4.13 TRANSPORTATION

This section describes the transportation conditions in the project area in terms of existing roads and traffic operations, transit service and pedestrian and bicycle conditions. It has been prepared in reference to guidelines provided in the existing and proposed City of Petaluma General Plan, Central Petaluma Specific Plan, and City Zoning Code, and by Caltrans. Evaluations have been conducted in accordance with standard engineering practices with input from City of Petaluma staff. Crane Transportation Group prepared a traffic report which was used to complete this section. A full copy of the report, with additional information, is included in Appendix D of this EIR.

A. Regulatory Framework

Various State and local agencies have established guidelines, regulations, and policies regarding transportation systems that are relevant to the East Washington Place project, including the City of Petaluma's General Plan and Zoning Ordinance, Central Petaluma Specific Plan, and Caltrans' regulations and policies. Each of these is discussed in greater detail below.

1. City of Petaluma General Plan

The existing City of Petaluma General Plan includes a Transportation Element that provides the City's policy guidance with regard to transportation issues. The Element contains numerous policies and programs that together are intended to achieve the following four goals:

- Provide Petaluma with a problem-free transportation system.
- Improve safety on all streets.
- Preserve the peace and quiet in residential areas.
- Reduce dependence on the auto by integrating, to the extent feasible, alternative transportation modes as a fundamental component of the City's transportation system.

Several of the transportation policies and programs are applicable to the proposed project; however, the policies and programs listed in Table 4.13-1 are

TABLE 4.13-1 **PETALUMA GENERAL PLAN POLICIES & PROGRAMS — TRANSPORTATION**

Policy/Program Number	Policy/Program
Existing General Plan	
Transportation Element	
Policy 1	On city streets where level of service (LOS) is currently at "C" or better, LOS shall not deteriorate below level "C." Where 1985 LOS was "D" or "E," LOS shall not deteriorate to the next lower level.
Policy 2	Traffic improvements shall be made to arterials and collectors to provide LOS "C" or better, where feasible.
Policy 9	Land use decisions shall take into consideration potential traffic impacts.
Policy 10	New development shall be required to pay a pro-rata share of needed traffic improvements.
Program (13.1)	Major employment and commercial centers shall incorporate into their development plans, to the extent possible, pedestrian, transit and bicycle access, and related facilities such as bicycle racks/lockers, pathways, street lighting and furniture, and transit stops.
Program (13.2)	Pedestrian links from commercial areas to neighboring residential zones shall be encouraged.
Policy 20	The City will make every effort to insure that that transit-dependent public will be well-served.
Program (33)	Require new development and redevelopment to include bicycle routes and parking facilities.
Policy 31	Land use decisions shall be based on potential traffic impacts.
Proposed General Plan	
Mobility Element	
Policy 5.P-2(A)	Ensure new developments pay a fair share of mobility improvements and that those improvements are undertaken in context with that development.
Policy 5.P-10	Maintain an intersection LOS standard for motor vehicle circulation that ensures efficient traffic flow and supports multi-modal mobility goals. LOS should be maintained at Level D or better for motor vehicles due to traffic from any development project.

Policy/Program Number	Policy/Program
5-P-11	Require proposed development to assist, in addition to seeking other funding sources, in the funding and construction of the following improvements: ♦ Washington Street/Highway 101 interchange improvements ♦ Rainier Avenue extension and interchange ♦ Caulfield Lane extension to Petaluma ♦ Boulevard South (southern crossing) ♦ Old Redwood Highway interchange widening ♦ Copeland Street extension to Petaluma Boulevard North ♦ Caulfield Lane/Payran Street Intersection Improvements ♦ Petaluma Boulevard/Magnolia Avenue ♦ Payran Street Intersection.
5-P-19	All new and redesigned streets shall be bicycle and pedestrian friendly in design.
5-P-20	Ensure that new development provides connections to and does not interfere with existing and proposed bicycle facilities.
5-P-22	Preserve and enhance pedestrian connectivity in existing neighborhoods and require a well connected pedestrian network linking new and existing developments to adjacent land uses.
5-P-23	Require the provision of pedestrian site access for all new development.
5-P-23	Make bicycling and walking more desirable by providing or requiring development to provide necessary support facilities throughout the city.
5-P-23	Encourage gateway street traffic calming measures to slow traffic speeds along major gateways entering Petaluma, particularly along Petaluma Boulevard South and North, East Washington Street, and Lakeville Highway.

particularly relevant to the project and/or the analysis in this chapter. Programs and policies from the 2025 General Plan that are particularly relevant to the project are also included in Table 4.13-1. The primary goals of the

proposed General Plan Transportation Element related to the project include the following:

- To improve Petaluma's mobility system to increase efficiency for all modes of travel.
- Promote the safe movement of people and goods through Petaluma's streets.
- Recognize Petaluma's role in the regional mobility system.
- Create and maintain a safe, comprehensive, and integrated bicycle and pedestrian system throughout Petaluma that encourages bicycling and walking and is accessible to all.
- Enhance quality of life and community character within neighborhoods through the use of neighborhood traffic management techniques.

2. City of Petaluma Zoning Ordinance

The Zoning Ordinance implements the policies of the City of Petaluma's General Plan by classifying and regulating the uses of land and structures within the City of Petaluma. Parking requirements are among the specific development matters regulated by the Zoning Ordinance. Of particular relevance to the discussion in this chapter are Section 20-300, which outlines the number of parking spaces requirements for different uses, and Section 20-400, which provides standards for off-street parking facilities.

3. Central Petaluma Specific Plan

The Central Petaluma Specific Plan provides specific land use and development regulations for nearly 400 acres within the geographic heart of the city, adjacent to downtown. It includes an area that is bounded by Lakeville Street on the east and north, Petaluma Boulevard on the west, and Highway 101 on the south. The Central Petaluma Specific Plan was adopted in June of 2003 to direct new growth into this area.[1] The proposed project site is near, but not within, the area covered by the Central Petaluma Specific Plan; however, the

[1] City of Petaluma website: http://www.cityofpetaluma.net/cdd/cpsp.html, accessed July 6, 2006.

land use assumptions included in the Plan are relevant to the traffic study for the proposed project, especially since the traffic model used for this EIR is based on the traffic model prepared for the Central Petaluma Specific Plan.

4. Caltrans Guidelines

The California Department of Transportation is responsible for the maintenance and operation of State routes and highways. In Petaluma, in the vicinity of the project site, Caltrans' facilities include Highway 101. Caltrans maintains a volume monitoring program and reviews local agencies' planning documents (such as this EIR) to assist in its forecasting of future volumes and congestion points.

Caltrans' *Guide for the Preparation of Traffic Impacts Studies* (January 2001) is intended to provide a consistent basis for evaluating traffic impacts to State facilities. The City recognizes that "*Caltrans endeavors to maintain a target LOS at the transition between LOS 'C' and LOS 'D'... on State highway facilities; however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS*".[2]

B. Existing Conditions

The street grid in Petaluma is oriented so that Highway 101 runs northwest and southeast and roadways on the east side of Highway 101 follow this orientation; however, throughout this section, Highway 101 and parallel roads are described as north-south facilities, while roadways perpendicular to Highway 101 are described as east-west facilities.

1. Roadways

The East Washington Place project site is bordered by East Washington Street (north side), Highway 101 (east side), Kenilworth Drive and the Sonoma-

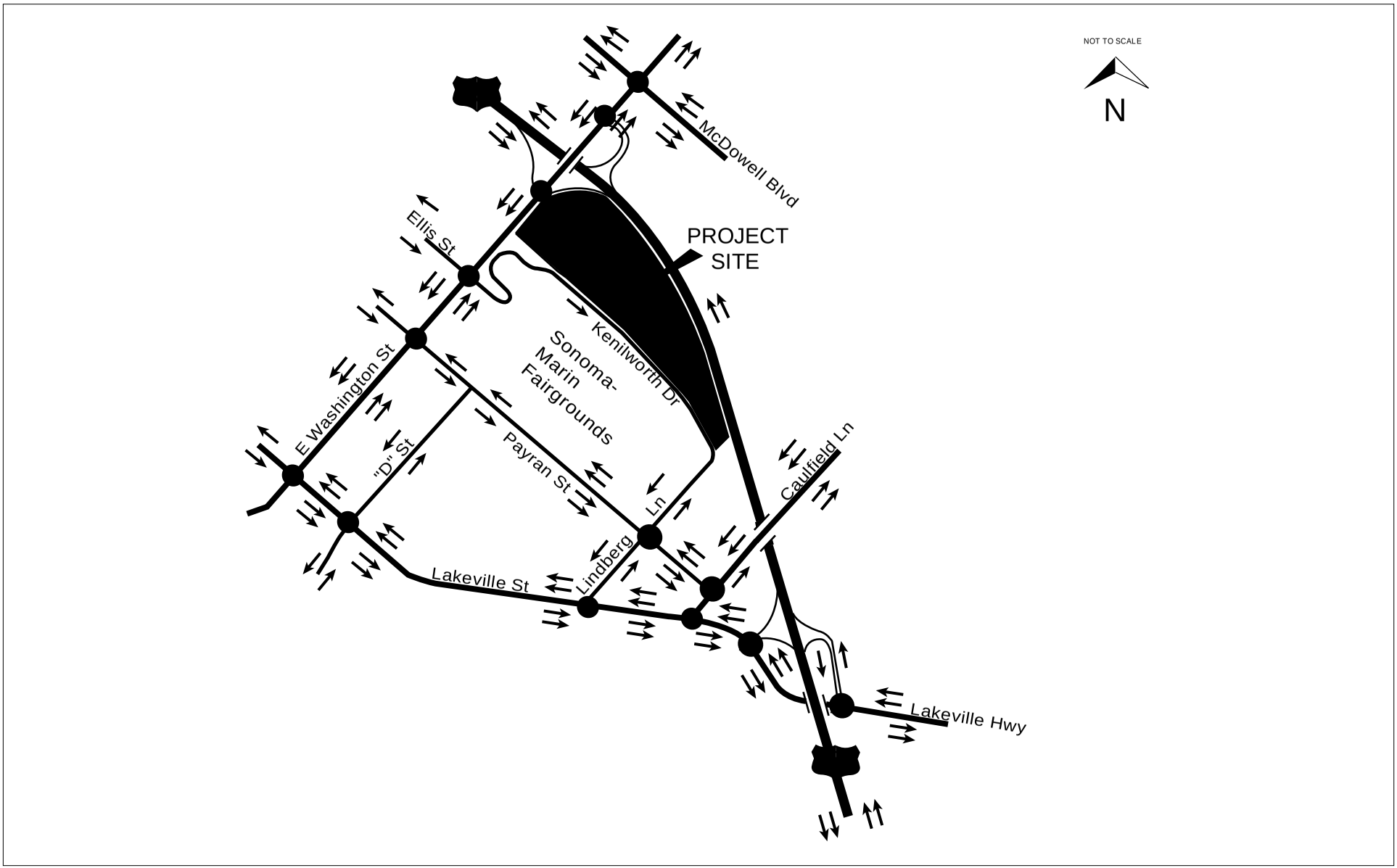
[2] California Department of Transportation, 2001, *Caltrans Guide for the Preparation of Traffic Impact Studies*, June.

Marin Fairgrounds, City swim center-skate park (west side) and Lindberg Lane (south side). It is served directly by Kenilworth Drive which runs along most of the project's western boundary, and Lindberg Lane, which connects to Kenilworth Drive at the southern tip of the project site. Regional access is provided by Highway 101. Primary site access is planned via Johnson Drive, an off-site roadway that would replace the existing Kenilworth Drive connection to East Washington Street opposite Ellis Street. Johnson Drive is planned to extend around the west and south sides of the City swim center and skate park to connect at a "tee" intersection with an improved and realigned Kenilworth Drive. Kenilworth Drive would be extended north of the intersection with Johnson Drive and would intersect East Washington Street at a new right turn in/right turn out location east of the Johnson Drive/Ellis Street intersection.

Access from the project site to Highway 101 is provided by the East Washington Street/Highway 101 interchange (just east of the site) and the Lakeville Street/Highway 101 interchange, located south of the site. Lakeville Street and the Highway 101/Lakeville interchange are accessed via either a direct Lindberg Lane connection to Lakeville Street, or via the route option of using Payran Street and Caulfield Lane between Lindberg Lane and Lakeville Street. Roadways that could potentially be used by project traffic are described below, while a schematic presentation of existing intersection approach lanes and control are presented in Figures 4.13-1 and 4.13-2. The northeast corner of the project site incorporates Caltrans' long-term plans to improve the Highway 101 southbound on-ramp at East Washington Street. According to Caltrans, the change to the on-ramp would smooth the transition onto the freeway to conform with current safety standards.

a. Freeway

Highway 101 is a major north-south, four- to eight-lane freeway that extends from northern Washington State near the Canadian border south through Oregon and California. Within the project area, Highway 101 is a four-lane freeway connecting Petaluma to communities such as Rohnert Park and Santa Rosa to the north, and Marin County and San Francisco to the south. Inter-



Source: Crane Transportation Group, July 2006

FIGURE 4.13-2

ROADWAY SYSTEM AND TRAVEL LANES

changes nearest the project site are provided at East Washington Street and Lakeville Street/Lakeville Highway.

b. Streets

As described in the Central Petaluma Specific Plan, roadways that cross the Petaluma River and Northwestern Pacific (NWP) Railroad are the most critical elements of the local street circulation system. There are three existing local street crossings of the river in the project site vicinity: East Washington Street, Lakeville Street and D Street. South of D Street there are no crossings of the river or the railroad, and any future crossings in this area would be complicated by the need to maintain the navigability of the river channel(s) as well as coordination with the North Coast Railroad Authority (NCRRA) and Public Utilities Commissions (PUC) regarding rail crossings.

Other streets in the project vicinity include the following. Each is described in more detail in the traffic report in Appendix D:

- East Washington Street
- Lakeville Street
- D Street
- McDowell Boulevard
- Payran Street
- Kenilworth Drive
- Ellis Street
- Lindberg Lane
- Caulfield Lane

2. Volumes

For this traffic study, weekday AM and PM peak hour analysis was completed at 13 major intersections serving the project site. Weekday AM and PM peak period counts were conducted by Crane Transportation Group in May, 2005 at the following 13 locations:

- East Washington Street/ Lakeville Street
- East Washington Street/ Payran Street
- East Washington Street/ Ellis Street – Kenilworth Drive (future Johnson Drive)

- East Washington Street/Highway 101 Southbound Ramps
- East Washington Street/Highway 101 Northbound Ramps
- East Washington Street/McDowell Boulevard
- Lindberg Lane/Payran Street
- Caulfield Lane/Payran Street
- Lakeville Street/D Street
- Lakeville Street/Lindberg Lane
- Lakeville Street/Caulfield Lane
- Lakeville Street/Highway 101 Southbound Ramps
- Lakeville Highway/Highway 101 Northbound Ramps

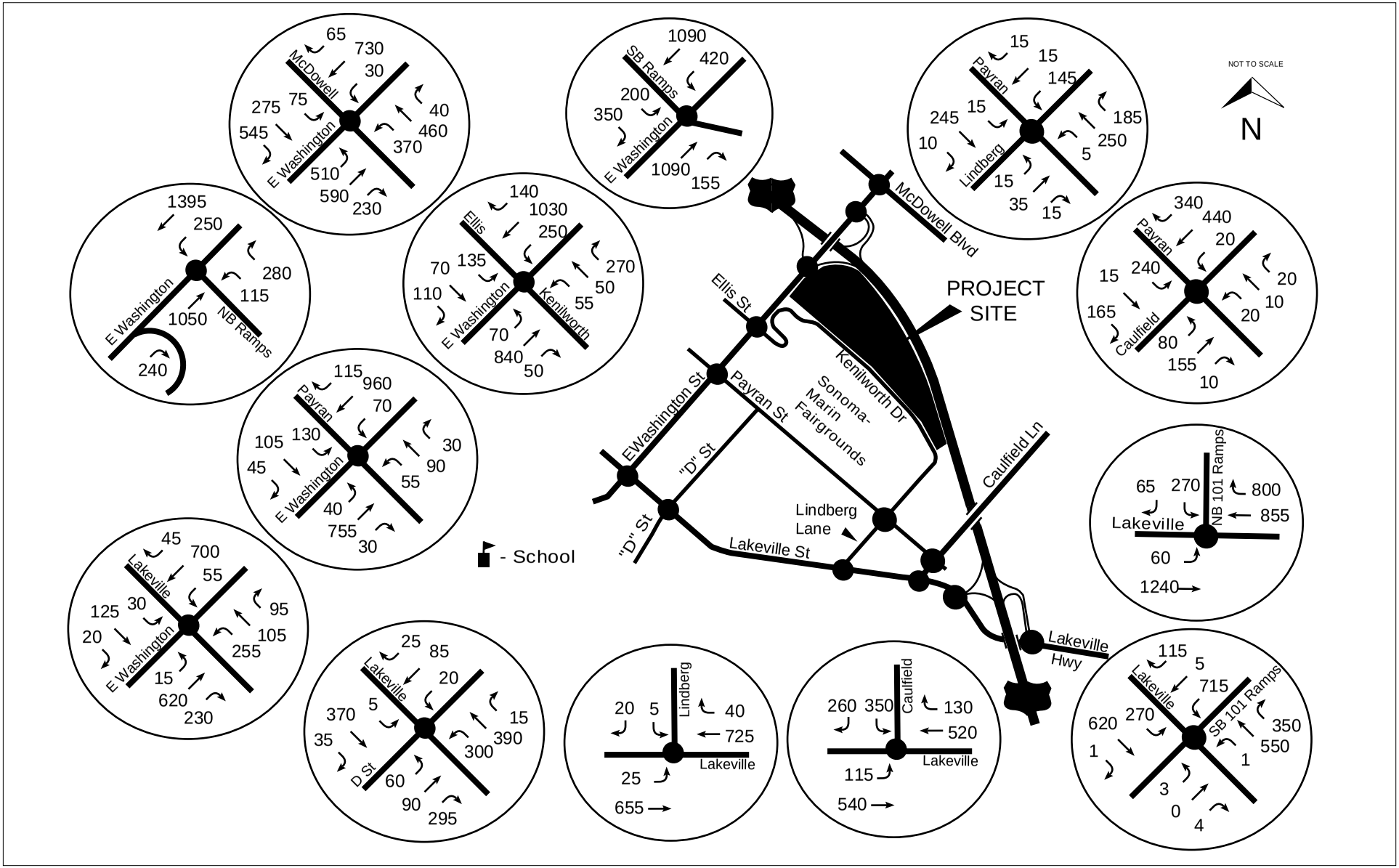
Figures 4.13-3 and 4.13-4 present existing AM and PM peak hour volumes at the 13 analysis intersections. At the time of the traffic counts and the Notice of Preparation for the project, the former Kenilworth Junior High School was operating. As allowed by CEQA, this serves as the baseline for this traffic analysis.

3. Intersection Level of Service

a. Analysis Methodology

i. Signalized Intersections

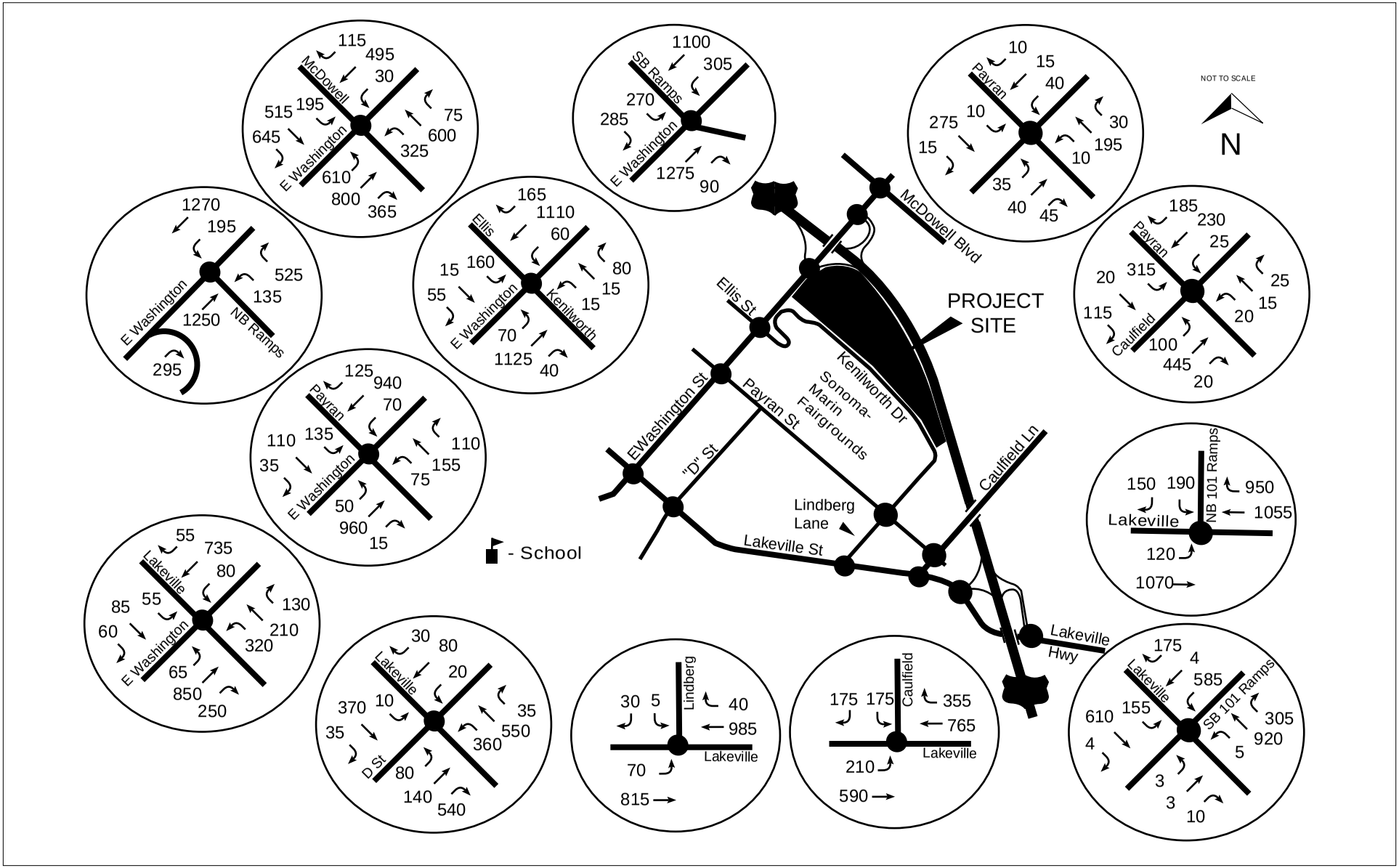
Intersections, rather than roadway segments between intersections, are almost always the capacity controlling locations for any circulation system. Signalized intersection operation is graded based upon two different scales. The first scale employs a grading system called "level of service" which ranges from LOS A, indicating uncongested flow and minimum delay to drivers, down to LOS F, indicating significant congestion and delay on most or all intersection approaches. The LOS scale is also associated with an average vehicle delay tabulation (2000 Highway Capacity Manual (HCM) operations method) at each intersection. The vehicle delay designation allows a more detailed examination of the impacts of a particular project. Greater detail regarding the LOS/delay relationship is provided in Table A-1 of the traffic report, which is included as Appendix D of this EIR.



Source: Crane Transportation Group, July 2006

FIGURE 4.13-3

EXISTING AM PEAK HOUR VOLUMES



Source: Crane Transportation Group, July 2006

FIGURE 4.13-4

EXISTING PM PEAK HOUR VOLUMES

ii. Unsignalized Intersections

Unsignalized intersection operation is also typically graded using the LOS A through F scale. LOS ratings for all-way stop intersections are determined using a methodology outlined in the 2000 update of the Highway Capacity Manual (TRB Circular 209). Under this methodology, all-way stop intersections receive one LOS designation reflecting operation of the entire intersection. Average vehicle delay values are also calculated. Intersections with side streets only stop sign controlled are also evaluated using the LOS and delay scales using a methodology outlined in the 2000 Highway Capacity Manual. However, unlike signalized or all-way stop analysis where the LOS and delay designations pertain to the entire intersection, in side street stop sign control analysis LOS and delay designations are computed for stop sign controlled approaches or individual turn and through movements rather than for the entire intersection. Table A-2 of Appendix D provides greater detail about unsignalized analysis methodologies.

b. Standards

The City of Petaluma considers LOS C to be the poorest acceptable operation for signalized, all-way-stop and side street stop sign controlled intersections. For signalized intersections that operate at an LOS D or E under conditions without the project, the City considers it significant if the LOS deteriorates to the next lowest level. The City has no standards for turn movements from private driveways.

c. Existing Intersection Operating Conditions

Tables 4.13-2 and 4.13-3 show that all intersections are operating at good to acceptable (LOS C or better) levels of service during both the AM and PM peak traffic hours, with the following exceptions:

AM Peak Hour

- East Washington Street/Highway 101 Southbound Ramps
  - LOS D AM peak hour signalized operation

TABLE 4.13-2 **INTERSECTION LOS AND SECONDS OF DELAY—WEEKDAY AM PEAK HOUR**

		Year 2025	
Intersection	**Existing**	**Base Case (w/o Project)**	**Base Case + Project**
Weekday AM Peak Hour (7:00-8:00)			
E. Washington Street/ McDowell Blvd. (Signal)	C-29.3[a]	C-29.1	C-30.2
E. Washington Street/ Highway 101 Northbound Ramps (Signal)	B-13.5[a]	A-3.4	A-3.8
E. Washington Street/ Highway 101 Southbound Ramps (Signal)	D-39.0[a]	D-53.3	D-52.1
E. Washington Street/ Ellis Street-Kenilworth Street (Signal)	B-14.5[a]	C-31.9	C-34.0
E. Washington Street/ Payran Street (Signal)	B-14.2[a]	C-20.1	C-20.3
E. Washington Street/ Lakeville Street (Signal)	B-15.8[a]	C-22.4	C-25.3
Lakeville Street/ D Street (Signal)	C-31.3[a]	C-25.8	C-26.5
Lakeville Street/Lindberg Lane (Side Street Stop Sign Control Existing/Signal for 2025)	C-16.9[b]	C-27.2	C-28.6
Lakeville Street/ Caulfield Lane (Signal)	B-19.5[a]	F > 80	F > 80
Lakeville Street/Highway 101 Southbound Ramps (Signal)	C-25.4[a]	C-30.4	C-31.2
Lakeville Street /Highway 101 Northbound Ramps (Signal)	B-17.6[a]	A-9.5	A-9.6
Caulfield Lane/ Payran Street (Signal)	C-21.8[a]	E-65.2	E-68.3
Lindberg Lane/Payran Street (All-Way Stop Sign Control)	A-9.2[c]	D-25.1	D-25.1

[a] Signalized LOS – vehicle control delay in seconds.
[b] Unsignalized LOS – worst case approach vehicle control delay in seconds (Lindberg Lane westbound approach).
[c] All-way stop LOS – average vehicle control delay in seconds.
2000 Highway Capacity Manual Operations Methodology
Source: Crane Transportation Group.

TABLE 4.13-3 **INTERSECTION LOS AND SECONDS OF DELAY— WEEKDAY PM PEAK HOUR**

		Year 2010		Year 2025	
Intersection	**Existing**	**Base Case (w/o Project)**	**Base Case + Project**	**Base Case (w/o Project)**	**Base Case + Project**
Weekday PM Peak Hour (5:00-6:00)					
E. Washington Street/ McDowell Blvd. (Signal)	D-44.1[a]	E-55.2	E-62.4	D-51.6	D-53.8
E. Washington Street/ Highway 101 Northbound Ramps (Signal)	C-24.0[a]	A-5.4	A-6.4	A-3.3	A-5.2
E. Washington Street/ Highway 101 Southbound Ramps (Signal)	C-29.5[a]	D-45.0	D-46.5	C-27.7	C-29.5
E. Washington Street/ Ellis Street-Kenilworth Street (Signal)	B-13.5[a]	B-11.8	C-21.7	B-11.3	C-23.1
E. Washington Street/ Payran Street (Signal)	B-18.5[a]	C-29.2	C-34.8	C-21.7	C-23.8
E. Washington Street/ Lakeville Street (Signal)	C-24.1[a]	C-27.8	C-32.3	C-23.7	C-26.5
Lakeville Street/D Street (Signal)	C-31.0[a]	D-37.3	D-40.1	C-29.3	C-32.1
Lakeville Street/Lindberg Lane (Side Street Stop Sign Control Existing/ Signal for 2010 & 2025)	D-26.4[b]	C-22.7[a]	C-23.8	B-17.1	B-19.2
Lakeville Street/ Caulfield Lane (Signal)	B-13.3[a]	F > 80	F > 80	F > 80	F > 80
Lakeville Street/Highway 101 Southbound Ramps (Signal)	C-22.4[a]	C-22.6	C-34.6	C-27.1	C-28.6
Lakeville Street/Highway 101 Northbound Ramps (Signal)	B-15.7[a]	B-13.4	C-26.9	B-11.2	B-11.2
Caulfield Lane/ Payran Street (Signal)	C-27.3[a]	E-55.2	E-64.6	E-56.7	E-68.0
Lindberg Lane/Payran Street (All-Way Stop Control)	A-8.0[c]	B-11.4	B-13.6	B-12.9	C-16.3

[a] Signalized LOS – vehicle control delay in seconds.
[b] Unsignalized LOS – worst case approach vehicle control delay in seconds (Lindberg Lane west-bound approach).
[c] All-way stop LOS – average vehicle control delay in seconds.
2000 Highway Capacity Manual Operations Methodology
Source: Crane Transportation Group.

PM Peak Hour

- ♦ East Washington Street/McDowell Boulevard
  - LOS D PM peak hour signalized operation
- ♦ Lakeville Street/Lindberg Lane
  - The side street stop sign controlled westbound Lindberg Lane approach to the Lakeville Street/Lindberg Lane intersection operates at LOS D with 26.4 seconds delay.

4. Intersection Signalization Requirements

a. Analysis Methodology

Traffic signals are used to provide an orderly flow of traffic through an intersection. Many times they are needed to offer side street traffic an opportunity to access a major road where high volumes and/or high vehicle speeds block crossing or turn movements. They do not, however, increase the capacity of an intersection (i.e. increase the overall intersection's ability to accommodate additional vehicles) and, in fact, often slightly reduce the number of total vehicles that can pass through an intersection in a given period of time. Signals can also cause an increase in traffic accidents if installed at inappropriate locations.

There are eight possible tests for determining whether a traffic signal should be considered for installation. These tests, called "warrants," consider criteria such as actual traffic volume, pedestrian volume, presence of school children, and accident history. Usually, two or more warrants must be met before a signal is installed. In this report, the test for Peak Hour Volumes (Warrant #3) has been applied. When Warrant 3 is met there is a strong indication that a detailed signal warrant analysis covering all possible warrants is appropriate. These rigorous analyses are described in Chapter 4 of the year 2003 Manual on Uniform Traffic Control Devices, while Warrant 3 is presented in Table A-3 of Appendix D.

It is possible that an unsignalized intersection will not meet signal warrants, but will have one or more movements that experience LOS F operations. LOS F can be indicated for a very low volume of vehicles at a stop sign. Al-

though these stopped vehicles may experience long delays of one minute or more, there would not be an overall benefit if the higher numbers of vehicles on the major street are stopped in favor of the few vehicles on the minor street. The signal warrant considers a balance between major street and minor street delays, and may indicate that there is overall benefit if drivers for some turn movements from the minor street continue to experience long (LOS E or F) delays.

b. Existing Signalization Needs

Currently, the Lindberg Lane/Payran Street all-way stop controlled intersection and Lindberg Lane/Lakeville Street side street stop sign controlled intersection have AM and PM peak hour volumes below signal warrant criteria levels. Therefore, these intersections do not currently need to be signalized.

5. Vehicle Queuing

Vehicle queuing analysis is completed to assess the capacity of intersections to accommodate the number of cars expected to wait at the intersection before being able to pass through or turn. This is important because if there is not enough waiting room between intersections, in left turn pockets or on on-ramps, the overflow of cars can obstruct the operations of the roadway.

a. Analysis Methodology

The Synchro software program was used to determine estimates of 95th percentile vehicle queuing on the critical approaches to the following intersections within and in close proximity to the Highway 101 interchanges:

- East Washington Street/NB 101 Ramps
- East Washington Street/SB 101 Ramps
- East Washington Street/McDowell Boulevard
- East Washington Street/Ellis Street – Kenilworth Drive
- Lakeville Highway/NB 101 Ramps
- Lakeville Street/SB 101 Ramps

b. Queuing Standards

The City of Petaluma standard employed in this analysis is that the 95th percentile vehicle queue (i.e. the vehicle queue length at or below which 95 percent of vehicle queues measure during a single peak hour of analysis) must be accommodated within available storage. This standard is employed in order to be consistent with the standard requested by Caltrans in correspondence regarding this project.

c. Existing Queuing Conditions

Tables 4.13-4 and 4.13-5 show that 95th percentile queues could be accommodated within available distances between intersections or within the lengths of turn pockets and freeway off-ramps, with the following exceptions:

AM Peak Hour

- East Washington Street/Southbound Highway 101 Ramps
  - Westbound East Washington Street approach left turn lane
- East Washington Street/Ellis Street/Kenilworth Drive
  - Westbound East Washington Street approach left turn lane

PM Peak Hour

- East Washington Street/Southbound Highway 101 Ramps
  - Westbound East Washington Street approach left turn lane
- East Washington Street/McDowell Boulevard
  - Eastbound East Washington Street approach left turn lane

d. Existing Freeway Operations

Three segments of the freeway were identified as most likely to receive project traffic:

- Petaluma Boulevard to Lakeville Highway
- Lakeville Highway to Washington Street
- Washington Street to Lakeville Highway

Existing operating conditions of the study freeway segments were analyzed using volume-to capacity (V/C) ratios. The capacities of study freeway facili-

TABLE 4.13-4 **VEHICLE QUEUING[a] (95TH PERCENTILE AVERAGE VEHICLE QUEUE) —AM PEAK HOUR**

			Year 2025 Queues (Feet)	
	Storage (Feet)[b]	Existing Queues (Feet)[b]	Base Case	Base Case + Project
E Washington Street/NB 101 Ramps				
NB off-ramp	1,200	191	111	122
EB through	1,175	441	81	91
WB through	390	133	58	62
E Washington Street/SB 101 Ramps				
SB off-ramp	1,100	461	300	346
EB through	735	245	283	303
WB through	1,175	184	39	36
WB left turn	300	527	614	625
E. Washington Street/McDowell Boulevard				
EB left turn	180	174	121	122
EB through	385	34	55	69
E. Washington Street/Ellis Street – Kenilworth Drive				
WB left turn[c]	130/500	133	315	159
WB through/right turn	735	118	205	161
Lakeville Highway/NB 101 Ramps				
NB off-ramp	2,200	331	212	139
EB left turn	500	76	108	107
EB through	1,100	25	115	116
Lakeville Street SB 101 Ramps				
SB off-ramp	1,050	574	929	918
WB through	1,100	196	319	398

[a] Synchro Analysis Program.
[b] Storage and queues are per lane for surface street intersection approaches. For freeway off-ramp intersection approaches, storage is the sum of all available off-ramp lanes and queues are the sum of total demand for each off-ramp.
[c] The proposed project would provide two 500-foot-long left turn lanes for this movement.
Source: Crane Transportation Group.

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TABLE 4.13-5 **VEHICLE QUEUING[a] (95TH PERCENTILE AVERAGE VEHICLE QUEUE) —PM PEAK HOUR**

	Storage (Feet)[b]	Existing Queues (Feet)[b]	Year 2010 Queues (Feet)		Year 2025 Queues (Feet)	
			Base Case	Base Case + Project	Base Case	Base Case + Project
E. Washington Street/NB 101 Ramps						
NB off-ramp	1,200	650	124	170	91	140
EB through	1,175	515	450	471	109	242
WB through	390	178	142	212	121	151
E. Washington Street/SB 101 Ramps						
SB off-ramp	1,100	518	803	837	520	526
EB through	735	216	234	265	264	198
WB through	1,175	103	263	296	81	50
WB left turn	300	375	540	541	439	447
E. Washington Street/McDowell Blvd.						
EB left turn	180	319	331	357	127	132
EB through	385	202	620	649	686	716
E. Washington Street/Ellis Street – Kenilworth Drive						
WB left turn[c]	130/500	11	34	170	90	222
WB through/ right turn	735	265	318	296	224	196
Lakeville Highway/NB 101 Ramps						
NB off-ramp	2,200	240	247	255	218	217
EB left turn	500	142	219	199	240	234
EB through	1,100	97	125	119	20	25
Lakeville Street/SB 101 Ramps						
SB off-ramp	1,050	545	993	998	929	941
WB through	1,100	328	205	466	627	644

[a] Synchro Analysis Program

[b] Storage and queues are per lane for surface street intersection approaches. For freeway off-ramp intersection approaches, storage is the sum of all available off-ramp lanes and queues are the sum of total demand for each off-ramp.

[c] The proposed project would provide two 500-foot long left turn lanes for this movement.

Source: Crane Transportation Group.

ties were obtained from the Highway Capacity Manual (HCM). Based on the HCM, ideally a freeway segment with minimum 12-foot-wide travel lanes, 6-foot shoulder widths, 2-foot median and a traffic stream composed primarily of passenger cars, interchange spacing greater than 2 miles, level terrain, and driver population composed of regular users, should have a capacity of 2,400 vehicles per hour (vph) per lane. However, segments of Highway 101 through Petaluma have many features that reduce the capacity flow rates from the ideal of 2,400 vph per lane, including:

- Heavy vehicles, including trucks, buses, and recreational vehicles represent approximately 5 percent of peak hour vehicles on Highway 101.
- Location with short merge distances for on-ramps.
- Interchange spacing typically less than 2 miles.

Therefore, the capacity of 2,200 vph per lane was selected as an approximation of freeway capacity through Petaluma, and is consistent with previous analyses performed in Petaluma.

Existing traffic volumes were obtained by Fehr and Peers Traffic Engineers from Caltrans' published freeway volumes for year 2003, the most recent data available at the time. According to the data, the worst case condition for freeway segments in this area is the PM peak hour, thus this hour is analyzed in the study at hand. Using PM peak hour data available from Caltrans and theoretical freeway peak hour capacities, the V/C ratio for each segment was calculated by dividing the actual traffic volumes by the theoretical capacity. The resulting ratio was used to determine segment LOS using the thresholds shown in Table A-4 of Appendix D.

Existing freeway segment capacity, V/C ratio and LOS are shown in Table 4.13-6. As shown, northbound Highway 101 experiences congestion throughout the three study segments during the PM commute peak hour, while southbound traffic is relatively uncongested.

TABLE 4.13-6 **FREEWAY PM PEAK HOUR V/C RATIO AND LOS EXISTING CONDITIONS**

Freeway Segment	Direction	Baseline Volume[a]	Theoretical Capacity[b]	V/C	LOS
Petaluma Blvd. to Lakeville Hwy.	NB	4,432	4,400	1.00	F
	SB	2,317	4,400	0.53	A
Lakeville Hwy. to Washington St.	NB	4,953	4,400	1.13	F
	SB	2,590	4,400	0.59	A
Washington St. to Redwood Hwy.	NB	4,901	4,400	1.11	F
	SB	2,563	4,400	0.58	A

[a] Caltrans Traffic Volume on California State Highways, 2003
[b] Assumes freeway capacity of 2,200 vph per lane
Source: CTG amendments to data from Fehr & Peers, June 2005.

6. Transit

Public transit service in the project area is provided by Golden Gate Transit, Sonoma County Transit and Petaluma Transit. Golden Gate Transit provides service within Sonoma County as well as Marin County and San Francisco to the south. Commute period buses pass through Petaluma, offering limited local service for Petaluma residents. Commute routes 73, 74, 75 and 76 and basic route 80 operate within Petaluma. The primary corridor for these routes is Petaluma Boulevard and East Washington Street (east of Highway 101). Service headways vary from 30 minutes during peak commute periods to 1.5 hours during the off-peak periods. Sonoma County Transit routes 44 and 48 provide daily service between downtown Petaluma and downtown Santa Rosa. Route 44 traverses East Washington Street. Weekday service on this route occurs approximately every hour during peak periods and every 2 to 3 hours during off-peak periods (11:00 p.m. and 5:30 a.m.). Weekend service along the route occurs every two to three hours from approximately 10:00 a.m. to 8:30 p.m. Petaluma Transit routes travel along East Washington Street as well as many local streets in the project vicinity.

Service headways vary from 10 minutes to one hour during peak commute periods, depending upon the route.

Bus stops with shelters are provided near the project site on Fairgrounds Drive near East Washington Street (serves all three transit providers), and on the south side of East Washington Street just east of the Kenilworth Drive/Ellis Street intersection and on the northwest corner of the East Washington Street/Ellis Street intersection.

7. Pedestrian & Bicycle

In the immediate project vicinity, sidewalks are in place along the north and south sides of East Washington Street and crosswalks with pedestrian controls are provided at the East Washington Street/Ellis Street/Kenilworth Drive intersection. There are no continuous pedestrian facilities along Kenilworth Drive or Lindberg Lane. There is a pedestrian bridge crossing over Highway 101 between the project site (former Junior High School) and the neighborhood located east of the freeway. The City controls the gates for this bridge which are currently kept open.

There are no striped or posted bicycle lanes along East Washington Street, Kenilworth Drive or Lindberg Lane. The Petaluma Bicycle Plan adopted in August 2000 shows planned Class II bikeways in the project area along East Washington Street, Payran Street, Lakeville Street and D Street. Caulfield Lane currently has Class II bikeways. Class II bikeways are signed and striped bike lanes within the roadway right-of-way.

8. Future Base Case (Without Project) Conditions

The proposed project's traffic impacts have been evaluated in relation to year 2010 and year 2025 Base Case conditions. Year 2010 reflects a time horizon when the project would be completely constructed and fully occupied, while 2025 represents the City's General Plan horizon. This section details the process to determine Base Case traffic operating conditions for both horizon years. Year 2010 analysis is limited to the PM commute peak hour while 2025 analysis includes both the AM and PM peak hours. Crane Transporta-

tion Group (CTG) did not analyze the 2010 AM peak hour due to lack of any available AM peak hour modeling data to which to compare manual distributions of future 2010 AM peak hour traffic volumes.[3] Additional detail on why the 2010 AM peak hour was not analyzed is provided in a memo from Crane Transportation Group, which has been included in Appendix D. It explains that the differences in volumes and intersection LOS results between the 2010 and 2025 runs are minor, and the information gained by comparing the two runs is minimal. Also, it is worth noting that the PM peak hour is the design hour for the majority of intersections in downtown Petaluma, therefore, is considered an appropriate hour in which to analyze traffic volumes and intersection operation.

a. Year 2010 Base Case

The year 2010 baseline conditions include traffic generated by planned and approved development throughout the city, as well as traffic generated by projects that are under construction. Consistent with City direction, and to present a conservatively worst case development level scenario, the City's entire current list of Major Development Projects was assumed in place by year 2010. Appendix A-5 of the traffic report in Appendix D of this EIR provides the City's Major Development Projects list as of December 2005.

i. Roadway and Intersection Improvements (to be assumed in place by 2010)

Development is planned to be extensive in the project area, especially along the Lakeville Street corridor. Roadway improvements are necessary in conjunction with development. Figure 4.13-5 shows roadway and intersection improvements assumed in place by year 2010. They include the following:

- The East Washington Street Interchange Improvement project would provide a new northbound on-ramp from westbound East Washington Street to northbound Highway 101. This on-ramp would provide a "free" right turn to allow westbound traffic, which currently has to wait for a signal to turn left onto the northbound on-ramp, to exit East Wash-

[3] Carolyn Cole, Crane Transportation Group. Memo to DC&E dated December 14, 2006.

ington Street directly from the right lane, independent of a traffic signal. The Highway 101 northbound off-ramp/East Washington Street intersection would be relocated to the west to provide better spacing in relation to the East Washington Street/North McDowell Boulevard intersection. Funding and construction is anticipated between 2006 and 2007.

- Improved lane geometry on the westbound approach to D Street at Lakeville Street.
- Improved lane geometry for the Lindberg Lane approaches to Lakeville Street and signalization of this intersection.
- Improved lane geometry for the Caulfield Lane/ Lakeville Street intersection.

ii. Major Development Projects Trip Generation

Trip generation was projected for all known major development projects in the City based upon traffic generation rates in the standard national averages reported in the Institute of Transportation Engineers Trip Generation reference. Information on major development projects was obtained from City of Petaluma staff. This list is contained in Appendix A-5 of Appendix D.

iii. Regional Traffic Growth on Highway 101

Northbound and southbound PM peak hour traffic volumes on Highway 101 were obtained from modeling information developed through the current city-wide traffic model. This model uses land use and roadway network information to predict traffic volumes on roadways.

iv. Major Development Projects Trip Distribution

The estimated distribution of major development traffic was based primarily upon the residential, recreational, shopping and employment distribution patterns developed for the City-wide Traffic Model. The inbound and outbound traffic generation from each development was manually distributed according to the percentages shown in Table 4.13-7. To insure consistency with modeling for future conditions, total volumes were adjusted in comparison to model runs for future conditions (Year 2025) with the same roadway

TABLE 4.13-7 **TRAFFIC DISTRIBUTION FOR MAJOR DEVELOPMENT PROJECTS**

	Percent Commercial Development		Percent Residential Development	
Direction	**AM**	**PM**	**AM**	**PM**
Highway 101 North	12	15	15	15
Highway 101 South	7	8	8	10
Lakeville Highway	6	5	10	8
Central Downtown Petaluma and West City of Petaluma	40	38	38	40
East of Highway 101 (via East Washington Street, McDowell Boulevard and Caulfield Lane	30	30	19	15
Local to Project Vicinity Just East of Highway 101	5	4	10	12
TOTAL	100%	100%	100%	100%

Source: Current City-wide Traffic Model, City of Petaluma, 2005.

improvement assumptions. The resultant PM peak hour year 2010 Base Case volumes are presented in Figure 4.13-6.

v. Year 2010 Intersection Level of Service

Table 4.13-3 shows that all intersections would be operating at acceptable PM peak hour Base Case levels of service, with the following exceptions:

- East Washington Street/McDowell Boulevard
  - LOS E PM peak hour signalized operation
- East Washington Street/Highway 101 Southbound Ramps
  - LOS D PM peak hour signalized operation

Figure 4.13-6 Year 2010 Base Case (Without Project) PM Peak Hour Volumes

8.5x11
B&W

- Lakeville Street/D Street
  - LOS D PM peak hour signalized operation
- Lakeville Street/Caulfield Lane
  - LOS F PM peak hour signalized operation
- Caulfield Lane/Payran Street
  - LOS E PM peak hour signalized operation

vi. Year 2010 Intersection Signalization Needs

The Lindberg Lane/Payran Street all-way-stop intersection would have PM peak hour Base Case volumes exceeding peak hour signal warrant criteria levels.

vii. Year 2010 Vehicle Queuing

Table 4.13-5 shows that 95th percentile Base Case vehicle queues could be accommodated within available distances between intersections or within the lengths of turn pockets and freeway off-ramps, with the following exceptions:

PM Peak Hour

- East Washington Street/McDowell Boulevard
  - Eastbound East Washington Street approach left turn lanes
  - Eastbound East Washington Street approach through lanes
- East Washington Street/Highway 101 Southbound Ramps
  - Westbound East Washington Street approach left turn lane

viii. Year 2010 Freeway Operation

Growth in freeway traffic will occur due to regional growth in Sonoma and Marin counties. Freeway volumes for 2010 Base Case conditions were taken from volumes shown in traffic analysis conducted for the City by Fehr and Peers Traffic Engineers, in 2005. Table 4.13-8 shows that northbound traffic will continue to experience levels of severe congestion (LOS F), while southbound traffic will remain relatively uncongested during the PM peak hour. Conditions will likely reverse during the AM peak hour.

TABLE 4.13-8 **FREEWAY PM PEAK HOUR V/C RATIO AND LOS BASE CASE CONDITIONS (WITHOUT PROJECT)**

Freeway Segment	Direction	Baseline Volume[a]	Theoretical Capacity[b]	V/C	LOS
2010					
Petaluma Blvd. to Lakeville Hwy.	NB	4,543	4,400	1.03	F
	SB	2,957	4,400	0.67	B
Lakeville Hwy. to Washington St.	NB	5,242	4,400	1.19	F
	SB	3,246	4,400	0.74	C
Washington St. to Redwood Hwy.	NB	4,876	4,400	1.11	F
	SB	3,095	4,400	0.70	C
2025					
Petaluma Blvd. to Lakeville Hwy.	NB	5,723	5,500	1.04	F
	SB	3,557	5,500	0.65	B
Lakeville Hwy. to Washington St.	NB	6,457	5,500	1.17	F
	SB	3,866	5,500	0.70	C
Washington St. to Redwood Hwy.	NB	6,226	5,500	1.13	F
	SB	4,435	5,500	0.81	D

[a] Caltrans Traffic Volume on California State Highways, 2003.
[b] Assumes freeway capacity of 2,200 vph per lane.
Source: CTG amendments to data supplied by Fehr & Peers, June 2005.

b. Year 2025 Base Case

The year 2025 baseline conditions include future land use assumptions for the City of Petaluma derived from the revised land use plan developed for the recently approved Central Petaluma Specific Plan, which proposes higher densities in the Central Petaluma Area than in prior versions of the model. In addition, proposed projects that would develop with higher densities than contemplated in the Central Petaluma Specific Plan land use information were identified and included in development assumptions. These projects

include those shown in Appendix C, the city's list of Major Development Projects. In order to determine baseline conditions for the project site, land uses included in the model for the project site were subtracted and the proposed project was added. The model shows traffic from analysis zones containing project uses assigned primarily to East Washington Street via Johnson Drive and a realigned Kenilworth Drive, Lindberg Lane and Lakeville Street. Fairgrounds parcels were assumed developed according to General Plan 2025 buildout assumptions in the Central Petaluma Specific Plan. Traffic from analysis zones currently occupied by the Fairgrounds assign the majority of traffic to bordering Lindberg Lane and Payran Street.

i. Roadway and Intersection Improvements (to be assumed in place by 2025)

Figure 4.13-7 shows roadway and intersection improvements assumed in place by year 2025. They include projects listed for year 2010 as well as the following:

- **Rainier Extension and Overcrossing:** Construction of a four-lane divided arterial along Rainier Avenue from North McDowell Boulevard to Petaluma Boulevard North with an overcrossing and interchange with Highway 101. This project has been under consideration for several decades; however, the City has not made a final decision on this project or dedicated funding for its construction.
- **Caulfield Lane Extension:** Construction of a southern crossing of the Petaluma River to connect Petaluma Boulevard South from below the Highway 101 bridge over the Petaluma River, to Lakeville Street near Caulfield Lane. This project has also been under consideration for several decades; however, the City has not made a final decision on this project or dedicated funding for its construction.
- **Widening of Highway 101:** Widening from 4 to 6 lanes to include a new high occupancy vehicle (HOV) lane as part of the Sonoma-Marin Narrows Project. This widening project is included in Tier 1 funding in the Metropolitan Transportation Commission's Regional Transportation Plan, meaning that funding is a top priority and construction is likely.

Figure 4.13-7 Year 2025 Base Case (Without Project) Intersection Lane Geometrics and Control

8.5x11
B&W

ii. 2025 Conditions Trip Generation

Traffic volume turning movements at intersections were derived from data available through the current citywide traffic model. The model projects traffic volumes on specific roadway segments, based on inputs such as land use, roadway capacities and travel behavior.

iii. Regional Traffic Growth on Highway 101

Northbound and southbound PM peak hour traffic volumes on Highway 101 were obtained from modeling information developed through the current citywide traffic model.

iv. 2025 Conditions Trip Distribution

Residential, recreational, shopping and employment distribution patterns were developed for the citywide traffic model. The resultant AM and PM peak hour year 2025 Base Case volumes are presented in Figures 4.13-8 and 4.13-9.

v. Year 2025 Base Case Intersection Level of Service

Tables 4.13-2 and 4.13-3 show that all intersections would be operating at acceptable AM and PM peak hour Base Case levels of service in the year 2025, with the following exceptions:

AM Peak Hour

- East Washington Street/Highway 101 Southbound Ramps
  - LOS D AM peak hour signalized operation
- Lakeville Street/Caulfield Lane
  - LOS F AM peak hour signalized operation
- Caulfield Lane/Payran Street
  - LOS E AM peak hour signalized operation
- Lindberg Lane/Payran Street
  - LOS D AM peak hour all-way-stop operation

Figure 4.13-8 2025 Base Case (Without Project) AM Peak Hour Volumes With the Rainier Overcrossing

8.5x11
B&W

Figure 4.13-9 Year 2025 Base Case (Without Project) Intersection Lane Geometrics and Control

8.5x11
B&W

PM Peak Hour

- East Washington Street/McDowell Boulevard
  - LOS D PM peak hour signalized operation
- Lakeville Street/Caulfield Lane
  - LOS F PM peak hour signalized operation
- Caulfield Lane/Payran Street
  - LOS E PM peak hour signalized operation

vi. Year 2025 Intersection Signalization Needs

The Lindberg Lane/Payran Street all-way-stop intersection would have both AM and PM peak hour Base Case volumes exceeding peak hour signal warrant criteria levels.

vii. Year 2025 Vehicle Queuing

Tables 4.13-4 and 4.13-5 show that 95th percentile Base Case vehicle queues could be accommodated within available distances between intersections or within the lengths of turn pockets and freeway off-ramps, with the following exceptions.

AM Peak Hour

- East Washington Street/Highway 101 Southbound Ramps
  - Westbound East Washington Street approach left turn lane
- East Washington Street/Ellis Street/Kenilworth Drive
  - Westbound East Washington Street approach left turn lane

PM Peak Hour

- East Washington Street/Highway 101 Southbound Ramps
  - Westbound East Washington Street approach left turn lane
- East Washington Street/McDowell Boulevard
  - Eastbound East Washington Street approach through lanes

viii. Year 2025 Freeway Operation

Growth in freeway traffic will occur due to regional growth in Sonoma and Marin counties. Freeway volumes for 2025 Base Case conditions with the Rainier Overcrossing in place were taken from volumes supplied by Fehr and Peers Traffic Engineers, 2005. Table 4.13-8 shows that northbound traffic will continue to experience levels of severe congestion (LOS F), while southbound traffic will remain relatively uncongested during the PM peak hour. Conditions will likely reverse during the AM peak hour.

C. Standards of Significance

The proposed project would have a significant impact to traffic or transportation if it would:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system. For the purposes of this analysis, a substantial change is considered to be:
  - A drop in LOS below LOS C for signalized intersections for which previous LOS was LOS C or higher.
  - A drop in one LOS for signalized intersections for which previous LOS was LOS D or lower.
  - Any additional vehicle trips to signalized intersections operating at LOS F without the project.
  - A drop in LOS below LOS C for unsignalized intersections for which previous LOS was LOS C or higher AND the traffic volumes at the intersection would satisfy the Caltrans peak hour volume warrant criteria for traffic signal installation.
  - Average delay to increase by five or more seconds for unsignalized intersections for which previous LOS was LOS D or lower AND the traffic volumes at the intersection would satisfy the Caltrans peak hour volume warrant criteria for traffic signal installation.

  - Adding to queue lengths, either by directly increasing the queue length or indirectly by adding to volumes and delay at an intersection which would increase unacceptable base case queues on the intersection approaches. The 95th percentile standard is employed in order to be consistent with the standard requested by Caltrans in correspondence regarding this project.
  - Precluding the ability of the City to provide ultimate circulation system improvements to accommodate cumulative traffic conditions.

- Exceed, either individually or cumulatively, a LOS standard established by the county congestion management agency for designated roads or highways.
- Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment).
- Result in inadequate emergency access.
- Result in inadequate parking capacity.
- Conflict with adopted policies, plans or programs supporting alternative transportation.
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

For purposes of this analysis, the above general significance criteria are interpreted as explained on pages 29 through 31 of the traffic report in Appendix D of this EIR.

Since the project would not have the potential to result in a change in air traffic patterns at the Petaluma Municipal Airport or any other airport in the area, no further analysis of this issue is required.

D. Impact Discussion

This section evaluates project traffic impacts in the context of year 2010 and 2025 Base Case volumes. The conclusions set forth for 2010 represent buildout conditions with all Major Development Projects constructed and occupied (current list as of December 2005) and roadway network improvements assumed as of 2010 (see 8.a.i Roadway Improvements). The conclusions set forth for 2025 represent General Plan buildout conditions based upon City traffic model runs available in 2005, adjusted to include all Major Development Projects (current as of December 2005) and roadway network improvements assumed as of 2025 (see 8.b.i Roadway Improvements). In addition, the analysis for Year 2025 includes a comparison of traffic volume data available in 2005 as part of the City's 2025 traffic model and more recent 2006 volume data used in the EIR for the City's General Plan update. This comparison was completed because the 2006 data became available after the project traffic study was completed, which relied upon the 2005 data. A comparison with the more current data was necessary to determine whether variations would result in new and significant impacts. Wherever volumes were found to be different enough that a new impact could possibly occur, intersection LOS analyses were conducted in order to assess the impact in relation to the City's Thresholds of Significance. The results of the comparison are discussed below in Section D.(i), Intersection Level of Service.

1. Project Impacts

a. Project Proposed Off-Site Circulation System

Primary site access from East Washington Street is planned via Johnson Drive, an off-site roadway that would replace the existing Kenilworth Drive connection to East Washington Street opposite Ellis Street. Johnson Drive is planned to extend around the west and south sides of the City swim center and skate park to connect at a "tee" intersection with an improved and realigned Kenilworth Drive. Kenilworth Drive would be extended north of the intersection with Johnson Drive and would intersect East Washington Street at a new right turn in/right turn out location east of the Johnson Drive/Ellis Street intersection. The project would provide the following improvements

along East Washington Street fronting the City swim center and Sonoma-Marin Fairgrounds access entrance (the new Johnson Drive), at the Highway 101 southbound on-ramp and on Kenilworth Drive:

- Improve the separation between pedestrians and vehicles in the vicinity of the skate park by providing continuous sidewalks on all sides of the City swim center and skate park.
- Clarify the poorly defined, confusing vehicle circulation and parking lay-out around the swim center and (former) Kenilworth School site.
- Provide an improved Kenilworth Drive with curbs, gutters, and bike lanes along the western project frontage.
- Provide an eastbound bicycle lane along the project's East Washington Street frontage, consistent with the City's Bicycle Plan.
- Provide a second left turn lane on the East Washington Street approach to the westbound Johnson Drive/Ellis Street intersection.
- Provide the right-of-way for an improved Highway 101 southbound on-ramp at East Washington Street, in order that Caltrans may implement its long-term plans for this on-ramp. According to Caltrans, the change to the on-ramp would better conform to current safety standards.
- Create an intersection in the middle of a 90-degree curve which would serve the swim center/skate park (on the inside of the curve) and the Fairgrounds (on the outside of the curve).

b. Project Trip Generation

Table 4.13-9 shows that a 298,038-square-foot shopping center would be likely to generate 184 inbound and 117 outbound trips during the AM peak hour and 618 inbound and 669 outbound trips during the PM peak hour. Based upon the Institute of Transportation Engineers source of passby and diverted linked trip capture for commercial uses, approximately 25 percent of the project's PM peak hour commercial trips would be expected to be captured from existing traffic passing by the site on East Washington Street and another approximately 25 percent of the project's PM peak hour commercial trips would be expected to be captured from existing traffic on Highway 101, as

TABLE 4.13-9 **TRIP GENERATION EAST WASHINGTON PLACE**

		AM Peak Hour Trips				PM Peak Hour Trips			
		Inbound		Outbound		Inbound		Outbound	
Use	Size/ # of Units	Rate	Vol	Rate	Vol	Rate	Vol	Rate	Vol
Commercial									
Shopping Center	298,038 SF	[a]	184	[a]	117	[b]	618	[b]	669
Passby Capture		N/A	0	N/A	0	[c]	-150		-150
Diverted Linked Trip Capture		N/A	0	N/A	0	[c]	-150		-150
Total Net New Trips for Shopping Center			184		117		318		369
Residential									
Condominiums	16 Units	.07[d]	1	0.37[d]	6	0.35[d]	6	0.17[d]	3
Townhouse	211 Units	.07[d]	15	0.37[d]	78	0.35[d]	74	0.17[d]	36
Total Residential Trips	227 Units		16		84		80		39
Grand Total Net New Commercial and Residential Trips			**200**		**201**		**398**		**408**

[a] Ln(T) = 0.60 Ln(X) + 2.29 (61% inbound/39% outbound).

[b] Ln(T) = 0.66 Ln(X) + 3.40 (48% inbound/52% outbound).

[c] Approximately 25% of inbound.

[d] ITE Land Use 230 Residential Condominium/Townhouse Trip Rate Per Dwelling Unit: 0.44 AM trips per dwelling unit (17% inbound, 83 % outbound); 0.52 PM trips per dwelling unit (67% inbound, 33 % outbound).

Source: Development Size: *East Washington Place Site Plan and EIR Project Description*.

Trip Rate Source: *Trip Generation, 7th Edition* by the Institute of Transportation Engineers, 2003.

Passby and diverted linked trip capture for commercial use: *Trip Generation Handbook, 2nd Edition* by the Institute of Transportation Engineers, June 2004, in consideration of ITE equations for Shopping Centers for Gross Leasable Area and Peak Hour Traffic on Adjacent Street.

Compiled by: Crane Transportation Group.

well as on and arterial and collector streets in Petaluma. Figures 4.13-10 and 4.13-11 show the project increment of traffic distributed to the roadway system. The negative numbers indicate a trip having been diverted to the project site. The net new trips associated with the commercial component of the project would total 318 inbound and 369 outbound PM peak hour trips.

The residential portion of the project, comprised of 16 condominiums and 211 townhomes, would be likely to generate 16 inbound and 84 outbound trips during the AM peak hour, and 80 inbound and 39 outbound trips during the PM peak hour.

c. Project Trip Distribution

Project traffic was distributed to the roadway network based upon traffic patterns developed for the citywide traffic model. Table 4.13-10 provides trip distribution percentages for traffic assignment to the roadway system. AM and PM peak hour project traffic is shown distributed to the local roadway network in Figures 4.13-10 and 4.13-11. Figure 4.13-12 presents resultant year 2010 PM peak hour Base Case Plus Project volumes, while Figures 4.13-13 and 4.13-14 present resultant year 2025 AM and PM peak hour Base Case Plus Project volumes.

d. Project Impacts – Year 2010

i. Intersection Level of Service

Table 4.13-3 shows that the proposed project would not produce any significant PM peak hour LOS impacts at any analyzed intersections in the year 2010. Project traffic would not change LOS A, B or C operation at any location to LOS D or poorer operation. In addition, the project would not degrade any unacceptable Base Case LOS D, E or F operation to a poorer LOS. Since *no impacts* were identified, no mitigation is required.

ii. Intersection Signalization Needs

The Lindberg Lane/Payran Street all-way-stop intersection would have year 2010 Base Case PM peak hour volumes exceeding peak hour signal warrant criteria levels. However, the addition of project traffic would not degrade

Figure 4.13-10 AM Peak Hour Project Increment

8.5x11
B&W

Figure 4.13-11 PM Peak Hour Project Increment

8.5x11
B&W

Figure 4.13-12 Year 2010 Base Case + Project PM Peak Hour Volumes

8.5x11
B&W

Figure 4.13-13 2025 Base Case + Project AM Peak Hour Volumes with the Rainier Overcrossing

8.5x11
B&W

Figure 4.13-14 2025 Base Case + Project PM Peak Hour Volumes with the Rainier Overcrossing

8.5x11
B&W

TABLE 4.13-10 **PROJECT TRIP DISTRIBUTION**

	Percent East Washington Place Commercial Development		Percent East Washington Place Residential Development	
Direction	**AM**	**PM**	**AM**	**PM**
Highway 101 North	12	15	14	15
Highway 101 South	7	8	8	7
Lakeville Highway	6	5	5	6
Central Downtown Petaluma and West City of Petaluma	40	35	39	40
East of Highway 101 (via East Washington Street, McDowell Boulevard and Caulfield Lane	30	30	32	28
Local to Project Vicinity Just East of Highway 101	5	7	2	4
Total	100%	100%	100%	100%

Source: Current City-wide Traffic Model, City of Petaluma 2005 and observed traffic patterns.

intersection LOS to an unacceptable level. Since *no impacts* were identified, no mitigation is required.

iii. Vehicle Queuing

Table 4.13-5 shows that 95th percentile year 2010 vehicle queues could be accommodated within available distances between intersections or within the lengths of turn pockets and off-ramps, with the following three exceptions where project traffic would produce a *significant* impact:

PM Peak Hour

- East Washington Street/McDowell Boulevard
  - *Eastbound East Washington Street approach left turn lanes:* Figure 4.13-11 shows that the project would add about 35 PM peak hour vehicles to this turn movement, where Base Case 95th percentile vehicle queues would exceed available storage.
  - *Eastbound East Washington Street approach through lanes:* Figure 4.13-11 shows that the project would add about 25 PM peak hour vehicles to this movement, where Base Case 95th percentile queues would exceed available storage.
- East Washington Street/Highway 101 Southbound Ramps
  - *Westbound East Washington Street approach left turn lane:* Figure 4.13-11 shows that the project would not add traffic to this movement. However, eastbound project traffic would slightly increase Base Case queuing in the westbound left turn pocket, which would already be exceeding the available storage length.

This would be a *significant* impact.

Since the Year 2010 Base Case + project traffic volumes would result in unacceptable 95th percentile queuing on the East Washington Street westbound approach to the Highway 101 southbound on-ramp, the left turn volumes would exceed Caltrans' criteria for provision of a second left turn lane (i.e. more than 300 vph making this turn movement.) Base Case Plus Project 95th percentile queues are projected to be well in excess of available storage in the existing westbound left turn lane. This would be a *significant* impact.

e. Project Impacts – Year 2025

i. Intersection Level of Service

Table 4.13-2 and 3 shows that the proposed project would not produce any significant LOS impacts at any analyzed intersections in the year 2025, with the following exception during the AM and PM peak hour:

- Lakeville Street/Caulfield Lane

The project would add about 52 AM peak hour vehicles and about 119 PM peak hour vehicles to this intersection, which would be experiencing unacceptable Base Case LOS F operation. This would be considered a *significant* impact. Since there is no room to expand this intersection, there are no improvements possible to reduce this impact to a less-than-significant level. This impact would be *significant and unavoidable*.

Project traffic would not change LOS A, B or C operation at any location to LOS D or poorer operation. In addition, the project would not degrade any unacceptable Base Case LOS D or E operation to a poorer LOS.

The comparative analysis of 2005 and 2006 traffic data focused on five intersections along the East Washington Street corridor through the U.S. 101 freeway interchange were compared. The comparison showed that at the five intersections analyzed, there would be no significant impacts to LOS under the 2025 General Plan EIR, above and beyond the 2025 impacts already identified in the initial traffic study. The significant and unavoidable impact at Lakeville Street/Caulfield Lane intersection would be significant and unavoidable under either set of volumes. The full set of results related to this comparative analysis is included in Appendix D of this EIR.

ii. Intersection Signalization Needs

The Lindberg Lane/Payran Street all-way-stop intersection would have Base Case AM and PM peak hour volumes exceeding peak hour signal warrant criteria levels and AM peak hour Base Case operation would be an unacceptable LOS D. However, the addition of project traffic would not increase average vehicle delay by more than five seconds during the AM peak hour and would not degrade PM peak hour operation to an unacceptable LOS. Since *no impact* is identified, no mitigation is required.

iii. Vehicle Queuing

Tables 4.13-4 and 4.13-5 show that 95th percentile year 2025 vehicle queues could be accommodated within available distances between intersections or

within the lengths of turn pockets and off-ramps, with the following exceptions:

AM & PM Peak Hour

- East Washington Street/Highway 101 Southbound Ramps
  - *Westbound East Washington Street approach left turn lane:* Figures 4.13-10 and 4.13-11 show that the project would not add traffic to this movement. However, eastbound project traffic would increase Base Case queuing in the westbound left turn pocket, which already exceeds the available storage length during both the AM and PM peak hours.

PM Peak Hour

- East Washington Street/McDowell Boulevard
  - *Eastbound East Washington Street approach through lanes:* Figure 4.13-11 shows that the project would add about 25 PM peak hour vehicles to this movement where Base Case 95th percentile queues would exceed available storage.

This would be a *significant* impact.

Since the Year 2025 Base Case + project traffic volumes would result in unacceptable 95th percentile queuing on the East Washington Street westbound approach to the Highway 101 southbound on-ramp, the left turn volumes would exceed Caltrans' criteria for provision of a second left turn lane (i.e., more than 300 vph making this turn movement.) Base Case Plus Project 95th percentile queues are projected to be well in excess of available storage in the existing westbound left turn lane. This would be a *significant* impact.

f. Freeway Operation

Table 4.13-11 shows that the project would contribute traffic to freeway segments operating unacceptably at LOS F in 2010 and 2025. This would be considered a *significant* impact. No feasible mitigation measures were identified to reduce the project's contribution to freeway segments operating unacceptably. Thus this impact would be *significant and unavoidable*.

TABLE 4.13-11 **FREEWAY PM PEAK HOUR V/C RATIO AND LOS**

Freeway Segment	Direction	Baseline Volume[a]	Theoretical Capacity[b]	V/C	LOS
2010 Base Case Conditions Plus Project					
Petaluma Blvd. to Lakeville Hwy.	NB	4,572	4,400	1.04	F
	SB	2,993	4,400	0.68	B
Lakeville Hwy. to Washington St.	NB	5,267	4,400	1.20	F
	SB	3,274	4,400	0.74	C
Washington St. to Redwood Hwy.	NB	4,933	4,400	1.12	F
	SB	3,152	4,400	0.72	C
2025 Base Case Conditions Plus Project					
Petaluma Blvd. to Lakeville Hwy.	NB	5,752	5,500	1.05	F
	SB	3,593	5,500	0.65	B
Lakeville Hwy. to Washington St.	NB	6,482	5,500	1.18	F
	SB	3,894	5,500	0.71	C
Washington St. to Redwood Hwy.	NB	6,283	5,500	1.14	F
	SB	4,492	5,500	0.82	D
2010 Base Case Conditions Without Project					
Petaluma Blvd. to Lakeville Hwy.	NB		4,400[c]		F
	SB		4,400		A
Lakeville Hwy. to Washington St.	NB		4,400		F
	SB		4,400		B
Washington St. to Redwood Hwy.	NB		4,400		F
	SB		4,400		B
2025 Base Case Conditions Without Project					
Petaluma Blvd. to Lakeville Hwy.	NB		5,500[c]		F
	SB		5,500		A
Lakeville Hwy. to Washington St.	NB		5,500		F
	SB		5,500		B
Washington St. to Redwood Hwy.	NB		5,500		F
	SB		5,500		B

[a] Caltrans Traffic Volume on California State Highways, 2003.
[b] Assumes freeway capacity of 2,200 vph per lane plus one HOV lane at half capacity of a full lane.
[c] Assumes freeway capacity of 2,200 vph.
Source: CTG amendments to data supplied by Fehr & Peers Traffic Engineers, June 2005.

g. Project Circulation Impacts

An improved Kenilworth Drive would provide access to all areas of the project site and provide an improved roadway connection between East Washington Street and Lindberg Lane. It would have single north and southbound travel lanes, left turn lanes at intersections and bike lanes on both sides of the street. Kenilworth Drive would have curb and gutter on both sides and sidewalks along the project frontage. No direct access to the fairgrounds site would be considered until the fairgrounds is developed (per direction from City staff), thus fencing is assumed to be in place all along Kenilworth Drive at the Fairgrounds property line. The following describes elements of site access along Kenilworth Drive in a north to south sequence and expected impacts.

i. Street oriented retail and swim center access

Vehicles turning right from East Washington Street to Kenilworth Drive would encounter a crosswalk at the north end of Kenilworth Drive linking new 6-foot-wide sidewalks along the south side of East Washington Street. This section of Kenilworth Drive would be about 62 feet wide. A second crosswalk would be provided about 150 feet south of East Washington Street providing pedestrian access between project retail buildings on the east side of the street and the City swim center on the west side of the street. Sidewalks would be provided on both sides of Kenilworth Drive between East Washington Street and Johnson Drive. Kenilworth Drive would narrow to about 50 feet wide just north of its intersection with Johnson Drive. A driveway providing access to the existing swim center would be located 100 feet south of East Washington Street on the west side of the street. Although not specified on the site plan, turns to and from the swim center driveway would be restricted to right turn in/right turn out due to a raised median on Kenilworth Drive. Angled parking would be located on both sides of Kenilworth Drive between East Washington Street and Johnson Drive. Two clusters of parking stalls (11 spaces total) would front the retail buildings on the east side, while two clusters of parking stalls (12 spaces total) would also be provided on the west side of the street adjacent to the swim center. The 12 angled parking

spaces on the west side would be available to both the retail and swim center areas, as would the 11 angled spaces on the opposite side of the street.

Angled parking along a retail street raises safety concerns for conflicts with through traffic. Un-parking maneuvers may not be immediately perceived by drivers of through vehicles, and this can result in abrupt stops for through traffic, increasing the chance of collisions. This is a *significant* impact.

The location of the southernmost angled parking closest to the Kenilworth Drive/Johnson Drive/Shopping Center Driveway intersections raises significant safety concerns. The sight lines for outbound vehicles turning right from the Shopping Center would be limited. Vehicles backing out of these spaces would not be easily seen by vehicles turning right from the shopping center. This is a *significant* impact.

ii. Johnson Drive/Kenilworth Drive/Shopping Center Driveway Intersection
This four-leg intersection would accommodate all turns, and crosswalks would be provided on all approaches. A left turn lane would be provided on the southbound Kenilworth Drive approach to the shopping center driveway opposite Johnson Drive. As proposed, this approximately 90-foot-long lane would accommodate, at most, four cars. This lane must also accommodate all inbound delivery trucks. If volumes increase on Kenilworth Drive beyond projections shown in this EIR traffic analysis, the City may determine that additional left turn lane storage is desirable; however, lengthening the lane more than 25 feet would conflict with the location of the second crosswalk south of East Washington Street. This is not identified as a significant impact; however, it is identified as a site access consideration.

Stop sign control is shown on the east and west intersection approaches only. This raises significant safety concerns for pedestrian crossings to/from the shopping center at this intersection. This would be a *significant* impact.

iii. Kenilworth Drive Between East Washington Street and Johnson Drive

There would be significant concerns for pedestrian safety at the Kenilworth crosswalk adjacent to East Washington Street as well as at the crosswalk located 100 feet south of East Washington Street. Vehicle speeds would tend to be higher than safe through this section (i.e. vehicles turning right from East Washington Street would slow on the turn, but would need to immediately perceive the need to maintain a slow speed in order to maximize safety through this segment of the project area which is designed to accommodate pedestrian and bicycle activity between the shopping center, its street oriented retail and the swim center). This would be considered a *significant* impact.

iv. East Washington Street/Kenilworth Drive Intersection

Two outbound right turn lanes are proposed on the northbound Kenilworth Drive stop sign controlled approach to the East Washington Street intersection. This would allow two outbound vehicles to turn simultaneously onto East Washington Street.

Vehicles turning right in the outside lane could block sight lines for the inside right-turning vehicle and for bikes in the bike lane, and simultaneous maneuvers could limit the options for the inside vehicle, forcing the vehicle onto Highway 101 southbound on-ramp. This raises a significant safety concern and is a *significant* impact.

v. Kenilworth Drive shopping Center Driveways South of the Johnson Drive Intersection

Three additional Kenilworth Drive shopping center driveways are proposed south of Johnson Drive. All three are shown to have stop sign control on the Kenilworth Drive southbound approaches, and two are shown to also have stop sign control on the shopping center outbound approaches. There is no stop sign control on the shopping center approach to the northernmost of these driveways, and there are no stop signs on the northbound approaches to any of these intersections.

The lack of a consistent and logical plan of stop sign placement raises significant safety concerns. This would be considered a *significant* impact.

Separate left turn lanes would be provided on the Kenilworth Drive approaches to Johnson Drive (northbound and southbound) and the commercial center driveways (southbound only). The proposed 41-foot width of Kenilworth Drive south of Johnson Drive fronting the shopping center (i.e. two 5-foot-wide bike lanes, two 10-foot-wide through lanes, an 11-foot-wide left turn lane and no on-street parking), is consistent with City code standards.

vi. Shopping Center Parking Aisles

Shopping center parking aisle dimensions (i.e. lot dimension layouts, specifically, aisle widths, and backing aisle lengths) meet or exceed City code standards and thus there would be *no impact*.

vii. Shopping Center Parking Lot Layout

All driveways and parking aisles would accommodate two-way traffic flow. Parking lots would be at-grade with 90-degree parking stalls throughout the majority of the site. Clusters of 45-degree spaces are shown in the parking aisle (adjacent to the residential units) at the south end of the center. The width of the parking aisle serving these angled spaces conforms to City code, and thus there would be *no impact*.

viii. Truck Access to Loading Docks

Truck access to loading docks serving the shopping center would require that trucks enter the site at the northernmost Kenilworth Drive access driveway and circulate through the site by first proceeding eastbound to the aisle in front of the stores. Trucks would then turn left to travel north and proceed around the north and east perimeters of the site to loading docks and service areas located on the east side of the buildings. Egress would require a turnaround in the service area and exit via the reverse route of entry. Turning templates provided on the site plan demonstrate that large truck turning movements could be accommodated. Thus there would be *no impact*.

ix. Number of Loading Berths

The project would not provide a sufficient number of loading berths to meet City code. This non-compliance with code would be considered a *significant* impact, depending upon the delivery demands of the actual commercial uses that would eventually occupy the site.

x. Johnson Drive/Fairgrounds/City Swim Center, Skate Park, Park and Ride Lot Driveway Access Intersection

This intersection would be located on the inside of a 90-degree curve of Johnson Drive. It would provide a reconfigured access to the Fairgrounds, City swim center, skate park, and park and ride parking lot. This four-leg intersection is proposed to accommodate all turns, and crosswalks would be provided on all but the Johnson Drive east leg.

Swim center outbound vehicles turning onto Johnson Drive would have difficulty seeing and being seen by Johnson Drive through traffic. This is a *significant* impact.

xi. Kenilworth Drive Serving the Residential Area

Kenilworth Drive would be the only through street in the residential area. South of the shopping center Kenilworth Drive would be 38 to 46 feet wide, providing two through travel lanes, bike lanes and parallel parking along one or both sides of the street adjacent to project frontages. These roadway widths comply with City code. Crosswalks would be provided at each residential street intersection. The combination of 11 foot wide travel lanes with on-street parking and frequent crosswalks would be expected to slow through traffic. One cluster of 90-degree parking would be provided on the east side of Kenilworth Drive adjacent a small common area (park) located at the extreme south end of the development. Thus there would be *no impact*.

xii. Residential Streets

The residential portion of the project site is located south of the shopping center, with the majority of the area on the east side of Kenilworth Drive. It is proposed to be served by 24-foot-wide north-south streets with 18-foot-

long, 90-degree parking on one side (Gala Drive and Melon Way) and 24-foot wide east-west streets (Orange Alley, Winesap Way, Date Way, Crenshaw Court, Cantalope Court, Casaba Court and Grape Court). Cantalope and Casaba courts would serve development on both the east and west sides of the roadway, while Crenshaw and Grape courts would serve the west side housing, only. The 24-foot-wide roadways would not accommodate on-street parallel parking, and would require red-curbing and posting "no on-street parking."

The absence of notes on the site plan regarding the necessity of red-curbing and posting "no on-street parking" signs is considered a *significant* impact.

h. Parking Impacts

i. On-Site Parking

The proposed parking supply for the Shopping Center (285,098 square feet of retail space, as shown on the site plan) is 1,256 parking spaces. This is a ratio of 4.4 spaces per 1,000 square feet of retail space. City code requires 1 space per 300 square feet of retail floor area, or a ratio of 3.33 spaces per 1,000 square feet of floor area. The City code requirement for the Shopping Center would equate to 950 parking spaces and thus the project exceeds City code for commercial parking. If the project did occur at the maximum allowed square footage of 298,038, the City's parking ratio would not be exceeded, even if no additional parking spaces were provided along with the additional square footage.

The 227 residential units would provide 571 parking spaces, or 2.5 spaces per dwelling unit. Section 20-300 of the City's Zoning Ordinance requires one covered and two additional off-street parking spaces for each single-family residence (including attached condominiums and townhouses). Applying the City's rate of 3 spaces per dwelling unit, the residential portion of the project would require 681 parking spaces. The proposed parking for the project would provide about 84 percent of required parking per application of City code.

In order to demonstrate the adequacy of the parking proposed for this development, the applicant (Pulte Homes) has provided data for minimum residential parking requirements for multi-family housing employed by 48 communities in the San Francisco Bay Area. For purposes of comparison, required off-street parking, including guest parking, was calculated for a hypothetical 100-unit development consisting of 10 studios, 40 one-bedroom units, 40 two-bedroom units, and 10 three-bedroom units. The data show that the highest requirement for spaces per unit for all cities in the survey was 2.5 spaces per unit (required by the Town of Los Gatos), while the least requirement was one space per unit (required by the City of Berkeley). The 2.5 spaces per unit ratio is the ratio proposed by the applicant. Based upon the survey data, 2.5 spaces per unit is considered adequate and parking impacts on-site would be *less than significant*.

Parking for the commercial component of the condominium units would be within the shopping center parcel, and not a legal part of the residential parcel. The site plan shows parking for the commercial component of the condominium units (C1 through C4) to be outside the residential parcel. The residential and commercial portions of the site are not in common ownership, thus there is concern that parking for the commercial component of condominium units might be at risk. This is considered a legal issue, to be handled through the language in the deed for these properties (title agreements).

ii. Bicycle Parking

The Petaluma Bike Plan requires a ratio of bicycle spaces equivalent to 10 percent of all auto spaces in commercial areas. Of this parking, 60 percent shall be long term (in bicycle lockers, covered or indoor facilities) while 40 percent are to be short term bicycle parking (racks). A total of 57 long-term and 38 short term bicycle parking spaces should be provided on the project site. Site plans do not specify bicycle parking. This is a *significant* impact.

iii. Swim Center and Skate Park Parking Supply

The site plan shows relocation of the park and ride lot adjacent (east of) Johnson Drive and reconfiguration of East Washington Street and Johnson Drive

in relation to the swim center and skate park. The result would be to remove the 21-space skate park parking area and reconfigure the existing 17-parking spaces adjacent to the swim center to provide 18 spaces. The loss of parking to the skate park, parking also used by the swim center when needed, would be a *significant* impact.

The reconfiguration of Johnson Drive would also result in the loss of parking spaces in Lot B of the fairgrounds property. However, the applicant has entered into an agreement, dated June 17, 2004, with the City of Petaluma. As a part of this agreement, the applicant would not be allowed to acquire the easement for Johnson Drive without out paving additional area on the fairgrounds property to replace the lost parking spaces, or allowing for the use of the retail parking spaces for special activities to off-set the loss of the parking spaces.[4] As a result, since the applicant would be required to replace any lost parking spaces on the fairground property as a result of the Johnson Drive realignment, this *would not* result in significant impact.

i. On-Site Pedestrian and Bicycle Circulation Impacts

The project proposes sidewalks along East Washington Street and Kenilworth project frontages. Sidewalks would be provided along the Kenilworth Drive fronting the shopping center and residential streets, and pathways and "paseos" (elevated walkways between townhouse and rowhouse units) would be provided throughout the residential development. A greenway with pedestrian pathways would connect the residential and commercial areas of the project. New sidewalks would be provided along a widened East Washington Street from Johnson Drive to the Highway 101 southbound on-ramp intersection, and along Johnson Drive fronting the swim center and skate park. Crosswalks would be provided at intervals all along Kenilworth Drive. Concerns over the need for visually prominent crosswalks are detailed in the description of internal circulation, and mitigation measures have been provided which would result in impacts being reduced to less-than-significant levels.

[4] City of Petaluma, Option Agreement between the City of Petaluma and Regency Petaluma LLC, dated June 17, 2004. Section 2.c(ii).

Skate park users are prohibited by ordinance from using skate boards on City streets or sidewalks (City of Petaluma Ordinance 1707, January 21, 1988), and thus would be accommodated by pedestrian facilities to and from the skate park.

City Street Design and Construction Standards require 5-foot-wide sidewalks, thus, the proposed 4-foot-wide sidewalks do not meet the City standard. This would be considered a *significant* impact.

The site plan shows the existing pedestrian bridge providing access to and from neighborhoods east of Highway 101 connecting to an 8-foot-wide bicycle/pedestrian pathway on the site. The pedestrian pathway would provide access to both the commercial and residential areas of the site. The public access easement that currently crosses the site between the western side of the overpass and Kenilworth Drive would be removed.

Bicycle lanes would be provided on both sides of Kenilworth Drive and Johnson Drive. Northbound bicycles turning right from Kenilworth Drive to travel eastbound on East Washington Street, or eastbound bicycles on East Washington Street turning right into the project site, could use the eastbound bike lane proposed as part of the project's East Washington Street improvements. Eastbound and westbound bicycle access would be possible via bike lanes proposed on Johnson Drive. There would be *no impact* associated with on-site bicycle circulation.

j. Kenilworth Drive Design Impacts

Concerns have been expressed that Kenilworth Drive would be used as a cut-through route for drivers wishing to avoid congestion on East Washington Street. The project applicants state that their intention is to design Kenilworth Drive as a slow-speed, pedestrian-oriented roadway with traffic calming elements such as frequent stop sign controls, crosswalks, bike lanes and on-street, parallel parking (residential area only). However, provisions of too many stop sign controlled intersections particularly at locations not warranted, can create situations where drivers don't pay attention to fully stop-

ping at any locations. In addition, the extra pavement width provided for bike lanes would tend to increase speeds, not reduce vehicle speed. This would be considered a *significant* impact.

Mitigation measures recommended for other impacts in Section E below, such as raised intersections and raised crosswalks, would be effective traffic calming devices if incorporated into the site plans. The proposed design with mitigations as recommended in this EIR, would be expected to discourage use of this roadway for cut-through traffic on East Washington Street. Roadways such as Lakeville and Payran Streets would better serve through-traffic. Furthermore, by the time a driver on eastbound East Washington Street reaches Johnson Drive or Kenilworth Lane, most of the slow progression of travel on East Washington Street would have been endured.

k. Emergency Vehicle Access Impacts

The site plan has been reviewed by the City Fire Department, resulting in concerns expressed regarding the need for direct emergency vehicle access between Kenilworth Drive and Apple Alley (the northernmost residential roadway serving housing units adjacent to the commercial center). This is considered a *significant safety concern*.

l. Construction Traffic Impacts

The project would add construction traffic to East Washington Street, Lindberg Lane, Lakeville Street and other roadways serving the project site, raising concerns about pavement damage on affected roads and disruptions to the flow of peak hour traffic. Construction traffic would initially consist of construction workers, haul trucks, and earthmoving equipment associated with initial site grading as well as construction of the onsite roads and infrastructure. The next phase of construction would result in truck trips for delivery of building materials. The number of construction worker trips would vary depending upon the phase of development. Typical vehicle equipment used would include bulldozers, cement mixers, construction trailers, cranes, and material delivery trucks.

Construction activity would have the potential to intermittently delay local traffic along East Washington Street, Lakeville Street, Lindberg Lane and other affected streets, and repeated trips by heavy vehicles could degrade the condition of the roadbeds. These would be considered a *significant* impact.

Construction activity would also have the potential to impede pedestrian access through the site, to and from the pedestrian bridge. This would be considered a *significant* impact.

m. Conformance with Adopted Policies, Plans or Programs Supporting Alternative Transportation

The project site has nearby transit facilities and provides for bicycle and pedestrian access throughout the site. The plan will need to provide adequate bicycle parking (see item h.(ii), Bicycle Parking), but otherwise is considered to be in conformance with adopted policies, plans and programs supporting alternative transportation.

2. Cumulative Impacts

As explained in Section 4.0 (Environmental Evaluation), 2010 + Project represent the base year for the cumulative analysis, when it is anticipated that the proposed project and the cumulative projects (Appendix C) would be fully constructed and operational.

The analysis above for 2010 and 2025+Project above addresses cumulative impacts to the regional transportation system. The analysis and its conclusions are based on the assumption that the proposed project and the City's planned and approved projects listed in Appendix C would be fully operational. As explained earlier in this section, the proposed project in 2010 and 2025, in combination with cumulative projects, will contribute to significant impacts to operations at local intersections, and on Highway 101. As discussed in detail below, while most of the potential impacts can be mitigated to a less-than-significant level, impacts to Lakeville Street/Caulfield Lane intersection and Highway 101 would remain significant and unavoidable.

Non-traffic and on-site circulation impacts would not contribute to a cumulative impact since they are site specific and would be mitigated by the project and other projects within the region on a site specific basis. As a result, no additional cumulative impact, other than those identified above, would occur.

E. Impacts and Mitigation Measures

Impact TRA-1: 95th percentile year 2010 vehicle queues could be accommodated within available distances between intersections or within the lengths of turn pockets and off-ramps, with the following three exceptions where PM peak hour project traffic would produce a *significant* impact.

- East Washington Street/McDowell Boulevard:
  - Eastbound East Washington Street approach left turn lanes
  - Eastbound East Washington Street approach through lanes
- East Washington Street/Highway 101 Southbound Ramps:
  - Westbound East Washington Street approach left turn lane

Mitigation Measure TRA-1a: Implement the following improvements to the East Washington Street/McDowell Boulevard intersection:

- *Eastbound left turn lanes:* The applicant should request that the City conduct signal timing adjustments, and should be responsible for any costs incurred by the City in this process. The resultant 95th percentile queue per lane would be 308 feet (with a Base Case queue of 331 feet). Resultant intersection operation would be LOS D with 49.1 seconds of average vehicle delay.
- *Eastbound through lanes:* The applicant should request that the City conduct signal timing adjustments, and should be responsible for any costs incurred by the City in this process. The resultant 95th percentile queue per lane would be 613 feet (with a Base Case queue of 620 feet).

Mitigation Measure TRA-1b: Implement the following improvements to the East Washington Street/Highway 101 Southbound Ramps intersection:

- *Westbound left turn lane:* The applicant should request that the City conduct signal timing adjustments, and should be responsible for any costs incurred by the City in this process. The resultant 95th percentile queue would be shorter than Base Case conditions.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-2: The proposed project would add about 52 AM peak hour vehicles to the Lakeville Street/Caulfield Lane intersection in the year 2025. This would be a *significant* LOS impact.

Mitigation Measure TRA-2: There is no room to expand this intersection, thus there are no improvements possible to reduce this impact to a less-than-significant level.

Significance After Mitigation**:** *Significant and unavoidable.*

Impact TRA-3: 95th percentile year 2025 vehicle queues could not be accommodated within available distances between intersections or within the lengths of turn pockets and off-ramps for the following intersections:

AM & PM Peak Hour

- East Washington Street/Highway 101 Southbound Ramps
  - Westbound East Washington Street approach left turn lane

PM Peak Hour

- East Washington Street/McDowell Boulevard
  - Eastbound East Washington Street approach through lanes

This would be a *significant* impact.

Mitigation Measure TRA-3a: Implement the following improvements to the East Washington Street/Highway 101 Southbound Ramps intersection:

- *Westbound left turn lane:* Adjust signal timing. The resultant 95th percentile queue would be shorter than Base Case conditions during both the AM and PM peak hours.

Mitigation Measure TRA-3b: Implement the following improvements to the East Washington Street/McDowell Boulevard intersection:

- *Eastbound through lanes:* Adjust signal timing. The resultant 95th percentile queue per lane would be 631 feet (with a Base Case queue of 636 feet). Resultant intersection operation would be LOS D with 47.9 seconds average of vehicle delay, which would also be better than Base Case operation.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-4: *Queuing capacity.* Year 2010 and 2025 Base Case Plus project traffic volumes would result in unacceptable 95th percentile queuing on the East Washington Street westbound approach to the Highway 101 southbound on-ramp. Left turn volumes would exceed Caltrans' criteria for provision of a second left turn lane (i.e. more than 300 vph making this turn movement.) This would be a *significant* impact.

Mitigation Measure TRA-4: The project site plan should be revised to provide adequate right-of-way in order to allow the ultimate provision of a second left turn lane on the East Washington Street westbound approach to the Highway 101 southbound on-ramp, as well as to provide realignment of the on-ramp to accommodate movements from the two left turn lanes.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-5: *Freeway operations.* The project would contribute traffic to freeway segments operating unacceptably at LOS F in 2010 and 2025. This would be a *significant* impact.

Mitigation Measure TRA-5: No feasible mitigation measures were identified to reduce the project's contribution to freeway segments operating unacceptably.

Significance After Mitigation**:** *Significant and unavoidable*

Impact TRA-6: *Street-oriented retail and swim center access.* Angled parking along a retail street raises significant safety concerns for conflicts with through-traffic. If unparking maneuvers are not immediately perceived by drivers of through-vehicles, abrupt stops can result for through-traffic, increasing the chance of collisions. This would be a *significant* impact.

Mitigation Measure TRA-6: Omit angled parking spaces along Kenilworth Drive.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-7: *Johnson Drive/Kenilworth Drive/Shopping Center Driveway intersection.* Stop sign control is shown on the east and west intersection approaches only. This raises a significant safety concern for pedestrian crossings to/from the shopping center at this intersection. This would be a *significant* impact.

Mitigation Measure TRA-7: Provide all-way stop control at the Johnson Drive/Kenilworth Drive/Shopping Center Driveway intersection.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-8: *Kenilworth Drive between East Washington Street and Johnson Drive.* There would be significant concerns for pedestrian safety at the Ken-

ilworth crosswalk adjacent to East Washington Street as well as at the crosswalk located 100 feet south of East Washington Street. Vehicle speeds would tend to be higher than safe through this section (i.e. vehicles turning right from East Washington Street would slow on the turn, but would need to immediately perceive the need to maintain a slow speed in order to maximize safety through this segment of the project area which is designed to accommodate pedestrian and bicycle activity between the shopping center, its street oriented retail and the swim center). This would be a *significant* impact.

Mitigation Measure TRA-8: Provide prominent crosswalk markings and cautionary signage to alert drivers and bike riders to pedestrians on Kenilworth Drive. Consider provision of a raised intersection at Johnson Drive/Kenilworth Drive to help slow traffic. Consider in-pavement lighting to preserve the visual prominence of crosswalks at night.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-9: *East Washington Street/Kenilworth Drive Intersection.* Two outbound right turn lanes are proposed on the northbound Kenilworth Drive stop sign controlled approach to the East Washington Street intersection. This would allow two outbound vehicles to turn simultaneously onto East Washington Street. However, the outside right-turning vehicles could block sight lines for the inside right-turning vehicle and for bikes in the bike lane, and simultaneous maneuvers could limit the options for the inside vehicle, forcing the vehicle onto the Highway 101 southbound on-ramp. This raises a safety concern and would be a *significant* impact.

Mitigation Measure TRA-9: Provide a single northbound right turn lane from Kenilworth Drive to East Washington Street.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-10: *Kenilworth Drive shopping center driveways south of the Johnson Drive intersection*. The lack of a consistent and logical plan of stop sign placement raises safety concerns. This would be a *significant* impact.

Mitigation Measure TRA-10: Provide stop signs on all outbound shopping center driveway approaches to Kenilworth Drive. The project applicant should request that the City Public Works Department periodically monitor traffic volumes at intersections along Kenilworth Drive, and provide all-way stop control if, and when warranted at possibly one location other than Johnson Drive. Monitoring should take place at a schedule agreeable to the City Traffic Engineer and the applicant should pay the cost of this service as well as the cost for placement of signage, as determined by the City traffic engineer. Slow traffic along Kenilworth Drive by use of raised crosswalks (if emergency services agree) rather than placement of stop signs, or by raising the entire intersection to create a speed table to reduce the speed of through-traffic.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-11: *Number of loading berths.* The project would not provide a sufficient number of loading berths to meet City code. This is considered a *significant* impact, depending upon the delivery demands of the actual commercial uses that would eventually occupy the site.

Mitigation Measure TRA-11: At the time of its design review submittal, the applicants should provide survey data from a minimum of three similar size shopping centers (with the same major tenants) to support the reduction of loading berths. If data support the reduced number of berths, the city should consider allowing this non-compliance with code. If the data do not support the proposed reductions, the number of loading berths should be increased to comply with City code.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-12: *Johnson Drive/fairgrounds/city swim center, skate park, park and ride lot driveway access intersection.* City swim center, skate park, park and ride lot outbound vehicles turning onto Johnson Drive would have difficulty seeing and being seen by Johnson Drive through traffic. This would be a *significant* impact.

Mitigation Measure TRA-12: Provide stop control on all approaches to this intersection, with the exception of eastbound Johnson Drive through traffic (i.e. stop sign control the swim center outbound approach, the Johnson Drive westbound approach, the Fairgrounds northbound approach and the Johnson Drive eastbound left turn lane at this intersection). This would allow all vehicles on the intersection approaches to see and be seen, and would not back up inbound through traffic on Johnson Drive. Omit the pedestrian crosswalk at this intersection and direct pedestrians to nearby intersections.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-13: *Residential streets.* The absence of notes on the site plan regarding the necessity of red-curbing and posting "no on-street (parallel) parking" signs is considered a *significant* impact.

Mitigation Measure TRA-13: Provide notes on the site plan to insure red-curbing and posting "no on-street (parallel) parking" signs on all 24-foot-wide residential streets.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-14: *Bicycle parking*. The proposed project site plans do not specify bicycle parking and thus do not comply with the Petaluma Bike Plan requirements for bicycle parking. This would be a *significant* impact.

Mitigation Measure TRA-14: Bicycle parking plans and specifications should be provided in compliance with City code. To comply, a total of

57 long-term and 38 short-term bicycle parking spaces should be provided on the project site. If the project is increased to allow for the maximum square footage of 298,038, the required bicycle parking spaces will be increased to comply with City code.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-15: *Swim center and skate park parking supply.* The proposed project would result in the removal of 21 parking spaces in the skate park parking area and the reconfiguration of the existing 17 parking spaces adjacent the swim center to provide 18 spaces. The loss of parking to the skate park would be a *significant* impact.

Mitigation Measure TRA-15: A feasible mitigation was identified to replace the net loss of 20 spaces at the skate park and swim center, which included a reciprocal parking agreement between the shopping center and the pool/skate park, however the project applicant opted not to pursue such an agreement.

Significance After Mitigation: This would remain as a s*ignificant and unavoidable* impact.

Impact TRA-16: City Street Design and Construction Standards require 5-foot-wide sidewalks, thus, the proposed 4-foot-wide sidewalks do not meet the City standard. This would be considered a *significant* impact.

Mitigation Measure TRA-16: Widen sidewalks to 5 feet.

Significance After Mitigation: *Less than significant.*

Impact TRA-17: K*enilworth Drive as a cut-through route.* The proposed project, as designed, has the potential to result in the use of Kenilworth Drive as a cut-through route for drivers wishing to avoid congestion on East Washington Street. This would be a *significant* impact.

Mitigation Measure TRA-17: Implementation of Mitigation Measures TRA-8 and TRA-10.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-18: *Emergency access.* The site plan has been reviewed by the City Fire Department, resulting in concerns expressed regarding the need for direct emergency vehicle access between Kenilworth Drive and Apple Alley (the northernmost residential roadway serving housing units adjacent to the commercial center). This is considered a *significant safety concern*.

Mitigation Measure TRA-18: The project sponsor should be responsible for ensuring that the final project plan is reviewed by the City Fire Department and that emergency vehicle access from Apple Alley through to Kenilworth Drive, and in other locations as directed, complies with the requirements of the Petaluma Fire Department.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-19: *Construction traffic.* The project would add construction traffic to East Washington Street, Lindberg Lane, Lakeville Street and other roadways serving the project site, raising concerns about pavement damage on affected roads and disruptions to the flow of peak hour traffic. This would be a *significant* impact.

Mitigation Measure TRA-19: Prior to construction, the project sponsor should be responsible for developing a construction traffic control plan and roadway (pavement) mitigation plan. The plan should be submitted to the City Traffic Engineer for review and approval prior to construction. The following elements should be included in the plan:

- Obtain approval for construction truck haul routes and establish hours for project construction traffic that don't significantly impact

local commute traffic. Construction delivery routes should be approved by the City of Petaluma.

- Include provisions in contractors' construction contracts to prohibit parking of construction vehicles anywhere other than on-site.
- The City Traffic Engineer should complete a before and after (construction) evaluation to determine if project-generated truck traffic results in substantial pavement deterioration. In cooperation with the City of Petaluma, the applicant should, if necessary, fund repairs to any deteriorated pavement along affected roadways.

Significance After Mitigation**:** *Less than significant*.

Impact TRA-20: *Construction traffic impact to pedestrian access through the site.* Construction activity would have the potential to impede pedestrian access through the site, to and from the pedestrian bridge. This would be considered a *significant* impact.

Mitigation Measure TRAF-20: Throughout construction a pedestrian accessway should be maintained and kept separate from construction vehicle activity. This could be accomplished with movable bollards or rail fencing and signage directing pedestrians through the site.

Significance After Mitigation**:** *Less than significant*.