

CITY OF LARKSPUR, CALIFORNIA GENERAL PLAN

CHAPTER 4, CIRCULATION

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Chapter 4. Circulation

This chapter describes the existing circulation system and travel characteristics in and around the City of Larkspur. It also projects future demand for travel, based on "build-out" of the Land Use Plan and the anticipated circulation deficiencies that would result, and suggests potential ways to alleviate these inadequacies. At the conclusion, these technical analyses are brought together with practical community needs and desires, and presented as the Circulation Goals, Policies, and Programs.

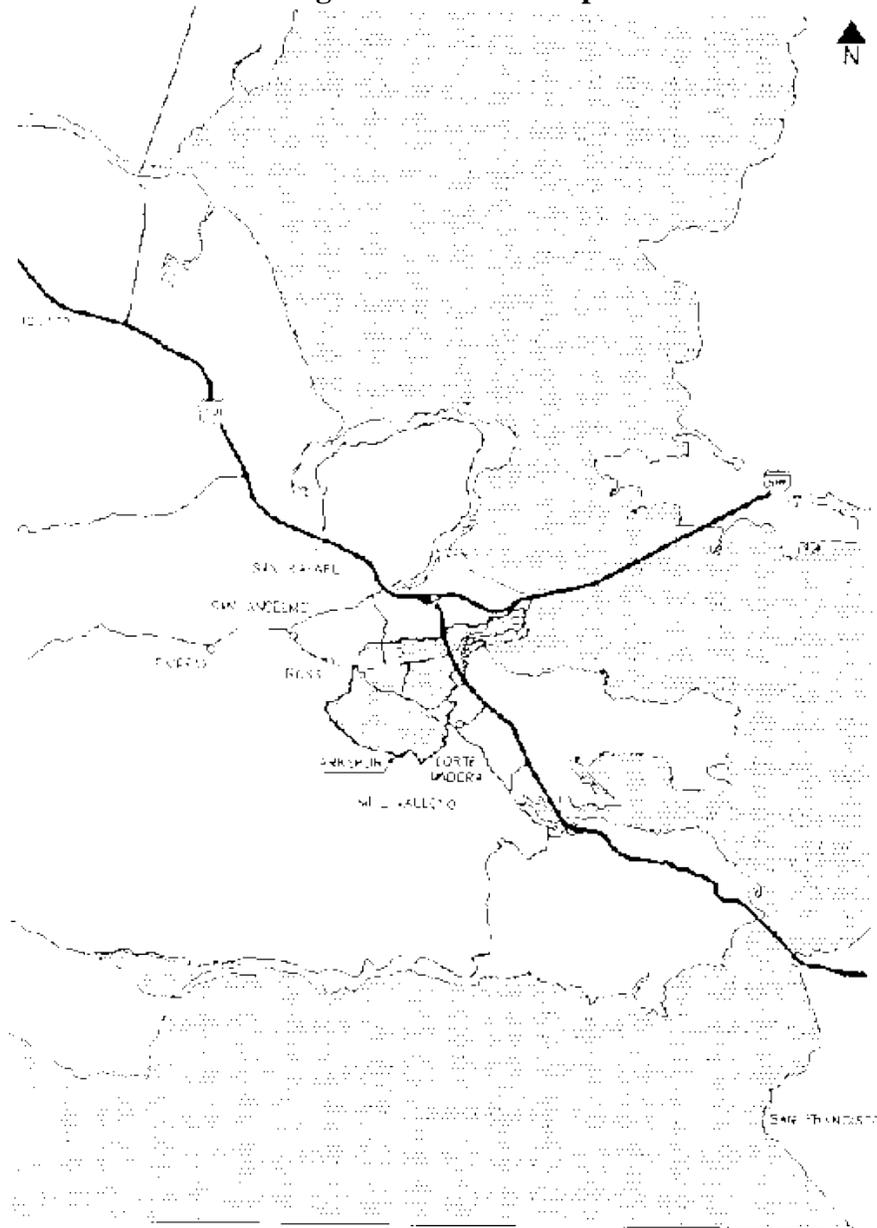
Figure 4-1 (next page) shows Larkspur's relationship to the regional circulation system. Circulation in the city and its Sphere of Influence (which includes the unincorporated areas of Greenbrae and Kentfield) is heavily influenced by its location at the junction of U.S. Highway 101 (the north-south spine of eastern Marin County) and Sir Francis Drake Boulevard, the only east-west roadway that completely spans the county. As a result, the city is traversed by many "through" travelers.

Travelers move about Larkspur in a number of ways: roadways, fixed route local and commuter bus transit, airport feeder service (to San Francisco International), ferry service, para-transit, taxi, and bicycle, pedestrian, and equestrian paths. The 1980 census provides some insight into how Larkspur's citizens travel to work. Although home-to-work trips are only one element of the traffic flow, they make up a large portion of peak hour traffic the time when most congestion occurs (see Figure 4-2). Most Larkspur citizens either drive to work alone (58 percent) or share a ride (15.6 percent), for a total of almost three-quarters of commuters. Close to 17 percent took transit, and the remaining 10 percent used others methods, such as walking, bicycling, or motorcycling, or stayed at home.

It is also interesting to see where people work (see Figure 4-3). Almost equal

numbers of people work in Marin County (46.6 percent) and San Francisco (46.3 percent). About 12 percent live and work in Larkspur. Smaller percentages work in other counties in the Bay Area.

**Figure 4-1
Regional Location Map**



**Figure 4-2
Mode of Travel To and From Work,
Larkspur Residents, 1980 Census**
[to be inserted]

**Figure 4-3
Location of Work Place,
Larkspur Residents, 1980 Census**
[to be inserted]

ROADWAY CIRCULATION

Larkspur is served by three main traffic arterials which carry both local and through traffic (see Figure 4-4):

- Sir Francis Drake Boulevard;
- Corte Madera Avenue, Magnolia Avenue, and College Avenue; and
- Doherty Drive.

In addition, Highway 101 provides regional access. Other roads also serve important circulation functions in Larkspur:

- Bon Air Road, which connects Sir Francis Drake Boulevard to Magnolia Avenue.
- Wolfe Grade, which provides access to D street in San Rafael from Sir Francis Drake Boulevard.
- Madrone Avenue, a collector serving the area west of Magnolia, south of Downtown.
- Redwood Highway, which parallels Highway 101 in the vicinity of the Lucky Drive/ Industrial Way interchange.

Other roadways in Larkspur provide local access to property. Although these are important, the main focus of the General Plan is on roads of city-wide significance.

Circulation options in the Larkspur area are relatively constrained. First, there are only the three through-corridors described above. Virtually all trips made in Larkspur travel on one or more of these roads. Second, there are only three crossings of Corte Madera Creek: one at College Avenue, another at Bon Air Road, and the third at Highway 101. Quite a bit of local travel uses the freeway just to get over Corte Madera Creek.

How Congested Are the Roads?

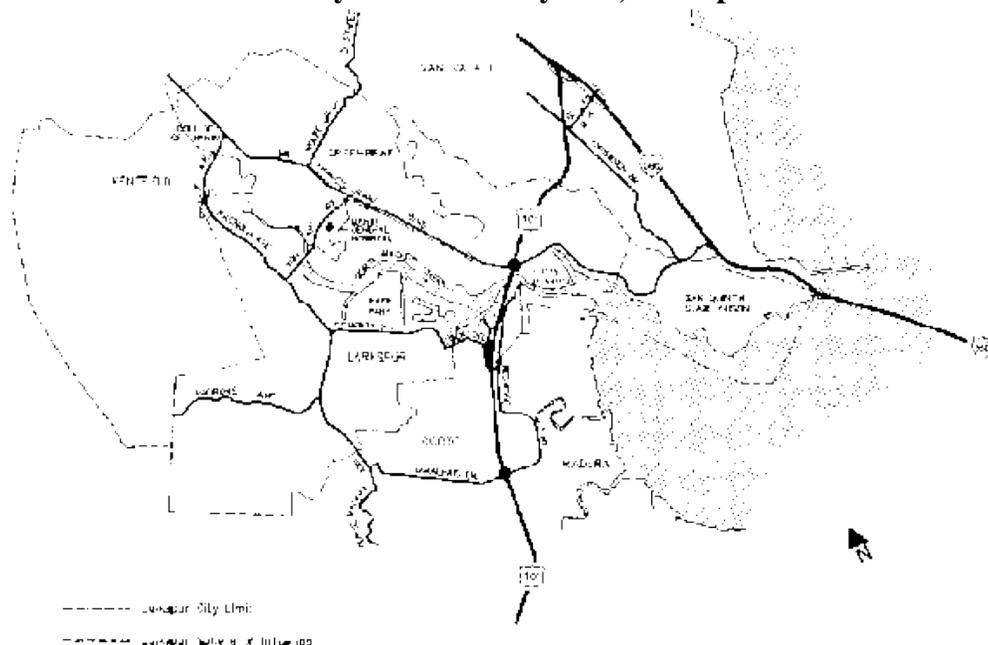
Traffic flow in urban settings is usually constrained by the manner in which traffic passes through intersections. Other factors that can reduce the ability of a roadway to handle traffic flow relate to frequency of driveway access, width of the roadway, and grade. Considering these characteristics of urban traffic flow, a measurement technique known as "Level of Service" is used by transportation engineers to compare conditions.

The Level of Service Concept

The Level of Service analysis results in a letter grade for each intersection studied, from A through F, with A being free flow with insignificant delays, to F, which is a gridlock condition. As part of its Circulation Assessment Permit (CAP) ordinance, the City of Larkspur has implemented a policy that intersections should not be worse than Level of Service (LOS) D during peak periods. However, some intersections on Sir Francis Drake Boulevard are operating at LOS E during peak periods.

Different techniques are used to evaluate Level of Service depending on the type of control at the intersection.

**Figure 4-4
Primary Circulation System, Larkspur**



**Figure 4-5
Level of Service Definitions, Signalized Intersections**

<u>Level of Service</u>	<u>Vehicle Delay Seconds</u>	<u>Volume to Capacity Ratio</u>	<u>Description</u>
A	≤5.00	0.00-0.59	Free Flow, Insignificant Delays: No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.
B	5.1-15.0	0.60-0.69	Stable Operation, Minimal Delays: An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles.
C	15.1-25.0	0.70-0.79	Stable Operation, Acceptable Delays: Major approach phases fully utilized. Most drivers feel somewhat restricted.
D	25.1-40.0	0.80-0.89	Approaching Unstable, Tolerable Delays: Drivers may have to wait through more than one red signal indication. Queues may develop but dissipate rapidly, without excessive delays.
E	40.1-60.0	0.90-0.99	Unstable Operation, Significant Delays: Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection.
F	≥60.0	N/A	Forced Flow, Excessive Delays: Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections.

Source: *Highway Capacity Manual*, Special Report No. 209, Transportation Research Board, Washington, D.C., 1985.

Figure 4-6
Level of Service Definitions, Unsignalized Intersections

<u>Level of Service</u>	<u>Expected Delay</u>	<u>Reserve Capacity (Vehicles/Hour)</u>
A	Little or no delay	≤400
B	Short traffic delay	300-399
C	Average traffic delays	200-299
D	Long traffic delays	100-199
E	Very long traffic delays	0-99
F	Extreme delays potentially affecting other traffic movements in the intersection	≤0

Source: *Highway Capacity Manual*, Special Report No. 209, Transportation Research Board, Washington, D.C., 1985.

- *Signalized Intersections.* At signalized intersections, an overall relationship of the volume using the intersection to its capacity is translated into the Level of Service grade. Figure 4-5 (preceding page) provides definitions of each of the Level of Service grades, and their corresponding volume-to-capacity (V/C) ratio. The Level of Service D threshold is represented by a V/C ratio of between 0.80 and 0.89.
- *Unsignalized Intersections (Minor Street Stop).* For unsignalized intersections where stop control is provided on the minor street only (e.g., Magnolia Avenue intersection with William Avenue), each traffic movement that must yield to another movement is given a letter grade, based on the availability of gaps in the conflicting traffic flow to make the turn. Usually, the left-turning traffic from the minor street (e.g., William Avenue) onto the major street (e.g., Magnolia Avenue) has the worst Level of Service. Figure 4-6 on the preceding page summarizes the Level of Service definitions for two-way stop-controlled intersections. It should be noted that this type of intersection may generally operate with little delay, but left-turning traffic from the minor street could have difficulty finding a gap in the traffic flow on the major street, resulting in an "F" grade.
- *Unsignalized Intersections (All-way Stop).* For unsignalized intersections with all-way stop control (e.g., Magnolia Avenue at King Street), an overall Level of Service indication for the intersection is possible, based on the relationship of volume to overall capacity. However, it is only possible to determine whether the intersection is better or worse than LOS C.

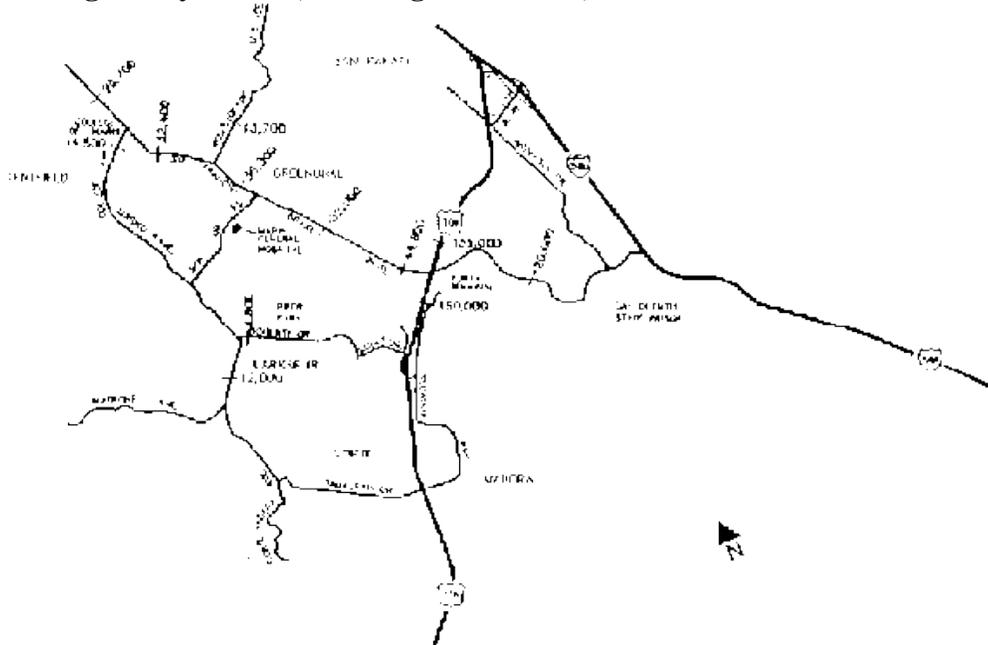
Note that it is not appropriate or possible to directly compare the Level of Service grade of one type of intersection (e.g., signalized) with another type (e.g., unsignalized).

Key Corridors

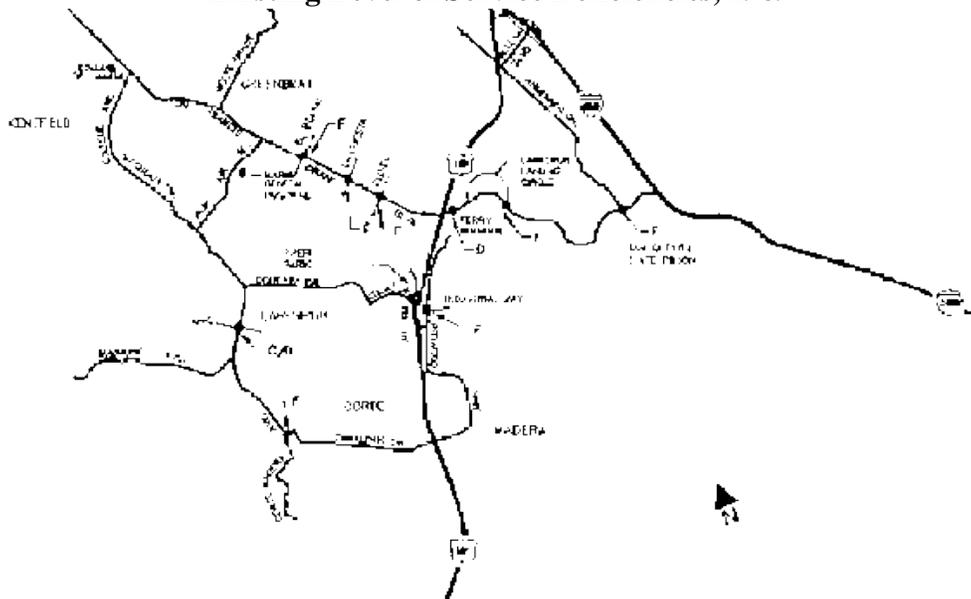
The following describes each key corridor in the city, its overall traffic flow characteristics under existing conditions, and as appropriate, Level of Service

ratings at critical locations. Two illustrations have been prepared to highlight traffic conditions in Larkspur. Figure 4-7 shows estimated average daily traffic volumes at selected key locations on the city's circulation system. Figure 4-8 illustrates locations where the Level of Service is approaching, at, or over the threshold of D ordained by the city.

**Figure 4-7
Average Daily Traffic, Existing Conditions, 1989**



**Figure 4-8
Existing Level of Service Deficiencies, 1989**



SOURCE:
Robert L. Harrison, City of Larkspur
Traffic Mitigation Fee Program,

Final Project, November 1988

Note: Service Level is not shown for intersections operating at LOS C or better.

Highway 101. Route 101 is usually quite congested in the vicinity of the Sir Francis Drake Boulevard interchange (also called the Greenbrae interchange), especially north of the interchange going up Cal Park Hill. Traffic from the northbound Sir Francis Drake Boulevard on-ramp merging onto the freeway exacerbates the capacity-reducing impact of the upgrade. In the southbound direction, there are conflicts between traffic entering the freeway and cars exiting at Lucky Drive. At the Lucky Drive interchange, the southbound on- and off-ramps meet Fifer Avenue and Nellen Avenue at the ramp terminus, resulting in difficulty for through-traffic on Nellen. Recent Caltrans studies indicate that there is little excess capacity on the freeway on the Greenbrae interchange ramps as they are currently configured. The 1987 volume south of the interchange was estimated by Caltrans to be 160,000 vehicles per day; north of the interchange Caltrans estimates 135,000 vehicles per day.

Sir Francis Drake Boulevard. This is a key east-west through-road in Marin County, stretching from Point Reyes on the west to the San Quentin Peninsula on the east. In the Larkspur Sphere of Influence, it begins on the west at the boundary with Kentfield as a four-lane, undivided roadway with some twists and turns, but becomes divided on the approach to College Avenue. In the commercial area east of College Avenue near the College of Marin, limited on-street parking is allowed. Further east, Sir Francis Drake passes the Bon Air Shopping Center, where significant turning traffic tends to cause delays in through-traffic flow.

As the road approaches the Greenbrae interchange, only the left lane continues through to East Sir Francis Drake Boulevard - the right lane becomes the southbound Route 101 on-ramp. For westbound traffic near the interchange, only one lane serves through-traffic, while two left-turn lanes lead to the southbound on-ramp. The interchange itself is an intricate assembly of ramps that separates conflicting traffic flows, with some non-standard characteristics. For example, traffic desiring to proceed northbound on Route 101 from the Redwood Highway on ramp just south of the Greenbrae interchange must first cross Sir Francis Drake Boulevard at grade. This additional traffic tends to degrade the Level of Service at this intersection to the D level currently experienced.

Just east of the interchange, East Sir Francis Drake Boulevard has two through lanes in each direction and a median as it passes the Golden Gate Transit Ferry Terminal and the Larkspur Landing mixed use development. East of Larkspur Landing, Drake becomes a two-lane undivided roadway with refuge for left-turning traffic. It continues past the State prison and intersects with Andersen Boulevard in San Rafael, then leads directly onto the I-580 eastbound on-ramp and the Richmond-San Rafael Bridge.

On Sir Francis Drake Boulevard, morning traffic flow is heavy, but not gridlocked. The area in front of the Bon Air Shopping Center (near Eliseo

Drive), tends to experience some back-ups. In the evening, the situation is much worse, with long back-ups from Wolfe Grade eastward to the freeway. On the east side of the Greenbrae interchange, traffic also backs up through the old railroad trestle from a combination of traffic from the Golden Gate Transit Ferry Terminal, Larkspur Landing, and traffic heading from the Richmond-San Rafael Bridge towards Route 101 southbound. Average daily traffic volumes in 1988 on this road ranged from about 20,000 at the eastern city limit to about 52,000 just east of Eliseo Drive.

In particular, the intersections of Sir Francis Drake Boulevard with La Cuesta Drive and Eliseo Drive are either approaching or at capacity (LOS F - see Figure 4-8). Other locations of concern are unsignalized intersections where turning traffic from the minor street has difficulty finding a gap - Larkspur Landing Circle (east), Andersen Drive, and El Portal.

Magnolia Avenue. Magnolia Avenue begins north of the City of Corte Madera, at the intersection of Branch Avenue. South of this intersection, this non-freeway north-south corridor parallels Route 101, taking the name Corte Madera Avenue, Camino Alto, and Miller Avenue. For travelers to and from Larkspur, the combination of Magnolia Avenue and Redwood Avenue/Tamalpais Drive (in Corte Madera) provides convenient access to Route 101.

Northbound Magnolia Avenue first passes through the older Downtown area where it is a two-lane, slow moving facility with many driveways and intersections (most of which are stop-sign controlled) and on-street parking. Intersections in this area are tightly spaced (sometimes less than 200 feet apart), and left-turn pockets are not provided. There are also numerous pedestrian crossings, especially in the Old Downtown. These conditions combine to create congestion, where it is often difficult for pedestrians to cross, and where turning vehicles cause long queues because they do not have the protection of a turn lane. The Average Daily Traffic (ADT) on Magnolia Avenue in the vicinity of King Street was about 12,000 in 1988, a heavy volume for a constricted two-lane roadway.

North and west of Doherty Drive, Magnolia Avenue becomes more free-flowing, with fewer intersections and driveways. Further along, Magnolia Avenue runs through another commercial area, also with on-street parking, although the roadway is somewhat wider than in the Downtown area, and congestion is less. At the city limit, Magnolia Avenue becomes College Avenue, where it passes the College of Marin to end at Sir Francis Drake Boulevard. The ADT at this northern terminus was about 14,500 in 1988.

Only the Corte Madera Avenue/Redwood Avenue intersection (not in the city or its Sphere of Influence) is rated in the unacceptable range (LOS F, see Figure 4-8, page 63). However, traffic conditions through Downtown Larkspur are cause for concern because of restricted room to maneuver, sight-distance problems, and the pedestrian/auto interface. In response to these problems and recent accidents, the City changed the traffic control at the Magnolia Avenue/King Street intersection (adjacent to City Hall) to all-way stop control. (Previously Magnolia Avenue traffic did not have to stop.)

This configuration tends to cause congestion at this location, with queues sometimes extending to adjacent intersections. However, it is easier for pedestrians to cross Magnolia Avenue. Many times each year, Magnolia Avenue is gridlocked when traffic diverts from Highway 101 because of an accident.

Doherty Drive. This corridor provides both local access for community facilities (e.g., Piper Park, Redwood High School, Henry C. Hall School, the Twin Cities Police Department) and several residential neighborhoods, and also serves as a through facility between Larkspur and Highway 101. The eastern portion of this through corridor passes through the neighboring city of Corte Madera, via Lucky Drive, Fifer Avenue, and Nellen Avenue. The ADT in the Larkspur portion of this corridor at Larkspur Plaza was about 8,800 in 1988.

At its western terminus, Doherty Drive is a wide, two-lane facility, with pedestrian crossings near the Hall School (at Larkspur Plaza Drive, and at Larkspur Boardwalk). Further east is another pedestrian crossing at Riviera Circle, serving the high school. This intersection also has four-way stop signs to provide the necessary control for pedestrians to cross safely. Just east of Riviera Circle is the Corte Madera city limit beyond which travelers to the freeway must turn left onto Lucky Drive. An additional turn onto Fifer Avenue is required for freeway traffic. There, southbound traffic can enter the freeway ramp directly, while northbound traffic must use Nellen Avenue to circle under the freeway to Redwood Highway, where the Industrial Way ramp is used.

Traffic generally flows reasonably well along this corridor, despite the twists and turns and stop sign controls. The heaviest flow occurs between 7:30 and 8:00 AM and between 3:00 and 3:30 PM, related to the start and end of the school day. Two intersections operate at LOS F, Fifer Avenue at Nellen Avenue (in Corte Madera), and Industrial Way at Redwood Highway (at the northbound freeway ramps). Both of these intersections are unsignalized.

Wolfe Grade. Wolfe Grade is a two-lane, undivided, winding, hilly road that connects Sir Francis Drake Boulevard to downtown San Rafael at D Street. It had a 1988 ADT of 13,700, and is often used, in conjunction with Sir Francis Drake Boulevard, to bypass Highway 101 when the freeway is congested.

Bon Air Road. Bon Air Road is a two-lane divided roadway where it passes Marin General Hospital. Just north of the hospital, it becomes a four-lane divided road. It serves mainly to connect Sir Francis Drake Boulevard with Magnolia Avenue, and provides access to Marin General Hospital and the residential neighborhood on Bon Air Hill.

Madrone Avenue. This road is narrow and winding, and serves many homes west of Magnolia Avenue. Portions of the road are paved around old redwood trees.

Redwood Highway. This road parallels Highway 101 on the east side,

serving as part of the Doherty/Lucky/Fifer/Nellen/Redwood freeway access. It also serves the industrial land use, trailer park, and Greenbrae Boardwalk, east of Highway 101.

Traffic Accident Patterns

A summary of accident frequency for the five year period between 1984 and 1988 was obtained from the Twin Cities Police Department. Figure 4-9 shows the total number of traffic accidents reported at locations on the primary street system where generally more than one accident occurred per year. Locations in bold are those that exceed the average number of accidents at all locations.

While this is not a definitive accident study, it does indicate the relative level of accidents at key locations in the city. The highest number of accidents over the five-year period occurred at the intersection of Sir Francis Drake Boulevard with the Route 101 northbound ramps (78 accidents, compared to an average of 22 per intersection). At this intersection, the high traffic volumes, combined with confusing geometrics and narrow channels under the railroad trestle, create hazardous conditions.

**Figure 4-9
Accident Summary, City of Larkspur, 1984-1988**

<u>Intersection</u>	<u>Total</u>
Magnolia at:	
Piedmont	11
Baltimore	7
Madrone	17
King	27
Cane	21
Ward	32
Doherty	31
Bon Air	28
Dartmouth	21
Frances	9
Estelle	8
Murray	12
Sir Francis Drake at:	
El Portal	10
Eliseo	19
NB 101 Ramps	78
Larkspur Landing Circle (W)	11
Larkspur Landing Circle (E)	57
Doherty at:	
Larkspur Plaza	19
Redwood High School	7
Riviera Circle	8

Bon Air at: South Eliseo	15
Intersection Average	22.4

Source: Twin Cities Police Department

*Note: **Boldface** indicates where number of accidents exceed the average.*

The second highest accident location was Larkspur Landing Circle (east) at Sir Francis Drake Boulevard. A traffic signal has since been approved for this location, with installation scheduled for January 1991.

Other locations where the accident frequency was above the city average are clustered on Magnolia Avenue, in the Downtown area, and near Bon Air Drive.

Projected Future Conditions

In the 1970s and 1980s, a number of traffic studies, which were made for individual development projects, provided forecasts of future traffic on portions of the Larkspur street system. The most recent comprehensive study prior to this General Plan was undertaken in 1988 by Robert L. Harrison, in support of the City's Traffic Impact Fee Ordinance. His report combined estimates of growth in Larkspur and surrounding communities with regional estimates of travel growth through the year 2005 in order to forecast traffic volumes and the resultant service levels in Larkspur. The report also recommended a mitigation program which was adopted by the City Council and used as the basis for a Traffic Impact Fee (TIF) for new development.

The results of the Harrison study were summarized in the background document, Larkspur General Plan Circulation Report, which is part of the General Plan Technical Appendix. This information, together with discussions at several citizens' committee meetings, was used to develop the Goals, Policies, and Programs of the Circulation and Land Use chapters.

State law requires that the Circulation and Land Use elements be internally consistent. This was in part accomplished in Larkspur by coordination between the Land Use and Circulation sub-committees during the plan development process. The implications of the land use plan were then evaluated using a local area traffic model for the City of Larkspur and its environs.

Model Method and Assumptions

A traffic impact model was developed by DKS Associates to help quantify the effect that future development, allowed by this General Plan, would have on the road system in Larkspur. A traffic impact model is based on the assumption that traffic generated by new development will simply be added to existing travel patterns and volumes. In this process, no adjustments are made to travel patterns and volumes to and from existing development. This is a reasonable simplifying assumption to make in an area that is as close to "build-out" as Larkspur is, especially considering that no new major

roadways are anticipated. The model uses TRACS(software to aid the analyst in estimating the impacts of new development on traffic levels in Larkspur. The model's overall procedure was to:

- Evaluate traffic conditions from PM peak hour counts of turning movements at key intersections in the study area. For this study, 1988 was considered "existing." Existing Levels of Service were then calculated.
- Estimate the location and description of potential future development based on the General Plan Land Use chapter. The peak hour trip generation that would result from these developments was estimated.
- Determine travel paths to and from these developments.
- Estimate distribution of these trips on the different paths based on previous studies in Larkspur (see Figure 4-10).
- Estimate through traffic (see Figure 4-11).
- Load added traffic to existing volumes and calculate service levels.

**Figure 4-10
Trip Distribution Assumptions**

<u>Destination of Trips</u>	<u>Retail</u>	<u>--Land Use Office--</u>		
		<u>West of 101</u>	<u>East of 101</u>	<u>Residential</u>
Local Trips (Larkspur/Kentfield)	35%	10%	9%	18%
Highway 101 North	29%	44%	30%	26%
Highway 101 South	20%	18%	32%	51%
Sir Francis Drake East	2%	3%	19%	3%
Sir Francis Drake West	<u>14%</u>	<u>25%</u>	<u>10%</u>	<u>2%</u>
TOTAL	100%	100%	100%	100%

Source: Fehr + Peers Associates, based on U.S. Census Journey-to-Work Data for Larkspur and travel surveys in the Larkspur/Corte Madera area.

**Figure 4-11
Projected Growth in Through Trips, 1985-2005**

<u>Larkspur Travel Corridors</u>	<u>Travel Patterns Served</u>	<u>Growth in Through Trips</u>
Magnolia	San Francisco to South Marin to the Upper Ross Valley.	8%
Doherty	San Francisco to South Marin to the Upper Ross Valley.	8%
West Sir Francis Drake	East Bay, San Francisco and South Marin to Upper Ross Valley and East San Rafael to Kentfield Area.	14%
East Sir Francis Drake	East Bay to South Marin.	18%

Source: Robert L. Harrison

**Figure 4-12
Summary of Level of Service Analysis**

and Recommended Improvements

<u>Intersection</u>	<u>Existing Control</u>	<u>Existing + Existing</u>	<u>Approved*</u>	<u>Buildout</u>	<u>Buildout w/ Improvements</u>	<u>Improvements</u>
Anderson Drive & SF Drake*	1 way stop	E/C	F	F	0.82 D	Signalize
Lark Land Cir E & SF Drake	1 way stop	F	F	F	0.61 B	Signalize
Lark Land Cir W & SF Drake	Signal	0.70 C	1.01 F	1.17 F	0.91 E	Add 1 EB left turn lane
101 N/B Ramps & SF Drake	Signal	0.77 C	0.92 E	1.02 F	0.81 D	Add 1 EB thru and 1 WB thru lane
101 S/B Ramps & SF Drake	Signal	0.34 A	0.39 A	0.40 A	0.40 A	
Eliseo Drive & SF Drake	Signal	1.02 F	1.14 F	1.16 F	1.13 F	Add 1 SB left turn lane
La Cuesta Dr & SF Drake	Signal	0.96 E	1.08 F	1.15 F	1.15 F	
El Portal & SF Drake	1 way stop	F	F	F	0.87 D	Signalize
Bon Air Rd & SF Drake	Signal	0.81 D	0.91 E	0.99 E	0.99 E	
Wolfe Grade & SF Drake	Signal	0.72 C	0.93 B	0.87 D		
Laurel Grove & SF Drake	Signal	0.54 A	0.63 B	0.68 B	0.68 B	
College Ave & SF Drake	Signal	0.51 A	0.60 B	0.66 B	0.66 B	
College Ave & Kent/Woodlands	Signal	0.73 C	0.76 C	0.82 D	0.82 D	
Magnolia Ave & Estelle Ave	3 way stop	< C	< C	< C	< C	
Magnolia Ave & Frances Ave	3 way stop	< C	< C	< C	< C	
Magnolia Ave & Murray Ave	1 way stop	C/A	C/A	D/B	D/B	
Magnolia Ave & Skylark/ Dartmouth	4 way stop	< C	< C	> C	> C	
Magnolia Ave & Bon Air Road	Signal	0.60 B	0.64 B	0.75 C	0.75 C	
Magnolia Ave & Doherty Dr	Signal	0.51 A	0.56 A	0.66 B	0.66 B	
Magnolia Ave & Ward St	Signal	0.65 B	0.72 C	0.84 D	0.84 D	
Magnolia Ave & King St	4 way stop	> C	> C	> C	> C	
Magnolia Ave & Madrone Ave	1 way stop	E/A	E/A	F/A	F/A	
Magnolia Ave & Baltimore Ave	1 way stop	C/A	C/A	D/B	D/B	
Magnolia Ave & Alexander Ave	1 way stop	D/A	D/A	D/A	D/A	
Magnolia Ave & Wiltshire Ave	1 way stop	D/A	D/A	E/A	E/A	

Magnolia Ave	& Redwood**	1 way stop	D/A	E/A	E/A	E/A	
Magnolia Ave	&	2 way stop	E/A	F/A	F/A	0.47 A	Signalize
Larkspur Plaza	& Doherty Drive	1 way stop	D/A	E/A	F/A	F/A	
Larkspur Boardwalk	& Doherty Drive	1 way stop	C/A	C/A	C/B	C/B	
Riviera Cir	& Doherty Drive	4 way stop	> C	> C	> C	> C	
Tamal Vista Nellen Ave	& Fifer Dr & Fifer/101 SB Rmp	Signal 2 way stop	0.65 B F/A	0.67 B F/B	0.77 C F/C	0.77 C A/A	Realign Nellen Avenue***
Tamal Vista Bl	& Nellen Ave	--	--	--	--	0.88 D	New intersection
Redwood Hwy	& Nellen Ave	Signal	0.69 B	0.74 C	0.80 D	0.80 D	
Redwood Hwy	& Industrial Way	2 way stop	F/E	F/E	F/F	0.83 D	Add 1 NB left turn lane and signalize
Bon Air Road	& South Eliseo Drive	Signal	0.71 C	0.78 C	0.91 E	0.91 E	

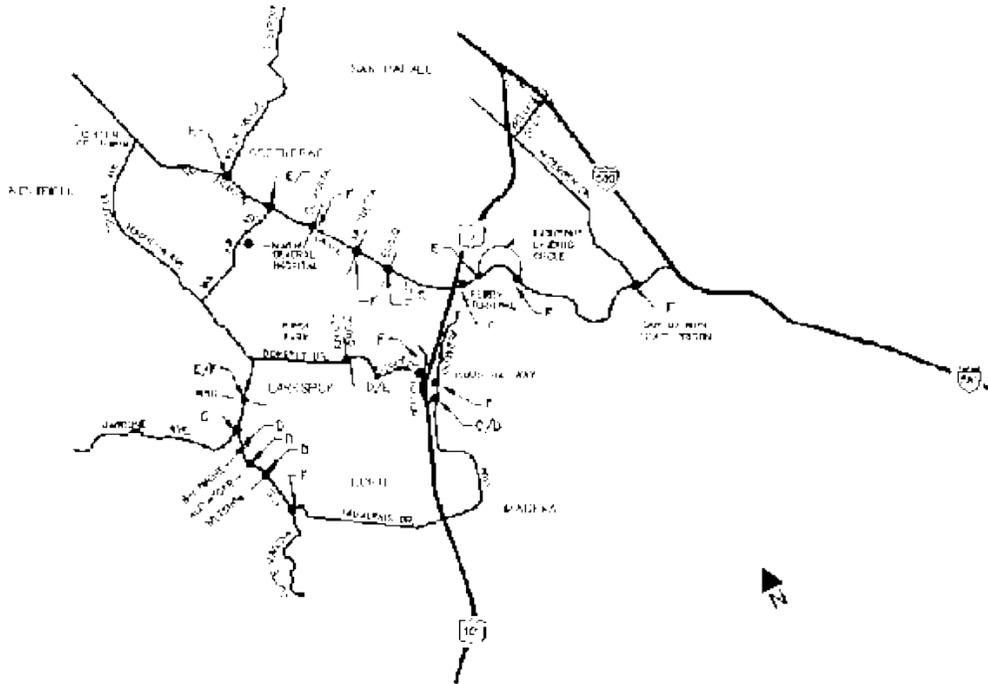
Note: Unsignalized intersection level of service defined as follows: 1, 2 way stops: minor-major left; 3, 4 way stop < C = better than C; > C = worse than C

* Includes anticipated growth in through traffic, not originating or terminating in Larkspur.

** Not in city limits.

*** Construct Nellen Avenue between Tamal Vista Boulevard and Redwood Frontage Road and close NB lanes.

**Figure 4-13
Projected Level of Service Deficiencies**



SOURCE: Robert L. Harrison, City of Larkspur
 Traffic Mitigation Fee Program,
 Final Project, November 1988

Note: Service Level is not shown for intersections operating at LOS C or better.

Effect of Growth on Level of Service. To best illustrate the effect of growth on traffic service levels in Larkspur, three future scenarios were evaluated:

- Existing plus Approved Projects.
- Build-out.
- Build-out with roadway improvements.

Note that the "Existing plus Approved Projects" scenario includes anticipated growth in through traffic that does not originate or terminate in Larkspur. It therefore represents what will happen if Larkspur halted all growth not yet approved.

Figure 4-12 (table) and Figure 4-13 (map) show the anticipated Levels of Service under each of these conditions.

- **Sir Francis Drake Boulevard Corridor.** The effect of future growth on traffic conditions in Larkspur will be most heavily felt in the Sir Francis Drake Boulevard corridor. All intersections from Andersen Drive to Bon Air Road (with the exception of the southbound Highway 101 ramps) would operate at either LOS E or F in the PM peak hour, even considering only the effects of currently approved development plus through traffic. When the higher level of traffic anticipated at build-out is considered, all of these intersections would be in the F category, except for Bon Air Road, which would have a V/C ratio of 0.99, putting it almost at capacity.

In addition to the traffic service levels projected, further congestion

can be expected on Sir Francis Drake Boulevard from three sources: (1) construction on I-80 in the East Bay; (2) completion of the I-580 Freeway from I-80 to the Richmond-San Rafael Bridge; and (3) the opening of the Richmond Parkway from I-580 near the Richmond-San Rafael Bridge to I-80 at Hilltop. Nevertheless, East Sir Francis Drake can be made to operate at acceptable Levels of Service by:

- Signalizing the Andersen Drive intersection (in San Rafael).
- Signalizing the Larkspur Landing Circle (east) intersection.
- Widening Sir Francis Drake and making other intersection improvements at Larkspur Landing Circle (west) and the Highway 101 northbound ramps.

On the west side of Highway 101, however, only widening Sir Francis Drake Boulevard to three through-lanes in each direction would provide the capacity improvements needed to accommodate the anticipated traffic volumes. During the course of the citizens' committee meetings, there was a clear consensus that this was not an acceptable solution. The plan does not, therefore, include specific capacity improvements in this area, aside from provision of a traffic signal at El Portal, and minor approach widening at Eliseo Drive. Other potential improvements to Sir Francis Drake Boulevard that could have a beneficial effect on traffic congestion include increasing transit service in the corridor and providing shuttle service to the Larkspur Ferry terminal.

- ***Magnolia Avenue Corridor.*** Along the Magnolia corridor, conditions would not be as intense as along Drake, but there would still be locations with poor service levels. Most of the intersections in this corridor are stop-sign controlled. The one- and two-way stop-controlled intersections generally operate effectively, although there is some lack of available capacity for left turning traffic from the side streets onto Magnolia at most intersections, but especially at Madrone, Alexander, Wiltshire, and Redwood (in Corte Madera). An initial analysis shows that none of these would warrant a traffic signal, with the exception of Redwood. The worst condition is at Madrone, where poor sight distance exacerbates the capacity problem.

Based on the changes to the Land Use map as initially proposed by the Draft General Plan, the intersections of Magnolia with King and with Skylark/ Dartmouth would operate at less than LOS C. However, the City Council has determined to keep the all-way stops to control the speed and flow of traffic on Magnolia Avenue, and to make it safer for pedestrians to cross.

The intersection of Corte Madera Avenue with Redwood Avenue in Corte Madera appears to meet warrants for a traffic signal. Corte Madera, however, has consistently opposed new traffic signals.

- ***Doherty Drive Corridor.*** The Doherty Drive corridor covers

intersections that are in both Larkspur and Corte Madera. The Riviera Circle intersection with Doherty Drive (an all-way stop) would experience capacity difficulties, but would not warrant a traffic signal.

In Corte Madera, the intersection of Nellen Avenue with Fifer Avenue and the Highway 101 southbound ramps would become even worse than it already is. Corte Madera is considering realigning Nellen Avenue so that it intersects with Tamal Vista Boulevard, thus removing some of the traffic from the freeway ramps intersection. The result of this improvement would be LOS D at the new Nellen/Tamal Vista intersection, and LOS A/A at the Fifer/ Nellen intersection.

System-wide Considerations

The future roadway conditions discussed above are based on the assumption that current travel patterns will remain relatively the same, and that there would be no diversion of traffic away from congested corridors to less congested ones. Thus, the conditions represent the demand for travel in the different corridors. As a practical matter, it is not possible for an intersection to accommodate more traffic than its capacity. As a result, the actual traffic flow on Larkspur streets will be different from that described above. The experience of traffic engineers in similar situations is that a combination of three things will occur:

- The peak period will lengthen, because some of the traffic that had been accommodated in the peak hour will begin to travel at another time.
- Some trips will use modes other than automobile, or will not be made at all.
- Some trips will be diverted to less congested routes.

This may be a policy by default, but lacking major improvements to the system, the critical intersections in the west Drake corridor will operate at capacity during the evening peak hours. Some traffic will be accommodated as in the first two bullets above, but some will be diverted to less congested routes, such as the Magnolia and Doherty corridors. It is also possible that some traffic will divert into San Rafael, along Second and Third Streets, and Red Hill Avenue. The result will be that an equilibrium will be reached, whereby all routes have approximately similar travel times, and have one or more sections that are at or approaching capacity.

Ride-sharing

Ride-sharing can take the form of an informal arrangement among co-workers who live and work close to each other, or can be arranged through a ride-sharing service. In Marin County, Rides for Bay Area Commuters uses a computerized matching service to help people organize car or vanpools. It will also assist with the lease of vans.

Parking

Larkspur, with its mix of older activity centers such as the Downtown, and

newer, more auto-influenced areas such as Bon Air Shopping Center, Drake's Landing, and Larkspur Landing, has a variety of parking needs. Parking issues are discussed separately for each of the following areas:

- Downtown.
- North Magnolia.
- New Developments.
- Residential Areas.

Downtown. Parking Downtown is provided in a number of ways. The most obvious is the extensive on-street parking on Magnolia Avenue, which is signed as restricted to two hours duration between 7:00 AM and 6:00 PM. Additional on-street parking on side streets such as Ward Street is restricted to two hours. A City-owned parking lot has capacity for 27 cars - also restricted to two hours. In addition, many of the buildings provide their own off-street parking.

Overall, it appears that Downtown parking is generally adequate for current uses, except in the case of special events. If, however, there is an intensification of use, or if Downtown Larkspur becomes more attractive as a place to shop, thus increasing the demand for parking, then parking supply could become a constraining factor to economic revitalization.

North Magnolia. This area is home to businesses that cater primarily to local needs (e.g., hardware, fruit/vegetable store, etc.). On-street parking is available on the southwest side of the street. Many businesses have their own parking facilities. Parking appears to be adequate in this portion of Larkspur.

New Developments. All new developments in Larkspur are required to provide off-street parking. There generally is adequate parking in these areas.

Residential Areas. Issues related to parking in existing residential areas are discussed on pages 83-84 under Policy "i."

Future Issues. In general, as long as new development provides adequate parking, there should be no reason for concern about parking in Larkspur.

TRANSIT

Although travel in and through Larkspur is primarily oriented to the private automobile, several transit operators provide important services for those who cannot or prefer not to use cars. As noted earlier, over 16 percent of Larkspur residents use transit to get to work. These include: local bus service, commuter and basic bus service, ferry feeder and ferry service, para-transit, airport feeder service, and taxi service. There are also limited park-and-ride facilities in Larkspur.

Local Bus Service

Local bus service is provided by Marin Transit, which contracts with Golden Gate Transit for fixed route service. The following local transit routes serve Larkspur:

- **Route 1.** From Novato and San Rafael, service along Sir Francis Drake Boulevard in Larkspur, terminating at the College of Marin.
- **Route 17.** Supplemental local bus service on school days, in Corte Madera and Larkspur, serving Hall Middle and Redwood High schools.
- **Route 21.** Service from College of Marin to Mill Valley.

Until recently, Marin Transit also provided service commonly known as the FAST route, serving Fairfax and San Anselmo. There had been discussions about Larkspur tying into this system. However, lack of funding caused the FAST route to be discontinued. Feasibility studies were underway in 1990 for expanding Marin Transit.

Commute and Basic Bus Service

Commute buses are operated by Golden Gate Transit, and provide service from communities in Marin and Sonoma Counties to San Francisco. Several routes serve Larkspur:

- **Route 18.** Commuter service from the College of Marin, along College and Magnolia Avenue, then to Highway 101 via Tamalpais Drive, and to San Francisco (Financial District, Civic Center, and Transbay Terminal).
- **Route 20.** From the Canal Street area of San Rafael, providing basic (local) service seven days per week, terminating in San Francisco (Civic Center and Transbay Terminal). There are several stops in Larkspur along Magnolia Avenue.
- **Route 24.** Originating in Inverness, with service along Sir Francis Drake Boulevard. Stops in the Larkspur area at the College of Marin, Eliseo Drive, and the Lucky Drive bus pad. In San Francisco, it stops in the Financial District and at the Transbay Terminal.
- **Route 30.** From Canal Street in San Rafael, along Andersen Drive, stopping at Larkspur Landing, with commute service to the Financial District in San Francisco.

There is the potential for service enhancement on Route 30, which serves Larkspur Landing. This service expansion would be coordinated with implementation of a park-and-ride facility at the Golden Gate Transit yard on Andersen Drive. No additional service is anticipated in Larkspur west of the freeway.

Ferry Feeder and Ferry Service

Golden Gate Transit runs ferry service from its terminal off East Sir Francis Drake Boulevard to the Ferry Building in San Francisco. Access to the ferry terminal is by private automobile, passenger drop-off, and bus feeder service. Ten bus routes serve the ferry terminal, only two of which actually serve Larkspur:

- **Route 15.** From the College of Marin to the Ferry Terminal via College Avenue, Magnolia Avenue, Tamalpais Drive, and Highway 101.
- **Route 19.** From Fairfax to the Ferry Terminal along Sir Francis Drake Boulevard.

The ferry runs as frequently as every half hour in the morning and afternoon peak hours on weekdays, at one-hour intervals during the rest of the day, and every two hours on weekends.

Para-transit Service

Para-transit is a specialized service for people with special needs (e.g., elderly or handicapped), or in areas that are not efficiently served by fixed-route transit. In Marin County, this service is provided through Marin Transit, which currently contracts the service out to Whistlestop Wheels. This dial-a-ride service operates seven days a week and evenings.

Airport Feeder Service

The Marin Airporter operates from the Larkspur Landing area to the San Francisco International Airport. It runs every 30 minutes, from 5:00 AM to 10:00 PM. The Marin Airporter currently leases its terminal space from Golden Gate Transit District (GGTD). It is possible that this space will be used by GGTD for other purposes. The Citizens' Advisory Committee recommended that the site be retained in public ownership to support the proposed transit-way along the adjacent rail right-of-way. City policy is to support retention of the present Airporter use on the present site. (See Land Use Policy "u" on page 37.)

Taxi Service

Taxi service in Larkspur is provided by two local companies, Larkspur Yellow Cab and Larkspur Taxi. In addition, two companies from nearby cities also serve Larkspur: Radio Cab and Bel Air Cab Service.

Park-and-Ride

Park-and-ride facilities in Larkspur are limited. Some spaces for ride-sharers are provided at the western edge of the Bon Air Shopping Center. Golden Gate Transit is considering opening a park-and-ride facility at its yard on Andersen Drive in San Rafael, after which Route 30 bus service to San Francisco would be expanded.

REGIONAL CONSIDERATIONS

As noted several times in the discussion above, the geographic location of Larkspur results in a high volume of through traffic, i.e., traffic that does not begin or end in the city. As a result, actions in other communities, both from a development as well as an infrastructure perspective, can have a significant effect on travel in Larkspur.

The following is a summary of regional circulation issues that could affect

Larkspur:

- ***Marin County General Plan.*** In 1989, Marin County was in the process of updating its general plan. Along with this, a countywide traffic model was being developed. Policies in this plan could have an effect on circulation patterns in Larkspur.
- ***Sir Francis Drake Signal Interconnection.*** The County has connected the traffic signals on Sir Francis Drake Boulevard between College Avenue and Highway 101. This allows for better progression of traffic along Sir Francis Drake Boulevard, and a small increase in capacity.
- ***Use of the NWP Railroad Right-of-Way East of Highway 101.*** The Marin Transportation Authority has been analyzing options for use of this corridor for transit. How transit enters Larkspur and interacts with the ferry terminal will have important implications for traffic patterns.
- ***Highway 101 Interchanges.*** In 1989, Caltrans prepared project study reports (PSRs) for improvements to the Greenbrae and Lucky Drive interchanges. Proposals include closing off the existing Lucky Drive/Industrial Way interchange and rebuilding it as a standard diamond interchange at the point where Nellen Avenue passes under the freeway. The result of the study was that these changes will not be made until improvements are made to the main lanes of Highway 101.
- ***Cal Park Hill Auxiliary Lane.*** Caltrans plans to construct a northbound auxiliary lane from the Greenbrae interchange to the Bellam Boulevard interchange. This project is in the 1988 State Transportation Improvement Program (STIP), and is programmed for funding in 1992/93.
- ***Highway 101 High Occupancy Vehicle (HOV) Lanes.*** Caltrans has a continuing project to construct HOV lanes on Highway 101 in order to complete the system from Novato to the Golden Gate Bridge. Lanes are currently in place south of Sir Francis Drake. The Regional Transportation Improvement Program (RTIP) lists completion of HOV lanes from I-580 to Sir Francis Drake. No funding source has been identified for this project.
- ***Local Growth.*** Residential and employment growth in Corte Madera, Ross, San Anselmo, Fairfax, San Rafael, and other areas will impact transportation in Larkspur. Larkspur needs to maintain liaison and coordinate with these communities on matters of growth and infrastructure improvements.

CIRCULATION GOALS, POLICIES, AND PROGRAMS

This section, combined with the Land Use and Circulation map, contains Larkspur's Circulation Goals, Policies, and Programs.

The circulation plan for the City of Larkspur is based on goals and policies **to provide safe and efficient transportation facilities that operate at acceptable Levels of Service, while not degrading the quality of life in**

the community. To develop a consistent, implementable set of Goals, Policies, and Programs for Larkspur, the following factors were considered:

- Traffic conditions can be expected to degrade to unacceptable levels even if no additional development occurs in Larkspur beyond that already approved. Potential future development will, however, contribute to additional worsening of traffic conditions.
- The key bottleneck to travel through Larkspur is Sir Francis Drake Boulevard. This bottleneck could be relieved by providing an additional through-lane in each direction from Bon Air Road to Highway 101. Even this measure might not be sufficient to relieve congestion in the corridor, since Sir Francis Drake Boulevard is unlikely to be widened to more than two lanes west of College Avenue through Ross. The County project coordinating signals in this corridor provides some benefit for through traffic, but will not significantly affect the Level of Service.
- All-way stop control at several intersections on Magnolia Avenue tends to create bottlenecks to through-traffic, even under existing conditions. The bottlenecks will become much worse in the future.
- There was consensus in the Citizens' Advisory Committee that Sir Francis Drake not be widened, and that Magnolia be de-emphasized as a through-route and emphasized as access to Downtown.
- In 1989, Caltrans prepared plans to add a northbound auxiliary lane from the northbound on-ramp at Sir Francis Drake, over Cal Park Hill to the Bellam Boulevard ramp in San Rafael. This will encourage through traffic to stay on Highway 101, rather than using Drake as a through-route.
- Caltrans has not been able to find an acceptable solution to the Greenbrae/ Nellen/Lucky interchange configuration. Corte Madera appears to be seriously pursuing the realignment of Nellen Avenue to connect directly with Tamal Vista Boulevard. This will have the effect of partially relieving safety and congestion problems at the intersection of the southbound Highway 101 ramps with Nellen Boulevard and Fifer Avenue.
- It is likely that some form of transit-way will eventually be built along the NWP right-of-way parallel to Highway 101, providing service between Marin and Sonoma counties, and terminating near the Larkspur Ferry terminal. While this transit-way should provide benefits for regional travel, it has the potential to increase local traffic congestion.

Probably not all of the above factors will be realized. The Larkspur Circulation Plan seeks to make the most of existing conditions, anticipated changes beyond the direct control of the City, and changes recommended in other chapters of the General Plan.

Quality of Life

Goal 1: Regard quality of life in Larkspur as more important than mobility of traffic.

Goal 2: Provide safe and efficient local-serving transportation facilities and services for the movement of people and goods.

Goal 3: Ameliorate the impact of traffic on Larkspur's quality of life.

Goal 4: Improved local or regional transit service should not negatively affect Larkspur.

The circulation system in Larkspur needs to grow and change with the community. Transportation facilities and services need to respond to changes in the community so long as the circulation changes do not adversely affect the quality of life in the city. In other words, while almost any traffic problem can be solved, some solutions can create conditions detrimental to other important aspects of the quality of life. Therefore, it is important to emphasize that the City's priorities lean toward quality of life where implementation of transportation facilities and services is concerned. It also will be important to make the circulation system as useful and safe as possible, and to have a coordinated program of implementing improvements. Policy a: Develop a coordinated system of roads, bike paths, foot paths, public transit, and Transportation Demand Management (TDM) programs.

Policy b: Remove hazards from the traffic system.

Policy c: Except for singly-developed single-family homes and vacant properties, proposed changes in existing use shall not add traffic to Sir Francis Drake Boulevard.

Policy d: Wherever possible, maintain standards for acceptable traffic Levels of Service during peak periods. Acceptable Level of Service (LOS) shall be defined for signalized intersections at the D level using planning procedures defined in Transportation Research Circular 212 or successor. The City acknowledges that LOS E exists at the following intersections and that most measures which would alleviate traffic congestion there would not be desirable:

- Sir Francis Drake Boulevard at Eliseo Drive;
- Sir Francis Drake Boulevard at La Cuesta Drive; and
- Sir Francis Drake Boulevard at Bon Air Road.

For unsignalized intersections, service level C shall be the lowest level acceptable during peak periods. Because poor service levels at unsignalized intersections do not represent the same level of delay to motorists as at signalized intersections, the City should develop specific requirements on a case-by-case basis.

Policy e: Conform to standard traffic engineering practices where practical.

Policy f: Encourage through traffic to use designated major arterials.

Policy g: Do not permit thoroughfares to divide the city.

Policy h: Design circulation facilities that minimize disruption of neighborhoods and communities.

Policy i: Prevent an increase in the number of cars parked on neighborhood streets.

Cars parked on narrow, winding, hillside roads block views of pedestrians and oncoming cars and impede access for fire trucks. Excessive on-street parking also creates an appearance of overcrowded neighborhoods. Larkspur requires that each single-family house provide two permanent off-street parking spaces for residents and two parking spaces for guests. Under standards established by ordinance, guest parking may be provided on the street if the street is wide enough. These parking requirements only apply to new houses or lots where a second unit is being added. In older neighborhoods, many houses do not meet these requirements.

Policy j: Prepare a program of traffic capacity improvements to ease traffic congestion.

Policy k: Give higher priority to preserving the existing configuration of streets and buildings downtown than to moving traffic through downtown.

Policy l: Do not permit heliports in the Larkspur Planning Area.

Policy m: Sir Francis Drake Boulevard shall not be widened to allow additional through-traffic lanes.

Policy n: Do not make capacity improvements to Magnolia Avenue that would encourage additional through traffic.

Action Program [1]: Perform an annual review of the circulation plan with respect to changing conditions. Prepare a priority list of capital improvements, maintenance, and programs.

Action Program [2] Actively cooperate with the County of Marin to seek workable capacity improvements to Sir Francis Drake Boulevard that are not disruptive to the community.

Action Program [3]: Maintain and improve the existing median strip landscaping on Sir Francis Drake Boulevard.

Action Program [4]: Add, maintain, and improve landscaping on thoroughfares to the maximum extent possible.

An example is Tamalpais Drive in Corte Madera.

Action Program [5]: Perform the following specific capacity and safety related improvements:

- Signalize the intersection of Sir Francis Drake Boulevard with Larkspur Landing Circle (east).

- Remove the railroad trestle from the roadway of Sir Francis Drake Boulevard, east of Highway 101.
- Make capacity enhancing improvements on East Sir Francis Drake between Larkspur Landing Circle (west) and Highway 101, as follows:
 - on the northbound approach on Larkspur Landing Circle (west), add a left turn lane, and re-stripe the existing through/left lane as an exclusive through-lane.
 - on the eastbound approach to Larkspur Landing Circle (west), add a second left-turn lane.
 - extend the southbound-to-westbound merge lane at Larkspur Landing Circle (west) to the Highway 101 northbound ramps intersection, and create a third westbound through-lane at that intersection, with an exclusive right-turn lane.
 - add an eastbound through-lane at the Highway 101 northbound ramps intersection.
- Add a southbound-to-eastbound left-turn lane on Eliseo Drive at the intersection with Sir Francis Drake Boulevard.
- Signalize the intersection of Redwood Highway and Industrial Way, and add a northbound left-turn lane.
- Signalize the intersection of Sir Francis Drake Boulevard with El Portal.

Transportation Alternatives

Goal 5: Encourage attractive alternatives to the use of single-occupant automobiles.

Goal 6: Increase transit service in Larkspur.

Goal 7: Aim for lower levels of peak hour automobile traffic.

Goal 8: Keep airport transit service for Larkspur.

Goal 9: Reduce transportation-related sources of air pollution.

Larkspur probably has the most complete transit coverage of any city in Marin County, including local transit, commuter bus lines, and ferry service.

As Larkspur and the surrounding communities grow, the use of transit will need to play an even larger role. How to increase transit use is a bigger problem than Larkspur alone can solve. Marin and Sonoma Counties are addressing future problems through the Highway 101 Task Force. One of the main directions of this task force is to find a reasonable transit use for the NWP railroad right-of-way. Although no formal commitments have been made, it appears that some future use of this right-of-way for a rail system is possible, with a connection to the Larkspur Ferry Terminal likely. Discussions have also started again regarding extending BART, or BART-type service to Marin County.

>From Larkspur's perspective, it will be important to develop and implement

policies to encourage additional transit for its own citizens. It will also be important to continue to work with other agencies to come up with a regional transit option that serves Larkspur, but does not adversely affect it.

Policy o: Coordinate circulation and development so higher intensity uses such as commerce, professional offices, public services, and higher density residences are near major transit routes and are served by public transit facilities.

Policy p: Encourage increased transit ridership and use of Transportation Demand Management (TDM) techniques.

Policy q: Tailor public and private transit to the needs of older people.

Policy r: Encourage all employers to cooperate in reducing peak hour automobile traffic.

Policy s: Encourage continuation of the Larkspur Ferry terminal site as a transit hub if the Golden Gate Ferry should cease operation.

Policy t: Require adequate park-and-ride facilities.

Policy u: Work with transit operators to provide service in Larkspur and to resolve any parking difficulties through designation of parking facilities controls as needed.

Policy v: The following are the City's policies regarding future regional transit service in the Highway 101 Corridor:

- Minimize the impact on Larkspur and the existing road system.
- Use discrete or separate rights-of-way.
- Support a direct rail connection from the north via a new grade separation with Sir Francis Drake Boulevard along the approximate alignment of the existing trestle.
- Encourage eventual expansion of the rail line to the south.

Action Program [6]: Adopt a Transportation Demand Management (TDM) ordinance that sets specific goals for reducing the demand for travel by single-occupant private automobiles.

Action Program [7]: Cooperate with Golden Gate Transit, Marin Transit, and private transit providers to periodically review, modify, and upgrade transit service to best meet the needs of Larkspur residents, businesses, and schools.

Action Program [8]: Cooperate with the transit agencies to provide amenities at transit stops, such as benches, shelters, lights, maps, and telephones.

Action Program [9]: Using a Transportation Demand Management

ordinance, encourage employers to allow flexible work hours and to help employees create vanpools or carpools.

Action Program [10]: Cooperate with Caltrans, Marin County, and the transit agencies to expand opportunities for park-and-ride and shared-ride parking lots in or around Larkspur.

Action Program [11]: Promote an exclusive mass transit corridor along the railroad right-of-way east of Highway 101.

Action Program [12]: Encourage shared-ride service to or from transportation terminals, and consider an ordinance to allow jitney service.

Internal and External Circulation Linkages

Goal 10: Create better ties between Larkspur, neighboring communities, and the region.

Corte Madera Creek is a natural boundary that separates the north and south portions of Larkspur. There are only three ways to cross in and around Larkspur: College Avenue, Bon Air Drive, and U.S. 101. It is important that Larkspur cooperate with its neighbors in planning new local circulation routes.

Policy w: As improvement programs are developed for freeway interchange redesign, take advantage of the improvements to provide links between parts of Larkspur.

Policy x: Work with regional agencies to ensure that Larkspur's needs and concerns are recognized.

Action Program [13]: Encourage and cooperate with the appropriate jurisdictions to accomplish the following specific improvements:

- Signalize the Sir Francis Drake Boulevard/Andersen Drive intersection.
- Signalize the intersection of Redwood Avenue/Corte Madera Avenue.
- Realign Nellen Avenue to connect directly to Tamal Vista Boulevard. Close the existing connection from Nellen Avenue to Fifer Avenue.

Freeway Access

Goal 11: Obtain safe freeway access for Larkspur.

The freeway interchange system that serves Larkspur is confusing and substandard. Caltrans has been studying improvements to both interchanges. It is important that Larkspur stay abreast of these planning and engineering efforts, and provide whatever input is necessary to improve this freeway.

Policy y: Redesign and rebuild both U.S. 101 interchanges (Sir Francis Drake and Lucky Drive/Redwood Highway).

Action Program [14]: Actively cooperate with Caltrans, County of Marin, City of Corte Madera, and City of San Rafael to find workable capacity and safety improvements to the Greenbrae and Lucky Drive interchanges with

Highway 101.

Larkspur is strongly committed to seeing the interchanges improved.

Travel To and Between Retail Areas

Goal 12: Reduce the need for long distance and/or frequent shopping travel by private automobile.

This goal is consistent with those in other sections of the Plan, such as encouraging neighborhood-serving businesses and keeping the Downtown at a scale that will encourage people to walk or bike to the shops. Most of the policies and programs that would result in attaining this goal are in the Land Use chapter.

Policy z: Encourage means of travel to and between retail areas other than by private automobile.

Policy aa: Create stronger links between retail areas.

Policy ab: Reduce demand for parking at retail areas.

Action Program [15]: Explore the feasibility of providing a free shuttle service on one or more routes connecting Downtown, North Magnolia, Bon Air Shopping Center, Larkspur Landing, the Village in Corte Madera, and the Corte Madera Town Center.

Downtown Circulation Goal 13: Enhance Downtown as a destination rather than as a corridor. Magnolia Avenue currently serves the dual purpose of "Main Street" of Larkspur, and a through-route for traffic bypassing freeway congestion. Goal 13 is a land use goal that can be partially brought about by circulation policies. Policy "f" would contribute to attainment of this goal. In addition, the following policies and program specifically address Downtown policies.

Policy ac: Maintain adequate off-street parking Downtown.

Policy ad: Explore the use of in lieu fees, assessment districts, and other financing mechanisms to improve and increase the parking supply in Downtown Larkspur.

Action Program [16]: Explore the feasibility of requiring developers of Downtown property to provide off-site parking supplemented by shuttle bus service to Downtown.

Safety

This section covers transportation safety in Larkspur. The need for safe circulation must be recognized as a priority, even at the expense of traffic efficiency.

Goal 14: Reduce the number and severity of transportation-related accidents.

Goal 15: Provide good fire access and traffic safety in neighborhoods.

Policy ae: Place higher priority on safety as opposed to efficient traffic flow and speed.

Policy af: Identify streets that create a problem for fire or traffic safety.

Action Program [17]: Install stop signs, pedestrian cross walks, and other safety-related improvements as warranted.

Action Program [18]: Work with the County and State Prison to provide safer access and related improvements to the section of East Sir Francis Drake Boulevard frequented by persons engaged in surf-sailing. One or more of the following actions should be considered: a small paved area for short-term parking; prohibition of parking on the north side of Drake; and longer term parking near the entrance to San Quentin Prison. (See also Chapter 5, page 107, Policy "e" and Action Programs 7 and 8.)

Action Program [19]: Implement single-side-of-street parking regulations (to include signing and enforcement) where needed.

Circulation and Environmental Protection

Goal 16: Circulation improvements should not adversely affect the environment.

Policy ag: Ensure that transportation facilities do not impinge upon irreplaceable resources (such as Corte Madera Creek, the Bay and its shoreline, important open space lands, and recreational facilities).

Policy ah: Minimize air, water and noise pollution due to transportation.

Policy ai: Consider seismic and geotechnical factors in the planning, location, design, and construction of new transportation facilities.

Policy aj: Seek public participation in the preparation and execution of regional and local circulation plans.

Action Program [20]: Encourage removal of the NWPRR drawbridge over Corte Madera Creek, and the bridge abutments.

To carry transit, the bridge would be replaced by a modern span designed to preclude interference with water traffic, open space, and habitat.

Action Program [21]: Landscape new circulation facilities in harmony with the environment and safety considerations.

Implementing Circulation Improvements

Goal 17: Mitigate the traffic impacts of new developments.

Policy ak: Development should contribute to measures to mitigate local and regional traffic impacts.

Policy al: Developers should pay for improvements to the existing street system to mitigate unacceptable impacts where such improvements are appropriate.

Policy am: Improvements based on traffic mitigation are not to be considered the only way to reduce traffic impacts.

Action Program [22]: Continue to collect a traffic impact fee from developers to fund improvements.

Such improvements should include the traffic capacity measures described in the General Plan.

Action Program [23]: Develop programs to take advantage of any sales tax revenue for transportation improvements.

Action Program [24]: The City will use its traffic mitigation fees to carry out projects as soon as sufficient funds are received.