

MEMORANDUM

Date: April 13, 2018

To: David Pape, SamTrans and Lindy Chan, Redwood City

From: Kendra Rowley, Eleanor Leshner, and Taylor McAdam, Fehr & Peers

Subject: Redwood City Bike & Ped Safety Improvement Study – State of the Corridor

PLANNING CONTEXT

Redwood City's El Camino Real (ECR) Corridor is in the midst of multiple planning efforts and increased development activity that could affect the look, feel, and operation of the City's primary north-south roadway. The Bike & Ped Safety Improvement Study will build on existing planning efforts and community input to create a preferred design concept for the segment of the ECR corridor between Maple Street and Charter Street. This memo summarizes existing roadway conditions along this segment as well as existing planning efforts and proposed alternatives.

EXISTING PLANS

Redwood City's 2010 General Plan is the primary document governing land use decisions. Along the ECR Corridor, the General Plan recommends several new mixed-use zoning categories, which have since been integrated into the City's zoning code, as shown in **Appendix A, Figure 1: Who's Using the Corridor**. The study area is zoned almost entirely as Mixed-Use Corridor, which was one of the new zoning designations developed in 2011 and 2013. This zoning designation allows up to 60 dwelling units per acre and six stories for mixed-use developments. The one exception in the study area is the small segment north of Lincoln Avenue, which is part of the Downtown Mixed-Use zone and allows for denser and taller development.

Recent planning efforts pertaining to the study area include the *Redwood City Moves* citywide transportation plan that is currently in draft form, and the *El Camino Real Corridor Plan*, approved in December 2017. The *Redwood City Moves* plan provides a high-level, citywide assessment of the existing transportation system and proposes goals and possible projects for the future. The future *proposed transportation program* is introduced in Chapter Four of the plan. *Redwood City Moves* provides context for the ECR-focused *Corridor Plan*, which includes proposals for streetscape and transportation improvements within the study area. These proposals are summarized in the **Summary of Previous Corridor Study (Adopted Dec 2017)** figure

in **Appendix A**. Some of the proposals, such as Class IV bike lanes on ECR, are corridor-wide improvements, while others, such as slip lane removal at Woodside Road, are location specific. All of these proposals are conceptual and detailed plan lines have not been developed to date.

EXISTING CONDITIONS

As a precursor to Redwood City's *El Camino Real Corridor Plan*, a series of Existing Conditions Memorandums were published in Fall 2016. Memorandum #1: Land use, Streetscape, and Public Realm and Memorandum #3: Transportation serve as the basis for the following existing conditions discussion. The two memorandums are provided as Appendices B and C to this memo.

To supplement and summarize the Existing Conditions Memorandums, **Figure 1: Who's Using the Corridor** and **Figure 2: Existing Network** were prepared.

Who's Using the Corridor

Appendix A, Figure 1 summarizes land use conditions and community context surrounding the corridor. The majority of the study area is defined as a "community of concern" by the Metropolitan Transportation Commission. The definition of Communities of Concern is intended to represent a diverse cross-section of populations and communities that could be considered disadvantaged or vulnerable in terms of both current conditions and potential impacts of future growth. The definition of communities of concern includes all census tracts that have a concentration of both minority and low-income households at specified thresholds of significance, or that have a concentration of three or more of six additional factors if they also have a concentration of low-income households. Among the additional factors are people with a disability, seniors 75 years and over, and cost-burdened renters. All of the Communities of Concern in the study area qualify as such under the first criteria: more than thirty percent low-income AND more than seventy percent minority.

In general, this segment of the corridor is commercial in nature with very few residential or civic land uses fronting ECR. Auto-oriented businesses are a dominant commercial use and tend to use much of their land for parking or vehicle storage. Although the study area has a stretch of pedestrian-oriented business between Roosevelt and Pine, the majority of stores do not have entrances on ECR and instead provide access from adjacent rear or side parking lots. Most of the buildings in the study area are 1-2 stories, which is below the allowable height limit for the Mixed-Use El Camino Real district. Due to the prevalence of surface parking lots, most lots are also underutilized given the allowable Floor-Area-Ratio in the district. The Target and Hopkins Acura parcels, which bookend the study area, are particularly large, underutilized parcels. Although zoning allows for more intense land uses, only two development projects—one proposed and one under construction—are planned for the study area. The active project is a mixed-use, four-story building at 1629 Main Street, just off of El Camino Real and the proposed project is an 8.3-acre, mixed-use

development including residential, office, retail, and childcare bounded by Maple Street, Elm Street, the Caltrain tracks, Cedar Street, and El Camino Real.¹

There are no open spaces, parks, or schools along this segment of ECR. Sequoia High School is a few blocks north of the study area and several elementary schools are within a half mile of El Camino Real.

Existing Transportation Network and Operations

The study area largely mirrors the transportation characteristics found along the rest of ECR in Redwood City (see **Appendix A, Figure 2**). The Woodside Road overpass presents the one major exception and the full cloverleaf design impacts approximately 850 feet of ECR frontage. Woodside Road (SR-84) is a four-lane, east-west boulevard that connects Redwood City to US-101 and I-280. The Woodside Road and ECR interchange presents a significant barrier for pedestrian travel and has historically experienced worse delays, collision rates, and queuing than other sections of ECR in Redwood City.

Most Redwood City ECR intersections operate at LOS D or better, with the exception of the ECR/Laurel Street and ECR/Hazel Avenue intersections, which operate at LOS F in both the AM and PM peak hours. ECR intersections at Roosevelt Avenue, Oak Avenue, Hazel Avenue, and Laurel Street all experience higher than statewide average collision rates. The majority of the vehicle-to-vehicle collisions are rear-end collisions.

Very few enhanced pedestrian amenities exist within the study area and the width and quality of sidewalks are inadequate to comfortably convey pedestrians from one end of the corridor to the other. Maple Street is designated as a pedestrian street in the General Plan, but under present conditions offers similar pedestrian amenities as the rest of the corridor. There is a continental crosswalk across ECR at the Maple Street intersection, while all other crosswalks use a standard design.

The Woodside Road overpass sits in the middle of the longest crosswalk gap for pedestrians trying to cross ECR in Redwood City; a 1,665 feet segment of ECR between Oak Avenue and Charter Street. Existing crosswalks across ECR cover long distances of between 75 and 90 feet without any pedestrian refuges. The slip lanes at Main, Redwood, Laurel, and Hazel present additional crossing challenges for pedestrians walking along ECR under the overpass, as do narrow sidewalks throughout much of the study area.

An analysis of pedestrian collisions revealed that in the ten year period 2006-2015, 14 pedestrian-involved collisions occurred on the study corridor. Major collision trends include red light violations and permitted turns at signalized intersections, challenges with sight lines and gaps in traffic for vehicles entering El Camino Real, and complex intersection geometries. A summary of these incidents is shown in the **Pedestrian Collision Profiles** figure in Appendix A.

¹ Source: Redwood City Development Projects webpage: <http://www.redwoodcity.org/city-hall/current-projects/development-projects>

There are no dedicated bicycle lanes on ECR and only a few provided on cross streets in the study area. These routes include a Class II route on Maple Street from ECR to Main Street (0.2 miles) and a second on Roosevelt Avenue from Ruby to ECR (1.1 miles). In general, the cross streets in this area experience low to moderate bicycle volumes².

An analysis of bicycle collisions revealed that in the ten year period 2006-2015, 25 bicyclist-involved collisions occurred on El Camino Real between Maple and Charter streets. These collisions are explained by a mix of factors, which indicates that many different elements on the corridor influence bicycle safety. Some of those elements include red light violations and permitted turns at signalized intersections, numerous conflict points at side streets and driveways, and complex intersection geometries. A summary of these incidents is shown in the **Bicycle Collision Profiles** figure in Appendix A. A graphical summary of proposed street typologies and low-stress bicycle facilities can be found in Figures 18 and 19 of the *Redwood City Moves* draft plan (**Appendix B**).

Buses operate in mixed-traffic in the study area, the same way as throughout all of Redwood City. Northbound bus stops are located at Redwood Avenue and Cedar Street and southbound bus stops are located at Lincoln Avenue and Oak Avenue.

Although not unique to the study area, the street grid is offset or skewed at the majority of the intersections between Maple Street Avenue and Charter Street. This pattern creates connectivity challenges for all modes trying to cross ECR, and creates a barrier between east and west Redwood City. Addressing these connectivity issues requires realigning roadways, which is a logistical and financial challenge in developed urban areas. Several realignment options have been discussed as part of the *El Camino Real Corridor Plan* and may be considered as part of this study and/or as part of other ongoing development proposals.

² Redwood City El Camino Real Corridor Plan: Existing Conditions Memorandum #3 Transportation. November (2016). pg. 25.