



CITY OF LOMITA

Bicycle & Pedestrian Master Plan

January 2018



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1 INTRODUCTION

The City of Lomita’s Bicycle and Pedestrian Master Plan introduces policies and projects to ensure safe, comfortable, and convenient active transportation options for residents and visitors. The Plan sets forth context-sensitive recommendations to create a comprehensive active transportation network that enhances public space for walking and bicycling.

Streets play an important role in generating vibrant, strong communities. Recognizing the public health, safety, and economic benefits of well-designed streets, the Plan will support future investments that provide safe and enjoyable access to local retail, schools, workplaces, transit, and other key destinations.

This Plan also serves to prepare the City to pursue funding for roadway improvements and programs related to active transportation. By funding the development of the Plan and consequently adopting it, the City Council has sent a strong signal that it intends Lomita to be more competitive in the pursuit of funds allocated by programs such as the Caltrans Active Transportation Program and Los Angeles Metropolitan Transit Authority Call for Projects. The implementation of this Plan will enable Lomita to fulfill its vision.

VISION

The City of Lomita envisions a future where individuals, whether 8 years old or 80, are served by a comprehensive, integrated transportation network providing safe, comfortable, and convenient access and mobility along and across streets throughout the City.

GOALS

Four goals guided the Bicycle and Pedestrian Plan development, and supported the selection of highest priority projects.

IMPLEMENTATION READY

The Plan must be consistent with community values as well as planning, policy, and regulatory documents to ensure adoption by the City Council and its subsequent implementation. That means Plan recommendations increase the City’s likelihood of successfully competing for grant funding and take into consideration the needs of all modes and roadway users.

CONNECTIVITY

Because of its small size, many destinations in the City are a short walk or bicycle ride away from residents. The Plan identifies opportunities to connect local destinations via active transportation modes. In addition, it builds on existing and planned infrastructure in the region, to ensure compatibility with neighboring communities in the South Bay.

IMPROVE SAFETY

Plan implementation will make streets safer for all road users. Final recommendations identify pedestrian and bicycle infrastructure that provides safe access to vital destinations by addressing dangerous roadway conditions and connecting gaps in the network.

SUPPORT ACTIVE TRANSPORTATION

By improving connectivity and safety, Lomita seeks to ensure walking and cycling are comfortable and convenient modes of transportation within the City. Public engagement campaigns, interactive programming, and partnerships with community organizations are integral to its successful implementation.

ACTIVE TRANSPORTATION PROGRAM (ATP) COMPLIANCE

The California Department of Transportation’s (Caltrans) Active Transportation Program (ATP), provides more than \$100 million of discretionary grants annually to encourage and fund active transportation projects and programs throughout the state. Typically, a city that competes for these funds has already identified the project in a local planning document.

Caltrans outlines Bicycle and Pedestrian Master Plan elements in its ATP guidelines. Inclusion of these elements increases the competitive advantage of a city’s ATP application. Figure 1 demonstrates where this plan complies with required ATP elements.

Figure 1 California ATP Compliance Checklist

Required ATP Elements	Plan Compliance
The estimated number of existing bicycle trips and pedestrian trips in the plan area, both in absolute numbers and as a percentage of all trips, and the estimated increase in the number of bicycle trips and pedestrian trips resulting from implementation of the plan.	Pg. 49 (Figure 31)
The number and location of collisions, serious injuries, and fatalities suffered by bicyclists and pedestrians in the plan area, both in absolute numbers and as a percentage of all collisions and injuries, and a goal for collision, serious injury, and fatality reduction after implementation of the plan.	Pg. 22-25 (Figure 12 to Figure 15)
A map and description of existing and proposed land use and settlement patterns which must include, but not be limited to, locations of residential neighborhoods, schools, shopping centers, public buildings, major employment centers, and other destinations.	Pg. 5-6 (Figure 2)
A map and description of existing and proposed bicycle transportation facilities, including a description of bicycle facilities that serve public and private schools and, if appropriate, a description of how the five E’s (Education, Encouragement, Enforcement, Engineering, and Evaluation) will be used to increase rates of bicycling to school.	Pg. 7-8, 41-50, Appendix A (Figure 3, Figure 25, Figure 26, Figure 28, Figure 29)
A map and description of existing and proposed end-of-trip bicycle parking facilities.	Pg. 7, 41-43 (Figure 26)
A description of existing and proposed policies related to bicycle parking in public locations, private parking garages and parking lots and in new commercial and residential developments.	Pg. 4, 36
A map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes. These must include, but not be limited to, bicycle parking facilities at transit stops, rail and transit terminals, ferry docks and landings, park and ride lots, and provisions for transporting bicyclists and bicycles on transit or rail vehicles or ferry vessels.	(Figure 3, Figure 26)

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Required ATP Elements	Plan Compliance
A map and description of existing and proposed pedestrian facilities, including those at major transit hubs and those that serve public and private schools and, if appropriate, a description of how the five E's (Education, Encouragement, Enforcement, Engineering, and Evaluation) will be used to increase rates of walking to school. Major transit hubs must include, but are not limited to, rail and transit terminals, and ferry docks and landings.	Pg. 13, 41-50, Appendix A (Figure 3, Figure 14, Figure 25, Figure 29, Figure 30)
A description of proposed signage providing wayfinding along bicycle and pedestrian networks to designated destinations.	Pg. 35
A description of the policies and procedures for maintaining existing and proposed bicycle and pedestrian facilities, including, but not limited to, the maintenance of smooth pavement, ADA level surfaces, freedom from encroaching vegetation, maintenance of traffic control devices including striping and other pavement markings, and lighting.	Pg. 4, 36-37
A description of bicycle and pedestrian safety, education, and encouragement programs conducted in the area included within the plan, efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the law impacting bicycle and pedestrian safety, and the resulting effect on collisions involving bicyclists and pedestrians.	Pg. 4, 37-39
A description of the extent of community involvement in development of the plan, including disadvantaged and underserved communities.	Pg. 26-34
A description of how the active transportation plan has been coordinated with neighboring jurisdictions, including school districts within the plan area, and is consistent with other local or regional transportation, air quality, or energy conservation plans, including, but not limited to, general plans and a Sustainable Community Strategy in a Regional Transportation Plan.	Pg. 4-7, 49
A description of the projects and programs proposed in the plan and a listing of their priorities for implementation, including the methodology for project prioritization and a proposed timeline for implementation.	Pg. 41-50 (Figure 25 to Figure 30)
A description of past expenditures for bicycle and pedestrian facilities and programs, and future financial needs for projects and programs that improve safety and convenience for bicyclists and pedestrians in the plan area. Include anticipated revenue sources and potential grant funding for bicycle and pedestrian uses.	Pg. 49, Appendix B, Appendix C
A description of steps necessary to implement the plan and the reporting process that will be used to keep the adopting agency and community informed of the progress being made in implementing the plan.	Pg. 49-50
A resolution showing adoption of the plan by the city, county or district. If the active transportation plan was prepared by a county transportation commission, regional transportation planning agency, MPO, school district or transit district, the plan should indicate the support via resolution of the city(s) or county(s) in which the proposed facilities would be located.	Pending Adoption

2 POLICY AND PLANNING CONTEXT

POLICY REVIEW

Various local, state, and regional policies support the development and maintenance of bicycle and pedestrian facilities in Lomita. Recommended policies and projects set forth in this Plan are consistent with the following local and regional plans.

CITY OF LOMITA MUNICIPAL CODE

Lomita's Municipal Code includes guidelines for the inclusion of bicycle parking at nonresidential developments and highlights bicycling as a method to address trip reduction and promote alternative forms of transportation. The program seeks to minimize the possibility of injury to residents and visitors through inspection and scheduled maintenance.

The Municipal Code includes a stringent but unenforced bicycle registration policy, requiring all bicycles operated and stored in the City of Lomita to be registered and identified by a license plate decal through the Sheriff's department. Policies such as these discourage ridership, tend to go unenforced, and disproportionately affect people of color and low income residents. Best practices suggest such policies should be optional, to support recovery of stolen bicycles, but not mandatory.

CITY OF LOMITA SIDEWALK INSPECTION POLICY

Lomita has a clearly defined, proactive sidewalk inspection program. The inspection program seeks to minimize the possibility of injury to residents and visitors within the city with reporting and annual scheduled maintenance. Sidewalk deficiency ratings denote repair priorities. Other sidewalk hazards that may necessitate repair are defined, including excessive sidewalk slope, sub-standard width, and trip hazard such as holes and cracks of half an inch. Lomita's Public Works Department is tasked with recording sidewalk data, inspection, and recording repairs to ensure the inspection program is functioning properly.

CITY OF LOMITA PAVEMENT MANAGEMENT PROGRAM

The Pavement Management Program outlines recommended improvements for the pavement network. The program provides administrators and maintenance personnel with existing pavement conditions, maintenance needs of each street segment, and a prioritized maintenance program. The report also provides recommended pavement strategies over the next five (5) years.

SOUTH BAY BICYCLE MASTER PLAN

The South Bay Bicycle Master Plan sets forth guidelines and policies to improve regional biking conditions. It prioritizes regional connectivity, new bicyclist encouragement programs, active transportation support, and improved road safety. While the City of Lomita is not included in this plan, proposed bike facilities in the adjacent City of Torrance will provide more bike connections to the City of Lomita. As interjurisdictional boundaries are not perceptible by people using the roadway network, best practice is to coordinate Lomita's plans with neighboring jurisdictions.

CALTRANS COMPLETE STREETS POLICY

The Caltrans complete streets policy has existed since 2001, having evolved from Caltrans non-motorized transportation policy. Now in its most recent version, Deputy Directive-64-R2, the policy serves as a guideline to ensure safe mobility for bicyclists, pedestrians, transit vehicles, truckers, as well as motorists across the state. It was developed in recognition of the importance of collaboration among all functional units and stakeholders in developing the state's complete streets network. Implementing complete streets at the state level goes a long way towards reaching the state's goals of reducing greenhouse gas emissions, and brings along other benefits including increased transportation choices, economic revitalization, improved return on infrastructure investments, livable communities, improved safety for all users, more walking and bicycling to improve public health, greenhouse gas reduction and improved air quality. This policy is relevant to the City of Lomita due to the state ownership of Pacific Coast Highway.

LOMITA COMPLETE STREETS POLICY

In March 2017, Lomita City Council unanimously adopted a Complete Streets Policy, which will allow the City to compete for Capital Grant Funds from Los Angeles County Metropolitan Transportation Authority (LA Metro). LA Metro is responsible for allocating discretionary federal, state, and local transportation funds to be used around the region for many types of transportation improvement projects. Were Lomita to pursue Capital Grant Funds, the money could be applied to the bicycle and pedestrian improvement projects throughout the City, as described in Chapter 6.

LAND USE POLICY

The City's General Plan Circulation Element calls for more efficient alternative forms of transportation, and roadway improvements that are sensitive to the community's long-range goals for a livable and sustainable community. The Plan's Circulation policies include discouraging the use of local streets in the City for non-local and regional through traffic except in emergency situations, to ensure the safety and use of pedestrian and bicycle movement throughout the City, and to promote the use of alternative forms of transportation to reduce travel expense, energy use, environmental impact, and traffic congestion.

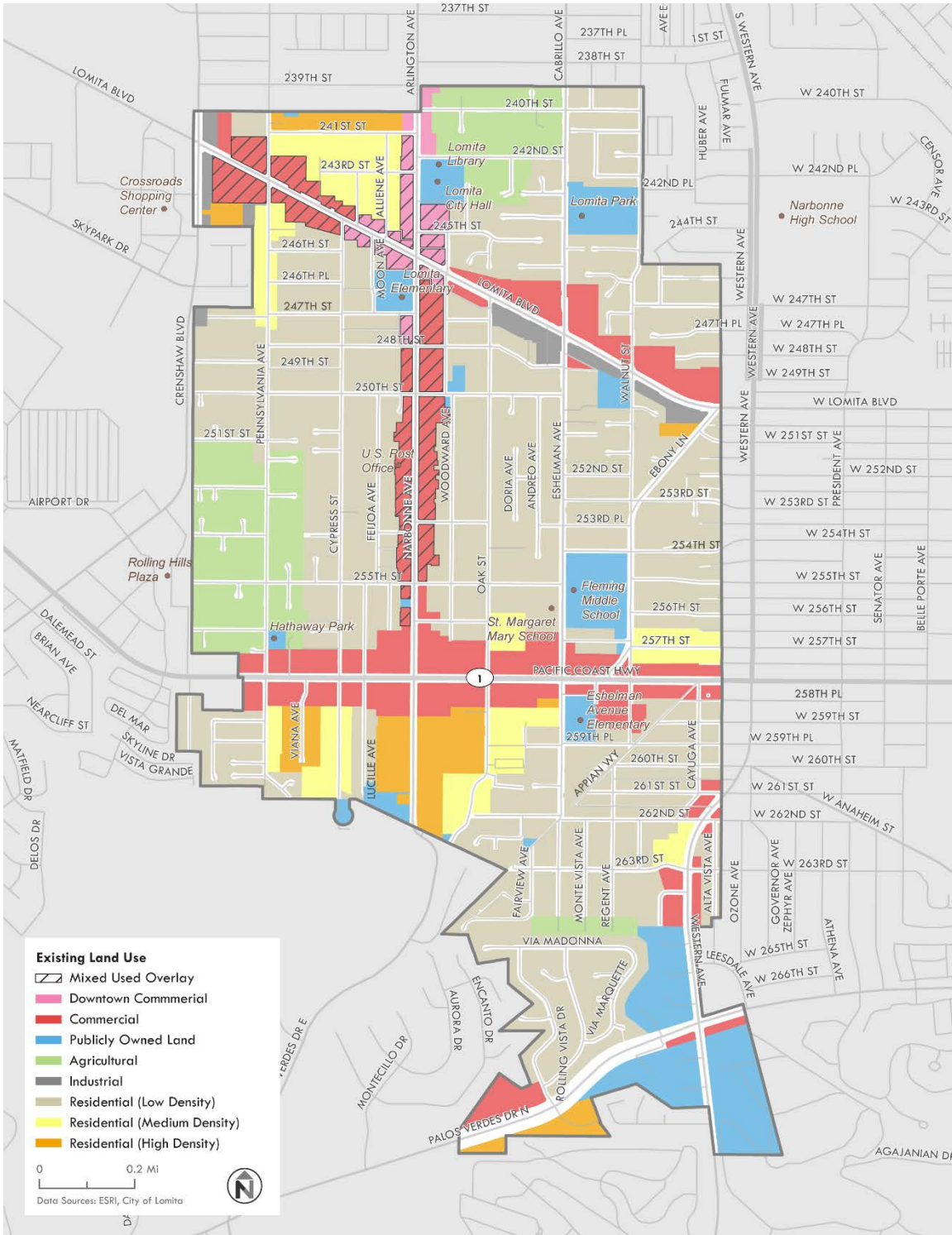
The General Plan's Land Use Element calls for a healthy and congenial environment for shopping by providing safe and efficient circulation. The Land Use Element states that the City will strive to develop a pedestrian downtown that is economically viable and promotes a wide range of activities.

Figure 2 shows the existing land use from the Lomita General Plan. The majority of the City consists of mostly low-density residential uses. Commercial uses are concentrated on major arterials, Lomita Boulevard, Narbonne Avenue, and Pacific Coast Highway (PCH). In addition, there is a mixed-use overlay on Narbonne Avenue and Lomita Boulevard. Schools and parks throughout the city are the major activity generators. Land uses are not proposed to change in the foreseeable future.

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Figure 2 Existing and Future Land Use



3 EXISTING CONDITIONS

This chapter provides a condensed version of the data review and analysis conducted as part of this planning process. An in depth review of these topics can be identified in Appendix D.

BICYCLE FACILITIES

The street network in the City of Lomita is unique in that it contains many residential dead-end streets. There are few roadways connecting across the span of City in any direction. Accordingly, the limited major through-corridors are impacted by higher volumes of motor-vehicle traffic; and thus the City has historically found it challenging to accommodate safe bicycle access to the businesses and amenities along them. While the City's residential streets generally serve well for cyclists to share lanes with neighborhood traffic, there is limited bicycle infrastructure in Lomita.

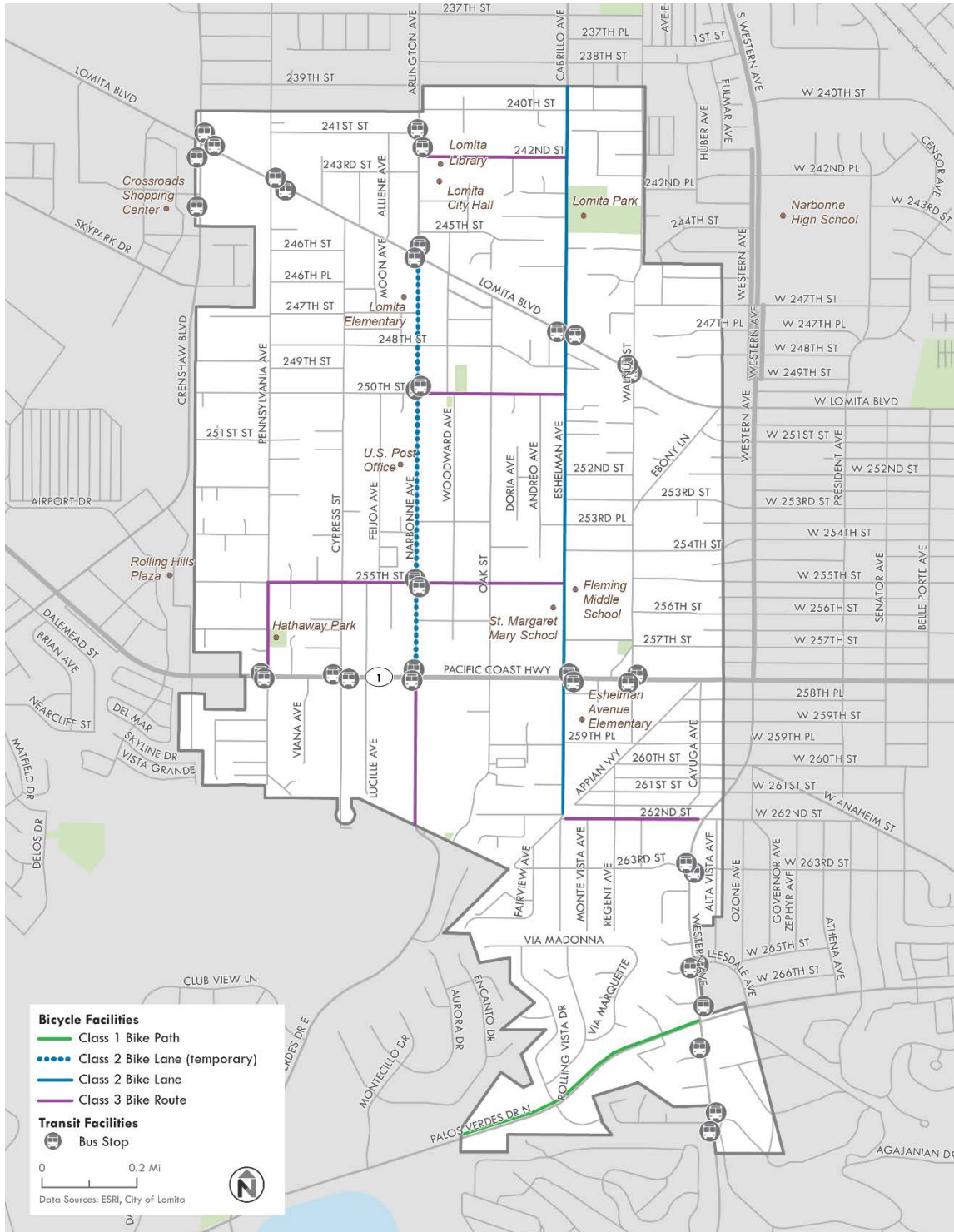
As shown in Figure 3, Eshelman Avenue, which consists of 1.3 miles of dedicated bicycle lanes, is the primary route in the city's bicycle network. It is the only north/south-running route, connecting Lomita Park, Fleming Middle School, St. Margaret Mary School, Eshelman Avenue Elementary, two Metro Bus stops, and two Torrance Transit stops. An additional 2.7 miles of signed bicycle routes guide bicyclists along fragmented segments within the city, along 242nd Street, 248th Street, 255th Street, 262nd Street, Pennsylvania Avenue, and Narbonne Avenue. These bicycle routes consist of no paint on the street, only posted signs designating the streets as bicycle routes. The bike route on 255th Street serves Fleming Middle School and St. Margaret Mary School. There is no continuous east/west connection. The bikeway on Eshelman Avenue connects key destinations including Lomita Park, Fleming Middle School, St. Margaret Mary School, and Eshelman Avenue Elementary.

A one-year pilot project with a dedicated bicycle lane was installed in September 2017 along 0.8 miles of Narbonne Avenue from Lomita Boulevard to PCH. This bikeway serves the Downtown District, Post Office, and Lomita Magnet Elementary School as well as several Metro Bus and Torrance Transit stops. A February 2017 memo from the project team recommended implementing a lane reconfiguration conversion of Narbonne Avenue from four lanes to three, while adding striped bike lanes, guiding the installation of the pilot project. This memo is included in Appendix F.

Bicycle parking is available on an ad-hoc basis throughout the city, but an inventory of existing bicycle parking is not currently available.

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Figure 3 Existing Bicycle and Transit Facilities



BICYCLE LEVEL OF TRAFFIC STRESS ANALYSIS

As part of the planning process, the team looked for streets where relatively small changes could be implemented to reach Lomita’s active transportation goals. One way to do this is to evaluate existing bicycle facilities and candidate streets for the level of traffic stress that people experience while traveling along these streets. The team conducted a Bicycle Level of Traffic Stress (LTS) analysis of major streets with existing bicycle facilities and those offering north-to-south and east-to-west connectivity using Geographic Information Systems. The analysis calculates an LTS score for street segments based on a number of infrastructure measurements, including lane widths, posted speed limits, presence of medians and centerlines, and presence of on-street parking, among others.¹ A description of LTS scores follows:

- LTS 1, lowest stress: Attractive for a relaxing bike ride. Suitable for almost all bicyclists, including children trained to safely cross intersections. Intersections are easy to approach and to cross. An example of a facility with LTS 1 scoring is a two-way street with no centerline, no striped bike lane, curbside parking, and speeds of 25 mph or lower.
- LTS 2, somewhat stressful: Demands more attention than may be expected from children, and bicyclists interact with only occasional passing vehicles as opposed to a steady traffic stream. Intersection crossings are not difficult for most adults, and most of the adult population are comfortable riding. An example of a facility with LTS 2 scoring is a 30 mph street with a striped bike lane less than six feet wide, with one lane in each direction and no parking.
- LTS 3, moderately stressful: More stressful than LTS 2, but does not demand riding among multilane traffic. May offer an exclusive bike lane, depending on speed limits and number of traffic lanes. Intersection crossings may be long and may traverse higher speed roads than allowed by LTS 2. Confident bicyclists are comfortable. An example of a facility with LTS 3 scoring is a 35 mph street with two traffic lanes in each direction, and a striped bike lane next to curbside parking.
- LTS 4, highest stress: Only the strongest and most experienced bicyclists are capable of riding these streets, though not necessarily comfortable. An example of a facility with LTS 4 is a street with speed limits of 40 mph, regardless of the presence of striped bike lanes.

In order to make the streets on the designated bicycle network safe and comfortable for all community members, including children and older adults, the target score is LTS 1. For further explanation of the LTS analysis methodology, please see Appendix D, Bicycle Level of Traffic Stress Analysis.

The results of the traffic stress analysis are shown in Figure 4. Although Eshelman Avenue has bike lanes and serves three schools and Lomita Park, it has a poor LTS rating due to its narrow width in combination with the parking lane. Additionally, Narbonne Avenue south of 255th Street is the highest-stress segment in Lomita’s existing designated bicycle network due to the 35 mph speed limit and its four travel lanes. This analysis was conducted prior to the installation of the Narbonne Avenue pilot project, which would improve the conditions along the segment to LTS3 (not reflected in Figure 4). The analysis also reveals that Pennsylvania Avenue is a good candidate for expansion of the designated bicycle network, given its 25 mile per hour speed limit and two travel lanes.

¹ City of Corvallis. (2016). “Corvallis System Plan Update & Transit Development Plan.”

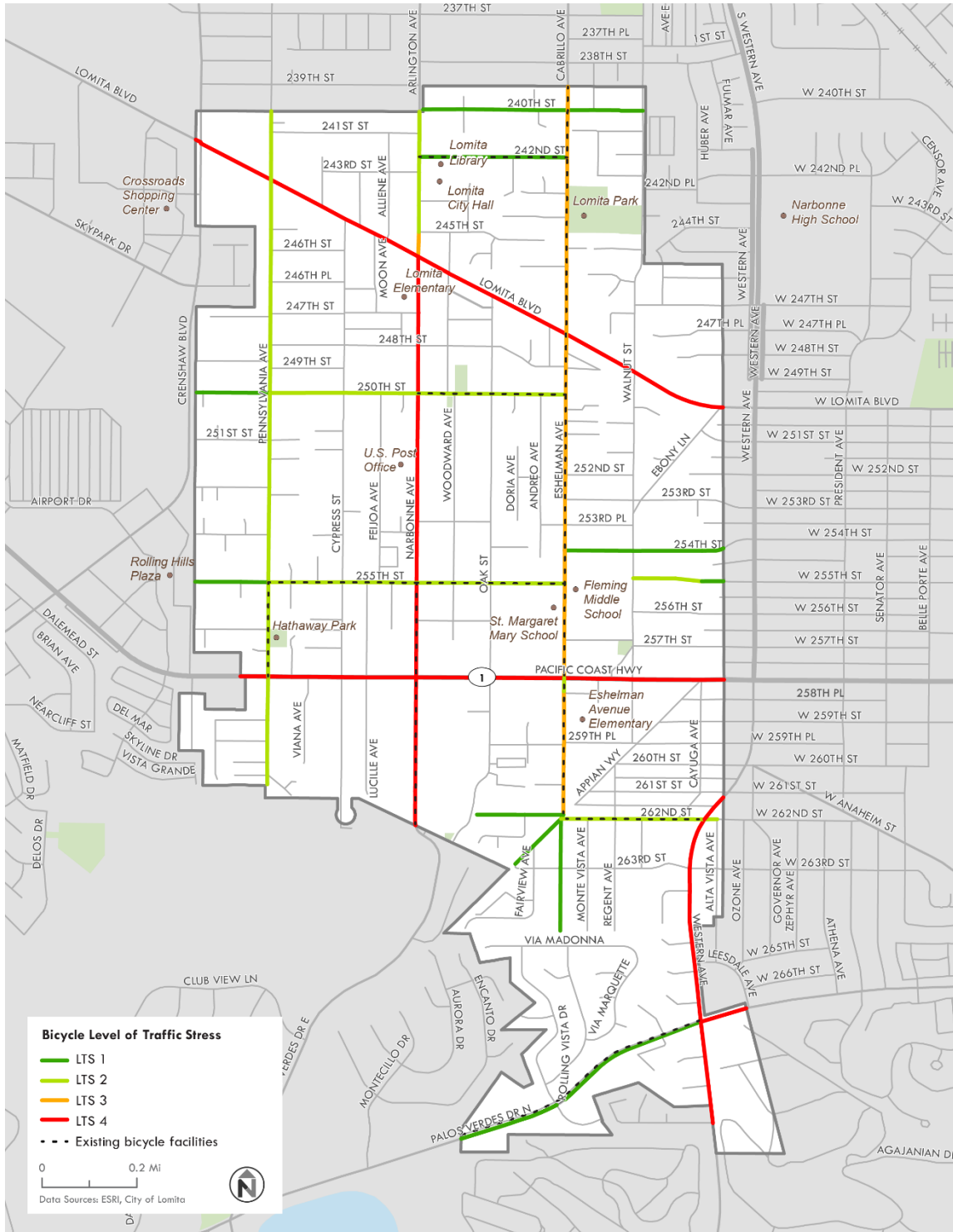
An analysis of traffic stress at intersections focused on the intersections of existing bicycle facilities and local streets with arterials and collectors (Figure 5). Lomita Boulevard, Pacific Coast Highway, Western Avenue, and Narbonne Avenue (preceding the designated bike lane installation) presented the greatest barriers for bicyclists at unsignalized intersections with a stress level of LTS 3.

As vehicle separation and speeds are also direct inputs to pedestrian stress, the results of the bicycle LTS are largely transferable to the pedestrian experience.

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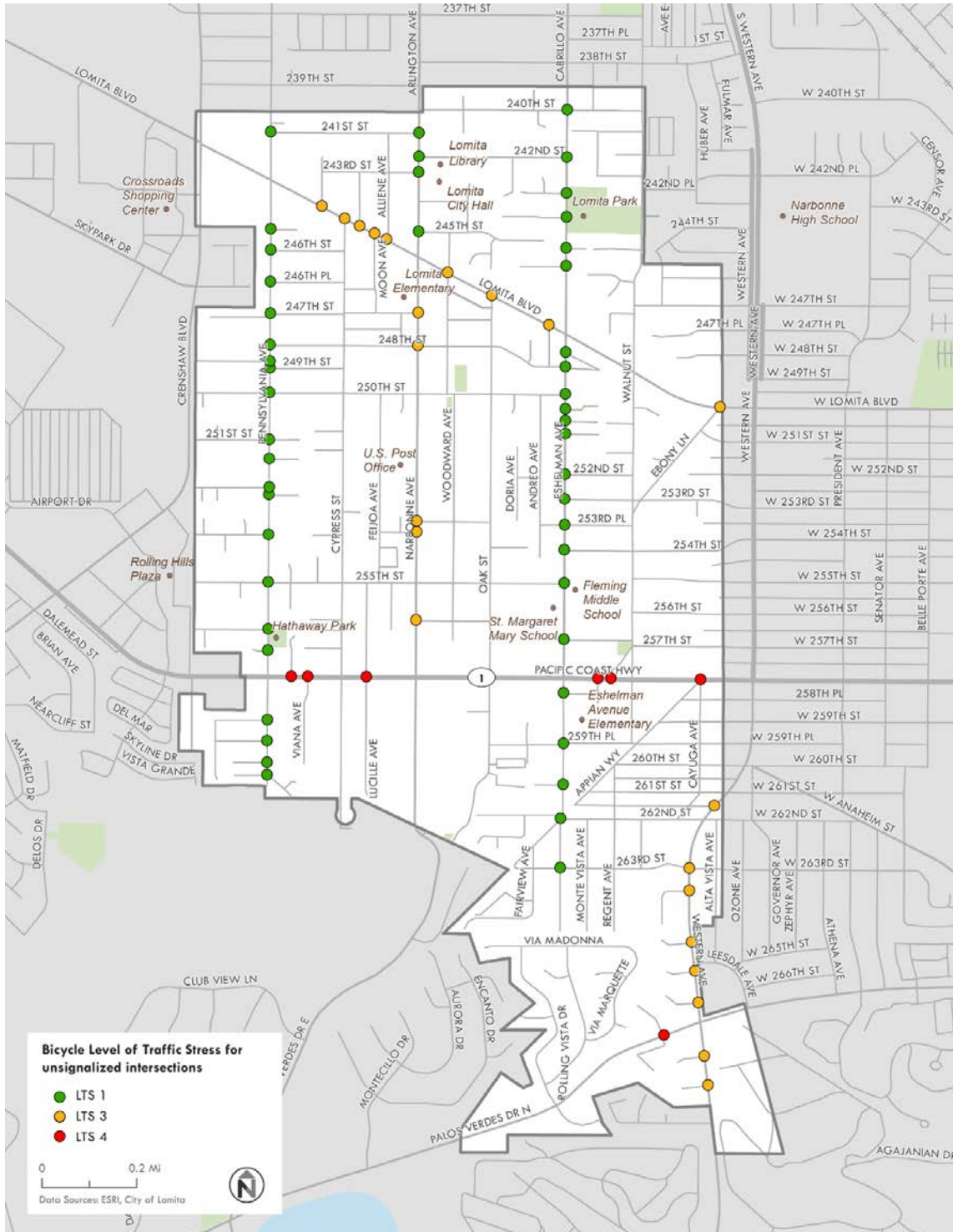
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Figure 4 Level of Traffic Stress on Streets Providing Connectivity



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Figure 5 Level of Traffic Stress for Unsignalized Intersections



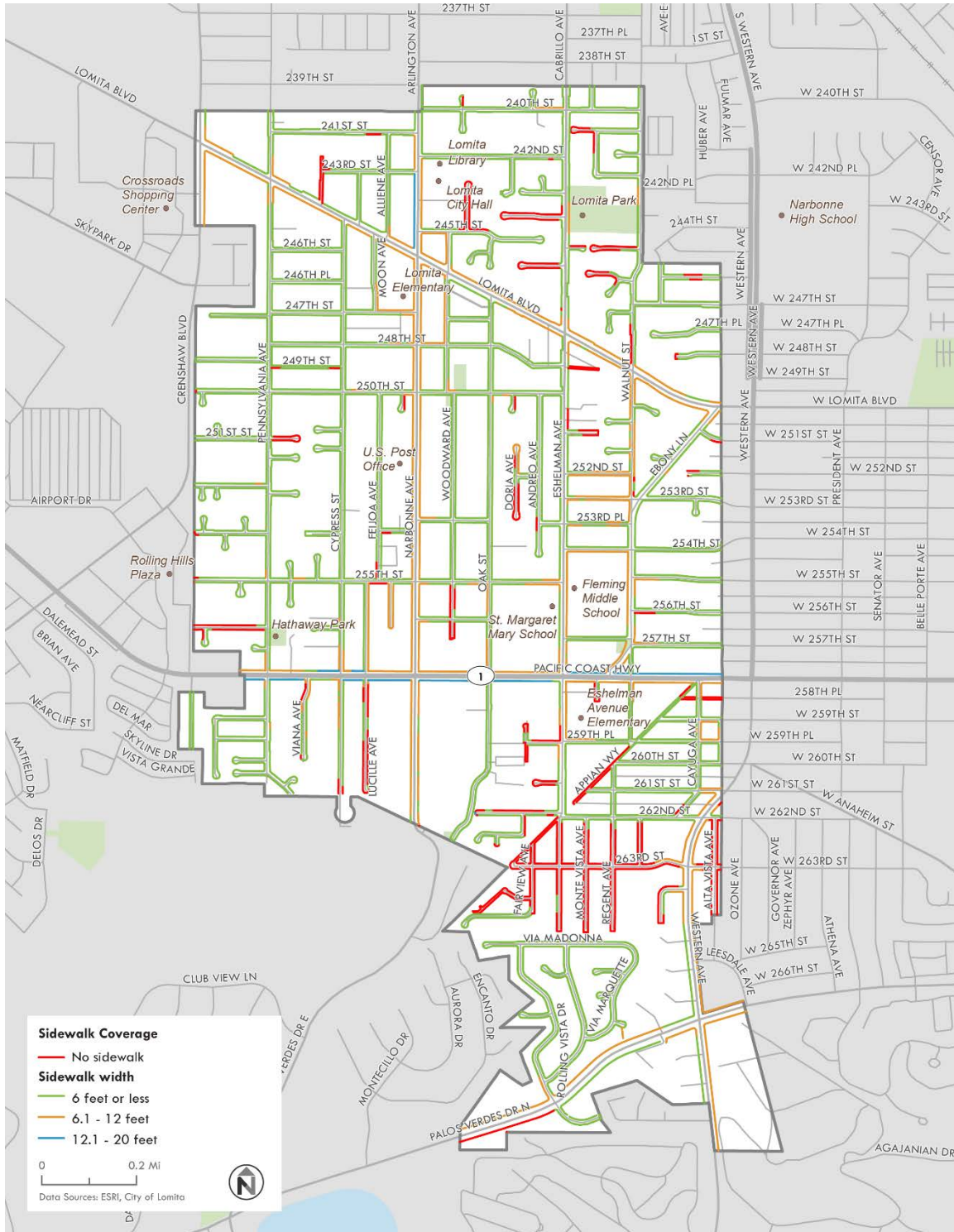
PEDESTRIAN FACILITIES

As shown in Figure 6, sidewalks exist on the majority of roadways in Lomita. With 57 miles of sidewalks, most of the sidewalk gaps (8.4 miles total) exist along residential streets. While a gap is shown on Palos Verdes Drive, the segment is home to a multi-recreational dirt path. Pedestrian access to local public and private schools consists of sidewalks that are least six feet wide.

Throughout Lomita, all signalized intersections along arterials provide marked crosswalks for pedestrians.

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Figure 6 Existing Pedestrian Facilities



BICYCLE & PEDESTRIAN ACTIVITY

The research team conducted counts of bicycle and pedestrian trips to create a snapshot of biking and walking throughout the City. In addition to suggesting existing travel patterns and demand, count data establish a benchmark from which to evaluate the impact of future projects.

People traveling by foot and bike were counted as they passed 10 locations (Figure 9) during two-hour periods on two weekdays and one weekend day. In total, observers counted 3,081 pedestrians and 381 bicyclists over 114 hours. Pedestrians made up 89% of all observations and bicyclists made up 11% of all observations.

Bicycle Counts

Figure 7 breaks down activity by direction of travel and by time of day. Total activity is reflected in Figure 8. Activity was more evenly distributed across the count locations than it was for people walking, with no more than 18% at a single location. Despite the lack of bicycle infrastructure along PCH, the majority of activity was identified along PCH, especially at the Narbonne Avenue intersection. Furthermore, 93% of bicyclists traveling along PCH rode on the sidewalk, suggesting that bicyclists do not feel safe riding on the street along this corridor. In comparison, only 23% of bicyclists were observed bicycling on the sidewalk along Narbonne Avenue prior to the addition of designated bike lanes. Tracking this behavior over time will serve as a proxy for understanding perceived safety as a result of the lane reconfiguration.

Many people also rode on the sidewalks along Lomita Boulevard, the City's second busiest arterial. At Ebony/Lomita, 82% of bicyclists were observed riding on the sidewalk while 86% were observed at Lomita/Pennsylvania. By comparison, the percentage of sidewalk riding was 27% at intersections not associated with PCH or Lomita. Sidewalk riding is a reasonable choice along busy corridors where people feel unsafe to share the street with high volume and high speed motor vehicle traffic. Meanwhile, less than 15% of bicyclists observed along Eshelman—a corridor with bicycle infrastructure—rode on the sidewalks, suggesting that people feel safer riding on streets with bicycle facilities.

Figure 7 Activity Observations by Time of Day and Direction of Travel for People Riding Bicycles

Intersection	Activity by Direction of Travel		Activity by Time of Day			Total
	North/South	East/West	Weekday AM	Weekday PM	Weekend Midday	
Ebony/253rd*	17	13	14	7	9	30
Ebony/Lomita	19	44	19	22	22	63
Eshelman/250th	25	16	9	17	15	41
Eshelman/262nd	2	5	3	1	3	7
Lomita/Pennsylvania	8	42	9	24	17	50
Narbonne/242nd	27	3	7	8	15	30
Narbonne/PCH	26	42	13	30	25	68
Pennsylvania/255th	14	21	7	19	9	35
Walnut/254th*	21	15	6	27	3	36
Eshelman/Lomita Park**	21	0	6	9	6	21
Total	180	201	93	164	124	381

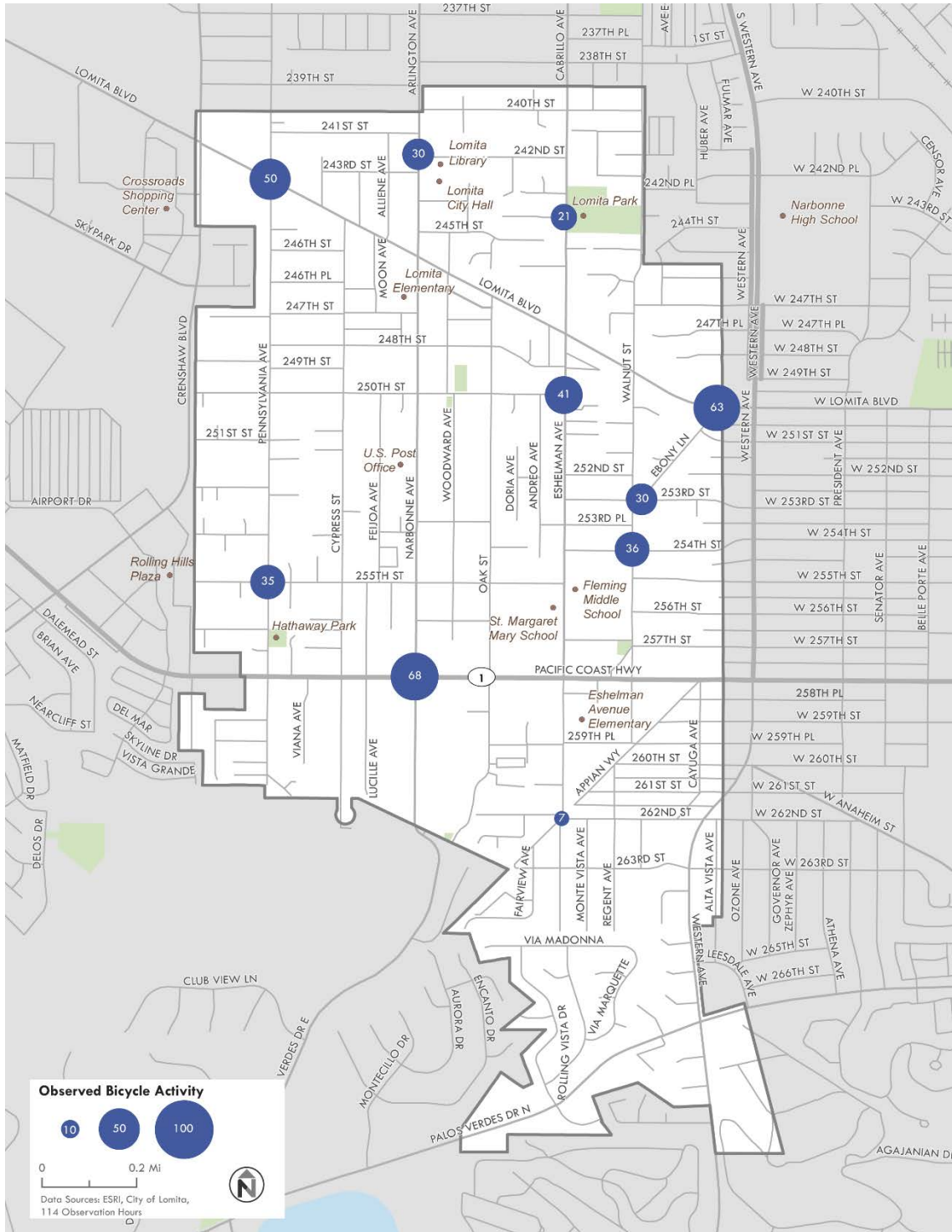
* Weekday PM counts occurred during 3-5 p.m. to capture after school activity

**Only North/South activity observed at this location

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Figure 8 Total Observed Bicycle Volumes



PEDESTRIAN COUNTS

More than a third (38%) of the observed pedestrian activity occurred near the intersection of Walnut and 254th Street, adjacent to Fleming Middle School. This was the most active intersection during the a.m. and p.m. periods, largely due to students walking to and from school. Figure 9 shows activity by direction of travel and by time of day. Total activity is reflected in Figure 10.

Figure 9 Pedestrian Activity Observations by Time of Day and Direction of Travel

Intersection	Activity by Direction of Travel		Activity by Time of Day			Total
	North/South	East/West	Weekday AM	Weekday PM	Weekend Midday	
Ebony/253rd*	213	94	99	166	42	307
Ebony/Lomita	138	231	154	127	88	369
Eshelman/250th	150	75	79	103	43	225
Eshelman/262nd	63	39	60	28	14	102
Lomita/Pennsylvania	29	86	47	34	34	115
Narbonne/242nd	98	100	62	89	47	198
Narbonne/PCH	130	237	105	139	123	367
Pennsylvania/255th	83	59	52	67	23	142
Walnut/254th*	966	202	392	751	25	1,168
Eshelman/Lomita Park**	88	-	23	40	25	88
Total	1,958	1,123	1,073	1,544	464	3,081

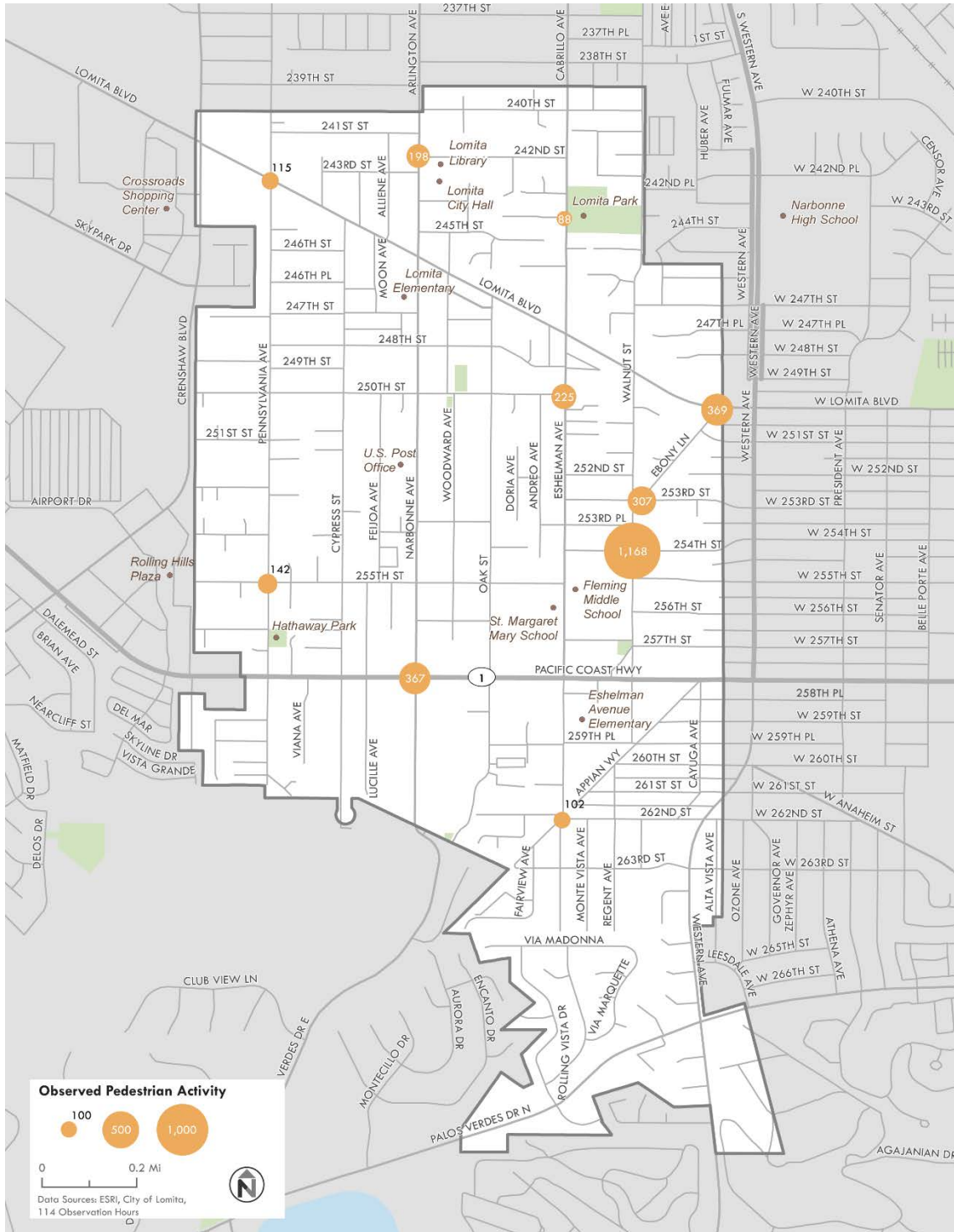
* Weekday PM counts occurred during 3-5 p.m. to capture after school activity

**Only North/South activity observed at this location

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Figure 10 Total Observed Pedestrian Volumes



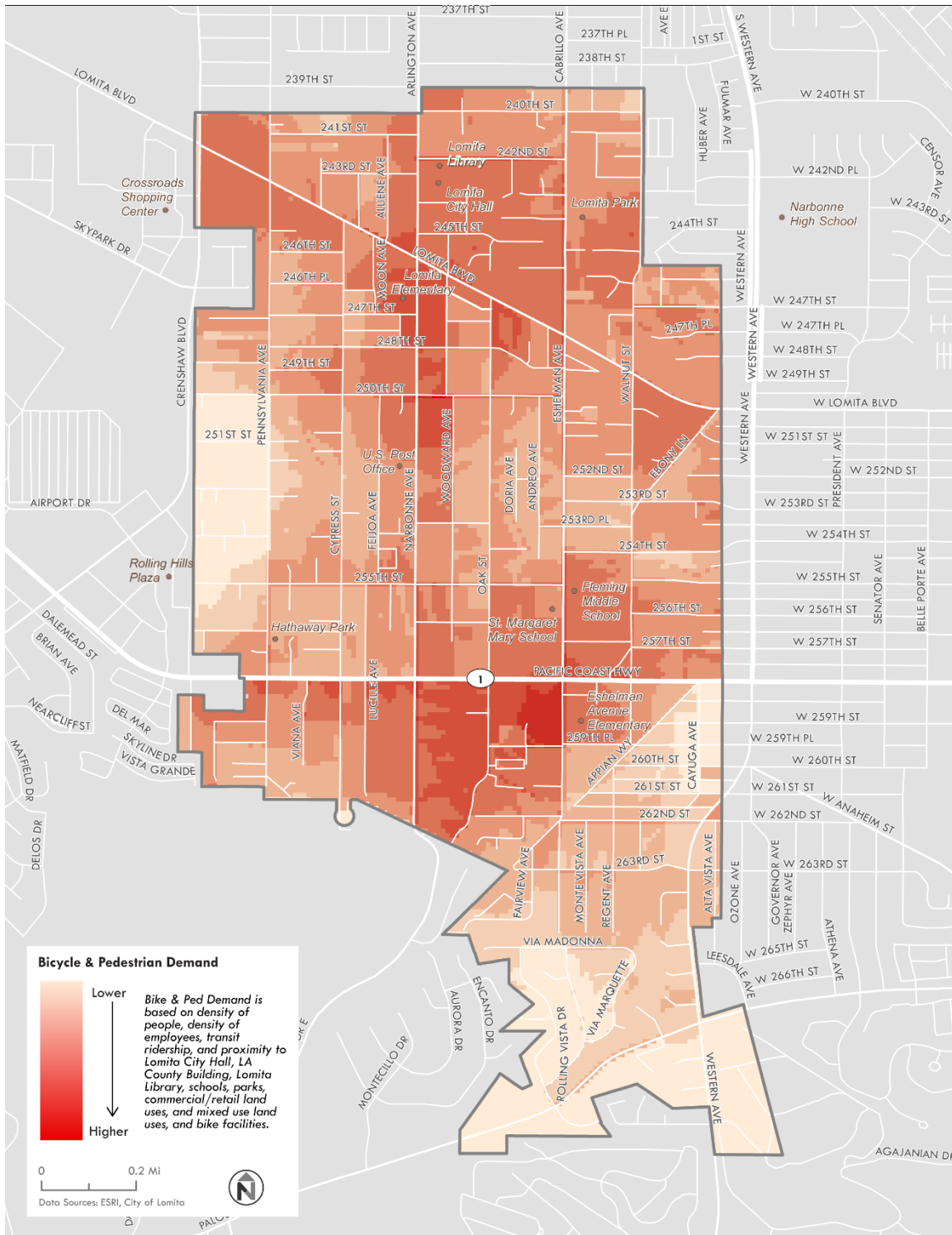
BICYCLE & PEDESTRIAN DEMAND

Retail areas, transit stations, and public amenities including schools, parks, libraries, and landmarks benefit from safe and comfortable walking and bicycling routes for children and older adults. In addition to collecting counts to measure existing travel trends, latent demand was assessed through analyzing density of residences, jobs, transit ridership, and proximity to public facilities, commercial land uses, and bike facilities (Figure 11). Bicycle and pedestrian demand is highest around downtown Lomita and the intersection of PCH and Eshelman Avenue. Both areas are highly correlated with commercial land use, transit ridership, and proximity to schools. The intersection at PCH and Eshelman Avenue also exhibits high population density. Higher demand areas serve as priority locations for future projects that will benefit the most Lomita residents and visitors.

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Figure 11 Bicycle and Pedestrian Demand



SAFETY

Using 2005 to 2013 data from the Statewide Integrated Traffic Records System (SWITRS), bicycle- and pedestrian-involved collisions were analyzed to identify key areas that may benefit from safety improvements. During the nine-year span, a total of 426 collisions occurred, of which 32 (6%) were bicycle-involved collisions and 27 (8%) were pedestrian-involved. Bicycle- and pedestrian-involved collisions are mapped in Figure 13.

Varying levels of injury were reported during this time period. Figure 12 details collisions resulting in a fatal or severe injury.

The implementation of the plan will seek to create safer conditions for bicyclists and pedestrians, in order to eliminate severe and fatal incidents in the community.

Figure 12 Bicycle- and Pedestrian-Involved Collisions Resulting in Fatal or Severe Injury (2005-2013)

Collision Type	Fatal		Severe	
	Count	% of Total Collisions	Count	% of Total Collisions
Bicycle-Involved	1	0.2%	2	0.5%
Pedestrian-Involved	3	0.7%	2	0.5%

SPEED AND VULNERABLE ROADWAY USER SAFETY

Speed is the primary challenge when addressing safety for vulnerable roadway users (pedestrians and bicyclists). Studies show that when a collision occurs between a vulnerable user and a vehicle travelling at 40 mph, the likelihood of a fatality or severe injury is 80%. At 30 mph, this rate is 50%. And at 20 mph, vulnerable users involved only face severe or fatal injuries at a rate of 15%. These numbers reflect the need to enact policies and design roadways in a fashion that limits the speed differential between users on the street to maximize safety.

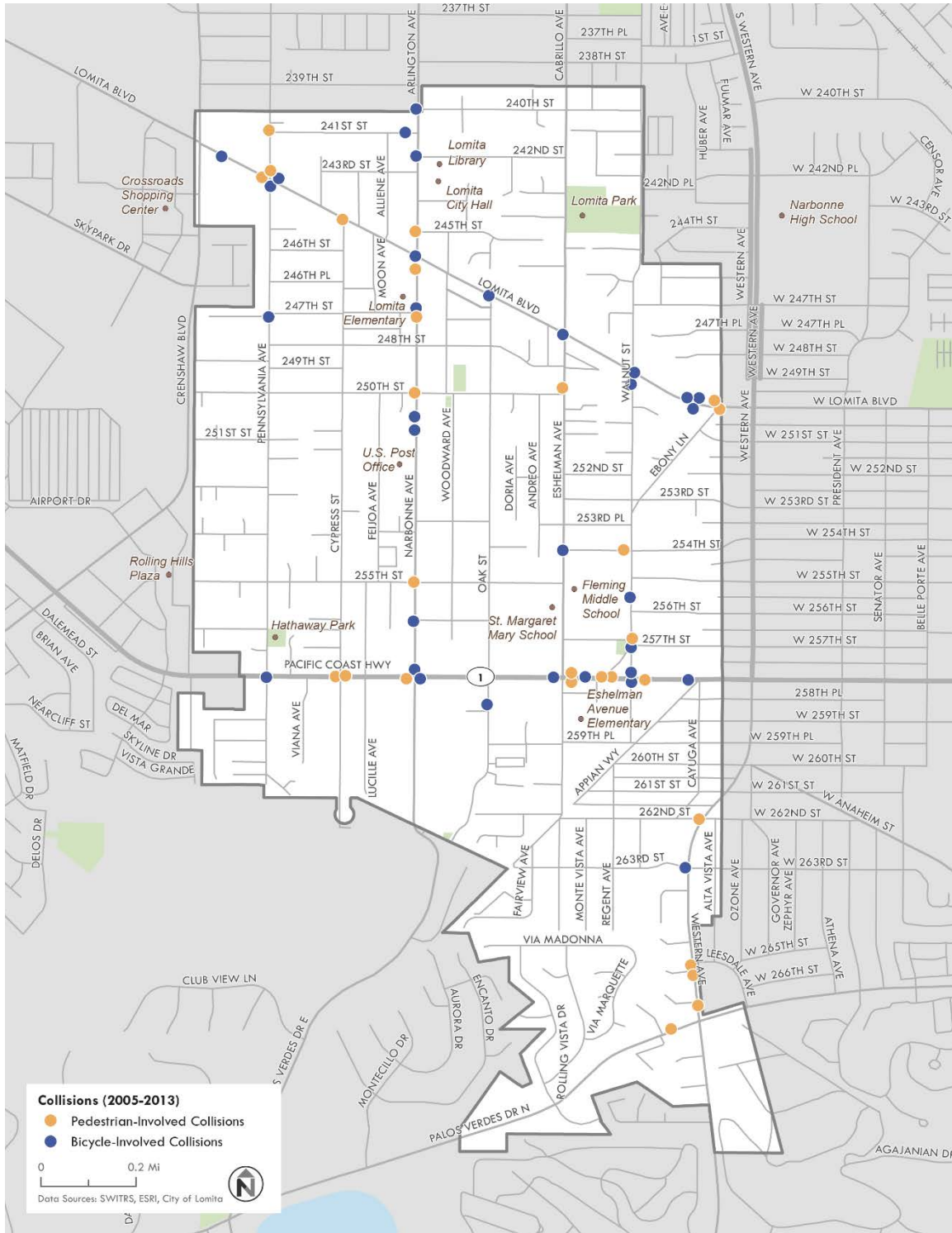
Policies and projects in this plan support slower speeds for the purpose of reducing both the number of collisions and the chance of collisions resulting in severe or fatal injury.

Source: AAA Foundation for Traffic Safety. (2011). "Impact Speed and a Pedestrian's Risk of Severe Injury or Death."

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City of Lomita

Figure 13 Bicycle- and Pedestrian-Involved Collisions (2005-2013)

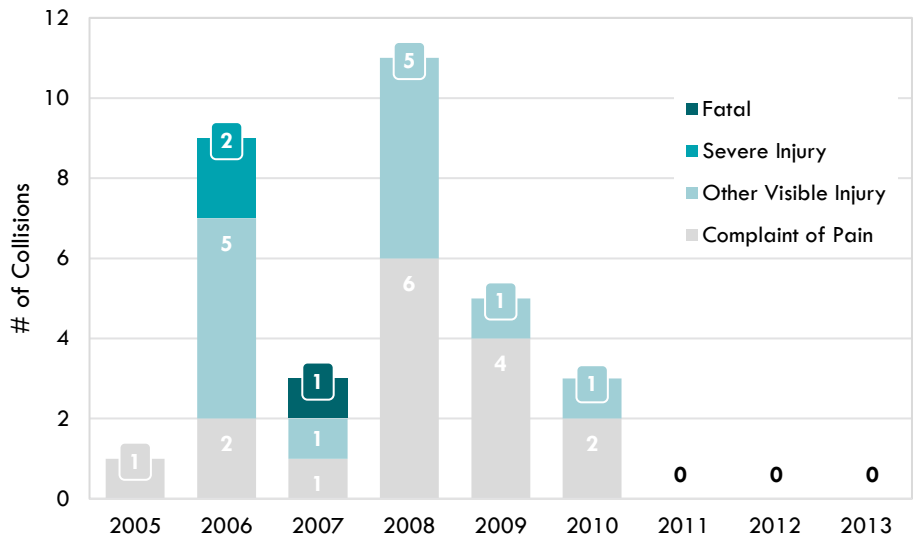


COLLISIONS INVOLVING PEOPLE BIKING

COLLISION TRENDS

As seen in Figure 14, a total of 32 bicycle-involved collisions were reported from 2005 to 2013, with an average of 3.6 collisions per year. Of the 32 collisions, one resulted in a fatality and two in severe injury. Bicycle-involved collisions spiked in 2006 and 2008, but has declined since 2008. There were no bicycle-involved collisions from 2011 to 2013.

Figure 14 Bicycle-Involved Collisions by Severity (2005-2013)



COLLISION LOCATIONS

Bicycle-involved collisions are concentrated along the same arterials as those involving pedestrians, including Lomita Boulevard, PCH, Narbonne Avenue, and Walnut Street. Most collisions occurred midblock (44%), followed by signalized (28%) and unsignalized intersections (28%).

PRIMARY COLLISION FACTORS

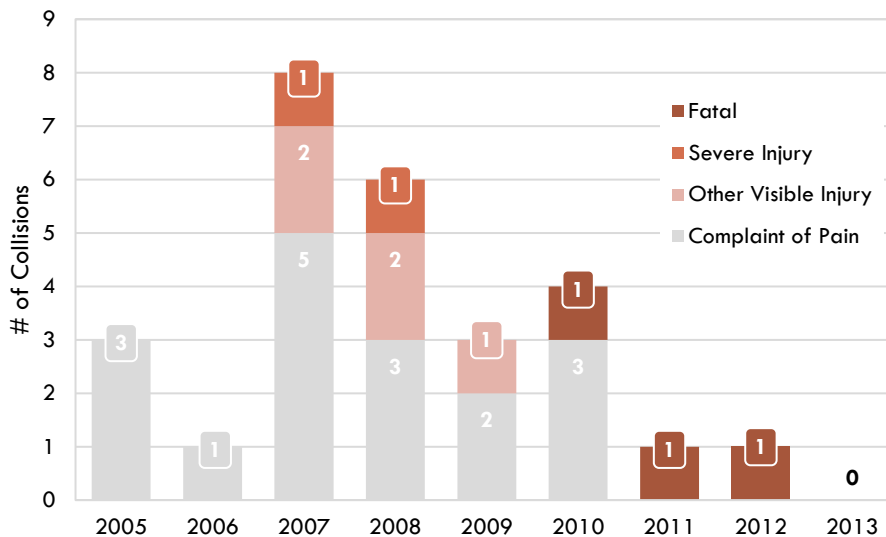
The most common factor for bicycle-involved collisions was “wrong side of road,” meaning either a bicyclist or other involved party (motorist) was traveling on the wrong side of the road. In nearly all of the “wrong side of the road” instances, the bicyclist was at fault. Overall, 38% of drivers are at fault for bicycle-involved collisions, 56% are due to the fault of bicyclists, and 6% are unknown.

COLLISIONS INVOLVING PEOPLE WALKING

COLLISION TRENDS

Between 2005 and 2013, the number of pedestrian-involved collisions in Lomita has generally declined. A total of 27 collisions involving pedestrians occurred during this nine-year span. The highest number of collisions in a single year (8) occurred in 2007. On average, there were three pedestrian collisions per year. Over the span of nine years, three collisions were fatal, and nearly one in five pedestrian-involved collisions resulted in a severe or fatal injury, as seen in Figure 15. There were no pedestrian-involved collisions in 2013.

Figure 15 Pedestrian-Involved Collisions by Severity (2005-2013)



COLLISION LOCATIONS

Pedestrian-involved collisions have concentrated along major arterials such as Lomita Boulevard, PCH, and Narbonne Avenue. Collisions in the City are distributed relatively evenly across street types, with 37% occurring midblock, 33% occurring at signalized intersections, and 30% at unsignalized intersections.

PRIMARY COLLISION FACTORS

The most common factor for pedestrian-involved collisions was “pedestrian right-of-way,” which accounted for 44% of pedestrian-involved collisions. Pedestrian right-of-way refers to a situation in which a vehicle violates the right-of-way of a pedestrian. All collisions caused by this factor were the fault of the driver. “Pedestrian violation” was the second most common factor, accounting for 37% of pedestrian-involved collisions. Overall, motorists were deemed “at fault” for 52% of all pedestrian-involved collisions. Pedestrians were at fault for 37% of collisions (10 of 27 collisions). It is not known who is at fault for the remaining 11% of pedestrian-involved collisions.

4 COMMUNITY ENGAGEMENT

Public outreach events and an online survey resulted in a better understanding of the existing bicycle and pedestrian conditions, key issues, and preferences for potential improvements. The input of residents, business owners, and visitors played a key role in developing recommendations. In general, people described limited experience with bicycling, and a high level of satisfaction regarding walking in Lomita.

OUTREACH EVENTS

Two public outreach efforts were conducted during the City's most attended events. The first outreach event was held at the annual tree lighting ceremony on December 2, 2016. The project team shared initial findings and received feedback from the community regarding potential locations for bicycle and pedestrian improvements. Over 40 individuals provided feedback by participating in a mapping exercise and/or writing comments (see Figure 16). Major concerns included pedestrian safety near the Civic Center and difficulties crossing PCH and Lomita Boulevard. Eshelman Avenue and 250th Street were also identified as areas where safety conditions should be improved.

The second and final public outreach event was held at Lomita Park during the annual Easter egg hunt. The purpose was to share initial recommendation concepts with the community and to provide insight and gather feedback regarding the prioritization of recommendations. Over 20 individuals provided feedback on the interactive boards. Feedback was generally positive, with residents providing their ideas on how to improve upon the initial recommendations. This feedback helped form the final recommendations described in this document. Overwhelmingly, individuals wanted the plan to prioritize safety and improvements at high stress traffic locations (see Figure 17).

Figure 16 Tree Lighting Ceremony Feedback (Digitized)

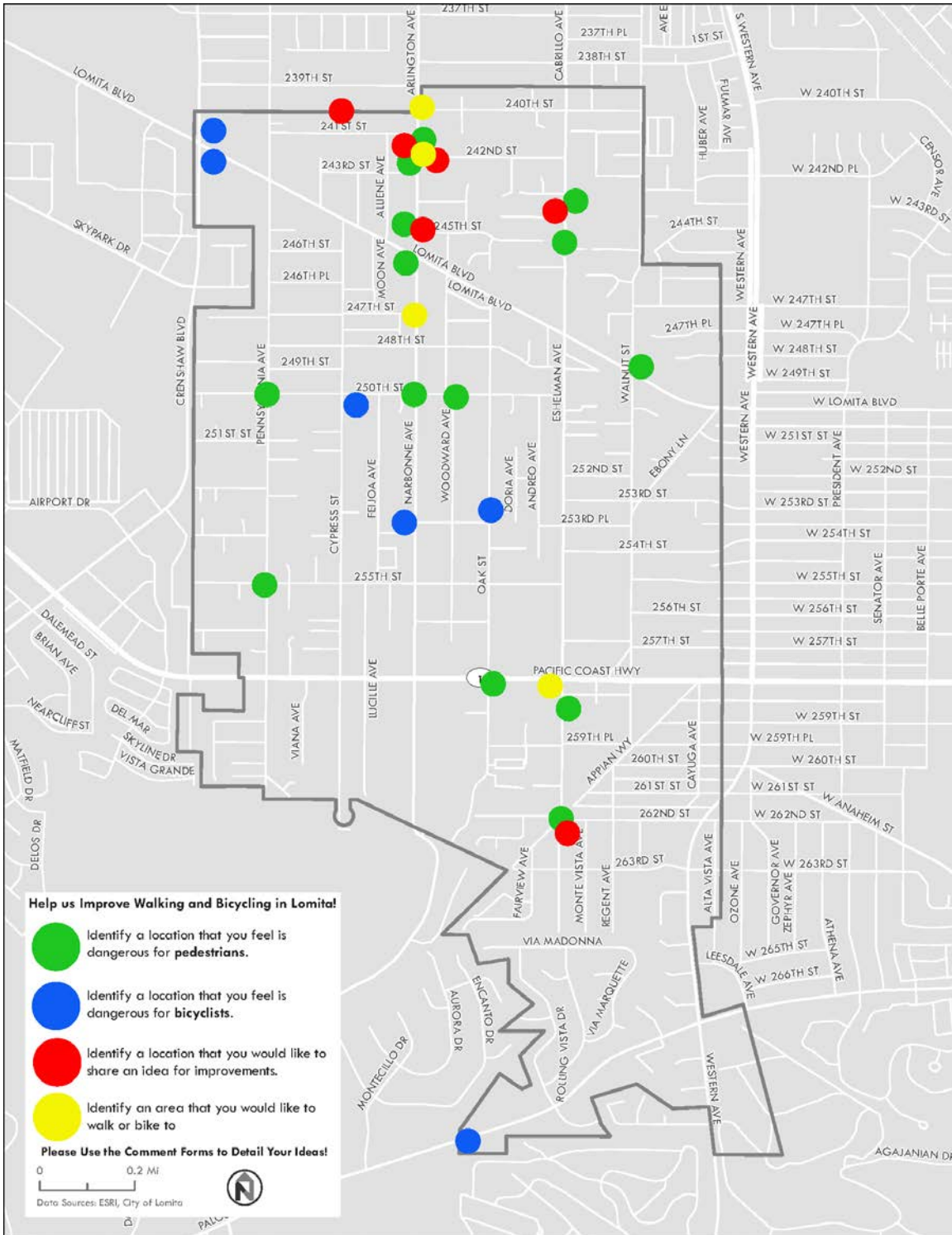



Figure 17 Project Evaluation Prioritization Feedback (Digitized)

















City of Lomita Bicycle & Pedestrian Master Plan

PROJECT EVALUATION

How would you prioritize projects?
 The seven factors below play an important role in achieving Lomita's vision of having a safe, connected active transportation network.

● Please take **3 sticky dots** and prioritize these factors by placing your vote next to each factor.

 High Traffic Stress Location	Degree to which project reduces the level or stress based on vehicle speed and traffic separation	
 Ease of Implementation	Degree to which the project can be implemented without challenges, such as property impacts, utility impacts, legislative changes, drainage impact, etc.	
 Relative Cost	Cost effectiveness of the project	
 Bicycle Network Connectivity	Degree to which the concept removes a barrier, fills a gap, or improves the connections to existing bicycle or pedestrian facilities	
 High Bicycle or Pedestrian Activity	Degree to which the concept overlays areas of high bicycle and pedestrian demand and would support higher levels of activity	
 Leveraging Other Funding or Projects	Degree to which project may align with other projects such as utility work; scheduled street maintenance; or another project receiving grants funding	
 Safety	Proximity to a location with a demonstrated collision history	

COMMUNITY SURVEY

Lomita's online survey allowed residents and visitors to share their travel patterns, challenges, and preferences regarding walking and biking. The survey tool is visible in Appendix E. The survey was advertised at public meetings, newsletters, outreach events, and the City's Facebook page in Spring 2017. In total, 214 respondents completed the survey. Although this only represents a small portion of the Lomita population, responses identify some key findings:

- Walking and biking are popular mode choices for exercise and recreation. Over 80% of respondents are auto-dependent for their commute, personal errands, and/or entertainment. Biking is the next most common mode of transportation (5%).
- High traffic volumes and speeds are the main concerns for people who walk and bike. General safety is another top concern for walking. A lack of bike facilities and poorly maintained roadways are other major concerns for biking.
- Respondents desire bike facilities that provide greater protection and visibility such as buffered bike lanes and separated bikeways. There was not a strong preference for a specific pedestrian facility. Preferred improvement locations for both pedestrian and bike facilities were concentrated at busy intersections and major arterials such as Lomita Boulevard, PCH, and Narbonne Avenue.
- Respondents expressed an overwhelming desire to enhance road safety for all users. An extended cross-town bikeway network was the second most highly selected desire.

WHY ARE PEOPLE WALKING AND BIKING?

Respondents mainly identify as people who walk or bike for exercise or recreation. Other reasons commonly cited for using active transportation are for the environment and convenience.

Figure 19 indicates that even though most respondents do not currently walk or bike as their primary commute mode, they need infrastructure that connects them to places they want to go – recreation, parks, and commercial areas. Other common destinations include nearby neighborhoods, the homes of friends or family, and the library.

Figure 18 Water Bill Survey Insert

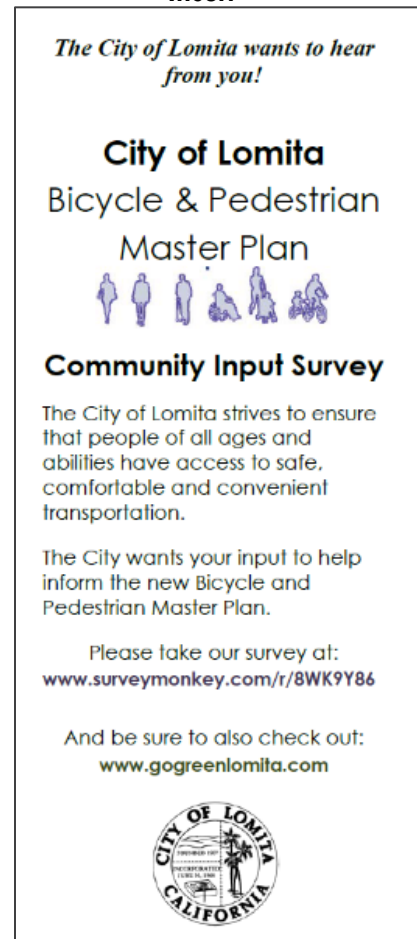
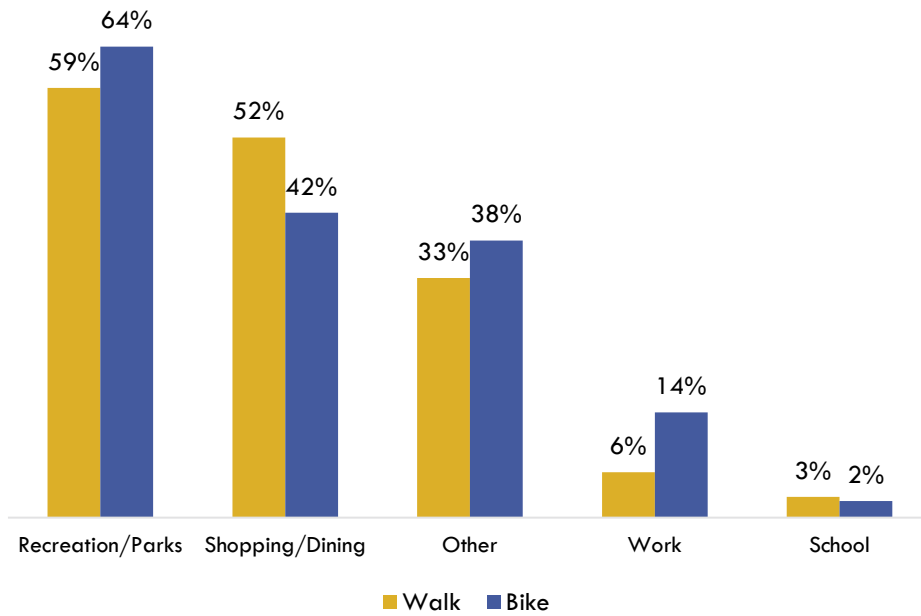


Figure 19 Walking and Biking Destinations in Lomita

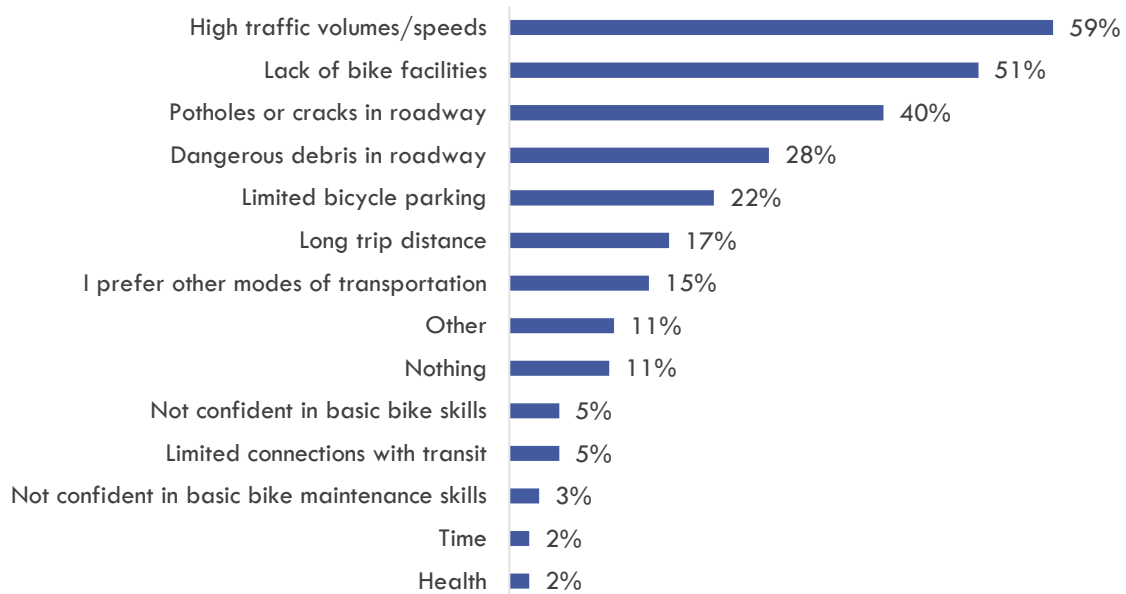


Source: 2017 City of Lomita Bicycle and Pedestrian Master Plan – Community Input Survey

WHY AREN'T PEOPLE WALKING OR BIKING MORE?

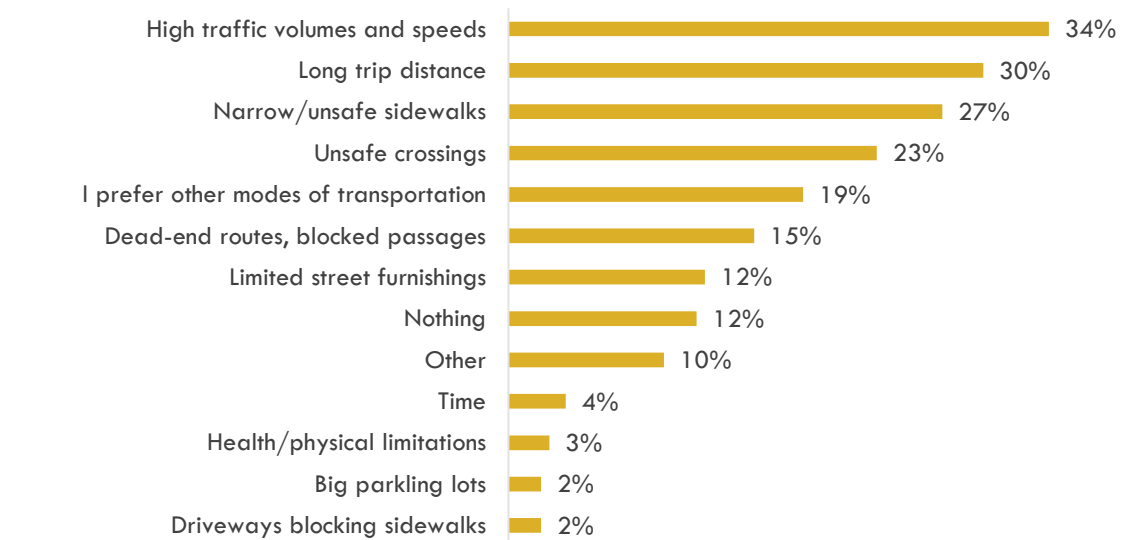
Figure 20 shows that the main challenges for biking are high traffic volumes and speeds, lack of bike facilities connecting to destinations, and poorly maintained roadways. As shown in Figure 21, the main challenges for walking in Lomita are high traffic volumes and speeds, long trip distances, narrow/unsafe sidewalks, and unsafe crossings. Each of these issues can be addressed through investments in enhanced crossings, protected bike lanes, connected low volume streets, and improved roadway maintenance.

Figure 20 Cited Issues and Challenges for Biking in Lomita



Source: 2017 City of Lomita Bicycle and Pedestrian Master Plan – Community Input Survey

Figure 21 Cited Issues and Challenges for Walking in Lomita

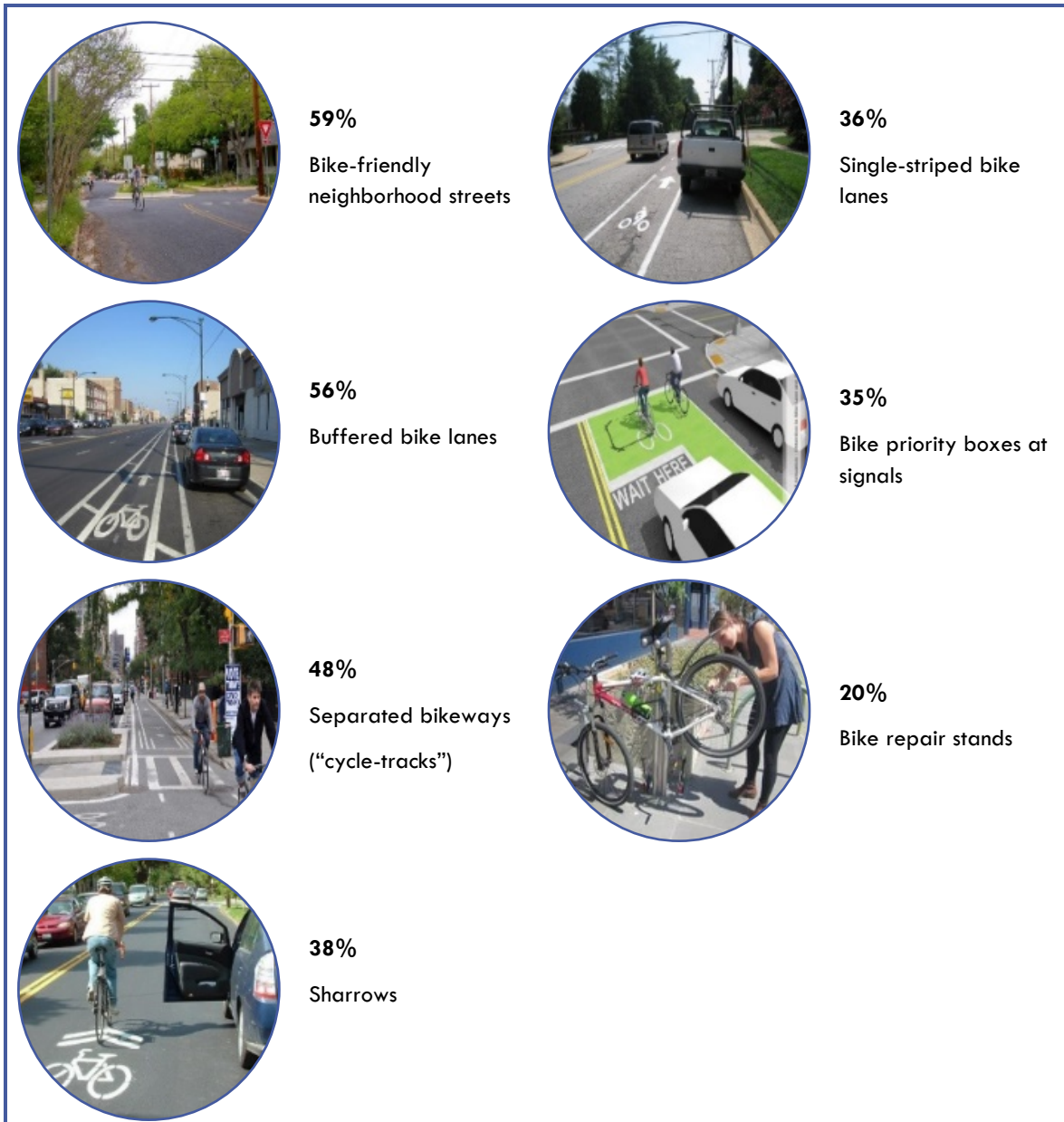


Source: 2017 City of Lomita Bicycle and Pedestrian Master Plan – Community Input Survey

STATED PREFERENCES

Respondents were asked to vote for their preferred bicycle and pedestrian facilities and potential locations for these improvements. The top three preferred bicycle facilities were bike-friendly neighborhood streets, buffered bike lanes, and separated bikeways or “cycle-tracks” (see Figure 22). Respondents did not indicate a strong preference for one pedestrian strategy over another; roughly one third of respondents supported each type of pedestrian facility (see Figure 23). Preferred locations for the majority of these improvements were at busy intersections and along major arterials such as Lomita Boulevard, PCH, and Narbonne. Open-ended responses also called for less traffic, more enforcement and education overall, bike lane continuity/quality, wayfinding, and bike parking in commercial areas. PCH was regarded as particularly dangerous by both bicyclists and pedestrians due to an overall lack of visibility.

Figure 22 Preferred Bicycle Facilities



Source: 2017 City of Lomita Bicycle and Pedestrian Master Plan – Community Input Survey

Figure 23 Preferred Pedestrian Facilities



Source: 2017 City of Lomita Bicycle and Pedestrian Master Plan – Community Input Survey

5 CITYWIDE SOLUTIONS

This Plan sets forth strategies to improve and sustain better walking and biking conditions, facilities, and use. This Plan presents recommendations based on the rigorous research and analysis discussed in preceding chapters to attain the City's goal of ensuring safe, comfortable, and convenient active transportation options for residents and visitors of all ages and abilities. Outlined in this chapter are recommended policies, operational practices, enforcement procedures, safety campaigns, and educational programs.

POLICIES AND ACTIONS

The successful implementation of this Plan requires strong policy direction that supports the challenging decisions elected officials and city staff will face. Many transportation improvements that improve overall safety require tradeoffs in parking supply or slower vehicle trips. This section provides suggestions for changes in processes and policies for Council's consideration during the next Circulation Element update to further balance safety and convenience for all road users.

IMPLEMENTATION READY

- Dedicate capital improvement funding for citywide projects that can be completed through work orders and reallocation of staff resources including: pedestrian refuge islands, rapid flashing speed feedback signs, and other relevant crosswalk enhancements as they become available.
- Require that all roadway resurfacing projects and land development projects be circulated through a comprehensive process that considers narrowing lanes, lane reconfiguration, and other opportunities.
- Develop a project delivery process and charter that require the input of planning, police, transit, and public works in capital improvement project delivery, from concept to construction.

CONNECTIVITY

- Adopt Alternate Mobility Standards to assess the quality of service on Lomita streets and intersections.
- Use vehicle miles traveled (VMT) operational analysis methods for CEQA review to support multimodal improvements.
- Substitute Transportation Demand Management mitigations to reduce vehicular trip generation in instances where capacity-enhancing mitigations would degrade the quality or threaten the safety of people walking or people on bicycles.
- Establish a street typology system that guides the selection of street elements that support the desired character of a street based on its combined land use context and roadway function.
- Develop a uniformed design and installation strategy for clear and understandable destination-oriented wayfinding signage for bicyclists and pedestrians.

IMPROVE SAFETY

- Adopt a vision of traffic safety that requires all daily operations to include organizational, practical, and cultural decisions that place the safety of roadway users as paramount.
- Assume the most protective bicycle facility type when initiating new projects, with an exemption process that considers whether transit, land use, drainage, parking, circulation, or utility constraints prohibit it.
- Dedicate resources to hire additional Police Department staff to implement the enforcement elements of this plan.
- Conduct bicycle and pedestrian safety education in the schools, at senior centers, and at community events.
- Utilize reduced speed limit setting opportunities by establishing prima facie speed limits of 25 mph in business, residential, and senior center areas, as appropriate.
- Implement AB 321 to reduce speed limits in school zones.

CHANGING ROUTINE PRACTICES

Pedestrian and bicycle safety can be improved by changing the way everyday decisions are made by various City departments. These changes are accomplished by considering the potential consequences of transportation, maintenance, enforcement, and land development decisions on people who walk and bicycle. This section recommends operational strategies to coordinate the goals of this Plan within day-to-day decision-making.

OVERALL SUPPORT OF ACTIVE TRANSPORTATION

- Ensure bike parking is available at the request of business owners.
- Provide ample bike parking at City events.
- Remove the mandatory bike registration requirement in municipal code.
- Conduct annual bicycle and pedestrian counts.
- Public progress reports of the Bicycle and Pedestrian Master Plan every few years.
- Utilize semi-permanent strategies, such as bollards, in order to get safety projects installed in the short term.
- Prioritize the installation of bicycle parking at key community destinations including the civic center, parks, and commercial corridors.
- Establish guidance for developers to ensure new construction provides adequate bicycle parking.
- Prioritize safety improvements in places where identified with high pedestrian and bicycle demand (Reference Figure 11).
- Utilize proactive urban street design strategies such that target speeds, design speeds, and posted speeds are equivalent.
- Dedicate resources to the immediate implementation of projects in this plan.
- Prioritize transportation investments that support the reduction of health and wealth disparities in Lomita.

- Require collision history to be included as a standard element of land development and capital improvement project development.
- Design corner curb radii to accommodate each street's design vehicle and recognize strategies for accommodating less frequent control vehicles such as very large trucks.
- Work with Caltrans to support implementation of Complete Streets elements on PCH.
- Adopt local Marked and Enhanced Crossing Guidance.
- Incorporate water retention and percolation strategies in street improvements.
- During project development, discourage the number and width of curb cuts for driveways in favor of minor street or shared access.
- Maintain and enhance lighting.

STREET MAINTENANCE

Right-of-Way and traffic signal maintenance protocols should include a summary of safety countermeasures in effect and a review by traffic operations to recommend new countermeasures. Examples include lane narrowing and high-visibility crosswalk markings during pavement maintenance projects. Pavement markings should also be refreshed on a regular pavement maintenance schedule. The City should also adhere to FHWA's Temporary Traffic Control Zone Devices guidance to accommodate safe detours for bicycle routes during lane closure projects.

TRAFFIC SIGNAL MAINTENANCE

Long signal cycles create delay for all users, but for people who walk or bicycle, the delay can be even longer, if they arrive at the end of a cycle or are not detected. In addition to complying with Caltrans Directive 09-06 on the implementation of AB1581 (which requires all signal projects to include approved bicycle signal detection strategies), bicycle detection and clear pavement markings should be installed at all traffic signals to show the correct place to wait to activate signals.

During annual signal maintenance, study the potential to add pedestrian recall and leading pedestrian intervals to reduce pedestrian delay and improve pedestrian safety.

ENFORCEMENT

The infrastructure investments recommended in this plan will take time to design and construct, while immediate investments in enforcement, education, and safety campaigns can result in near term success citywide. Enforcement helps create a bicycle- and pedestrian-friendly community by ensuring traffic behavior that keeps road users safe.

The Los Angeles County Sheriff's Department is integral to the prevention of collisions through safety education, directed patrols, and enforcement of violations. Currently, there is no formal coordination of collision analysis and enforcement strategy, which prevents creative community-oriented policing around traffic safety. Education and enforcement activities anticipated to have the largest impact are below.

ENFORCEMENT EDUCATION ACTIVITIES

- Include traffic safety campaign outreach as part of community policing efforts. The communication of appropriate roadway use can be amplified through enforcement.

- Focus distribution of safety and enforcement information on high collision corridors, high pedestrian activity locations, and on streets with on-street bicycle facilities, particularly nearby schools, the City Hall, and Narbonne Avenue.
- Increase opportunities for informal interactions in the community, including distributing safety campaign information related to high risk behaviors such as sidewalk and wrong way riding or initiating street crossings with insufficient time.
- Develop and implement a bicycle traffic citation program. While the California Department of Motor Vehicles offers adult Traffic School to motorist offenders, as of 2016 law enforcement may now legally sanction and establish programs with cities to provide the same educational opportunity for reduced fines to bicyclist offenders.
- Support public outreach and education via traditional and social media platforms in accordance with the Sherriff Department's goal of enhancing bicycle, pedestrian, and motorist safety.

SETTING ENFORCEABLE LOWER SPEED LIMITS

For most streets, the 85th percentile speed, as determined by an Engineering and Traffic Study, is used to establish enforceable speed limits. However, within school zones, residential and commercial districts, Engineering and Traffic Studies can consider other inputs. Lower enforceable speeds may reduce the number of collisions happening in Lomita and reduce the severity of those that do happen. Streets with slower speeds are also more comfortable to walk and bike along. Inputs for consideration include:

- Utilize 5 mph reductions in speed limit setting in areas with safety concerns and on street segments with existing and expected bicycle and pedestrian activity.
- Utilize reduced speed limit setting opportunities in accordance with AB 321 in school zones.
- Reduce vehicle speeds by narrowing lanes to 10' during pavement maintenance and capital project design.
- Implement periodic data collection of 85th percentile speeds to monitor the effect of infrastructure changes and re-establish speed limits to the appropriate level.

OTHER ENFORCEMENT ACTIVITIES

- Increase presence at high collision locations throughout the day, including targeted crosswalk police enforcement.
- Conduct routine enforcement of stop sign, wrong way, and crosswalk violations for all roadway users during regular patrols citywide.
- Encourage the use of bicycle officers for patrol when feasible.
- Encourage the designation of a Bicycle Liaison Officer to promote safe bicycling and rules of the road, to perform safety outreach presentations at area schools, serve as the point of communication to the local bicycle advocacy groups and to be the Los Angeles County Sherriff's Department's go-to expert on matters of bicycle and other human powered transportation.

EDUCATION




Education is an essential element of improving roadway user safety. Cities across the country utilize education to increase knowledge of the rules of the road and positively influence various roadway user behaviors that contribute to decreased collision frequency and severity.

SAFETY CAMPAIGN

Messages

Safety messages should convey information and be directive to help people understand how their behavior can positively contribute to a safer community. A sampling of effective safety messages to Lomita residents and through travelers is provided below. Resources that convey these types of messages using a variety of media (print, radio, video) are available from LA Metro, Caltrans, the Federal Highway Administration, the Office of Traffic Safety, and the National Highway Traffic Safety Administration.

Figure 24 Safety Campaign Messages

Safety Messages		Target Audience
 Targeted at People Walking	Look before crossing (even when you have the walk signal)	<ul style="list-style-type: none"> ▪ Youth ▪ General walking population
	Cross at the corner – Remind pedestrians (including transit users) to utilize crossings/cross at intersections)	
 Targeted at People Biking	Ride predictably – Wrong way riding is dangerous	<ul style="list-style-type: none"> ▪ General bicycling population ▪ Older youth/young adults
	Ride predictably – Sidewalk riding is dangerous	
	Ride predictably – Bicycles must follow rules of the road (obey traffic signals and stop signs)	
	Enter crosswalk at walking speed (and on right side of road) to avoid collisions with turning vehicles	
 Targeted at People Driving	Look into your blind spot (for bikes) before turning	<ul style="list-style-type: none"> ▪ General driving population ▪ Out of town motorists/regional travel
	Yield to pedestrian in crosswalks (marked and unmarked)	
	Slow down for our kids	
	Speed kills campaign	<ul style="list-style-type: none"> ▪ Out of town motorists/regional travel
	Gateway treatments when entering Lomita	

COMMUNITY AND SCHOOL BASED EDUCATION

As we age, our cognitive and physical abilities change. Younger people face decision-making challenges while their brains are still developing, and older people experience ambulatory and cognitive changes that slow their ability to perceive and act. To develop infrastructure that will benefit all Lomita community members, customized outreach through schools and community centers is recommended.

Additionally, Lomita should support and collaborate with community-based organizations to promote transportation safety through educational programs and related community services.

6 PROJECT RECOMMENDATIONS

The Lomita Bicycle and Pedestrian Master Plan seeks to develop an active transportation network and facilities that are safe and comfortable for people of all ages and abilities. To help meet this goal, this Plan sets forth opportunities to safely connect more people to more destinations. The following chapter highlights potential projects and how the proposed pedestrian and bicycle network was developed.

HOW WERE PROJECTS IDENTIFIED?

Pedestrian and bicycle project recommendations were developed through community input and in-depth analysis of the City's existing roadway conditions and demand. Community input was received through the ongoing engagement efforts detailed in Chapter 4: Community Engagement. The proposed network is a reflection of the needs and desires expressed by the community.

Project location selection was also guided by the level of traffic stress analysis collision history, bicycle and pedestrian demand, and proximity to popular destinations and public transit (see Chapter 3: Existing Conditions). Furthermore, recommendations for nearby schools and parks will encourage more walking and biking trips to and from schools.

WHAT IS A BIKE BOULEVARD?

Bicycle boulevards are low volume residential streets designated as part of the bicycle network. Typical enhancements can include wayfinding signage, pavement markings, speed humps, and enhanced crossings such as traffic diverters to reduce conflicts where routes cross busier streets. Traffic calming measures may be used to ensure low vehicle volumes and speeds so people driving and bicycling can share the road. These treatments can result in low stress bicycling conditions with relatively low infrastructure investment when compared with protected bike lanes or shared use paths.



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Figure 25 Built-out Bikeway Network

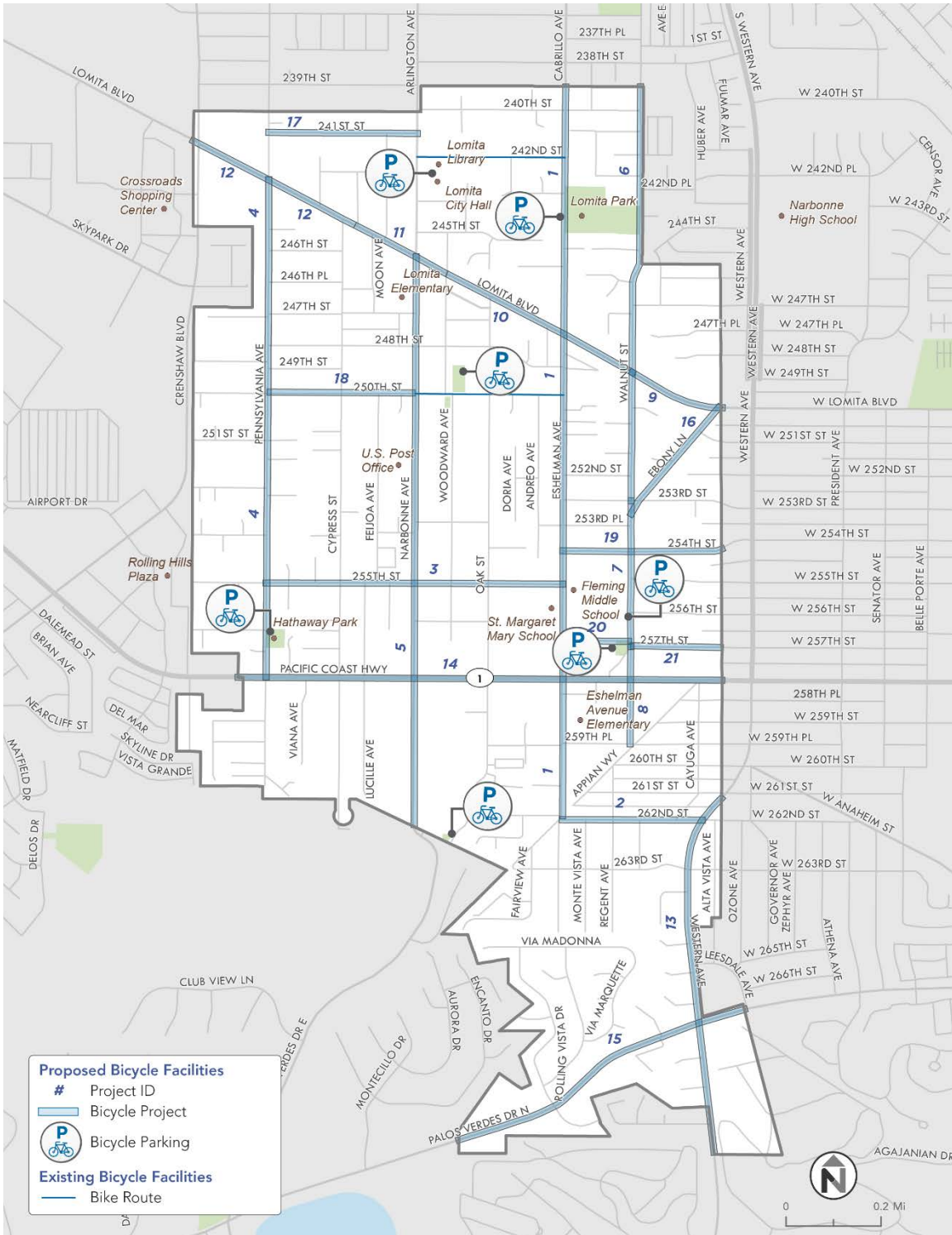


Figure 26 shows the locations of recommended pedestrian projects and **Error! Reference source not found.** shows recommended bicycle projects. Appendix A describes the countermeasures proposed in more detail. A more detailed description of the elements involved in each project is

provided in a project table found in Appendix B. In addition, bike parking facilities are recommended at nearby local parks and schools.

Currently, there are bicycle network gaps in both the north/south direction and the east/west direction that make it difficult to get comfortably from one edge of the city to the other. The city needs low stress conditions along a coherent network to improve access to schools, parks, and commercial destinations. Implementation of the projects recommended in this plan will fill critical gaps in the existing network and provide safe and comfortable bicycle and pedestrian connections to essential destinations in the City.

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Figure 25 Built-out Bikeway Network

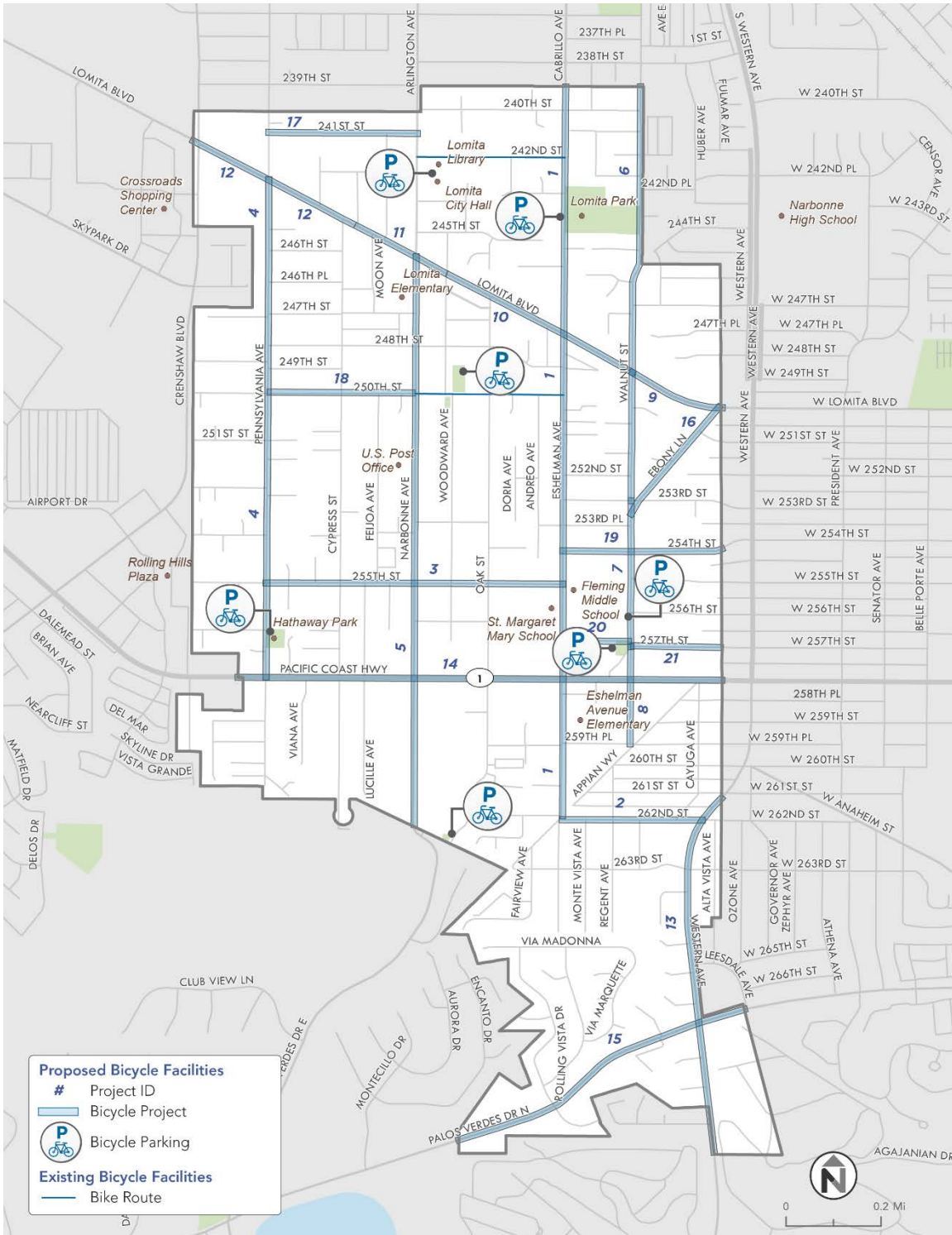
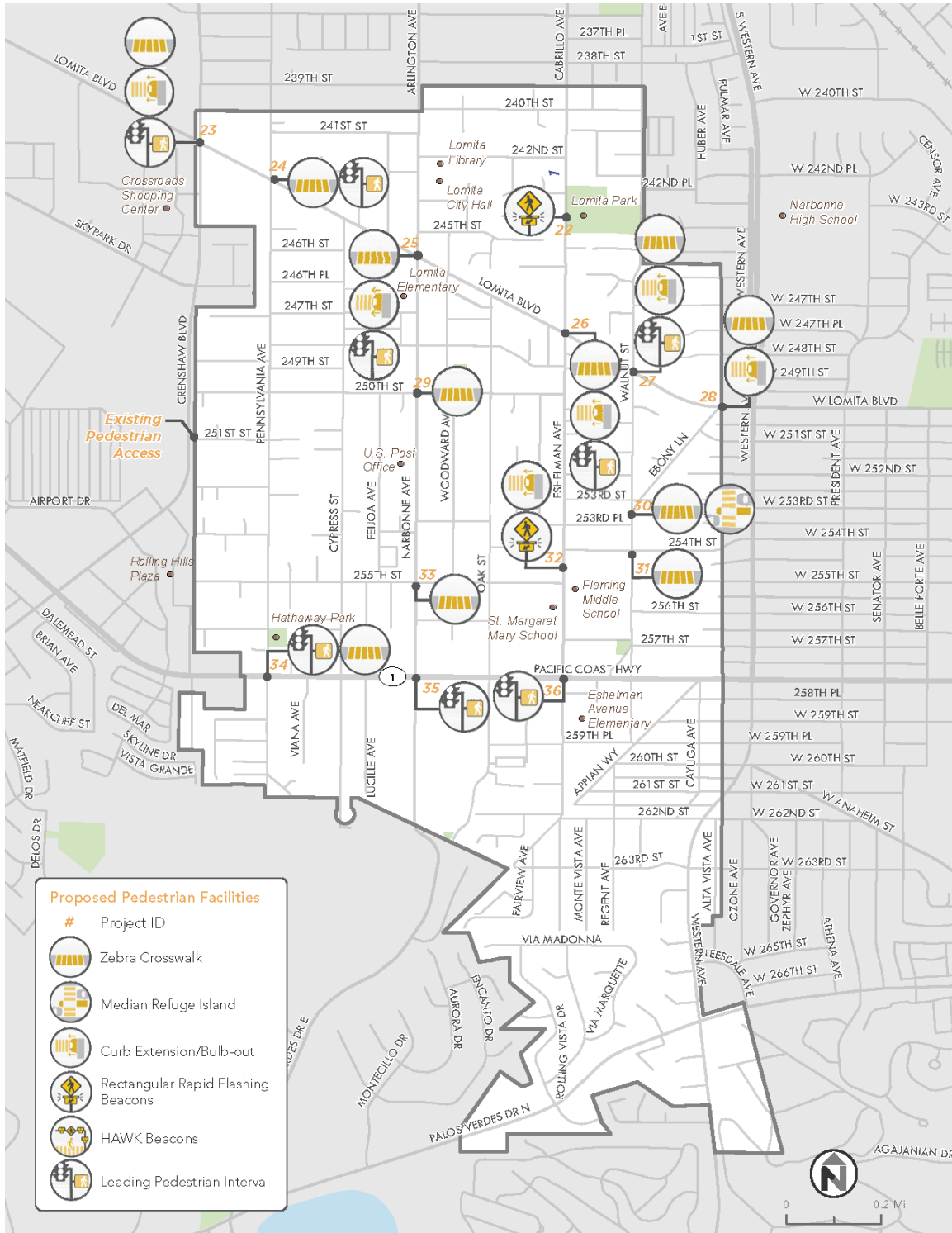









Figure 26 Proposed Pedestrian Project Locations



PROJECT PRIORITIZATION

Project priorities were established by evaluating candidates according to their ability to achieve the goals and vision of the project. The scoring rubric is shown in Figure 27. Factors that are weighted higher align more closely with the intent of this Plan and community input. Figure 28 shows how bicycle projects were prioritized. Those with a higher score have a larger impact on improving the overall bicycle and pedestrian network.

Figure 27 Project Analysis Criteria

Analysis Factor	Description	Weighting
 High Traffic Stress Location	Level of stress or collision frequency of location. More bike/pedestrian collisions per intersection or block of segment increases score.	3
 Project Cost	Degree to which the project poses physical challenges such as property impacts, utility impacts, curb work, traffic signal changes, etc.	2 (Bicycle) 1 (Pedestrian)
 Community Engagement	Degree to which the project has implementation challenges, such as impacts to parking and access, many stakeholders, state ownership of roadway, or legislative changes.	1
 Bicycle Network Connectivity*	Degree to which the concept removes a barrier, fills a gap, or improves the connections to existing bicycle facilities. Segment length also affects connectivity score.	2
 High Bicycle and/or Pedestrian Activity	Degree to which the project overlays areas of high bicycle and pedestrian demand.	2
 Leveraging Other Funding or Projects	Degree to which project may align with other projects such as utility work; scheduled street maintenance; or another project receiving grants funding.	3
 Street User Safety	Degree to which the concept improves safety for all road users.	3

*Since all pedestrian projects remove barriers, fill gaps, and are proposed where sidewalks currently exist, this metric applies to bicycle projects only.

Figure 28 Recommended Bicycle Projects (in order of priority)

ID	Location	Type	Primary Recommendation	Score
5	Narbonne Ave from Lomita Blvd to Southern City Limits	Lane reconfiguration + bike lanes	<ul style="list-style-type: none"> Lane reconfiguration from four to two lanes with center turn lane, 6' bike lanes, and 8' parking lanes (Currently a Pilot Project) 	43
1	Eshelman Ave from Northern City Limits to 262nd St	Narrow lanes + add buffer to bike lanes	<ul style="list-style-type: none"> Narrow travel lanes to 10' Add 2' buffer to existing bike lanes 	42
7	Walnut St from 253rd St to 257th St	Lane reconfiguration + bike lanes	<ul style="list-style-type: none"> Four to three lane reconfiguration with 10' lanes, 7.5' parking lanes, and 5' bike lanes 	39
15	Palos Verdes Dr from Eastern City Limits to Western City Limits	Bike lanes	<ul style="list-style-type: none"> Add 6' bike lanes buffered by parking and 1' buffer 	34
9	Lomita Blvd from Walnut St to Eastern City Limits	Bike lanes	<ul style="list-style-type: none"> Add 5' bike lanes 	33
11	Lomita Blvd from Woodward Ave to Lucile Ave	Bike lanes	<ul style="list-style-type: none"> Remove parking lanes Add 5' bike lanes 	33
17	241st St from Pennsylvania Ave to Narbonne Ave	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. 	32
8	Walnut St from 257th St to Appian Wy	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	32
3	255th St from Pennsylvania Ave to Eshelman Ave	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	31
10	Lomita Blvd from Walnut St to Woodward Ave	Bike lanes	<ul style="list-style-type: none"> Remove parking lanes Add 5' bike lanes 	31
13	Western Ave from 261st St to Southern City Limits	Narrow lanes + bike lanes	<ul style="list-style-type: none"> Narrow travel and parking lanes Add 5' bike lanes 	30
4	Pennsylvania Ave from PCH to Lomita Blvd	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	29
6	Walnut St from Northern City Limits to 253rd St	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	29
16	Ebony Ln from Lomita Blvd to 253rd St	Narrow lanes + bike lanes	<ul style="list-style-type: none"> Keep center turn lane Narrow to 10' travel lanes and 7.5' parking lanes Add 5' bike lanes 	29

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ID	Location	Type	Primary Recommendation	Score
19	254th St from Eshelman Ave to Eastern City Limits	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. 	29
14	PCH from Eastern City Limits to Western City Limits	Lane reconfiguration + buffered bike lanes	<ul style="list-style-type: none"> Remove one travel lane per direction Add 6' bike lane with buffer 	27
20	257th St from Eshelman Ave to Walnut St	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. 	27
21	257th St from Walnut St to Eastern City Limits	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate 	27
12	Lomita Blvd from Lucile Ave to Crenshaw Blvd	Lane reconfiguration + bike lanes	<ul style="list-style-type: none"> Remove two-way left-turn lane Add bike lanes 	26
18	250th St from Pennsylvania Ave to Narbonne Ave	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	26
2	262nd St from Eshelman Ave to Western Ave	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	22

It should be noted that the projects outlined along Lomita Boulevard are not ideal due to the volumes of traffic observed, but provide a “best-case” scenario to introduce bicycle facilities along the existing corridor. It is recommended that an independent corridor study be undertaken to lay out a plan for the future of the corridor.

Proposed pedestrian projects are listed in Figure 29 in order of priority based on the scoring metrics described in Figure 27. The list of pedestrian projects describes one wayfinding signage project, and a variety of crossing treatments, including rectangular rapid flashing beacons, high-visibility crosswalks, and curb extensions. Many crossings can be improved with relatively simple treatments such as adding a leading pedestrian interval phase at signalized intersections.

Figure 29 Recommended Pedestrian Projects (in order of priority)

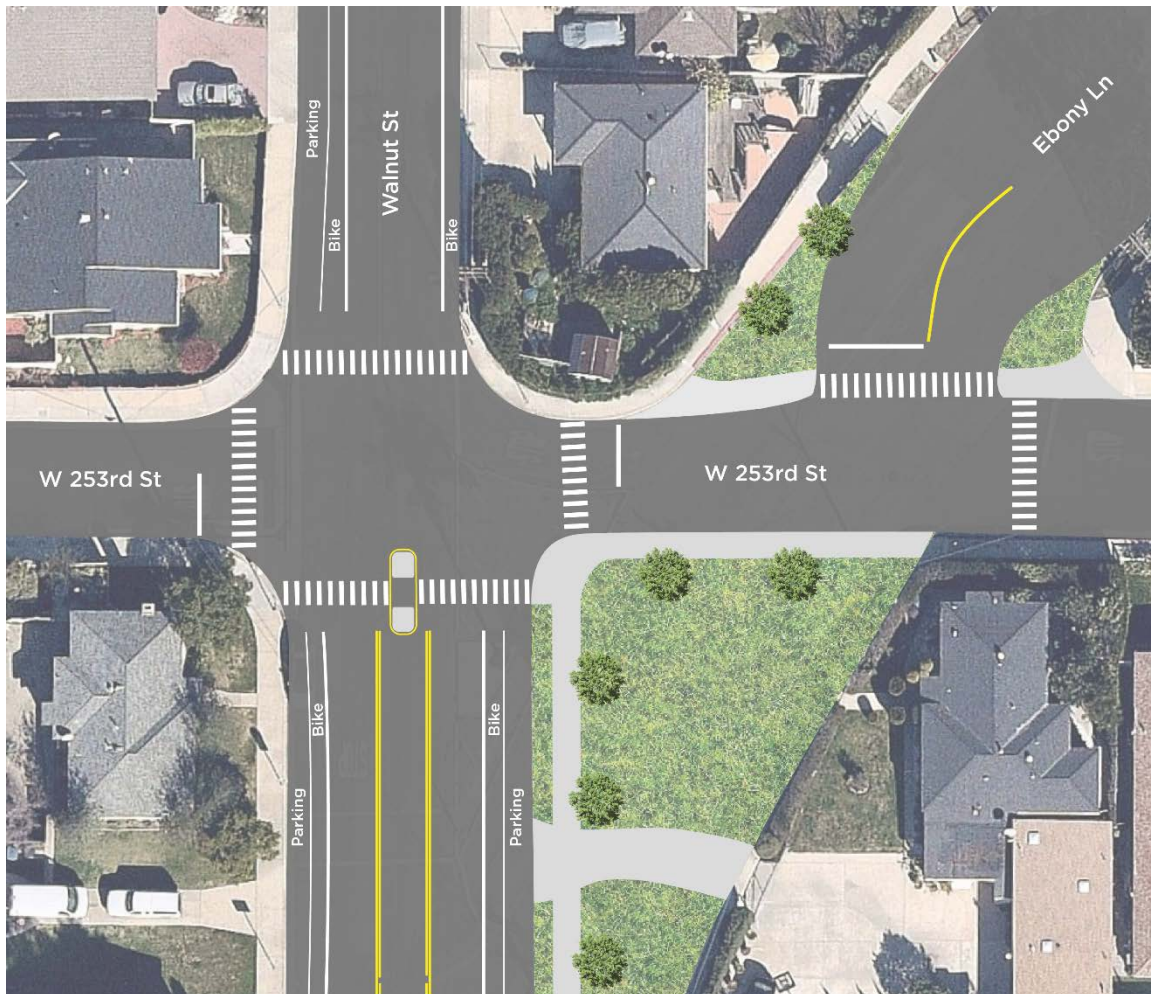
ID	Location	Type	Primary Recommendation	Score
30	Walnut St & 253rd St	Enhanced crossings	<ul style="list-style-type: none"> Reconstruct Ebony/253rd and 253rd/Walnut intersections Add median refuge island Add marked crosswalks on all legs 	27
22	Eshelman Ave & Lomita Park Pl	Enhanced crossings	<ul style="list-style-type: none"> Add RRFB at Lomita Park 	26
29	250th St & Narbonne Ave	Enhanced crossings	<ul style="list-style-type: none"> Add marked crosswalks on all legs 	26

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ID	Location	Type	Primary Recommendation	Score
33	255th & Narbonne	Enhanced crossings	<ul style="list-style-type: none"> ▪ Add marked crosswalks on all legs 	25
35	PCH & Narbonne Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Add LPI to pedestrian signals that cross PCH 	25
36	PCH & Eshelman Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Add LPI to pedestrian signals that cross PCH 	25
28	Lomita Blvd & Western Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add marked crosswalks on all legs 	25
31	Walnut St & 254th St	Enhanced crossings	<ul style="list-style-type: none"> ▪ Add marked crosswalks on all legs 	24
32	Eshelman Ave at 254th St and 255th St	Enhanced crossings	<ul style="list-style-type: none"> ▪ Add RRFB ▪ Add bulb-outs 	24
25	Lomita Blvd & Narbonne Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	24
24	Lomita Blvd & Pennsylvania Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	23
34	PCH & Pennsylvania Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Add LPI to pedestrian signals that cross PCH ▪ Add marked crosswalks on all legs 	21
23	Lomita Blvd & Crenshaw Blvd	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extension at northwest corner ▪ Add LPI to pedestrian signals on all legs ▪ Add marked crosswalks on all legs 	20
26	Lomita Blvd & Eshelman Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	19
27	Lomita Blvd & Walnut St	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	19
37	Crenshaw Access Ped Path Signage	Enhanced Wayfinding	<ul style="list-style-type: none"> ▪ Add wayfinding signage along Pennsylvania Ave and 251st St leading to 	19

Project #30, located at Walnut St and 253rd St, proposes reconstructing the intersections of both 253rd and Ebony and 253rd and Walnut in order to prioritize pedestrian safety and improve the flow of people traveling through this space (Figure 30). Excess right of way along the triangle currently formed by these streets can be reallocated to improve the pedestrian environment by adding street trees and green public space in addition to crossing improvements, as well as lowering the level of traffic stress for people traveling on bicycles.

Figure 30 Proposed Intersection Reconfiguration at 253rd and Walnut/Ebony



Reconfiguring this intersection would improve crossing conditions for people walking and biking in all directions, prioritizing the safety of vulnerable street users and adding green space to the street environment. In this sketch, Walnut Street shows lane configurations proposed in projects #7 and #6.1 (Figure 28).

POTENTIAL IMPACT

Without a detailed travel study of the Lomita population, it is difficult to quantify the existing levels of bicycle and pedestrian activity. While data from the U.S. Census Bureau provides information for commute trips, it skews heavily towards single occupancy vehicle trips, especially in the Los Angeles County region. Additionally, only about half of Lomita's population is considered in those estimates, and estimates reflect significantly less bicycle and pedestrian activity than what was observed in the field as part of this study.

To establish a baseline for existing and future active transportation trips, data from the U.S. Census Bureau and the 2010-2012 California Household Travel Survey were used to create assumptions. These assumptions were:

- Lomita Population of 20,693 (U.S. Census Bureau, 2016 estimate)
- 1.5% Bicycle mode split (2010-2015 California Household Travel Survey)

- 16.6% Pedestrian mode split (2010-2015 California Household Travel Survey)

Using these assumptions, existing and projected active transportation trips at plan build out were calculated, as featured in Figure 31.

At buildout, it is estimated that the increase in bicycle and pedestrian activity would be approximately 11%. Studies show that the addition of 1 mile of bicycle lanes increases bicycle commute mode splits by 1%.² Though much of the 11-mile bicycle network proposed is not bicycle lanes, it is anticipated that the traffic calming features of bicycle boulevards would act similarly in attracting bicyclist activity. Additionally, these estimates may be conservative, as studies cited focus on commute trips, not all trips. As such, these goals are seen as attainable.

Figure 31 Estimated Existing and Anticipated Active Transportation Trips

Required ATP Elements	Existing	Plan Build Out
Estimated Pedestrian Trips	3,435	3,813
Pedestrian Trip Split	16.60%	18.4%
Estimated Bicycle Trips	310	345
Bicycle Trip Split	1.5%	1.7%

STEPS TO IMPLEMENTATION

AGENCY COORDINATION

As previously noted, interjurisdictional boundaries are not perceptible by people using the roadway network. In order to ensure that the bicycle and pedestrian network best serve the community, Lomita must prioritize coordination with adjacent communities, to ensure the individual jurisdictions create a viable network for the region.

In addition to working with neighbors of the City, collaboration with Caltrans is necessary to prioritize and fund projects across PCH and Western Avenue, two of the main barriers to active transportation in the community.

FUNDING CONSIDERATIONS

Past pedestrian and bicycle infrastructure expenditure programs have been inconsistent. The City of Lomita had previously received a Safe Routes to School Grant from Caltrans, which was utilized to install ADA compliant curb ramps as needed. Since 2014, City officials have looked for opportunities to incorporate roadway striping and signage changes into capital projects, in efforts to facilitate implementation while adding minimal expenditures.

At the time of this Plan’s development, the City of Lomita is unable to commit an exact amount of funding for implementation. However, the City anticipates that Los Angeles County Measure M funds, and the recently passed California State Transportation Funds (SB1, 2017), will create opportunities for City expenditures. Additionally, Appendix C highlights several state and federal grant programs that can be used to fund the projects identified in this plan.

² Dill, Jennifer and Theresa Carr. (2003). “Bicycle Commuting and Facilities in Major U.S. Cities: If You Build Them, Commuters Will Use c Annual Meeting CD-ROM.

Once this Plan is adopted, it is recommended that the City of Lomita develop an expenditure plan and implementation timeline informed by funds that can be made available by the City budget to match programmatic grants. To ensure transparent communication with the public, key performance indicators should be utilized to track the plans implementation and impacts on the community. Recommendations for key performance indicators are described below.

KEY PERFORMANCE FACTORS

As the City of Lomita rolls out implementation of the Bicycle and Pedestrian Master Plan, it is important to keep track of the progress made towards achieving Lomita's goals. Key performance indicators (KPI's) are select factors that may be used to track the implementation of the plan. While data collection can be time consuming, the recommended KPI's listed below can be tracked to facilitate progress reporting, while minimizing additional efforts required of staff:

- Pedestrian activity
- Bicycle activity
- Dollars in grant funding pursued
- Dollars in grant funding secured
- Number of priority projects funded annually
- Miles of bicycle facilities constructed annually
- Miles of bicycle lanes constructed annually







KPI's provide the opportunity to keep the City of Lomita, and the community informed of progress made, maintaining a level of transparency in reporting the progress made towards implementing this Plan.

Appendix A: Countermeasure Toolbox

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Pedestrian Countermeasure Options

Median Refuge Island	RRFB	HAWK Beacon	Curb Extension	Leading Pedestrian Interval	Continental Crosswalk
					
<p>Median pedestrian and bicycle refuge islands make roadway crossings easier and safer by limiting exposure to through moving vehicles and enabling crossings to commence when there are gaps in traffic from one direction at a time. They may be used at signalized and unsignalized intersections or midblock.</p>	<p>Rectangular rapid flashing beacons (RRFB) use LED flashing beacons in combination with pedestrian and bicycle warning signs to provide a high-visibility strobe-like warning to drivers when pedestrians and bicyclists use a crosswalk.</p>	<p>High-intensity activated crosswalks (HAWK), combine pedestrian signals with yellow and red signals on the major roadway. They hang over the roadway and are activated by a pedestrian at the intersection. They create gaps for people to cross major streets safely, and have been found to have a very high compliance rate.</p>	<p>Curb extensions extend the curb line and sidewalk, which shortens crossing distances and increases the sidewalk for pedestrians. They improve safety by increasing visibility, reducing speeds of turning vehicles, encouraging pedestrians to cross at designated locations, and preventing vehicles from parking at corners.</p>	<p>Leading pedestrian intervals give pedestrians a few second head start to claim the right-of-way ahead of turning traffic. This modification can optimize delay for all users, encourage users to wait for the appropriate phase, and reduce bicycle and pedestrian conflicts with motor vehicles.</p>	<p>Zebra crosswalks are preferable to standard crosswalks with parallel or dashed pavement markings. They are more visible to approaching vehicles and can improve yielding behavior.</p>
Additional Guidance	Additional Guidance	Additional Guidance	Additional Guidance	Additional Guidance	Additional Guidance
<ul style="list-style-type: none"> ▪ California Manual on Uniform Traffic Control Devices (2014, Chapter 3B.10 3B.18, 3I.06) ▪ NACTO Urban Street Design Guide (Chapter 5: Intersection Design Elements) ▪ NACTO Urban Bikeway Design Guide – Chapter 3: Intersections 	<ul style="list-style-type: none"> ▪ California Manual on Uniform Traffic Control Devices (2014, Chapter 4F, 4L.101, 4L.02, 4L.03) ▪ NACTO Urban Bikeway Design Guide (Chapter 4: Signals) 	<ul style="list-style-type: none"> ▪ California Manual on Uniform Traffic Control Devices (2014, Chapter 4F and 9D) ▪ NACTO Urban Bikeway Design Guide (Chapter 4: Signals) 	<ul style="list-style-type: none"> ▪ Los Angeles Complete Streets Manual (Section 4: Sidewalks) ▪ San Francisco Better Streets Plan (Chapter 5: Street Designs) ▪ Caltrans Highway Design Manual (Chapter 300, Topic 303.4) ▪ NACTO Urban Street Design Guide (Chapter 2: Street Design Elements) ▪ Federal Highway Administration: Small Town and Rural Multimodal Networks, Chapter 2: Mixed Traffic Facilities 	<ul style="list-style-type: none"> ▪ California Manual on Uniform Traffic Control Devices (2014, Chapter 3B.10 3B.18, 3I.06) ▪ NACTO Urban Street Design Guide (Chapter 5: Intersection Design Elements) 	<ul style="list-style-type: none"> ▪ NACTO Urban Street Design Guide (Chapter 5: Intersection Design Elements)

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Bicycle Countermeasure Options

Buffered Bike Lane	Bike Lane	Bicycle Boulevard	Lane Reconfiguration
			
<p>Buffered bike lanes combine traditional bike lanes with a designated buffer space separating the bicycle lane from the adjacent travel and/or parking lane. They provide greater visibility than traditional bike lanes.</p>	<p>Bike lanes are striped on-street lanes next to travel lanes. With bike lanes, motorists can safely pass people on bicycles without having to change lanes. The stripes, in combination with narrower vehicle lanes, can slow traffic.</p>	<p>Shared lane markings, wayfinding signs, and traffic calming communicate to residents and through traffic that the vulnerable roadway users on these streets are a priority. Bioswales and landscaping amenities enhance water retention capabilities and shade. Bike-friendly streets are installed on streets that are already low volume and low speed (or could easily be) and enhanced crossings are utilized at higher order streets to maintain connectivity.</p>	<p>Lane reconfigurations are used to reallocate the available pavement between curbs to accommodate expected traffic volumes and users in fewer mixed purpose motor vehicle lanes. A typical lane reconfiguration reduces the number of through lanes while maintaining capacity at the intersection for the target level of service for all modes. With a goal of increasing available transportation choices on a street, the reduction of lanes allows for bike lanes, pedestrian refuge islands, transit stops, or parking. Lane reconfigurations are a proven safety countermeasure.</p>
<p>Additional Guidance</p>	<p>Additional Guidance</p>	<p>Additional Guidance</p>	<p>Additional Guidance</p>
<ul style="list-style-type: none"> ▪ Caltrans Standards (Plan A24C/D) ▪ California Manual on Uniform Traffic Control Devices (2014, Chapter 9A, 9B, 9C) ▪ NACTO Urban Bikeway Design Guide (Chapter 1: Bike Lanes) 	<ul style="list-style-type: none"> ▪ Caltrans Standards (Plan A24C/D) ▪ California Manual on Uniform Traffic Control Devices (2014, Chapter 9A, 9B, 9C) ▪ NACTO Urban Bikeway Design Guide (Chapter 1: Bike Lanes) 	<ul style="list-style-type: none"> ▪ California Manual on Uniform Traffic Control Devices (2014, Chapter 9A, 9B, 9C) ▪ NACTO Urban Bikeway Design Guide (Chapter 6: Bicycle Boulevards) ▪ NACTO Urban Street Stormwater Guide 	<ul style="list-style-type: none"> ▪ Caltrans Standards (Plan A20-A24) ▪ NACTO Urban Street Design Guide ▪ Federal Highway Administration: Road Diet Informational Guide

Appendix B: Projects Table

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Project		Length (mi)	Type	Primary Recommendation	Cost	Alternative Recommendation	Cost
1	Eshelman Ave from Northern City Limits to 262nd St	1.5	Narrow lanes + add buffer to bike lanes	<ul style="list-style-type: none"> Narrow travel lanes to 10' Add 2' buffer to existing bike lanes 	\$63,000		
2	262nd St from Eshelman Ave to Western Ave	0.3	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$35,000-\$67,000		
3	255th St from Pennsylvania Ave to Eshelman Ave	0.6	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$70,000-\$130,000		
4	Pennsylvania Ave from PCH to Lomita Blvd	0.9	Bicycle boulevard OR Signed bike route	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$100,000 - \$200,000	<ul style="list-style-type: none"> Extend bike route signage along entire corridor (signage exists from 255th St to PCH) 	\$58,000
5	Narbonne Ave from Lomita Blvd to Southern City Limits	1.2	Lane reconfiguration + bike lanes	<ul style="list-style-type: none"> Lane reconfiguration from four to two lanes with center turn lane, 6' bike lanes, 8' parking lanes 	\$190,000		
6	Walnut St from Northern City Limits to 253rd St	0.9	Bicycle boulevard OR Signed bike route	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$100,000 - \$200,000	<ul style="list-style-type: none"> Extend bike route signage along entire corridor 	\$58,000
7	Walnut St from 253rd St to 257th St	0.3	Lane reconfiguration + bike lanes	<ul style="list-style-type: none"> Four to three lane lane reconfiguration with 10' lanes, 7.5' parking lanes, 5' bike lanes 	\$48,000		

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Project		Length (mi)	Type	Primary Recommendation	Cost	Alternative Recommendation	Cost
8	Walnut St from 257th St to Appian Wy	0.2	Bike boulevard OR Signed bike route	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$22,000-\$47,000	<ul style="list-style-type: none"> Add bike route signage 	\$13,000
9	Lomita Blvd from Eastern City Limits to Walnut St	0.2	Bike lanes	<ul style="list-style-type: none"> Add 5' bike lanes 	\$6,000		
10	Lomita Blvd from Walnut St to Woodward Ave	0.4	Remove Parking + Bike lanes	<ul style="list-style-type: none"> Remove parking lanes Add 5' bike lanes 	\$64,000		
11	Lomita Blvd from Woodward Ave to Lucille Ave	0.2	Remove Parking + Bike lanes	<ul style="list-style-type: none"> Remove parking lanes Add 5' bike lanes 	\$32,000		
12	Lomita Blvd from Lucille Ave to Crenshaw Blvd	0.4	Remove TWLTL + Bike lanes	<ul style="list-style-type: none"> Remove two-way left-turn lane Add bike lanes 	\$63,000		
13	Western Ave from 261st St to Southern City Limits	0.8	Narrow lanes + bike lanes	<ul style="list-style-type: none"> Narrow travel and parking lanes Add 5' bike lanes 	\$127,000		
14	PCH from Eastern City Limits to Western City Limits	1.0	Lane reconfiguration + buffered bike lanes	<ul style="list-style-type: none"> Remove one travel lane per direction Add 6' bike lane with buffer 	\$173,000		
15	Palos Verdes Dr from Eastern City Limits to Western City Limits	0.6	Bike lanes	<ul style="list-style-type: none"> Add 6' bike lanes buffered by parking and 1' buffer 	\$104,000		

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Project		Length (mi)	Type	Primary Recommendation	Cost	Alternative Recommendation	Cost
16	Ebony Ln from Lomita Blvd to 253rd St	0.3	Narrow lanes + bike lanes	<ul style="list-style-type: none"> Keep center turn lane Narrow to 10' travel lanes and 7.5' parking lanes Add 5' bike lanes 	\$39,000		
17	241st St from Pennsylvania Ave to Narbonne Ave	0.3	Bike boulevard OR signed bike route	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. 	\$35,000-\$67,000	<ul style="list-style-type: none"> Add bike route signage 	\$19,000
18	250th St from Pennsylvania Ave to Narbonne Ave	0.3	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$35,000-\$67,000		
19	254th St from Eshelman Ave to Eastern City Limits	0.3	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. 	\$35,000-\$67,000		
20	257th St from Eshelman Ave to Walnut St	0.1	Bike boulevard OR signed bike route	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate 	\$10,000-\$20,000	<ul style="list-style-type: none"> Add bike route signage 	\$6,000
21	257th St from Walnut St to Eastern City Limits	0.2	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate 	\$23,000-\$45,000		
22	Eshelman Ave & Lomita Park Pl		Enhanced crossings	<ul style="list-style-type: none"> Add RRFB at Lomita Park 	\$19,000		
23	Lomita Blvd & Crenshaw Blvd		Enhanced crossings	<ul style="list-style-type: none"> Curb extension at northwest corner Add LPI to pedestrian signals on all legs 	\$111,000		

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Project	Length (mi)	Type	Primary Recommendation	Cost	Alternative Recommendation	Cost
			<ul style="list-style-type: none"> ▪ Add marked crosswalks on all legs 			
24	Lomita Blvd & Pennsylvania Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	\$71,000		
25	Lomita Blvd & Narbonne Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	\$178,000		
26	Lomita Blvd & Eshelman Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	\$178,000		
27	Lomita Blvd & Walnut St	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	\$178,000		
28	Lomita Blvd & Ebony Ln	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add marked crosswalks on all legs 	\$165,000		
29	250th St & Narbonne Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Add marked crosswalks on all legs 	\$58,000		
30	Walnut St & 253rd St	Enhanced crossings	<ul style="list-style-type: none"> ▪ Reconstruct Ebony/253rd and 253rd/Walnut intersections ▪ Add median refuge island ▪ Add marked crosswalks on all legs 	\$555,000		

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	Project	Length (mi)	Type	Primary Recommendation	Cost	Alternative Recommendation	Cost
31	Walnut St & 254th St		Enhanced crossings	<ul style="list-style-type: none"> ▪ Add marked crosswalks on all legs 	\$58,000		
32	Eshelman Ave at 254th St and 255th St		Enhanced crossings	<ul style="list-style-type: none"> ▪ Add RRFB ▪ Add bulb-outs 	\$145,000		
33	255th & Narbonne		Enhanced crossings	<ul style="list-style-type: none"> ▪ Add marked crosswalks on all legs 	\$58,000		
34	PCH & Pennsylvania Ave		Enhanced crossings	<ul style="list-style-type: none"> ▪ Add LPI to pedestrian signals that cross PCH ▪ Add marked crosswalks on all legs 	\$71,000		
35	PCH & Narbonne Ave		Enhanced crossings	<ul style="list-style-type: none"> ▪ Add LPI to pedestrian signals that cross PCH 	\$13,000		
36	PCH & Eshelman Ave		Enhanced crossings	<ul style="list-style-type: none"> ▪ Add LPI to pedestrian signals that cross PCH 	\$13,000		
37	Crenshaw Access Ped Path Signage		Enhanced Wayfinding	<ul style="list-style-type: none"> ▪ Add wayfinding signage along Pennsylvania Ave and 251st St 	\$5,000		

Appendix C: Funding Sources

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Managing Agency	Program	Project Type	Funding Sources	Available Funds	Funding Cycle
Caltrans	Active Transportation Program	<ul style="list-style-type: none"> ▪ New bikeways ▪ Improvements to existing bikeways ▪ Elimination of hazardous conditions on existing bikeways ▪ Traffic control devices to improve bike safety ▪ Safe routes to school ▪ Safe routes to transit ▪ Secure bicycle parking at employment centers, park and rides, transit stations and ferry docks ▪ Bicycle carrying facilities on public transit ▪ Establishment or expansion of a bike share/rental program-equipment and capital costs ▪ Recreational trails and rail-to-trails ▪ Functional landscaping (barrier planters, shade trees) 	Federal Surface Transportation Block Grant program, Safe Routes to School, Bicycle Transportation Account, CA Recreational Trails Program, Environmental	\$123 million annually from 2017- 2021 statewide	Annual. Cycle 4 is scheduled for early 2018.
Caltrans	Highway Safety Improvement Program	<p>Projects that can be implemented quickly and do not require significant ROW acquisition or environmental review. Projects must address safety issues identified using crash data.</p> <ul style="list-style-type: none"> ▪ Bike safety improvements ▪ Enforcement activities ▪ Traffic calming and crossing improvements on any publicly owned road or bicycle pathway or trail. 	Highway Safety Improvement Program		Varies. Cycle 8 call for projects was announced May 9, 2016, application due August 12, 2016.
Caltrans	State Highway Operations and Protection Program	<p>Projects on state highway system.</p> <ul style="list-style-type: none"> ▪ Collision reduction ▪ Mobility enhancement (ADA) ▪ Major damage restoration ▪ Pavement and facility preservation 	National Highway Performance Program, Surface Transportation Program, Highway Safety Improvement Program		Jurisdictions work with Caltrans to have projects placed on the SHOPP list.
Caltrans	Sustainable Transportation Planning Grant program -	Planning projects (no infrastructure or construction).	FTA, State Highway Account	\$9.8 million statewide	Annual. FY 2017-18 applications

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Managing Agency	Program	Project Type	Funding Sources	Available Funds	Funding Cycle
	Sustainable Communities Grant				due October 20, 2017.
California Department of Parks and Rec	Land and Water Conservation Fund	Renovation or creation of outdoor facilities within existing parks not currently under federal protection (could include multi-use or bike trails).		Grant requests up to \$2 million encouraged.	Annual. FY 2017-18 applications due February 5, 2018.
California Office of Traffic Safety	Office of Traffic Safety Grant Program	Safety education and enforcement programs, increased helmet use among children is a goal of the program.			Typically Annual
USDOT	TIGER Discretionary Grants program	Capital investments in surface transportation infrastructure that will have a significant impact on the nation, metropolitan area or region. Highway and bridge projects can include bike infrastructure.	USDOT	\$500 million nationally. Minimum of \$5 million for urban projects, may be used for up to 80% of the project cost.	Current round applications due October 16, 2017.

Appendix D: Existing Conditions Report







Appendix E: Community Survey Tool

Appendix F: Narbonne Avenue Lane Reconfiguration Memorandum

Appendix A: Countermeasure Toolbox

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Pedestrian Countermeasure Options

Median Refuge Island	RRFB	HAWK Beacon	Curb Extension	Leading Pedestrian Interval	Continental Crosswalk
					
Median pedestrian and bicycle refuge islands make roadway crossings easier and safer by limiting exposure to through moving vehicles and enabling crossings to commence when there are gaps in traffic from one direction at a time. They may be used at signalized and unsignalized intersections or midblock.	Rectangular rapid flashing beacons (RRFB) use LED flashing beacons in combination with pedestrian and bicycle warning signs to provide a high-visibility strobe-like warning to drivers when pedestrians and bicyclists use a crosswalk.	High-intensity activated crosswalks (HAWK), combine pedestrian signals with yellow and red signals on the major roadway. They hang over the roadway and are activated by a pedestrian at the intersection. They create gaps for people to cross major streets safely, and have been found to have a very high compliance rate.	Curb extensions extend the curb line and sidewalk, which shortens crossing distances and increases the sidewalk for pedestrians. They improve safety by increasing visibility, reducing speeds of turning vehicles, encouraging pedestrians to cross at designated locations, and preventing vehicles from parking at corners.	Leading pedestrian intervals give pedestrians a few second head start to claim the right-of-way ahead of turning traffic. This modification can optimize delay for all users, encourage users to wait for the appropriate phase, and reduce bicycle and pedestrian conflicts with motor vehicles.	Zebra crosswalks are preferable to standard crosswalks with parallel or dashed pavement markings. They are more visible to approaching vehicles and can improve yielding behavior.
Additional Guidance	Additional Guidance	Additional Guidance	Additional Guidance	Additional Guidance	Additional Guidance
<ul style="list-style-type: none"> California Manual on Uniform Traffic Control Devices (2014, Chapter 3B.10 3B.18, 3I.06) NACTO Urban Street Design Guide (Chapter 5: Intersection Design Elements) NACTO Urban Bikeway Design Guide – Chapter 3: Intersections 	<ul style="list-style-type: none"> California Manual on Uniform Traffic Control Devices (2014, Chapter 4F, 4L.101, 4L.02, 4L.03) NACTO Urban Bikeway Design Guide (Chapter 4: Signals) 	<ul style="list-style-type: none"> California Manual on Uniform Traffic Control Devices (2014, Chapter 4F and 9D) NACTO Urban Bikeway Design Guide (Chapter 4: Signals) 	<ul style="list-style-type: none"> Los Angeles Complete Streets Manual (Section 4: Sidewalks) San Francisco Better Streets Plan (Chapter 5: Street Designs) Caltrans Highway Design Manual (Chapter 300, Topic 303.4) NACTO Urban Street Design Guide (Chapter 2: Street Design Elements) Federal Highway Administration: Small Town and Rural Multimodal Networks, Chapter 2: Mixed Traffic Facilities 	<ul style="list-style-type: none"> California Manual on Uniform Traffic Control Devices (2014, Chapter 3B.10 3B.18, 3I.06) NACTO Urban Street Design Guide (Chapter 5: Intersection Design Elements) 	<ul style="list-style-type: none"> NACTO Urban Street Design Guide (Chapter 5: Intersection Design Elements)

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City of Lomita

Bicycle Countermeasure Options

Buffered Bike Lane	Bike Lane	Bicycle Boulevard	Lane Reconfiguration
			
<p>Buffered bike lanes combine traditional bike lanes with a designated buffer space separating the bicycle lane from the adjacent travel and/or parking lane. They provide greater visibility than traditional bike lanes.</p>	<p>Bike lanes are striped on-street lanes next to travel lanes. With bike lanes, motorists can safely pass people on bicycles without having to change lanes. The stripes, in combination with narrower vehicle lanes, can slow traffic.</p>	<p>Shared lane markings, wayfinding signs, and traffic calming communicate to residents and through traffic that the vulnerable roadway users on these streets are a priority. Bioswales and landscaping amenities enhance water retention capabilities and shade. Bike-friendly streets are installed on streets that are already low volume and low speed (or could easily be) and enhanced crossings are utilized at higher order streets to maintain connectivity.</p>	<p>Lane reconfigurations are used to reallocate the available pavement between curbs to accommodate expected traffic volumes and users in fewer mixed purpose motor vehicle lanes. A typical lane reconfiguration reduces the number of through lanes while maintaining capacity at the intersection for the target level of service for all modes. With a goal of increasing available transportation choices on a street, the reduction of lanes allows for bike lanes, pedestrian refuge islands, transit stops, or parking. Lane reconfigurations are a proven safety countermeasure.</p>
<p>Additional Guidance</p>	<p>Additional Guidance</p>	<p>Additional Guidance</p>	<p>Additional Guidance</p>
<ul style="list-style-type: none"> ▪ Caltrans Standards (Plan A24C/D) ▪ California Manual on Uniform Traffic Control Devices (2014, Chapter 9A, 9B, 9C) ▪ NACTO Urban Bikeway Design Guide (Chapter 1: Bike Lanes) 	<ul style="list-style-type: none"> ▪ Caltrans Standards (Plan A24C/D) ▪ California Manual on Uniform Traffic Control Devices (2014, Chapter 9A, 9B, 9C) ▪ NACTO Urban Bikeway Design Guide (Chapter 1: Bike Lanes) 	<ul style="list-style-type: none"> ▪ California Manual on Uniform Traffic Control Devices (2014, Chapter 9A, 9B, 9C) ▪ NACTO Urban Bikeway Design Guide (Chapter 6: Bicycle Boulevards) ▪ NACTO Urban Street Stormwater Guide 	<ul style="list-style-type: none"> ▪ Caltrans Standards (Plan A20-A24) ▪ NACTO Urban Street Design Guide ▪ Federal Highway Administration: Road Diet Informational Guide

Appendix B: Projects Table

BICYCLE AND PEDESTRIAN MASTER PLAN | BICYCLE AND PEDESTRIAN MASTER PLAN

City of Lomita

Project		Length (mi)	Type	Primary Recommendation	Cost	Alternative Recommendation	Cost
1	Eshelman Ave from Northern City Limits to 262nd St	1.5	Narrow lanes + add buffer to bike lanes	<ul style="list-style-type: none"> Narrow travel lanes to 10' Add 2' buffer to existing bike lanes 	\$63,000		
2	262nd St from Eshelman Ave to Western Ave	0.3	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$35,000-\$67,000		
3	255th St from Pennsylvania Ave to Eshelman Ave	0.6	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$70,000-\$130,000		
4	Pennsylvania Ave from PCH to Lomita Blvd	0.9	Bicycle boulevard OR Signed bike route	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$100,000 - \$200,000	<ul style="list-style-type: none"> Extend bike route signage along entire corridor (signage exists from 255th St to PCH) 	\$58,000
5	Narbonne Ave from Lomita Blvd to Southern City Limits	1.2	Lane reconfiguration + bike lanes	<ul style="list-style-type: none"> Lane reconfiguration from four to two lanes with center turn lane, 6' bike lanes, 8' parking lanes 	\$190,000		
6	Walnut St from Northern City Limits to 253rd St	0.9	Bicycle boulevard OR Signed bike route	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$100,000 - \$200,000	<ul style="list-style-type: none"> Extend bike route signage along entire corridor 	\$58,000
7	Walnut St from 253rd St to 257th St	0.3	Lane reconfiguration + bike lanes	<ul style="list-style-type: none"> Four to three lane lane reconfiguration with 10' lanes, 7.5' parking lanes, 5' bike lanes 	\$48,000		

BICYCLE AND PEDESTRIAN MASTER PLAN | BICYCLE AND PEDESTRIAN MASTER PLAN

City of Lomita

Project		Length (mi)	Type	Primary Recommendation	Cost	Alternative Recommendation	Cost
8	Walnut St from 257th St to Appian Wy	0.2	Bike boulevard OR Signed bike route	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$22,000-\$47,000	<ul style="list-style-type: none"> Add bike route signage 	\$13,000
9	Lomita Blvd from Eastern City Limits to Walnut St	0.2	Bike lanes	<ul style="list-style-type: none"> Add 5' bike lanes 	\$6,000		
10	Lomita Blvd from Walnut St to Woodward Ave	0.4	Remove Parking + Bike lanes	<ul style="list-style-type: none"> Remove parking lanes Add 5' bike lanes 	\$64,000		
11	Lomita Blvd from Woodward Ave to Lucille Ave	0.2	Remove Parking + Bike lanes	<ul style="list-style-type: none"> Remove parking lanes Add 5' bike lanes 	\$32,000		
12	Lomita Blvd from Lucille Ave to Crenshaw Blvd	0.4	Remove TWLTL + Bike lanes	<ul style="list-style-type: none"> Remove two-way left-turn lane Add bike lanes 	\$63,000		
13	Western Ave from 261st St to Southern City Limits	0.8	Narrow lanes + bike lanes	<ul style="list-style-type: none"> Narrow travel and parking lanes Add 5' bike lanes 	\$127,000		
14	PCH from Eastern City Limits to Western City Limits	1.0	Lane reconfiguration + buffered bike lanes	<ul style="list-style-type: none"> Remove one travel lane per direction Add 6' bike lane with buffer 	\$173,000		
15	Palos Verdes Dr from Eastern City Limits to Western City Limits	0.6	Bike lanes	<ul style="list-style-type: none"> Add 6' bike lanes buffered by parking and 1' buffer 	\$104,000		

BICYCLE AND PEDESTRIAN MASTER PLAN | BICYCLE AND PEDESTRIAN MASTER PLAN

City of Lomita

Project		Length (mi)	Type	Primary Recommendation	Cost	Alternative Recommendation	Cost
16	Ebony Ln from Lomita Blvd to 253rd St	0.3	Narrow lanes + bike lanes	<ul style="list-style-type: none"> ▪ Keep center turn lane ▪ Narrow to 10' travel lanes and 7.5' parking lanes ▪ Add 5' bike lanes 	\$39,000		
17	241st St from Pennsylvania Ave to Narbonne Ave	0.3	Bike boulevard OR signed bike route	<ul style="list-style-type: none"> ▪ Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. 	\$35,000- \$67,000	<ul style="list-style-type: none"> ▪ Add bike route signage 	\$19,000
18	250th St from Pennsylvania Ave to Narbonne Ave	0.3	Bike boulevard	<ul style="list-style-type: none"> ▪ Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$35,000- \$67,000		
19	254th St from Eshelman Ave to Eastern City Limits	0.3	Bike boulevard	<ul style="list-style-type: none"> ▪ Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. 	\$35,000- \$67,000		
20	257th St from Eshelman Ave to Walnut St	0.1	Bike boulevard OR signed bike route	<ul style="list-style-type: none"> ▪ Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate 	\$10,000- \$20,000	<ul style="list-style-type: none"> ▪ Add bike route signage 	\$6,000
21	257th St from Walnut St to Eastern City Limits	0.2	Bike boulevard	<ul style="list-style-type: none"> ▪ Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate 	\$23,000- \$45,000		
22	Eshelman Ave & Lomita Park Pl		Enhanced crossings	<ul style="list-style-type: none"> ▪ Add RRFB at Lomita Park 	\$19,000		
23	Lomita Blvd & Crenshaw Blvd		Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extension at northwest corner ▪ Add LPI to pedestrian signals on all legs 	\$111,000		

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Project	Length (mi)	Type	Primary Recommendation	Cost	Alternative Recommendation	Cost
			<ul style="list-style-type: none"> ▪ Add marked crosswalks on all legs 			
24	Lomita Blvd & Pennsylvania Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	\$71,000		
25	Lomita Blvd & Narbonne Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	\$178,000		
26	Lomita Blvd & Eshelman Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	\$178,000		
27	Lomita Blvd & Walnut St	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	\$178,000		
28	Lomita Blvd & Ebony Ln	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add marked crosswalks on all legs 	\$165,000		
29	250th St & Narbonne Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Add marked crosswalks on all legs 	\$58,000		
30	Walnut St & 253rd St	Enhanced crossings	<ul style="list-style-type: none"> ▪ Reconstruct Ebony/253rd and 253rd/Walnut intersections ▪ Add median refuge island ▪ Add marked crosswalks on all legs 	\$555,000		

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	Project	Length (mi)	Type	Primary Recommendation	Cost	Alternative Recommendation	Cost
31	Walnut St & 254th St		Enhanced crossings	<ul style="list-style-type: none"> Add marked crosswalks on all legs 	\$58,000		
32	Eshelman Ave at 254th St and 255th St		Enhanced crossings	<ul style="list-style-type: none"> Add RRFB Add bulb-outs 	\$145,000		
33	255th & Narbonne		Enhanced crossings	<ul style="list-style-type: none"> Add marked crosswalks on all legs 	\$58,000		
34	PCH & Pennsylvania Ave		Enhanced crossings	<ul style="list-style-type: none"> Add LPI to pedestrian signals that cross PCH Add marked crosswalks on all legs 	\$71,000		
35	PCH & Narbonne Ave		Enhanced crossings	<ul style="list-style-type: none"> Add LPI to pedestrian signals that cross PCH 	\$13,000		
36	PCH & Eshelman Ave		Enhanced crossings	<ul style="list-style-type: none"> Add LPI to pedestrian signals that cross PCH 	\$13,000		
37	Crenshaw Access Ped Path Signage		Enhanced Wayfinding	<ul style="list-style-type: none"> Add wayfinding signage along Pennsylvania Ave and 251st St 	\$5,000		

Appendix C: Funding Sources

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Managing Agency	Program	Project Type	Funding Sources	Available Funds	Funding Cycle
Caltrans	Active Transportation Program	<ul style="list-style-type: none"> ▪ New bikeways ▪ Improvements to existing bikeways ▪ Elimination of hazardous conditions on existing bikeways ▪ Traffic control devices to improve bike safety ▪ Safe routes to school ▪ Safe routes to transit ▪ Secure bicycle parking at employment centers, park and rides, transit stations and ferry docks ▪ Bicycle carrying facilities on public transit ▪ Establishment or expansion of a bike share/rental program-equipment and capital costs ▪ Recreational trails and rail-to-trails ▪ Functional landscaping (barrier planters, shade trees) 	Federal Surface Transportation Block Grant program, Safe Routes to School, Bicycle Transportation Account, CA Recreational Trails Program, Environmental	\$123 million annually from 2017- 2021 statewide	Annual. Cycle 4 is scheduled for early 2018.
Caltrans	Highway Safety Improvement Program	<p>Projects that can be implemented quickly and do not require significant ROW acquisition or environmental review. Projects must address safety issues identified using crash data.</p> <ul style="list-style-type: none"> ▪ Bike safety improvements ▪ Enforcement activities ▪ Traffic calming and crossing improvements on any publicly owned road or bicycle pathway or trail. 	Highway Safety Improvement Program		Varies. Cycle 8 call for projects was announced May 9, 2016, application due August 12, 2016.
Caltrans	State Highway Operations and Protection Program	<p>Projects on state highway system.</p> <ul style="list-style-type: none"> ▪ Collision reduction ▪ Mobility enhancement (ADA) ▪ Major damage restoration ▪ Pavement and facility preservation 	National Highway Performance Program, Surface Transportation Program, Highway Safety Improvement Program		Jurisdictions work with Caltrans to have projects placed on the SHOPP list.
Caltrans	Sustainable Transportation Planning Grant program -	Planning projects (no infrastructure or construction).	FTA, State Highway Account	\$9.8 million statewide	Annual. FY 2017-18 applications

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Managing Agency	Program	Project Type	Funding Sources	Available Funds	Funding Cycle
	Sustainable Communities Grant				due October 20, 2017.
California Department of Parks and Rec	Land and Water Conservation Fund	Renovation or creation of outdoor facilities within existing parks not currently under federal protection (could include multi-use or bike trails).		Grant requests up to \$2 million encouraged.	Annual. FY 2017-18 applications due February 5, 2018.
California Office of Traffic Safety	Office of Traffic Safety Grant Program	Safety education and enforcement programs, increased helmet use among children is a goal of the program.			Typically Annual
USDOT	TIGER Discretionary Grants program	Capital investments in surface transportation infrastructure that will have a significant impact on the nation, metropolitan area or region. Highway and bridge projects can include bike infrastructure.	USDOT	\$500 million nationally. Minimum of \$5 million for urban projects, may be used for up to 80% of the project cost.	Current round applications due October 16, 2017.

Appendix D: Existing Conditions Report







Appendix E: Community Survey Tool

Appendix F: Narbonne Avenue Lane Reconfiguration Memorandum

Appendix A: Countermeasure Toolbox

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Pedestrian Countermeasure Options

Median Refuge Island	RRFB	HAWK Beacon	Curb Extension	Leading Pedestrian Interval	Continental Crosswalk
					
Median pedestrian and bicycle refuge islands make roadway crossings easier and safer by limiting exposure to through moving vehicles and enabling crossings to commence when there are gaps in traffic from one direction at a time. They may be used at signalized and unsignalized intersections or midblock.	Rectangular rapid flashing beacons (RRFB) use LED flashing beacons in combination with pedestrian and bicycle warning signs to provide a high-visibility strobe-like warning to drivers when pedestrians and bicyclists use a crosswalk.	High-intensity activated crosswalks (HAWK), combine pedestrian signals with yellow and red signals on the major roadway. They hang over the roadway and are activated by a pedestrian at the intersection. They create gaps for people to cross major streets safely, and have been found to have a very high compliance rate.	Curb extensions extend the curb line and sidewalk, which shortens crossing distances and increases the sidewalk for pedestrians. They improve safety by increasing visibility, reducing speeds of turning vehicles, encouraging pedestrians to cross at designated locations, and preventing vehicles from parking at corners.	Leading pedestrian intervals give pedestrians a few second head start to claim the right-of-way ahead of turning traffic. This modification can optimize delay for all users, encourage users to wait for the appropriate phase, and reduce bicycle and pedestrian conflicts with motor vehicles.	Zebra crosswalks are preferable to standard crosswalks with parallel or dashed pavement markings. They are more visible to approaching vehicles and can improve yielding behavior.
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Bicycle Countermeasure Options

Buffered Bike Lane	Bike Lane	Bicycle Boulevard	Lane Reconfiguration
			
<p>Buffered bike lanes combine traditional bike lanes with a designated buffer space separating the bicycle lane from the adjacent travel and/or parking lane. They provide greater visibility than traditional bike lanes.</p>	<p>Bike lanes are striped on-street lanes next to travel lanes. With bike lanes, motorists can safely pass people on bicycles without having to change lanes. The stripes, in combination with narrower vehicle lanes, can slow traffic.</p>	<p>Shared lane markings, wayfinding signs, and traffic calming communicate to residents and through traffic that the vulnerable roadway users on these streets are a priority. Bioswales and landscaping amenities enhance water retention capabilities and shade. Bike-friendly streets are installed on streets that are already low volume and low speed (or could easily be) and enhanced crossings are utilized at higher order streets to maintain connectivity.</p>	<p>Lane reconfigurations are used to reallocate the available pavement between curbs to accommodate expected traffic volumes and users in fewer mixed purpose motor vehicle lanes. A typical lane reconfiguration reduces the number of through lanes while maintaining capacity at the intersection for the target level of service for all modes. With a goal of increasing available transportation choices on a street, the reduction of lanes allows for bike lanes, pedestrian refuge islands, transit stops, or parking. Lane reconfigurations are a proven safety countermeasure.</p>
<p>Additional Guidance</p>	<p>Additional Guidance</p>	<p>Additional Guidance</p>	<p>Additional Guidance</p>
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City of Lomita

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2	262nd St from Eshelman Ave to Western Ave	0.3	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$35,000-\$67,000		
3	255th St from Pennsylvania Ave to Eshelman Ave	0.6	Bike boulevard	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$70,000-\$130,000		
4	Pennsylvania Ave from PCH to Lomita Blvd	0.9	Bicycle boulevard OR Signed bike route	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$100,000 - \$200,000	<ul style="list-style-type: none"> Extend bike route signage along entire corridor (signage exists from 255th St to PCH) 	\$58,000
5	Narbonne Ave from Lomita Blvd to Southern City Limits	1.2	Lane reconfiguration + bike lanes	<ul style="list-style-type: none"> Lane reconfiguration from four to two lanes with center turn lane, 6' bike lanes, 8' parking lanes 	\$190,000		
6	Walnut St from Northern City Limits to 253rd St	0.9	Bicycle boulevard OR Signed bike route	<ul style="list-style-type: none"> Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. Grind out existing centerline. 	\$100,000 - \$200,000	<ul style="list-style-type: none"> Extend bike route signage along entire corridor 	\$58,000
7	Walnut St from 253rd St to 257th St	0.3	Lane reconfiguration + bike lanes	<ul style="list-style-type: none"> Four to three lane lane reconfiguration with 10' lanes, 7.5' parking lanes, 5' bike lanes 	\$48,000		

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Project		Length (mi)	Type	Primary Recommendation	Cost	Alternative Recommendation	Cost
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13	Western Ave from 261st St to Southern City Limits	0.8	Narrow lanes + bike lanes	<ul style="list-style-type: none"> Narrow travel and parking lanes Add 5' bike lanes 	\$127,000		
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17	241st St from Pennsylvania Ave to Narbonne Ave	0.3	Bike boulevard OR signed bike route	<ul style="list-style-type: none"> ▪ Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. 	\$35,000- \$67,000	<ul style="list-style-type: none"> ▪ Add bike route signage 	\$19,000
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19	254th St from Eshelman Ave to Eastern City Limits	0.3	Bike boulevard	<ul style="list-style-type: none"> ▪ Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate. 	\$35,000- \$67,000		
20	257th St from Eshelman Ave to Walnut St	0.1	Bike boulevard OR signed bike route	<ul style="list-style-type: none"> ▪ Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate 	\$10,000- \$20,000	<ul style="list-style-type: none"> ▪ Add bike route signage 	\$6,000
21	257th St from Walnut St to Eastern City Limits	0.2	Bike boulevard	<ul style="list-style-type: none"> ▪ Add wayfinding signage, sharrow markings, speed humps, and other treatments, as appropriate 	\$23,000- \$45,000		
22	Eshelman Ave & Lomita Park Pl		Enhanced crossings	<ul style="list-style-type: none"> ▪ Add RRFB at Lomita Park 	\$19,000		
23	Lomita Blvd & Crenshaw Blvd		Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extension at northwest corner ▪ Add LPI to pedestrian signals on all legs 	\$111,000		

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Project	Length (mi)	Type	Primary Recommendation	Cost	Alternative Recommendation	Cost
			<ul style="list-style-type: none"> ▪ Add marked crosswalks on all legs 			
24	Lomita Blvd & Pennsylvania Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	\$71,000		
25	Lomita Blvd & Narbonne Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	\$178,000		
26	Lomita Blvd & Eshelman Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	\$178,000		
27	Lomita Blvd & Walnut St	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add LPI to pedestrian signals that cross Lomita Blvd ▪ Add marked crosswalks on all legs 	\$178,000		
28	Lomita Blvd & Ebony Ln	Enhanced crossings	<ul style="list-style-type: none"> ▪ Curb extensions at all corners ▪ Add marked crosswalks on all legs 	\$165,000		
29	250th St & Narbonne Ave	Enhanced crossings	<ul style="list-style-type: none"> ▪ Add marked crosswalks on all legs 	\$58,000		
30	Walnut St & 253rd St	Enhanced crossings	<ul style="list-style-type: none"> ▪ Reconstruct Ebony/253rd and 253rd/Walnut intersections ▪ Add median refuge island ▪ Add marked crosswalks on all legs 	\$555,000		

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	Project	Length (mi)	Type	Primary Recommendation	Cost	Alternative Recommendation	Cost
31	Walnut St & 254th St		Enhanced crossings	<ul style="list-style-type: none"> ▪ Add marked crosswalks on all legs 	\$58,000		
32	Eshelman Ave at 254th St and 255th St		Enhanced crossings	<ul style="list-style-type: none"> ▪ Add RRFB ▪ Add bulb-outs 	\$145,000		
33	255th & Narbonne		Enhanced crossings	<ul style="list-style-type: none"> ▪ Add marked crosswalks on all legs 	\$58,000		
34	PCH & Pennsylvania Ave		Enhanced crossings	<ul style="list-style-type: none"> ▪ Add LPI to pedestrian signals that cross PCH ▪ Add marked crosswalks on all legs 	\$71,000		
35	PCH & Narbonne Ave		Enhanced crossings	<ul style="list-style-type: none"> ▪ Add LPI to pedestrian signals that cross PCH 	\$13,000		
36	PCH & Eshelman Ave		Enhanced crossings	<ul style="list-style-type: none"> ▪ Add LPI to pedestrian signals that cross PCH 	\$13,000		
37	Crenshaw Access Ped Path Signage		Enhanced Wayfinding	<ul style="list-style-type: none"> ▪ Add wayfinding signage along Pennsylvania Ave and 251st St 	\$5,000		

Appendix C: Funding Sources

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Managing Agency	Program	Project Type	Funding Sources	Available Funds	Funding Cycle
Caltrans	Active Transportation Program	<ul style="list-style-type: none"> ▪ New bikeways ▪ Improvements to existing bikeways ▪ Elimination of hazardous conditions on existing bikeways ▪ Traffic control devices to improve bike safety ▪ Safe routes to school ▪ Safe routes to transit ▪ Secure bicycle parking at employment centers, park and rides, transit stations and ferry docks ▪ Bicycle carrying facilities on public transit ▪ Establishment or expansion of a bike share/rental program-equipment and capital costs ▪ Recreational trails and rail-to-trails ▪ Functional landscaping (barrier planters, shade trees) 	Federal Surface Transportation Block Grant program, Safe Routes to School, Bicycle Transportation Account, CA Recreational Trails Program, Environmental	\$123 million annually from 2017- 2021 statewide	Annual. Cycle 4 is scheduled for early 2018.
Caltrans	Highway Safety Improvement Program	<p>Projects that can be implemented quickly and do not require significant ROW acquisition or environmental review. Projects must address safety issues identified using crash data.</p> <ul style="list-style-type: none"> ▪ Bike safety improvements ▪ Enforcement activities ▪ Traffic calming and crossing improvements on any publicly owned road or bicycle pathway or trail. 	Highway Safety Improvement Program		Varies. Cycle 8 call for projects was announced May 9, 2016, application due August 12, 2016.
Caltrans	State Highway Operations and Protection Program	<p>Projects on state highway system.</p> <ul style="list-style-type: none"> ▪ Collision reduction ▪ Mobility enhancement (ADA) ▪ Major damage restoration ▪ Pavement and facility preservation 	National Highway Performance Program, Surface Transportation Program, Highway Safety Improvement Program		Jurisdictions work with Caltrans to have projects placed on the SHOPP list.
Caltrans	Sustainable Transportation Planning Grant program -	Planning projects (no infrastructure or construction).	FTA, State Highway Account	\$9.8 million statewide	Annual. FY 2017-18 applications

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Managing Agency	Program	Project Type	Funding Sources	Available Funds	Funding Cycle
	Sustainable Communities Grant				due October 20, 2017.
California Department of Parks and Rec	Land and Water Conservation Fund	Renovation or creation of outdoor facilities within existing parks not currently under federal protection (could include multi-use or bike trails).		Grant requests up to \$2 million encouraged.	Annual. FY 2017-18 applications due February 5, 2018.
California Office of Traffic Safety	Office of Traffic Safety Grant Program	Safety education and enforcement programs, increased helmet use among children is a goal of the program.			Typically Annual
USDOT	TIGER Discretionary Grants program	Capital investments in surface transportation infrastructure that will have a significant impact on the nation, metropolitan area or region. Highway and bridge projects can include bike infrastructure.	USDOT	\$500 million nationally. Minimum of \$5 million for urban projects, may be used for up to 80% of the project cost.	Current round applications due October 16, 2017.

Appendix D: Existing Conditions Report



City of Lomita Bicycle and Pedestrian Master Plan

Existing Conditions Report

March 2017

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1 PURPOSE, GOALS, AND VISION

PLAN PURPOSE

The City of Lomita's Bicycle and Pedestrian Master Plan introduces policies and projects to support future investments in active transportation such as walking, bicycling and accessing transit. By funding the development of the plan and consequently adopting it, the City Council has sent a strong signal that it intends Lomita to be more competitive in the pursuit of funds allocated by programs such as the Caltrans Active Transportation Program, and Los Angeles Metropolitan Transit Authority Call for Projects. The implementation of this plan will enable Lomita to become a bicycle and walking friendly community.

VISION

The City of Lomita envisions a future where key destinations are served by safe and connected bicycle and pedestrian networks along and across city streets.

GOALS

Four goals will guide the development of the Bicycle and Pedestrian Plan, and support the development of evaluation criteria that will be used to select the highest priority projects.

Improve Safety

The Plan will seek to make streets safe for all road users. Final recommendations will identify a network of safe and comfortable infrastructure that encourages residents to walk or bike to their favorite local destinations, with complete networks that are not broken by streets with high traffic volumes and streets that are missing enhanced crossings.

Connectivity

With an area of under 2 square miles, many community destinations are a short walk or bicycle ride away for residents. The Plan will identify opportunities to connect local destinations via active transportation modes. In addition, the plan will seek to build on existing and planned infrastructure in the region, to ensure compatibility with neighboring communities in the South Bay.

Support Active Transportation

By improving connectivity between community destinations and improving safety, Lomita will seek to support active transportation as a viable mode of transportation for trips within the City. This will be accomplished by developing public engagement campaigns, interactive programming, and partnerships with community organizations.

Implementation Ready

The Plan must be consistent with community values to ensure adoption by city council and support in implementation. That means plan recommendations will take into consideration the needs of all modes and roadway users and will increase the City's likelihood of successfully competing for grant funding.

2 POLICY REVIEW

LOCAL

General Plan Circulation Element and Municipal Code Policies

Within the General Plan, the Circulation Element details specifics related to transportation including bicycle use within the city. Circulation Element Policy 6 seeks to ensure safety and promote the use bicycles through the maintenance and improvement of bicycle facilities. This policy also encourages the development and maintenance of pedestrian oriented facilities.

Lomita's Municipal Code provides general guidance on establishing zones as "no bicycling, roller skating, etc." but does not otherwise prohibit bicycles from being operated on roadways or sidewalks. The Code does include guidelines for the inclusion of bicycle parking at nonresidential developments, and includes travel by bicycle as a method to address trip reduction and promote alternative forms of transportation.

The Municipal Code also includes stringent Bicycle Registration policies, requiring all bicycles operated and stored in the City of Lomita to be registered and identified with a license plate decal through the Sheriff's department. These policies do not appear to be enforced, and despite the potential to be helpful when recovering stolen bicycles, represent policies that hinder the adoption of bicycles as a mode of travel and have a disproportionate impact on individuals who rely on bicycles for transportation.

Sidewalk Inspection Policy

Lomita has established a simple, yet clearly defined, sidewalk inspection program using a policy template provided by The California Joint Powers Insurance Authority. The inspection program seeks to minimize the possibility of injury to residents and visitors within the city through the use of reporting and annual scheduled maintenance. Any sidewalk deficiencies are assigned a rating which denotes priority for need of repair. Other sidewalk hazards that may necessitate repair are defined, such as sidewalk slope exceeding a 5:1 ratio and a minimum width and depth for holes and cracks of half an inch. Lomita's Public Works Department is tasked with recording sidewalk data, inspection, and recording repairs to ensure the inspection program is functioning properly.

STATE AND REGIONAL

South Bay Bicycle Master Plan

The 2011 South Bay Bicycle Master Plan is the first multi-jurisdictional bicycle master plan and is the result of a partnership between the Los Angeles County Bicycle Coalition and the South Bay Bicycle Coalition. It seeks to expand upon and provide inter-jurisdictional connections between existing bikeways in the City of El Segundo, Gardena, Hermosa Beach, Lawndale, Manhattan Beach, Redondo Beach, and Torrance. The Plan sets forth guidelines and policies to improve biking conditions by prioritizing regional connectivity, encouraging new bicyclists, supporting active transportation, and improving road safety. The Plan also identifies potential funding sources to increase the current 73.2-mile bike network to 213.8 miles.

While the City of Lomita is not included in this plan, a Class II Bike Lane on Cabrillo Avenue provides connections to the City of Torrance. If implemented, proposed bike facilities in the City of Torrance on Pennsylvania Avenue, Western Avenue, and Skypark Drive will provide more bike connections to the City of Lomita.

Notably, there are inconsistencies between existing bike facilities shown in the Plan and what actually exists in Lomita. The Plan shows Class III Bike Routes along 248th Street and the Pacific Coast Highway, where there are no existing bike facilities. Better coordination between jurisdictions and agencies is needed to adequately assess the needs and constraints of the bicycle network.

Los Angeles County Bicycle Master Plan

The 2012 Bicycle Master Plan is an update to the 1975 Los Angeles County Bikeway Plan. The Plan guides the development and maintenance of a regional bicycle network and programs throughout the unincorporated communities of the County of Los Angeles. The purpose is to improve mobility of bicyclists, encourage people to bike, expand the existing bikeway network, connect gaps, address constraints, and improve local and regional connectivity.

The Plan proposes to expand on the existing 144 miles of bikeways and install approximately 831 miles of new bikeways in the County over the next 20 years. However, there are no proposed bike facilities in or near the vicinity of the City of Lomita.

California Active Transportation Program Requirements

Communities may seek California Active Transportation Program (ATP) funding for local programs, plans, and projects that target bicycle, pedestrian, and other non-motorized modes. For Lomita to qualify for this funding for future projects, the city must demonstrate attention to the following areas of need¹:

- The project addresses active transportation needs in underserved communities
- Potential exists for increased walking and bicycling among residents, especially by students, and a need for improvements to address the lack of adequate bicycle and pedestrian facilities

¹ http://www.catc.ca.gov/programs/ATP/2017/Final_Adopted_2017_ATP_Guidelines.pdf

- Potential exists for reducing the number, rate, or risk of pedestrian and bicycle fatalities and injuries, and the identification of safety hazards for these people and measures to counteract those hazards
- The project scope was developed with an appropriate public participation process, or lays out a specific plan for public participation in the plan's future development
- Intended public health benefits of the plan, project, or program are detailed, in addition a plan to target populations with high health risk factors including obesity and physical inactivity
- The increases in safety and mobility resulting from the project are high relative to the project's total cost
- Commitment to leverage matching funds from local, state, and/or federal sources

This Bicycle and Pedestrian Master Plan addresses these areas of need in order to best position the city for future applications.

Caltrans Complete Streets Policy

The Caltrans complete streets policy has existed since 2001, having evolved from Caltrans non-motorized transportation policy. Now in its most recent version, Deputy Directive-64-R2, the policy serves a guideline to ensure safe mobility for bicyclists, pedestrians, transit vehicles, truckers, as well as motorists across the state. The complete streets policy, includes notable action items including an overview training course open to Caltrans staff in all department functions, development of a state bicycle and pedestrian plan, and continued revisions to Caltrans manuals to be consistent with and supportive of complete streets policy. The policy was developed in recognition of the importance of collaboration among all functional units and stakeholders in developing the state's complete streets network. Implementing complete streets at the state level goes a long way towards reaching the state's goals of reducing greenhouse gas emissions, and brings along other benefits including increased transportation choices, economic revitalization, improved return on infrastructure investments, livable communities, improved safety for all users, more walking and bicycling to improve public health, greenhouse gas reduction and improved air quality. This policy is relevant to the City of Lomita due to the state ownership of Pacific Coast Highway.

BEST PRACTICES

This plan is designed to improve Lomita's position as a community that is friendly for people bicycling and walking. It uses two national evaluation frameworks and best practices in order to take aim at making Lomita competitive in future Bicycle Friendly and Walk Friendly Community applications.

“Bicycle Friendly Community” Designation

The League of American Bicyclists has developed a rubric for evaluating communities' friendliness towards bicycling.^{2, 3} Bicycle-friendly communities welcome bicyclists and provide safe facilities that encourage people to bicycle for transportation and recreation. The Bicycle

² <http://bikeleague.org/sites/default/files/BFC%20infographic.pdf>

³ <http://bikeleague.org/bfa>

Friendly Community evaluation takes into account local policies, programs, and infrastructure, and for those communities that apply, the League recognizes levels including Bronze, Silver, Gold, Platinum, and Diamond based on certain qualitative and quantitative measures. There is no specific formula for attaining a particular level of bicycle friendliness, allowing communities the flexibility to highlight their individual strengths while identifying areas of need. The designations are based on criteria of the Five E's of Education, Enforcement, Engineering, Evaluation, and Encouragement, in addition to Key Outcomes, as detailed below.

General criteria for establishing a Bronze Level Bicycle Friendly are displayed below in order to provide reasonable and implementable goals for the City of Lomita as the bicycle network continues to improve. For reference, current Bronze Level Bicycle Friendly communities in California include Riverside, Sunnyvale, Napa, Sonoma, Chula Vista, Redwood, and Rancho Cordova.

Figure 1 Bronze Level Bicycle Friendly designation

	Performance Measure	Bronze Level Bicycle Friendly cities...
Enforcement	Law enforcement/bicycling liaison	May have 1 on staff
	Bicycle-friendly laws and ordinances in place	Often have
Education	Public education and outreach	May have
	Offering of adult bicycling and skills classes	May have 1 per year
	Primary and secondary schools offering bicycling education	Around 33%
Engineering	Bicycle access to public transportation	Good
	Ratio of total bicycle network mileage to total road network mileage	Around 26%
	Arterial streets with bike lanes	Around 33%
Key Outcomes	People commuting by bicycle	Around 1.2% of workers
	Crashes per 10,000 daily commuters	Around 370
	Fatalities per 10,000 daily commuters	Around 4
Evaluation	Bicycle program staff person	Have around 1 per 70,000 residents
	Bicycle plan is current and being implemented	Maybe
Encouragement	Active bicycle clubs and signature events	Typically have
	Bike month and bike to work events	Typically have
	Active bicycle advisory committee	Might have
	Active advocacy group	Might have
	Recreational facilities like bicycle parks and velodromes	Might have

“Walk Friendly Community” Designation

The Federal Highway Administration sponsors the Walk Friendly Communities program, which encourages communities to evaluate and commit to improving the pedestrian environment to

reduce hazards and generally encourage walking as a viable means of transportation.⁴ Upon evaluation based on safety, mobility, access, and comfort, successful Walk Friendly community applicants are assigned Bronze, Silver, Gold, and Platinum designations, in order of increasing friendliness to walking. Similar to the Bicycle Friendly designation, the community assessment tool is based on the Five E's of Education, Enforcement, Engineering, Evaluation, and Encouragement, but there is no specific formula for achieving a particular level of recognition.

The following are brief profiles of cities that have achieved a Bronze-level Walk Friendly designation, providing reasonable case studies for Lomita to use as models for improvement.

Sebastopol, CA⁵ - Population 7440, 1.85 sq. miles in area. Strong community support for walking related programs and initiatives. 10% of residents walk to work. The City and Sonoma County participate in National Bicycle and Pedestrian Documentation Project, gathering volume data to gain better understanding of all trips. Sebastopol developed color-coded wayfinding and self-guided walking tours, and has used grant funding to improve pedestrian crossings along the state highway 116 Main Street. The City and County support Safe Routes to School programming.

Arcata, CA⁶ – Population 18,000, 11 sq. miles in area. Arcata has a high walk mode share, the City updates its bicycle and pedestrian master plan every 5 years, and has a stated goal of achieving 50% of all trips by non-motorized mode. The downtown area was retrofitted with traffic calming devices including curb bulbouts and raised crossings, in addition to roundabouts or traffic circles at other intersections around the city.

Flagstaff, AZ⁷ – Population 63,785, 64 sq. miles in area. Flagstaff has a bicycle and pedestrian coordinator, an active transportation advocacy group, and a pedestrian advisory committee. The City conducts its own Trip Diary Survey to supplement the U.S. Census Journey to Work data, and has an extensive urban trail system. Flagstaff also supports Safe Routes to School events and educational programs.

Themes common to Bronze-level cities include:

- Comprehensive planning efforts
- Pedestrian-specific engineering improvements to sidewalks and roadways
- Demonstrated support from the community for walking-related programs and initiatives
- High walk mode share
- Coordination with law enforcement to improve street safety
- Safe Routes to School programming
- Good range of performance indicators for evaluating walking programs
- Educational efforts in school programming
- Sound land use and urban design policies
- Well-connected sidewalk networks and strong sidewalk maintenance policies
- Complete Streets policy adoption
- Ordinances that promote density and walkability

⁴ <http://walkfriendly.org/developing.cfm>

⁵ <http://walkfriendly.org/communities/community.cfm?ID=345>

⁶ <http://walkfriendly.org/communities/community.cfm?ID=310>

⁷ <http://walkfriendly.org/communities/community.cfm?ID=34>

3 EXISTING FACILITIES

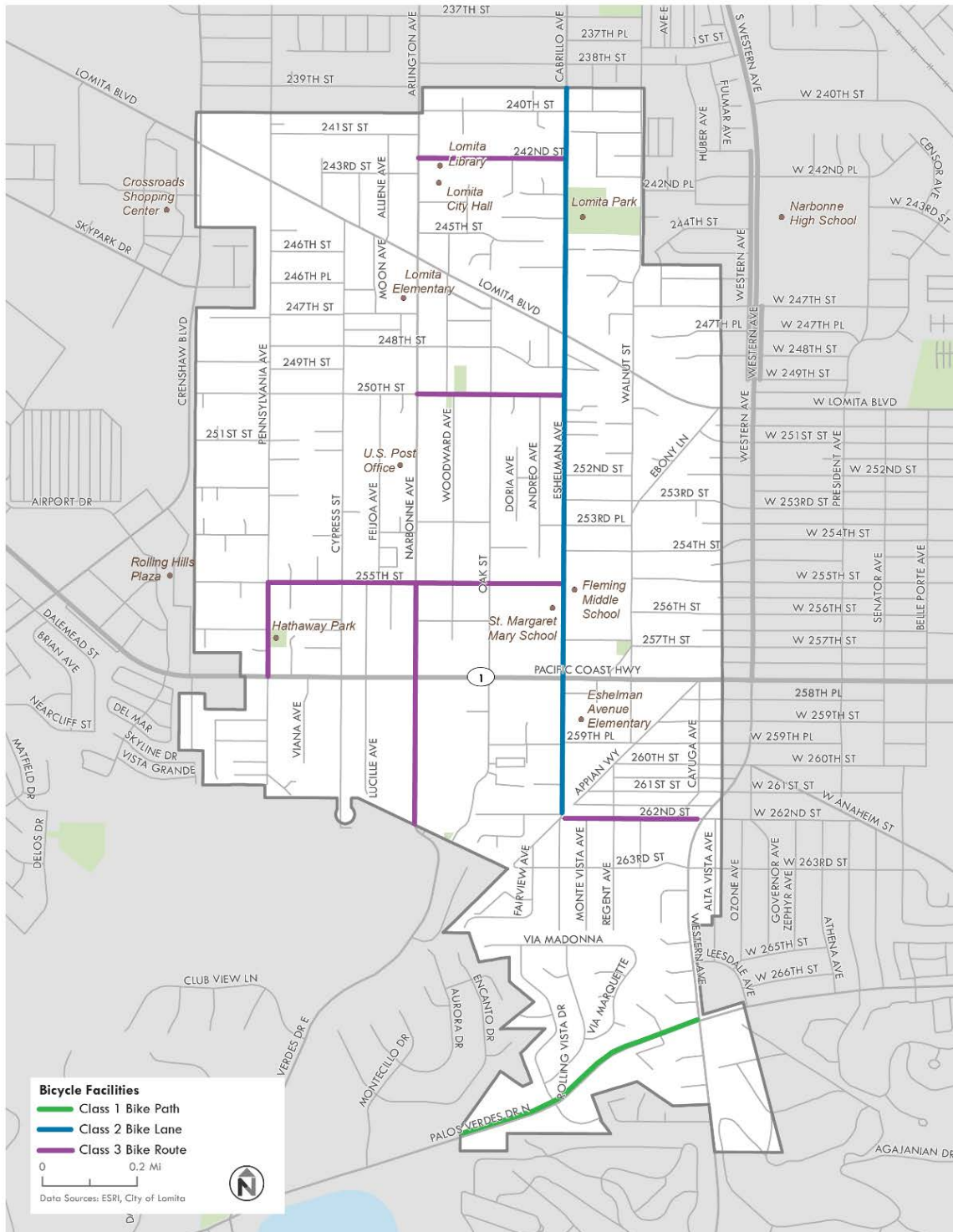
Bicycle Facilities

The City of Lomita bicycle network principle route is the 1.3 miles of dedicated bicycle lanes along Eshelman Avenue. An additional 2.7 miles of bicycle routes, with sufficiently clear signage, guide bicyclists through the neighborhoods of Lomita, as seen in Figure 2.

Eshelman Avenue is the only route that runs north/south within the city boundaries. Narbonne Avenue and Pennsylvania Avenue are partially designated as bicycle facilities, but only span a couple of blocks each limiting options for north/south running facilities. No bikeways support travel within the city from east to west. A goal of this plan will be to increase connectivity by recommending a legible bikeway system with signed or striped routes every half mile.

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Figure 2 Bicycle Facilities



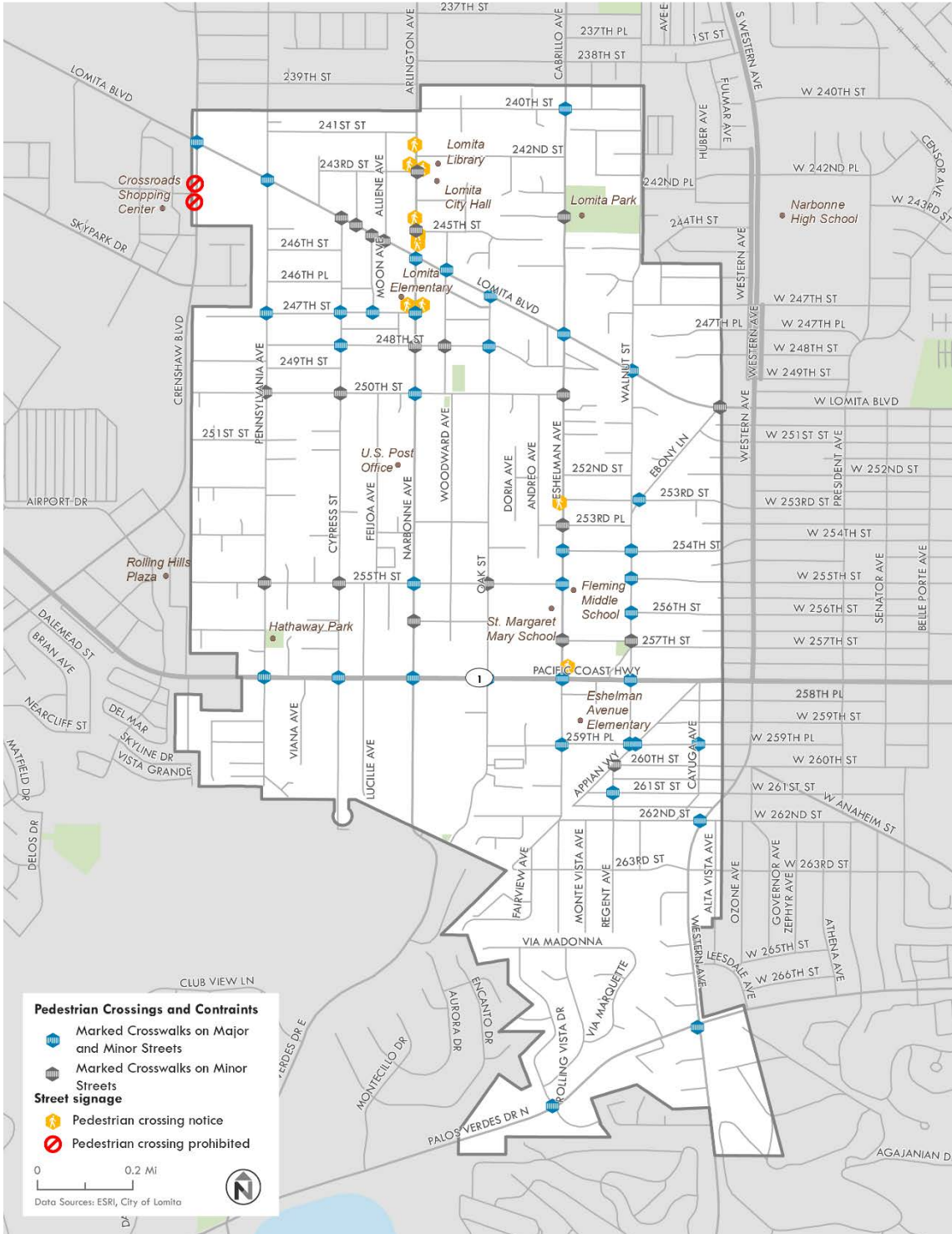
Pedestrian Facilities

As seen in Figure 3, the majority of roadways in Lomita have sidewalks. With 57 miles of sidewalk, most of the 8.4 miles of sidewalk gaps exist along residential streets. While concrete sidewalks are missing from a segment of Palos Verdes Drive, the segment is home to a multi-recreational dirt path.

Figure 4 shows the extent of marked crosswalks at Lomita intersections. All signalized intersections along arterials provide marked intersections for pedestrians to cross in all directions. Traffic controls are described in Figure 5. Signalized intersections are located along arterials of regional importance and Narbonne. The presence of stop signs throughout residential neighborhoods provides traffic control qualities that make the streets easy to cross while walking or bicycling.

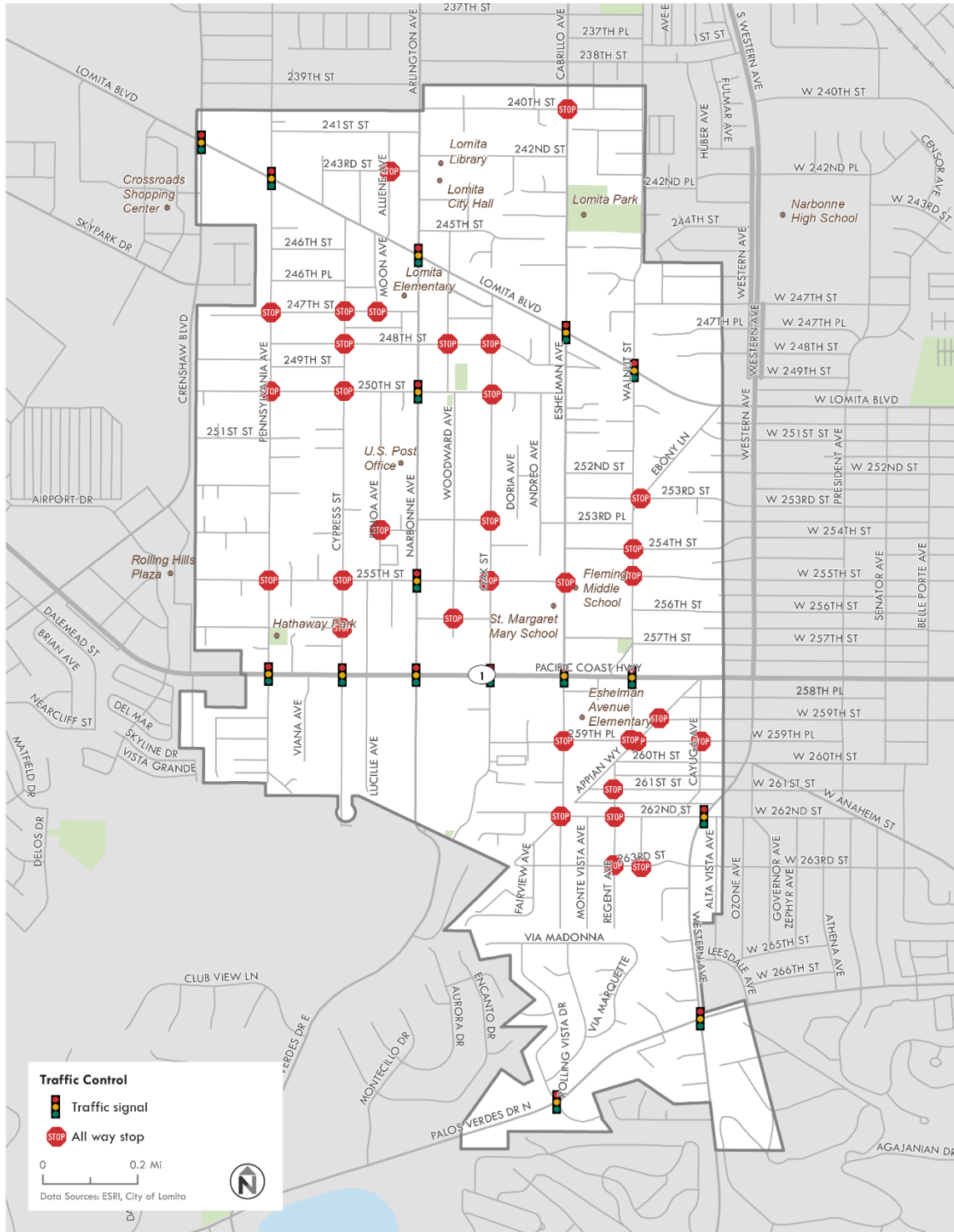
One signalized intersection, Crenshaw Boulevard at the entrance point to the Torrance Crossroads Shopping Center just south of Lomita Blvd., has signage prohibiting pedestrians from crossing. However, it should be noted that regional funds have been secured via Metro to install a crosswalk at this location, improving pedestrian connectivity to a regional shopping destination.

Figure 4 Pedestrian Facilities – Intersections



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Figure 5 Traffic Control



BICYCLE LEVEL OF TRAFFIC STRESS ANALYSIS

Bicycle level of traffic stress is a scoring methodology used to represent the level of stress, or discomfort, experienced by a person riding a bicycle on a roadway segment. The foundation for the analysis is Mineta Transportation Institute’s Low-Stress Bicycle and Network Connectivity model and Level of Traffic Stress (LTS) analysis. The analysis identifies links of high traffic stress, bicycle network gaps, and gaps between “low stress” links. The premise for this analysis is that points increase as stress-inducing factors, such as traffic speeds, increase. The factors that impact the stress of a bicyclist are listed in Figure 6.

Figure 6 BLTS Scoring Criteria

Segments	Intersections
Presence of a bike lane or other bicycle facility type	Presence of a median refuge
Width of a bike lane	Width of a median refuge
Presence of an on-street parking lane	Speed limit
Width of a parking lane	Crossing width (number of lanes)
Number of lanes per direction	
Presence of a raised median	
Presence of a marked centerline	
Speed limit	

Level of Traffic Stress modeling results in four possible street type outcomes:

- **LTS 1 - Low Stress: Most children are comfortable**
- **LTS 2 – Moderate Stress: Most of the adult population are comfortable**
- **LTS 3 – High Stress: Confident cyclists are comfortable**
- **LTS 4 – Extreme Stress: Only the strongest and most experienced cyclists are capable (but not necessarily comfortable)**

The team conducted a GIS-based Level of Traffic Stress analysis of the major streets in Lomita, including those with existing bicycle facilities and those offering the greatest north-to-south and east-to-west connectivity. The scoring methodology is shown in Figure 7 and Figure 8; methodology for unsignalized intersections is shown in Figure 9. The criterion that contributes the most stress to a segment or intersection becomes the default stress level. For example, a street with a 25 mph speed limit may have a striped bicycle lane next to a parking lane (LTS 1), but if the combined width of the bicycle and parking lane is 14 feet (LTS 2), this causes stress on the bicyclist that outweighs the some of the benefit of the marked bicycle lane, resulting in a scoring of LTS. Similarly, on a two-lane street segment with no striped bicycle lane and a speed limit of 25 mph (LTS 1), the presence of a marked centerline can cause motorists to pass closer to bicyclists riding in the lane, resulting in a scoring of LTS 2; for the same segment with no centerline, however, motorists are likely to yield more space to bicyclists as they pass, giving a score of LTS 1. This analysis can inform the community’s understanding of the condition of existing bicycle facilities, as well as where future bicycle facilities could be sited.

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Figure 7 BLTS Criteria and Scoring for Segments with a Bicycle Lane

Criteria		LTS ≥ 1	LTS ≥ 2	LTS ≥ 3	LTS ≥ 4
Bike lane with no parking lane					
Street width (through lanes per direction)	With raised median	1	2	3 or more	-
	Without a raised median	1	-	2 or more	-
Bike lane width (feet)		6 or more	5.5 or less	-	-
Speed limit or prevailing speed (mph)		30 or less	-	35	40 or more
Bike lane alongside parking lane					
Street width (through lanes per direction)		1	-	2 or more	-
Sum of bike lane and parking lane width ⁸ (feet)		15 or more	14 to 14.5	13.5 or less	-
Speed limit or prevailing speed (mph)		25 or less	30	35	40 or more
Based on Mekuria, Furth and Nixon. "Low-Stress Bicycling and Network Connectivity." May 2012.					

Figure 8 BLTS Criteria and Scoring for Segments with Mixed Traffic

Criteria	Street Width (total lanes)		
	2-3 lanes	4-5 lanes	6 or more lanes
25 mph or less			
Without a marked centerline, and fewer than 3 lanes	LTS 1	-	-
Other roads with 25 mph or less	LTS 2	LTS 3	LTS 4
30 mph			
Without a marked centerline, and fewer than 3 lanes	LTS 2	-	-
Other 30 mph roads	LTS 3	LTS 4	LTS 4
35 mph or more			
All roads with 35 mph or more	LTS 4	LTS 4	LTS 4
Based on Mekuria, Furth and Nixon. "Low-Stress Bicycling and Network Connectivity." May 2012.			

⁸ Includes buffer and paved gutter.

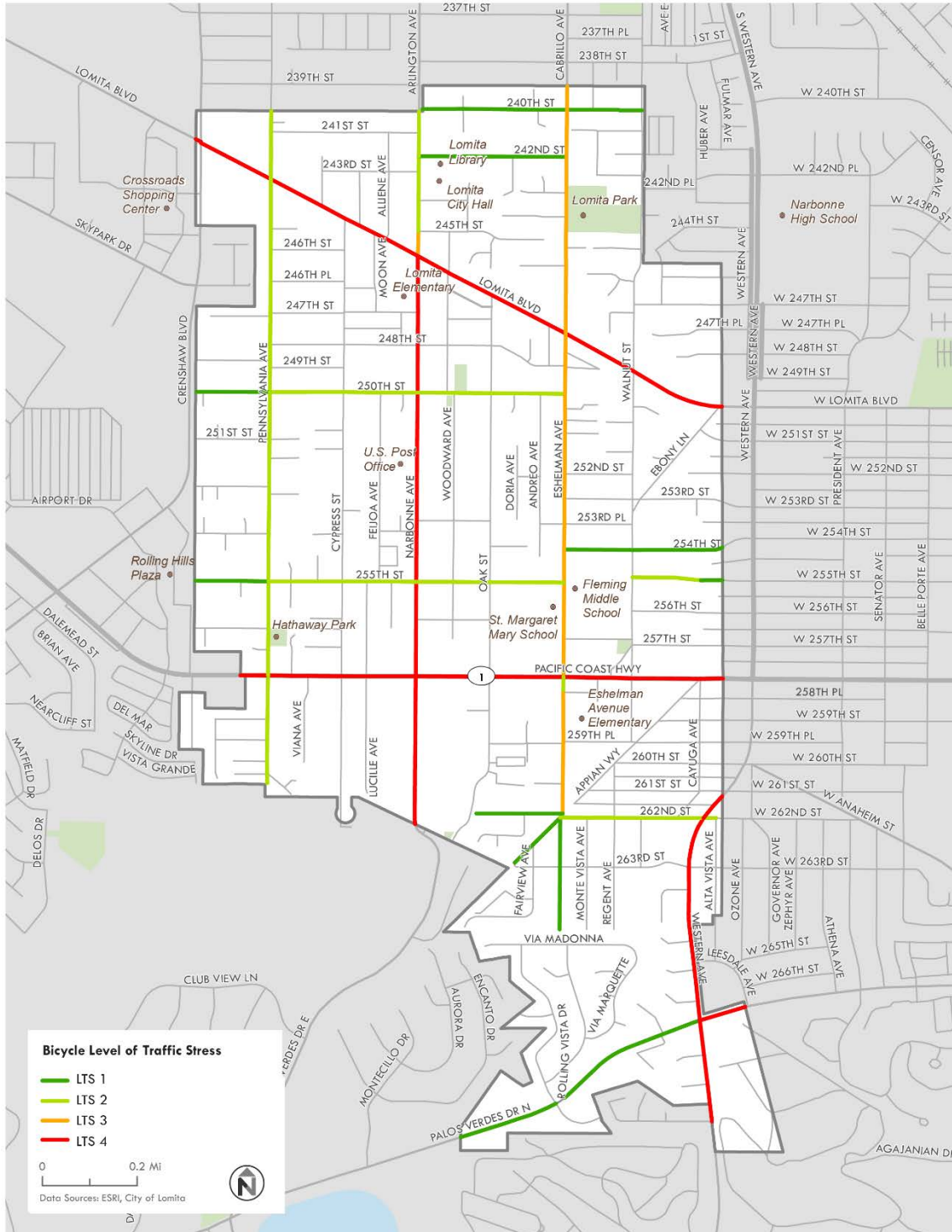
Figure 9 BLTS Criteria and Scoring for Unsignalized Intersections

Criteria (Speed Limit of Street Being Crossed)	Width of Street Being Crossed (total lanes)		
	3 or fewer lanes	4-5 lanes	6 or more lanes
Crossing Without a Median Refuge or With a Median Refuge Less Than 6 Feet Wide			
25 mph or less	LTS 1	LTS 2	LTS 4
30 mph	LTS 1	LTS 2	LTS 4
35 mph	LTS 2	LTS 3	LTS 4
40 mph or more	LTS 3	LTS 4	LTS 4
Crossing With a Median Refuge at Least 6 Feet Wide			
25 mph or less	LTS 1	LTS 1	LTS 2
30 mph	LTS 1	LTS 2	LTS 3
35 mph	LTS 2	LTS 3	LTS 4
40 mph or more	LTS 3	LTS 4	LTS 4
Based on Mekuria, Furth and Nixon. "Low-Stress Bicycling and Network Connectivity." May 2012.			

The results of the traffic stress analysis are shown in Figure 10, Figure 11, and Figure 12. A key feature of LTS analysis is the ability to determine if existing facilities are consistent with the designed stress levels for each conceived route. For example, providing approach and departure bicycle facilities with an LTS 3 might be appropriate in commercial areas, but a separated bicycle facility or alternative route might be required to connect to schools and parks, where an LTS 1 is preferred. The analysis shows that the Eshelman Avenue striped bicycle lane, which serves three schools and Lomita Park, has a lower rating (LTS 3) due to the narrow width in combination with the parking lane. Additionally, Narbonne Avenue south of 255th Street is the highest-stress segment of all of Lomita’s designated bicycle network, receiving a scoring of LTS 4 attributable to the 35 mph speed limit and its four total travel lanes. The analysis also reveals that Pennsylvania Avenue could be a good candidate for expansion of the designated bicycle network, given its 25 mph speed limit and two total travel lanes.

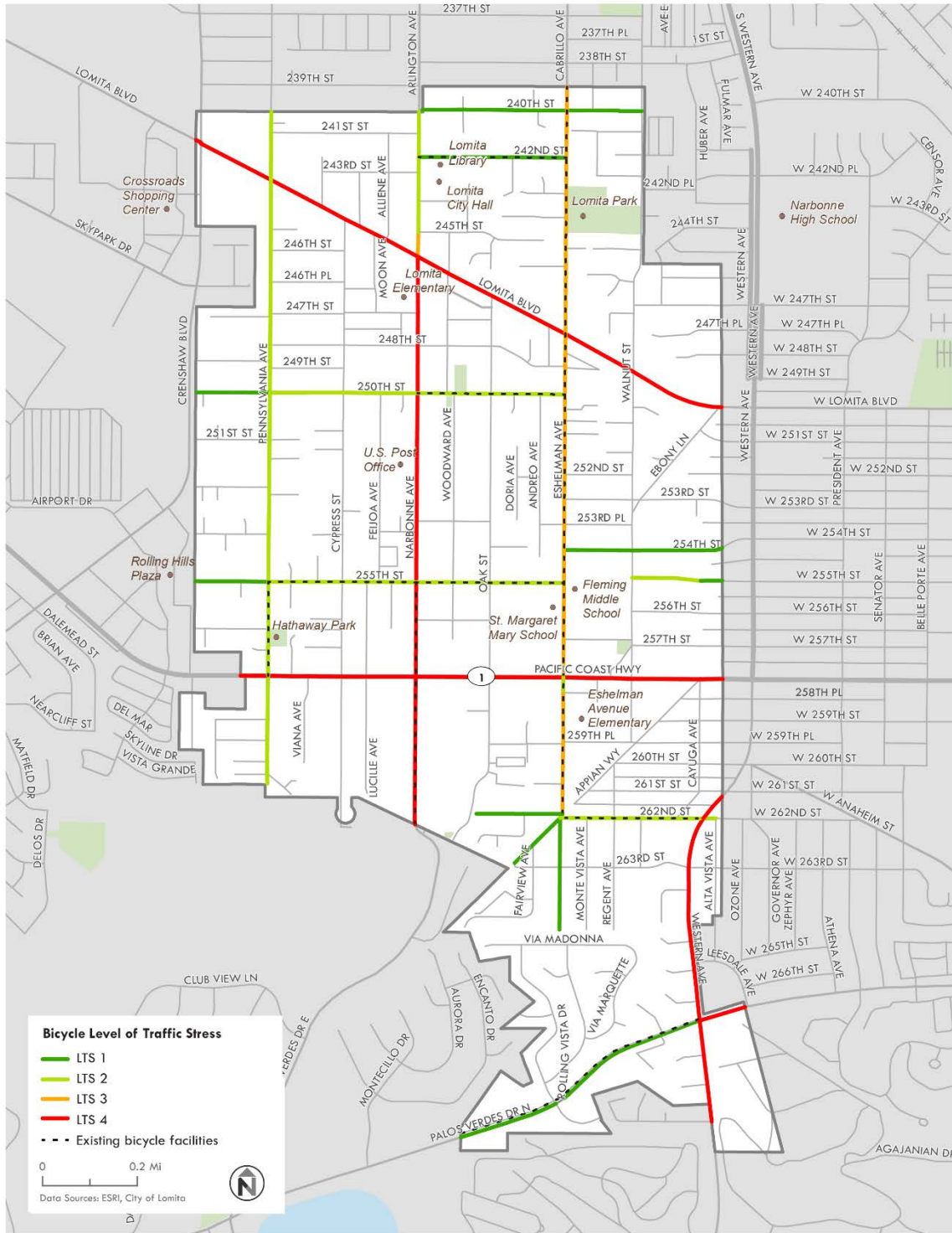
The analysis of traffic stress at intersections focused on the intersections of existing bicycle facilities and local streets with arterials and collectors, and does not include signalized intersections (shown in Figure 5 above) because they do not generally present barriers to bicycling. While many of the crossings analyzed along the main streets meet the qualifications for a low stress intersection (LTS 1), none matches the criteria for LTS 2. This indicates gaps in infrastructure for bicyclists of moderate confidence or ability (Figure 13). Overall, Lomita Boulevard, Pacific Coast Highway, Western Avenue, and Narbonne Avenue present the greatest barriers for bicyclists at unsignalized intersections.

Figure 10 Bicycle Level of Traffic Stress on Major Streets



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Figure 11 Bicycle Level of Traffic Stress on Major Streets, Showing Bicycle Facilities



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Figure 12 Bicycle Level of Traffic Stress on Existing Bicycle Facilities

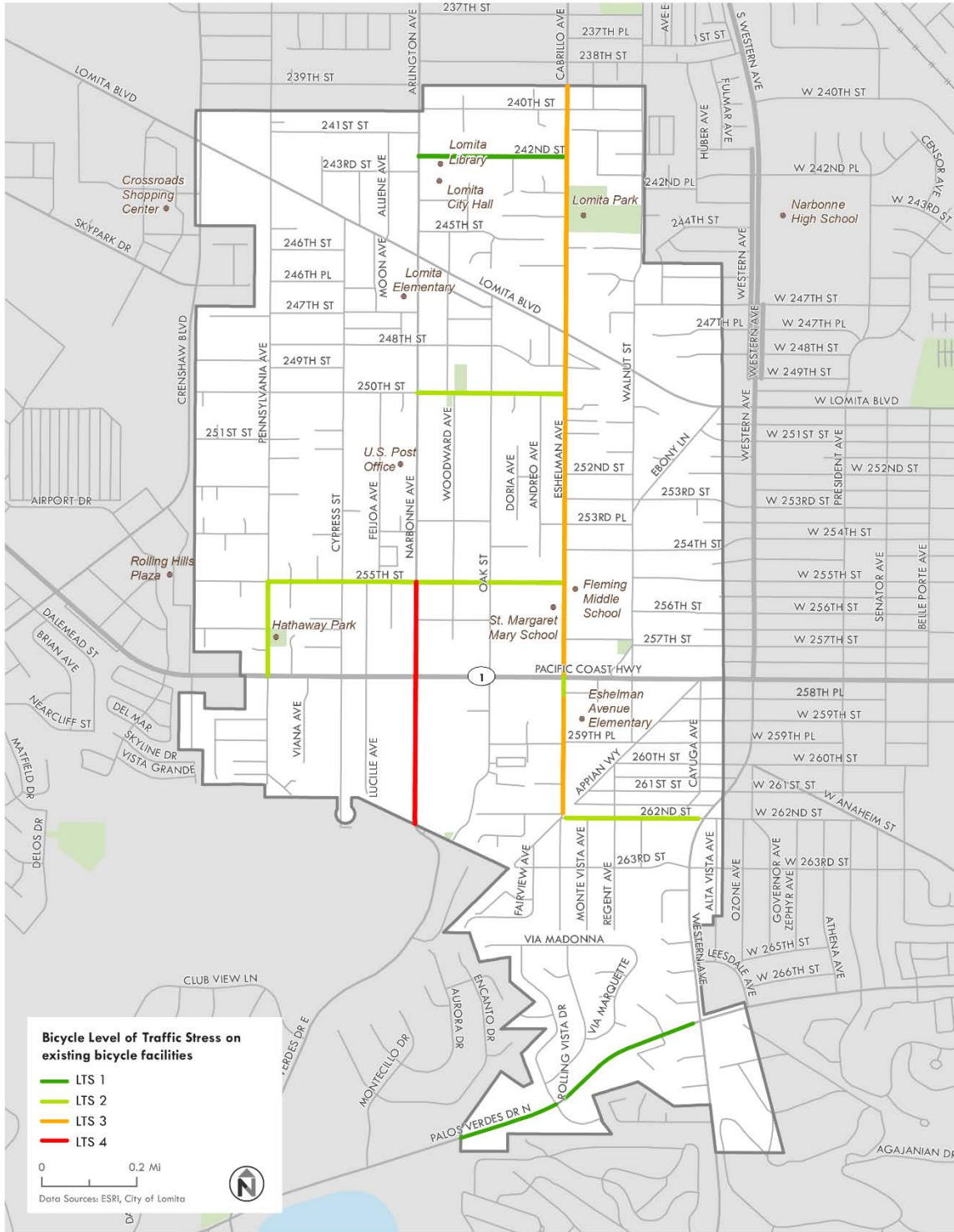
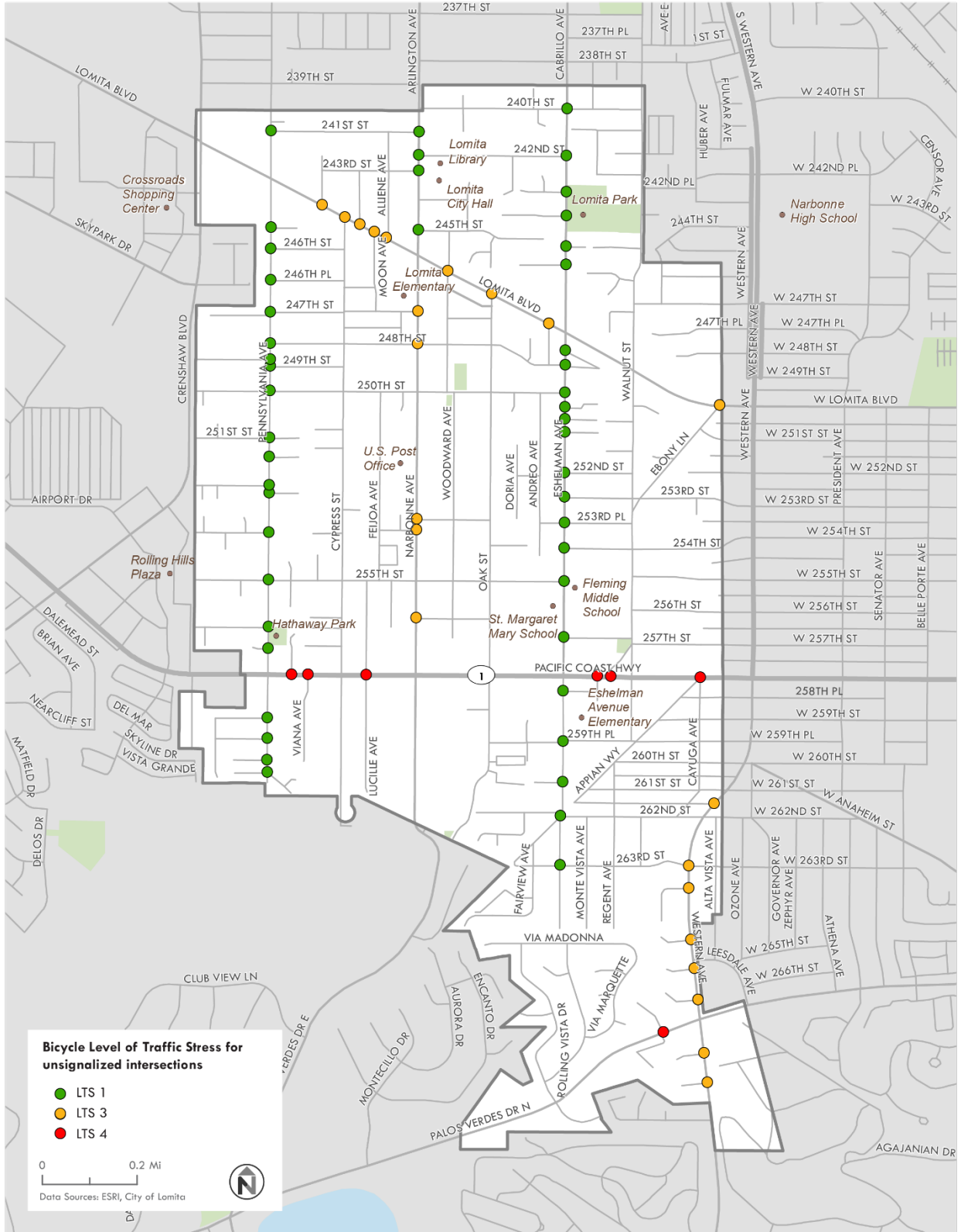


Figure 13 Bicycle Level of Traffic Stress for Unsignalized Intersections



4 BICYCLE AND PEDESTRIAN ACTIVITY

BICYCLE AND PEDESTRIAN ACTIVITY OBSERVATIONS

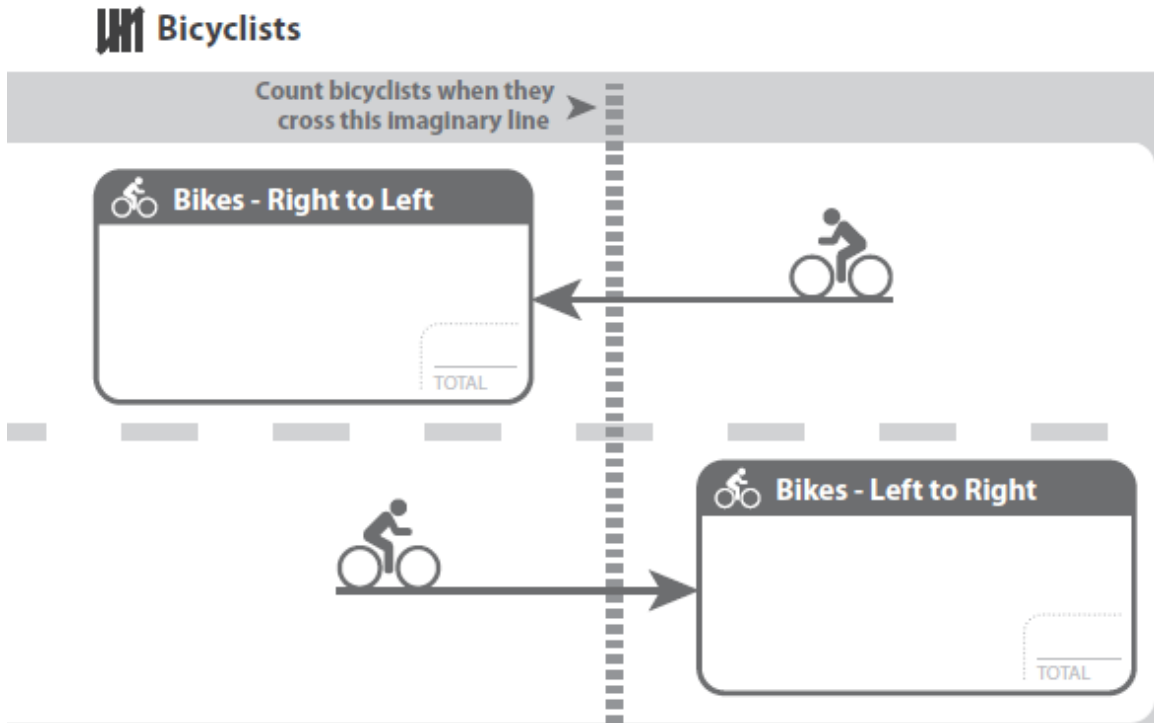
Bicyclist and Pedestrian counts were collected in order to create a snapshot of where people are biking and walking within the community. This provides a better understanding of how and where bicyclists and pedestrians interact with their environment.

Consistent and reliable sets of count data can provide a valuable tool for decision makers. Data collected can be used to identify trends, pedestrian needs, guide future transportation planning or engineering, and drive investment in the transportation network.

Methodology

In order to maintain consistency with regional count data efforts to standardize bicycle and pedestrian activity data, SCAG's manual, "Conducting Bicycle and Pedestrian Counts: A Manual for Jurisdictions in Los Angeles County and Beyond," guided the methodology for this data collection effort. "Screenlines" were used to collect data, where bicyclists and pedestrians are counted as they cross a drawn or imaginary line near an intersection. Bi-directional data was collected at each screenline location. An example of a screenline is provided below in Figure 14.

Figure 14 Screenline Count Methodology



Count Periods

Data was collected during two-hour count periods. Weekday counts occurred during two consecutive count periods on a Tuesday, Wednesday, or Thursday from 7:00-9:00 a.m. and from 4:00-6:00 p.m. in order to capture peak hour activity. At locations near schools, times were adjusted to capture peak student activity between 3:00-5:00 p.m. A weekend count period also took place on a Saturday from 11:00 a.m. – 1:00 p.m. Each two-hour count period is divided into eight fifteen-minute segments, in order to determine the peak.

In addition to counting the volume of pedestrians and bicyclists, additional observations were recorded to better understand active transportation behaviors. For bicyclists, data regarding apparent gender, sidewalk riding, wrong-way riding, and helmet use were collected. For pedestrians, wheelchair use, skateboard/scooter/skates use, and child pedestrian data will be collected.

Count Locations

The 10 count intersections and reasoning for their selections are listed in Figure 15. At most intersections, two screenlines were established to collect north/south and east/west movements toward and away from the intersections simultaneously.

Figure 15 Count Intersections and Corresponding Screenlines.

Screenline ID	Intersection	Reasoning
1,2	Lomita Blvd & Pennsylvania Ave	#1 of top 3 intersections with collisions involving bicyclists or pedestrians
3,4	Narbonne Ave & Pacific Coast Highway	#2 of top 3 intersections with collisions involving bicyclists or pedestrians
5,6	Ebony Ln & Lomita Blvd	#3 of top 3 intersections with collisions involving bicyclists or pedestrians
7,8	Ebony Ln & 253 rd St	Captures activity from Narbonne High School coming into residential communities; Afternoon count period 3:00 p.m. – 5:00 p.m.
9,10	Walnut St & 254 th	Captures activity to and from Flemming Middle School; 3:00 p.m. – 5:00 p.m.
11, 12	Eshelman Ave & 250 th St	Counts along two streets with bicycle infrastructure
13,14	Pennsylvania Ave & 255 th St	A steady stream of bicyclists were observed along Pennsylvania during our site visit
15, 16	Narbonne Ave & 242 nd St	Observations showed quite a bit of activity along both roads. 242 nd is a key E/W connector on the north part of town, linking the activity near City Hall and Lomita Park
17,18	Eshelman Ave & 262 nd St	Captures activity on Eshelman Bike lane in southern neighborhoods as well as east/west movements to Western.
19	Eshelman Ave & 242 nd St	Nearby park activity

Key Findings

It is important to note that observation count data is just one piece of information that helps to tell the story of where people are walking and bicycling in Lomita. The number of people walking at any one location may vary for a number of reasons, such as weather, individual schedules, planned events, or construction detours. As such, count observations should be seen as a snapshot of overall activity. In the future count data can be used to identify trends over time at activity nodes, if done on a continual basis.

Pedestrian Count Findings

A total of 3,081 pedestrians were observed across the 19 screenlines over 114 hours (6 hours per screenline). Figure 16 breaks down activity by direction of travel through an intersection, and by time of day. Total activity is reflected spatially in Figure 17.

More than a third (38%) of observed pedestrian activity occurred near the intersection of Walnut and 254th Street, adjacent to Flemming Middle School. This intersection also had the most observed activity during the a.m. and p.m. observation periods. Nearly 89% of activity was a result of students walking to and from school through this intersection.

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There was a stark drop off in observed activity at Ebony/Lomita, and Narbonne/Pacific Coast Highway. These intersections are along the City’s busiest arterials, where one would expect heavy traffic.

Figure 16 Pedestrian Activity Observations by Time of Day and Direction of Travel

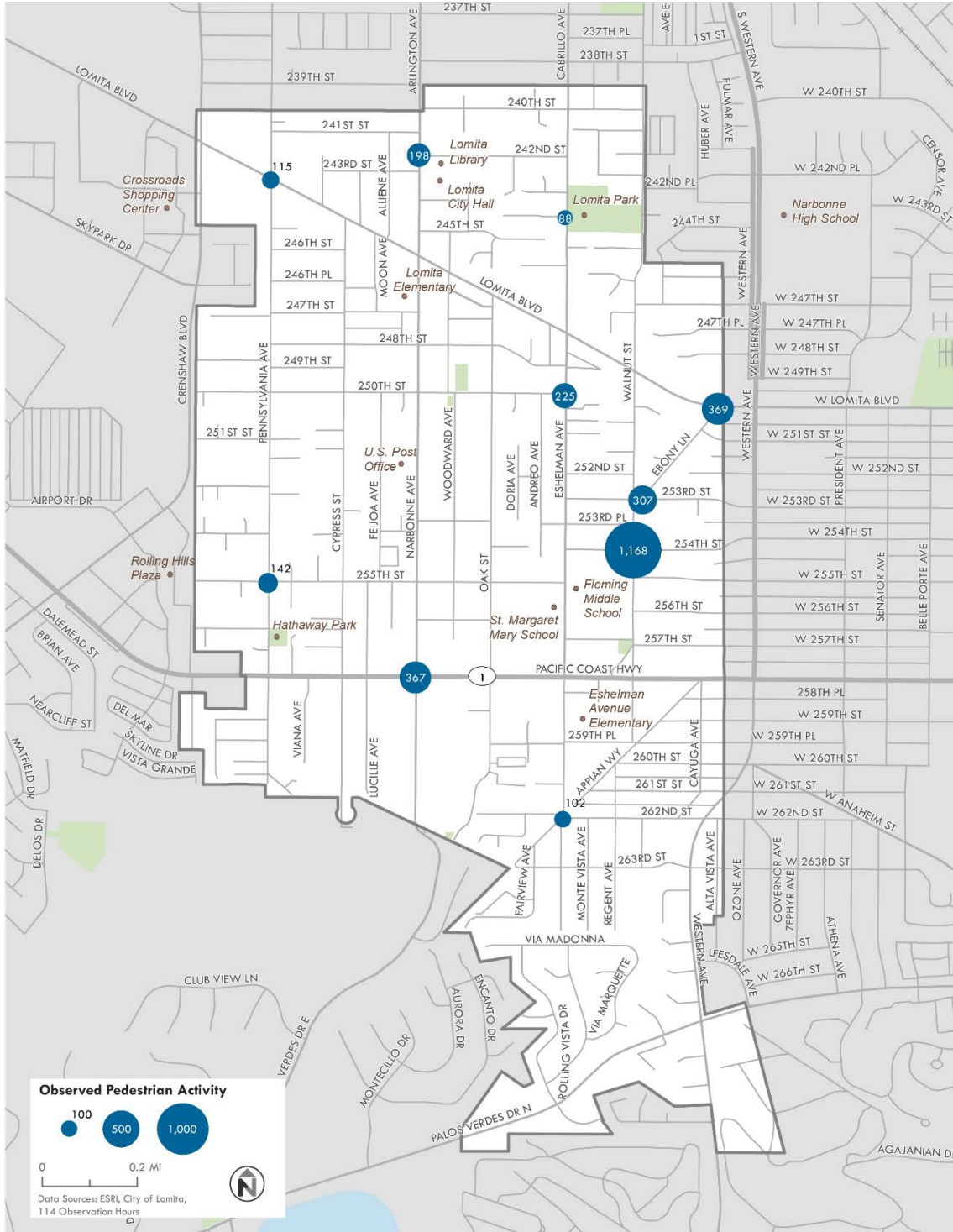
Intersection	Activity by Direction of Travel		Activity by Time of Day			Total
	North/South	East/West	Weekday AM	Weekday PM	Weekend Midday	
Ebony/253rd*	213	94	99	166	42	307
Ebony/Lomita	138	231	154	127	88	369
Eshelman/250th	150	75	79	103	43	225
Eshelman/262nd	63	39	60	28	14	102
Lomita/Pennsylvania	29	86	47	34	34	115
Narbonne/242nd	98	100	62	89	47	198
Narbonne/Pacific Coast Highway	130	237	105	139	123	367
Pennsylvania/255th	83	59	52	67	23	142
Walnut/254th*	966	202	392	751	25	1,168
Eshelman/Lomita Park**	88	-	23	40	25	88
Total	1,958	1,123	1,073	1,544	464	3,081

* Weekday PM counts occurred during 3-5 p.m. to capture after school activity

**Only North/South activity observed at this location

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Figure 17 Total Observed Pedestrian Volumes



Bicyclist Count Findings

A total of 381 bicyclists were observed across the 19 screenlines over 114 hours of observation (6 hours per screenline). Figure 18 breaks down activity by direction of travel through an intersection, and by time of day. Total activity is reflected spatially in Figure 19.

No more than 18% of activity was observed at a single location (Narbonne/Pacific Coast Highway). Interestingly, despite the lack of bicycle infrastructure along Pacific Coast Highway (PCH), and the presence of bicycle route signage along Narbonne, the majority of activity at this intersection (66%) was on the busy PCH arterial. Furthermore, 93% of bicyclists travelling along PCH rode on the sidewalk, compared to only 23% of bicyclists travelling along Narbonne, suggesting that bicyclists do not feel safe riding on the street along that corridor.

Similar trends are visible along at the intersections along Lomita, the City’s second busiest arterial. At Ebony/Lomita and at Lomita/Pennsylvania, bicyclists travelling through these intersections along the Lomita corridor accounted for 70% and 84% of observations respectively. Again, high rates of bicyclists were observed riding on the sidewalk, 86% at Pennsylvania, and 82% at Ebony. It should be noted that the average rate of sidewalk riding observed at intersections not along Lomita or PCH was about 27%, a clear indication of safety concerns along those busy arterial corridors. For further comparison, less than 15% of bicyclists observed along Eshelman, a corridor with bicycle infrastructure, rode on the sidewalks. This suggests that bicycle facilities are associated with lower sidewalk riding.

Interestingly, only 6% of bicyclists were observed travelling against traffic, though 75% of individuals did not use a helmet, which may be a reflection of local demographics, or gaps in education regarding active transportation.

Figure 18 Bicyclist Activity Observations by Time of Day and Direction of Travel

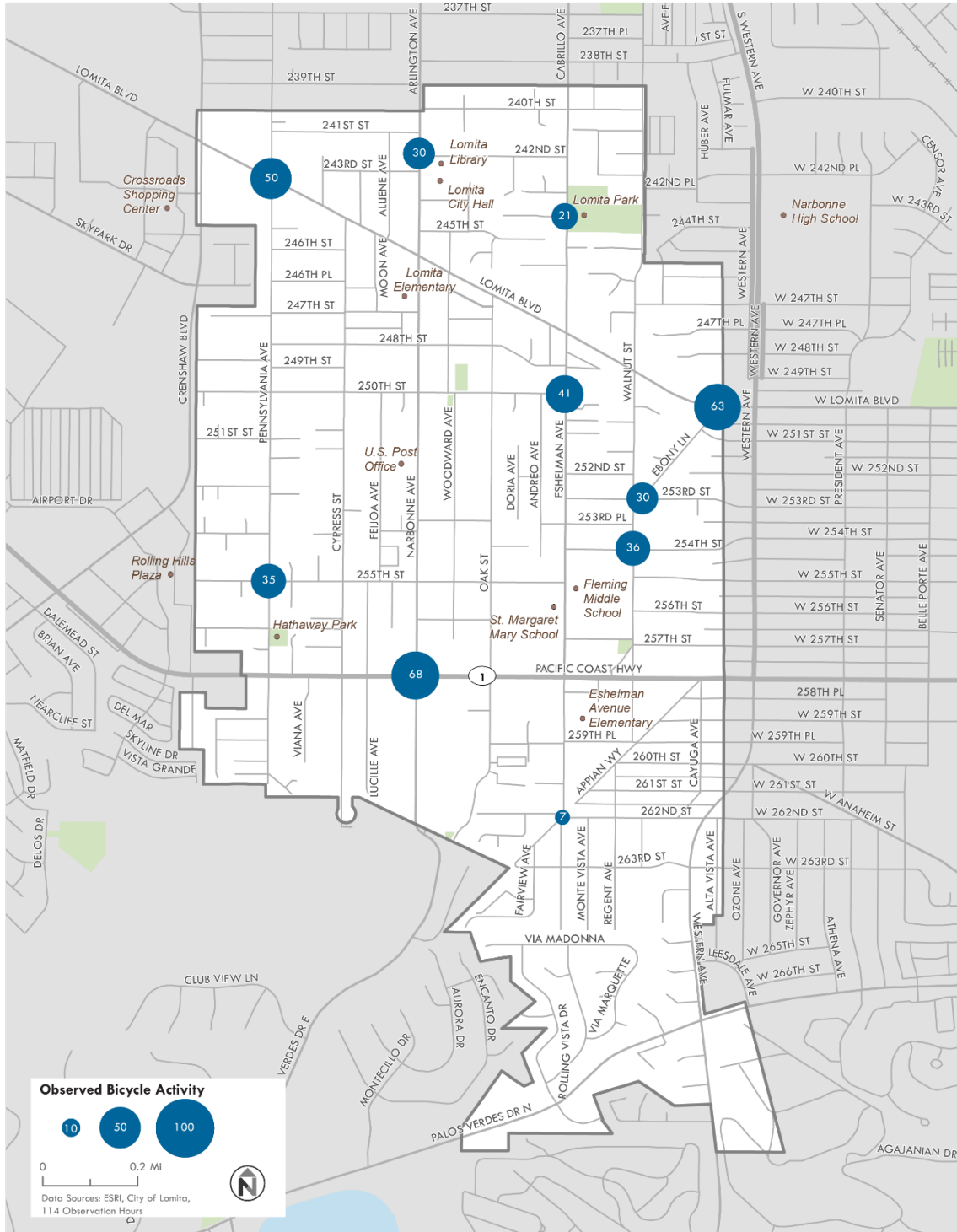
Intersection	Activity by Direction of Travel		Activity by Time of Day			Total
	North/South	East/West	Weekday AM	Weekday PM	Weekend Midday	
Ebony/253rd*	17	13	14	7	9	30
Ebony/Lomita	19	44	19	22	22	63
Eshelman/250th	25	16	9	17	15	41
Eshelman/262nd	2	5	3	1	3	7
Lomita/Pennsylvania	8	42	9	24	17	50
Narbonne/242nd	27	3	7	8	15	30
Narbonne/Pacific Coast Highway	26	42	13	30	25	68
Pennsylvania/255th	14	21	7	19	9	35
Walnut/254th*	21	15	6	27	3	36
Eshelman/Lomita Park**	21	0	6	9	6	21
Total	180	201	93	164	124	381

* Weekday PM counts occurred during 3-5 p.m. to capture after school activity

**Only North/South activity observed at this location

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Figure 19 Total Observed Bicyclist Volumes



BICYCLE & PEDESTRIAN DEMAND

Key destinations were identified to analyze bicycle and pedestrian demand. These locations are likely to support active transportation and include parks, schools, retail areas, city landmarks, and high transit activity locations.

In Lomita, there are a total of 7 parks, and 11 public schools and 7 private schools ranging from kindergarten to 12th grade. High transit activity locations are located on Pacific Coast Highway at the Eshelman Avenue and Walnut Avenue intersections. In addition, the downtown area has retail stores and public buildings (City Hall, Lomita Library, Los Angeles County Building) which are likely to attract bicyclists and pedestrians.

The analysis of bicycle and pedestrian demand indicated the areas of Lomita that are more likely to generate walking and biking trips. Seven criteria were used to calculate demand:

- Population Density⁹
- Employment Density¹⁰
- Proximity to Schools
- Transit Ridership
- Proximity to parks
- Proximity to commercial, high-density residential, or mixed-use land uses
- Proximity to the City Hall, Los Angeles County Building, and Lomita Library
- Existing bicycle network

The criteria and scoring used in the Pedestrian Demand analysis are described in Figure 20. For Census Block, the scoring considered the value of each demand criteria as well as its proximity. Population density, employment density, and proximity to schools and parks received the highest weights to account for their greater likelihood to generate walking and biking trips.

The results shown in Figure 21, indicate that bicycle and pedestrian demand is highest around downtown Lomita and the intersection of Pacific Coast Highway and Eshelman Avenue. Both these areas are highly correlated with employment densities, commercial and mixed-use land uses, transit ridership, and proximity to schools. The intersection at Pacific Coast Highway and Eshelman Avenue also exhibits high population density.

The areas of highest bicycle and pedestrian demand are a priority for consideration of where to recommend future projects that will benefit more Lomita residents and visitors.

⁹ U.S. Census Bureau 2014 American Community Survey (5-year data)

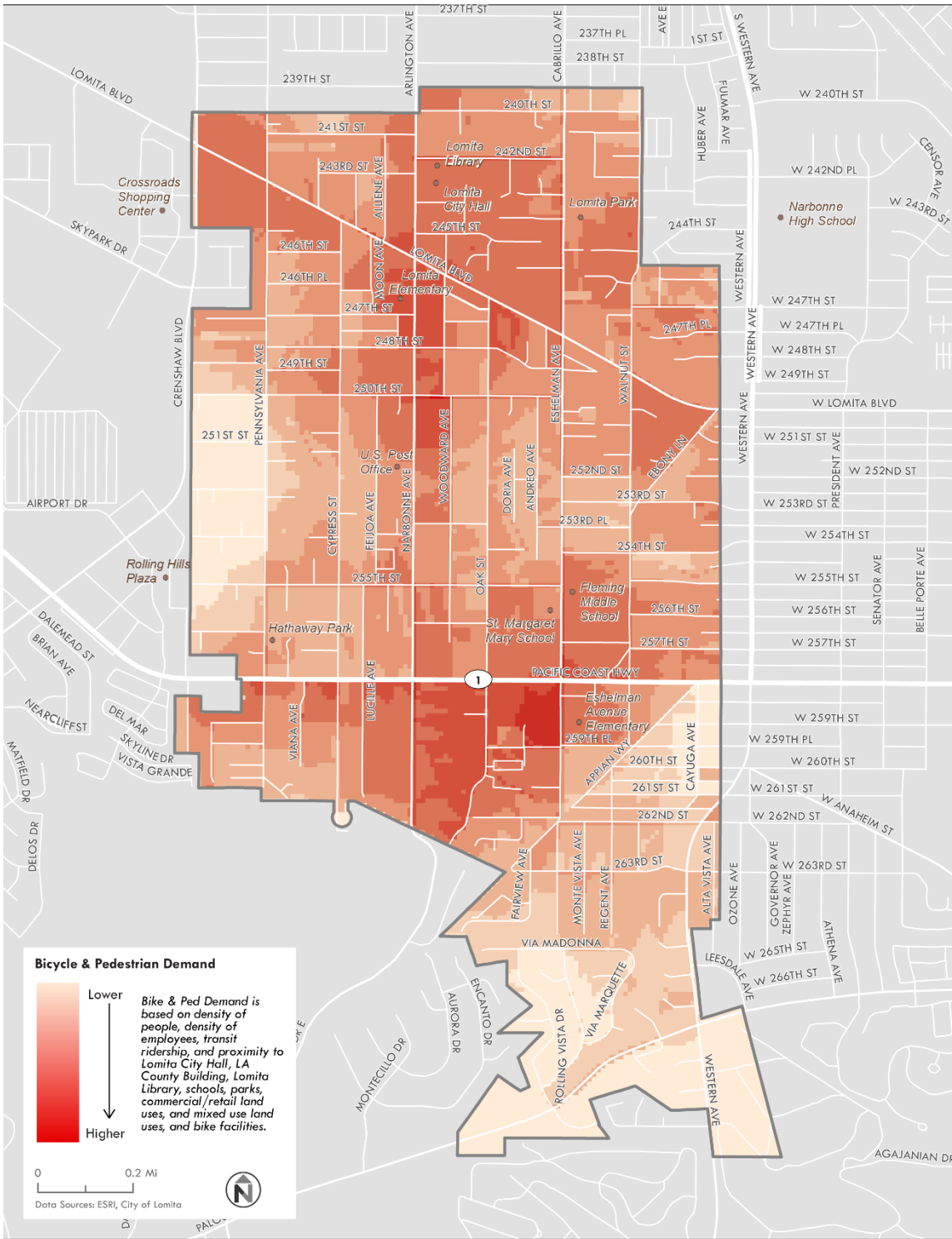
¹⁰ U.S. Census Bureau 2014 Longitudal Employer-Household Dynamics

Figure 20 Bicycle & Pedestrian Demand Scoring

Criteria	Weight Factor	Buffer Distance
Population density (2014)	2	-
Employment density (2014)	2	-
Proximity to Schools	2	1/2 mile
Transit ridership	1	1/4 mile
Proximity to Parks	2	1/2 mile
Proximity to commercial, mixed-use, high density residential	1	1/2 mile
Existing bike network	1	-
Highest score is 91; highest potential score is 110.		

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Figure 21 Bicycle & Pedestrian Demand



5 SAFETY

This section analyzes trends of bicycle and pedestrian involved collisions to identify areas that may need special attention. Identifying trends and streets or intersections with the highest number of collisions can help identify where to prioritize safety improvements and increase enforcement.

The City of Lomita can use this information to design safer walking and biking environments and to educate all road users on pedestrian and bicycle safety. The goal of compiling and analyzing this data is to make pedestrian- and bicycle-involved collisions less frequent and severe, thereby making the city streets safer for everyone.

Methodology

This pedestrian and bicycle safety analysis is based on the most recent nine years of collision data (2005-2013) available from the Statewide Integrated Traffic Records System (SWITRS). The dataset includes all reported collisions that resulted in a bicyclist or pedestrian injury. During the nine-year span, a total of 27 pedestrian- and 32 bicycle-involved collisions were reported, all of which resulted in varying levels of injury.

Evaluating where collisions occur helps determine which safety and/or enforcement countermeasures are appropriate. Thus collisions were mapped and categorized by location type: signalized intersection, unsignalized intersection, or midblock. For the purposes of this report, collisions located within 50 feet of an intersection are considered “intersection collisions” to capture collisions that occur at crosswalks.

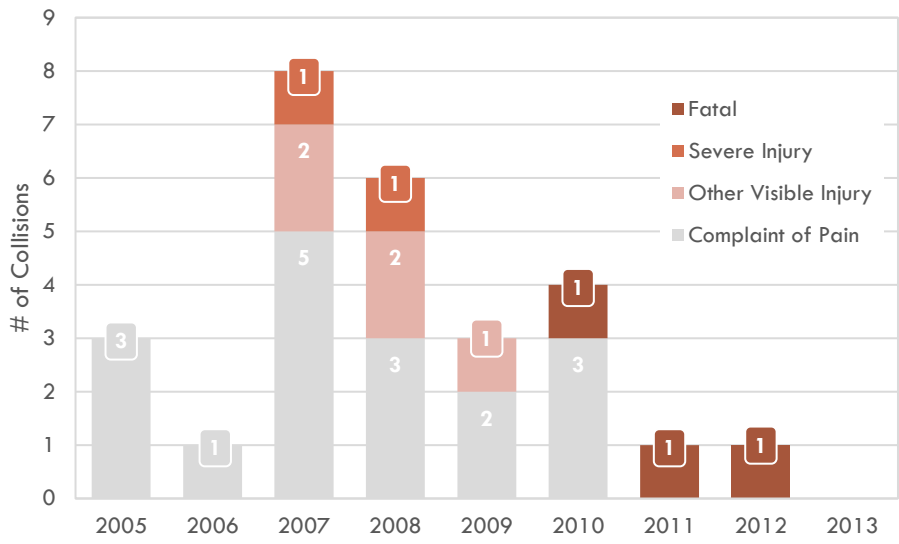
PEDESTRIAN-INVOLVED COLLISIONS

Collision Trends

The number of pedestrian-involved collisions has decreased over time. As shown in Figure 22, the highest number of collisions occurred in 2007, when there was a total of eight pedestrian-involved collisions. On average, there has been three pedestrian collisions per year.

Although only one pedestrian-involved collision occurred each year in 2011 and 2012, both events resulted in fatalities. Pedestrians are extremely vulnerable to injury in the event of a collision. Over the span of nine years, a total of three collisions resulted in fatality (11%). Nearly 1 in 5 pedestrian-involved collisions resulted in either a severe or fatal injury (19%).

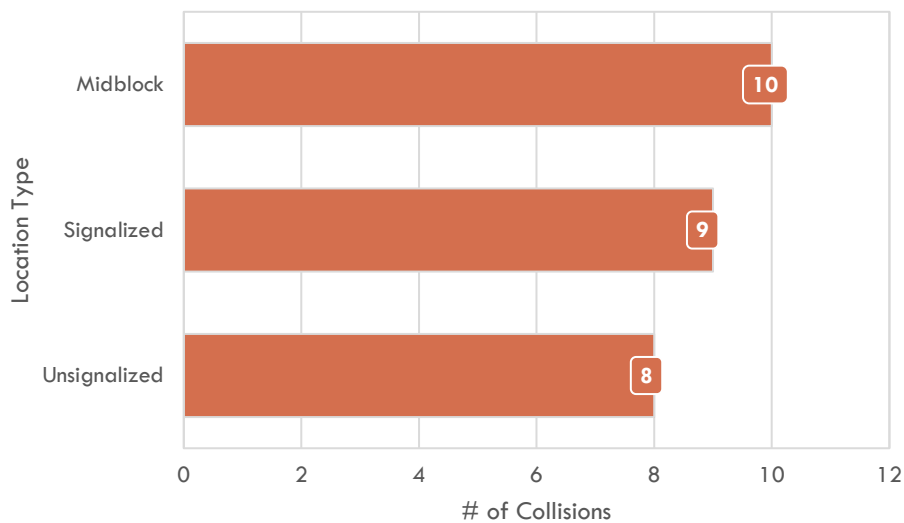
Figure 22 Pedestrian-Involved Collisions by Severity (2005-2013)



Collision Locations

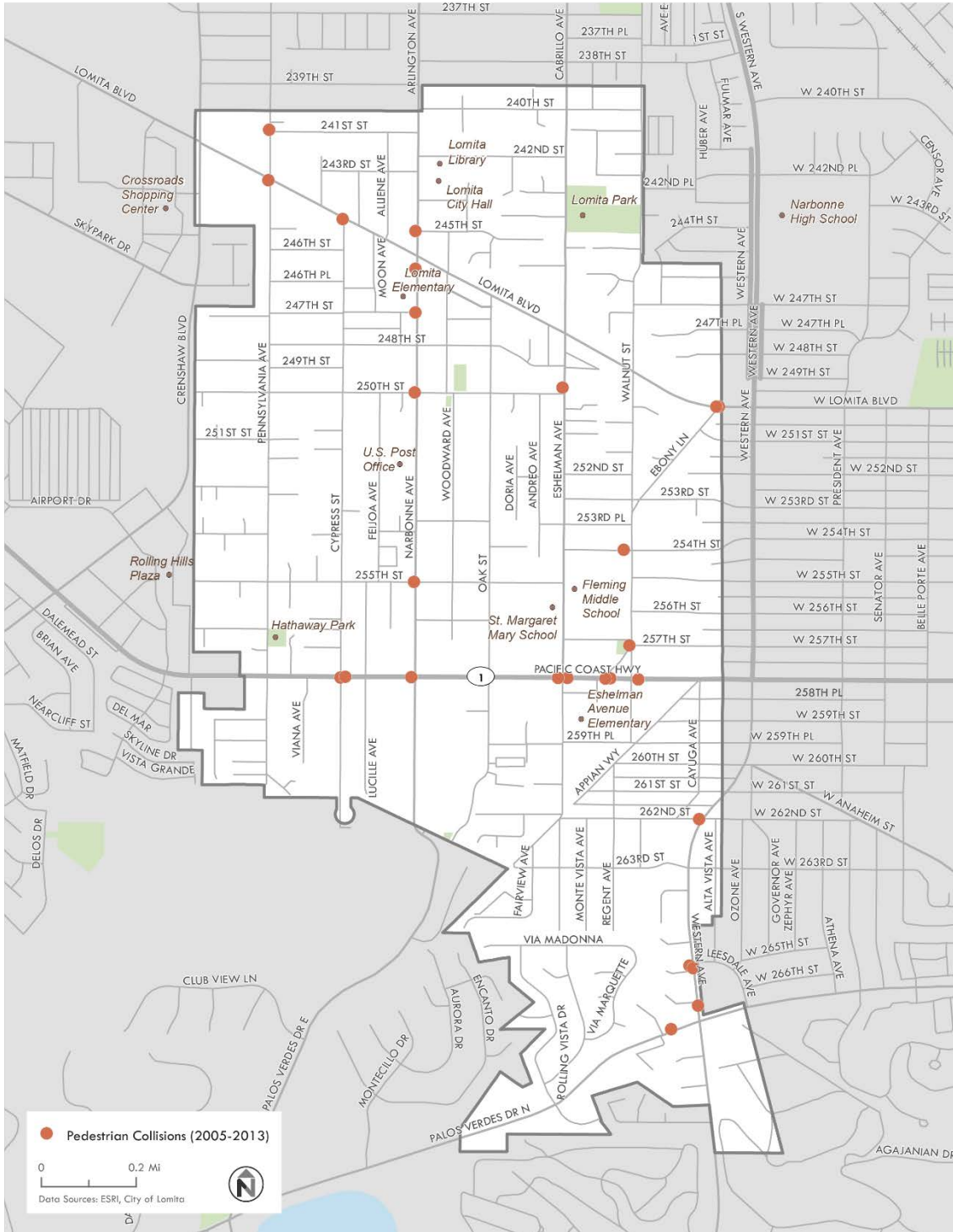
Figure 23 illustrates where pedestrian-involved collisions have occurred from 2005 to 2013. Overall, pedestrian-involved collisions are concentrated along major arterials including: Lomita Boulevard, the Pacific Coast Highway, and Narbonne Avenue. As shown in Figure 24, midblock locations are the most common locations (37%), followed by signalized (33%) and unsignalized intersections (30%). Given the relatively low amount of pedestrian-involved collisions, the difference between each location type is minimal.

Figure 23 Pedestrian-Involved Collision Location Types



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Figure 24 Pedestrian-Involved Collision Locations



Primary Collision Factors

Understanding how and why collisions occur is important in implementing the appropriate safety measures. Determining the primary causes for collisions can shed light on which behaviors cause collisions, and what countermeasures are needed to remedy them.

Figure 25 shows the four factors¹¹ that led to collisions and identifies which party was at fault. The most common factor for pedestrian-involved collisions was “pedestrian right-of-way”, which typically refers to a situation in which a vehicle violates the right-of-way (ROW) of a pedestrian (e.g. a pedestrian using a crosswalk). All collisions caused by this factor were the fault of the driver. Pedestrian violation was the second most common factor, accounting for 37% of pedestrian-involved collisions.

Figure 25 Pedestrian-Involved Collisions –Factors by Fault

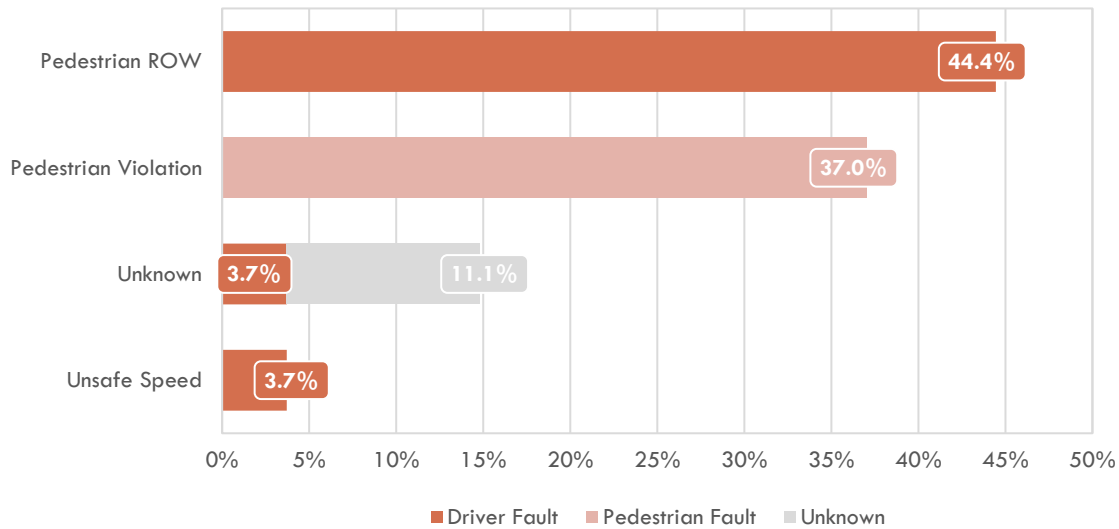


Figure 26 further examines causes for collisions by identifying the most common collision types in Lomita based on location and vehicle movement preceding the collision. **Motorists are deemed at fault for 52% of pedestrian collisions** (the officer completing the collision report assigns fault to the motorist or pedestrian, based on the type of violation that contributed to the collision). The top collision types are:

- **Through vehicle midblock, no crosswalk (19%)**
 - Pedestrians are at fault in all cases for failing to yield to vehicles outside of a crosswalk.
- **Left- and right turning vehicles at signalized intersections (15% each)**
 - Motorists almost always at fault, indicating failure to yield the right-of-way to people in the crosswalk.
- **Right turning vehicle at unsignalized intersection (11%)**

¹¹ SWITRS classifies each collision according to its primary collision factor (PCF). PCFs are general categories and can be defined as “the one element or driving action which, in the officer’s opinion, best describes the primary or main cause of the collision.”

- Motorists usually at fault, but difference is minimal – only one more collision is due to the fault of the motorist.
- **Through vehicle at unsignalized intersection (11%)**
 - Pedestrians usually at fault, but difference is minimal – only one more collision is due to the fault of the pedestrian.

Figure 26 Common Vehicle Movement Types for Pedestrian-Involved Collisions

Type of Collision	Driver Fault	Ped Fault	No Fault	Total
Signalized Intersection				
Left turning vehicle at signalized intersection	11.1%	3.7%	-	14.8%
Right turning vehicle at signalized intersection	11.1%	0.0%	3.7%	14.8%
Through vehicle at signalized intersection	-	3.7%	-	3.7%
Unsignalized Intersection				
Right turning vehicle at unsignalized intersection	7.4%	3.7%	-	11.1%
Through vehicle at unsignalized intersection	3.7%	7.4%	-	11.1%
Left turning vehicle at unsignalized intersection	3.7%	0.0%	-	3.7%
Midblock				
Through vehicle midblock not at crosswalk	-	18.5%	-	18.5%
Through vehicle at midblock crosswalk	7.4%	-	-	7.4%
In roadway ¹²	3.7%	-	3.7%	7.4%
Others				
Others ¹³	3.7%	-	3.7%	7.4%
Total	51.9%	37.0%	11.1%	100.0%

BICYCLE-INVOLVED COLLISIONS

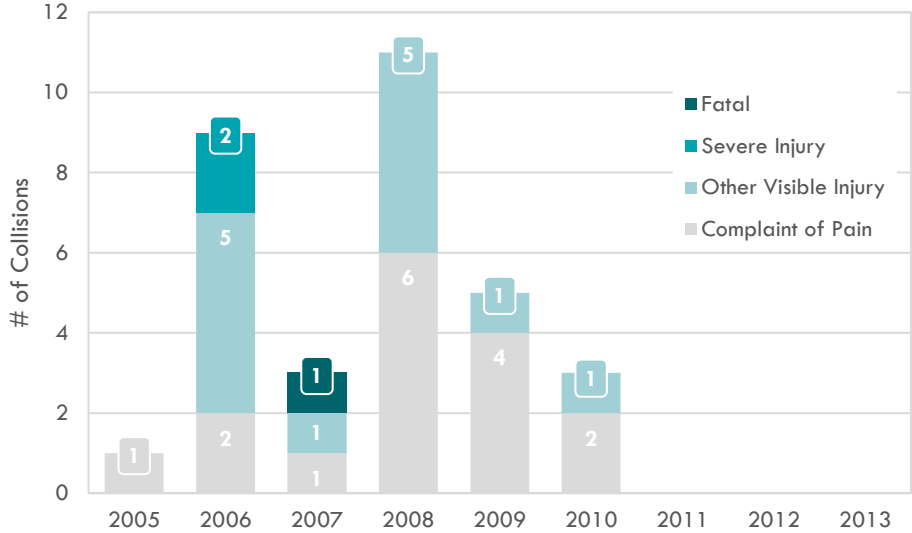
Collision Trends

Over a nine-year span from 2005 to 2013, a total of 32 bicyclists have been involved in collisions, an average of 3.6 collisions per year. Similar to pedestrian collision trends, bicycle collisions have been on a downward trend since 2008. As shown in Figure 27, there were zero bicycle collisions from 2011 to 2013. Of all 32 bicycle collisions, only one resulted in a fatality (2007). Overall, nearly 1 in 10 bike collisions result in fatal or severe injury (9%).

¹² In-roadway collisions are where a pedestrian was struck in the road but was not attempting a crossing. This could include walking along the roadway, entering the road to retrieve an object, etc.

¹³ Approximately 93% of pedestrian collisions fall into the 9 collision types identified in this table. The remaining 7% represent a variety of types of collisions that do not have a prominent pattern.

Figure 27 Bicycle-Involved Collisions by Severity (2005-2013)

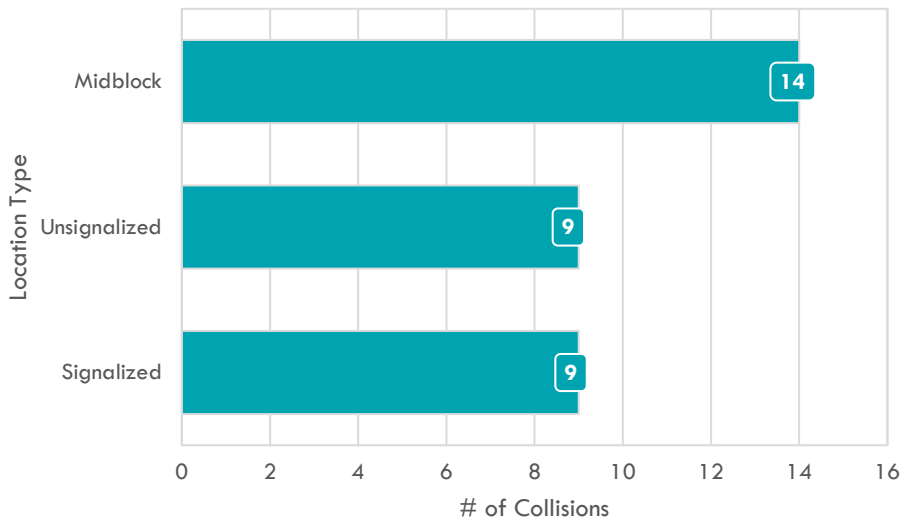


Collision Locations

Figure 28 shows the locations of collisions involving bicyclists, the majority of which occur on arterials which lack bicycle facilities. Collisions are concentrated along the same arterials as those involving pedestrians including: Lomita Boulevard, the Pacific Coast Highway, and Narbonne Avenue, and Walnut Street.

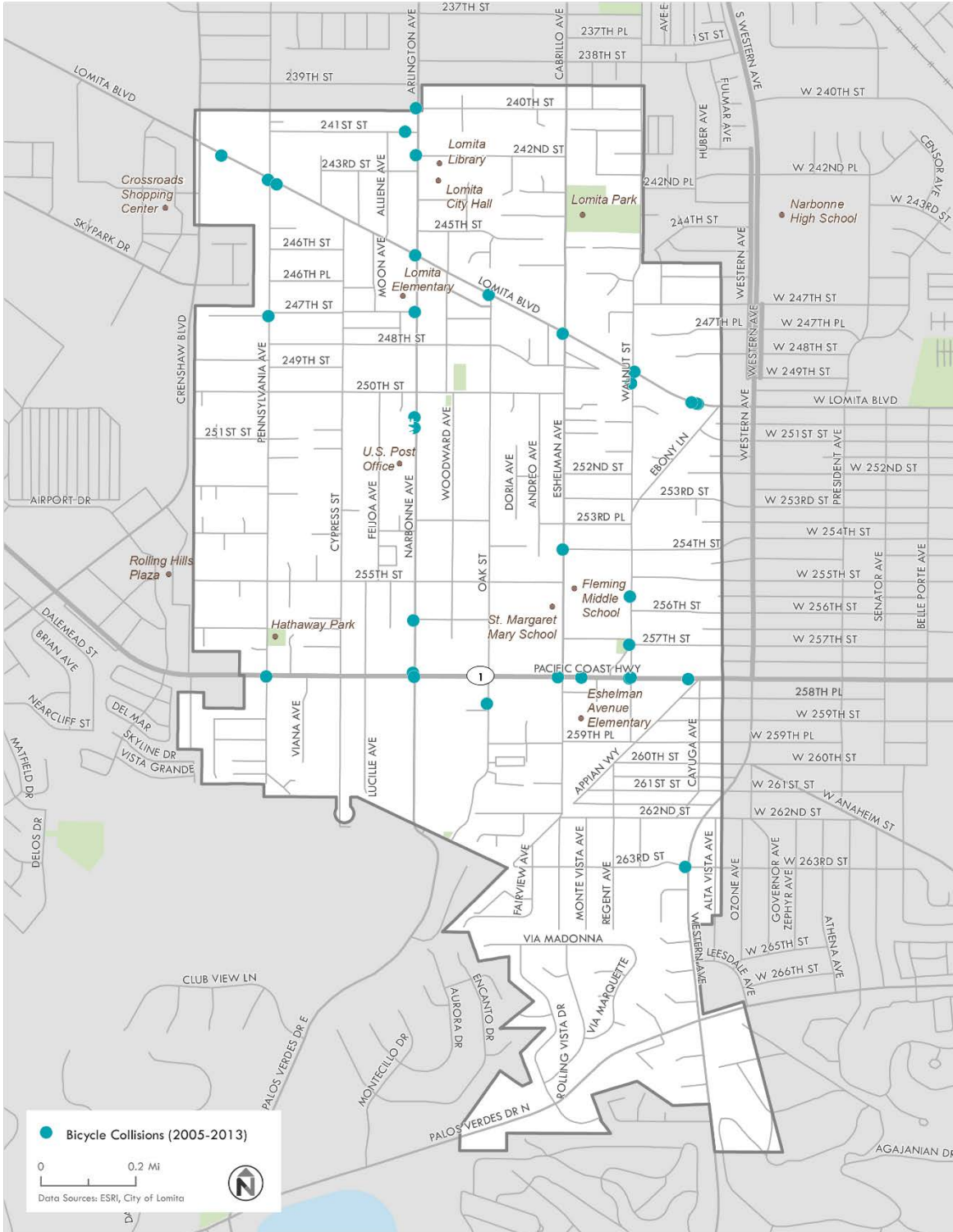
As shown in Figure 29, midblock locations are the most common locations (44%), followed by signalized (28%) and unsignalized intersections (28%).

Figure 28 Bicycle-Involved Collision Location Types



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Figure 29 Bicycle-Involved Collision Locations



Primary Collision Factors

Figure 30 shows the top five factors¹⁴ that led to collisions involving bicyclists and which party was at fault. The most common factor for bicycle-involved collisions was “wrong side of road” – either a bicyclist or other involved party was traveling on the wrong side of the road. In nearly all these instances, the bicyclist was at fault.

Figure 30 Bicycle-Involved Collisions – Top Factors by Fault

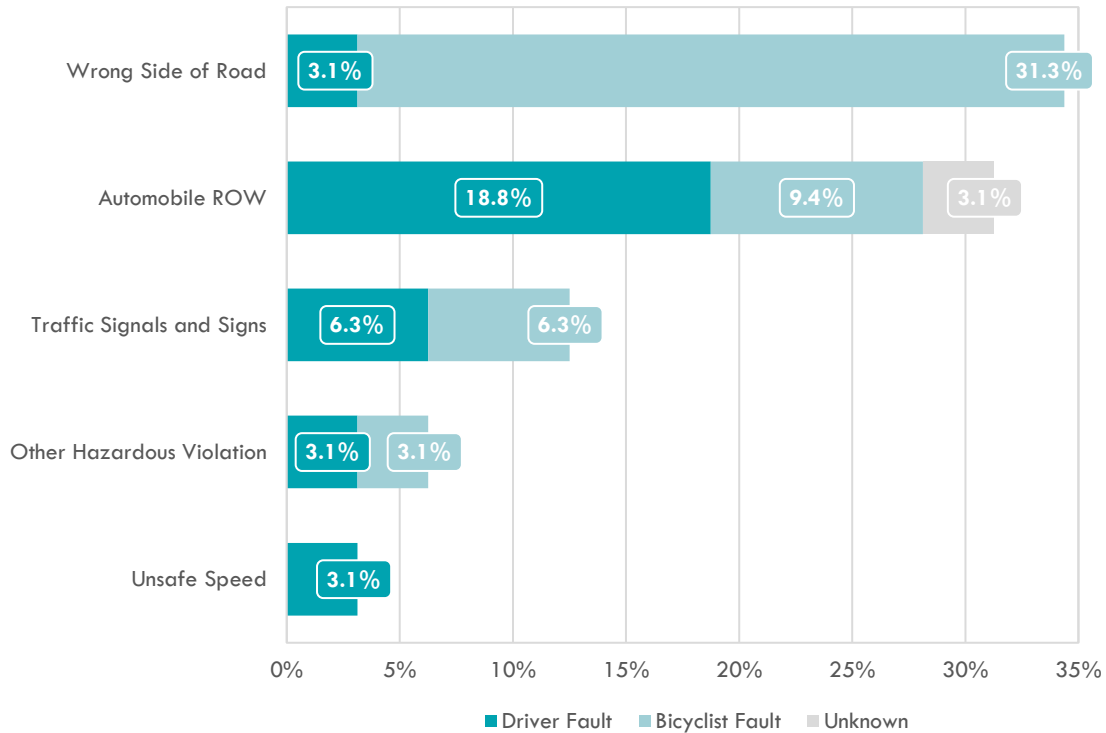


Figure 31 identifies the most common bicycle involved collision types in Lomita based on location vehicle movement preceding the collision. Bicyclists are deemed at fault for 56% of bicycle collisions (the officer completing the collision report assigns fault to the motorist or bicyclist, based on the type of violation that contributed to the collision).

- **Through vehicle midblock (22%)**
 - Bicyclists are almost always at fault.
- **Right turning vehicle at signalized intersection (16%)**
 - Bicyclists are almost always at fault
- **Through vehicle at unsignalized intersection (16%)**
 - Equal determination of fault
- **Left turning vehicle midblock (9%)**
 - Both parties are equally at fault

¹⁴ SWITRS classifies each collision according to its primary collision factor (PCF). PCFs are general categories and can be defined as “the one element or driving action which, in the officer’s opinion, best describes the primary or main cause of the collision.”

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Figure 31 Common Vehicle Movement Types for Bicycle-Involved Collisions

Vehicle Movement Preceding Collision	Driver Fault	Bike Fault	No Fault	Total
Signalized Intersection				
Right turning vehicle at signalized intersection	3.1%	12.5%	-	15.6%
Through vehicle at signalized intersection	-	6.3%	-	6.3%
Left turning vehicle at signalized intersection	3.1%	0.0%	-	3.1%
Unsignalized Intersection				
Through vehicle at unsignalized intersection	6.3%	9.4%	-	15.6%
Vehicle slowing/stopping at unsignalized intersection	3.1%	3.1%	-	6.3%
Left turning vehicle at unsignalized intersection	3.1%	-	-	3.1%
Right turning vehicle at unsignalized intersection	3.1%	-	-	3.1%
Midblock				
Through vehicle midblock	3.1%	15.6%	3.1%	21.9%
Left turning vehicle at midblock	3.1%	3.1%	3.1%	9.4%
Vehicle slowing/stopping at midblock ¹⁵	3.1%	6.3%	-	9.4%
Others				
Others ¹⁶	6.3%	-	-	6.3%
Total	37.5%	56.3%	6.3%	100.0%

¹⁵ Includes vehicles already stopped at midblock.

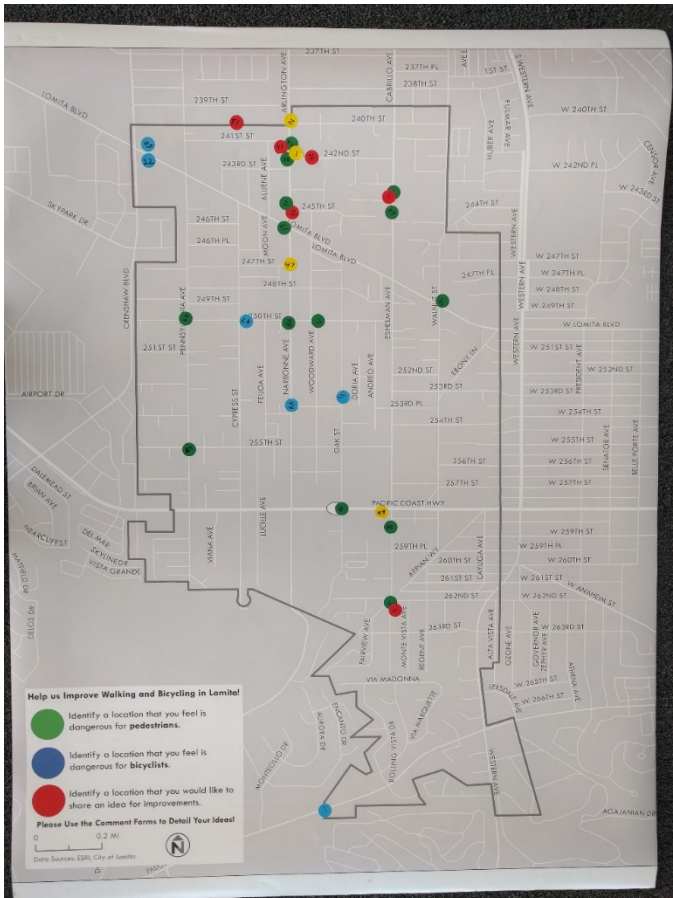
¹⁶ Approximately 94% of pedestrian collisions fall into the 10 collision types identified in this table. The remaining 6% represent a variety of types of collisions that do not have a prominent pattern.

6 MOVING FORWARD

Moving forward, bicycling and walking will have the potential of attracting more people into non-motorized modes of transportation within the City of Lomita. This will be made a reality by using the findings of this report to guide recommendations to create a safer, more inviting environment for people of all ages and abilities.

In addition to the findings of this report, it is important to note that community input will also play a key role in developing recommendations. On December 2nd, 2016, Nelson\Nygaard was present at the community tree lighting ceremony to share initial findings and request assistance in identifying locations that could use improvements to make roadways safer for all. Over 40 individuals provided feedback by participating in the mapping exercise and/or providing written comments as seen in Figure 32. Major concerns included pedestrian safety near the Civic Center and difficulties crossing Pacific Coast Highway and Lomita Boulevard.

Figure 32 Feedback Collected from Lomita Residents



The Lomita Bicycle and Pedestrian Master Plan will frame the conversation of active transportation as an opportunity to meet the needs of local residents to accomplish local trips, fostering community engagement. While in development, the Plan will accomplish this by ensuring that recommendations are implementable, improve connectivity to community destinations, and create safe infrastructure designs.

Appendix E: Community Survey Tool

Thank you for taking the time to complete the Lomita Bicycle & Pedestrian Plan Community Input Survey!

The City of Lomita is developing a Bicycle and Pedestrian Plan, which seeks to support future investments in active transportation.

This survey should take approximately 8-10 minutes to complete. Your input is critical to ensuring that the Plan meets community needs and addresses key issues.

ALL INFORMATION IS CONFIDENTIAL AND FOR INTERNAL PURPOSES ONLY.

Demographics

1. What is your age?

2. Are you a student?

3. Are you a parent?

Yes

No

4. What is your primary mode of transportation?

5. When you travel for the following purposes in Lomita, what is your main means of travel?

Mode of transportation

Commute (work or school)

Personal errands (grocery store/appointments)

Entertainment, dining out, or socializing

Exercise or recreation

6. What ZIP code is your primary place of residence? (enter 5-digit ZIP code; for example, 00544 or 94305)

Walking in Lomita

* 7. How often do you walk/run to a destination or for leisure?

- 4-7 days per week
- 2-3 days per week
- Once a week
- Less than once a week
- I do not walk

Walking in Lomita

8. Where do you walk to in Lomita? (Select all that apply)

- Work
- School
- Shopping/Dining
- Recreation/Parks
- Other (please specify)

9. Why do you choose to walk? (Select all that apply)

- Exercise
- Environment
- Recreation
- Commute to work/school
- Save money
- I don't have access to a car or bicycle
- Convenience
- Other (please specify)

Walking in Lomita

10. What keeps you from walking more often? (Select all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Dead-end routes, blocked passages | <input type="checkbox"/> Long trip distance |
| <input type="checkbox"/> Crossings connecting to my destinations feel unsafe | <input type="checkbox"/> The places I go to have big parking lots |
| <input type="checkbox"/> Limited furnishings (benches, landscaping, lighting) | <input type="checkbox"/> I prefer other modes of transportation |
| <input type="checkbox"/> Narrow sidewalks or sidewalks that feel unsafe | <input type="checkbox"/> Nothing |
| <input type="checkbox"/> High traffic volumes and speeds | |
| <input type="checkbox"/> Other (please specify) | |

* 11. What types of pedestrian facilities would you like to see more of in Lomita? (Select all that apply)

- | | | |
|--|---|---|
| <input type="checkbox"/> Traffic signals with more time to cross | <input type="checkbox"/> Mid-crossing pedestrian refuge islands | <input type="checkbox"/> Sidewalk furnishings |
| <input type="checkbox"/> Rapid flashing beacon crossings | <input type="checkbox"/> Curb extension/bulb-outs | <input type="checkbox"/> None, I am satisfied with the existing pedestrian facilities |
| <input type="checkbox"/> Other (please specify) | | |

Walking in Lomita

12. Please list locations where you would like to see these types of improvements.

Traffic signals with more
time to cross

Rapid flashing beacon
crossings

Mid-crossing pedestrian
refuge islands

Curb extension/bulb-outs

Sidewalk furnishings

None, I am satisfied with
the existing pedestrian
facilities

[Insert text from Other]

Biking in Lomita

13. How would you describe yourself, when it comes to riding a bicycle in Lomita?

- Strong and fearless
- Confident and enthusiastic
- Interested but concerned about safety
- I will never ride a bicycle here

* 14. How often do you bike to a destination or for leisure?

- 4-7 days per week
- 2-3 days per week
- Once a week
- Less than once a week
- I do not bike

Biking in Lomita

15. Where do you bike to in Lomita? (Select all that apply)

- Work
- School
- Shopping/Dining
- Recreation/Parks
- Other (please specify)

16. Why do you choose to bike? (Select all that apply)

- Exercise
- Environment
- Recreation
- Commute to work/school
- Save money
- I don't have access to a car
- Convenience
- Other (please specify)

17. When you bike, do you do any of the following? (Select all that apply)

- Generally wear a helmet
- Prefer to ride on the sidewalk
- Use bike lights at night
- Ride in the same direction as traffic
- None of the above

Biking in Lomita

18. What keeps you from biking more often? (Select all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Lack of bikeway/route connecting to my destinations | <input type="checkbox"/> Potholes or cracks in roadway |
| <input type="checkbox"/> Limited bicycle parking | <input type="checkbox"/> Not confident in basic bike skills needed to ride in traffic |
| <input type="checkbox"/> The routes I want to use feel unsafe due to traffic volumes/speeds | <input type="checkbox"/> Not confident in basic bike maintenance skills |
| <input type="checkbox"/> Long trip distance | <input type="checkbox"/> I prefer other modes of transportation |
| <input type="checkbox"/> Limited connections with transit | <input type="checkbox"/> Nothing |
| <input type="checkbox"/> Dangerous debris in roadway (glass, etc. that may puncture wheels) | |
| <input type="checkbox"/> Other (please specify) | |

19. Have you attended a bike education program or group ride within the past year?

- Yes
- No, but I would like to
- No, I am not interested

Biking in Lomita

* 20. What types of bike facilities would you like to see more of in Lomita? (Select all that apply)

- Separated bikeways ("cycle-tracks") Bike-friendly neighborhood streets Bike repair stands
- Buffered bike lanes Sharrows (painted markings) None, I am satisfied with the existing pedestrian facilities
- Single-striped bike lanes Bike priority boxes at signals
- Other (please specify)

Biking in Lomita

21. Please list locations where you would like to see these types of improvements.

Separated bikeways
("cycle-tracks")

Buffered bike lanes

Single-striped bike lanes

Bike-friendly
neighborhood streets

Sharrows (painted
markings)

Bike priority boxes at
signals

Bike repair stands

None, I am satisfied with
the existing pedestrian
facilities

[Insert text from Other]

22. What is most important to consider for the Bicycle & Pedestrian Master Plan?

- Enhanced road safety for all users
- Wayfinding signage (maps, walking distance to points-of-interest)
- Extended cross-town bikeway network (new bikeways/routes)
- Keep conditions as they are
- Other (please specify)

23. Are there any other challenges you would like to tell us about your experience walking in Lomita?

24. Are there any other challenges you would like to tell us about your experience biking in Lomita?

Survey Complete

25. Please enter your email address if you would like to receive project updates.

Appendix F: Narbonne Avenue Lane Reconfiguration Memorandum



MEMORANDUM

To: Alicia Velasco, Mark McAvoy, Daniella Ward, City of Lomita
From: Dru van Hengel, Roger Pardo, Nelson\Nygaard
Date: February 17, 2017
Subject: Narbonne Ave Lane Reconfiguration

BACKGROUND

The City of Lomita and Nelson\Nygaard are currently collaborating on the development of the City's first Bicycle and Pedestrian Master Plan. The Plan will introduce policies and projects to support future investments in active transportation including walking, bicycling and accessing transit. By funding the development of the Plan and consequently adopting it, the City Council has sent a strong signal that it intends Lomita to be more competitive in the pursuit of funds allocated by programs such as the Caltrans Active Transportation Program, and Los Angeles Metropolitan Transit Authority Call for Projects. This will enable Lomita to fulfill a vision of providing safe and connected bicycle and pedestrian networks along and across city streets.

To date, the project team has completed a comprehensive analysis of existing conditions as they pertain to pedestrian and bicyclist safety in the City of Lomita, public outreach to share those results, and is currently in the process of developing project and program recommendations for the City. The Plan is expected to be completed in Spring 2017.

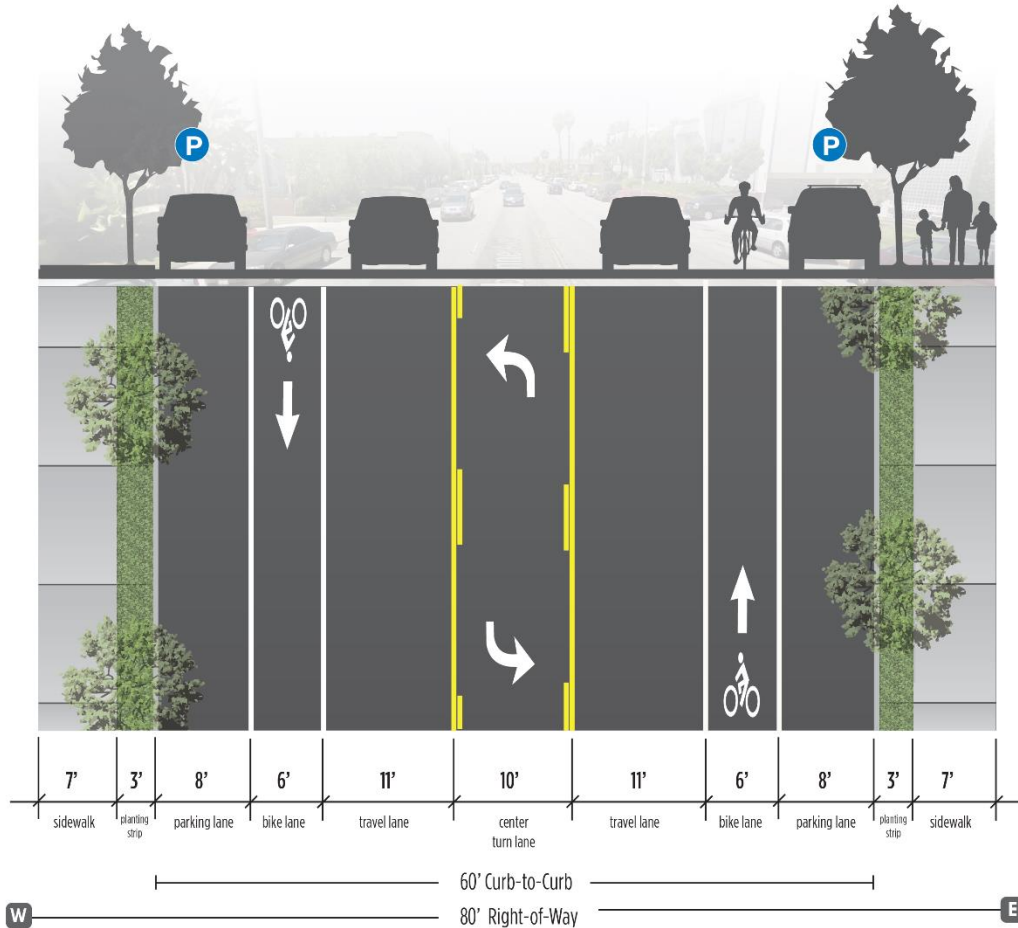
One of the plan recommendations will include a bike lane project on Narbonne. The City has scheduled pavement maintenance on this street in advance of the plan's completion, and is considering whether to implement this recommendation at this time to achieve cost savings.

RECOMMENDATION

In order to take advantage of the coming repaving and restriping project along Narbonne Avenue, Nelson\Nygaard recommends the implementation of a design change (Figure 1).

While parking would remain on both flanks of the roadway, one travel lane in each direction would be removed. In their place would be a bicycle lane in each direction, and a dual turn lane in the center. This design would significantly improve bicycle connectivity, create a safer environment for all users, and continue to support traffic flow.

Figure 1 Narbonne Avenue Lane Reconfiguration Design



WHY NARBONNE?

As Lomita’s centermost North/South corridor, Narbonne Avenue provides a rational backbone for Lomita’s bicycle network. It would be within a half-mile reach of all residents. The corridor would connect the community civic center, Lomita Elementary, a variety of commercial destinations, and the nearby Railroad Museum attraction.

The following are additional considerations that suggest the applicability of a lane reconfiguration to facilitate bicycle facilities along Narbonne Avenue.

Motor Vehicle Volume

Three lane reconfigurations, such as the one suggested for this corridor, have been shown to support up to 25,000 vehicles per day, as long as intersection designs support protected left turn lanes. Narbonne’s comparatively low vehicle demand is well under this limit, with the highest peak hour traffic volumes (single direction) of 769 vehicles per hour. It is important to note that Narbonne Avenue north of Lomita Boulevard is designed to carry one lane of traffic in each

direction. This suggests that the design of Narbonne Avenue south of Lomita Boulevard is overbuilt to support much more traffic than it does.

It should also be noted that the designated left turn lane that accompanies such lane reconfigurations may facilitate smoother traffic flows and reduce rear-end collisions and near-misses as individuals do not stop in a travel lane to queue for a left turn.

Safety

Although the rate of collisions in Lomita is low, a high proportion of them occur on Narbonne. Between 2005 to 2013, 22% of pedestrian-involved collisions and 28% of bicyclist-involved collisions occurred along Narbonne Avenue. In addition, the plan's Level of Traffic Stress analysis considering roadway width, number of lanes, and speed, identified Narbonne Avenue as exhibiting conditions of extreme stress that only the most experienced cyclists are capable of, though not necessarily comfortable, maneuvering.

This kind of lane reconfigurations are a strategy for calming traffic by narrowing the vehicular right of way, creating a safer environment for all users.

Fiscal Efficiencies

The implementation of roadway design efforts during repaving projects is cost-effective. With fresh roadway surface on which to install pavement striping, there is no need to grind or otherwise mask the existing striping. Staff anticipates installing many of the improvements in the future as repaving projects.

Given the timing of Narbonne Avenue's repavement, it would be a fiscally efficient decision to implement the recommended lane reconfiguration simultaneously.