 4.		

Step 4: Estimate pedestrian delay.

4a	Pedestrian crossing distance, curb to curb (ft), L	**4a**	50
4b	Pedestrian walking speed (ft.s), Sp	**4b**	3.5
4c	Pedestrian start-up time and end clearance time (s), ts	**4c**	7
4d	○Critical gap required for crossing pedestrian (s), tc= (L/Sp) + ts OR [(4a/4b) + 4c)]	**4d**	21.29
4e	Major road volume, total of both approaches or approach being crossed if median refuge island is present during peak hour (veh.h), Vmaj-d	**4e**	303
4f	○Major road flow rate (veh/s), v = Vmaj-d/3600 OR [4e/3600]	**4f**	0.08
4g	○Average pedestrian delay (s/person), dp = ($e^{v\,tc}$ - v tc - 1) / v OR [($e^{4f \times 4d}$-4f x 4d - 1) / 4f]	**4g**	38.11
4h	○Total pedestrian delay (h), Dp=(dp x Vp) / 3600 OR [(4g x 2a) / 3600]	**4h**	0.21
	(this is estimated delayfor all pedestrians crossing the major roadway without a crossing treatment - assumes 05 compliance). This calculated value can be replaced with the actual total pedestrian delay measured at the site.		

Step 5: Select treatment based upon total pedestrian delay and expected motorist compliance.

5a	Expected motorist compliance at pedestrian crossings in region, Comp = high or low	**5a**	LOW

Total Pedestrian Delay Dp (**4h**) and Comp (**5a**)	**Treatment Category** (see Descriptions of Sample Treatments for examples)
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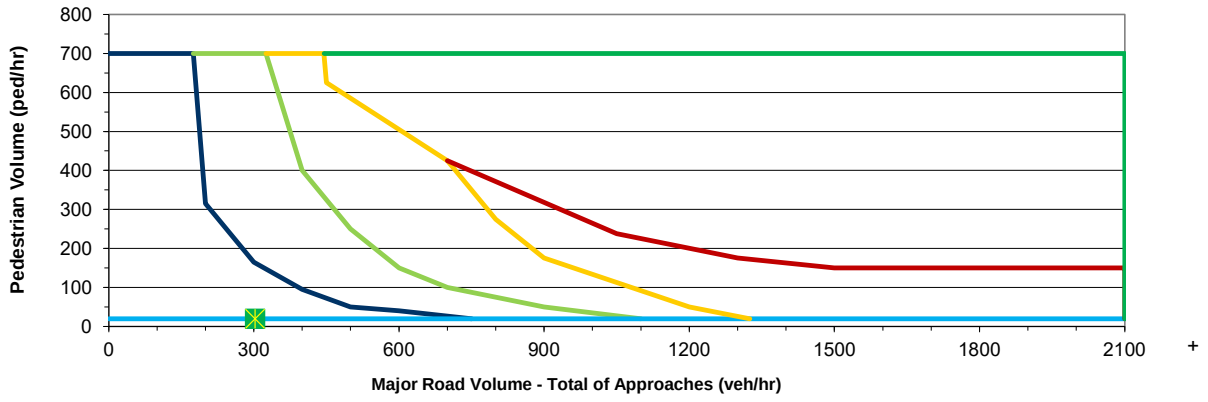
1.3h ≤ Dp < 21.3h and Comp = high or low) OR 5.3 ≤ Dp < 21.3 h and Comp = high	DO NOT USE ACTIVE OR ENHANCED
Dp < 1.3 h (Comp = high or low)	USE CROSSWALK

Roadway Configuration: 50' Wide, <35 mph, Vped = 3.5 ft/s



LEGEND
Study Intersection
Signal
Enhanced-High Visibility/Active when Present
Red
Enhanced-High Visibility/Active when Present (if high compliance expected) OR Red (if low compliance expected)
Striped Crosswalk
No Treatment

DESCRIPTIONS OF TREATMENT TYPE

RED	ENHANCED-HIGH VISIBILITY/ACTIVE WHEN PRESENT	
	Active When Present	**Enhanced/High Visibility**
• Midblock Signal	• In Roadway Warning Lights	• In-Street Crossing Signs
	• Passive/Pushbutton Flashing Beacons	• High Visibility Signs/Markings
• Half Signal		• Pedestrian Refuge Islands
	• Pedestrian Crossing Flags	• Raised Crosswalks
		• Curb Extensions
• HAWK	• Rapid Rectangular Flashing Beacons	• Advanced Signage
		• Advanced Stop/Yield Lines
		• Constant Flashing Yellow Beacons

Ross, Adam

From: Ross, Adam
Sent: Monday, December 6, 2021 8:47 AM
To: Bianca Handley
Subject: RE: [EXTERNAL] 2684 Dutton meadow
Attachments: Attachment 10 - Parking Exhibit.pdf; Attachment 11 - Parking Study.pdf

Hi Bianca,

Thank you for your public comment. I have added this to the Public Record. While the parking states there is a 12% reduction, the actual parking provided in the subdivision exceeds the total amount required by 121 parking spaces. The actual reduction is applied to 25 lots in that parking required for half of the site is 4 spaces per unit, one has to be onsite covered, while the other three (3) can be in the driveway, tandem, or on the street directly fronting the lot. Of the 25 deficient units, each provide two (2) spaces in the garage, while 10 of the 25 lots provides one (1) space on the street directly fronting the lot, and 15 of the 25 lots provide zero (0) spaces on the street directly fronting the lot. However, each lot not providing 4 spaces, is still within 300 feet of street parking within the subdivision. I am including the Parking Study (Attachment 11) from the Agenda Packet for your reference, as well as a Parking Exhibit (Attachment 10) for your reference.

So in short, the site does provide adequate parking for each of the new units of 4.08 spaces per residential unit.

Adam Ross | City Planner
Planning and Economic Development |100 Santa Rosa Avenue, Room 3 | Santa Rosa, CA 95404 Tel. (707) 543-4705 | aross@srcity.org

-----Original Message-----
From: Bianca Handley <biancanhandley@gmail.com>
Sent: Thursday, December 2, 2021 5:00 PM
To: Ross, Adam <ARoss@srcity.org>
Subject: [EXTERNAL] 2684 Dutton meadow

Good evening Mr. Ross,

I saw the 12% parking reduction request for this project. This area already has a significant parking issue, is there a way to request a traffic and parking impact analysis of the area and where the proposed 12% that don't have parking would need to go for parking and how that would impact other adjacent neighborhoods?

Also, Hearn is pretty crazy trying to get on or across the freeway. How many housing projects are ongoing and proposed in Roseland at this point and at what point will the city prioritize expanding this road, intersection, and overpass? Is there a trigger?

Thank you!
Bianca Handley
707-297-5256

Sent from my iPhone