CHAPTER 3. CIRCULATION

This section, complementary with the Land Use and Circulation Map, contains Larkspur's Circulation goals, policies, and programs. It addresses improvements to the existing circulation system and the development of new multi-modal transportation features.

In addition to needing system improvements such as improved pavement conditions, the circulation system in Larkspur needs to grow and change with the greater community. From 2011 to 2035, the City anticipates many changes to the circulation system, including the introduction of a regional commuter rail (the SMART train), and the reconstruction of Highway 101 and the highway interchanges in the Twin Cities/Greenbrae Highway 101 corridor. Land use changes (such as the anticipated development of vacant properties) will have additional impacts on the City's circulation system.

The circulation plan for the City of Larkspur intends **to provide a safe and efficient circulation system for all users, while not degrading quality of life in the community.** To develop a consistent, implementable set of goals, policies, and programs for Larkspur, the following factors were considered:

- **The needs of all system users.** The City's circulation system should be a multi-modal network that addresses the needs of all users. Trails and paths (including hillside stairways) are also integral elements of the City's circulation system and key components of a comprehensive multi-modal circulation system.

- **Existing congestion in the system.** The key bottleneck to vehicular travel through Larkspur is Sir Francis Drake Boulevard, a regional east-west arterial between Highway 101 and Marin communities to the west. The current configuration of the Highway 101 interchanges at Sir Francis Drake Boulevard is also a major contributor to vehicular congestion on the thoroughfare. Reconfiguring the interchanges, implementing transportation demand management strategies, supporting increased transit service, and providing more complete connections for bicyclists and pedestrians may reduce future vehicular congestion on Sir Francis Drake Boulevard.

- **Existing and future strains on the system.** Many of Larkspur's local streets are in a serious state of disrepair and will require extensive work to be brought up to acceptable conditions. Additionally, without appropriate mitigation, vehicular traffic conditions can be expected to degrade to unacceptable levels even if no additional

development occurs in Larkspur beyond that already approved. Future development will contribute to worsening of traffic conditions.

- **Regional rail transit.** In 2012, rail service on the initial operating segment of the SMART train from Santa Rosa to downtown San Rafael was planned to commence by 2016. It was unknown when extended service to Larkspur would be provided. That same year, the City initiated preparation of a SMART Station Area Plan to identify the Larkspur SMART station's impacts on the surrounding area. This General Plan recognizes the uncertainties inherent in the planning of circulation improvements in the Larkspur Landing/SMART Station area and provides general policy guidance to be augmented by future data.

The Larkspur Circulation goals, policies, and programs seek to address the factors listed above, as well as any unforeseen impacts on the circulation system as a whole.

CIRCULATION GOALS

Quality of Life

CIR-1: Provide a safe, efficient, multi-modal transportation system that recognizes the needs of all circulation system users.

CIR-2: Regard quality of life in Larkspur as more important than mobility of vehicular traffic.

CIR-3: Ameliorate the impact of congestion on Larkspur's quality of life.

CIR-4: Mitigate the traffic and parking impacts of new development and uses and major redevelopment projects.

CIR-5: Provide hiking trails and access points for public enjoyment and use of open space areas and waterways.

Transportation Alternatives

CIR-6: Increase attractive alternatives to the use of private automobiles to reduce automobile traffic, especially peak hour traffic, and reduce transportation-related sources of air pollution and energy consumption.

Internal and External Linkages

CIR-7: Create better connections between Larkspur, neighboring communities, and the region for all modes of transportation.

CIR-8: Obtain safe and convenient freeway access for Larkspur.

Travel To and Between Retail Areas

CIR-9: Reduce the need for long distance and/or frequent shopping travel by private automobile.

Magnolia Avenue Circulation

CIR-10: Enhance the Downtown and North Magnolia commercial areas as destinations, rather than corridors.

Safety

CIR-11: Reduce the number and severity of transportation-related accidents.

CIR-12: Provide good emergency vehicle access in neighborhoods.

CIR-13: Limit the exposure of circulation facilities to man-made and natural hazards.

Environmental Protection

CIR-14: Circulation improvements should not adversely affect the environment.

Quality of Life

CIR-1: Provide a safe, efficient, multi-modal transportation system that recognizes the needs of all circulation system users.

Policy CIR-1.1: Develop a coordinated system of roadways, bikeways, multi-use paths, public transit, and Transportation Demand Management (TDM) programs.

Policy CIR-1.2: Apply appropriate functional classifications and modern design standards in the construction, maintenance, and improvements of roadways, bikeways, and multi-use paths in the City.

Policy CIR-1.3: Seek public participation in the preparation and execution of local and regional circulation plans.

Policy CIR-1.4: Roadways, bikeways, and multi-use paths shall be designed, planned, constructed, maintained, improved, and operated to accommodate and encourage travel by pedestrians, bicyclists, private automobiles, and public transit vehicles and their passengers.

Policy CIR-1.5: Determine a minimum acceptable roadway pavement condition for all City streets, and maintain streets at a level not less than that minimum condition.

Action Program CIR-1.5.a: Investigate possible funding mechanisms for roadway paving improvements, such as public-private partnerships and cost-sharing with neighboring jurisdictions.

Policy CIR-1.6: Consider all circulation system users when installing traffic control devices.

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CIR-2: Regard quality of life in Larkspur as more important than mobility of vehicular traffic.

Policy CIR-2.1: Design circulation facilities that minimize disruption of neighborhoods and communities.

Policy CIR-2.2: Sir Francis Drake Boulevard and East Sir Francis Drake Boulevard shall not be widened to allow additional through traffic lanes.

Action Program CIR-2.2.a: Actively cooperate with the County of Marin to seek workable capacity improvements to the portion of Sir Francis Drake Boulevard in the County's jurisdiction that are not disruptive to the community.

Policy CIR-2.3: Give higher priority to preserving the existing configuration of streets

and buildings Downtown than to moving traffic through Downtown.

Policy CIR-2.4: Do not make vehicular capacity improvements to Magnolia Avenue that would encourage additional through traffic.

Policy CIR-2.5: Recognizing Marin General Hospital's existing use of Hal Brown Park at Creekside in Greenbrae as a heli-stop, support an improved heli-stop facility only to provide essential emergency transportation services.

Policy CIR-2.6: Encourage vehicular traffic to use designated major arterials, except Highway 101 shall be encouraged and improved for through traffic use.

Policy CIR-2.7: Maintain and improve existing landscaped medians and add street trees.

Action Program CIR-2.7.a: Maintain and improve the existing median strip landscaping on Sir Francis Drake Boulevard and East Sir Francis Drake Boulevard.

Action Program CIR-2.7.b: Maintain and improve medians and street trees along Magnolia Avenue to the maximum extent possible.

Policy CIR-2.8: Consider traffic calming features and landscaping as a component of all major roadway improvements.

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CIR-3: Ameliorate the impact of congestion on Larkspur's quality of life.

Policy CIR-3.1: Prepare a program of multi-modal traffic capacity improvements to ease traffic congestion.

Action Program CIR-3.1.a: Perform the following specific capacity and safety related improvements:

- **TO BE ADDED AFTER EIR IS COMPLETED.**

Policy CIR-3.2: Wherever possible, maintain standards for acceptable traffic Levels of Service during peak periods.

Action Program CIR-3.2.a: Acceptable Level of Service (LOS) shall be defined for signalized intersections at the D level using planning procedures defined in up-to-date releases from the Transportation Research Board. The City acknowledges that LOS E exists at the following signalized intersections and that most measures which would alleviate traffic congestion there would not be desirable:

- *To be added after traffic study is completed.*

Action Program CIR-3.2.b: Acceptable Level of Service (LOS) shall be defined for unsignalized intersections at the C level 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.

The City acknowledges that levels of service lower than C are projected for city build-out at the following unsignalized intersections, and that most measures which would alleviate traffic congestion there would not be desirable:

- *To be added after traffic study is completed.*

Policy CIR-3.3: Ensure that high intensity uses such as commerce, professional offices, public services, and high density residences are located near transit routes and facilities.

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CIR-4: Mitigate the traffic and parking impacts of new development and uses and major redevelopment projects.

Policy CIR-4.1: Require a traffic impact analysis for any project generating significant additional peak hour PM trips to prevent a significant increase in peak hour traffic on City arterials.

Action Program CIR-4.1.a: Conduct a study to identify appropriate trip generation significance thresholds and adopt the identified thresholds by ordinance.

Policy CIR-4.2: Development should contribute to measures to mitigate a project's local and regional traffic impacts.

Action Program CIR-4.2.a: Periodically study, update, and continue to collect a traffic impact fee from developers to fund improvements to the circulation system to mitigate a project's impacts.

Action Program CIR-4.2.b: Develop programs to take advantage of any sales tax revenue for transportation improvements.

Action Program CIR-4.2.c: Use traffic mitigation fees to carry out projects as soon as sufficient funds are received.

Action Program CIR-4.2.d: Study and consider incentives for developers to design projects to minimize their impact on traffic.

Policy CIR-4.3: Developers should pay for improvements to the existing street system to mitigate unacceptable impacts of projects where such improvements are appropriate.

Policy CIR-4.4: Development should avoid, if possible, impacts on surrounding on-street parking.

Action Program CIR-4.4.a: Regularly review and update citywide parking standards.

■■■

CIR-5: Provide hiking trails and access points for public enjoyment and use of open space areas and waterways.

Policy CIR-5.1: Provide reasonable access to open space areas via trails and entry points that do not adversely impact adjacent residential areas.

Action Program CIR-5.1.a: Adopt guidelines and standards for paths and access.

Action Program CIR-5.1.b: Secure multiple public access points at time of development of areas adjacent to trails and open space lands (e.g., Big and Little King, Tubb Lake/Miwok Park, San Rafael/Southern Heights Ridge).

Policy CIR-5.2: Inventory, maintain, and upgrade signage and access to trails and paths.

Action Program CIR-5.2.a: Implement the signing and access projects identified in the Bicycle and Pedestrian Master Plan.

Action Program CIR-5.2.b: Maintain and improve the public safety of trail and path access points.

Action Program CIR-5.2.c: At trail entrances, provide appropriate signage and access designed to preclude entry by incompatible trail users, as applicable by trail (e.g. equestrians or cyclists).

Action Program CIR-5.2.d: Maintain accurate and clear signage to indicate the transition from City roads to fire roads or other roads not intended for vehicular access.

Policy CIR-5.3: Reduce the potential for theft, noise, litter, and parking intrusion that may be associated with trails in neighborhoods.

Action Program CIR-5.3.a: Use planting and lighting to discourage parties and similar gatherings at trail entrances.

Policy CIR-5.4: Encourage persons using the hiking trails to walk to trail access points instead of using their automobiles.

Action Program CIR-5.4.a: Ensure that trail access points are connected to or easily accessed by existing bicycle and pedestrian paths.

Action Program CIR-5.4.b: Allow parking at trail access points only where there is sufficient land area.

Action Program CIR-5.4.c: At trail entrances, provide appropriate gates designed to preclude entry by motorized vehicles.

Policy CIR-5.5: Coordinate with Marin County in developing policies for appropriate levels of use of trails and open space areas in the Larkspur Planning Area (i.e., equestrian access, mountain bike access, etc.) in the Countywide Trails Plan.

Policy CIR-5.6: Coordinate with the Marin County Open Space District to vacate City-owned right-of-ways that fall within designated open space areas.

Policy CIR-5.7: Maintain public launches providing access to Corte Madera Creek.

Policy CIR-5.8: Support the implementation of the San Francisco Bay Area Water Trail, which includes public and private launch sites in Larkspur's Planning Area that provide access to Corte Madera Creek.

Transportation Alternatives

CIR-6: Increase attractive alternatives to the use of private automobiles to reduce automobile traffic, especially peak hour traffic, and reduce transportation-related sources of air pollution and energy consumption.

Policy CIR-6.1: Locate and design accessible multi-use paths and bikeways that provide continuous routes for pedestrians and bicyclists within Larkspur.

Action Program CIR-6.1.a: Analyze and improve connections for pedestrians and bicyclists between neighborhoods in Larkspur and destination points, such as schools and retail or professional centers.

Action Program CIR-6.1.b: Require new development to provide safe and convenient bicycle parking, including City-owned parks and recreation areas, schools, public buildings, and private development.

Action Program CIR-6.1.c: When developing multi-use paths and trails, consider the access needs of all users.

Action Program CIR-6.1.d: Identify and pursue grants and other available funding sources for multi-use paths, trails, and bikeways.

Action Program CIR-6.1.e: Implement the Bicycle and Pedestrian Master Plan, and regularly update the Plan to accurately reflect completed and planned projects and maintain eligibility from funding sources.

Action Program CIR-6.1.f: Require all new development, major redevelopment, and public improvements to coordinate with the Bicycle and Pedestrian Master Plan and provide pedestrian and bicycle connectivity to and from the project site.

Action Program CIR-6.1.h: Provide routine maintenance of multi-use paths and on-street bicycle lanes and routes, including sweeping, removing encroaching vegetation, and repairing asphalt bumps and cracks.

Policy CIR-6.2: Inventory, maintain, and improve the City's historic hillside stairways.

Action Program CIR-6.2.a: Survey City-owned "paper streets" to evaluate their usefulness in the trail and path system and preserve those identified as useful for trails or paths.

Action Program CIR-6.2.b: When appropriate and financially feasible, upgrade and improve City-owned "paper streets" for use by the public as trails or paths.

Action Program CIR-6.2.c: Maintain accurate and clear signage for paper streets developed as public trails or paths.

Policy CIR-6.3: Coordinate with Caltrans and other agencies to ensure that freeway improvements include protected crossings for pedestrians and bicyclists.

Action Program CIR-6.3.a: Support the retention of a pedestrian overpass connecting Lucky Drive and Redwood Highway as a key component of any project improving the Highway 101 interchanges in the Greenbrae/Twin Cities corridor, or otherwise assure safe and convenient pedestrian and bicycle access across Highway 101 to both north and southbound transit stops in the Redwood Highway and Lucky Drive areas.

Action Program CIR-6.3.b: Support improved pedestrian and bicycle access between the Larkspur Landing area, the Redwood Highway area, Lucky Drive, and the Bon Air Shopping Center.

See Action Program CIR-7.1.a.

Policy CIR-6.4: Encourage increased transit service and ridership and other alternatives to single-occupancy vehicle use.

Action Program CIR-6.4.a: Study and implement incentive programs to encourage employers to cooperate in reducing automobile traffic by providing information on available transit services, sample employee incentive programs

including shared-ride programs, and maps of nearby pedestrian and bicycle routes on the City's website.

Action Program CIR-6.4.b: 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 CIR-6.4.c: Encourage public and private transit to be tailored to the needs of older people and other special needs populations.

Action Program CIR-6.4.d: Cooperate with the transit agencies to provide amenities at transit stops, such as benches, shelters, lights, maps, and bicycle parking.

Action Program CIR-6.4.e: During review of all new development, redevelopment, and public improvement projects, consider and require improvements to adjacent or nearby transit stops such as benches, shelters, lights, maps, and bicycle parking.

Action Program CIR-6.4.f: Encourage shared-ride and jitney services to and from transportation terminals.

Action Program CIR-6.4.g: Cooperate with transit agencies to promote and educate the public about available transit routes and stops in Larkspur, by providing information, incentives, contests, and other promotional strategies.

Policy CIR-6.5: Cooperate with TAM, SMART, the County of Marin, and any other agencies to support the development of a rail transit corridor and associated multi-use path to Larkspur Landing, and ensure impacts on Larkspur are appropriately studied and mitigated.

Policy CIR-6.6: Encourage future expansion of the SMART rail line and associated multi-use path.

Policy CIR-6.7: Encourage continuation of the Larkspur Ferry terminal at its present site.

Action Program CIR-6.7.a: Support improvement of bicycle and pedestrian connectivity between the planned Larkspur SMART station and the ferry terminal.

Policy CIR-6.8: Support the development of park and ride facilities in Larkspur along transit routes.

Action Program CIR-6.8.a: Coordinate with Caltrans, Marin County, and the transit agencies to expand opportunities for park and ride, shared-ride, and bicycle parking areas in or around Larkspur, particularly as part of the Highway 101 Greenbrae/Twin Cities Corridor Improvement Project.

Action Program CIR-6.8.b: Work with transit operators to resolve any parking

difficulties through designation of parking facilities controls as needed.

Policy CIR-6.9: Support the retention of airport transit service in Larkspur.

Policy CIR-6.10: Support expansion of charging infrastructure for electric and plug-in hybrid vehicles in Larkspur.

Internal and External Linkages

CIR-7: Create better connections between Larkspur, neighboring communities, and the region for all modes of transportation.

Policy CIR-7.1: As improvement programs are developed for freeway interchange redesign, take advantage of the improvements to provide links between parts of Larkspur.

Action Program CIR-7.1.a: Support the completion of the Central Marin Ferry Connection Project to provide safe access for pedestrians and bicyclists across East Sir Francis Drake Boulevard and over Corte Madera Creek.

See Action Program CIR-6.3.a.

Policy CIR-7.2: Develop and maintain paths, trails, and on-street bicycle lanes and routes linking Larkspur to neighboring communities and open space areas in Marin County.

Action Program CIR-7.2.a: Support the San Quentin Area Bicycle and Pedestrian Access study to provide a Class I bikeway along Sir Francis Drake Boulevard East and connecting to the Bay Trail in San Rafael's Shoreline Park.

Action Program CIR-7.2.b: Coordinate with the City of San Rafael to develop trail or multi-use path connections between Tubb Lake and the Southern Heights Ridge and along Wolfe Grade.

Policy CIR-7.3: Coordinate with other agencies and local jurisdictions in the design and implementation of City and regional circulation plans to ensure that Larkspur's needs and concerns are recognized.

See Policy CIR-1.3.

Action Program CIR-7.3.a: Encourage the appropriate jurisdictions or agencies to accomplish improvements to the regional circulation system, including but not limited to the following:

- *Improvement of the intersection at Sir Francis Drake Boulevard East and Anderson Drive in San Rafael to provide a safer and more efficient flow of traffic, including bicycle traffic.*

- *Reconstruction of the Alto Tunnel, connecting Corte Madera and Mill Valley, which would provide a flat route for pedestrians and bicyclists separate from vehicle traffic.*
- *Development of bicycle facilities on the Richmond-San Rafael Bridge.*
- *Development and/or improvement of bicycle facilities on Sir Francis Drake Boulevard east of Highway 101 to College Avenue in Kentfield.*

Action Program CIR-7.3.b: Refer regional plans for trails and paths to the City's Park and Recreation Commission as necessary to confirm or modify alignments with the City's path and trail network.

Action Program CIR-7.3.c: Encourage removal of the inoperable drawbridge over Corte Madera Creek (formerly used by the Northwest Pacific Railroad), and the bridge abutments.

Policy CIR-7.4: Unused railroad right-of-ways that are not redeveloped as a rail corridor should be maintained as bicycle and pedestrian circulation facilities.

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CIR-8: Obtain safe and convenient freeway access for Larkspur.

Policy CIR-8.1: Support the redesign and reconstruction of the Highway 101 interchanges in the Greenbrae/Twin Cities corridor.

Action Program CIR-8.1.a: Actively cooperate with the Transportation Authority of Marin, Caltrans, County of Marin, and the Town of Corte Madera to determine the safest, most efficient, and most convenient on- and off-ramp configuration in the Greenbrae/Twin Cities corridor.

Action Program CIR-8.1.b: Encourage the redesign and reconstruction of Highway 101 interchanges to take into account seasonal flooding hazards and future sea level rise.

Travel To and Between Retail Areas

CIR-9: Reduce the need for long distance and/or frequent shopping travel by private automobile.

Policy CIR-9.1: Encourage means of travel to and between retail areas other than by private automobile.

See Policy CIR-6.1 and associated action programs.

Action Program CIR-9.1.a: Encourage Marin Transit to operate a shuttle service to and between retail centers in and around Larkspur, including Downtown Larkspur, the North Magnolia area, the Bon Air Shopping Center, Larkspur Landing, the Village at Corte Madera, and the Corte Madera Town Center.

Policy CIR-9.2: Encourage neighborhood and local consumer services that can be reached safely and conveniently by pedestrians and bicyclists.

Action Program CIR-9.2.a: Review and update the zoning ordinance as necessary to encourage mobile consumer services, such as food trucks, in public gathering places.

Magnolia Avenue Circulation

CIR-10: Enhance the Downtown and North Magnolia commercial areas as destinations, rather than corridors.

Policy CIR-10.1: Ensure the most efficient use of off-street parking in the Downtown and North Magnolia commercial areas.

Action Program CIR-10.1.a: Explore the use of financing mechanisms to improve the parking supply in the Downtown and North Magnolia commercial areas.

Action Program CIR-10.1.b: Explore the feasibility of requiring developers of large-scale development that will significantly impact the parking supply in the Downtown and North Magnolia commercial areas to provide off-site parking and shuttle service.

Policy CIR-10.2: Provide adequate, safe, and convenient bicycle parking in the Downtown and North Magnolia areas.

Circulation Safety

CIR-11: Reduce the number and severity of transportation-related accidents.

Policy CIR-11.1: Identify and remove hazards from the circulation system.

Action Program CIR-11.1.a: Perform an annual review of the circulation plan with respect to changing conditions and needed safety and maintenance improvements. Prepare a priority list of capital improvements, maintenance, and programs (Capital Improvement Program).

Action Program CIR-11.1.b: Use traffic accident data collected by the Twin Cities Police Authority to identify intersections in the City with high accident rates. If resources are available, convert the data to an accident rate and compare to an established accident rate standard to identify intersections with above average accident rates.

Action Program CIR-11.1.c: Provide an accessible reporting tool on the City website that the public can use to report hazardous conditions, and actively promote its use.

Policy CIR-11.2: Place higher priority on safety of all circulation system users as opposed to efficient vehicular traffic flow and speed.

Action Program CIR-11.2.a: Install pedestrian safety-related improvements such as stop signs, pedestrian cross walks, and others as warranted.

Policy CIR-11.3: Provide pedestrians and bicyclists with safe facilities for circulation.

Action Program CIR-11.3.a: Continue bicycle education programs in schools and support the Safe Routes to School Program or other successor programs addressing safe non-motorized access to schools.

Action Program CIR-11.3.b: Selectively install bicycle/pedestrian safety messages along paths to advise of rules of the road, need for courtesy, and spot hazards.

Action Program CIR-11.3.c: By ordinance, prohibit motor vehicles (except for public safety vehicles) on paths and trails.

Action Program CIR-11.3.d: When designing pedestrian and bike paths, design them to be separate from street and vehicular traffic when possible. On-street bike lanes may be provided when separate facilities are not possible, or in addition to off-street facilities.

Action Program CIR-11.3.e: Ensure that pedestrian and bike trails are appropriately lighted to safely accommodate nighttime use.

(See Policy CIR-6.1 and associated programs.)

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CIR-12: Provide good fire and other emergency vehicle access in neighborhoods.

Policy CIR-12.1: Maintain fire access roads and roadsides.

Action Program CIR-12.1.a: Identify streets that create a problem for fire and

other emergency vehicle and equipment access.

Action Program CIR-12.1.b: Implement single-side-of-street parking regulations (to include signing and enforcement) where needed.

See Chapter 7, Health and Safety, Action Programs SAF-6.1.b and SAF-7.2.e.

■■■

CIR-13: Limit the exposure of circulation facilities to man-made and natural hazards.

Policy CIR-13.1: Avoid locating new circulation infrastructure in areas with identified long-term risks of flooding (especially flooding due to future sea level rise) or seismic, geologic, and/or soil hazards to protect circulation system users and avoid extraordinary maintenance and operating expenses.

See hazard and risk mitigation policies in Chapter 2, Land Use, Goal LU-13, and Chapter 6, Health and Safety, Goals SAF-3, SAF-4, SAF-5, and SAF-6.

Environmental Protection

CIR-14: Circulation improvements should not adversely affect the environment.

Policy CIR-14.1: Avoid, when feasible, or mitigate adverse impacts of circulation system improvements on the natural environment (such as Corte Madera Creek, the Bay and its shoreline, open space lands, and recreational facilities).

Action Program CIR-14.1.a: Landscape new circulation facilities in harmony with the environment and safety considerations.

Action Program CIR-14.1.b: Adopt design standards to reduce trail user impacts on adjacent environmental resources.

Policy CIR-14.2: Minimize air, water, and noise pollution due to transportation.

CIRCULATION BACKGROUND

This background section describes the existing circulation system (including roadways, bikeways, and pedestrian facilities) 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. The Circulation goals, policies, and programs at the beginning of this chapter are based on the technical analyses and community needs and desires presented in this background.

Figure 3-1 shows Larkspur's relationship to the regional circulation system. Circulation in the City and its Planning Area 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 Marin County. As a result, the City is traversed by many "through" travelers.

The Complete Streets Act of 2008 requires California cities to plan for "a balanced, multi-modal transportation network that meets the needs of all users of the streets, roads, and highways for safe and convenient travel in a manner that is suitable to the rural, suburban, or urban context of the general plan."[1] Circulation system users move about Larkspur in a number of ways: roadways, bicycle and pedestrian paths, local and commuter bus transit, airport feeder service to San Francisco International Airport, ferry service, para-transit, and taxi.

Workplace Travel

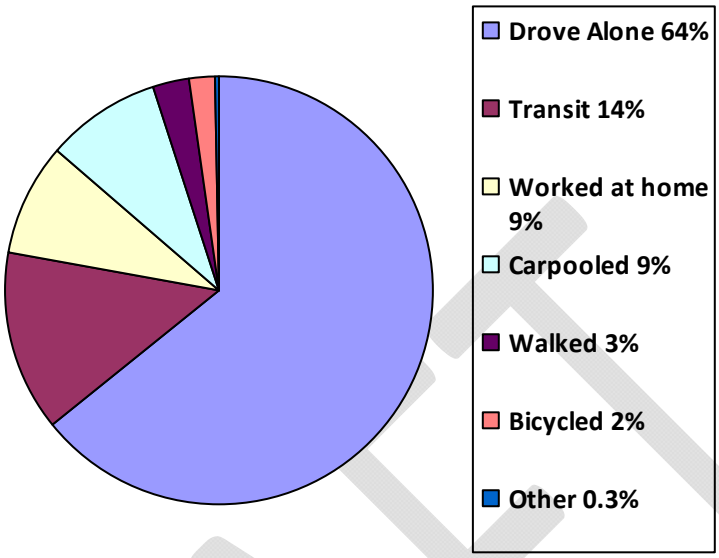
Although home-to-work trips are only one element of the traffic flow, they make up a large portion of peak hour vehicular traffic. Data from the 2000 Census provides some insight into how Larkspur's citizens travel to work (see Figure 3-2). Most Larkspur residents either drive to work alone (64 percent), take transit (14 percent), or work from home (9 percent), while 8 percent carpool and 5 percent use other methods, such as walking, bicycling, or motorcycling. Carpooling trends have remained steady since 1990, when 8.4 percent of Larkspur residents shared a ride to work, while transit-riding trends have increased slightly from 1990 when 12.4 percent took transit. The percentage of residents driving alone to work decreased slightly from 68 percent in 1990.

Workplace location has a significant impact on the choice of travel mode (see Figure 3-3). In 2000, approximately 20 percent of employed Larkspur residents worked in Larkspur, while the remaining majority (80 percent) worked outside of the City. Of those working outside of the City, 43 percent worked in Marin County and 56 percent worked outside the County.

Figure 3-1
Regional Location Map
To be added.

[1] CA Government Code §65302(b)(2)(a).

Figure 3-2
Mode of Travel to and from Work, Larkspur residents, 2000



Source: U.S. Census Bureau, 2000

Figure 3-3
Location of Work Place, Larkspur Residents, 2010
To be added, if data is available.

Bicycle and Pedestrian Circulation

The City owns or maintains over 10 miles of bikeways and multi-use paths that convey non-motorized traffic within the City and connect to neighboring communities. The City's Bicycle and Pedestrian Master Plan[2] contains detailed information about existing bicycle and pedestrian facilities in the City, and proposes needed improvements and additions to the system. Many improvements identified in the Bicycle and Pedestrian Master Plan have been completed or will be completed during the lifetime of this General Plan.

Bikeways are classified in the following categories:[3]

- **Class I bikeways** (or "bike paths") are paved paths completely separated from vehicular traffic that may only be used by bicyclists and pedestrians.
- **Class II bikeways** (or "bike lanes") are striped and stenciled lanes on a street or highway intended exclusively for bicycle use.

[2] The Bicycle and Pedestrian Master Plan is incorporated into the General Plan by reference only. It retains its legal standing as a separately adopted document.
[3] California Streets and Highways Code §890.4

- **Class III bikeways** (or "bike routes") allow for bicycles and vehicles to share use of a street, and are often signed with shared roadway markings (or "sharrows") that alert both bicyclists and motorists of the shared use.

Figure 3-4. Existing Non-Motorized Facilities in Larkspur

Segment	Facility Type	From	To	Length (miles)
Corte Madera Creek Path East	Class I	South Eliseo Dr.	Remillard Park	1.4
Corte Madera Creek Path West	Class I	Bon Air Rd./Hal C. Brown Park at Creekside	Northwestern City limit (at College Ave.)	0.63
Greenbrae Interchange Under-Crossing	Class I	Corte Madera Creek Path	Redwood Hwy.	0.21
Creekside Loop	Class I	Magnolia Ave.	Magnolia Ave.	0.71
NWP Railroad Trail	Class I	Doherty Park	Magnolia Ave. Park	0.61
Sandra Marker Trail	Class I	Holcomb Ave.	Eastern City limit (at High Canal Bridge)	1.00
Bon Air Road Side Path	Class I	Magnolia Ave.	2 Bon Air Rd. driveway	0.10
Bon Air Road/ Bridge Path	Class I	Southwest side of Bon Air Bridge	Northern City limits (at Kentfield)	0.15
Magnolia Ave. Side Path	Class I	150 feet south of Doherty Dr.	Bon Air Rd.	0.25
Doherty Dr. Path	Class I	Larkspur Plaza Dr.	Doherty Bridge	0.16
Heatherwood Park	Class I	Doherty Bridge	Heatherwood Park	0.21
			Total Class I:	**5.43**
Segment	**Facility Type**	**From**	**To**	**Length (miles)**
Magnolia Ave.	Class II	Bon Air Rd.	Dartmouth Dr.	0.50
Doherty Dr.	Class II	Magnolia Ave.	Larkspur Plaza	0.08
Doherty Dr.	Class II	Riviera Cir.	Lucky Dr.	0.25
Bon Air Rd.	Class II	Magnolia Ave.	Bon Air Bridge	0.09
			Total Class II:	**0.92**
Segment	**Facility Type**	**From**	**To**	**Length (miles)**
Redwood Hwy.	Class III	Wornum Dr. under-crossing	Industrial Way	0.40
South Eliseo Dr.	Class III	Bon Air Rd.	Corte Madera Creek Path	0.71
Bon Air Rd.	Class III	Bon Air Bridge	Northern City limit	0.15
Magnolia Ave.	Class III	College Ave.	Corte Madera Ave.	2.00
William Ave.	Class III	Magnolia Ave.	Holcomb Ave.	0.18
Alexander Ave.	Class III	Magnolia Ave.	Bay View Ave.	0.39
Bay View Ave.	Class III	Alexander Ave.	Walnut Avenue/Southeastern City limit	0.10
			Total Class III	**3.93**
			All Classifications Total:	**10.28**

Source: City of Larkspur Bicycle and Pedestrian Master Plan, 2004; Department of Public Works and Engineering, 2011.

Figure 3-5, the Bicycle and Pedestrian Circulation Plan, shows the location of all existing

bicycle and pedestrian facilities in Larkspur and indicates planned improvements.[4] Historically, the City has spent approximately $40,000 annually on bikeway improvements.[5]

Pedestrian and bicyclist access across Highway 101 is provided by three facilities: a boardwalk path passing under Highway 101 just south of Sir Francis Drake Boulevard between the Corte Madera Creek Path and the drawbridge trestle; a pedestrian overpass that connects Redwood Highway (between Rich Street and Industrial Way) in Larkspur to Nellen Avenue (between Lucky Drive and Fifer Avenue) in Corte Madera; and the Wornum Drive underpass that routes vehicular, pedestrian, and bicycle traffic under Highway 101 between Redwood Highway in Larkspur and Tamal Vista Avenue in Corte Madera. The boardwalk path is maintained by the City of Larkspur, while the pedestrian overpass is maintained by Caltrans, and the Wornum Drive underpass is maintained by the Town of Corte Madera.

Figure 3-5
Bicycle and Pedestrian Circulation Plan
To be added.

Safe Routes to Schools

The Transportation Authority of Marin (TAM) administers the Safe Routes to Schools program in Marin County. The program's main intent is to decrease vehicular congestion around schools by encouraging students to walk or bike to school, and consists of four components:

- *Education and Encouragement.* This part of the program incentivizes participation with promotional materials and events, and provides classroom lesson plans that focus on safety and navigational skills. It also provides resources for parents to share the responsibility of chaperoning their children to school, including forming a "WalkPool" or "BikePool," or a traditional carpool.
- *Crossing Guards.* TAM provides trained crossing guards at key intersections to help students (and all street users) safely cross the street. TAM uses specific criteria and consults with a Technical Advisory Committee including the County's Public Works directors to determine and prioritize crossing guard locations.
- *Safe Route Planning.* TAM provides engineering expertise to plan safe access to schools after consulting with stakeholder groups including local public works staff, parents, teachers, school administrators.
- *Capital Improvement Program.* Funding for infrastructure improvements is provided through TAM's "Safe Pathways" capital improvement program.

The City of Larkspur's Department of Public Works and Engineering has coordinated Larkspur's Safe Routes to Schools program in collaboration with TAM since its inception in

[4] Note: The Bicycle and Pedestrian Circulation Plan is excerpted from the Bicycle and Pedestrian Master Plan adopted by the City in 2004. It is included in the General Plan for reference only.

[5] City of Larkspur Bicycle and Pedestrian Master Plan, 2004.

Marin County in 2000. Recent Safe Routes to Schols projects in Larkspur funded by TAM include paving the multi-use path connecting Doherty Drive to Heatherwood Park (providing access to Hall Middle School and Redwood High School), signing and striping Doherty Drive, and upgrading an access ramp at Hall Middle School to comply with the Americans with Disabilities Act (ADA).

Pedestrian Circulation

A pedestrian is a person who travels by foot or who uses assistive mobility devices, such as a wheelchair (assistive devices may be motorized).[6] Pedestrians in Larkspur use the City's network of sidewalks, multi-use paths (see listing of Class I bikeways above), hiking trails, "paper streets," and hillside paths and stairways.

- *Sidewalks*. Most development in Larkspur is accessible by sidewalk, though some of the City's older residential neighborhoods (e.g., Murray Park, Madrone Canyon, Palm Hill) and commercial areas (e.g., the Redwood Highway area) lack sidewalks and other pedestrian amenities. New development is generally required to install sidewalks and other amenities, such as trees, at the discretion of the Public Works Director.[7] Private property owners are responsible for maintaining the sidewalks adjacent to their property.
- *Hiking Trails*. There is a network of unpaved hiking trails located within Larkspur's Planning Area, including trails in the King Mountain Open Space Preserve (with access from Cedar and Vine Streets, and the Skylark Apartments), and the Baltimore Canyon Open Space Preserve (with access from Madrone Avenue). In addition to the public hiking trails available, numerous trails on privately owned property are also available for public use. Trails located on privately owned land are not maintained by the City.
- *Paper Streets.* "Paper streets" were platted - without regard for terrain - as part of an early survey of Larkspur, and provide access to some of the hilly neighborhoods in Larkspur. Many paper streets remain today as paths and stairways, though some remain undeveloped. The City intends to study the potential of undeveloped, City-owned paper streets for future development as paths or staircases (see action programs under Policy CIR-6.2). City-owned paper streets are shown in Figure 3-6.
- *Hillside Paths and Stairways.* As discussed above, many "paper streets" have been developed into paved paths or stairways. Some of the most frequently used City-owned hillside stairways are the Arch Street stairs connecting Magnolia Avenue with Arch Street, and the Eden Lane stairs connecting the lower portion of Myrtle Avenue with Laurel Avenue.

Planned improvements to pedestrian facilities are shown in Figure 3-5, Bicycle and Pedestrian Circulation Plan.

Figure 3-6
City-owned Paper Streets
To be added.

[6] U.S. Department of Transportation, "Designing Trails and Paths for Access." July 1999.
[7] Larkspur Municipal Code 18.16.260 H.

Bicycle Circulation

Bikeways in Larkspur serve a diverse population of commuter bicyclists traveling to school or work, recreational bicyclists, and an increasing number of people using bicycles for utilitarian trips such as shopping and errands. Students (including elementary, middle, high school, and College of Marin students) constitute a large portion of commuter bicyclists. Approximately 2 percent of employed residents bicycle to work.[8] There is a considerable daily volume of adult recreational bicyclists through the City.

In addition to the City's network of designated bikeways, bicyclists may also ride on City sidewalks, with the exception of Magnolia Avenue between Madrone Avenue and Doherty Drive, the Bon Air Shopping Center, and the Bon Air Bridge.[9] Bicyclists may, however, use the Class I bike path along the southwest side of the Bon Air Bridge.

The Larkspur Municipal Code requires bicycle parking for all new non-residential development that will generate visitor traffic. Short-term bicycle parking is required at a minimum of one two-bike capacity rack or five percent of visitor vehicle parking capacity, while development with more than 10 tenant-occupants must provide long-term bicycle parking for five percent of visitor vehicle parking capacity (or at least one space).

Planned improvements to bicycle facilities are shown in Figure 3-5, Bicycle and Pedestrian Circulation Plan.

Regional Connections

In addition to providing access between neighborhoods, Larkspur's hiking trails and multi-use paths provide convenient connections to neighboring communities and the greater Bay Area region. The Twin Cities/Sandra Marker Trail provides access for pedestrians and bicyclists between Larkspur and Corte Madera, while the Corte Madera Creek Path connects Larkspur and Kentfield. The Cal Park Hill Tunnel Multi-use Pathway (part of the 70-mile multi-use pathway associated with the SMART rail line) links Larkspur Landing with San Rafael on the east side of Highway 101. Hiking trails in the King Mountain and Baltimore Canyon Open Space Preserves connect Larkspur with the unincorporated County, the City of Mill Valley, and other cities in the Ross Valley.

The Bay Trail (a planned 400-mile network of trails encircling San Francisco and San Pablo Bays) passes through the City along the east and west sides of Highway 101 from Corte Madera to Sir Francis Drake Boulevard, and along Sir Francis Drake Boulevard to the Richmond Bridge. Local access to the Bay Trail is provided by the Corte Madera Creek Path, owned and maintained by the City. From the pedestrian overpass at Redwood Highway over Highway 101 to the end of the City's eastern limits before San Quentin Prison, the Bay Trail is an off-street, paved multi-use path. It continues along Sir Francis Drake to the Richmond-San Rafael Bridge as an on-street, unimproved path.

The Pacific Coast Bike Route passes through Larkspur along the Twin Cities/Sandra

[8] U.S. Census Bureau, 2000.
[9] Larkspur Municipal Code 10.40.040.

Marker Trail.

Constraints to Pedestrian and Bicycle Circulation

Unlike motorized travel, system capacity is rarely a problem for bicyclists and pedestrians. Rather, constraints are frequently posed by inadequate or missing links in the existing multi-use paths, bikeways, and trails system, missing or unclear signage, and inconsistent design standards.

Safety is the first and major consideration when planning for pedestrian and bicyclist circulation. Bicyclists should feel safe and comfortable traveling on the same roads as cars. Similarly, where there are no sidewalks, pedestrians should feel safe sharing the road with cars and bicycles. When conditions are not favorable to smooth circulation of bicycle and pedestrian traffic, a "constraint" is said to exist.

The Bicycle and Pedestrian Master Plan identifies the constraints to bicycle and pedestrian traffic that exist in Larkspur and prioritizes projects to eliminate or mitigate those constraints. Some of the constraints identified in the Bicycle and Pedestrian Bicycle Plan include:

- There is limited bike and pedestrian access across Corte Madera Creek, with only three routes available. West of Highway 101, bicyclists and pedestrians may use the Class I multi-use path on the Bon Air Bridge. At Highway 101, two pedestrian overpasses on the east and west sides of the Greenbrae interchange connect Redwood Highway with Sir Francis Drake Boulevard East and Lucky Drive in Corte Madera with Sir Francis Drake Boulevard West.
- There is no direct connection between the Cal Park Hill Tunnel Multi-Use Pathway to areas south of Corte Madera Creek. Bicyclists continuing south from the Tunnel must exit the multi-use pathway and cross the busy intersection at Sir Francis Drake Boulevard East and Larkspur Landing Circle before connecting with the existing multi-use path south of Sir Francis Drake Boulevard East. They can then continue south on the pedestrian overpass along the Greenbrae interchange, which terminates at Redwood Highway. The Central Marin Ferry Connection project, sponsored by TAM, will address this problem by constructing an elevated multi-use path over Sir Francis Drake Boulevard (see "Planned Improvements" discussion below).
- The portion of Doherty Drive between Larkspur Plaza Drive and Riviera Circle lacks safe bicycle and pedestrian facilities. This is of particular concern due to the high volume of students traveling to Hill Middle School or Redwood High School along this route. The route is also regularly subjected to seasonal flooding due to its location adjacent to the Larkspur Marina. The City plans to rebuild and elevate the Doherty Drive Bridge and the remainder of the roadway to safely accommodate pedestrians and bicyclists in the summer of 2012 (see "Planned Improvements" discussion below).
- Pedestrians crossing Doherty Drive find it difficult, especially when school begins and ends, due to the steady volume of traffic. School crossing-guards ease this situation somewhat.

- There is a lack of safe pedestrian and bicyclist facilities along Redwood Highway. The Redwood Highway area contains three mobile home parks and a shopping center, but pedestrian and bicycle facilities are limited to a sidewalk fronting the shopping center. Pedestrian traffic across Highway 101 is accommodated via a pedestrian overpass and the Wornum Drive underpass.
- The is no designated bikeway along South Eliseo Drive or Corte Madera Creek between the Corte Madera Creek Path and Bon Air Road, which poses safety concerns as bicyclists comingle with pedestrians on sidewalks or with cars in the narrow, unsigned roadway.
- There is a lack of pedestrian and bicycle connectivity between Greenbrae and neighborhoods south of Sir Francis Drake Boulevard and Corte Madera Creek.

In addition to constraints to bicycle and pedestrian travel within Larkspur, improvements are also necessary to provide for safe travel between Larkspur and surrounding communities or open space areas. Some of the constraints to inter-community bicycle and pedestrian travel identified in the Bicycle and Pedestrian Master Plan include:

- *[To be identified with Bike and Pedestrian Master Plan update.]*

Planned Improvements to Bicycle and Pedestrian Circulation Facilities

The Larkspur Bicycle and Pedestrian Master Plan identifies and prioritizes specific projects to mitigate the constraints to the City's bicycle and pedestrian circulation system. In addition to less capital-intensive projects such as striping and signing existing routes, the Master Plan proposes or supports the following projects:

- The Central Marin Ferry Connection Project. This project will provide an elevated multi-use path over Sir Francis Drake Boulevard connecting the Cal Park Hill Tunnel Multi-use Pathway with the multi-use path on the south side of Sir Francis Drake Boulevard. Project construction is estimated to start in fall of 2012. (First-tier priority.)
- Doherty Drive and Doherty Drive Bridge Rehabilitation. The City plans to raise and widen Doherty Drive and the Doherty Drive Bridge to reduce the risk of flooding and accommodate a Class I bikeway. Project construction is estimated to start in the summer of 2012. (Second-tier priority.)
- City-wide pedestrian and bicycle improvements. The City will add striping, curb cuts, and signage throughout the City where necessary, particularly near schools and shopping centers. (Third-tier priority.)

Planned improvements to the regional bicycle and pedestrian circulation system in Larkspur include the San Quentin Area Bicycle and Pedestrian Access Study, sponsored by the Marin County Department of Public Works. This study intends to close the gap between the portion of the Bay Trail in Larkspur (terminating at Remillard Park) and the San Rafael/Richmond Bridge. The study was in the conceptual phase in 2011.

Vehicular Circulation

Vehicular circulation in the Larkspur area is relatively constrained. First, there are only three arterials (Sir Francis Drake Boulevard, Magnolia Avenue, and Bon Air Road). Virtually all trips made in Larkspur must travel on one or more of these roads. Second, there are only three crossings of Corte Madera Creek: one at College Avenue in Kentfield (outside of the City's Planning Area), another at Bon Air Road, and a third at Highway 101. Quite a bit of local travel uses the freeway just to get over Corte Madera Creek.

Functional Classification

The Federal Highway Administration determines roadway functional classifications based on the type and level of service they provide. The functional classification of a roadway also determines whether or not it is eligible for federal funding for maintenance and improvements. The following functional classifications apply to roadways within the Larkspur Planning Area:

- *Freeways.* These roadways serve intra-regional and inter-regional traffic and have the highest carrying capacity.
- *Arterials.* These roadways have high traffic volumes and facilitate trips of longer duration in and out of communities and suburban centers.
- *Collector roads.* These roadways primarily serve to connect local roads with arterial roads. Collectors also route vehicular traffic between neighborhoods and local (inter-city) destinations.
- *Local roads.* These roadways roads are typically the most common type in Larkspur. They provide access to collectors and arterials as well as local access within neighborhoods.

Federal funding for roadway maintenance and improvement is only available for arterial and collector roadways. Maintenance and improvement of local roads in Larkspur is funded through the City's General Fund or by monies collected from developers through the payment of traffic impact fees.

Figure 3-7
Functional Classification of City Roadways
To be added.

Pavement Condition and Management

The City maintains approximately 64 miles of paved roadways. Pavement condition is measured using a pavement condition index (PCI), which rates pavement condition on a scale of 0 to 100. A newly constructed road would have a PCI of 100, while a failed road would have a PCI of 25 or less. (Pavement condition categories are shown in Figure 3-8.) In 2009, the average weighted PCI of the entire street network of the City was 45,

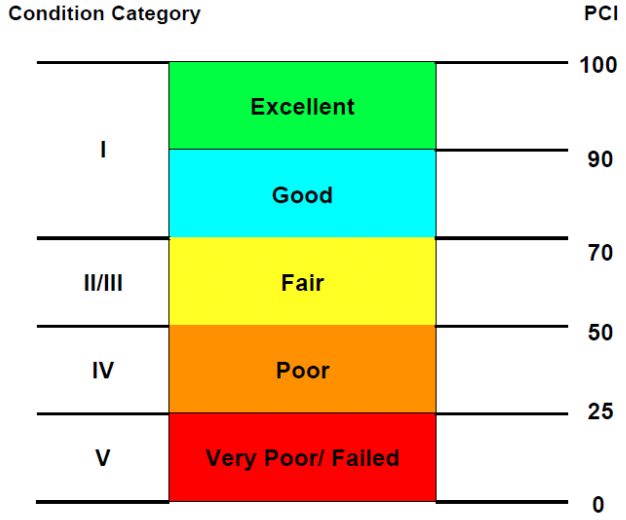
one of the lowest-rating street systems in the Bay Area.[10]

While in 2009 approximately 22.5 percent of the City's streets were in "Good" condition, almost 17 percent were in "Fair" condition, and 60 percent were in "Poor" or "Very Poor" condition. Arterial and collector roadways were largely in good condition (PCI ratings of 77 and 64, respectively) compared to the "Poor" condition of local roadways (a PCI of 39).

Pavement Maintenance and Rehabilitation

Historically, the City's pavement maintenance and rehabilitation program has focused on surface seals, overlays, and surface reconstruction. The cost and complexity of measures to maintain roadways is positively correlated to the pavement condition; i.e., pavements in "Good" condition may be maintained at that pavement condition with relatively inexpensive surface treatments, which also act as a preventative maintenance techniques. However, as pavement condition worsens, more intensive and expensive rehabilitation measures are required. It is estimated that delays in roadway repairs can result in 30 times the rehabilitation cost.[11]

Figure 3-8: Pavement Condition Index



Source: Nichols Consulting Engineers, CHTD. 2009.

Funding Pavement Maintenance and Rehabilitation

Funding for maintenance and rehabilitation of arterial and collector roadways in Larkspur is secured largely through federal and state grant monies, which require the City to provide matching funds. However, no federal or state grant monies are available to fund improvements to local roadways. Local roadway improvements and maintenance are funded by the State fuel excise tax, State sales tax, countywide sales tax measures, and the City's general fund. These limited funding sources have resulted in deferred maintenance of the City's local roadways. However, the City has begun

[10] Nichols Consulting Engineers, CHTD. City of Larkspur P-TAP10 Pavement Management Program Executive Summary. September 2009.

[11] Nichols Consulting Engineers, Chtd.

investigating alternative funding mechanisms for local roadway repair such as public-private partnerships for public roads that lead to large private developments or to just a few developed properties.

The Level of Service Concept

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 (LOS) is used by transportation engineers to compare traffic conditions at intersections.

The Level of Service analysis results in a letter grade for each intersection studied, from A through F, with A representing free flow with insignificant delays, and F representing gridlock conditions. It is the City's policy that traffic conditions at signalized intersections should not be worse than Level of Service (LOS) D during peak periods (See Policy CIR-3.2).

Figure 3-9
Primary Circulation System, Larkspur
To be added.

Figure 3-10, Level of Service Definitions, Signalized Intersections

Level of Service	Vehicle Delay (Seconds)	Description
A		Free flow, insignificant delays: No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication.
B		Stable Operation, Minimal Delays: An occasional approach phase is fully utilized. Many drivers begin to feel somewhat restricted within platoons of vehicles.
C		Stable Operation, Acceptable Delays: Major approach phases fully utilized. Most drivers feel somewhat restricted.
D		Approaching Unstable, Tolerable Delays: Drivers may have to wait through more than one signal indication. Queues may develop but dissipate rapidly, without excessive delays.
E		Unstable Operation, Significant Delays: Volumes at or near capacity. Vehicles may wait through several signal cycles. Long queues form upstream from intersection.
F		Forced Flow, Excessive Delays: Represents jammed conditions. Intersection operates below capacity with low volumes. Queues may block upstream intersections.

Source: Transportation Research Board, Highway Capacity Manual, 2000.

Figure 3-11
Level of Service Definitions, Unsignalized Intersections

Level of Service	Vehicle Delay (seconds)	Description
A		Little or no delay.
B		Short traffic delay.

C		Average traffic delay.
D		Long traffic delay.
E		Very long traffic delay.
F		Excessive traffic delays.

Source: Transportation Research Board, Highway Capacity Manual, 2000.

Level of Service	Expected Delay	Vehicles/Hour
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	

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.

- ***Unsignalized Intersections (Minor Street Stop).*** For unsignalized intersections where stop control is provided on the minor street only (e.g., the intersection of Magnolia Avenue and 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. This type of intersection may generally operate with little delay, but left-turning traffic from the minor street may 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 vehicular traffic flow characteristics under existing conditions, and as appropriate, Level of Service ratings at critical locations (for vehicular circulation only). Figure 3-12 shows the estimated average daily vehicular traffic (ADT) volumes at key locations in the City's circulation system. Figure 3-13 illustrates locations where the vehicular Level of Service is approaching, at, or over the threshold ordained by the City.

Figure 3-12
Average Daily Traffic, Existing Conditions, 2011
To Be Added

Figure 3-13
Existing Level of Service Deficiencies, 2011
To be Added

Highway 101. Highway 101 is the north-south spine of Marin County's circulation system. Vehicular congestion on Highway 101 in the City's Planning Area is most common during peak commute hours 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.

The Transportation Authority of Marin (TAM) has found that the Highway 101 interchanges in Larkspur and Corte Madera are characterized by operational deficiencies and non-standard design features. These factors contribute to increased traffic accidents on the highway, and increased congestion on local arterials as motorists attempt to avoid congestion on the highway. In 2012, a project to significantly redesign and reconstruct the interchanges (referred to as the *Highway 101 Greenbrae/Twin Cities Corridor Improvements*) was in the environmental analysis/preliminary engineering design phase.

Sir Francis Drake Boulevard. Sir Francis Drake Boulevard is Marin's primary east-west arterial, stretching from Point Reyes in the west to the Richmond-San Rafael Bridge in the east. In Larkspur, it begins in the west as a divided four lane roadway at the intersection with Bon Air Road. The roadway is referred to as East Sir Francis Drake Boulevard when traveling east of Highway 101. The majority of Sir Francis Drake Boulevard west of Highway 101 is maintained by the County of Marin. The City maintains the portion of Sir Francis Drake Boulevard east of Barry Way and to the eastern City limit.

Due to its importance as a Countywide and regional arterial, most of the vehicular traffic on Sir Francis Drake Boulevard within Larkspur's Planning Area is generated by through traffic, rather than local traffic. This limits the City's ability to alleviate or mitigate congested conditions on the portion of the roadway in its jurisdiction.

Magnolia Avenue. Magnolia Avenue is the City's primary north-south arterial. The roadway begins in the south at the City's limits with the Town of Corte Madera (at Branch Avenue) and terminates at the northern City limit at College Avenue in Kentfield. From Branch Avenue north to Doherty Drive, Magnolia Avenue is designated a collector street, while from Doherty Drive north to College Avenue, it is designated a minor arterial.[12]

Doherty Drive. Doherty Drive is a collector roadway that provides local access to community facilities (e.g., Henry C. Hall School, Piper Park, the Twin Cities Police Authority, and Redwood High School), and several residential neighborhoods. It also serves as a through-facility between Larkspur and southbound Highway 101. The eastern portion passes through the Town of Corte Madera via Lucky Drive, Fifer Avenue, and

[12] Caltrans Map 04K55, Functional Classification System.

Nellen Avenue.

Bon Air Road. Bon Air Road is a minor arterial carrying traffic from Magnolia Avenue in Larkspur to Sir Francis Drake Boulevard in Kentfield. It begins at Magnolia Avenue as a two-lane divided roadway. Just north of Marin General Hospital, it becomes a four-lane divided road. It provides access to Marin General Hospital, the residential neighborhoods on Bon Air Hill, and Hal C. Brown Park at Creekside.

Redwood Highway. This roadway parallels Highway 101 to the east, and serves as part Doherty Drive/Lucky Drive/Fifer Avenue/Tamal Vista Boulevard/Wornum Drive/Redwood Highway access route to northbound Highway 101 from Larkspur. It also provides access to commercial and industrial businesses, three mobile home parks, and the Greenbrae Boardwalk (outside of Larkspur's Planning Area) in the Redwood Highway area.

Madrone Avenue. This narrow, winding collector roadway serves the residential neighborhoods west of Magnolia Avenue. Portions of the road are paved around large redwood trees.

Wolfe Grade. Though Wolfe Grade is located outside of the City's Planning Area, it generates through-vehicular traffic in Larkspur on Bon Air Road and Sir Francis Drake Boulevard. The two-lane, winding minor arterial is a frequently-used connection between Sir Francis Drake Boulevard in Kentfield and downtown San Rafael at D Street. It is often used in conjunction with Sir Francis Drake Boulevard to bypass Highway 101 when northbound traffic on the highway is congested.

Traffic Accident Patterns

The Twin Cities Police Authority (TCPA) collects traffic accident data throughout the City, which is presented in an annual report to the City Council. The traffic accident data helps the City to identify potential hazards in the circulation system and ensure they are removed or mitigated.

Projected Future Conditions

[To be added when traffic study is completed.]

Model Method and Assumptions

[To be added when traffic study is completed.]

Figure 3-14
Trip Distribution Assumptions
To be added.

Figure 3-15
Projected Growth in Through Trips, Year-Year
To be added.

Figure 3-16
Summary of Level of Service Analysis
and Recommended Improvements
To be added.

Figure 3-17
Projected Level of Service Deficiencies
Note: Service Level is not shown for intersections operating at LOS C or better.
To be added.

Effect of Growth on Level of Service

[To be added when traffic study is completed.]

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. When this situation occurs, traffic engineers identify three possible scenarios:

- 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.

Lacking major improvements to the system, the critical intersections in the west Sir Francis 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. This may result in an equilibrium whereby all routes have approximately similar travel times, and have one or more sections that are at or approaching capacity.

Carpooling

Carpooling 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. One such service is 511.org, which coordinates ride-sharing programs (including carpools and vanpools) throughout the San Francisco Bay Area, including Marin County. The 2000 Census found that nearly 9 percent of employed Larkspur residents carpooled to work. Carpooling services for schoolchildren and their families in Marin is facilitated by SchoolPoolMarin.org, part of the Safe Routes to School Program administered by the Transportation Authority of Marin.

Parking

Larkspur, with its mix of older activity centers such as the Downtown and North Magnolia, 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
- Residential Areas
- New Developments
- Major shopping centers

Downtown. Parking Downtown is provided in a number of ways, most notably on-street parking available along Magnolia Avenue, which is restricted to two hours between 7:00 AM and 6:00 PM. Additional on-street parking on side streets such as Ward Street is subject to the same restrictions. A City-owned parking lot at Magnolia Avenue and Ward Street has capacity for 27 cars and is also restricted to two hours. Many businesses 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 and when the parking restrictions are not enforced. Additionally, neighbors often report overflow parking into neighborhoods during the evenings from restaurant patrons. If, however, there is an intensification of use, or if Downtown Larkspur becomes more attractive as a place to shop and parking demand increases, then parking supply could become a constraining factor to economic revitalization.

North Magnolia. This area has evolved into a more regional-serving commercial area, due to the relocation of a neighborhood-serving hardware store and the presence of boutique clothing shops, a bakery, and restaurants. Parking is mainly provided off-street, in front of businesses, though limited on-street parking is available on the west side of the street. Neighborhood residents report overflow parking from restaurant patrons. With occupancy of existing vacant commercial spaces and intensified neighborhood-serving uses (e.g., local coffee shops), parking will become a constraint to development in this area.

Residential Areas. 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 off-street parking spaces for guests. Second dwelling units require an additional off-street parking spot. 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.

New Developments. All new developments in Larkspur are required to provide off-street

parking. The Larkspur Municipal Code establishes standards for determining the appropriate amount of parking required for the specific use.

Major Shopping Centers. Parking in Bon Air Center appears to be adequate for current uses. The parking lot in the Marin Country Mart is often impacted by commuters who use it when the Larkspur Ferry Terminal parking lot is full.

Future Issues. *To be added.*

Public Transit

The Citizen Advisory Committee identified public transit as an effective mode of transportation that should be supported by the City and patronized by City residents. As Larkspur and the surrounding communities grow, public transit will play a significant role in the City's circulation system. The most impactful project on the City' public transit system will be the SMART commuter rail line, a commuter rail line following the former Northwestern Pacific Railway right-of-way through Sonoma and Marin counties and terminating in Larkspur (see further discussion of SMART below under "Regional Considerations"). Larkspur has no direct control over increasing transit use, which is largely a regional issue and subject to broader economic pressures.

As noted earlier, 14 percent of employed Larkspur residents use transit to get to work.[13] Transit options include local and regional bus service, ferry feeder and ferry service, para-transit, and airport feeder service. There are also limited park-and-ride facilities in Larkspur, located in a commuter lot at the western edge of the Drakes Landing Office Park near the Highway 101 southbound on-ramp.

Bus Service

Since 1990, funding cuts to the Golden Gate Transit District and the Marin County Transit District (Marin Transit) have led to the elimination of two local bus lines and two commuter bus lines that formerly served Larkspur residents. Declining sales and property tax revenues (the primary funding sources for Marin Transit) as well as fare revenue (Golden Gate Transit's primary source of funding) resulted in comprehensive service reductions from 2006 to 2010. [14] Service reductions range from reduced service frequency to elimination of routes. Route eliminations are generally based on route performance evaluations recording the number of riders per stop on a particular route; however, further surveys can determine if riders are transit-dependent, which may justify retaining an underperforming route. When possible, eliminated routes are absorbed by other routes, which may mitigate any negative impacts on riders. [15]

Local Bus Service

Local bus service is provided by Marin Transit, which contracts with Golden Gate Transit for fixed route service. As of 2011, the following local transit routes served Larkspur:

[13] U.S. Census Bureau, 2000.
[14] Marin County Transit District Service Reductions Detailed Report, 2009.
[15] Marin County Transit District Short Range Transit Plan, 2009.

- ***Route 22.*** From San Rafael Transit Center. Stops in Larkspur at Magnolia Ave. and Ward St. Terminates at the Sausalito Ferry.
- ***Route 29.*** From San Rafael Transit Center. Stops in Larkspur at East Sir Francis Drake Boulevard and Larkspur Landing Circle, and Sir Francis Drake Boulevard at Eliseo Drive. Terminates in San Anselmo.

Marin Transit also operates a bus route that serves two Larkspur schools, which are open for all transit riders to use.

- ***Route 117.*** Serves Hall Middle School and Redwood High School. Stops in Larkspur at Hall Middle School and Magnolia Ave. at Ward St. Westbound route originates in Corte Madera and terminates at Doherty Drive and Larkspur Plaza Drive.

A shuttle service between Corte Madera, Larkspur and the Larkspur ferry terminal is also provided by Marin Transit. However, funding constraints and low ridership limit the shuttle's availability.

Commute and Basic Bus Service

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

- ***Route 18.*** Commuter service from the College of Marin, with service along College and Magnolia Avenue. In San Francisco, it stops in the Financial District and at the Civic Center and Transbay Terminal.
- ***Route 24.*** Originating in Inverness, with service along Sir Francis Drake Boulevard. Stops in the Larkspur area at the College of Marin and Sir Francis Drake Boulevard at Eliseo Drive. In San Francisco, it stops in the Financial District and at the Transbay Terminal.
- ***Route 97.*** Provides express service from the Larkspur Ferry Terminal directly to the Financial District and the Transbay Terminal.

Ferry Feeder and Ferry Service

Golden Gate Transit runs ferry service from its terminal on East Sir Francis Drake Boulevard to the Ferry Building in San Francisco. Access to the ferry terminal is by private automobile, passenger drop-off, walking, bicycling, or bus feeder service. Three bus routes serve the ferry terminal, only one of which actually serves Larkspur (Route 29; see description above).

The ferry runs as frequently as every half hour in the morning and afternoon peak hours on weekdays, at 35-minute intervals during the rest of the day, and every two hours on weekends.

Paratransit Service

Paratransit is a specialized service for people with special needs (e.g., elderly or disabled),

or in areas that are not efficiently served by fixed route transit. In Marin County, this service is provided through Marin Transit, which contracts the service out to Whistlestop Wheels. This dial-a-ride service operates seven days a week and evenings. Use of the service is subject to meeting eligibility requirements.

Airport Feeder Service

The Marin Airporter operates from the Larkspur Landing area to the San Francisco International Airport. The Marin Airporter currently leases its terminal space from Golden Gate Transit District (GGTD) and leases some parking from the Sonoma-Marin Area Rail Transit Authority (SMART). It is possible that the property will be used by GGTD for other purposes in the future. However, the City supports retention of the Airporter use on the site. (See Chapter 2, Land Use, Policy LU-9.1.)

Park and Ride

There are no Caltrans-owned park-and-ride facilities in Larkspur. A privately owned commuter lot with 50 parking spaces is available at the western edge of the Drake's Landing Office Park.

Taxi Service

Taxi service in Larkspur is provided by several local and Marin County-based companies. . A regional taxi dispatch center is located within the City in the Redwood Highway area east of Highway 101.

Regional Considerations

As noted previously, Larkspur's central location in the regional circulation system results in a high volume of through-traffic, i.e., traffic that does not begin or end in the City but simply passes through. As a result, land use and circulation plans and projects in other communities can have a significant effect on travel in Larkspur.

The following regional circulation plans and projects may impact the circulation system in Larkspur:

- ***Marin Countywide Plan.*** The Marin Countywide Plan was adopted in 2007. The Plan intends to provide a safe, efficient transportation system that integrates all modes of transportation. It includes a Congestion Management Plan with recommended improvements to major arterials and roadways within specific jurisdictions.

  The Plan recommends the following improvements to circulation facilities in the Larkspur Planning Area:

  - Reconfiguration of U.S. Highway 101/Sir Francis Drake Boulevard interchange.
  - Improved access to transit facilities from the Greenbrae interchange with Highway 101 to Tamalpais Drive in Corte Madera.

These improvements are recommendations only, and the Plan contains no programmatic actions or further recommendations for their completion. (See discussion of Highway 101 interchanges below.)

- ***Sonoma Marin Area Rail Transit (SMART).*** In 2008, Marin and Sonoma County voters approved a one-quarter percent sales tax to fund the Sonoma Marin Area Rail Transit (SMART) commuter rail line. As planned, the proposed 70-mile rail line and a parallel multi-use path will follow the former Northwestern Pacific Railroad right-of-way, now owned by SMART, from the City of Cloverdale (Sonoma County) and to Larkspur. The Larkspur SMART station is planned to be located in Larkspur Landing, adjacent to the Cal Park Hill Tunnel Multi-use Path. While one of the train's intended purposes is to convey commuters to and from the Larkspur Ferry Terminal, no direct connection between the SMART station and the ferry terminal is planned.

  In 2011, budget shortfalls due to the nationwide economic recession and additional project costs led to the decision to phase construction and operation of the rail line. Construction of the Initial Operating Segment, connecting Railroad Square in Santa Rosa and Downtown San Rafael, was tentatively scheduled to begin in 2014.[16]

  This General Plan retains the City's historic vision for mass transit use on the corridor. Anticipating future rail service along the former Northwestern Pacific right-of-way, Policy V of the 1990 General Plan Circulation Element established guidelines for future regional transit service along the Highway 101 corridor. Action Program [11] in particular expressed the City's intent to "promote an exclusive mass transit corridor along the railroad right-of-way east of Highway 101." Policies CIR-6.5 and CIR-6.6 in this General Plan retain the intent of these policies while recognizing the establishment and jurisdiction of the Sonoma-Marin Area Rail Transit District.

- ***Highway 101 Interchanges.*** The Highway 101 Greenbrae/Twin Cities Corridor Improvement Project (sponsored by TAM) intends to improve the Highway 101 on- and off-ramps between Sir Francis Drake Boulevard in Larkspur and Tamalpais Drive in Corte Madera. The project will address the non-standard weaving distances (short merges) characterizing their existing configuration, which contribute to high accident rates. The project will also address vehicular congestion on that stretch of Highway 101, which often causes traffic to spills onto Larkspur roadways. In 2011, the project was in the initial engineering design and environmental review phase.

[16] Prado, Mark. "Downtown San Rafael gets train." Marin Independent Journal. January 19, 2011.