The Vision of the Pedestrian Master Plan

Oakland will be a place where vibrant, safe and attractive streets give everyone the opportunity to walk to their destinations and to enjoy the convenience and health benefits of walking.

About this Plan

The Plan is aspirational. It sets goals, related policies, programs, and establishes a prioritization strategy to implement recommendations that will improve our pedestrian environment over the next five years and beyond.
What is a Pedestrian?

According to California Vehicle Code Section 467:

"(a) A pedestrian is any person who is a foot or who is using a means of conveyance propelled by human power other than a bicycle.

(b) "Pedestrian" includes any person who is operating a self-propelled wheelchair, motorized tricycle, or motorized quadricycle and, by reason of physical disability, is otherwise unable to move about as a pedestrian, as specified in subdivision (a)."
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2017 Pedestrian Master Plan Update

The vision of Oakland’s 2017 Pedestrian Master Plan Update is simple: Oakland will be a place where vibrant, safe and attractive streets give everyone the opportunity to walk to their destinations and to enjoy the convenience and health benefits of walking.

Improving the walking environment in Oakland is important. Walking is one of the most efficient and affordable methods of getting Oaklanders to school, work, transit, and shopping. And creating a vibrant, connected pedestrian network can boost economic activity, improve safety and sustainability, and support neighborhood vitality.

At the same time, improving walking in Oakland means addressing safety. In Oakland, 48 people were killed or injured while walking from 2008-2014 in collisions that steal the lives, the loved ones, and the livelihoods of Oaklanders.

This Plan also considers equity, because these crashes did not occur evenly across Oakland: they were concentrated in the City’s low income, most racially diverse neighborhoods, where more people rely on walking to transit than anywhere else in Oakland. These streets are on Oakland’s High Injury Network, and represent just 2% of streets where 36% of pedestrian-involved collisions are concentrated.
This Plan outlines an action plan to invest in and improve safety in the High Injury Network and to implement the key policy and programmatic improvements that will make streets safer and more inviting for walking throughout the City.

This is why the Plan identifies a targeted set of improvements that can be accomplished in 5 years (Chapter 5: Recommended Actions).

The vision of this Pedestrian Plan is aspirational. City of Oakland staff will always strive towards achieving this vision when working to improve the pedestrian environment. The vision was developed by listening to residents at community meetings, as well as professionals who served on our Technical Advisory Committee (TAC) and Pedestrian Advisory Group (PAG) in Oakland (see Acknowledgements for a list of members). In addition to this community engagement, the Plan was informed by extensive data analysis and an assessment of other cities’ best practices. It sets an ambitious goal for Oakland and paints a picture of what can be achieved over the next five years and beyond, assuming adequate resources.

Oakland’s Department of Race and Equity

The Department of Race and Equity, created in 2015 by a city ordinance, recognizes the existence of systematic racial disparities. Additionally, the ordinance states that it is time for the city to start addressing these underlying inequities. The Department is tasked with “integrating, on a city-wide basis, the principle of ensuring that Oakland is a “fair and just” city, by eliminating systemic inequities caused by past and current decisions, systems of power and privilege, and policies.”

One past decision with particular relevance to Oakland’s Communities of Concern is the practice of “redlining.” Redlining is most closely associated with the Home Owners’ Loan Corporation (HOLC). HOLC was a federal program developed by the Federal Housing Administration (FHA) to address home ownership during the Great Depression, and continued until the mid-1960s. The HOLC was instructed by FHA to determine home loan investment risk in cities across the US. To do this, HOLC developed a set of maps grading neighborhoods from high risk to low, based on input from local real estate agents and lenders. This input was often based on judgments of neighborhoods solely on their racial and socioeconomic makeup—and not a history of loan default. Neighborhoods where people of color or immigrants lived were rated highest risk in the HOLC maps and colored red.

(continued on page 10)
Needed Investment and Funding Constraints

In Oakland, almost all funding for transportation comes from outside sources and is split into two key categories:

- **Capital Funds**: These funds are for construction projects, like building new sidewalks or repaving streets. Our main capital fund sources are the 2016 Infrastructure Bond, various outside grants, and the county transportation sales taxes, Measures B and BB.

- **Operating Funds**: These funds are used for staff and maintenance, like fixing potholes, painting crosswalks, and running pedestrian safety programs. Historically, street and sidewalk maintenance was covered by state and federal gas taxes, but these sources have been steadily declining, offset by an increasing share paid by Measures B and BB. In Oakland, sidewalk repair is largely the responsibility of adjacent property owners.

Although the Infrastructure Bond (Measure KK) will not allow Oakland to bring all of its streets into a state of good repair, its passage means that the city has more flexibility in its capital budget than its operating budget. As we repave our streets, we create opportunities to redesign those streets to be safer for pedestrians. Operating dollars, on the other hand, are extremely scarce, contributing to a structural deferred maintenance problem for the City.

New programs that benefit pedestrians directly compete against street maintenance. Given Oakland’s funding constraints, many of the recommendations in this plan seek to remove obstacles to good pedestrian design, reallocate funding in more productive ways, and enter into partnerships with funders and service providers.

Oakland’s Department of Race and Equity

(continued.) These maps were in turn used by banks to deny loans to potential buyers seeking to live in “redlined” neighborhoods. Importantly, this meant that loans backed by the federal government that effectively subsidized private housing for millions of Americans in the 1940s were not available to anyone living in these neighborhoods.

This policy and practice prevented the accumulation of home equity for people of color and prevented investment in Black, immigrant, and/or low-income communities. This lack of investment can be seen today in Oakland’s Communities of Concern.

Oakland’s “Communities of Concern” a metric created by the Metropolitan Transportation Commission to identify areas with concentrations of residents who face potential disadvantages and barriers to mobility is similar to the Redline map of Oakland. To learn more about the metric, Communities of Concern, see Map 3.2.
## What we learned about walking in Oakland

We looked at seven years of police collision data, the most recent census data, City records, public health studies and the results of our survey. These findings are the highlights of this analysis.

<table>
<thead>
<tr>
<th>Existing Conditions</th>
<th>Safety Analysis</th>
<th>Community Outreach</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>27%</strong> 27% of all trips in Oakland are made by walking.</td>
<td><strong>267</strong> Each year in Oakland, an average of 267 pedestrians are injured in motor vehicle collisions.</td>
<td><strong>588</strong> Almost 600 Oaklanders responded to our online survey about pedestrian conditions and potential improvements.</td>
</tr>
<tr>
<td><strong>78%</strong> 78% of trips to public transit are made on foot.</td>
<td><strong>7</strong> On average, 7 pedestrians are killed each year in motor vehicle collisions.</td>
<td><strong>7</strong> We attended meetings across Oakland and asked community and neighborhood groups for input.</td>
</tr>
<tr>
<td><strong>1,120</strong> Oakland has 1,120 miles of sidewalk.</td>
<td><strong>36%</strong> 36% if pedestrian injuries and deaths happen on...</td>
<td><strong>4</strong> We met four times with the Plan’s Pedestrian Advisory Group and Technical Advisory Group, to receive and apply their input.</td>
</tr>
<tr>
<td><strong>31</strong> and 31 miles of sidewalk gaps.</td>
<td><strong>2%</strong> ...just 2% of Oakland’s streets.</td>
<td></td>
</tr>
<tr>
<td><strong>3x</strong> Asian Americans in Oakland are more than 3x as likely to be killed by a motorist while walking than whites.</td>
<td><strong>62%</strong> Motorists are at fault for 62% of collisions with pedestrians.</td>
<td></td>
</tr>
</tbody>
</table>
Chapter Summaries

Chapter 1: Policy Framework
The Policy Framework reflects the vision of City’s residents and workers to improve pedestrian safety and health in Oakland. It sets the overall vision of the plan, followed by four goals, five outcomes, and thirty-eight specific actions that implement the plan.

Chapter 2. Safety
The Safety Chapter describes Oakland’s recent history of pedestrian injuries and deaths caused by collisions with motor vehicles. City staff analyzed seven years of collision history, identified in police reports, in order to identify City’s High Injury Network.

Chapter 3. Existing conditions
This chapter describes Oakland’s pedestrian facilities and walking conditions and includes a discussion of the City’s demographics, both as a whole and by area. The Plan’s four goals and five outcomes are each informed by data from this chapter.

Chapter 4. Needs Analysis
The Needs Analysis identifies the gap between where Oakland is now and where it needs to be. Policy, planning, and program needs were identified through Plan analysis, the Plan’s community engagement process, and an analysis of the City’s overall walkability.

Chapter 5. Recommended Actions
This chapter answers the question of how the City can make streets safer, more comfortable, and more convenient for people walking throughout all parts of Oakland. It presents a set of 38 recommended actions, each intended to help accomplish one or more of the Plan’s four goals.

Chapter 6. Prioritizing Improvements
Implementing the improvements identified in this Plan has been estimated to cost more than 100 million dollars over five years. Given this large investment of City resources, this plan proposes to first invest in the areas of the City most in need of improvements to the pedestrian environment, and focuses the investments on high injury corridors and intersections. There are three analyses used in this Plan to identify areas of highest need: a safety analysis, equity analysis, and a walkability analysis.
1. Policy Framework

This chapter describes the background and policy framework of the Plan. The framework is composed of an overarching vision, four goals, five objectives, and thirty-eight recommended actions.
The City’s previous Pedestrian Master Plan (California’s first!) was written in 2002. In the intervening decade-and-a-half, many significant changes to planning in the walking realm have taken place in Oakland, including:

- Improvements to the way that pedestrian facilities are designed. Due to this input, new organizations such as the National Association of City Transportation Officials (NACTO).
- Local success repurposing excess traffic lanes for walking, such as Lake Merritt Boulevard.
- Three dozen road diets, which convert roadway space to make walking and bicycling safer.
- New standards for curb ramps and other facilities for people with disabilities.
- New technology which may lead to less need to own a car.

As this plan was in development, the Oakland Department of Transportation (OakDOT) was created in 2016. The new OakDOT will centralize the responsibility for managing and improving how people get around on Oakland’s city streets, sidewalks, highways, and bridges.

The Department’s mission underscores that the quality of transportation options shouldn’t hinge on who you are, how much you earn, or where you live in Oakland.

In order to achieve this mission, this Plan deliberately defines and prioritizes social equity in its decision-making.

In addition, this Plan builds on other City and Regional plans and local policies, including Oakland’s Complete Streets Policy, Area Specific Plans, the Energy and Climate Action Plan, and crosswalk policies.

A full list of supporting and related documents, with descriptions can be found in Appendix A.
Policy Framework

The following graphic outlines how the Plan's organization. The vision, goals, and actions provide the foundation of the Plan. Each action is evaluated by one or more of the four goals.

**Vision**
The desired outcome from the Pedestrian Master Plan.

**Goals**
Four goals outline how Oakland will achieve the Plan's vision (p.13).

**Outcomes**
Five outcomes guide the Plan’s implementation and are accompanied by discrete action items (p.14).

**Recommended Actions**
Actions the City will take to meet the objectives which are evaluated by the four goals (p. 52).

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**Vision**
Oakland will be a place where vibrant, safe and attractive streets give everyone the opportunity to walk to their destinations and to enjoy the convenience and health benefits of walking.

**Goals**
- Safety
- Equity
- Responsiveness
- Vitality

**Outcomes**
1. **Outcome 1:** Increase Pedestrian Safety
2. **Outcome 2:** Create streets and places that promote walking.
3. **Outcome 3:** Improve walkability to key destinations.
4. **Outcome 4:** Engage the Oakland community in creating vibrant pedestrian environments.
5. **Outcome 5:** Improve metrics, evaluations, funding, and tools for creating pedestrian environments.

**Actions**
- **10 Actions:** Safety
- **8 Actions:** Equity
- **6 Actions:** Responsiveness
- **5 Actions:** Vitality
- **9 Actions:** Safety

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CHAPTER 1
This plan establishes the following four goals for pedestrians in Oakland

**Holistic Community Safety**
Make Oakland’s pedestrian environment safe and welcoming.

Eighteen hundred people were injured or killed by motor vehicles on Oakland streets between 2008 and 2014. Chapter 2 outlines the City’s pedestrian collision history, primary factors for collisions, and high injury corridors and intersections. Appendix B details how the City will improve safety on its highest injury corridors, and Appendix C provides a “safety toolkit” for improving the safety of streets, sidewalks and crossings.

**Equity**
Recognizing a historical pattern of disinvestment, focus investment and resources to create equitable, accessible walking conditions to meet the needs of Oakland’s diverse communities.

As documented in the Existing Conditions chapter, areas of Oakland with high numbers of pedestrian collisions tend to overlap with transit- and walking-dependent populations, and populations that are especially vulnerable to poor walking conditions, such as senior citizens, children and people with disabilities. These areas, which include West Oakland, Central East Oakland, Downtown, Eastlake/Fruitvale and Coliseum/Airport, are also home to some of the City’s most inhospitable and inaccessible streets for walking.

**Responsiveness**
Develop and provide tools to ensure that Oakland creates and maintains a vibrant pedestrian environment.

To create and maintain a vibrant pedestrian environment, the City will work to improve data collection and ensure staff is trained in national best practices for safe street design and management. Additionally, City staff will work to ensure that safety data is easily accessible to the public and will create publicly accessible tools so that communities can identify neighborhood-specific pedestrian safety strategies.

**Vitality**
Ensure that Oakland’s pedestrian environment is welcoming, well connected, supports the local economy, and sustains healthy communities.

Walking on a regular basis has several health benefits and may reduce the prevalence of chronic diseases such as heart disease, cancer or diabetes. Reducing or even eliminating traffic collisions on Oakland streets will make walking more inviting, but better design and more investment is needed to make walking the most attractive way to travel, both for people with transportation options and those without. Pedestrians embarking on a trip should be able to reach a variety of destinations including transit, work, school, retail, and open space without detours, delays or danger.
This Plan establishes the following five outcomes for pedestrians in Oakland

**Outcome 1:**
Increase Pedestrian Safety

In order to achieve this objective, the City will install near term and long term pedestrian safety improvements in the High Injury Network, develop new policies, adopt Vision Zero, upgrade signals and other infrastructure, reduce vehicle speeds, improve lighting, and explore ways to equitably enforce traffic laws.

**Outcome 2:**
Create Streets and Places that Promote Walking

To achieve this objective, the City will integrate safety into the design of new streets, incorporate art into pedestrian infrastructure, plant more street trees, repair sidewalks, install accessible curb ramps, and provide public open space in underutilized roadways. The City will also pursue citywide programs and partnerships with nonprofits and community groups to promote walking.

**Outcome 3:**
Improve Walkability to Key Destinations

Oaklanders should be able to walk safely to transit, schools, jobs, and other major destinations. To achieve this objective, the City will, where possible, improve sidewalk connections and wayfinding signage to these destinations. The City will use Walk Score® to improve walkability to key destinations.

**Outcome 4:**
Engage the Oakland community in creating vibrant pedestrian environments

It is essential that the City hears from many different communities in Oakland while this Plan is being implemented. In order to ensure the Plan’s success, the City will partner with neighborhood groups, use new and old media, develop a comprehensive safety education campaign, and support community-led initiatives related to creating more vibrant pedestrian environments.
Outcome 5: Improve metrics, evaluations, funding, and tools for creating pedestrian environments

In order to achieve this objective, the City must collect data that is robust, up to date, and measured consistently. This data and associated metrics will allow the City to measure its current needs and also provide much-needed information to anticipate future investment in the pedestrian environment. The City will update its current data, conduct before-and-after evaluations, create a central transportation data inventory, develop quantitative equity metrics, conduct routine pedestrian counts, and critically examine and improve how it responds to complaints.
This chapter describes Oakland’s recent history of pedestrian injuries and deaths caused by collisions with motor vehicles. City staff analyzed seven years of collision reports in order to identify the most dangerous streets and intersections for people walking.
2.1 Safety Trends

Traffic collisions are a chronic hazard to the health and safety of people walking in Oakland. Over 1,800 fatal and injury-causing collisions involving motor vehicles and pedestrians occurred in Oakland between 2008 and 2014. This is an average of approximately 266 annual collisions (see Table 2.1). This number represents about 10% of all motor vehicle collisions in Oakland.\(^1\) Forty-eight pedestrians were killed by collisions with a motor vehicle in Oakland during this seven-year period, an average of about seven people per year, and 151 (22 annually) were severely injured. Four hundred fifty two individuals suffered visible injuries, while another 1,210 had a complaint of pain or injury. The vast majority of these deaths and severe injuries were preventable, and resulted from a combination of poorly designed streets and human error. Oakland’s pedestrian fatality rate of 1.70 deaths per 100,000 people is higher than the national average of 1.47, but lower than the California average of 1.74.\(^2\)

Furthermore, these crashes did not occur evenly across Oakland; they were concentrated in the City’s poorest, most racially diverse neighborhoods, where more people rely on walking, and walking to transit, than elsewhere in Oakland.

<table>
<thead>
<tr>
<th>Severity</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Total</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>10</td>
<td>5</td>
<td>7</td>
<td>2</td>
<td>10</td>
<td>4</td>
<td>10</td>
<td>48</td>
<td>6.9</td>
</tr>
<tr>
<td>Severe Injury</td>
<td>20</td>
<td>24</td>
<td>16</td>
<td>19</td>
<td>19</td>
<td>18</td>
<td>35</td>
<td>151</td>
<td>22</td>
</tr>
<tr>
<td>Other Visible Injury</td>
<td>71</td>
<td>49</td>
<td>64</td>
<td>60</td>
<td>78</td>
<td>63</td>
<td>67</td>
<td>452</td>
<td>65</td>
</tr>
<tr>
<td>Complaint of Pain Injury</td>
<td>179</td>
<td>166</td>
<td>192</td>
<td>186</td>
<td>176</td>
<td>161</td>
<td>150</td>
<td>1,210</td>
<td>173</td>
</tr>
<tr>
<td>Total</td>
<td>280</td>
<td>244</td>
<td>279</td>
<td>267</td>
<td>283</td>
<td>246</td>
<td>262</td>
<td>1,861</td>
<td>266</td>
</tr>
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</table>


The High Injury Network

Thirty six percent of pedestrian collisions in Oakland happen on just 2% of our streets. Together, these most dangerous streets are known as the City’s “High Injury Network.” This network of high-injury corridors and intersections was identified by analyzing seven years pedestrian crashes (2008-2014) as well as the physical characteristics of the roadway. This analysis identified 34 high-injury corridors and 37 high-injury intersections (see Table 2.2).

Fixes to the High Injury Network have the potential to greatly improve pedestrian safety. Chapter 6: Prioritizing Improvements details how the City will invest in these intersections and corridors.

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1. This figure does not include crashes that took place on highways, whose exact location is unknown or that were reported as “Property Damage Only” (PDO).
### Table 2.2: High Injury Network (2008-2014) by Area

#### Corridors

<table>
<thead>
<tr>
<th>Street</th>
<th>Begins</th>
<th>Ends</th>
<th>Plan Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>12th St</td>
<td>Jefferson St</td>
<td>Oak St</td>
<td>Downtown</td>
</tr>
<tr>
<td>14th St</td>
<td>Myrtle St</td>
<td>Oak St</td>
<td>Downtown</td>
</tr>
<tr>
<td>E 15th St</td>
<td>21st Ave</td>
<td>26th Ave</td>
<td>Eastlake/Fruitvale</td>
</tr>
<tr>
<td>7th St</td>
<td>Washington St</td>
<td>7th St Bridge</td>
<td>Downtown</td>
</tr>
<tr>
<td>8th St</td>
<td>Franklin St</td>
<td>Fallon St</td>
<td>Downtown</td>
</tr>
<tr>
<td>94th Ave</td>
<td>Cherry St</td>
<td>Burr St</td>
<td>Central East Oakland</td>
</tr>
<tr>
<td>98th Ave</td>
<td>A St</td>
<td>MacArthur Blvd</td>
<td>Central East Oakland</td>
</tr>
<tr>
<td>9th St</td>
<td>Franklin St</td>
<td>Fallon St</td>
<td>Downtown</td>
</tr>
<tr>
<td>Bancroft Ave</td>
<td>84th Ave</td>
<td>98th Ave</td>
<td>Central East Oakland</td>
</tr>
<tr>
<td>Bancroft Ave</td>
<td>Church St</td>
<td>80th Ave</td>
<td>Central East Oakland</td>
</tr>
<tr>
<td>Bancroft Ave</td>
<td>Church St</td>
<td>Havenscourt Blvd</td>
<td>Central East Oakland</td>
</tr>
<tr>
<td>Broadway</td>
<td>9th St</td>
<td>19th St</td>
<td>Downtown</td>
</tr>
<tr>
<td>Foothill Blvd</td>
<td>Mitchell St</td>
<td>40th Ave</td>
<td>Eastlake/Fruitvale</td>
</tr>
<tr>
<td>Foothill Blvd</td>
<td>51st Ave</td>
<td>Seminary Ave</td>
<td>Central East Oakland</td>
</tr>
<tr>
<td>Fruitvale Ave</td>
<td>Alameda Ave</td>
<td>E 16th St</td>
<td>Eastlake/Fruitvale</td>
</tr>
<tr>
<td>Grand Ave</td>
<td>Lake Park Ave</td>
<td>Oakland Ave</td>
<td>North Oakland</td>
</tr>
<tr>
<td>Grand Ave</td>
<td>Valley St</td>
<td>El Embarcadero</td>
<td>Downtown</td>
</tr>
<tr>
<td>Hegenberger Rd</td>
<td>Hegenberger Pl</td>
<td>Hegenberger Pl</td>
<td>Coliseum/Airport</td>
</tr>
</tbody>
</table>

#### Intersections

<table>
<thead>
<tr>
<th>Street</th>
<th>Cross Street</th>
<th>Plan Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>12th St</td>
<td>Brush St</td>
<td>West Oakland</td>
</tr>
<tr>
<td>14th St</td>
<td>Market St</td>
<td>West Oakland</td>
</tr>
<tr>
<td>21st Ave</td>
<td>International Blvd</td>
<td>Eastlake/Fruitvale</td>
</tr>
<tr>
<td>24th St</td>
<td>Broadway</td>
<td>Downtown</td>
</tr>
<tr>
<td>27th St</td>
<td>Broadway</td>
<td>Downtown</td>
</tr>
<tr>
<td>29th St</td>
<td>Telegraph Ave</td>
<td>North Oakland/Adams Point</td>
</tr>
<tr>
<td>33rd Ave</td>
<td>Foothill Blvd</td>
<td>Eastlake/Fruitvale</td>
</tr>
<tr>
<td>34th St</td>
<td>Martin Luther King Jr Way</td>
<td>West Oakland</td>
</tr>
<tr>
<td>34th St</td>
<td>San Pablo Ave</td>
<td>West Oakland</td>
</tr>
<tr>
<td>35th Ave</td>
<td>International Blvd</td>
<td>Eastlake/Fruitvale</td>
</tr>
<tr>
<td>37th St</td>
<td>Telegraph Ave</td>
<td>North Oakland/Adams Point</td>
</tr>
</tbody>
</table>
Map 2.1: High Injury Network (2008-2014)
Primary Collision Factors

When police officers investigate a collision, they record their judgment of the crash’s “Primary Collision Factor” (PCF) in a crash report. According to these reports, most pedestrian collisions in Oakland in the past five years have resulted from preventable motorist behavior such as speeding (a factor in 19% of fatal or severe collisions) or driving under the influence of alcohol or drugs (41% of fatal or severe collisions).

Many pedestrian collisions also occur when a driver violates a pedestrian’s right-of-way, such as striking a person crossing a street during a walk signal.

Motorist violation of pedestrian right-of-way was a primary collision factor in 46% of collisions with pedestrians. Careless driving, unsafe speed and improper turning were cited as the PCF in 16% of reported crashes.

Overall, this indicates that 62% of reported pedestrian-vehicle collisions were the motorist’s fault.

After alcohol or drug use, officers cited unsafe speeds as the most common PCF in collisions that resulted in fatal or severe injuries. This finding is consistent with research published by the National Highway Traffic Safety Administration (NHTSA) showing that 5% of pedestrians are killed when struck by a vehicle traveling at 20 miles per hour or less compared to fatality rates of 40, 80 and nearly 100% if struck by a vehicle going 30, 40 and 50 mph or more, respectively. See Table 2.3 for a listing of the top Oakland corridors where speed surveys exist that show that 85% or more of traffic is traveling above the speed limit.

Table 2.2: High Injury Network (2008-2014) by Area (continued)

<table>
<thead>
<tr>
<th>Street</th>
<th>Cross Street</th>
<th>Plan Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>8th St</td>
<td>Market St</td>
<td>West Oakland</td>
</tr>
<tr>
<td>90th Ave</td>
<td>International Blvd</td>
<td>Central/East Oakland</td>
</tr>
<tr>
<td>98th Ave</td>
<td>Cherry St</td>
<td>Central/East Oakland</td>
</tr>
<tr>
<td>98th Ave</td>
<td>International Blvd</td>
<td>Central/East Oakland</td>
</tr>
<tr>
<td>9th St</td>
<td>Madison St</td>
<td>Downtown</td>
</tr>
<tr>
<td>Brush St</td>
<td>W Grand Ave</td>
<td>West Oakland</td>
</tr>
<tr>
<td>Coolidge Ave</td>
<td>School St</td>
<td>Eastlake/Fruitvale</td>
</tr>
<tr>
<td>E 16th St</td>
<td>Fruitvale Ave</td>
<td>Eastlake/Fruitvale</td>
</tr>
<tr>
<td>E 19th St</td>
<td>Fruitvale Ave</td>
<td>Eastlake/Fruitvale</td>
</tr>
<tr>
<td>E 27th St</td>
<td>Fruitvale Ave</td>
<td>Eastlake/Fruitvale</td>
</tr>
<tr>
<td>Grand Ave</td>
<td>Harrison St</td>
<td>Downtown</td>
</tr>
<tr>
<td>Grand Ave</td>
<td>Staten Ave</td>
<td>North Oakland/Adams Point</td>
</tr>
<tr>
<td>High St</td>
<td>San Leandro St</td>
<td>Eastlake/Fruitvale</td>
</tr>
<tr>
<td>MacArthur Blvd</td>
<td>Martin Luther King Jr Way</td>
<td>West Oakland</td>
</tr>
<tr>
<td>San Pablo Ave</td>
<td>W Grand Ave</td>
<td>West Oakland</td>
</tr>
</tbody>
</table>

Table 2.3: High Speed Traffic Locations

<table>
<thead>
<tr>
<th>Street</th>
<th>Start</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bancroft Ave</td>
<td>84th Ave</td>
<td>98th Ave</td>
</tr>
<tr>
<td>Bancroft Ave</td>
<td>Church St</td>
<td>80th Ave</td>
</tr>
<tr>
<td>Foothill Blvd</td>
<td>51st Ave</td>
<td>Seminary Ave</td>
</tr>
<tr>
<td>Foothill Blvd</td>
<td>Mitchell St</td>
<td>40th Ave</td>
</tr>
<tr>
<td>Grand Ave</td>
<td>Valley St</td>
<td>El Embarcadero</td>
</tr>
<tr>
<td>Grand Ave</td>
<td>Lake Park</td>
<td>Oakland Ave</td>
</tr>
<tr>
<td>International Blv</td>
<td>16th Avenue</td>
<td>28th Ave</td>
</tr>
<tr>
<td>McArthur Blvd</td>
<td>Foothill Blvd</td>
<td>82nd Ave</td>
</tr>
<tr>
<td>Shattuck Av</td>
<td>45th Street</td>
<td>55th St</td>
</tr>
</tbody>
</table>
Pedestrian Collisions by Race

Oakland is the most racially diverse city in America,\textsuperscript{3, 4} with an overall population that is 74% non-white and approximately equal proportions of white, African American and Hispanic/Latino residents. Nonetheless, racial and ethnic traffic fatalities varies greatly, as shown in Table 2.4.

Studies show a strong relationship between race and the likelihood of being killed by a vehicle as a pedestrian.\textsuperscript{5} The Centers for Disease Control found that nationwide, African American and Hispanic people have twice the likelihood of being killed in a pedestrian collision as people of other races and ethnicities.\textsuperscript{5}

At the Statewide level, Asian/Pacific Islanders 65 years and older have the highest death and hospitalization rates of any age group. Locally, Figure 2.4 shows that Oakland pedestrians of Asian descent die at twice the citywide rate. The Black and Hispanic population in Oakland is almost twice as likely to die in a pedestrian collision as the White population. This data reflects that in Oakland, as in many American communities, people of color often live, and therefore walk, in particular areas of the City where walking conditions may be safe.

<table>
<thead>
<tr>
<th>Race or Ethnicity</th>
<th>Number of Fatalities</th>
<th>Fatalities (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian</td>
<td>11</td>
<td>31%</td>
</tr>
<tr>
<td>Black</td>
<td>9</td>
<td>25%</td>
</tr>
<tr>
<td>Hispanic (any race)</td>
<td>10</td>
<td>28%</td>
</tr>
<tr>
<td>White</td>
<td>5</td>
<td>14%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>100%</td>
</tr>
</tbody>
</table>

*Note: This data, collected by the Oakland Police Department, determines race or ethnicity at the time of the collision. An individual could identify as Black and Hispanic/Latino but be recorded in the police report as Black. Or an individual could identify as Hispanic and be marked White. The data is not accurate and could be underreporting traffic fatalities by race. Additionally, a study completed by the San Francisco Department of Public Health analyzed data from San Francisco General Hospital and found that patients who were admitted with severe injuries due to a transportation related collision outnumbered the data reported by the San Francisco Police Department. The data, analyzed from April 1, 2014 to March 31, 2105, found that 515 patients with severe injuries were admitted for traffic related incidents, as compared to 200 SFPD reports that cited severe injuries. The data, analyzed from April 1, 2014 to March 31, 2105, found that 515 patients with severe injuries were admitted for traffic related incidents, as compared to 200 SFPD reports that cited severe injuries. There are several reasons that could lead to underreporting, including police officers who are not trained medical professionals, highway collisions which are outside the jurisdiction of SFPD, and simply not reporting injuries to the police. The data indicates that police reports should not be the sole source for assessing traffic injuries.\textsuperscript{6}


This chapter describes Oakland’s pedestrian facilities and walking conditions and includes a discussion of the City’s demographics, both as a whole and by area. In addition, the City’s programs and policies related to pedestrians are described here. The Plan’s four goals and five outcomes are each informed by data from this chapter.
3.1 Citywide Trends

Walking Rates

27% of all trips in Oakland are made on foot, more than any other travel mode but driving (see Table 3.1). This includes walking trips to a destination, to another travel mode (such as public transit), and for recreation or exercise.

Oakland’s walking rate is significantly higher than the statewide average of 17%. Among cities of similar size, Oakland’s walking rate is higher than Long Beach (15%) and Sacramento (11%), but lower than San Francisco (44%) (see Table 3.1).

Table 3.1: Oakland Travel Mode Share

<table>
<thead>
<tr>
<th>City of Oakland</th>
<th>% of all trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel Mode</td>
<td></td>
</tr>
<tr>
<td>Automobile</td>
<td>56%</td>
</tr>
<tr>
<td>Walk</td>
<td>27%</td>
</tr>
<tr>
<td>Transit</td>
<td>13%</td>
</tr>
<tr>
<td>Bicycle</td>
<td>2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Comparable California Cities</th>
<th>% of walk trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Francisco</td>
<td>44%</td>
</tr>
<tr>
<td>Oakland</td>
<td>27%</td>
</tr>
<tr>
<td>Long Beach</td>
<td>15%</td>
</tr>
<tr>
<td>Sacramento</td>
<td>11%</td>
</tr>
<tr>
<td>Statewide average</td>
<td>17%</td>
</tr>
</tbody>
</table>

Source: California Household Travel Survey, Caltrans, 2013

Car Ownership

Approximately 17% of Oakland households do not have a car, lower than Berkeley (21%) and San Francisco (30%), but higher than Alameda County (10%).

Table 3.2: Car Ownership

<table>
<thead>
<tr>
<th>Geographic area</th>
<th>Zero car households</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2005-2009</td>
</tr>
<tr>
<td>San Francisco</td>
<td>29%</td>
</tr>
<tr>
<td>Berkeley</td>
<td>17%</td>
</tr>
<tr>
<td>Oakland</td>
<td>17%</td>
</tr>
<tr>
<td>Alameda County</td>
<td>10%</td>
</tr>
</tbody>
</table>

Source: American Community Survey 2010-2014

Walking to Transit

Walking is the way Oaklanders most often reach other modes of transportation (see Table 3.3). On average, more than three-quarters of transit trips citywide begin with a walk. AC Transit has the highest percentage (95%) of riders accessing their first stop on foot. Approximately 58% of BART passengers in Oakland walk to the station. Approximately 80% of passengers access Oakland’s two busiest BART stations, 12th Street/City Center and 19th Street by walking.

Table 3.3: Walking to Transit

<table>
<thead>
<tr>
<th>Transit agency</th>
<th>Average weekday walk access</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
</tr>
<tr>
<td>AC Transit</td>
<td>83,410</td>
</tr>
<tr>
<td>BART</td>
<td>42,439</td>
</tr>
<tr>
<td>WETA (ferry)</td>
<td>260</td>
</tr>
<tr>
<td>AMTRAK</td>
<td>34</td>
</tr>
<tr>
<td>Total/ average %</td>
<td>126,143</td>
</tr>
</tbody>
</table>

Source: AC Transit, 2015; BART, 2015; WETA, 2015; Capitol Corridor, 2015
Public Health

Over the past decade, Oakland’s rates of obesity, diabetes and high blood pressure have remained the same or increased (see Table 3.4). Studies have shown a significant relationship between a city’s walkability and these conditions. The U.S. Department of Health and Human Services recommends that Americans get at least 150 minutes of physical activity each week. Walking can help Oakland residents get their recommended exercise and improve their health.

Violence, and the fear of violence, can make it more difficult for communities to engage in physical activity. People walking can be vulnerable to street crime due to poor lighting, secluded walking environments, or not enough street activity (also known as “eyes on the street”). Some community meeting attendees indicated that fear of crime deters people from walking at night.

Table 3.4: Public Health in Oakland

<table>
<thead>
<tr>
<th>Health Outcome</th>
<th>% Adults (2005)</th>
<th>% Adults (2012)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight or obese</td>
<td>52%</td>
<td>58%</td>
<td>+6%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>7%</td>
<td>9%</td>
<td>+2%</td>
</tr>
<tr>
<td>Asthma</td>
<td>10%</td>
<td>11%</td>
<td>+1%</td>
</tr>
<tr>
<td>High blood pressure</td>
<td>27%</td>
<td>27%</td>
<td>0%</td>
</tr>
</tbody>
</table>


3.2 Walking Facilities

Below are descriptions of common walking facilities in Oakland:

Sidewalk

The Oakland Municipal Code calls for sidewalks to be at least 5.5 feet wide and clear of obstructions. There are 1,120 linear miles of sidewalk in Oakland.

Marked Crosswalk

Marked crosswalks indicate recommended places to cross the street and help motorists see pedestrians.

Curb Ramps

Curb ramps are sloped surfaces that connect the sidewalk to the street. Oakland has been constructing curb ramps since 1987. Curb ramps are disability access features and must meet requirements about slope, width, location, and surface treatment. Ramps allow persons using a wheelchair or other mobility devices to mount and dismount sidewalk curbs. They also provide tactile warning strips to signal the street transition to persons with vision impairments. Table 3.7 Citywide Facilities and Demographics, describes the number of Non-ADA compliant ramps currently in Oakland.
3.2 Walking Facilities (continued)
Below are descriptions of common walking facilities in Oakland:

**Pedestrian push-button**
Pedestrian push-buttons activate the pedestrian WALK phase at signalized intersections that do not automatically provide one.

**Curb Extension**
Curb extensions or “bulb outs” are an enlargement of the sidewalk to make crossing the street safer. They increase drivers’ ability to see people waiting to cross the street, shorten crossing distances and provide extra space for pedestrians to wait to cross.

**Lighting**
Sidewalk and street lighting helps people traverse sidewalks and cross streets at night. They also help to deter crime and provide a perception of personal security.

**Pathways & Stairways**
The City maintains 225 off-street pathways and stairways. Most are over 80 years old.

**Pedestrian Signs**
Signs can help direct people walking to nearby civic buildings, points of interest or transit connections. Pedestrian-oriented signs are currently limited to the Uptown area.

**Pedestrian Signal Head**
These electronic signs show a figure walking when crossing is permitted or a red hand when it is not. Some, called “countdown signals,” also indicate how many seconds remain to cross the street, assuming a walking speed of 3.5 feet per second.

Photos by Kerby Olsen
3.3 Walkscore

Whether a place is walkable depends in part on what daily needs and services are within walking distance. Walk Score® is an application that categorizes whether a location is walkable (see Table 3.5). To do this, Walk Score® analyzes potential walking routes to nearby amenities including transit stops and stations, schools, grocery stores, restaurants, and parks. Points are awarded based on the distance to amenities in various categories and pedestrian friendliness. Pedestrian friendliness is measured by analyzing population density, intersection density, and block length.

This Plan used Walk Score® data to create a walkability score because it is a simple measure that many community members are familiar with. At the same time, there are limitations to using Walk Score® data. The score does not account for many factors that may influence walking trips such as a topography, speed limits, sidewalk presence or width, trees, lighting, or pedestrian-friendly design. For a citywide map of Walk Score® data see Map 3.1.

<table>
<thead>
<tr>
<th>Walk Score®</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100</td>
<td>Walker's Paradise: Daily errands do not require a car</td>
</tr>
<tr>
<td>70-89</td>
<td>Very Walkable: Most errands can be accomplished on foot</td>
</tr>
<tr>
<td>50-69</td>
<td>Somewhat Walkable: Some errands can be accomplished on foot</td>
</tr>
<tr>
<td>25-49</td>
<td>Car-Dependent: Most errands require a car</td>
</tr>
<tr>
<td>0-24</td>
<td>Car-Dependent: Almost all errands require a car</td>
</tr>
</tbody>
</table>

Table 3.5 WalkScore Categories

3.4 Programs and Policies

Programs and Policies

Oakland’s pedestrian programs include a variety of ongoing investments to improve walking. This section describes walking related program, policies, and community group-led walking programs.

The Oakland Police Department Traffic Section has 21 sworn staff, nine of whom are assigned to the School Safety Enforcement Motorcycle Unit. The Traffic Section addresses speeding, failure to yield to pedestrians, and hit-and-run collisions. Also, the Traffic Section conducts about a dozen operations each year focused on enforcing traffic laws important for pedestrians and bicyclist safety. During these operations, officers cite motorists for infractions such as speeding and driving under the influence. These infractions are key causes of pedestrian and bicyclist collisions. The operations occur both at random locations and where complaints have identified a pattern of traffic violations.

The Oakland Police Department’s Traffic Section conducts monthly enforcement actions in areas where the community is concerned about pedestrian injuries or fatalities. For instance, in the March 2016 operation, 51 citations were issued for unsafe behavior.

Table 3.6 Plan Area Walk Scores

<table>
<thead>
<tr>
<th>Location</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central East Oakland</td>
<td>67</td>
</tr>
<tr>
<td>Coliseum/Airport</td>
<td>19</td>
</tr>
<tr>
<td>Downtown</td>
<td>93</td>
</tr>
<tr>
<td>East Oakland Hills</td>
<td>19</td>
</tr>
<tr>
<td>Eastlake/Fruitvale</td>
<td>78</td>
</tr>
<tr>
<td>Glenview/Redwood Heights</td>
<td>57</td>
</tr>
<tr>
<td>North Oakland Hills</td>
<td>22</td>
</tr>
<tr>
<td>North Oakland/Adams Point</td>
<td>83</td>
</tr>
<tr>
<td>West Oakland</td>
<td>42</td>
</tr>
</tbody>
</table>
What is Universal Access?

Universal walking access refers to streets that allow anyone to reach their destination on foot or with the help of a wheelchair or other mobility device. Curb ramps, pedestrian signal heads, and audible pedestrian traffic signals (APTS), help make this vision possible. Downtown Oakland has the highest concentration of corners equipped with curb ramps, but just 59% are ADA-compliant. In the North Oakland hills, 80% of curbs have no ramps at all, and only 12% of ramps meet ADA standards. The City’s 2009 ADA Transition Plan, scheduled for an update in 2017, also includes a curb ramp inventory and a timeline for curb ramp improvements.

For more information:

http://www2.oaklandnet.com/government/o/PWA/o/EC/s/ADA/DOWD005072

Parking enforcement officers also help keep pedestrians safe. They can issue citations to cars parked in red zones or blocking crosswalks and sidewalks. Parking in a red zone can block drivers’ views of pedestrians, making intersections unsafe. Parking in a crosswalk or on the sidewalk can also force pedestrians into busy roadways. Oakland’s 75 parking enforcement officers issue an average of 18,500 parking citations per year for parking in a red zone, crosswalk or sidewalk.

Oakland participates in a Safe Routes to Schools (SR2S) program funded by the Alameda County Transportation Commission. TransForm, a local non-profit that promotes walkable communities, operates this program. In the 2015/16 academic year, TransForm partnered with more than 40 schools in Oakland to identify access issues for students walking and biking to school.

The Oakland DOT’s SR2S program focuses on installing quick safety improvements near schools, such as striping and signage. For costlier permanent projects, the City may pursue grants. Oakland Police Department (OPD) officers also help schools identify safe drop-off and pick-up locations. OPD’s Traffic Section includes a Crossing Guard program that employs 48 crossing guards at 40 schools. See Appendix E for a full list of schools that have had walk audits, and those that have had infrastructure repairs completed.
3.4 Programs and Policies (continued)

**Be Oakland Be Active** is a collaborative program, led by the Alameda County Public Health Department, that includes the Oakland Unified School District, the Oakland Police Department and TransForm. The goal of the project is to bring comprehensive SR2S programming to all 40 low income elementary schools in Oakland. In addition to the standard education and encouragement elements that TransForm traditionally offers, the BOBA project also:

- Establishes student safety patrols at every school that has enough staff
- Provides increased enforcement from OPD
- Creates transportation safety plans for every school
- Funnels school requests for infrastructure improvements to the City
- Includes a school district-wide wellness program that allows parents and staff to sign up to be “wellness champions”. Wellness champions receive stipends for implementing SR2S activities at their schools.

The BOBA grant concludes in 2018. The City and its partners anticipate re-applying at that time.

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**Pedestrians Count!**

Pedestrians are an essential force when it comes to traffic-generating areas in the city of Oakland. So what areas of the City generate high pedestrian usage? How does that compare to other areas of the City? The City of Oakland monitors the volume of pedestrians, cyclists, and automobiles using the pedestrian counts map. Each blue dot on the map connects to a file that tells you the location, date, time, and duration of each count. The city has identified specific locations where they perform an annual pedestrian count at, but also performs new counts for large projects. Pedestrian counts are just one of the components that are used to identify the effectiveness of various pedestrian programs and policies in creating a vitalizing, safe, and equitable experience.

For more information:

http://www.oaklandbikemaps.info/counts/
### 3.5 Citywide Walking Conditions

#### Table 3.7 Citywide Facilities and Demographics

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Area (sq miles)</th>
<th>Area (% of City)</th>
<th>Sidewalks (miles)</th>
<th>Streets (miles)</th>
<th>Curb ramps ADA (%)</th>
<th>Curb Ramps Non-ADA*</th>
<th>No curb ramp (%)</th>
<th>Signals w/ ped heads (%)</th>
<th>Sidewalk damaged (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Oakland</td>
<td>6</td>
<td>11%</td>
<td>102</td>
<td>98</td>
<td>49%</td>
<td>28%</td>
<td>23%</td>
<td>49%</td>
<td>15%</td>
</tr>
<tr>
<td>Downtown</td>
<td>1</td>
<td>2%</td>
<td>49</td>
<td>39</td>
<td>59%</td>
<td>32%</td>
<td>9%</td>
<td>37%</td>
<td>17%</td>
</tr>
<tr>
<td>Eastlake/Fruitvale</td>
<td>6</td>
<td>10%</td>
<td>219</td>
<td>145</td>
<td>43%</td>
<td>12%</td>
<td>45%</td>
<td>44%</td>
<td>22%</td>
</tr>
<tr>
<td>Coliseum/Airport</td>
<td>6</td>
<td>11%</td>
<td>25</td>
<td>47</td>
<td>41%</td>
<td>5%</td>
<td>54%</td>
<td>33%</td>
<td>16%</td>
</tr>
<tr>
<td>Central East Oakland</td>
<td>8</td>
<td>14%</td>
<td>272</td>
<td>176</td>
<td>38%</td>
<td>12%</td>
<td>50%</td>
<td>61%</td>
<td>26%</td>
</tr>
<tr>
<td>East Oakland Hills</td>
<td>10</td>
<td>19%</td>
<td>93</td>
<td>143</td>
<td>27%</td>
<td>4%</td>
<td>69%</td>
<td>81%</td>
<td>16%</td>
</tr>
<tr>
<td>Glenview/Redwood Heights</td>
<td>4</td>
<td>7%</td>
<td>118</td>
<td>86</td>
<td>35%</td>
<td>4%</td>
<td>62%</td>
<td>33%</td>
<td>23%</td>
</tr>
<tr>
<td>North Oakland Hills</td>
<td>9</td>
<td>16%</td>
<td>17</td>
<td>131</td>
<td>12%</td>
<td>7%</td>
<td>80%</td>
<td>79%</td>
<td>17%</td>
</tr>
<tr>
<td>North Oakland/Adams Point</td>
<td>6</td>
<td>10%</td>
<td>225</td>
<td>139</td>
<td>51%</td>
<td>14%</td>
<td>34%</td>
<td>53%</td>
<td>24%</td>
</tr>
<tr>
<td>Citywide</td>
<td>56</td>
<td>100%</td>
<td>1,120</td>
<td>1,002</td>
<td>42%</td>
<td>13%</td>
<td>45%</td>
<td>47%</td>
<td>22%</td>
</tr>
</tbody>
</table>

*Non-ADA: Not compliant with current ADA standards.

#### Demographics

<table>
<thead>
<tr>
<th>District</th>
<th>Total pop</th>
<th>African American (%)</th>
<th>Asian (%)</th>
<th>Hispanic/Latino (%)</th>
<th>White (non-Hispanic) (%)</th>
<th>Other (%)</th>
<th>17 and under (%)</th>
<th>65 and over (%)</th>
<th>With a disability (%)</th>
<th>Severely rent burdened (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Oakland</td>
<td>25,067</td>
<td>46%</td>
<td>12%</td>
<td>17%</td>
<td>19%</td>
<td>5%</td>
<td>23%</td>
<td>9%</td>
<td>16%</td>
<td>31%</td>
</tr>
<tr>
<td>Downtown</td>
<td>17,688</td>
<td>18%</td>
<td>42%</td>
<td>9%</td>
<td>26%</td>
<td>6%</td>
<td>7%</td>
<td>20%</td>
<td>19%</td>
<td>24%</td>
</tr>
<tr>
<td>Eastlake/Fruitvale</td>
<td>96,418</td>
<td>19%</td>
<td>30%</td>
<td>34%</td>
<td>13%</td>
<td>5%</td>
<td>22%</td>
<td>10%</td>
<td>12%</td>
<td>30%</td>
</tr>
<tr>
<td>Coliseum/Airport</td>
<td>4,037</td>
<td>37%</td>
<td>5%</td>
<td>49%</td>
<td>4%</td>
<td>6%</td>
<td>33%</td>
<td>8%</td>
<td>12%</td>
<td>39%</td>
</tr>
<tr>
<td>Central East Oakland</td>
<td>96,018</td>
<td>36%</td>
<td>6%</td>
<td>48%</td>
<td>7%</td>
<td>4%</td>
<td>30%</td>
<td>8%</td>
<td>12%</td>
<td>40%</td>
</tr>
<tr>
<td>East Oakland Hills</td>
<td>30,586</td>
<td>41%</td>
<td>10%</td>
<td>14%</td>
<td>28%</td>
<td>7%</td>
<td>20%</td>
<td>15%</td>
<td>12%</td>
<td>38%</td>
</tr>
<tr>
<td>Glenview/Redwood Heights</td>
<td>32,168</td>
<td>14%</td>
<td>17%</td>
<td>11%</td>
<td>50%</td>
<td>7%</td>
<td>20%</td>
<td>15%</td>
<td>9%</td>
<td>25%</td>
</tr>
<tr>
<td>North Oakland Hills</td>
<td>23,587</td>
<td>5%</td>
<td>14%</td>
<td>6%</td>
<td>68%</td>
<td>7%</td>
<td>19%</td>
<td>17%</td>
<td>6%</td>
<td>21%</td>
</tr>
<tr>
<td>North Oakland/Adams Point</td>
<td>76,770</td>
<td>21%</td>
<td>13%</td>
<td>11%</td>
<td>49%</td>
<td>6%</td>
<td>12%</td>
<td>13%</td>
<td>11%</td>
<td>23%</td>
</tr>
<tr>
<td>Citywide</td>
<td>402,339</td>
<td>26%</td>
<td>16%</td>
<td>26%</td>
<td>27%</td>
<td>6%</td>
<td>21%</td>
<td>12%</td>
<td>12%</td>
<td>23%</td>
</tr>
</tbody>
</table>
Map 3.1: Walk Score
What is it?

Oakland’s “Communities of Concern,” is a metric created by the Metropolitan Transportation Commission and is used to identify areas with concentrations of residents who face potential disadvantages and barriers to mobility. These characteristics include:

- Race/Ethnicity
- Low Income (<200% of Poverty) Population
- Limited English Proficiency Population
- Zero-Vehicle Households
- Seniors 75 and Over
- Population with a Disability
- Single-Parent Families.

Areas that are dark green (High Disadvantage) have populations with more than one characteristic present. For example, a person who is low income and over 75 is counted twice in this methodology; therefore the more factors present in an area, the deeper the disadvantage.
Street Trees

Oakland’s street trees provide many benefits. They shade the sidewalk, absorb greenhouse gases, and slow traffic by making the roadway seem narrower. There are over 46,000 street-side trees in Oakland, not including those in medians and in parks.

Map 3.3: Street Trees
Sidewalk Gaps

In 2006, the City surveyed all sidewalks in Oakland and documented sidewalk gaps and damage. Although dated, this data is still the most complete source of information about sidewalk conditions. Sidewalk gaps are places within the sidewalk network where a sidewalk doesn’t exist. These gaps may be due to hillside terrain, because the adjacent street leads to a restricted area (such as a freeway), or simply because a sidewalk was never built. In total, about 162,000 linear feet of sidewalk gaps exist. The North Oakland Hills and West Oakland areas have the highest share of sidewalks missing, at 7% and 5%, respectively. By contrast, the Downtown area is only missing about 1% of its potential sidewalks.
3.6 Plan Areas

This section provides a description and key data about each of the Plan's nine areas: East Oakland Hills, Central East Oakland, Coliseum/Airport, Glenview/Redwood Heights, Eastlake/Fruitvale, North Oakland Hills, North Oakland/Adams Point, Downtown and West Oakland. The Plan Area maps also include mixed-use commercial areas, because having neighborhood destinations to walk to are essential to improving the vitality of pedestrian environments.
East Oakland Hills

East Oakland Hills includes the hilliest areas of Oakland’s eastern edge, south of the North Oakland Hills and above MacArthur Boulevard. This area is primarily residential or open space and has less than half the citywide average of sidewalk density. Forty-one percent of East Oakland Hills residents are African American, compared to a citywide average of 26%, while just 12% of residents live below the federal poverty line (21% of citywide residents are in this category). Besides the North Oakland Hills, there are fewer pedestrian collisions per 1,000 residents (1.2) and per mile (0.3) in the East Oakland Hills than anywhere else in Oakland. Point, Downtown and West Oakland.

Walk Score®: 19 (Car Dependent)

Table 3.5: East Oakland Hills Facilities, Demographics, and Safety

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Area (sq miles)</th>
<th>Area (% of City)</th>
<th>Sidewalks (miles)</th>
<th>Streets (miles)</th>
<th>Curb ramps ADA (%)</th>
<th>Curb Ramps Non-ADA (%)</th>
<th>No curb ramp (%)</th>
<th>Signals w/ ped heads</th>
<th>Sidewalk damaged (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Oakland Hills</td>
<td>8</td>
<td>14%</td>
<td>272</td>
<td>176</td>
<td>38%</td>
<td>12%</td>
<td>50%</td>
<td>61%</td>
<td>26%</td>
</tr>
<tr>
<td>Citywide</td>
<td>56</td>
<td>100%</td>
<td>1,120</td>
<td>1,002</td>
<td>42%</td>
<td>13%</td>
<td>45%</td>
<td>47%</td>
<td>22%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Total pop.</th>
<th>African American</th>
<th>Asian</th>
<th>Hispanic/ Latino*</th>
<th>White (non-Hispanic)</th>
<th>Other</th>
<th>17 and under</th>
<th>65 and over</th>
<th>With a disability</th>
<th>Severely rent burdened</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Oakland Hills</td>
<td>96,018</td>
<td>36%</td>
<td>6%</td>
<td>48%</td>
<td>7%</td>
<td>4%</td>
<td>30%</td>
<td>8%</td>
<td>12%</td>
<td>40%</td>
</tr>
<tr>
<td>Citywide</td>
<td>402,339</td>
<td>26%</td>
<td>16%</td>
<td>26%</td>
<td>27%</td>
<td>6%</td>
<td>21%</td>
<td>12%</td>
<td>12%</td>
<td>30%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety</th>
<th>Avg. fatalities/ year</th>
<th>Avg. severe injuries/year</th>
<th>Avg. injuries/ year</th>
<th>Avg. fatalities 100k/year</th>
<th>Avg. injuries/ 100,000/year</th>
<th>Avg. injuries/ street mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>East Oakland Hills</td>
<td>1.6</td>
<td>6.3</td>
<td>56.4</td>
<td>1.7</td>
<td>59</td>
<td>0.2</td>
</tr>
<tr>
<td>Citywide</td>
<td>7</td>
<td>21.5</td>
<td>266.5</td>
<td>1.7</td>
<td>66</td>
<td>0.2</td>
</tr>
</tbody>
</table>

*Note: Hispanic indicates the Hispanic Ethnicity category on the Census. Any individual who described themselves as Hispanic plus a race category is included as Hispanic/Latino.
Central East Oakland

Central East Oakland is located between the Eastlake/Fruitvale district and the City of San Leandro, MacArthur Boulevard, and the Coliseum/Airport area. This area includes the Eastmont Mall and the commercial areas of Fairfax (on Foothill Boulevard) and Elmhurst. Commercial areas are also located along the wide, fast-moving International Boulevard. Industrial development is located near I-880; otherwise, Central East Oakland is primarily residential. Area residents are 93% non-white and 29% live below the federal poverty line. Nearly a quarter of Oakland’s fatal pedestrian crashes and nearly one-third of crashes that resulted in serious injury were in this area.

Walk Score®: 67 (Somewhat Walkable)

Table 3.6: East Oakland Hills Facilities, Demographics, and Safety

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Area (sq miles)</th>
<th>Area (% of City)</th>
<th>Sidewalks (miles)</th>
<th>Streets (miles)</th>
<th>Curb ramps ADA (%)</th>
<th>Curb Ramps Non-ADA (%)</th>
<th>No curb ramp (%)</th>
<th>Signals w/ ped heads</th>
<th>Sidewalk damaged (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central East Oakland</td>
<td>10</td>
<td>19%</td>
<td>93</td>
<td>143</td>
<td>27%</td>
<td>4%</td>
<td>69%</td>
<td>81%</td>
<td>16%</td>
</tr>
<tr>
<td>Citywide</td>
<td>56</td>
<td>100%</td>
<td>1,120</td>
<td>1,002</td>
<td>42%</td>
<td>13%</td>
<td>45%</td>
<td>47%</td>
<td>22%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Total pop.</th>
<th>African American (%)</th>
<th>Asian (%)</th>
<th>Hispanic/Latino* (%)</th>
<th>White (non-Hispanic) (%)</th>
<th>Other (%)</th>
<th>17 and under (%)</th>
<th>65 and over (%)</th>
<th>With a disability (%)</th>
<th>Severely rent burdened (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central East Oakland</td>
<td>30,586</td>
<td>41%</td>
<td>10%</td>
<td>14%</td>
<td>28%</td>
<td>7%</td>
<td>20%</td>
<td>15%</td>
<td>12%</td>
<td>38%</td>
</tr>
<tr>
<td>Citywide</td>
<td>402,339</td>
<td>26%</td>
<td>16%</td>
<td>26%</td>
<td>27%</td>
<td>6%</td>
<td>21%</td>
<td>12%</td>
<td>12%</td>
<td>30%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety</th>
<th>Avg. fatalities/ year</th>
<th>Avg. severe injuries/year</th>
<th>Avg. injuries/year</th>
<th>Avg. fatalities/100k/year</th>
<th>Avg. injuries/100,000/year</th>
<th>Avg. injuries/street mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central East Oakland</td>
<td>1.6</td>
<td>6.3</td>
<td>56.4</td>
<td>1.7</td>
<td>59</td>
<td>0.2</td>
</tr>
<tr>
<td>Citywide</td>
<td>7</td>
<td>21.5</td>
<td>266.5</td>
<td>1.7</td>
<td>66</td>
<td>0.2</td>
</tr>
</tbody>
</table>

*Note: Hispanic indicates the Hispanic Ethnicity category on the Census. Any individual who described themselves as Hispanic plus a race category is included as Hispanic/Latino.
**Coliseum/Airport**

Coliseum/Airport includes the Oakland Coliseum, Oakland Airport and Coliseum BART station. It is located between the City of San Leandro, the City of Alameda, the Central East Oakland area and the San Francisco Bay. Industrial development is the primary land use along I-880 and near the Oakland Airport and Oakland Coliseum. Only 33% of signals have pedestrian heads and none include countdown indicators—the lowest percentages in the City. Despite a low rate of overall collisions, there were two fatal pedestrian crashes in this area in 2008-2013.

**Walk Score®:** 19 (Car Dependent)

---

### Table 3.7: Colesium/Airport Facilities, Demographics, and Safety

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Area (sq miles)</th>
<th>Area (% of City)</th>
<th>Sidewalks (miles)</th>
<th>Streets (miles)</th>
<th>Curbv ramps ADA (%)</th>
<th>Curb Ramps Non-ADA (%)</th>
<th>No curb ramp (%)</th>
<th>Signals w/ ped heads</th>
<th>Sidewalk damaged (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coliseum/Airport</td>
<td>6</td>
<td>11%</td>
<td>25</td>
<td>47</td>
<td>41%</td>
<td>5%</td>
<td>54%</td>
<td>33%</td>
<td>16%</td>
</tr>
<tr>
<td>Citywide</td>
<td>56</td>
<td>100%</td>
<td>1,120</td>
<td>1,002</td>
<td>42%</td>
<td>13%</td>
<td>45%</td>
<td>47%</td>
<td>22%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Total pop.</th>
<th>African American (%)</th>
<th>Asian (%)</th>
<th>Hispanic/ Latino* (%)</th>
<th>White (non-Hispanic) (%)</th>
<th>Other (%)</th>
<th>17 and under (%)</th>
<th>65 and over (%)</th>
<th>With a disability (%)</th>
<th>Severely rent burdened (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coliseum/Airport</td>
<td>4,037</td>
<td>37%</td>
<td>5%</td>
<td>49%</td>
<td>4%</td>
<td>6%</td>
<td>33%</td>
<td>8%</td>
<td>12%</td>
<td>39%</td>
</tr>
<tr>
<td>Citywide</td>
<td>402,339</td>
<td>26%</td>
<td>16%</td>
<td>26%</td>
<td>27%</td>
<td>6%</td>
<td>21%</td>
<td>12%</td>
<td>12%</td>
<td>30%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety</th>
<th>Avg. fatalities/year</th>
<th>Avg. severe injuries/year</th>
<th>Avg. injuries/year</th>
<th>Avg. fatalities 100k/year</th>
<th>Avg. injuries/100,000/year</th>
<th>Avg. injuries/street mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coliseum/Airport</td>
<td>0.4</td>
<td>0.3</td>
<td>3.6</td>
<td>9.9</td>
<td>89</td>
<td>0.1</td>
</tr>
<tr>
<td>Citywide</td>
<td>7</td>
<td>21.5</td>
<td>266.5</td>
<td>1.7</td>
<td>66</td>
<td>0.2</td>
</tr>
</tbody>
</table>

*Note: Hispanic indicates the Hispanic Ethnicity category on the Census. Any individual who described themselves as Hispanic plus a race category is included as Hispanic/Latino.
Glenview/Redwood Heights

Glenview/Redwood Heights is located below Highway 13, above MacArthur Boulevard/I-580, and south of Grand Avenue. The district comprises the hilly but walkable neighborhoods immediately east of Eastlake/Fruitvale. This area is home to the Dimond and Laurel commercial districts. Lower traffic speeds and on-street parking provide comfortable environments for walking.

Walk Score®: 57 (Somewhat Walkable)

Table 3.8: Glenview/Redwood Heights Facilities, Demographics, and Safety

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Area (sq miles)</th>
<th>Area (% of City)</th>
<th>Sidewalks (miles)</th>
<th>Streets (miles)</th>
<th>Curbv ramps ADA (%)</th>
<th>Curb Ramps Non-ADA (%)</th>
<th>No curb ramp (%)</th>
<th>Signals w/ ped heads</th>
<th>Sidewalk damaged (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenview/ Redwood Heights</td>
<td>4</td>
<td>7%</td>
<td>118</td>
<td>86</td>
<td>35%</td>
<td>4%</td>
<td>62%</td>
<td>33%</td>
<td>23%</td>
</tr>
<tr>
<td>Citywide</td>
<td>56</td>
<td>100%</td>
<td>1,120</td>
<td>1,002</td>
<td>42%</td>
<td>13%</td>
<td>45%</td>
<td>47%</td>
<td>22%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Total pop.</th>
<th>African American (%)</th>
<th>Asian (%)</th>
<th>Hispanic/ Latino* (%)</th>
<th>White (non-Hispanic) (%)</th>
<th>Other (%)</th>
<th>17 and under (%)</th>
<th>65 and over (%)</th>
<th>With a disability (%)</th>
<th>Severely rent burdened (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenview/ Redwood Heights</td>
<td>32,168</td>
<td>14%</td>
<td>17%</td>
<td>11%</td>
<td>50%</td>
<td>7%</td>
<td>20%</td>
<td>15%</td>
<td>9%</td>
<td>25%</td>
</tr>
<tr>
<td>Citywide</td>
<td>402,339</td>
<td>26%</td>
<td>16%</td>
<td>26%</td>
<td>27%</td>
<td>6%</td>
<td>21%</td>
<td>12%</td>
<td>12%</td>
<td>30%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety</th>
<th>Avg. fatalities/ year</th>
<th>Avg. severe injuries/ year</th>
<th>Avg. injuries/ year</th>
<th>Avg. fatalities/100k/year</th>
<th>Avg. injuries/100,000/year</th>
<th>Avg. injuries/ street mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glenview/ Redwood Heights</td>
<td>0</td>
<td>1.3</td>
<td>10.9</td>
<td>0.0</td>
<td>34</td>
<td>0.1</td>
</tr>
<tr>
<td>Citywide</td>
<td>7</td>
<td>21.5</td>
<td>266.5</td>
<td>1.7</td>
<td>66</td>
<td>0.2</td>
</tr>
</tbody>
</table>

*Note: Hispanic indicates the Hispanic Ethnicity category on the Census. Any individual who described themselves as Hispanic plus a race category is included as Hispanic/Latino.
Eastlake/Fruitvale

Eastlake/Fruitvale is located between Brooklyn Basin and I-580, the south shore of Lake Merritt, and High Street. Commercial areas include Eastlake/International Boulevard, Lake Merritt Parkway, the Fruitvale BART station and International Boulevard/Foothill Boulevard. Sausal and Peralta Creeks create barriers to people walking in this area. This district is largely residential, with some industrial and commercial areas near I-880. The eastern edge of the district has industrial and marine uses. The Bay Trail runs along the Estuary, parallel to Embarcadero. The area has a higher than average proportion of Hispanic/Latino and Asian residents.

Walk Score®: 78 (Very Walkable)

Table 3.9: Eastlake/Fruitvale Facilities, Demographics, and Safety

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Area (sq miles)</th>
<th>Area (% of City)</th>
<th>Sidewalks (miles)</th>
<th>Streets (miles)</th>
<th>Curb ramps ADA (%)</th>
<th>Curb Ramps Non-ADA (%)</th>
<th>No curb ramp (%)</th>
<th>Signals w/ ped heads</th>
<th>Sidewalk damaged (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastlake/Fruitvale</td>
<td>6</td>
<td>10%</td>
<td>219</td>
<td>145</td>
<td>43%</td>
<td>12%</td>
<td>45%</td>
<td>44%</td>
<td>22%</td>
</tr>
<tr>
<td>Citywide</td>
<td>56</td>
<td>100%</td>
<td>1,120</td>
<td>1,002</td>
<td>42%</td>
<td>13%</td>
<td>45%</td>
<td>47%</td>
<td>22%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Total pop.</th>
<th>African American (%)</th>
<th>Asian (%)</th>
<th>Hispanic/ Latino* (%)</th>
<th>White (non-Hispanic) (%)</th>
<th>Other (%)</th>
<th>17 and under (%)</th>
<th>65 and over (%)</th>
<th>With a disability (%)</th>
<th>Severely rent burdened (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastlake/Fruitvale</td>
<td>96,418</td>
<td>19%</td>
<td>30%</td>
<td>34%</td>
<td>13%</td>
<td>5%</td>
<td>22%</td>
<td>10%</td>
<td>12%</td>
<td>30%</td>
</tr>
<tr>
<td>Citywide</td>
<td>402,339</td>
<td>26%</td>
<td>16%</td>
<td>26%</td>
<td>27%</td>
<td>6%</td>
<td>21%</td>
<td>12%</td>
<td>12%</td>
<td>30%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety</th>
<th>Avg. fatalities/year</th>
<th>Avg. severe injuries/year</th>
<th>Avg. injuries/year</th>
<th>Avg. fatalities/100k/year</th>
<th>Avg. injuries/100,000/year</th>
<th>Avg. injuries/ street mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastlake/Fruitvale</td>
<td>1.9</td>
<td>5</td>
<td>66.4</td>
<td>2.0</td>
<td>69</td>
<td>0.3</td>
</tr>
<tr>
<td>Citywide</td>
<td>7</td>
<td>21.5</td>
<td>266.5</td>
<td>1.7</td>
<td>66</td>
<td>0.2</td>
</tr>
</tbody>
</table>

*Note: Hispanic indicates the Hispanic Ethnicity category on the Census. Any individual who described themselves as Hispanic plus a race category is included as Hispanic/Latino.
North Oakland Hills

North Oakland Hills is the hilliest area in the north part of the City. It is primarily residential and, along the ridge, parkland. This area has the lowest proportion of minority residents, poverty, and zero-vehicle households in Oakland. It has the lowest levels of sidewalk density, curb ramps, and the lowest rate of pedestrian collisions. This may be because there are few destinations for pedestrians and steep hills to climb.

Walk Score®: 22 (Car-Dependent)

Table 3.10: North Oakland Hills Facilities, Demographics, and Safety

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Area (sq miles)</th>
<th>Area (% of City)</th>
<th>Sidewalks (miles)</th>
<th>Streets (miles)</th>
<th>Curb ramps ADA (%)</th>
<th>Curb Ramps Non-ADA (%)</th>
<th>No curb ramp (%)</th>
<th>Signals w/ ped heads</th>
<th>Sidewalk damaged (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Oakland Hills</td>
<td>9</td>
<td>16%</td>
<td>17</td>
<td>131</td>
<td>12%</td>
<td>7%</td>
<td>80%</td>
<td>79%</td>
<td>17%</td>
</tr>
<tr>
<td>Citywide</td>
<td>56</td>
<td>100%</td>
<td>1,120</td>
<td>1,002</td>
<td>42%</td>
<td>13%</td>
<td>45%</td>
<td>47%</td>
<td>22%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Total pop.</th>
<th>African American (%)</th>
<th>Asian (%)</th>
<th>Hispanic/Latino* (%)</th>
<th>White (non-Hispanic) (%)</th>
<th>Other (%)</th>
<th>17 and under (%)</th>
<th>65 and over (%)</th>
<th>With a disability (%)</th>
<th>Severely rent burdened (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Oakland Hills</td>
<td>23,587</td>
<td>5%</td>
<td>14%</td>
<td>6%</td>
<td>68%</td>
<td>7%</td>
<td>19%</td>
<td>17%</td>
<td>6%</td>
<td>21%</td>
</tr>
<tr>
<td>Citywide</td>
<td>402,339</td>
<td>26%</td>
<td>16%</td>
<td>26%</td>
<td>27%</td>
<td>6%</td>
<td>21%</td>
<td>12%</td>
<td>12%</td>
<td>30%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety</th>
<th>Avg. fatalities/year</th>
<th>Avg. severe injuries/year</th>
<th>Avg. injuries/year</th>
<th>Avg. fatalities 100k/year</th>
<th>Avg. injuries/100,000/year</th>
<th>Avg. injuries/street mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Oakland Hills</td>
<td>0</td>
<td>0.3</td>
<td>4.9</td>
<td>0.0</td>
<td>21</td>
<td>0.3</td>
</tr>
<tr>
<td>Citywide</td>
<td>7</td>
<td>21.5</td>
<td>266.5</td>
<td>1.7</td>
<td>66</td>
<td>0.2</td>
</tr>
</tbody>
</table>

*Note: Hispanic indicates the Hispanic Ethnicity category on the Census. Any individual who described themselves as Hispanic plus a race category is included as Hispanic/Latino.
North Oakland/Adams Point

North Oakland/Adams Point lies south of Berkeley, east of Emeryville, north and west of Grand Avenue and west of Piedmont. It includes the MacArthur and Rockridge BART stations and the Rockridge, Temescal, Koreatown/Northgate (KONO), Grand Lake and Piedmont Avenue commercial districts. This area has nearly twice the average citywide sidewalk density. Nearly half of residents are white and just 14% live below the federal poverty line. A few North Oakland intersections and corridors—mostly on Telegraph Avenue—are among the City’s High Injury Network. Additionally, underpasses at Highway 24 and I-980 have limited lighting for pedestrians.

Walk Score®: 83 (Very Walkable)

Table 3.11: North Oakland/Adams Point Facilities, Demographics, and Safety

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Area (sq miles)</th>
<th>Area (% of City)</th>
<th>Sidewalks (miles)</th>
<th>Streets (miles)</th>
<th>Curbv ramps ADA (%)</th>
<th>Curb Ramps Non-ADA (%)</th>
<th>No curb ramp (%)</th>
<th>Signals w/ ped heads</th>
<th>Sidewalk damaged (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Oakland/Adams Point</td>
<td>6</td>
<td>10%</td>
<td>225</td>
<td>139</td>
<td>51%</td>
<td>14%</td>
<td>34%</td>
<td>53%</td>
<td>24%</td>
</tr>
<tr>
<td>Citywide</td>
<td>56</td>
<td>100%</td>
<td>1,120</td>
<td>1,002</td>
<td>42%</td>
<td>13%</td>
<td>45%</td>
<td>47%</td>
<td>22%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Total pop.</th>
<th>African American (%)</th>
<th>Asian (%)</th>
<th>Hispanic/Latino* (%)</th>
<th>White (non-Hispanic) (%)</th>
<th>Other (%)</th>
<th>17 and under (%)</th>
<th>65 and over (%)</th>
<th>With a disability (%)</th>
<th>Severely rent burdened (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Oakland/Adams Point</td>
<td>76,770</td>
<td>21%</td>
<td>13%</td>
<td>11%</td>
<td>49%</td>
<td>6%</td>
<td>12%</td>
<td>13%</td>
<td>11%</td>
<td>23%</td>
</tr>
<tr>
<td>Citywide</td>
<td>402,339</td>
<td>26%</td>
<td>16%</td>
<td>26%</td>
<td>27%</td>
<td>6%</td>
<td>21%</td>
<td>12%</td>
<td>12%</td>
<td>30%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety</th>
<th>Avg. fatalities/ year</th>
<th>Avg. severe injuries/year</th>
<th>Avg. injuries/ year</th>
<th>Avg. fatalities 100k/year</th>
<th>Avg. injuries/100,000/year</th>
<th>Avg. injuries/ street mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Oakland/Adams Point</td>
<td>1.3</td>
<td>3.4</td>
<td>48.3</td>
<td>1.7</td>
<td>63</td>
<td>0.2</td>
</tr>
<tr>
<td>Citywide</td>
<td>7</td>
<td>21.5</td>
<td>266.5</td>
<td>1.7</td>
<td>66</td>
<td>0.2</td>
</tr>
</tbody>
</table>

*Note: Hispanic indicates the Hispanic Ethnicity category on the Census. Any individual who described themselves as Hispanic plus a race category is included as Hispanic/Latino.
Downtown

Downtown stretches from the Oakland harbor to Grand Avenue and from the south shore of Lake Merritt to I-980. At one square mile, this is the smallest of Oakland’s nine areas. It contains three BART stations (19th Street, 12th Street, and Lake Merritt), as well as high-activity centers of Downtown, Uptown, Chinatown, Old Oakland, and Jack London Square. Twenty-one percent of Downtown residents walk to work—more than five times the citywide average. Downtown has the lowest share of residents under 18 years old and the highest share of senior citizens. This area has the greatest number of pedestrian collisions per 1,000 residents or per street-mile.

Walk Score®: 93 (Walker’s Paradise)

Table 3.12: Downtown Facilities, Demographics, and Safety

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Area (sq miles)</th>
<th>Area (% of City)</th>
<th>Sidewalks (miles)</th>
<th>Streets (miles)</th>
<th>Curvy ramps ADA (%)</th>
<th>Curb Ramps Non-ADA (%)</th>
<th>No curb ramp (%)</th>
<th>Signals w/ ped heads</th>
<th>Sidewalk damaged (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown</td>
<td>1</td>
<td>2%</td>
<td>49</td>
<td>39</td>
<td>59%</td>
<td>32%</td>
<td>9%</td>
<td>37%</td>
<td>17%</td>
</tr>
<tr>
<td>Citywide</td>
<td>56</td>
<td>100%</td>
<td>1,120</td>
<td>1,002</td>
<td>42%</td>
<td>13%</td>
<td>45%</td>
<td>47%</td>
<td>22%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Total pop.</th>
<th>African American (%)</th>
<th>Asian (%)</th>
<th>Hispanic/ Latino* (%)</th>
<th>White (non-Hispanic) (%)</th>
<th>Other (%)</th>
<th>17 and under (%)</th>
<th>65 and over (%)</th>
<th>With a disability (%)</th>
<th>Severely rent burdened (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown</td>
<td>17,688</td>
<td>18%</td>
<td>42%</td>
<td>9%</td>
<td>26%</td>
<td>6%</td>
<td>7%</td>
<td>20%</td>
<td>19%</td>
<td>24%</td>
</tr>
<tr>
<td>Citywide</td>
<td>402,339</td>
<td>26%</td>
<td>16%</td>
<td>26%</td>
<td>27%</td>
<td>6%</td>
<td>21%</td>
<td>12%</td>
<td>12%</td>
<td>30%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety</th>
<th>Avg. fatalities/ year</th>
<th>Avg. severe injuries/year</th>
<th>Avg. injuries/ year</th>
<th>Avg. fatalities 100k/year</th>
<th>Avg. injuries/ 100,000/year</th>
<th>Avg. injuries/ street mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downtown</td>
<td>0.9</td>
<td>2.1</td>
<td>45.9</td>
<td>5.1</td>
<td>259</td>
<td>0.9</td>
</tr>
<tr>
<td>Citywide</td>
<td>7</td>
<td>21.5</td>
<td>266.5</td>
<td>1.7</td>
<td>66</td>
<td>0.2</td>
</tr>
</tbody>
</table>

*Note: Hispanic indicates the Hispanic Ethnicity category on the Census. Any individual who described themselves as Hispanic plus a race category is included as Hispanic/Latino.
West Oakland

West Oakland is located between the Estuary to the south, the Bay to the west, I-80/Bay Bridge to the north and I-980 to the east. It is home to the West Oakland BART station and the Seventh Street commercial corridor. It is one of Oakland’s oldest residential areas, amidst heavy industrial uses, including the Port of Oakland and the former Oakland Army Base. West Oakland includes seven intersections and one corridor in the City’s High Injury Network. Almost half of all residents are African American and 32% of households own zero motor vehicles. More residents in West Oakland walk more than 150 minutes per week than in any other area.

Walk Score®: 42 (Car-Dependent)

Table 3.13: West Oakland Facilities, Demographics, and Safety

<table>
<thead>
<tr>
<th>Facilities</th>
<th>Area (sq miles)</th>
<th>Area (% of City)</th>
<th>Sidewalks (miles)</th>
<th>Streets (miles)</th>
<th>Curbv ramps ADA (%)</th>
<th>Curb Ramps Non-ADA (%)</th>
<th>No curb ramp (%)</th>
<th>Signals w/ ped heads</th>
<th>Sidewalk damaged (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Oakland</td>
<td>6</td>
<td>11%</td>
<td>102</td>
<td>98</td>
<td>49%</td>
<td>28%</td>
<td>23%</td>
<td>49%</td>
<td>15%</td>
</tr>
<tr>
<td>Citywide</td>
<td>56</td>
<td>100%</td>
<td>1,120</td>
<td>1,002</td>
<td>42%</td>
<td>13%</td>
<td>45%</td>
<td>47%</td>
<td>22%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Total pop.</th>
<th>African American (%)</th>
<th>Asian (%)</th>
<th>Hispanic/ Latino* (%)</th>
<th>White (non-Hispanic) (%)</th>
<th>Other (%)</th>
<th>17 and under (%)</th>
<th>65 and over (%)</th>
<th>With a disability (%)</th>
<th>Severely rent burdened (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Oakland</td>
<td>25,067</td>
<td>46%</td>
<td>12%</td>
<td>17%</td>
<td>19%</td>
<td>5%</td>
<td>23%</td>
<td>9%</td>
<td>16%</td>
<td>31%</td>
</tr>
<tr>
<td>Citywide</td>
<td>402,339</td>
<td>26%</td>
<td>16%</td>
<td>26%</td>
<td>27%</td>
<td>6%</td>
<td>21%</td>
<td>12%</td>
<td>12%</td>
<td>30%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety</th>
<th>Avg. fatalities/ year</th>
<th>Avg. severe injuries/year</th>
<th>Avg. injuries/ year</th>
<th>Avg. fatalities 100k/year</th>
<th>Avg. injuries/ 100,000/year</th>
<th>Avg. injuries/ street mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Oakland</td>
<td>0.6</td>
<td>2.7</td>
<td>24</td>
<td>2.4</td>
<td>96</td>
<td>0.2</td>
</tr>
<tr>
<td>Citywide</td>
<td>7</td>
<td>21.5</td>
<td>266.5</td>
<td>1.7</td>
<td>66</td>
<td>0.2</td>
</tr>
</tbody>
</table>

*Note: Hispanic indicates the Hispanic Ethnicity category on the Census. Any individual who described themselves as Hispanic plus a race category is included as Hispanic/Latino.
This chapter identifies the gap between where Oakland is now and where it needs to be. Policy, planning, and program needs were identified through Plan analysis, the Plan’s community engagement process, and an analysis of the City’s overall walkability. Note that as described in the Executive Summary, Oakland lacks operating dollars which contributes to a deferred maintenance problem.

"Safety improvements for walking and biking go hand-in-hand with improving the overall walking experience."

- Survey respondent
4.1 Community Engagement

What We Heard from Oaklanders

Oaklanders participated in our survey about their concerns and priorities. Respondents to the survey indicated that speeding, poor lighting, and broken or missing sidewalks were their biggest barriers to walking. They ranked traffic calming and improved lighting as the most important safety improvements. Street fairs and educational campaigns against unsafe driving were the most important programs or policies.

We also met with and heard from the following community groups:

- United Seniors of Oakland and Alameda County
- Asian Health Services
- West Oakland Neighborhood Crime Prevention Council (NCPC)
- Allen Temple Seniors in East Oakland
- Fruitvale Unity NCPC
- San Antonio NCPC
- Northgate NCPC

Meetings with the Technical Advisory Committee (TAC) and Pedestrian Advisory Group (PAG)

Staff held four meetings with the TAC and PAG to inform the development of this plan. The TAC and PAG asked the City to add case studies to the Plan, identify performance measures for success, review best practices from other cities, and link the pedestrian environment to land use. Both committees requested that safety improvements be focused on engineering solutions instead of pedestrian behavior.

Other Concerns Heard at Community Meetings

Some Oakland residents who spoke at the Neighborhood Crime Prevention Council meetings (NCPC) recounted instances of their walks being blocked by garbage that had been illegally dumped. Some residents also spoke about the presence of homeless encampments as a deterrence to walking. Other meeting attendees indicated that fear of crime is the biggest deterrent to walking at night.

4.2 Policy Needs

Policies can help translate the broad focus of master plan efforts like the Pedestrian Master Plan into discrete priorities, especially if deemed appropriate by elected officials. Policies provide necessary direction for staff to implement projects and programs that support Plan goals and objectives.

Adoption a Vision Zero Policy and communication strategy

Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all. First implemented in Sweden in the 1990s, Vision Zero brings multidisciplinary stakeholders together to acknowledge that traffic deaths and severe injuries are preventable and to set a mutual goal of eliminating traffic deaths and severe injuries in a set time frame with clear, measurable strategies. As an important proactive step toward eliminating all traffic injuries and fatalities in Oakland, the City’s elected officials could direct staff to hire a Vision Zero coordinator, convene a committee of transportation, planning, police, fire, school and public health representatives to work toward adopting a citywide Vision Zero Policy, and take the steps recommended by the committee to achieve Vision Zero in Oakland.
4.2 Policy Needs (continued)

Implement a Pedestrian Signal Policy that prioritizes pedestrian safety

Traffic signals regulate the essential right of way for city streets and hold a critical role in creating new rules for safety on Oakland’s streets. Signals must also be engineered to balance the needs of transit, pedestrians, bicycles, and the changing flow of vehicles at different times of the day. While Oakland has 667 signalized intersections, 47% have pedestrian signals (known as “ped heads”) and only 15% of these signals are timed for walking speed and include countdown signals. This Plan’s safety analysis revealed a concentration of pedestrian crashes at signalized intersections. A review of signal timing at these intersections could identify the extent to which operational characteristics such as turning vehicles during pedestrian walk phases, length of pedestrian walk time, and long signal cycles, are contributing to pedestrian-vehicle crashes.

Develop, enforce, and refine a Temporary Traffic Control Policy for construction activities that impact the pedestrian environment

Chapter 6 of the California Manual on Traffic Control Devices (MUTCD) specifies that bicyclists and pedestrians must be safely accommodated through construction zones. In 2017, the City issued supplemental guidance, specifying that sidewalk detours are generally not acceptable in downtown Oakland nor in areas where pedestrian activity occurs.9 Maintaining, enforcing, and refining this policy is a need for the City.

Whats the deal with "beg buttons?"

At some intersections in Oakland, the traffic signals do not allow a pedestrian to cross unless someone presses a button on the signal pole. At these “pedestrian-actuated signals,” pedestrians have to “beg” the signal to let them cross—hence the term “beg button.”

Oakland’s traffic signal policy states that downtown intersections should always include a pedestrian crossing phase. This means that you should never have to press the button to get a pedestrian walk signal in downtown Oakland. Even if you see a “beg button,” you don’t have to beg! Below are some other traffic signal features that are being incorporated into new, or significantly upgraded, traffic signals:

Signal Type:

Rest in walk: Signal stays in pedestrian walk mode along major streets until there is sufficient time to cross the street.

Hot response walk time trigger extension: Allows pedestrians to trigger a “Walk” phase once a minimum allowable green time is provided for conflicting vehicles.

Leading pedestrian intervals: Gives pedestrians a head start across signalized intersections where frequent conflicts with turning motor vehicles occur.

Establish policies to clarify that enforcing traffic safety should not be based on racial profiling.

In 2014, the City of Oakland partnered with Stanford’s SPARQ (Social Psychological Answers to Real-world Questions) program to examine the relationship between the Oakland Police Department (OPD) and the Oakland community to develop evidence-based strategies for any racial disparities that emerged. The report found that OPD officers stopped, searched, handcuffed, and arrested more African Americans than Whites and that African American men were four times more likely to be searched than Whites during a traffic stop. This was consistent even when the researchers controlled for variables such as the crime rate. Enforcement, while an important tool in pedestrian safety, must be applied in a method that does not create further racial disparities. Acknowledging these known issues, Oakland could establish a policy articulating that enforcing traffic safety should not further impact racial disparities or racial profiling through enforcement activities.

Work with advocates to change state laws related to speed limits and automated speed enforcement. Additionally develop local policies augmenting the California Manual on Uniform Traffic Control Devices.

To set speed limits in Oakland, the DOT must follow state law which requires that speed limits be set based on the “prevailing speed.” The prevailing speed is determined by a field survey along a road of vehicle speeds and calculation of the 85th percentile speed. For example, if 100 vehicle speeds are plotted, the speed limit would be set to the speed at or near the speed of the 15th fastest vehicle. Minor rounding is allowed, but nothing more than 5 mph. This is why many traffic engineers are reluctant to perform additional speed surveys. In California there is an exception to the prevailing speed/85th percentile law: school zones are exempt from speed surveys and can mandate 25 mph when children are present.

Currently, automated speed enforcement (ASE) is not legal in the state of California, although it has worked in several other municipalities as a tool that can reduce speed. Oakland could work with advocates to change state law to allow ASE. This could also avoid the implicit bias that can occur in police enforcement given that the camera sees a license plate, not a face.

The California Manual on Uniform Traffic Control Devices (CA MUTCD) provides uniform standards and specifications for all official traffic control devices in California. While the manual is the official guide for traffic control, it often lacks local context. Oakland could develop specific standards that augment existing CA-MUTCD guidance, such as establishing a maximum distance between protected pedestrian crossings in commercial districts, along residential arterials, and near schools.

4.3 Planning and Analysis Needs

In developing the Pedestrian Master Plan, several areas were identified for future and further evaluation, study, and analysis.

**Implement improvements to high injury corridors and intersections**

Chapter Two: Safety identifies the High Injury Network. These streets make up only 2% of Oakland’s street networks yet result in 36% of pedestrian collisions. The High Injury Network was identified by analyzing seven years of pedestrian crashes (2008-2014) and the physical characteristics of the roadway. Overall, this analysis identified 34 high-injury corridors and 37 high-injury intersections (see Table 2.2). The City should identify long term and shorter term countermeasures to improve pedestrian safety at these locations.*

Staff should update the list of corridor and intersection locations for improvements over time. This will allow staff the flexibility to add new projects as the initial list of projects are completed or as new needs are identified. Changes or additions to the list will be made in accordance with the prioritization method established in Chapter 6.

**Update City Tree Plan**

The iconic symbol of the City of Oakland is an oak tree, like the one that graces City Hall’s front lawn. Trees provide shade, create a visual buffer against motor vehicle traffic, and make walking more interesting. Numerous studies have found that people drive slower on streets with trees, thus reducing the number and severity of collisions with people walking. In general, planting should be focused in roadway medians and bulb-outs throughout the City, while investment in the maintenance should be increased for existing and new street trees. At the same time, a broader evaluation and prioritization of resources is needed: the City could complete a full tree inventory and create an urban forest master plan, which could include recommended street tree planting locations. Recognizing that Oakland has limited budget for operations, the City could work with community members to develop innovative ideas on tree maintenance.

**Update ADA Transition Plan**

Creating a fully accessible city is not only a policy goal, it’s a legal requirement. Oakland could update its ADA Transition Plan and identify, prioritize, and construct the projects needed to implement the Plan.

**Evaluate lighting to improve pedestrian security**

A well-lit street is a street that feels safe. In a city with limited resources, improved lighting installations should focus on locations with higher-than-average pedestrian volumes, such as downtown sidewalks and bus stops. At the same time, a lighting study, that works with the Oakland community could measure the current lumen levels on Oakland sidewalks, determine where minimum levels are not being met, and identify needed investments to bring all sidewalks up to minimum standards using pedestrian-scale lighting or improved street lighting. Based on the study findings, new lamps could be installed and existing ones adjusted to create well-lit corridors for walking throughout Oakland.

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*Note: Recommendations pertaining to types of capital projects cost, timeline or phasing, and potential funding sources that are necessary to implement 2016 Pedestrian Master Plan goals are contained in the Appendix B, and are not considered to be adopted as part of this plan’s scope.*
Programs help the City prioritize and systematize implementation of specific categories of projects. The following programs have been identified as success stories in other cities and could be incorporated into the City's Pedestrian Program to help execute the plan goals. Additionally, to achieve the Equity Goal in this plan, Oakland could consider equity analyses to inform program needs. This could include exploring how public space art programs could prioritize art in low income communities and communities of color, or to consider language translation in a way finding program. In developing program needs, Oakland could develop programs by prioritizing those who are most vulnerable.

Establish a 25 mph zone program

How fast a driver operates his or her vehicle is one of the single most important determinant of whether a crash will occur and the severity of the damage and injuries it could cause. A pedestrian struck by a vehicle going 30 mph has a 20% chance of dying, while one struck by a car going 25 mph has only a 12% chance of death. Combining safety analysis and community input, a program to establish 25 mph zones on prioritized streets—and to implement engineering solutions to self-enforce lower speeds—could save lives in Oakland neighborhoods.

Create a public space program

Art allows us to see the extraordinary in the ordinary. In cities, nothing is more ordinary than transportation infrastructure. Many cities are placing art into everyday transportation infrastructure such as crosswalks. Oakland DOT could create a policy on creative crosswalks and community-led art to encourage creativity and place making in the City’s right of way.

Develop a program to support low-income property owners in repairing sidewalks

Oakland’s sidewalks are the source of many of the city’s liability claims. Many of Oakland’s sidewalks are cracked, uneven, or in need of generous updating. But sidewalks are the property owners’ responsibility, and replacing concrete sidewalks can be an incredible expense on cost-burdened property owners.

Adopt-A-Spot Public Art

Public art can help to create a vibrant and welcoming environment for people walking, while also serving as a public expression of Oakland’s artistic talent. Oakland’s award-winning Adopt a Spot program supports individuals, neighborhood groups, civic organizations, and businesses in ongoing cleaning and greening of parks, streets, trails, medians and other public spaces. Volunteers have adopted hundreds of sites around Oakland. Public Works can provide tool loans, debris collection services, and technical assistance. Oakland volunteers add beauty and character to the streets by adopting and adorning city-owned litter containers with tile mosaics and painted murals.

For More Information:

http://www2.oaklandnet.com/government/o/PWA/o/FE/s/ID/OAK024735#Adopt a Spot
4.4 Program Needs (cont.)

Currently, the City offers property owners the option of using a City contractor to repair the sidewalks, which costs significantly less than a private contractor. Additionally, the property owner can opt to have a lien put on their property and the sidewalk repair is captured at the time of sale. While the City has the authority to require property owners pay for repaired sidewalks, the City could learn from successful programs in cities like New York, where the City assists low-income property owners in repairing their sidewalks through low-interest loans, or the City could establish a fund for low-income property owners.

Expand neighborhood traffic calming program

Oakland’s existing neighborhood traffic calming program could be expanded to proactively identify neighborhood traffic calming opportunities and prioritize implementation according to need.

Develop a Safe Routes to Transit program

A corollary to a Safe Routes to School program, an Oakland Safe Routes to Transit program would partner closely with Oakland’s transit agencies to identify pedestrian connectivity and safety improvements at and around bus stops and transit stations. Combining forces with Oakland’s transit agency partners might also increase funding opportunities.

Support development of a citywide pedestrian wayfinding program

How do you know where you’re going in Oakland? Clear signage that directs both visitors and regulars to common destinations supports walking in Oakland and could be a program priority.

Add maintenance staff to maintain roadway features that reduce speeds and make pedestrian crossings safer

The City of Oakland currently receives more requests for maintenance of pedestrian facilities than can be met in a timely manner, let alone needs related to preventative maintenance. These needs include refreshing crosswalks (particularly on pavement of poor quality and in areas with large volumes of truck traffic), ensuring that the walk phases of traffic signals are sufficient and that the walk/don’t walk function is operational, and responding quickly to reports of non-functioning equipment. Oakland could hire additional full time staff over the course of five years to refresh crosswalks and maintain signal equipment.

4.5 Data & Process Needs

To implement the Plan, the City could develop and implement better data management practices and improved workflow processes. These improvements will help guide planners and engineers in identifying needed safety treatments, developing prioritization assessments, and guiding overall decision-making. Predictable processes can also be used to convey this decision-making back to the community to provide accountability.

Develop quantitative equity metrics

Oakland could develop quantitative equity metrics to guide project development and capital improvement prioritization and to evaluate program effectiveness.

Develop a Pedestrian Safety Toolkit

Many intersections in Oakland have similar characteristics and similar safety outcomes. A pedestrian safety toolkit would help planners and engineers quickly identify appropriate safety treatments based on the characteristics of the intersections and underlying safety concerns, taking into consideration factors such as overall vehicle speeds and pedestrian crash history.

Treatments could include updating signals to include exclusive pedestrian phasing
Chinatown Pedestrian Scrambles

Oakland Chinatown did not always have the decorative crosswalks seen today. A man who was killed at the corner of Webster and 8th street was the catalyst that led Julia Liou of Asian Health Services to galvanize the Chinatown community and transform the pedestrian environment. Asian Health Services serves the Asian and Pacific Islander community by guaranteeing access to health care services regardless of income, language, immigration status or culture. Although Asian Health Services had never participated in pedestrian advocacy before, the link between health and transportation was clear: a safer pedestrian environment could encourage more walking and reduce fatalities. Liou spearheaded the pedestrian scrambles and convinced city council members and policy makers to support the design changes. Former Councilman Danny Wan also championed the project and convinced the Chinatown Chamber of Commerce that a safer pedestrian environment would bring more visitors by foot and be good for business.

A trial at 8th and Webster convinced Oakland traffic engineers that the design was safe for drivers and pedestrians. The success spurred Liou, the Chinatown Chamber of Commerce, and Councilmember Wan to apply for a federal grant to expand the scope in what became known as Revive Chinatown. This community-led process identified the project design and the Qiling good-luck charm on corresponding signage. The Metropolitan Council awarded a $2.2 million dollar grant in 2004 to transform four crosswalks, add pedestrian scale lighting, and re-time pedestrian signals. The new crosswalks have resulted in a friendlier, more visible and economically vital pedestrian environment.

(sometimes known as a pedestrian scramble), install raised pedestrian crossings, and refuge islands.

The toolkit would also provide cost estimates for various interventions. This toolkit could also serve as a useful reference for community members interested in improving safety in their neighborhoods, as it would clearly identify a feasible set of possible engineering solutions.

Create and maintain a transportation safety data inventory

Oakland’s decisions about where and how to invest in pedestrian safety improvements should be informed by data analysis. Creating and maintaining a transportation safety data inventory is a necessary step toward a data-driven organization. Ensuring that this data inventory is also easily available to the public will help democratize this vital information and hold decision-makers accountable.
This chapter describes recommended actions that will help Oakland accomplish the Plan’s four goals during the next five years. Actions are grouped by outcome, and cost estimates are provided for capital and operations.
5.1 Becoming a More Walkable City

This chapter answers the question: how can the City make streets safer, more comfortable and more convenient for people walking throughout all parts of Oakland? It presents a set of 38 recommended actions, each intended to help accomplish one or more of the Plan’s four goals:

**Equity (E):** Recognizing a historical pattern of disinvestment, focus investment and resources to create equitable, accessible walking conditions to meet the needs of Oakland’s diverse communities.

**Holistic Community Safety (S):** Make Oakland’s pedestrian environment safe and welcoming.

**Vitality (V):** Ensure that Oakland’s pedestrian environment is welcoming and well connected, supports the local economy, and sustains healthy communities.

**Responsiveness (R):** Develop and provide tools to ensure that Oakland creates and maintains a vibrant pedestrian environment.

Each action meets one or more of the four goals that achieve the vision of the Pedestrian Master Plan. The actions are organized around the following outcomes:

**Outcome 1:** Increase Pedestrian Safety

**Outcome 2:** Create Streets and Places that Promote Walking

**Outcome 3:** Improve Walkability to Key Destinations

**Outcome 4:** Engage the Oakland Community in Creating Vibrant Pedestrian Environments

**Outcome 5:** Improve, metrics, evaluations, funding and tools for creating pedestrian environments

The recommendations outlined in this chapter are derived from Plan findings, survey responses, community meeting input, advisory committee guidances; and the Plan’s Vision, and Goals. These recommendations are intended for implementation over the next five years (Plan horizon).
5.2 Costs

This section provides cost estimates of the actions under each outcome. Costs are reported in the following categories:

- **Capital**: Expenses to deliver projects thought likely to attract outside grant funding, including design and construction. This work could be performed by outside contractors or City staff.

- **Operating**: The cost to maintain roadway features that reduce speeds and make pedestrian crossings safer. Additionally, the cost of creating new staff positions needed to carry out the Plan’s recommended actions.

For each of the recommended actions laid out in the previous chapter, Table 5.1 shows the estimated costs that are expected to be eligible for grants, new costs that would not likely attract outside funding, and the total cost.

Delivering the Plan’s recommended actions is expected to cost a total of $109 million (see Table 5.1). Of this, $40 million are costs for which the City of Oakland typically is successful in attracting outside grant funding.

In contrast, $59 million of the anticipated total cost is for new program development and maintenance staff, of which $52 million is not expected to be covered by outside grants.

While local revenue sources such as Measure B/BB funds can cover about $5 million of these costs, the City estimates $52 million is needed to plan, develop, and maintain Oakland’s pedestrian realm at a level that makes walking feel safe and inviting to people in all Oakland neighborhoods (see Table 5.2).

### Table 5.1: Total Estimated Lifecycle Costs

<table>
<thead>
<tr>
<th></th>
<th>Capital</th>
<th>Operating</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$52,600</td>
<td>$56,740</td>
<td>$109,340</td>
</tr>
</tbody>
</table>

### Table 5.2: External Funding Sources

<table>
<thead>
<tr>
<th></th>
<th>Est Need</th>
<th>Grant Eligible</th>
<th>Measure B/BB</th>
<th>I-Bond</th>
<th>Remainder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td>$52,600</td>
<td>$40,000</td>
<td>$12,600</td>
<td>$ -</td>
<td>$ -</td>
</tr>
<tr>
<td>Operating</td>
<td>$56,740</td>
<td>-</td>
<td>$5,000</td>
<td>$ -</td>
<td>$51,740</td>
</tr>
<tr>
<td>Total</td>
<td>$109,340</td>
<td>$40,000</td>
<td>$12,600</td>
<td>$ -</td>
<td>$51,740</td>
</tr>
</tbody>
</table>

**Lifecycle Costing**

Lifecycle costing is a way of estimating the cost of a particular investment by considering not just the initial purchase price, but also operation and maintenance costs throughout its expected lifetime.

For capital expenditures such as sidewalks, crosswalks and traffic signals, this may mean investing in longer lasting materials to reduce overall maintenance costs (e.g., concrete rather than asphalt). These projects may be more costly to construct, but because they will be less expensive to operate and maintain, they may cost the City less over the life of the investment. Involving maintenance staff during facilities’ design stages can help with this assessment.
Outcome 1: Increase Pedestrian Safety

In order to achieve this outcome, the City will install pedestrian safety improvements in high injury corridors, develop new policies, adopt Vision Zero, upgrade signals and other infrastructure, work to reduce vehicle speeds, improve lighting, and explore ways to equitably enforce traffic laws.

### Example Table

<table>
<thead>
<tr>
<th>No</th>
<th>Action</th>
<th>Equity (E)</th>
<th>Safety (S)</th>
<th>Vitality (V)</th>
<th>Responsiveness (R)</th>
<th>Capital</th>
<th>Operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Example Action</td>
<td>x</td>
<td></td>
<td></td>
<td>$ 15,000</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Example Action</td>
<td></td>
<td>x</td>
<td>x</td>
<td>$ 900</td>
<td>$ 150</td>
<td></td>
</tr>
</tbody>
</table>

*Costs (in 1000s)*

### Outcome 1: Increase Pedestrian Safety

In order to achieve this outcome, the City will install pedestrian safety improvements in high injury corridors, develop new policies, adopt Vision Zero, upgrade signals and other infrastructure, work to reduce vehicle speeds, improve lighting, and explore ways to equitably enforce traffic laws.

<table>
<thead>
<tr>
<th>No</th>
<th>Action</th>
<th>Equity (E)</th>
<th>Safety (S)</th>
<th>Vitality (V)</th>
<th>Responsiveness (R)</th>
<th>Capital</th>
<th>Operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Implement improvements to High Injury Corridors and Intersections</td>
<td>x</td>
<td></td>
<td></td>
<td>$ 15,000</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Adopt a Vision Zero Policy and communication strategy</td>
<td></td>
<td></td>
<td></td>
<td>$ 900</td>
<td>$ 150</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Implement a pedestrian signal policy that prioritizes pedestrian safety</td>
<td>x</td>
<td></td>
<td></td>
<td>$ -</td>
<td>$ 20</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Implement a temporary traffic control protocol for new developments that impact the pedestrian environment</td>
<td>x</td>
<td></td>
<td></td>
<td>$ -</td>
<td>$ 10</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Establish 25 mph zone program</td>
<td>x x</td>
<td></td>
<td></td>
<td>$ -</td>
<td>$ 20</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Improve security for pedestrians through lighting</td>
<td>x x</td>
<td></td>
<td></td>
<td>$ 7,400</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Work with the Department of Race and Equity and the Police Department to enforce traffic safety that does not further impact racial disparities or racial profiling</td>
<td>x x</td>
<td></td>
<td></td>
<td>$ -</td>
<td>$ -</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Work with advocates to change state laws related to speed limits and automated speed enforcement. Additionally, develop local policies augmenting the California Manual on Uniform Traffic Control Devices.</td>
<td>x</td>
<td></td>
<td></td>
<td>$ -</td>
<td>$ 40</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Implement the pedestrian safety toolkit</td>
<td>x</td>
<td></td>
<td></td>
<td>$ 3,000</td>
<td>$ 20</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Maintain roadway features that reduce speeds and make pedestrian crossings safer</td>
<td>x</td>
<td></td>
<td></td>
<td>$ -</td>
<td>$ 55,000</td>
<td></td>
</tr>
</tbody>
</table>

**Total** | $ 26,300 | $ 55,250 |
Outcome 2: Create Streets and Places that Promote Walking

To achieve this objective, the City will integrate safety into the design of new streets, incorporate art into pedestrian infrastructure, plant more street trees, repair sidewalks, install accessible curb ramps, and provide public open space in underutilized roadways. The City will also pursue citywide programs and partnerships with nonprofits and community groups to promote walking.

<table>
<thead>
<tr>
<th>No</th>
<th>Action</th>
<th>E</th>
<th>S</th>
<th>V</th>
<th>R</th>
<th>Capital</th>
<th>Operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Integrate pedestrian safety into street design guidelines when developed</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>$ -</td>
<td>$ 10</td>
</tr>
<tr>
<td>12</td>
<td>Update the street tree element of the City Tree Plan</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>$ 400</td>
<td>$ -</td>
</tr>
<tr>
<td>13</td>
<td>Integrate art and playfulness into pedestrian infrastructure</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>$ -</td>
<td>$ 10</td>
</tr>
<tr>
<td>14</td>
<td>Update the ADA Transition Plan and carry out its recommendations</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>$ 7,500</td>
<td>$ -</td>
</tr>
<tr>
<td>15</td>
<td>Create a public space program</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>$ -</td>
<td>$ 40</td>
</tr>
<tr>
<td>16</td>
<td>Partner with public health advocacy groups to promote the health benefits of walking</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>$ -</td>
<td>$ 20</td>
</tr>
<tr>
<td>17</td>
<td>Find resources for the City’s Façade Improvement Program to support a program to support low-income property owners in repairing sidewalks</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>$ -</td>
<td>$ 50</td>
</tr>
<tr>
<td>18</td>
<td>Partner with violence prevention advocates, OPD, and other community groups to address the link between safety and walking</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>$ -</td>
<td>$ 20</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$ 7,900</td>
<td>$ 140</td>
</tr>
</tbody>
</table>

Key:
- E = Equity
- S = Safety
- V = Vitality
- R = Responsiveness
**Outcome 3: Improve Walkability to Key Destinations**

To improve walkability to key destinations, the City will develop a prioritization strategy to best focus the benefits of the Safe Routes to School program, establish a similar program focused on first and last mile access to transit, support wayfinding efforts, and identify strategies for improving the walking environment in and near Caltrans-owned rights-of-way, such as underneath freeway overpasses. Additionally, the City will use Walk Score® to improve walkability to key destinations.

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
<th>E</th>
<th>S</th>
<th>V</th>
<th>R</th>
<th>Capital</th>
<th>Operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.</td>
<td>Develop a prioritization strategy for implementing the City’s Safe Routes to Schools program</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>$5,600</td>
<td>$20</td>
</tr>
<tr>
<td>20.</td>
<td>Create a Safe Routes to Transit Program</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$-</td>
<td>$30</td>
</tr>
<tr>
<td>21.</td>
<td>Support the development of a Citywide Pedestrian Wayfinding program</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>$-</td>
<td>$20</td>
</tr>
<tr>
<td>22.</td>
<td>Identify missing sidewalk connections and prioritize for improvement</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>$4,000</td>
<td>$-</td>
</tr>
<tr>
<td>23.</td>
<td>Improve pedestrian environment under and over freeways</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>$2,000</td>
<td>$20</td>
</tr>
<tr>
<td>24.</td>
<td>Increase travel options between transit and major job, education, neighborhood retail, and neighborhood centers</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>$2,000</td>
<td>$-</td>
</tr>
</tbody>
</table>

**Total** $13,600 $90

Key:
- **E** = Equity
- **S** = Safety
- **V** = Vitality
- **R** =Responsiveness
Outcome 4: Engage the Oakland Community in Creating Vibrant Pedestrian Environments

To achieve this objective, the City will reinvigorate existing communication methods and establish new protocols for engaging about pedestrian projects and enabling community-determined pedestrian projects.

<table>
<thead>
<tr>
<th>No</th>
<th>Action</th>
<th>E</th>
<th>S</th>
<th>V</th>
<th>R</th>
<th>Capital</th>
<th>Operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.</td>
<td>Use old and new media including social media and other web tools to connect with Oaklanders on pedestrian topics</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td>$ -</td>
<td>$ 20</td>
</tr>
<tr>
<td>26.</td>
<td>Partner with neighborhood groups to perform walk audits</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>$ -</td>
<td>$ 60</td>
</tr>
<tr>
<td>27.</td>
<td>Expand neighborhood traffic calming programs Citywide</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>$ 3,800</td>
<td>$ 40</td>
</tr>
<tr>
<td>28.</td>
<td>Support constituent-led initiatives to improve safety</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>$ 900</td>
<td>$ 20</td>
</tr>
<tr>
<td>29.</td>
<td>Develop a comprehensive campaign for safety education</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td>$ 100</td>
<td>$ 40</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$ 4,800</strong></td>
<td><strong>$ 170</strong></td>
</tr>
</tbody>
</table>

Key:
- E = Equity
- S = Safety
- V = Vitality
- R = Responsiveness

Sergio Ruiz
Outcome 5: Improve Metrics, Evaluations, Funding and Tools for Creating Pedestrian Environments

For this outcome, the City will develop and implement a host of data collection, data analysis, and data reporting efforts, as well as ensure adequate staff training in pedestrian design standards to ensure that the Plan implementation is efficient, accountable, effective, and equitably distributed.

<table>
<thead>
<tr>
<th>No.</th>
<th>Action</th>
<th>E</th>
<th>S</th>
<th>V</th>
<th>R</th>
<th>Capital</th>
<th>Operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.</td>
<td>Update and maintain the City’s sidewalk inventory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$ 90</td>
</tr>
<tr>
<td>31.</td>
<td>Evaluate and implement process improvements to the City’s complaint-based traffic maintenance program</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>$ 20</td>
</tr>
<tr>
<td>32.</td>
<td>Integrate before and after pedestrian safety evaluations into all transportation projects</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$ 400</td>
</tr>
<tr>
<td>33.</td>
<td>Conduct routine pedestrian counts</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>$ 400</td>
</tr>
<tr>
<td>34.</td>
<td>Train staff in national best practices for safe street design and management</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>$ 60</td>
</tr>
<tr>
<td>35.</td>
<td>Create a transportation safety data inventory and make it easily accessible to the public</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>$ 80</td>
</tr>
<tr>
<td>36.</td>
<td>Improve process for pedestrian safety improvement requests</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$ 10</td>
</tr>
<tr>
<td>37.</td>
<td>Work with the Department of Race &amp; Equity to define equity for Oakland and develop quantitative equity metrics</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>$ 40</td>
</tr>
<tr>
<td>38.</td>
<td>Use data-driven approaches to prioritize and routinize pedestrian safety improvements</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>$ 10</td>
</tr>
</tbody>
</table>

**Total** $ 1,100

Key:
- E = Equity
- S = Safety
- V = Vitality
- R = Responsiveness
This chapter describes the methodology that will be used by staff to maintain and update the city’s High Injury Network. There are three analyses used in this Plan to identify and prioritize areas of highest need:

(1) A safety analysis
(2) An equity analysis
(3) A walkability analysis
6.1 Methodology

Implementing the improvements identified in this Plan has been estimated to cost more than 100 million dollars over five years. Given this large investment of City resources, this plan proposes to first invest in the areas of the City most in need of improvements to the pedestrian environment. Staff will use this methodology to maintain and update the High Injury Network. While all corridors listed are a high priority, this methodology will aid staff in determining which intersections and corridors to invest in first. There are three analyses used in this Plan to identify areas of highest need:

**Safety Analysis**
What are the environmental factors? How severe are the pedestrian injuries?

**Equity Analysis**
Which communities are the most and the least disadvantaged?

**Walkability Analysis**
Is the area car dependent? Or is it a walker’s paradise?

Priority Corridors & Intersections
6.2 Safety Analysis

This Plan performed a safety analysis to identify the City’s high injury corridors and intersections (see Map 2.1 High Injury Network). This analysis evaluated the safety performance of intersections and corridors across the City using collision data from 2008-2014. The safety prioritization score (Safety Score), is determined using two different scores:

- Severity Score
- Risk Factor Score

These scores are added together to create a Safety Score for each intersection and corridor:

<table>
<thead>
<tr>
<th>Safety Score</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Low</td>
</tr>
<tr>
<td>1</td>
<td>Medium</td>
</tr>
<tr>
<td>2</td>
<td>High</td>
</tr>
</tbody>
</table>

Table 6.1 Breakdown of Risk Factors

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Intersection</th>
<th>Corridor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterial Functional Classifications</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Four or More Undivided Lanes</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Four or More Lanes on Major Street</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Lack of Median Presence</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>High Frequency of Transit Stops</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of Pedestrian Countdown Presence at Signals</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Lack of Pedestrian Signal Head Presence at Signals</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Lack of Pedestrian Actuation at Signals</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Offset/Closely-Spaced Intersections</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Severity Score

The first score is based on where collisions have historically occurred. Intersections and corridors with a history of fatal and severe pedestrian injuries are weighted more heavily than those with only minor injuries. Crashes within 50 feet of an intersection were assigned to an intersection, and crashes occurring more than 50 feet away from an intersection were assigned to a corridor.

Risk Factor Score

By analyzing historical pedestrian collisions in Oakland, risk factors were identified for corridors and for intersections. These are listed below in Table 6.1. Some risk factors apply to both intersections and corridors and others apply only to an intersection or corridor.

Each intersection and corridor was then assigned a score based on the number of risk factors present. The more risk factors, the higher the score. This score was added to the Severity score for a maximum score of 2.
6.3 Equity Analysis

An equity analysis was used to identify the areas of the City where residents face potential socioeconomic disadvantages. This equity analysis used the same factors developed by the Metropolitan Transportation Commission (MTC) to identify the Bay Area’s “Communities of Concern.” MTC identified these communities using a set of eight demographic characteristics. These are:

- Race/Ethnicity
- Low Income (<200% of Poverty) Population
- Limited English Proficiency Population
- Zero-Vehicle Households
- Seniors 75 and Over
- Population with a Disability
- Single-Parent Families

For this Plan, an equity index was calculated by summing each of the eight population characteristics in a Census Block Group\(^\text{11}\) and then dividing the sum by the population of the Block Group. For example, a person who is low income and over 75 is counted twice in this methodology; therefore the more factors present in an area, the deeper the disadvantage. The equity score ranges from 0-2, where 2 represents the areas in the City with the most disadvantage and 0 represents the least. For a Map of Oakland’s Communities of Concern see Map 3.2. The following are the areas in Oakland that represent the most disadvantaged areas in the City:

- Central/East Oakland
- Eastlake/Fruitvale
- West Oakland
- Coliseum/Airport
- Downtown

<table>
<thead>
<tr>
<th>Equity Score</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Low</td>
</tr>
<tr>
<td>1</td>
<td>Medium</td>
</tr>
<tr>
<td>2</td>
<td>High</td>
</tr>
</tbody>
</table>

\(^{11}\) A Census Block Group is a geographical unit used by the United States Census Bureau which is between the Census Tract and the Census Block. It is the smallest geographical unit for which the bureau publishes sample data, i.e. data which is only collected from a fraction of all households.
6.4 Walkability Analysis

Walk Score® is an application that categorizes whether a location is walkable. Walk Score® determines if a place is walkable by analyzing potential walking routes to nearby amenities including transit stops and stations, schools, grocery stores, restaurants, and parks. Points are awarded based on the distance to amenities in various categories and pedestrian friendliness. Pedestrian friendliness is measured by analyzing population density, intersection density and block length.

This Plan used Walk Score® data to create a walkability score because it is a simple measure that many community members are familiar with.

The Plan prioritizes areas that are more walkable (Walker’s Paradise) because a higher Walk Score® indicates more pedestrian attractions such as schools, transit, grocery stores and parks.

<table>
<thead>
<tr>
<th>Walk Score®</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>90-100</td>
<td>Walker’s Paradise</td>
</tr>
<tr>
<td></td>
<td>Daily errands do not require a car</td>
</tr>
<tr>
<td>70-89</td>
<td>Very Walkable</td>
</tr>
<tr>
<td></td>
<td>Most errands can be accomplished on foot</td>
</tr>
<tr>
<td>50-69</td>
<td>Somewhat Walkable</td>
</tr>
<tr>
<td></td>
<td>Some errands can be accomplished on foot</td>
</tr>
<tr>
<td>25-49</td>
<td>Car-Dependent</td>
</tr>
<tr>
<td></td>
<td>Most errands require a car</td>
</tr>
<tr>
<td>0-24</td>
<td>Car-Dependent</td>
</tr>
<tr>
<td></td>
<td>Almost all errands require a car</td>
</tr>
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</table>

Walk Score® data was normalized to create a prioritization score with the following scale:

<table>
<thead>
<tr>
<th>Walk Score®</th>
<th>Priority</th>
</tr>
</thead>
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<tr>
<td>50-89</td>
<td>Medium</td>
</tr>
<tr>
<td>90-100</td>
<td>High</td>
</tr>
</tbody>
</table>
## 6.5 Pedestrian Priority Analysis for High Injury Intersections and Corridors

### Table 6.3 High Injury Corridors

<table>
<thead>
<tr>
<th>Tier</th>
<th>Street Name</th>
<th>Start</th>
<th>End</th>
<th>Safety Score</th>
<th>Equity Score</th>
<th>Walk Score®</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>1.71</td>
<td>1.85</td>
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<td>1.99</td>
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<td>Fallon St</td>
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<td>1.48</td>
<td>1.91</td>
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<td>Franklin St</td>
<td>Fallon St</td>
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<td>4.66</td>
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<td>1.73</td>
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<td>1.09</td>
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<td>Oak St</td>
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<td>1.32</td>
<td>1.91</td>
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</tr>
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<td>Foothill Blvd</td>
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</tr>
</tbody>
</table>

*Note that this particular corridor was identified analyzing 2014 data from SWITERS. To ensure that the analysis was comparable from the analysis completed using 2008-2013 data, the Severity Score was indexed at a value greater than 1.0. For consistency, this corridor was given a severity score of 1.0 (highest severity score), and when combined with the Risk Factor score resulted in a Safety Score of 1.58.*
6.4 Pedestrian Priority Analysis for High Injury Intersections and Corridors

Table 6.3 High Injury Corridors (continued)

<table>
<thead>
<tr>
<th>Tier</th>
<th>Street Name</th>
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<th>Safety Score</th>
<th>Equity Score</th>
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<th>Total</th>
<th>Equity Score</th>
<th>Walk Score®</th>
<th>Total</th>
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<td>3.88</td>
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Table 6.4 High Injury Intersections

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<th>STREET 2</th>
<th>Safety Score</th>
<th>Equity Score</th>
<th>Walk Score®</th>
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Table 6.4 High Injury Intersections (continued)

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<th>STREET 1</th>
<th>STREET 2</th>
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<th>Equity Score</th>
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</tbody>
</table>
Acknowledgements

Libby Schaaf
Mayor

Sabrina Landreth
City Administrator

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OakDOT Interim Director

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Asian Health Services
West Oakland Neighborhood Crime Prevention Council (NCPC) Beat 6x
Allen Temple Seniors (East Oakland)
Fruitvale Unity NCPC
San Antonio NCPC
Northgate NCPC
Survey Respondents:
Nearly 600 Oakland residents and merchants responded to a 20-question survey developed to better understand the experiences of people walking in Oakland (see Appendix F). The survey was available in English, Spanish, Chinese, and Vietnamese.

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Joe Ferrera: 12
Bay Raised: 11, 46, 48, 54, 62
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Appendix A
Policies and Plans Adopted by the City of Oakland
RESOLUTION ADOPTING A COMPLETE STREETS POLICY
TO FURTHER ENSURE THAT OAKLAND STREETS PROVIDE
SAFE AND CONVENIENT TRAVEL OPTIONS FOR ALL USERS

WHEREAS, the term “Complete Streets” describes a comprehensive, integrated transportation network, with roadways designed and operated to enable safe, attractive, and comfortable access and travel for all users, including: pedestrians, bicyclists, persons with disabilities, seniors, children, motorists, movers of commercial goods, operators of public transportation, public transportation users of all abilities, and emergency responders; and

WHEREAS, the City of Oakland recognizes that the planning and coordinated development of Complete Streets infrastructure provides benefits for local governments in the areas of infrastructure cost savings; public health; and environmental sustainability; and

WHEREAS, the City of Oakland, through its “Transit First Policy” (Resolution No. 73036 C.M.S.), acknowledges the benefits and value for the public health and welfare of reducing vehicle miles traveled and improving opportunities transportation by walking, bicycling, and public transportation; and

WHEREAS, the City of Oakland currently supports and pursues Complete Streets through the Bicycle Master Plan, Pedestrian Master Plan, General Plan Land Use and Transportation Element, CEQA Thresholds of Significance, and other plans and policies; and

WHEREAS, adoption of a “formal” Complete Streets Policy will allow the City of Oakland to better coordinate existing multimodal transportation planning, design, and operation activities under a single “Complete Streets” framework; and

WHEREAS, balanced transportation systems that offer an array of safe and convenient choices to travelers makes communities more livable; and

WHEREAS, the State of California has emphasized the importance of Complete Streets by enacting the California Complete Streets Act of 2008 (also known as AB 1358), which requires that when cities or counties revise general plans, they identify how they will provide for the mobility needs of all users of the roadways, as well as through Deputy Directive 64, in which the California Department of Transportation explained that it “views all transportation improvements as opportunities to improve safety, access, and mobility for all travelers in California and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system”; and

WHEREAS, the California Global Warming Solutions Act of 2006 (known as AB 32) sets a mandate for the reduction of greenhouse gas emissions in California, and the Sustainable Communities and Climate Protection Act of 2008 (known as SB 375) requires emissions reductions through coordinated regional planning that integrates transportation, housing, and land-use policy, and achieving the goals of these laws will require significant increases in travel by public transit, bicycling, and walking; and

WHEREAS, numerous California counties, cities, and agencies have adopted Complete Streets policies and legislation in order to further the health, safety, welfare, economic vitality, and environmental wellbeing of their communities; and
WHEREAS, the Metropolitan Transportation Commission, through its One Bay Area Grant (OBAG) program, described in Resolution 4035, requires that all jurisdictions, to be eligible for OBAG funds, need to address complete streets policies at the local level through the adoption of a complete streets policy resolution or through a general plan that complies with the California Complete Streets Act of 2008; and

WHEREAS, the Alameda County Transportation Commission, through its Master Program Funding Agreements with local jurisdictions, requires that all jurisdictions must have an adopted complete streets policy, which should include the “Elements of an Ideal Complete Streets Policy” developed by the National Complete Streets Coalition, in order to receive Measure B pass-through and Vehicle Registration Fund funding; and

WHEREAS, the City of Oakland therefore, in light of the foregoing benefits and considerations, wishes to improve its commitment to Complete Streets and desires that its streets form a comprehensive and integrated transportation network promoting safe and convenient travel for all users while preserving flexibility, recognizing community context, and using design guidelines and standards that support best practices; now, therefore be it

RESOLVED, that the City of Oakland adopts the Complete Streets Policy contained in Exhibit A, attached hereto and incorporated herein by reference; and be it

FURTHER RESOLVED, that staff will undertake a review of the City of Oakland General Plan circulation element with respect to the incorporation Complete Streets policies and principles consistent with the California Complete Streets Act of 2008 (AB 1358) and with the Complete Streets Policy adopted by this resolution, and that the General Plan will be amended, if necessary, to reflect the findings of this review; and be it

FURTHER RESOLVED, the proposal relies on the previously certified Final Environmental Impact Reports (EIRs) for the Land Use and Transportation Element of the General Plan (1998), and the Bicycle Master Plan (2007) and the Mitigated Negative Declaration for the Pedestrian Master Plan (2002). Thus, no further environmental review is required. As a separate and independent basis, the proposal is also exempt from CEQA pursuant to CEQA Guidelines Section 15183 “Projects Consistent with a Community Plan, General Plan or Zoning” and/or 15061(b)(3)(General Rule-no possibility of significant environmental impact). The Environmental Review Officer is directed to file a Notice of Determination/Exemption with the County Clerk.

IN COUNCIL, OAKLAND, CALIFORNIA: FEB 5, 2013

PASSED BY THE FOLLOWING VOTE:

AYES - BROOKS, GALLO, KALB, KAPLAN, KERNIGHAN, SCHAFF, McELHANEY, and REID - 8

Noes - 0

Absent - 0

Abstention - 0
Appendix A1: Complete Streets Policy

This Complete Streets Policy was adopted by Resolution Number 84204 C.M.S. by the City Council of the Oakland on January 3, 2013.

The City of Oakland recognizes the necessity of providing safe and convenient pedestrian, bicycle and public transportation travel options in order to protect all road users, reduce negative environmental impacts, promote healthy living, and advance the well-being of Oakland citizens. As such, the City of Oakland will plan, design, construct, operate, and maintain appropriate facilities for pedestrians, bicyclists, transit users of all abilities, children, the elderly, and people with disabilities as a routine component of new construction, reconstruction, retrofit, and maintenance projects subject to the exceptions contained herein.

A. Complete Streets Principles

1. Complete Streets Serving All Users and Modes. The City of Oakland expresses its commitment to creating and maintaining Complete Streets that provide safe, comfortable, and convenient travel along and across streets (including streets, roads, highways, bridges, and other portions of the transportation system) through a comprehensive, integrated transportation network that serves all categories of users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, users and operators of public transportation, emergency responders, seniors, children, youth, and families.

2. Context Sensitivity. In planning and implementing street projects, all departments and agencies of the City of Oakland will maintain sensitivity to local conditions in both residential and business districts as well as urban, suburban, and rural areas, and will work with residents, merchants, and other stakeholders to ensure that a strong sense of place ensues. Improvements that will be considered include sidewalks, shared use paths, traffic control signals, exclusive bicycle paths, bicycle lanes, bicycle routes, paved shoulders, street trees and landscaping, planting strips, accessible curb ramps, crosswalks, refuge islands, pedestrian signals, signs, street furniture, bicycle parking facilities, public transportation stops and facilities, transit signal prioritization, and other features assisting in the provision of safe travel for all users, particularly those features identified in the City of Oakland Bicycle Master Plan and Pedestrian Master Plan.

3. Complete Streets Routinely Addressed by All Departments. All relevant departments and agencies of the City of Oakland will work towards making Complete Streets practices a routine part of everyday operations, approach every relevant project, program, and practice as an opportunity to improve streets and the transportation network for all categories of users, and work in coordination with other departments, agencies, and jurisdictions to maximize opportunities for Complete Streets, connectivity, and cooperation.

4. All Projects and Phases. Complete Streets infrastructure sufficient to enable reasonably safe travel along and across the right of way for each category of users will be incorporated into all planning, funding, design, approval, and implementation processes for any construction, reconstruction, retrofit, maintenance, operations, alteration, or repair of streets (including streets, roads, highways, bridges, and other portions of the transportation system), except that specific infrastructure for a given category of users may be excluded if an exception is approved via the process set forth in section C.1 of this policy.

B. Implementation

1. Design. The City of Oakland will generally follow its own accepted or adopted design standards as prescribed in the Oakland Municipal Code (OMC). In particular, the Director of Public Works or his/her designee is responsible for developing and publishing Complete...
Street standards for the design and construction of the Street System with a goal of balancing user needs, and for updating the standards from time to time to reflect emerging best practices and innovative design options as appropriate for City of Oakland context. Such standards shall apply to all streets regardless of whether they are private streets or public streets.

2. Network/Connectivity. The City of Oakland will incorporate Complete Streets infrastructure into existing streets to improve the safety and convenience of all users, with the particular goal of creating a connected network of facilities accommodating each category of users, and increasing connectivity across jurisdictional boundaries and for anticipated future transportation investments.

3. Implementation Next Steps. The City of Oakland will take the following specific next steps to implement this Complete Streets Policy:

   A) Plan Consultation and Consistency: Maintenance, planning, and design of projects affecting the transportation system will be consistent with local bicycle, pedestrian, transit, multimodal, and other relevant plans, to the extent these local plans reflect complete street principles.

   B) Stakeholder Consultation: Develop and/or clearly define a process to allow for stakeholder involvement on projects and plans including, to the extent possible relying upon and refining existing advisory groups and stakeholder engagement channels. In particular, the Bicycle and Pedestrian Advisory Committee (BPAC) and Mayor’s Commission on Persons with Disabilities will play important roles to support implementation of this Complete Streets policy within the City of Oakland.

   C) Complete Streets Design Standards and Guidelines: Develop and maintain a comprehensive set of Street Design Standards and Guidelines to promote complete streets principles in all types and phases of projects within the City of Oakland. The Design Guidelines will be developed by the Director of Public Works or his/her designee in accordance with the Public Works Agency authority over street standards.

4. Performance Measures. The Director of Public Works or his/her designee will compile the performance evaluations of well the streets and transportation network of Oakland are serving each category of user by (1) establishing specific performance measures pertaining to Complete Streets; (2) collecting and updating data to evaluate measures on a regular basis; and (3) making the results of Complete Streets performance analyses available publicly as completed. All relevant agencies or departments will contribute available data and other information to these performance evaluations by collecting baseline data and collecting follow-up data on a regular basis to ensure that the City of Oakland serves each category of roadway user.

C. Exceptions

1. Exception Approvals. Exceptions to the Complete Street standards will require written findings explaining accommodations for all users and modes were not included in the plan or project. The exception must be approved by the Public Works Director or his/her designee, and will be made publicly available. Exceptions must explain why accommodations for all users and modes were not included in the plan or project.
Appendix A2: City of Oakland Crosswalk Policy

Crosswalk Decision Location Matrix

- Is the location at an intersection within 300 feet of a park, school, hospital, senior center, recreation center, library, transit station, major retail or office facility, or multiple bus stops?
  - Yes
  - No

- Do at least 20 pedestrians per hour (15 elderly and/or children) or 30 in 2 hours cross an arterial or collector street?
  - Yes
  - No

- Have two or more pedestrian-related collisions occurred at this location in the past 5 years?
  - Yes
  - No

- Is the location within a 500-foot or longer segment where there are no marked or protected crosswalks and pedestrian crossings are not concentrated?
  - Yes
  - No

- Is the nearest marked crosswalk at least 300 feet away?
  - Yes
  - No

- Can pedestrians be seen by drivers from a distance (ft) 10x the speed limit (mph)?
  - Yes
  - No

- Is it feasible to remove sight distance obstruction or provide adequate advance warning?
  - Yes
  - No

- Does the 2002 FHWA study recommend marking a crosswalk without other enhancements?
  - Yes
  - No

Refer to CROSSWALK TREATMENT OPTIONS CHART to determine treatment options.

*Evaluate the location within this stretch that provides the safest crossing environment.*

Courtesy of Fehr & Peers Associates
Crosswalk Treatments Option Chart

- **Controlled**
  - On school route
    - Install Treatment Y
  - Not on school route
    - Install Treatment W
- **Uncontrolled**
  - Across arterial or collector or local street with more than 2 lanes
    - Install Treatment Y, school crosswalk signs and pavement markings
  - Across local street with 2 lanes or less
    - Install Treatment W
- **Mid-Block Locations**
  - Install Treatment Y, school crosswalk signs and pavement markings
  - Install Treatment W

**TREATMENTS**
- Treatment W - 12" white transverse lines at 10' apart
- Treatment WH - 12" white transverse lines at 10' apart with 24" white cross hatching (24" spacing)
- Treatment Y - 12" yellow transverse lines at 10' apart
- Treatment YH - 12" yellow transverse lines at 10' apart with 24" yellow cross hatching (24" spacing)

*American Association of State Highway and Transportation Officials (AASHTO)*

All installations shall comply with the California Manual on Uniform Traffic Control Devices.
Appendix A3: Other Plans Adopted by the City of Oakland

Specific Planning Documents that the City of Oakland has Adopted.

AC Transit Major Corridors Study (2016)
Nine of AC Transit’s 11 major transit corridors are located in Oakland. Through the agency’s Major Corridors Study (2016), AC Transit evaluated potential transit improvements on these major corridors. Three bus transit investment strategies were considered, including enhanced bus operations, rapid bus operations, and bus rapid transit. Further planning and coordination with the City is needed to move these improvement concepts into environmental, design, and implementation.

Coliseum Area Specific Plan (2015)
The Coliseum Area Specific Plan seeks to transform the underutilized land around the Oakland Coliseum and Arena, located in the East Oakland/Elmhurst area, into a sports, entertainment, and transit-oriented residential district. The plan’s goals are to create active streets and public spaces that provide an enhanced pedestrian experience. New connections will be made between the proposed housing, Coliseum BART station, the sports facilities and the San Leandro Bay waterfront.

Lake Merritt Station Area Plan (2014)
The Lake Merritt Station Area Plan provides policies, based on Oakland’s General Plan, that guide development within a half-mile radius of the Lake Merritt BART station, located on the southeastern edge of the Chinatown/Central Oakland district. The plan proposes projects to improve the pedestrian environment by narrowing or reducing traffic lanes, extending curbs, adding pedestrian countdown signals and pedestrian-scaled lighting, restoring streets to two-way and improving five of the six I-880 undercrossings.

Broadway/Valdez District Specific Plan (2014)
The Broadway/Valdez District Specific Plan establishes goals and policies to implement a long-term vision for the Uptown district. The plan aims to transform Broadway between Grand Avenue and I-580 from an auto-dominated arterial to a pedestrian-friendly retail destination by adding more mixed land uses and projects to improve the walking environment through traffic calming, street trees and other streetscape improvements.

West Oakland Specific Plan (2014)
The objectives of the West Oakland Specific Plan are to bring to life the community’s longstanding vision for a West Oakland that contains viable employment opportunities, provides needed goods and services, supports abundant and affordable housing resources, and facilitates sustainable development. The plan identifies particular locations for streetscape improvements, shade trees, narrower traffic lanes, on-street parking, continuous sidewalks, lighting and connections across and under freeways to make walking in West Oakland safer and more secure from crime.

Central Estuary Area Plan (2013)
The Central Estuary Area Plan covers the area between I-880 and the Estuary, and between 19th and 54th Avenues, which straddles the San Antonio and Fruitvale districts. The plan emphasizes the need for pedestrian improvements to connect adjacent Oakland neighborhoods with the waterfront, Bay Trail and the Fruitvale BART station. It also identifies roadways with particularly poor pedestrian facilities, including Fruitvale Avenue, High Street, International Boulevard and all crossings under I-880.

Plan Bay Area (2013)
Plan Bay Area is an integrated transportation and land-use/housing strategy for the nine-county region through 2040. The plan calls for 80% of the region’s future housing to be in Priority Development Areas (PDAs). PDAs are neighborhoods within walking distance of frequent transit service, offering a wide variety of housing options, and featuring services such as grocery stores, restaurants and recreational centers. The Oakland PDAs are centered on: MacArthur Transit Village, West Oakland, Downtown and Jack London Square, Oakland Transit Oriented Development Corridors, Fruitvale and Dimond Areas, Eastmont Town Center, Coliseum BART Station Area.
Alameda Countywide Transportation Plan and Countywide Pedestrian Plan (2012)
The Alameda Countywide Transportation and Countywide Pedestrian Plans, developed by the Alameda County Transportation Commission (Alameda CTC), prioritize pedestrian projects that serve destinations of countywide significance, such as transit stations, central business districts and other activity centers, inter-jurisdictional trails and communities of concern.

East Bay Greenway (2008)
The East Bay Greenway is a 12-mile bicycle and pedestrian pathway planned to link BART stations and neighborhoods in Oakland, San Leandro, Hayward and unincorporated Alameda County. The original plan was developed by Oakland nonprofit organization Urban Ecology. Implementation and subsequent studies are ongoing (see Concurrent Efforts section, below).

Oakland Pedestrian Master Plan (2002)
The 2002 Pedestrian Master Plan built on several foundational policies in the Land Use and Transportation Element (LUTE) by suggesting targeted policy actions to improve the pedestrian environment throughout Oakland. The Plan emphasized increased pedestrian safety and access through improved street design guidelines, pedestrian gap analysis and a review of the City’s traffic signal timing guidelines.

Envision Oakland: City of Oakland General Plan (1998)
The Land Use and Transportation Element (LUTE) of Oakland’s General Plan establishes long-term city-wide planning goals and provides strategies to accomplish them. Relevant goals/objectives include increasing pedestrian safety through traffic-calming, improving streetscapes and increasing pedestrian access to destinations such as the waterfront and the Oakland Coliseum.

The Open Space, Conservation, and Recreation (OSCAR) Element of the General Plan is the City’s official policy document that governs the use of open land, natural resources, and parks. The Element is part of Oakland’s State-mandated General Plan, that serves as a “blueprint for change” in Oakland with regard to these topics. The OSCAR Element contains goals, objectives, policies and actions across a diverse range of topics. The premise that binds these topics together is that Oakland can be a more attractive City and a better place to live by conserving and rediscovering its natural resources, growing in harmony with the environment, and meeting recreational needs in new and creative ways.

Bay Trail Plan (1989)
The Bay Trail Plan lays out the alignment and general policies that guide development of the San Francisco Bay Trail, a planned 500-mile continuous bicycle and pedestrian pathway around the San Francisco and San Pablo Bays and “spur” trails that connect the trail to nearby destinations. In Oakland, the Bay Trail avoids the Port of Oakland on Mandela Parkway and Third/Second Streets and becomes a pathway along the Jack London Square shoreline and along the Embarcadero.

BART station area plans
Of the City of Oakland’s eight BART stations (West Oakland, 12th Street, 19th Street, MacArthur, Rockridge, Fruitvale and Coliseum), the agency has written access plans for three: West Oakland, 19th Street and Fruitvale. In addition, the City of Oakland developed a plan for the Lake Merritt station area, summarized above. These plans recommend improvements to encourage more passengers to walk to the stations, and make it safer and more secure to do so. Examples include additional lighting, signage and pedestrian-activated traffic signals.
Concurrent Efforts

During the development of this Pedestrian Plan, the City of Oakland was also working on the following related efforts:

**Complete Streets Design Guidelines**
The Complete Streets Guidelines will identify pedestrian priority areas through place types and overlays, as well as provide guidance regarding the pedestrian realm, such as sidewalk area widths and intersection design. The guidelines will address sidewalk width, traffic signal design and timing, and other traffic calming measures, including their relationship to fire-fighting equipment.

**East Bay Greenway**
The East Bay Greenway is a 12-mile bicycle and pedestrian pathway planned to link BART stations and neighborhoods in Oakland, San Leandro, Hayward and unincorporated Alameda County. The segment between the Coliseum BART station and 85th Avenue was completed in 2015. Remaining Greenway segments in Oakland will serve the Lake Merritt, Coliseum (to the north) and Fruitvale BART stations and the neighborhoods in between. In 2015-17, the Alameda County Transportation Commission will be developing a Plan, Project Approval/ Environmental Document and 35% design for the project.

**Downtown Specific Plan**
The City’s Specific Plan for Downtown Oakland is intended to guide development by coordinating land use and transportation planning in a way that promotes pedestrian activity and economic growth throughout Downtown. A major goal of the Plan is to give the highest priority to pedestrians, bicyclists and transit-riders. To achieve this, the Plan will explore ways to redesign Downtown streets by narrowing lane widths and numbers of lanes, adding on-street parking, restoring streets to two-way, lowering vehicle speeds, improving highway underpasses and adding bicycle lanes. Streetscape design improvements will also be a high priority to improve the comfort level of pedestrians.

**Americans with Disabilities Act (ADA) Transition Plan**
The ADA Transition Plan update will set a course for making streets throughout Oakland accessible to people who use wheelchairs or other mobility devices. The plan will include an updated curb ramp inventory and a timeline for making all required curb ramp improvements.
Appendix B
Safety Strategy: Improvements/Countermeasures
Safety Strategy: Improvements and Countermeasures
The high injury corridors and intersections, known as the High Injury Network, were identified using a safety analysis as described in Chapter 6 (Prioritizing Pedestrian Improvements).

The safety strategy identified improvements or countermeasures to increase pedestrian safety at a select number of high injury intersections and high injury corridors. Many of the high injury corridors and intersections were not studied here because they have already received funding for pedestrian improvements--most notably the Bus Rapid Transit project on International Boulevard--while others are part of ongoing planning efforts, such as the Downtown Specific Plan, that will require further coordination or study. City staff will continue to monitor and coordinate pedestrian safety improvements for intersections and corridors that were not included in this safety strategy while those on the list below are implemented. The tables below are divided into three categories:

- Projects included in the safety strategy (B1-B2)
- Projects with associated funding (B3-B4)
- Projects with no associated funding and need for additional analysis and design (B4-B5)

The safety strategy countermeasures that are included in Table B-1 and Table B-2 have associated sheets that describe the locations in more detail. Note that these countermeasures are suggestions for City staff and will be considered according to current and future City policy and practices as well as future projects.

Table B1: Corridors Studied in the Safety Strategy

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Start</th>
<th>End</th>
<th>Short Term Countermeasures</th>
<th>Long Term Countermeasures</th>
<th>Other Improvements</th>
</tr>
</thead>
</table>
| 14TH ST     | MYRTLE ST | OAK ST | • At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second  
• At the 14th Street and Market Street intersection, which is adjacent to the West Oakland Middle School, re-stripe marked crosswalks with high visibility markings  
• At the 14th Street and Jackson Street and 14th Street and Madison Street intersections, which are adjacent to Little Star Preschool, restripe marked crosswalks with high visibility markings  
• At the 14th Street and Broadway intersection, shorten signal cycle length  
• At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks  
• Implement near-term road diet with signing and pavement markings only to reduce 14th Street from a four-lane street to a two-lane street | • Convert near-term road diet to permanent installation with hardscape sidewalk improvements  
• At the 14th Street and Market Street, 14th Street and West Street, and 14th Street and Brush Street intersections, extend medians to provide pedestrian refuge islands at marked crosswalks | Awarded ATP grant in 2016, between Brush and Oak, resulting in a reduction of travel lanes from four to two lanes, additional of Class IV protected bicycles lanes, improved pedestrian facilities including refuge, market crossings, and retimed signals, storm drain gardens, and transit boarding islands |
### Table B1: Corridors Studied in the Safety Strategy (cont.)

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Start</th>
<th>End</th>
<th>Short Term Countermeasures</th>
<th>Long Term Countermeasures</th>
<th>Other Improvements</th>
</tr>
</thead>
</table>
| 8th ST      | 8TH ST  | HARRISON ST | • At the 8th Street and Fallon Street intersection, add a high visibility crosswalk on the north leg and re-stripe marked crosswalk with high visibility markings  
• At the 8th Street and Fallon Street intersection, install advanced yield signage at each crossing  
• At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second  
• At signalized intersections, implement Leading Pedestrian Interval (LPI)  
• At the 8th Street and Harrison Street and 8th Street and Franklin Street intersections, convert permissive phase to protected phase  
• At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks ($600 per approach)  
• Implement pedestrian safety zones extending from the curb at the 8th Street and Harrison Street and 8th Street and Fallon Street intersections | • At the 8th Street and Harrison Street and 8th Street and Fallon Street intersections, install curb extensions on each corner  
• Implement road diet to manage vehicle speeds and shorten crossing distance | Highway Safety Improvement Program 2016-Upgraded traffic signals on 8th St/Madison St, 8th St/Oak S. New bikeway striping, repaved, and new ADA curb ramps along the corridor. Identified in LMSA Plan as a community priority for two way conversion, or sidewalk extensions. Downtown Plan calls for 2-wayng the street with a potential parking protected Class IV bike lane |
| 8th ST      | 8TH ST  | FALLON ST | • At the 8th Street and Fallon Street intersection, add a high visibility crosswalk on the north leg and re-stripe marked crosswalk with high visibility markings  
• At the 8th Street and Fallon Street intersection, install advanced yield signage at each crossing  
• At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second  
• At signalized intersections, implement Leading Pedestrian Interval (LPI)  
• At the 8th Street and Harrison Street and 8th Street and Franklin Street intersections, convert permissive phase to protected phase  
• At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks ($600 per approach)  
• Implement pedestrian safety zones extending from the curb at the 8th Street and Harrison Street and 8th Street and Fallon Street intersections | • At the 8th Street and Harrison Street and 8th Street and Fallon Street intersections, install curb extensions on each corner  
• Implement road diet to manage vehicle speeds and shorten crossing distance | Highway Safety Improvement Program 2016-Upgraded traffic signals on 8th St/Madison St, 8th St/Oak S. New bikeway striping, repaved, and new ADA curb ramps along the corridor. Identified in LMSA Plan as a community priority for two way conversion, or sidewalk extensions. Downtown Plan calls for 2-wayng the street with a potential parking protected Class IV bike lane |
<table>
<thead>
<tr>
<th>Street Name</th>
<th>Start</th>
<th>End</th>
<th>Short Term Countermeasures</th>
<th>Long Term Countermeasures</th>
<th>Other Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>94TH AVE</td>
<td>CHERRY</td>
<td>BURR</td>
<td>• At the 94th Avenue and MacArthur Boulevard and 94th Avenue and Thermal Street intersections, install advanced yield signage at marked crosswalks. &lt;br&gt;• At the 94th Avenue and Peach Street intersection, add crosswalks across 94th Avenue with in-street “Pedestrian Crossing” signage and advanced yield signage. &lt;br&gt;• At the 94th Avenue and MacArthur Boulevard intersection, implement crosswalks and crossing treatments to provide access to transit stops. &lt;br&gt;• At the 94th Avenue and Thermal Street intersection, re-stripe marked crosswalks with high visibility markings. &lt;br&gt;• At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks. &lt;br&gt;• Implement pedestrian safety zones extending from the curb at the 94th Avenue and MacArthur Boulevard intersection.</td>
<td>• Extend median to provide refuge island on the north side of the 94th Street and MacArthur Boulevard intersection. &lt;br&gt;• Provide raised median/refuge island at the marked crosswalk on the south side of the 94th Street and MacArthur Boulevard intersection. &lt;br&gt;• Install raised crosswalks at marked crosswalk locations to help improve visibility of marked crosswalks and slow vehicle speeds. &lt;br&gt;• At the 94th Avenue and MacArthur Boulevard intersection, install curb extensions on each corner.</td>
<td>Proposed Bike Route, and intersection improvements for 94th and MacArthur.</td>
</tr>
</tbody>
</table>
Table B1: Corridors Studied in the Safety Strategy (cont.)

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Start</th>
<th>End</th>
<th>Short Term Countermeasures</th>
<th>Long Term Countermeasures</th>
<th>Other Improvements</th>
</tr>
</thead>
</table>
| 9TH ST      | FRANKLIN | FALLON | - At the 9th street and Alice Street and 9th Street and Fallon Street intersections, install advanced yield signage at marked crosswalks  
- At the 9th Street and Fallon Street intersection, which is adjacent to Laney College, add a high visibility crosswalk across the north leg of Fallon Street  
- At the 9th Street and Fallon Street intersection, re-stripe the marked crosswalk on the south leg with high visibility markings  
- At signalized intersections, add pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second  
- At the 9th Street and Franklin Street, 9th Street and Webster Street, and 9th Street and Harrison Street intersections, shorten signal cycle length  
- At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks  
- Implement near-term road diet with signing and pavement markings only; consider moving on-street parking away from curb to create separated bike facility | - At the 9th Street and Alice Street and 9th Street and Fallon Street intersections, install rectangular rapid flashing beacons on each crossing  
- Convert near-term road diet to more permanent installation by providing hardscape sidewalk improvements | New bike lane added between Harrison and Fallon and stop control added at 9th and Alice. Downtown is Funded for 13 intersections, including signal mast arms, vehicle/bicycle detection, accessible pedestrian signal upgrade, and other improvements. Identified in Downtown Plan to be a two-way with back in parking |
| BANCROFT   | 84TH AVE | 98TH AVE | - At the Bancroft Avenue and 86th Avenue, Bancroft Avenue and 87th Avenue, Bancroft Avenue and 88th Avenue, and Bancroft Avenue and 89th Avenue intersections, install in-street “Pedestrian Crossing” signage at marked crosswalks  
- At the Bancroft Avenue and 86th Avenue, Bancroft Avenue and 87th Avenue, Bancroft Avenue and 88th Avenue, and Bancroft Avenue and 89th Avenue intersections, install advanced yield signage at marked crosswalks  
- At signalized intersections, implement Leading Pedestrian Interval (LPIs)  
- At the Bancroft Avenue and 85th Avenue, Bancroft Avenue and 87th Avenue, Bancroft Avenue and 89th Avenue, Bancroft Avenue and 94th Avenue, Bancroft Avenue and 96th Avenue intersections, implement crosswalks and crossing treatments to provide access to transit stops  
- At the Bancroft Avenue and 98th Avenue intersection, which is adjacent to the E Morris Cox Elementary School, re-stripe marked crosswalks with high visibility markings | - At the Bancroft Avenue and 84th Avenue, Bancroft Avenue and 85th Avenue, Bancroft Avenue and 86th Avenue, Bancroft Avenue and 88th Avenue, Bancroft Avenue and 94th Avenue, Bancroft Avenue and 96th Avenue intersections, install crosswalks with rectangular rapid flashing beacons | Highway Safety Improvement Program 2016-Install HAWKs and RRFBs at eleven locations along the corridor; install signal mast arms at three locations; and install a landscape at the northeast corner of Bancroft and 67th Street. Corridor improvements from Havenscourt to 98th Ave |
### Table B1: Corridors Studied in the Safety Strategy (cont.)

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Start</th>
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<th>Short Term Countermeasures</th>
<th>Long Term Countermeasures</th>
<th>Other Improvements</th>
</tr>
</thead>
</table>
| BANCROFT    | CHURCH ST | 80TH AVE | • At the Bancroft Avenue and 78th Street and Bancroft Avenue and Ritchie Street intersections, install advanced yield signage at marked crosswalks  
• At signalized intersections, implement Leading Pedestrian Interval (LPI)  
• At the Bancroft Avenue and Ritchie Street intersection, implement a crosswalk on the south leg and crossing treatments to provide access to transit stops  
• At the Bancroft Avenue and 73rd Avenue intersection which is adjacent to Markham Elementary School, re-stripe marked crosswalks with high visibility markings  
• At the Bancroft Avenue and Ritchie Street and Bancroft Avenue and 78th Avenue intersections, re-stripe high visibility crosswalks  
• Prohibit right-turn on red at signalized intersections when pedestrian pushbuttons have been pushed | • At uncontrolled marked crosswalks, install rectangular rapid flashing beacons  
• At signalized intersections adjust signal timing to separate turning movements from pedestrian crossing phase  
• Extend median to provide refuge island on the south side of the Broadway and 11th Street intersection  
• Implement road diet on low volume cross streets to shorten pedestrian crossing distances | Highway Safety Improvement Program 2016-Install HAWKs and RRFBs at eleven locations along the corridor; install signal mast arms at three locations; and install a landscape at the northeast corner of Bancroft and 67th Street. Corridor improvements from Havenscourt to 98th Ave |
| BROADWAY    | 9TH ST | 11TH    | • Convert each intersection to fixed pedestrian recall  
• At each intersection, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second  
• At each intersection, shorten signal cycle length  
• At each intersection, implement Leading Pedestrian Interval (LPI)  
• Implement pedestrian safety zones extending from the curb at each intersection | • At signalized intersections adjust signal timing to separate turning movements from pedestrian crossing phase  
• Extend median to provide refuge island on the south side of the Broadway and 11th Street intersection  
• Implement road diet on low volume cross streets to shorten pedestrian crossing distances | Pedestrian Improvements funded through the BRT. Includes new ADA curb ramps as well as pedestrian access to new stations. Included in downtown Oakland specific plan (Broadway from Embarcadero to 27th Street) |
| BROADWAY    | 16TH ST | 19TH ST | • Convert each intersection to fixed pedestrian recall  
• At each intersection, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second  
• At each intersection, shorten signal cycle length  
• At each intersection, implement Leading Pedestrian Interval (LPI)  
• Implement pedestrian safety zones extending from the curb at each intersection | • At signalized intersections adjust signal timing to separate turning movements from pedestrian crossing phase  
• Extend median to provide refuge island on the south side of the Broadway and 11th Street intersection  
• Implement road diet on low volume cross streets to shorten pedestrian crossing distances | Pedestrian Improvements funded through the BRT. Includes new ADA curb ramps as well as pedestrian access to new stations. Included in downtown Oakland specific plan (Broadway from Embarcadero to 27th Street) |
### Table B1: Corridors Studied in the Safety Strategy (cont.)

<table>
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<tr>
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<th>Other Improvements</th>
</tr>
</thead>
</table>
| E 15TH ST   | 21ST AVE | 26TH AVE | • At the 15th Street and 26th Avenue intersection, add stop sign on southbound approach  
• At the 15th Street and 23rd Avenue and 15th Street and Miller Avenue intersections, install advanced yield markings to each minor approach  
• At the 15th Street and 22nd Avenue intersection, which is adjacent to Garfield Elementary School, add high visibility crosswalks with signage and advanced yield markings  
• Add edgeline markings for street narrowing and parking definition  
• At each intersection, restrict on-street parking within 20-feet of intersection and marked crosswalks  
• Implement pedestrian safety zones extending from the curb at the 15th Street and 22nd Avenue intersection | • Implement crossing improvements such as rectangular rapid flashing beacon, pedestrian refuge island, or high visibility crosswalk at the High Street and 22nd Avenue intersection  
• At the 15th Street and 22nd Avenue intersection, install curb extensions on each corner | - |
| FOOTHILL    | 45TH AVE | TRASK ST | • Add crossing sign and include directional arrow indicating crossing  
• At the Foothill Boulevard and 45th Street intersection, upgrade school crossing sign to current standard and include directional arrow indicating crossing  
• At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second  
• At the Foothill Boulevard and 45th Avenue, Foothill Boulevard and 46th Avenue, Foothill Boulevard and 50th Avenue, Foothill Boulevard and 51st Avenue, Foothill Boulevard and Congress Avenue, Foothill Boulevard and Belvedere Street, and Foothill Boulevard and Cole Street intersection, install advanced yield markings and advanced pedestrian crosswalk ahead signs across Foothill Boulevard  
• At the Foothill Boulevard and Vicksburg intersection, re-stripe marked crosswalk on north leg  
• At the Foothill Boulevard and 47th Street intersection, convert signal from pedestrian actuated to fixed recall for the pedestrian walk phase | • At the Foothill Boulevard and Trask Street intersection, install curb extensions on the northeast, northwest, and southwest corners  
• At the Foothill Boulevard and 45th Avenue and Foothill Boulevard and 50th Street intersections, install a rectangular rapid flashing beacon and associated school crossing signs | Former Redevelopment Streetscape |
### Table B1: Corridors Studied in the Safety Strategy (cont.)

<table>
<thead>
<tr>
<th>Street Name</th>
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<th>Long Term Countermeasures</th>
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</tr>
</thead>
</table>
| GRAND AVE   | LAKE PARK AVE | WILLOWOOD AVE | • Convert each signalized intersection to fixed pedestrian recall  
• At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second  
• At the 2 mid-block crossings located between Grand Avenue and Sunnyslope Avenue and Grand Avenue and Weldon Avenue, add in street “Pedestrian Crossing signage”  
• At the Grand Avenue and Park View Terrace, Grand Avenue and Elwood Avenue, Grand Avenue and Mandana Boulevard, and Grand Avenue and Boulevard Way intersections, implement crosswalks and crossing treatments to provide access to transit stops  
• At signalized intersections, implement Leading Pedestrian Interval (LPI)  
• Implement near-term road diet with signing and pavement markings only from east of the I-580 intersection to Elwood Avenue | • At the mid-block, marked crossing at Grand Avenue and Sunnyslope Avenue, install a rectangular rapid flashing beacon and associated crossing signs  
• Remove channelized right turn lanes at the Grand Avenue and Santa Clara and the Grand Avenue and Bay Place intersections  
• Convert near-term road diet to permanent installation by providing hardscape sidewalk improvements  
• At signalized intersections, adjust signal timing to separate turning movements from pedestrian crossing phase | Grand Avenue Road Diet |
| GRAND AVE   | VALLEY ST   | PARK VIEW TERRACE | • Convert each signalized intersection to fixed pedestrian recall  
• At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second  
• At the 2 mid-block crossings located between Grand Avenue and Sunnyslope Avenue and Grand Avenue and Weldon Avenue, add in street “Pedestrian Crossing signage”  
• At the Grand Avenue and Park View Terrace, Grand Avenue and Elwood Avenue, Grand Avenue and Mandana Boulevard, and Grand Avenue and Boulevard Way intersections, implement crosswalks and crossing treatments to provide access to transit stops  
• At signalized intersections, implement Leading Pedestrian Interval (LPI)  
• Implement near-term road diet with signing and pavement markings only from east of the I-580 intersection to Elwood Avenue | • At the mid-block, marked crossing at Grand Avenue and Sunnyslope Avenue, install a rectangular rapid flashing beacon and associated crossing signs  
• Remove channelized right turn lanes at the Grand Avenue and Santa Clara and the Grand Avenue and Bay Place intersections  
• Convert near-term road diet to permanent installation by providing hardscape sidewalk improvements  
• At signalized intersections, adjust signal timing to separate turning movements from pedestrian crossing phase | - |
<table>
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<th>Street Name</th>
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<th>Short Term Countermeasures</th>
<th>Long Term Countermeasures</th>
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</tr>
</thead>
</table>
| HIGH        | LYON ST | KANSAS ST | • At the High Street and Fleming Avenue, High Street and Penniman Avenue, High Street and Culver Street, and High Street and Kansas Street intersections, install advanced yield signage at marked crosswalks  
• At the High Street and Culver Street, High Street and Fleming Avenue, and High Street and Kansas Street intersections, implement crosswalks and crossing treatments to provide access to transit stops  
• At the High Street and Fleming Avenue, High Street and Penniman Avenue, High Street and Culver Street, and High Street and Kansas Street intersections, re-stripe marked uncontrolled crosswalks with high visibility markings  
• At each intersection, restrict on-street parking within 20-feet | • At each intersection east of the High Street and Masterson Street intersection, install crosswalks with curb ramps in medians  
• At the High Street and Porter Street intersection, which is adjacent to the Boys and Girls Club, installed raised pedestrian crossings  
• At the High Street and Masterson Street and High Street and Kansas Street intersections, which are adjacent to the St. Lawrence O’Toole Catholic School, install raised pedestrian crossings | Highway Safety Improvement Program 2016-Construct crossing enhancements, signal placement improvements, and new pedestrian signal countdown heads |
### Table B1: Corridors Studied in the Safety Strategy (cont.)

<table>
<thead>
<tr>
<th>Street Name</th>
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<th>Long Term Countermeasures</th>
<th>Other Improvements</th>
</tr>
</thead>
</table>
| MacArthur   | 77TH AVE | 83RD AVE | • At the mid-block crossing south of the MacArthur Boulevard and Ritchie Street intersection, add advanced yield markings  
• At the MacArthur Boulevard and Parker Avenue intersection, consider implementing a crosswalk on the north leg with crossing treatments to provide access to transit stop  
• At unsignalized intersections, re-stripe marked crosswalks to high visibility crosswalks  
• Add high visibility crosswalks with signage and advanced yield markings at the MacArthur Boulevard and 83rd Avenue intersection  
• At signalized intersections, convert permissive phase to protected phase  
• At each intersection, restrict on-street parking within 20-feet of intersections and mid-block crossings  
• Implement near-term road diet with signing and pavement markings only north of MacArthur Boulevard and 83rd Street | • Install continuous median with pedestrian refuge islands  
• Convert near-term road diet to more permanent installation by providing hardscape sidewalk improvements | Former Redevelopment Streetscape |
| BRUSH ST    | 12TH ST | 14TH ST | • At the Brush Street and 12th Street intersection, add “Pedestrian Crossing Prohibited” signage at the north side of Brush Street  
• At the Brush Street and 14th Street intersection, replace pedestrian countdown timer on northwest corner  
• At signalized intersections, re-stripe marked crosswalks for general maintenance  
• At the Brush Street and 12th Street intersection, implement Leading Pedestrian Interval (LPI)  
• At each intersection, restrict on-street parking within 20-feet of intersection and marked crosswalks  
• Implement pedestrian safety zones extending from the curb at the Brush Street and 12th Street and Brush Street and 14th Street intersections | • Implement road diet along Brush Street; would need to extend beyond the limits of 12th and 14th Streets  
• At the Brush Street and 12th Street and Brush Street and 14th Street intersections, install curb extensions on each corner  
• At the Brush Street and 14th Street intersection, adjust signal timing to separate turning movements from pedestrian phase crossing | Combined intersections to make a corridor |
<table>
<thead>
<tr>
<th>Street Name</th>
<th>Start</th>
<th>End</th>
<th>Short Term Countermeasures</th>
<th>Long Term Countermeasures</th>
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</tr>
</thead>
<tbody>
<tr>
<td>73RD BANCROFT AVE</td>
<td>HILLSIDE ST</td>
<td>• At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($8,000 per intersection)</td>
<td>• Install high visibility crosswalk across 73rd Avenue and Hillside Street including crossing treatments such as advanced yield markings, advanced warning signs, and rectangular rapid flashing beacon ($34,300 per crossing)</td>
<td>Combined intersections to make a corridor</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Implement crosswalks and crossing treatments to provide access to transit stops at the 73rd Avenue and Bancroft Avenue, 73rd Avenue and Garfield Avenue and 73rd Avenue and Hillside Street intersections ($2,500 per crosswalk)</td>
<td>• Extend medians at marked crosswalks to provide refuge island ($25,000 per island)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• At each signalized intersections, implement Leading Pedestrian Interval (LPI) ($2,000 per intersection)</td>
<td>• Re-design the right-turn movement at 73rd Avenue and MacArthur Boulevard to remove the lane add so the right-turn movement is not a free movement</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Implement near-term road diet, with signing and pavement markings only to reduce 73rd Avenue from a six-lane street to a four-lane or three-lane street ($30,000 per mile)</td>
<td>Convert near-term road diet to permanent installation with hardscape sidewalk improvements ($150,000 per mile)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• At signalized intersections, adjust signal timing to separate turning movements from pedestrian crossing phase ($30,000 per intersection)</td>
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</tr>
</tbody>
</table>
## Table B2: Intersections Studied in the Safety Strategy

<table>
<thead>
<tr>
<th>Street 1</th>
<th>Street 2</th>
<th>Short Term Countermeasures</th>
<th>Long Term Countermeasures</th>
<th>Other Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>7TH ST</td>
<td>HARRISON ST</td>
<td>• Install pedestrian countdown timers at each crossing&lt;br&gt;• Install pedestrian activation buttons at each crossing&lt;br&gt;• Implement Leading Pedestrian Interval (LPI) at each crossing&lt;br&gt;• Integrate protected northbound right turn phase</td>
<td>• Add lighting for crosswalks across Market St&lt;br&gt;• Extend medians to create pedestrian refuge islands on north and south legs&lt;br&gt;• Install curb extensions on each corner</td>
<td>High Safety Improvement Program - 2016-Construct safety improvements at 13 intersections, including signal mast arms, vehicle/bicycle detection, accessible pedestrian signal upgrade, and other improvements.</td>
</tr>
<tr>
<td>8TH ST</td>
<td>MARKET ST</td>
<td>• Restripe each crosswalk&lt;br&gt;• Install pedestrian countdown timers at each crossing&lt;br&gt;• Install pedestrian activation buttons at each corner&lt;br&gt;• Convert each device to fixed pedestrian recall&lt;br&gt;• Implement pedestrian safety zones extending from the curb at the intersection</td>
<td>• Convert eastbound and westbound left-turn phase to protected left-turn phase&lt;br&gt;• Convert eastbound and westbound permissive left turn phase to protected left turn phase&lt;br&gt;• Integrate eastbound and westbound protected right turn phase</td>
<td></td>
</tr>
<tr>
<td>GRAND AVE</td>
<td>STATEN AVE</td>
<td>• Re-stripe each marked crosswalk&lt;br&gt;• Install pedestrian countdown timers at each crossing&lt;br&gt;• Implement Leading Pedestrian Interval (LPI) at each crossing&lt;br&gt;• Prohibit right turn on red on each approach</td>
<td>• Convert eastbound and westbound permissive left turn phase to protected left turn phase&lt;br&gt;• Integrate eastbound and westbound protected right turn phase</td>
<td></td>
</tr>
<tr>
<td>HIGH ST</td>
<td>SAN LEANDRO ST</td>
<td>• Remove “Sidewalk Closed” sign on northeast approach&lt;br&gt;• Prohibit right turn on red on each approach&lt;br&gt;• Install pedestrian activation buttons on each corner except southwest ($8,000 per intersection)&lt;br&gt;• Implement Leading Pedestrian Interval (LPI) at each crossing</td>
<td>• Resurface intersection pavement&lt;br&gt;• Construct sidewalk on northwestbound approach&lt;br&gt;• Reconstruct intersection to accommodate heavy vehicles while providing pedestrian crossing treatments</td>
<td></td>
</tr>
</tbody>
</table>
## Table B3: High Injury Corridors with Associated Funding

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Start</th>
<th>End</th>
<th>Funding Source/Plan</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>12TH ST</td>
<td>JEFFERSON</td>
<td>OAK</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>14TH ST</td>
<td>MYRTLE</td>
<td>OAK</td>
<td>Funded by ATP 2016</td>
<td>Awarded ATP grant in 2016, between Brush and Oak, resulting in a reduction of travel lanes from four to two lanes, additional of Class IV protected bicycles lanes, improved pedestrian facilities including refuges, market crossings, and retimed signals, storm drain gardens, and transit boarding islands</td>
</tr>
<tr>
<td>8TH ST</td>
<td>FRANKLIN</td>
<td>FALLON</td>
<td>High Safety Improvement Program (2013)</td>
<td>Upgraded traffic signals on 8th St/Madison St, 8th St/Oak S. New bikeway striping, repaved, and new ADA curb ramps along the corridor. Identified in LMSA Plan as a community priority for two way conversion, or sidewalk extensions. Downtown Plan calls for 2-wayng the street with a potential parking protected Class IV bike lane</td>
</tr>
<tr>
<td>98TH AVE</td>
<td>A ST</td>
<td>MacArthur</td>
<td>High Safety Improvement Program (2012)</td>
<td>98th Ave. Corridor (including intersections with MacArthur Blvd, Bancroft Ave, Sunnyside St, Holly St, International Blvd, D St, E St, Medford Ave, San Leandro St., Pippin St., Walter Ave. and Edes Ave. Install advanced “dilemma zone” detection, crosswalks, speed feedback signs; construct bulb-outs</td>
</tr>
<tr>
<td>BANCROFT AVE</td>
<td>CHURCH ST</td>
<td>HAVENSCOURT BLVD</td>
<td>High Safety Improvement Program (2016)</td>
<td>Install HAWKs and RRFBs at eleven locations along the corridor; install signal mast arms at three locations; and install a landscape at the northeast corner of Bancroft and 67th Street. Corridor improvements from Havenscourt to 98th Ave</td>
</tr>
<tr>
<td>BROADWAY</td>
<td>9TH ST</td>
<td>19TH ST</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements funded through the BRT. Includes new ADA curb ramps as well as pedestrian access to new stations. Included in downtown Oakland specific plan (Broadway from Embarcadero to 27th Street). Specific sections included in safety strategy</td>
</tr>
<tr>
<td>FOOTHILL BLVD</td>
<td>RUTHERFORD ST</td>
<td>40TH AVE</td>
<td>Former Redevelopment Streetscape</td>
<td>Partially funded. Streetscape improvements funded through Redevelopment, from Mitchell St to Rutherford St</td>
</tr>
<tr>
<td>FOOTHILL BLVD</td>
<td>51ST AVE</td>
<td>SEMINARY</td>
<td>Former Redevelopment Streetscape</td>
<td>Partially included in the safety strategy, unfunded from Trask St to Seminary Ave</td>
</tr>
</tbody>
</table>
### Table B3: High Injury Corridors with Associated Funding (cont.)

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Start</th>
<th>End</th>
<th>Funding Source/Plan</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRUITVALE AVE</td>
<td>ALAMEDA AVE</td>
<td>E 16TH ST</td>
<td>High Safety Improvement Program (2016), Safe Routes to School, Measure B</td>
<td>Fruitvale Alive Project, widened sidewalks, high visibility crosswalks, bulbouts, improvement pavement, lighting, and pedestrian signal upgrades</td>
</tr>
<tr>
<td>GRAND AVE</td>
<td>LAKE PARK AVE</td>
<td>OAKLAND AVE</td>
<td>High Safety Improvement Program (2013)</td>
<td>Grand Avenue Road Diet, Grand Ave from Jean St to Oakland Ave is in Piedmont</td>
</tr>
<tr>
<td>INTER NATIONAL</td>
<td>HIGH</td>
<td>56TH AVE</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>INTER NATIONAL</td>
<td>16TH AVE</td>
<td>28TH AVE</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>INTER NATIONAL</td>
<td>73RD AVE</td>
<td>91ST AVE</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>INTER NATIONAL</td>
<td>1ST AVE</td>
<td>12TH AVE</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>INTER NATIONAL</td>
<td>95TH AVE</td>
<td>DURANT</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>INTER NATIONAL</td>
<td>HIGH ST</td>
<td>FRUITVALE AVE</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>MAC ARTHUR BLVD</td>
<td>FOOTHILL BLVD</td>
<td>82ND AVE</td>
<td>Former Redevelopment Streetscape</td>
<td>Streetscape which included bulbouts, ADA curbramps, and high visibility crosswalks from Foothill to 77th Ave. Included in pedestrian safety strategy from 77th to 83rd</td>
</tr>
<tr>
<td>MARTIN LUTHER KING JR WAY</td>
<td>29TH ST</td>
<td>40TH ST</td>
<td>-</td>
<td>Road Diet, from MLK from West Grant to 40th Street</td>
</tr>
<tr>
<td>Street Name</td>
<td>Start</td>
<td>End</td>
<td>Funding Source/Plan</td>
<td>Treatment</td>
</tr>
<tr>
<td>-------------</td>
<td>--------</td>
<td>--------</td>
<td>---------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SHATTUCK</td>
<td>45TH ST</td>
<td>55TH ST</td>
<td>High Safety Improvement Program (2015)</td>
<td>Bike Lanes, potential plaza on 45th and Shattuck</td>
</tr>
<tr>
<td>TELEGRAPH</td>
<td>WILLIAM</td>
<td>27TH ST</td>
<td>Active Transportation Program, High Safety Improvement Program (2015)</td>
<td>ATP: This project is located along Telegraph Avenue, between 20th Street and 38th Street. Project will construct pedestrian and bicycle safety enhancements, including Class II bicycle lanes, median refuge islands, pedestrian crossing beacons, traffic signal upgrades, and transit boarding islands</td>
</tr>
<tr>
<td>TELEGRAPH</td>
<td>30TH ST</td>
<td>51ST ST</td>
<td>Active Transportation Program, High Safety Improvement Program (2015)</td>
<td>ATP: This project is located along Telegraph Avenue, between 20th Street and 38th Street. Project will construct pedestrian and bicycle safety enhancements, including Class II bicycle lanes, median refuge islands, pedestrian crossing beacons, traffic signal upgrades, and transit boarding islands. HSIP: Stripe and sign road diet with buffered bike lanes between 29th and 41st Sts; install signal modifications at 29th and 45th Sts; install uncontrolled crosswalk enhancements, painted bulb-outs, and painted median refuges</td>
</tr>
<tr>
<td>TELEGRAPH</td>
<td>WILLIAM ST</td>
<td>BROADWAY</td>
<td>Some Measure B funding, ACTC and HCD funds, TSD and paving program funds</td>
<td>Completed as part of Latham and complete streets work, Intersection of Telegraph and 17th is not funded</td>
</tr>
</tbody>
</table>
## Table B4: High Injury Intersections with Associated Funding

<table>
<thead>
<tr>
<th>Street 1</th>
<th>Street 2</th>
<th>Funding Source</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>14TH ST</td>
<td>MARKET ST</td>
<td>High Safety Improvement Program (2015)</td>
<td>Install uncontrolled crosswalk enhancements, such as RRFBs, ladder striping, raised bulb-outs, and raised median refuges at multiple locations</td>
</tr>
<tr>
<td>21ST AVE</td>
<td>INTERNATIONAL BLVD</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>24TH ST</td>
<td>BROADWAY</td>
<td>Improvement by private developer</td>
<td>RRFP installed</td>
</tr>
<tr>
<td>29TH ST</td>
<td>TELEGRAPH AVE</td>
<td>Active Transportation Program, High Safety Improvement Program (2015)</td>
<td>This project is located along Telegraph Avenue, between 20th Street and 38th Street. Project will construct pedestrian and bicycle safety enhancements, including Class II bicycle lanes, median refuge islands, pedestrian crossing beacons, traffic signal upgrades, and transit boarding islands</td>
</tr>
<tr>
<td>33RD AVE</td>
<td>FOOTHILL BLVD</td>
<td>Redevelopment/OBAG</td>
<td>Streetscape project</td>
</tr>
<tr>
<td>34TH ST</td>
<td>MARTIN LUTHER KING JR WAY</td>
<td>Redevelopment/OBAG</td>
<td>MLK streetscape project &amp; road diet</td>
</tr>
<tr>
<td>34TH ST</td>
<td>SAN PABLO AVE</td>
<td>High Safety Improvement Program (2011)</td>
<td>RRFB's and other crossing improvements at 32nd/Brockhurst/34th at San Pablo</td>
</tr>
<tr>
<td>35TH AVE</td>
<td>INTERNATIONAL BLVD</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
</tbody>
</table>
### Table B4: High Injury Intersections with Associated Funding (cont.)

<table>
<thead>
<tr>
<th>Street 1</th>
<th>Street 2</th>
<th>Funding Source</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>37TH ST</td>
<td>TELEGRAPH AVE</td>
<td>Active Transportation Program, High Safety Improvement Program (2015)</td>
<td>ATP: This project is located along Telegraph Avenue, between 20th Street and 38th Street. Project will construct pedestrian and bicycle safety enhancements, including Class II bicycle lanes, median refuge islands, pedestrian crossing beacons, traffic signal upgrades, and transit boarding islands</td>
</tr>
<tr>
<td>52ND AVE</td>
<td>INTERNATIONAL BLVD</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>5TH AVE</td>
<td>INTERNATIONAL BLVD</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>76TH AVE</td>
<td>MacArthur BLVD</td>
<td>Redevelopment/OBAG</td>
<td>Recent streetscape work on MacArthur Blvd as part of streetscape</td>
</tr>
<tr>
<td>80TH AVE</td>
<td>INTERNATIONAL BLVD</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>83RD AVE</td>
<td>INTERNATIONAL BLVD</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>84TH AVE</td>
<td>INTERNATIONAL BLVD</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>Street 1</td>
<td>Street 2</td>
<td>Funding Source</td>
<td>Treatment</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>90TH AVE</td>
<td>INTERNATIONAL BLVD</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>98TH AVE</td>
<td>CHERRY ST</td>
<td>-</td>
<td>Paving/complete streets project in process, plus RRFB installed as SRTS in 2015</td>
</tr>
<tr>
<td>98TH AVE</td>
<td>INTERNATIONAL BLVD</td>
<td>East Bay Bus Rapid Transit</td>
<td>Pedestrian Improvements included as part of East Bay Bus Rapid Transit</td>
</tr>
<tr>
<td>9TH ST</td>
<td>MADISON ST</td>
<td>-</td>
<td>Lake Merritt BART Bikeways; road diet on Madison St, also included in corridor study</td>
</tr>
<tr>
<td>E 16TH ST</td>
<td>FRUITVALE AVE</td>
<td>High Safety Improvement Program (2016)</td>
<td>RRFB installed as SRTS project 2015 install new Class II bicycle lanes, enhanced safety features at pedestrian crossings, and a new protected left turn phase at Foothill Blvd</td>
</tr>
<tr>
<td>E 19TH ST</td>
<td>FRUITVALE AVE</td>
<td>High Safety Improvement Program (2016)</td>
<td>RRFB installed as SRTS project 2015 install new Class II bicycle lanes, enhanced safety features at pedestrian crossings, and a new protected left turn phase at Foothill Blvd</td>
</tr>
<tr>
<td>GRAND AVE</td>
<td>HARRISON ST</td>
<td>Measure DD</td>
<td>Lakeside Green Streets project</td>
</tr>
</tbody>
</table>
## Table B4: High Injury Intersections with Associated Funding (cont.)

<table>
<thead>
<tr>
<th>Street 1</th>
<th>Street 2</th>
<th>Funding Source</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>MacArthur BLVD</td>
<td>MARTIN LUTHER KING JR WAY</td>
<td>-</td>
<td>Streetscape project as part of MacArthur Transit Hub</td>
</tr>
<tr>
<td>SAN PABLO AVE</td>
<td>W GRAND AVE</td>
<td>High Safety Improvement Program (2011)</td>
<td>Install protected left-turn phasing; modify intersection</td>
</tr>
</tbody>
</table>
### Table B5: High Injury Corridors with No Associated Funding

<table>
<thead>
<tr>
<th>Street Name</th>
<th>Start</th>
<th>End</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>7TH ST</td>
<td>WASHINGTON</td>
<td>7TH ST</td>
<td>Currently studied as part of the Lake Merritt Station Area Plan, Downtown Specific Plan, and Freeway Circulation Plan. Improvements from E7th Street East of Fallon to Bridge includes reducing three right turn lanes to two right-turn lanes, an expanded median island for a pedestrian refuge, enhanced pedestrian crosswalks, and signalized midblock crosswalks. Class II bike lane added. As part of the Downtown Specific Plan, 7th Street between Fallon and Castro is identified as a street for improvements, including conversion to a two-way. The Alameda Access Project Study, currently in environmental phase, is also looking at 7th Street from Adeline Street to Fallon Street</td>
</tr>
<tr>
<td>8TH ST</td>
<td>FRANKLIN</td>
<td>FALLON</td>
<td>Upgraded traffic signals on 8th St/Madison St, 8th St/Oak S. New bikeway striping, repaved, and new ADA curb ramps along the corridor. Identified in LMSA Plan as a community priority for two way conversion, or sidewalk extensions. Downtown Plan calls for 2-waying the street with a potential parking protected Class IV bike lane</td>
</tr>
<tr>
<td>FOOTHILL BLVD</td>
<td>RUTHERFORD</td>
<td>MITCHELL ST</td>
<td>Partially funded. Streetscape improvements funded through Redevelopment, from Rutherford to High St</td>
</tr>
<tr>
<td>FOOTHILL BLVD</td>
<td>TRASK ST</td>
<td>SEMINARY AVE</td>
<td>Partially included in the safety strategy. Unfunded from Trask St to Seminary Ave</td>
</tr>
<tr>
<td>HEGENBERGER</td>
<td>HEGENBER PL</td>
<td>HEGENBERGER LP</td>
<td>Identified in 2016 using 2014 data</td>
</tr>
<tr>
<td>MARTIN LUTHER KING JR WAY</td>
<td>40TH ST</td>
<td>44TH ST</td>
<td>Identified in 2016 using 2014 data</td>
</tr>
<tr>
<td>PIEDMONT</td>
<td>WARREN AVE</td>
<td>ENTRADA AVE</td>
<td>Identified in 2016 using 2014 data</td>
</tr>
<tr>
<td>TELEGRAPH</td>
<td>51ST ST</td>
<td>SR 24</td>
<td>To be studied as part of Phase II of Telegraph Avenue Complete Streets Plan</td>
</tr>
<tr>
<td>14TH ST</td>
<td>MYRTLE</td>
<td>BRUSH</td>
<td>-</td>
</tr>
</tbody>
</table>
## Table B6: High Injury Intersections with No Associated Funding

<table>
<thead>
<tr>
<th>STREET 1</th>
<th>STREET 2</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>27TH ST</td>
<td>BROADWAY</td>
<td>Developer proposing a bulbout on the SE side of Broadway and 27th. Rest of intersection remains unfunded</td>
</tr>
<tr>
<td>48TH ST</td>
<td>TELEGRAPH AVE</td>
<td>Phase II of Telegraph Avenue Complete Streets Plan</td>
</tr>
<tr>
<td>51ST ST</td>
<td>TELEGRAPH AVE</td>
<td>Phase II of Telegraph Avenue Complete Streets Plan</td>
</tr>
<tr>
<td>17TH ST</td>
<td>TELEGRAPH AVE</td>
<td>-</td>
</tr>
<tr>
<td>BRUSH ST</td>
<td>W GRAND AVE</td>
<td>-</td>
</tr>
<tr>
<td>COOLIDGE AVE</td>
<td>SCHOOL ST</td>
<td>-</td>
</tr>
<tr>
<td>E 27TH ST</td>
<td>FRUITVALE AVE</td>
<td>-</td>
</tr>
</tbody>
</table>
Appendix B: Safety Strategy

Corridor Performance Summary (2008-2013)
Table C-1A provides the Broadway Street from 9th Street to 11th Street and 16th Street to 19th Street performance measure results.

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Equivalent Property Damage Only Score</td>
<td>50.0</td>
</tr>
<tr>
<td>Risk Factors Met</td>
<td>5</td>
</tr>
<tr>
<td>Total Safety Prioritization Index Value</td>
<td>1.61</td>
</tr>
</tbody>
</table>

Risk Factors Met: Arterial Functional Classification, Four or More Lanes on Major Street, Median Presence, Pedestrian Signal Head/Countdown Presence at Signals, and Pedestrian Actuation at Signals.

Crash Analysis and Field Review Summary
Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends
- 9 pedestrian crashes over the six-year period
- All crashes were injuries
- 6 of the 9 crashes occurred when pedestrians had the right-of-way

Field Review Observations
- There are 23 AC Transit routes within 20 to 30-minute headways and 2 BART Stations
- Broadway is primarily a four-lane undivided street. There is a portion of Broadway with a median from 9th Street to 11th Street
- There are 5 signalized intersections
- Conflict between buses and vehicles at bus stop locations

Countermeasures Selection
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:
- Convert each intersection to fixed pedestrian recall ($1,000 per intersection)
- At each intersection, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($8,000 per intersection)
- At each intersection, shorten signal cycle length ($3,500 per intersection)
- At each intersection, implement Leading Pedestrian Interval (LPI) ($2,000 per intersection)
- Implement pedestrian safety zones extending from the curb at each intersection ($7,500 per intersection)

The following long term countermeasures could be integrated with the City of Oakland’s Downtown Specific Plan:
- At signalized intersections adjust signal timing to separate turning movements from pedestrian crossing phase ($30,000 per intersection)
- Extend median to provide refuge island on the south side of the Broadway and 11th Street intersection ($25,000 per island)
- Implement road diet on low volume cross streets to shorten pedestrian crossing distances ($150,000 per mile)

Planning Level Cost Estimates
Near-Term Potential Countermeasures: $165,000
Longer-Term Potential Countermeasures: $431,250

Exhibit C-1A: Turning Movement With Pedestrian Crossing
Exhibit C-1B: Broadway Corridor Map

1 Assumes three cross streets with 1/4 mile of road diet improvements

Planning Level Cost Estimates
<table>
<thead>
<tr>
<th>Corridor</th>
<th>Broadway from 9th Street to 11th Street and 16th Street to 19th Street</th>
<th>Oakland, CA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Near-Term Potential Countermeasures: $165,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Longer-Term Potential Countermeasures: $431,250</td>
<td></td>
</tr>
</tbody>
</table>

Kittelson & Associates, Inc.
Transportation Engineering Planning
**Corridor Performance Summary (2008-2013)**

Table C-2A provides the Grand Avenue from Valley Street to Park View Terrace and Lake Park Avenue to Wildwood Avenue performance measure results.

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Equivalent Property Damage Only Score</td>
<td>59.4</td>
</tr>
<tr>
<td>Risk Factors Met</td>
<td>4</td>
</tr>
<tr>
<td>Total Safety Prioritization Index Value</td>
<td>1.59</td>
</tr>
</tbody>
</table>

**Risk Factors Met:** Arterial Functional Classification, Four or More Lanes on Major Street, Median Presence, and High Frequency of Transit Stops.

**Crash Analysis and Field Review Summary**

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

**Identified Crash Trends**
- 28 pedestrian crashes over the six-year period
- 2 fatalities occurred at the Grand Avenue/Park View Terrace intersection and 1 fatality occurred at the Grand Avenue/Weldon Avenue intersection
- There were 27 injury crashes and 2 were severe injuries
- 15 of the 28 crashes occurred when pedestrians had the right-of-way

**Field Review Observations**
- The City recently completed a road diet on Grand Avenue between Elwood Avenue and Wildwood Avenue
- There are 11 signalized intersections, 3 unsignalized intersections and 2 mid-block crossings
- There are 13 AC Transit routes within 20-to-30 minute headways.
- There are 4 transit stops that are not adjacent to marked pedestrian crosswalks
- Channelized right turn lanes at Grand Avenue and Santa Clara and Grand Avenue and Bay Place

**Countermeasures Selection**

The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:
- Convert each signalized intersection to fixed pedestrian recall ($1,000 per intersection)
- At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($8,000 per intersection)
- At the 2 mid-block crossings located between Grand Avenue and Sunnyslope Avenue and Grand Avenue and Weldon Avenue, add in-street “Pedestrian Crossing signage” ($800 per intersection)
- At the Grand Avenue and Park View Terrace, Grand Avenue and Elwood Avenue, Grand Avenue and Mandana Boulevard, and Grand Avenue and Boulevard Way intersections, implement crosswalks and crossing treatments to provide access to transit stops ($2,500 per crosswalk)
- At signalized intersections, implement Leading Pedestrian Interval (LPI) ($2,000 per intersection)
- Implement near-term road diet with signing and pavement markings only from east of the I-580 intersection to Elwood Avenue ($30,000 per mile)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:
- At the mid-block, marked crossing at Grand Avenue and Sunnyslope Avenue, install a rectangular rapid flashing beacon and associated crossing signs ($30,000 per installation)
- Remove channelized right turn lanes at the Grand Avenue and Santa Clara and the Grand Avenue and Bay Place intersections ($50,000 per intersection)
- Convert near-term road diet to permanent installation by providing hardcape sidewalk improvements ($150,000 per mile)
- At signalized intersections, adjust signal timing to separate turning movements from pedestrian crossing phase ($30,000 per intersection)

**Planning Level Cost Estimates**

- Near-Term Potential Countermeasures: $206,400
- Longer-Term Potential Countermeasures: $746,250

**Exhibit C-2A: Transit Stop With No Crossing; Channelized Right Turn Lane**

**Exhibit C-1B: Grand Avenue Corridor Map**
**Corridor Performance Summary (2008-2013)**

Table C-3A provides MacArthur Boulevard from 77th Avenue to 83rd Avenue performance measure results.

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Equivalent Property Damage Only Score</td>
<td>48.3</td>
</tr>
<tr>
<td>Risk Factors Met</td>
<td>5</td>
</tr>
<tr>
<td>Total Safety Prioritization Index Value</td>
<td>1.58</td>
</tr>
</tbody>
</table>

**Risk Factors Met:** Arterial Functional Classification, Four or More Lanes on Major Street, Median Presence, High Frequency of Transit Stops, and Pedestrian Actuation at Signals.

**Crash Analysis and Field Review Summary**

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

**Identified Crash Trends**

- 8 pedestrian crashes over the six-year period
- All crashes were injuries

**Field Review Observations**

- There are 7 AC Transit routes along the corridor with service every 20 to 30 minutes. One transit stop is not adjacent to pedestrian crossings at the MacArthur Boulevard and Ritchie Street intersection
- There are 2 signalized intersections, 4 unsignalized intersections and one mid-block crossing
- The MacArthur Boulevard and Parker Avenue and the MacArthur Boulevard and 82nd Avenue intersections have permissive left turn phase

**Countermeasures Selection**

The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At the mid-block crossing south of the MacArthur Boulevard and Ritchie Street intersection, add advanced yield markings ($1,000 per crossing)
- At the MacArthur Boulevard and Parker Avenue intersection, consider implementing a crosswalk on the north leg with crossing treatments to provide access to transit stop ($2,500 per crosswalk)
- At unsignalized intersections, re-stripe marked crosswalks to high visibility crosswalks ($2,500 per crossing)
- Add high visibility crosswalks with signage and advanced yield markings at the MacArthur Boulevard and 83rd Avenue intersection ($3,500 per crossing)
- At signalized intersections, convert permissive phase to protected phase ($5,000 per intersection)
- At each intersection, restrict on-street parking within 20-feet of intersections and mid-block crossings ($600 per approach)
- Implement near-term road diet with signing and pavement markings only north of MacArthur Boulevard and 83rd Street ($30,000 per mile)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity along the corridor:

- Install continuous median with pedestrian refuge islands ($25,000 per island)
- Convert near-term road diet to more permanent installation by providing hardscape sidewalk improvements ($150,000 per mile)

**Planning Level Cost Estimates**

- Near-Term Potential Countermeasures: $90,450
- Longer-Term Potential Countermeasures: $637,500
Corridor Performance Summary (2008-2013)

Table C-4A provides 8th Street from Franklin Street to Harrison Street and Fallon Street performance measure results.

Table C-4A Performance Measure Results

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Equivalent Property Damage Only</td>
<td>36.7</td>
</tr>
<tr>
<td>Risk Factors Met</td>
<td>5</td>
</tr>
<tr>
<td>Total Safety Prioritization Index Value</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Risk Factors Met: Arterial Functional Classification, Four or More Lanes on Major Street, Median Presence, High Frequency of Transit Stops, and Pedestrian Actuation at Signals.

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 8 pedestrian crashes over the six-year period
- A fatal crash occurred at the 8th Street and Harrison Street intersection

Field Review Observations

- 8th Street is a one-way, three-lane road adjacent to Laney College and Oakland’s Chinatown, both which have high pedestrian activity
- There are 4 signalized intersections and 1 unsignalized intersection
- There are 6 AC Transit routes within 20 to 40-minute headways
- The 8th Street and Harrison Street and 8th Street and Franklin Street intersections have permissive left turn phasing

Countermeasures Selection

The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At the 8th Street and Fallon Street intersection, add a high visibility crosswalk on the north leg and re-stripe marked crosswalk with high visibility markings ($5,000)
- At the 8th Street and Fallon Street intersection, install advanced yield signage at each crossing ($1,000 per crossing)
- At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($8,000 per intersection)
- At signalized intersections, implement Leading Pedestrian Interval (LPI) ($2,000 per intersection)
- At the 8th Street and Harrison Street and 8th Street and Franklin Street intersections, convert permissive phase to protected phase ($5,000 per intersection)
- At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks ($600 per approach)
- Implement pedestrian safety zones extending from the curb at the 8th Street and Harrison Street and 8th Street and Fallon Street intersections ($7,500 per intersection)

The following long term countermeasures could be integrated with the Oakland-Alameda Freeway Access Project and City of Oakland Downtown Specific Plan:

- At the 8th Street and Harrison Street and 8th Street and Fallon Street intersections, install curb extensions on each corner ($15,000 per curb extension)
- Implement road diet to manage vehicle speeds and shorten crossing distance ($150,000 per mile)

Planning Level Cost Estimates

Near-Term Potential Countermeasures: $123,600
Longer-Term Potential Countermeasures: $270,000
Appendix B: Safety Strategy

Corridor Performance Summary (2008-2013)
Table C-5A provides Bancroft Avenue from Church Street to 80th Avenue performance measure results.

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Equivalent Property Damage Only Score</td>
<td>46.7</td>
</tr>
<tr>
<td>Risk Factors Met</td>
<td>4</td>
</tr>
<tr>
<td>Total Safety Prioritization Index Value</td>
<td>1.39</td>
</tr>
</tbody>
</table>

Risk Factors Met: Arterial Functional Classification, Median Presence, Pedestrian Signal Head/Countdown Presence at Signals, and Pedestrian Actuation at Signals

Crash Analysis and Field Review Summary
Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends
- 14 pedestrian crashes over the six-year period
- A fatal crash occurred at the Bancroft Avenue and 73rd Avenue intersection
- There were 13 injury crashes with one severe injury
- 6 of the 14 crashes occurred when pedestrians had the right-of-way

Field Review Observations
- There are 9 AC Transit routes within 20 to 30-minute headways. One transit stop is not adjacent to a marked pedestrian crosswalk at the Bancroft Avenue and Ritchie Street intersection
- There are 3 signalized intersections and 7 unsignalized intersections
- Signalized intersections have permissive left turn phasing that creates conflicts with pedestrians

Countermeasures Selection
The following near term countermeasures could help reduce pedestrian crash frequency and severity:
- At the Bancroft Avenue and 78th Street and Bancroft Avenue and Ritchie Street intersections, install advanced yield signage at marked crosswalks ($1,000 per crossing)
- At signalized intersections, implement Leading Pedestrian Interval (LPI) ($2,000 per intersection)
- At the Bancroft Avenue and Ritchie Street intersection, implement a crosswalk on the south leg and crossing treatments to provide access to transit stops ($2,500 per crosswalk)
- At the Bancroft Avenue and 73rd Avenue intersection which is adjacent to Markham Elementary School, re-stripe marked crosswalks with high visibility markings ($2,500 per crossing)
- At the Bancroft Avenue and Ritchie Street and Bancroft Avenue and 78th Avenue intersections, re-stripe high visibility crosswalks ($2,500 per crossing)
- Prohibit right-turn on red at signalized intersections when pedestrian pushbuttons have been pushed ($5,000 per intersection)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:
- At uncontrolled marked crosswalks, install rectangular rapid flashing beacons ($30,000 per crosswalk)

Planning Level Cost Estimates
Near-Term Potential Countermeasures: $34,500
Longer-Term Potential Countermeasures: $135,000

Bancroft Avenue from Church Street to 80th Avenue
Oakland, CA

Corridor 5
Corridor Performance Summary (2008-2013)

Table C-6A provides 94th Avenue from Cherry Street to Burr Street performance measure results.

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Equivalent Property Damage</td>
<td>55.0</td>
</tr>
<tr>
<td>Only Score</td>
<td></td>
</tr>
<tr>
<td>Risk Factors Met</td>
<td>3</td>
</tr>
<tr>
<td>Total Safety Prioritization Index</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Risk Factors Met: Median Presence, Pedestrian Signal Head/Countdown Presence at Signals, and Pedestrian Actuation at Signals

Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 6 pedestrian crashes over the six-year period
- A fatal crash occurred and the 94th Avenue and Peach Street intersection
- All of the crashes were injuries and 2 were severe injuries

Field Review Observations

- 94th Avenue is a two-way, two-lane local residential street
- There are 11 unsignalized intersections and a new signalized intersection under construction at the 94th Avenue and Bancroft Avenue intersection
- There are 8 AC Transit routes within 15 to 20-minute headways. There is one transit stop that is not adjacent to a marked pedestrian crosswalk

Countermeasures Selection

The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At the 94th Avenue and MacArthur Boulevard and 94th Avenue and Thermal Street intersections, install advanced yield signage at marked crosswalks ($1,000 per crossing)
- At the 94th Avenue and Peach Street intersection, add crosswalks across 94th Avenue with in-street “Pedestrian Crossing” signage and advanced yield signage ($8,600 per crossing)
- At the 94th Avenue and MacArthur Boulevard intersection, implement crosswalks and crossing treatments to provide access to transit stops ($2,500 per crosswalk)
- At the 94th Avenue and Thermal Street intersection, re-stripe marked crosswalks with high visibility markings ($2,500 per crossing)
- At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks ($600 per approach)
- Implement pedestrian safety zones extending from the curb at the 94th Avenue and MacArthur Boulevard intersection ($7,500 per intersection)

The following are long term countermeasures to reduce pedestrian crash frequency and severity:

- Extend median to provide refuge island on the north side of the 94th Street and MacArthur Boulevard intersection ($25,000 per island)
- Provide raised median/refuge island at the marked crosswalk on the south side of the 94th Street and MacArthur Boulevard intersection ($25,000 per island)
- Install raised crosswalks at marked crosswalk locations to help improve visibility of marked crosswalks and slow vehicle speeds ($50,000 per crossing)
- At the 94th Avenue and MacArthur Boulevard intersection, install curb extensions on each corner ($15,000 per curb extension)
Appendix B: Safety Strategy

Corridor Performance Summary (2008-2013)
Table C-7A provides the 73rd Avenue from Bancroft Avenue to Hillside Street performance measure results.

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Equivalent Property Damage Only Score</td>
<td>21.67</td>
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<tr>
<td>Risk Factors Met</td>
<td>4</td>
</tr>
<tr>
<td>Total Safety Prioritization Index Value</td>
<td>1.34</td>
</tr>
</tbody>
</table>

Risk Factors Met: Arterial Functional Classification, Four or More Lanes on Major Street, Median Presence, and High Frequency of Transit Stops.

Crash Analysis and Field Review Summary
Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends
- 12 pedestrian crashes over the six-year period
- A fatal crash occurred at the intersection of Bancroft Avenue and 73rd Avenue
- There were 11 injury crashes one severe injury
- 5 of the 12 crashes occurred when pedestrians had the right-of-way

Field Review Observations
- 73rd Avenue is a six-lane street with a 15-to-20 foot median. Except for 73rd Avenue and Bancroft Avenue, medians do not provide pedestrian refuge islands
- There are 3 signalized intersections and 2 unsignalized intersections
- The Eastmont Transit Center is located on 73rd Avenue; there are also 13 AC Transit routes within 20 to 30-minute headways. There are 3 transit stops that are not adjacent to marked pedestrian crosswalks
- Overgrown landscape encroaches upon sidewalk and limits space for pedestrians

Countermeasures Selection
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:
- At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($8,000 per intersection)
- Implement crosswalks and crossing treatments to provide access to transit stops at the 73rd Avenue and Bancroft Avenue, 73rd Avenue and Garfield Avenue and 73rd Avenue and Hillside Street intersections ($2,500 per crosswalk)
- At each signalized intersection, implement Leading Pedestrian Interval (LPI) ($2,000 per intersection)
- Implement near-term road diet, with signing and pavement markings only to reduce 73rd Avenue from a six-lane street to a four-lane or three-lane street ($30,000 per mile)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:
- Install high visibility crosswalk across 73rd Avenue and Hillside Street including crossing treatments such as advanced yield markings, advanced warning signs, and rectangular rapid flashing beacon ($34,300 per crossing)
- Extend medians at marked crosswalks to provide refuge island ($25,000 per island)
- Re-design the right-turn movement at 73rd Avenue and MacArthur Boulevard to remove the lane add so the right-turn movement is not a free movement Convert near-term road diet to permanent installation with hardscape sidewalk improvements ($150,000 per mile)
- At signalized intersections, adjust signal timing to separate turning movements from pedestrian crossing phase ($30,000 per intersection)

Planning Level Cost Estimates
Near-Term Potential Countermeasures: $81,000
Longer-Term Potential Countermeasures: $313,950

73rd Avenue from Bancroft Avenue to Hillside Street
Oakland, CA
Corridor Performance Summary (2008-2013)
Table C-8A provides the 14th Street from Myrtle Street to Oak Street performance measure results.

Table C-8A: Performance Measure Results

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Equivalent Property Damage Only Score</td>
<td>40.0</td>
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<tr>
<td>Risk Factors Met</td>
<td>4</td>
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<tr>
<td>Total Safety Prioritization Index Value</td>
<td>1.29</td>
</tr>
</tbody>
</table>

Risk Factors Met: Arterial Functional Classification, Four or More Lanes on Major Street, Median Presence, and High Frequency of Transit Stops.

Crash Analysis and Field Review Summary
Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends
- 35 pedestrian crashes over the six-year period
- A fatal crash occurred at the 14th Street and Market Street intersection
- There were 34 injury crashes and 2 were severe injuries
- 20 of the 35 crashes occurred when pedestrians had the right-of-way

Field Review Observations
- 14th Street is a two-way, four-lane road with 6-to-16-foot medians from Myrtle Street to Brush Street. Medians do not have curb ramps and were not designed to serve as pedestrian refuge islands while crossing 14th Street
- The City is applying for an ATP grant to have separated/buffered bike lanes on 14th Street which would require removing one vehicle lane per direction of travel on 14th Street
- There are 14 signalized intersections and 2 unsignalized intersections
- There are 15 AC transit routes within 20 to 60-minute headways

Countermeasures Selection
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:
- At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($8,000 per intersection)
- At the 14th Street and Market Street intersection, which is adjacent to the West Oakland Middle School, re-stripe marked crosswalks with high visibility markings ($2,500 per crossing)
- At the 14th Street and Jackson Street and 14th Street and Madison Street intersections, which are adjacent to Little Star Preschool, re-stripe marked crosswalks with high visibility markings ($2,500 per crossing)
- At the 14th Street and Broadway intersection, shorten signal cycle length ($3,500 per intersection)
- At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks ($600 per approach)
- Implement near-term road diet with signing and pavement markings only to reduce 14th Street from a four-lane street to a two-lane street ($30,000 per mile)

The following long term countermeasures could be integrated with the City’s ATP grant application or other longer term planning efforts such as the City’s Downtown Specific Plan:
- Convert near-term road diet to permanent installation with hardscape sidewalk improvements ($150,000 per mile)
- At the 14th Street and Market Street, 14th Street and West Street, and 14th Street and Brush Street intersections, extend medians to provide pedestrian refuge islands at marked crosswalks ($25,000 per crossing island)

Planning Level Cost Estimates
Near-Term Potential Countermeasures: $328,050
Longer-Term Potential Countermeasures: $532,500
**Corridor Performance Summary (2008-2013)**

Table C-9A provides the 9th Street from Franklin Street to Fallon Street performance measure results.

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Equivalent Property Damage Only Score</td>
<td>50.0</td>
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<td>Risk Factors Met</td>
<td>3</td>
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<tr>
<td>Total Safety Prioritization Index Value</td>
<td>1.28</td>
</tr>
</tbody>
</table>


**Crash Analysis and Field Review Summary**

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

**Identified Crash Trends**

- 15 pedestrian crashes over the six-year period
- 2 fatalities occurred at the 9th Street and Madison Street and 9th Street and Alice Street intersections
- There were 13 injury crashes and one was a severe injury
- 9 of the 15 crashes occurred when pedestrians had the right-of-way

**Field Review Observations**

- 9th Street is one-way, three-lane road adjacent to Laney College and Oakland’s Chinatown, both which have high pedestrian activity
- There are 6 signalized intersections and 2 unsignalized intersections
- The Lake Merritt BART Station is located at the 9th Street and Oak Street intersection

**Countermeasures Selection**

The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At the 9th street and Alice Street and 9th Street and Fallon Street intersections, install advanced yield signage at marked crosswalks ($1,000 per crossing)
- At the 9th Street and Fallon Street intersection, which is adjacent to Laney College, add a high visibility crosswalk across the north leg of Fallon Street ($2,500 per crossing)
- At the 9th Street and Fallon Street intersection, re-stripe the marked crosswalk on the south leg with high visibility markings ($2,500 per crossing)
- At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($8,000 per intersection)
- At the 9th Street and Franklin Street, 9th Street and Webster Street, and 9th Street and Harrison Street intersections, shorten signal cycle length ($3,500 per intersection)
- At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks ($600 per approach)
- Implement near-term road diet with signing and pavement markings only; consider moving on-street parking away from curb to create separated bike facility ($30,000 per mile)

The following long term countermeasures could be integrated with the City of Oakland’s Downtown Specific Plan:

- At the 9th Street and Alice Street and 9th Street and Fallon Street intersections, install rectangular rapid flashing beacons on each crossing ($30,000 per installation)
- Convert near-term road diet to more permanent installation by providing hardscape sidewalk improvements ($150,000 per mile)

**Planning Level Cost Estimates**

Near-Term Potential Countermeasures: $154,650
Longer-Term Potential Countermeasures: $382,500
Corridor Performance Summary (2008-2013)

Table C-10A provides Bancroft Avenue from 84th Avenue to 98th Avenue performance measure results.

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
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<tbody>
<tr>
<td>Annual Equivalent Property Damage Only Score</td>
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<td>Risk Factors Met</td>
<td>4</td>
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<tr>
<td>Total Safety Prioritization Index Value</td>
<td>1.28</td>
</tr>
</tbody>
</table>


Crash Analysis and Field Review Summary

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends

- 14 pedestrian crashes over the six-year period
- A fatal crash occurred at the Bancroft Avenue and 94th Avenue intersection
- There were 14 injury crashes and 3 were severe injuries
- 5 of the 14 crashes occurred when pedestrians had the right-of-way

Field Review Observations

- Bancroft Avenue is a two-lane road with 45-foot center median, on-street parking, and Class II bike lanes
- There are 5 AC Transit routes within 20 and 30-minute headways. There are 7 transit stops that are not adjacent to marked pedestrian crosswalks
- There are 2 signalized intersections and 10 unsignalized intersections
- There are median breaks along the corridor that provide ramps for pedestrians but do not connect to a marked crosswalk across Bancroft Avenue

Countermeasures Selection

The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At the Bancroft Avenue and 86th Avenue, Bancroft Avenue and 87th Avenue, Bancroft Avenue and 88th Avenue, and Bancroft Avenue and 89th Avenue intersections, install in-street “Pedestrian Crossing” signage at marked crosswalks ($800 per crossing)
- At the Bancroft Avenue and 86th Avenue, Bancroft Avenue and 87th Avenue, Bancroft Avenue and 88th Avenue, and Bancroft Avenue and 89th Avenue intersections, install advanced yield signage at marked crosswalks ($1,000 per crossing)
- At signalized intersections, implement Leading Pedestrian Interval (LPIs) ($2,000 per intersection)
- At the Bancroft Avenue and 85th Avenue, Bancroft Avenue and 87th Avenue, Bancroft Avenue and 90th Avenue, Bancroft Avenue and 94th Avenue, Bancroft Avenue and 96th Avenue intersections, implement crosswalks and crossing treatments to provide access to transit stops ($2,500 per crosswalk)
- At the Bancroft Avenue and 98th Avenue intersection, which is adjacent to the E Morris Cox Elementary School, re-stripe marked crosswalks with high visibility markings ($2,500 per crossing)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:

- At the Bancroft Avenue and 84th Avenue, Bancroft Avenue and 85th Avenue, Bancroft Avenue and 86th Avenue, Bancroft Avenue and 88th Avenue, Bancroft Avenue and 94th Avenue, and Bancroft Avenue and 96th Avenue intersections, install crosswalks with rectangular rapid flashing beacons ($30,000 per installation)

Planning Level Cost Estimates

Near-Term Potential Countermeasures: $69,300
Longer-Term Potential Countermeasures: $540,000
Appendix B: Safety Strategy

Corridor Performance Summary (2008-2013)
Table C-11A provides High Street from Lyon Avenue to Kansas Street performance measure results.

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>Annual Equivalent Property Damage Only Score</td>
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<tr>
<td>Risk Factors Met</td>
<td>3</td>
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<td>Total Safety Prioritization Index Value</td>
<td>1.25</td>
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</table>

Risk Factors Met: Arterial Functional Classification, Median Presence, and High Frequency of Transit Stops.

Crash Analysis and Field Review Summary
Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends
- 18 pedestrian crashes over the six-year period
- There were 18 injury crashes and 2 were severe injuries
- 11 of the 18 crashes occurred when pedestrians had the right-of-way

Field Review Observations
- High Street has a three-lane cross-section with one lane per direction and a center two-way left-turn lane
- High Street is a two-lane road with two-way center left-turns lanes from Walnut Street to Suter Street
- High Street widens to a four-lane road east of Suter Street to Masterson Street, where it continues as a two-lane road with 20-foot medians
- There are 6 signalized intersections and 10 unsignalized intersections
- There are 12 AC Transit routes within 20 and 30-minute headways. There are 3 transit stops that are not adjacent to marked pedestrian crosswalks
- Many residential driveways adjacent to High Street

Countermeasures Selection
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:
- At the High Street and Fleming Avenue, High Street and Penniman Avenue, High Street and Culver Street, and High Street and Kansas Street intersections, install advanced yield signage at marked crosswalks ($1,000 per crossing)
- At the High Street and Culver Street, High Street and Fleming Avenue, and High Street and Kansas Street intersections, implement crosswalks and crossing treatments to provide access to transit stops ($2,500 per crossing)
- At the High Street and Fleming Avenue, High Street and Penniman Avenue, High Street and Culver Street, and High Street and Kansas Street intersections, re-stripe marked uncontrolled crosswalks with high visibility markings ($2,500 per crossing)
- At each intersection, restrict on-street parking within 20-feet of the intersection and marked crosswalks ($600 per approach)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:
- At each intersection east of the High Street and Masterson Street intersection, install crosswalks with curb ramps in medians ($25,000 per crosswalk)
- At the High Street and Porter Street intersection, which is adjacent to the Boys and Girls Club, installed raised pedestrian crossings ($50,000 per intersection)
- At the High Street and Masterson Street and High Street and Kansas Street intersections, which are adjacent to the St. Lawrence O’Toole Catholic School, install raised pedestrian crossings ($50,000 per intersection)

Planning Level Cost Estimates
Near-Term Potential Countermeasures: $97,350
Longer-Term Potential Countermeasures: $525,000

High Street from Lyon Avenue to Kansas Street
Oakland, CA

Corridor

11
Corridor Performance Summary (2008-2013)
Table C-12A provides 15th Street from 21st Avenue to 26th Avenue performance measure results.

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>Annual Equivalent Property Damage Only Score</td>
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<td>3</td>
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<tr>
<td>Total Safety Prioritization Index Value</td>
<td>1.07</td>
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</table>


Crash Analysis and Field Review Summary
Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends
- 4 pedestrian crashes over the six-year period
- A fatal crash occurred at the 15th Street and 22nd Avenue intersection
- There were 4 injury crashes and one severe injury

Field Review Observations
- 15th Street is a two-way, two-lane road without edgeline markings
- There are 8 unsignalized intersections
- There are no transit stops

Countermeasures Selection
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- At the 15th Street and 26th Avenue intersection, add stop sign on southbound approach ($800)
- At the 15th Street and 23rd Avenue and 15th Street and Miller Avenue intersections, install advanced yield markings to each minor approach ($1,000 per crossing)
- At the 15th Street and 22nd Avenue intersection, which is adjacent to Garfield Elementary School, add high visibility crosswalks with signage and advanced yield markings* ($3,500 per crossing)
- Add edgeline markings for street narrowing and parking definition ($20,000 per mile)
- At each intersection, restrict on-street parking within 20-feet of intersection and marked crosswalks ($600 per approach)
- Implement pedestrian safety zones extending from the curb at the 15th Street and 22nd Avenue intersection ($7,500 per intersection)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:

- Implement crossing improvements such as rectangular rapid flashing beacon, pedestrian refuge island, or high visibility crosswalk at the High Street and 22nd Avenue intersection ($30,000 per installation; $25,000 per crossing island; $2,500 per crossing)
- At the 15th Street and 22nd Avenue intersection, install curb extensions on each corner ($15,000 per curb extension)

Planning Level Cost Estimates
Near-Term Potential Countermeasures: $79,950
Longer-Term Potential Countermeasures: $435,000

Exhibit C-12A: Unmarked Edgelines; 15th Street and 22nd Street Intersection Adjacent to Garfield Elementary School With No Crosswalk

Exhibit C-12B: 15th Street Corridor Map
Appendix B: Safety Strategy

Corridor Performance Summary (2008-2013)
Table C-13A provides Brush Street from 12th Street to 14th Street performance measure results.

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
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<tbody>
<tr>
<td>Annual Equivalent Property Damage Only Score</td>
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<td>Risk Factors Met</td>
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<td>Total Safety Prioritization Index Value</td>
<td>1.03</td>
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</table>

**Risk Factors Met:** Arterial Functional Classification and Pedestrian Actuation at Signals.

Crash Analysis and Field Review Summary
Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

Identified Crash Trends
- 17 pedestrian crashes over the six-year period
- 15 of the 17 crashes occurred at the Brush Street and 12th Street intersection. 12 of the 15 crashes occurred when pedestrian had the right-of-way
- There were 17 injury crashes with no severe injuries or fatalities
- 14 of the 17 crashes occurred when pedestrians had the right-of-way

Field Review Observations
- Brush Street is a one-way three-lane road paralleling I-980
- The Brush Street and 12th Street intersection includes the I-980 off-ramp which is separated by a striped median; there is no pedestrian crossing across this approach of the intersection
- The I-980 off-ramp is a two-lane road, resulting in five lanes at the Brush Street and 12th Street intersection
- There are 3 AC Transit routes within 20 and 30-minute headways
- There are 2 signalized intersections and 1 unsignalized intersection

Countermeasures Selection
The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:
- At the Brush Street and 12th Street intersection, add “Pedestrian Crossing Prohibited” signage at the north side of Brush Street ($800)
- At the Brush Street and 14th Street intersection, replace pedestrian countdown timer on northwest corner ($1,000)
- At signalized intersections, re-stripe marked crosswalks for general maintenance ($2,500 per crossing)
- At the Brush Street and 12th Street intersection, implement Leading Pedestrian Interval (LPI) ($2,000 per intersection)
- At each intersection, restrict on-street parking within 20-feet of intersection and marked crosswalks ($600 per approach)
- Implement pedestrian safety zones extending from the curb at the Brush Street and 12th Street and Brush Street and 14th Street intersections ($7,500 per intersection)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:
- Implement road diet along Brush Street; would need to extend beyond the limits of 12th and 14th Streets ($150,000 per mile)
- At the Brush Street and 12th Street and Brush Street and 14th Street intersections, install curb extensions on each corner ($15,000 per curb extension)
- At the Brush Street and 14th Street intersection, adjust signal timing to separate turning movements from pedestrian phase crossing ($30,000 per intersection)

Planning Level Cost Estimates
Near-Term Potential Countermeasures: $56,850
Longer-Term Potential Countermeasures: $450,000
Appendix B: Safety Strategy

**Corridor Performance Summary (2008-2013)**

Table C-14A provides the Foothill Boulevard from 45th Avenue to Trask Street performance measure results.

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
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<tbody>
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<td>Risk Factors Met</td>
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<td>Total Safety Prioritization Index Value</td>
<td>1.58</td>
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</table>

**Risk Factors Met:** Arterial Functional Classification, Median Presence, High Frequency of Transit Stops, Pedestrian Signal Head/Countdown Presence at Signals, and Pedestrian Actuation at Signals.

**Crash Analysis and Field Review**

Site photos highlight field review observations. The corridor map highlights the location and severity of crashes. Crash trends and field review observations are highlighted below.

**Identified Crash Trends**

- 11 pedestrian injury crashes occurred over the six-year period
- 2 of the 11 crashes were fatalities and 9 of 11 were injury crashes
- 8 of the 11 crashes occurred when a pedestrian was crossing in a crosswalk

**Field Review Observations**

- There are 4 AC Transit routes within 10 to 60-minute headways
- Foothill Boulevard has a three-lane cross-section with one lane per direction and a center two-way left-turn lane
- There are 5 signalized intersections and 7 unsignalized intersections
- Garbage bins and debris on sidewalk obstruct pedestrian right-of-way

**Countermeasures Selection**

The following near term countermeasures could potentially reduce pedestrian crash frequency:

- At the Foothill Boulevard and 45th Street intersection, replace school crossing sign and include directional arrow indicating crossing ($500 per sign)
- At the Foothill Boulevard and 45th Street intersection, upgrade school crossing sign to current standard and include directional arrow indicating crossing ($500 per sign)
- At signalized intersections, set pedestrian countdown timers within the CA MUTCD recommended time of 3.5 feet per second ($1,000 per device)
- At the Foothill Boulevard and 45th Avenue, Foothill Boulevard and 46th Avenue, Foothill Boulevard and 50th Avenue, Foothill Boulevard and 51st Avenue, Foothill Boulevard and Congress Avenue, Foothill Boulevard and Belvedere Street, and Foothill Boulevard and Cole Street intersection, install advanced yield markings and advanced pedestrian crosswalk ahead signs across Foothill Boulevard ($1,500 per crossing)
- At the Foothill Boulevard and Vicksburg intersection, re-stripe marked crosswalk on north leg ($2,500 per crossing)
- At the Foothill Boulevard and 47th Street intersection, convert signal from pedestrian actuated to fixed recall for the pedestrian walk phase ($3,500 per intersection)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:

- At the Foothill Boulevard and Trask Street intersection, install curb extensions on the northeast, northwest, and southwest corners ($15,000 per curb extension)
- At the Foothill Boulevard and 45th Avenue and Foothill Boulevard and 50th Street intersections, install a rectangular rapid flashing beacon and associated school crossing signs ($30,000 per installation)

**Planning Level Cost Estimates**

Near-Term Potential Countermeasures: $78,900
Longer-Term Potential Countermeasures: $202,500
Appendix B: Safety Strategy

Pedestrian Safety Strategy

Table I-1A provides the intersection’s performance scores and rankings from the Pedestrian Safety Strategy’s prioritization process.

**Table I-1A: Performance Measure Results**

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
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<td>20.0</td>
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<tr>
<td>Risk Factors Met</td>
<td>4</td>
</tr>
<tr>
<td>Total Safety Prioritization Index Value</td>
<td>1.30</td>
</tr>
</tbody>
</table>

**Risk Factors:** Arterial Functional Classification, Four or More Lanes on Major Street, Pedestrian Signal Head/Countdown Presence at Signals, and Pedestrian Actuation at Signals

**Crash Analysis and Field Review Summary**

The intersection map shows the geometry of the study area. Site photos highlight field review observations.

- 3 pedestrian crashes including one severe crash over the six-year period
- No countdown timers
- No sidewalk on north-westbound approach
- Pedestrian activation button only on southwest corner
- Signs of heavy vehicle over-tracking on each corner

**Exhibit I-1A: San Leandro Street & High Street Intersection Map**

**Potential Countermeasures**

The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- Remove “Sidewalk Closed” sign on northeast approach ($500)
- Prohibit right turn on red on each approach ($2,000 per intersection; $500 per approach)
- Install pedestrian activation buttons on each corner except southwest ($8,000 per intersection)
- Implement Leading Pedestrian Interval (LPI) at each crossing ($2,000 per intersection)

The following are long term countermeasures to potentially reduce crash frequency and severity:

- Resurface intersection pavement ($15,000 per intersection; $7 per square foot)
- Construct sidewalk on north-westbound approach ($30,000)
- Reconstruct intersection to accommodate heavy vehicles while providing pedestrian crossing treatments ($100,000)

**Exhibit I-1B: Northbound Approach With No Sidewalk; and Pedestrian Activation Button With No Signage**

**San Leandro Street & High Street**

Signalized Intersection
Oakland, CA

**Planning Level Cost Estimates**

Near-Term Potential Countermeasures: $18,750
Longer-Term Potential Countermeasures: $217,500
### Intersection Summary

Table I-2A provides the intersection’s performance scores and rankings from the Pedestrian Safety Strategy’s prioritization process.

Table I-2A:  Performance Measure Results

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Equivalent Property Damage Only Score</td>
<td>20.0</td>
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<tr>
<td>Risk Factors Met</td>
<td>4</td>
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<tr>
<td>Total Safety Prioritization Index Value</td>
<td>1.30</td>
</tr>
</tbody>
</table>

**Risk Factors:** Arterial Functional Classification, Four or More Lanes on Major Street, Pedestrian Signal Head/Countdown Presence at Signals, and Pedestrian Actuation at Signals

### Crash Analysis and Field Review Summary

The intersection map shows the geometry of the study area. Site photos highlight field review observations.

- 3 pedestrian crashes including one severe crash over the six-year period
- No countdown timers
- No pedestrian detectable warnings
- No pedestrian activation buttons
- Intersection provides access to shopping center

### Potential Countermeasures

- **Near-Term**
  - Restripe each crosswalk ($2,500 per crossing)
  - Install pedestrian countdown timers at each crossing ($8,000 per intersection)
  - Install pedestrian activation buttons at each corner ($8,000 per intersection)
  - Convert each device to fixed pedestrian recall ($1,000 per intersection)
  - Implement pedestrian safety zones extending from the curb at the intersection ($7,500 per intersection)

- **Long-Term**
  - Add lighting for crosswalks across Market Street ($12,000 per intersection; $6,000 per crossing)
  - Convert eastbound and westbound left-turn phase to protected left-turn phase ($10,000 per intersection; $5,000 per device)
  - Extend medians to create pedestrian refuge islands on north and south legs ($50,000 per intersection; $25,000 per crossing island)
  - Install curb extensions on each corner ($15,000 per curb extension)

### Planning Level Cost Estimates

- Near-Term Potential Countermeasures: $51,750
- Longer-Term Potential Countermeasures: $198,000
## Intersection Summary

Table I-3A provides the intersection’s performance scores and rankings from the Pedestrian Safety Strategy’s prioritization process.

### Table I-3A: Performance Measure Results

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Equivalent Property Damage Only Score</td>
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</tr>
<tr>
<td>Risk Factors Met</td>
<td>3</td>
</tr>
<tr>
<td>Total Safety Prioritization Index Value</td>
<td>1.10</td>
</tr>
</tbody>
</table>

**Risk Factors:** Arterial Functional Classification, Pedestrian Signal Head/Countdown Presence at Signals, and Pedestrian Actuation at Signals

### Crash Analysis and Field Review Summary

The intersection map shows the geometry of the study area. Site photos highlight field review observations.

- 3 pedestrian crashes including one severe crash over the six-year period
- No pedestrian countdown timers
- Northbound right-turn movement provides connection to I-880 freeway
- There are 2 AC Transit bus routes within 20 to 30-minute headways

### Potential Countermeasures

The following near term countermeasures could potentially reduce pedestrian crash frequency and severity at the intersection:

- Install pedestrian countdown timers at each crossing ($8,000 per intersection)
- Install pedestrian activation buttons at each crossing ($8,000 per intersection)
- Implement Leading Pedestrian Interval (LPI) at each crossing ($2,000 per intersection)
- Integrate protected northbound right turn phase ($5,000 per intersection)

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**Exhibit I-3A:** 7th Street and Harrison Street Intersection Map

**Exhibit I-3B:** Pole with No Pedestrian Countdown Timer; Channelized Right Turn Lanes

---

Kittel & Associates, Inc.
Transportation Engineering/Planning

**7th Street & Harrison Street**
Signalized Intersection
Oakland, CA

**Near-Term Potential Countermeasures:** $34,500
**Intersection Summary**

Table I-4A provides the intersection’s performance scores and rankings from the Pedestrian Safety Strategy’s prioritization process.

**Table I-4A: Performance Measure Results**

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Equivalent Property Damage Only Score</td>
<td>20.0</td>
</tr>
<tr>
<td>Risk Factors Met</td>
<td>3</td>
</tr>
<tr>
<td>Total Safety Prioritization Index Value</td>
<td>1.10</td>
</tr>
</tbody>
</table>

**Risk Factors:** Arterial Functional Classification, Four or More Lanes on Major Street, and Pedestrian Signal Head/Countdown Presence at Signals.

**Crash Analysis and Field Review Summary**

The intersection map shows the geometry of the study area. Site photos highlight field review observations.

- 3 pedestrian crashes including one severe crash over the six-year period
- Bulbouts located on each crossing
- No countdown timers
- Permissive left-turns on each approach

**Potential Countermeasures**

The following near term countermeasures could potentially reduce pedestrian crash frequency and severity:

- Re-stripe each marked crosswalk ($2,500 per crossing)
- Install pedestrian countdown timers at each crossing ($8,000 per intersection)
- Implement Leading Pedestrian Interval (LPI) at each crossing ($2,000 per intersection)
- Prohibit right turn on red on each approach ($2,000; $500 per approach)

The following are long term countermeasures to potentially reduce pedestrian crash frequency and severity:

- Convert eastbound and westbound permissive left turn phase to protected left turn phase ($10,000 per intersection; $5,000 per device)
- Integrate eastbound and westbound protected right turn phase ($5,000 per intersection)

**Exhibit I-4A: Grand Avenue and Staten Avenue Intersection Map**

**Exhibit I-4B: Degraded Pavement; Permissive Left Turn on East Leg**

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**Planning Level Cost Estimates**

Near-Term Potential Countermeasures: $33,000  
Longer-Term Potential Countermeasures: $22,500
TREATMENT TOOLBOX

The pedestrian safety treatments are organized into the following three program areas:

- Signalized Intersections;
- Marked Uncontrolled Crosswalks at Two-Way Stop-Controlled Locations; and
- Marked Uncontrolled Crosswalks at Midblock Locations.

To apply this toolbox to corridors:

- Consider is the corridor over built from a vehicular capacity perspective? Could a road diet be implemented?
  - Road diets reduce the number of vehicle lanes a pedestrian has to cross and also consistently reduces vehicle speeds.
  - Reducing pedestrian exposure to vehicles and slowing vehicle speeds help lower the risk of pedestrian crashes.
- Identify intersections along the corridor that are higher risk (based on their physical characteristics and crash history) for pedestrian crashes.
  - Depending on the control at these intersections, see the treatments within the signalized intersection toolbox or treatments within the marked uncontrolled crosswalks at two-way stop controlled locations for potential improvements.
  - If there are a number of signalized intersections along the corridor, consider signal timing changes to coordinate the signals to encourage slower vehicle speeds (e.g., coordinate signals to encourage vehicle speeds of 13 mph).
- Identify midblock crossing locations – either existing marked uncontrolled midblock crossing locations or midblock locations that due to surrounding land uses are an attractive location for pedestrians to attempt to cross (e.g., midblock transit stops, commercial uses, schools, parks).
  - See the treatments within the marked uncontrolled crosswalks at midblock locations midblock section of the toolbox.

Table 1 summarizes the treatments provided in the toolbox by program area. Treatments marked with this symbol: ⭐ are treatments that may help with managing or slowing vehicle speeds. The toolbox provides more detail on each treatment type including planning level cost ranges or order of magnitude cost values, benefits and constraints, typical applications, and design considerations. Cost ranges were provided by City of Oakland staff unless otherwise noted. References containing additional guidance are provided for each treatment. The guidance in this toolbox should be used alongside the City of Oakland’s Crosswalk Policy guidance as well as the City’s Pedestrian Safety Guidance for Signalized Intersections Memorandum to identify the most appropriate treatment(s) at a particular location.
# Appendix C: Safety Toolkit

## Pedestrian Safety Strategy

### Attachment A – Treatment Toolbox

**July 25, 2016**

### Table 1. Toolbox Contents

<table>
<thead>
<tr>
<th>Page #</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1</td>
<td>Add Exclusive Pedestrian Phasing</td>
</tr>
<tr>
<td>S-2</td>
<td>Restrict Right Turn on Red</td>
</tr>
<tr>
<td>S-3</td>
<td>Protected Right Turn Phase</td>
</tr>
<tr>
<td>S-4</td>
<td>Modify Signal Timing</td>
</tr>
<tr>
<td>S-5</td>
<td>Convert Permissive Phase to Protected or Protected/Permissive Phasing</td>
</tr>
<tr>
<td>S-6</td>
<td>Install Pedestrian Countdown Timers</td>
</tr>
<tr>
<td>S-7</td>
<td>Implement Leading Pedestrian Interval (LPI)</td>
</tr>
<tr>
<td>S-8</td>
<td>Implement Flashing Yellow Arrow</td>
</tr>
</tbody>
</table>

**Signalized Intersections**
<table>
<thead>
<tr>
<th>TWSC-1</th>
<th>Install Raised Intersection or Raised Pedestrian Crossing</th>
<th><img src="image1.png" alt="Image" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>TWSC-2</td>
<td>Install Raised Median to serve as a Pedestrian Refuge Island</td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td>TWSC-3</td>
<td>Install In-Street “Yield for Pedestrians” Signs</td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td>TWSC-4</td>
<td>Stripe Advance Yield Lines</td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td>TWSC-5</td>
<td>Restrict Parking at Intersection Approaches</td>
<td><img src="image5.png" alt="Image" /></td>
</tr>
<tr>
<td>TWSC-6</td>
<td>Provide Pedestrian Lighting</td>
<td><img src="image6.png" alt="Image" /></td>
</tr>
<tr>
<td>TWSC-7</td>
<td>Reduce Corner Radii</td>
<td><img src="image7.png" alt="Image" /></td>
</tr>
</tbody>
</table>
## Appendix C: Safety Toolkit

### Uncontrolled Marked Crosswalks at Midblock Locations

<table>
<thead>
<tr>
<th>MB-1</th>
<th>Install a Pedestrian Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB-2</td>
<td>Install a Pedestrian Hybrid Beacon</td>
</tr>
<tr>
<td>MB-3</td>
<td>Install Rectangular Rapid Flashing Beacon</td>
</tr>
<tr>
<td>MB-4</td>
<td>Install a Crossing Island (i.e., Pedestrian Refuge Island)</td>
</tr>
<tr>
<td>MB-5</td>
<td>Install Curb Extension</td>
</tr>
<tr>
<td>MB-6</td>
<td>Install a Raised Pedestrian Crossing</td>
</tr>
<tr>
<td>MB-7</td>
<td>Install a High Visibility Crosswalk Pavement Markings</td>
</tr>
<tr>
<td>MB-8</td>
<td>Implement a Road Diet (i.e., reduce the number of vehicle lanes)</td>
</tr>
</tbody>
</table>
ADD EXCLUSIVE PEDESTRIAN PHASING

Cost Range: $5,000 – 30,000 (per intersection installation)\(^1\)

Exclusive pedestrian phasing, sometimes referred to as a “pedestrian scramble,” stops all vehicular movement and allows pedestrians to cross in any direction (including diagonally).

**Benefits**
- Nearly eliminates all pedestrian-vehicle conflicts
- Allows pedestrians to cross in any direction
- Treatment is already established in the City of Oakland (8\(^{th}\) and Webster)

**Constraints**
- May increase vehicle and/or pedestrian delay due to added phasing and increased cycle lengths
- Increased cycle lengths may encourage pedestrians crossing against the signal
- Additional educational and/or enforcement efforts may be required for consistent compliance.

**Typical Applications**
- Intersections with patterns of conflicts and/or collisions between crossing pedestrians and turning vehicles combined with high pedestrian crossing volumes.
- Central business district and other high pedestrian volume activity centers.

**Design Considerations**
- Speech walk messages used at intersections with exclusive pedestrian phasing shall be patterned after the model: “Walk sign is on for all crossings.”
- Locate the push button such that it is easily accessible by pedestrians, wheelchair users, and bicyclists.
- Treatment may result in longer cycle lengths at intersections with long diagonal crossing distances; this may increase total delay for pedestrians and motorists at the intersection.
- Impacts to transit operations should be considered.

**Additional Guidance**
- California Manual on Uniform Traffic Control Devices
- City of Oakland’s Pedestrian Safety Guidance for Signalized Intersections

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\(^1\) The low end of the estimated cost range covers signal timing and reprogramming for the additional pedestrian phase while the high end of the estimated cost includes a new controller for the signal, additional pedestrian signal heads, and construction at the intersection.
RESTRICT RIGHT TURN ON RED

Magnitude Cost: $500-$5000 (per approach)²

Mounted signs eliminate the right of motorists to make a right turn at a red light. Can be used full-time or under restricted time intervals.

Benefits
- Reduces conflicts and collisions between motorists and pedestrians

Constraints
- Reduces time motorists have to make a right turn
- Potential vehicle queuing
- Potential vehicle/transit delay

Typical Applications
- Signalized intersections where right-turning movements interfere with crossing pedestrians and pedestrian crossing volumes are high. See below for restriction considerations.

Design Considerations
- Restrictions could be considered where:
  - There is inadequate sight distance for pedestrians and vehicles to see each other — inadequate sight distance means insufficient stopping sight distance for motorists and/or pedestrians do not have sufficient line of sight to judge a safe gap to cross based on prevailing vehicle speeds;
  - Geometric or operational characteristics may result in unexpected conflicts;
  - There is an exclusive pedestrian phase or an exclusive bicycle phase;
  - Heavy pedestrian volumes;
  - School or railroad crossings; and
  - Traffic signal with three or more phases.

Additional Guidance
- California Manual on Uniform Traffic Control Devices

² The order of magnitude cost covers at the low end the purchase of a “No Right Turn on Red” sign and installation, while the high end costs represents the purchase and installation of a dynamic “No Right Turn on Red” sign.
Pedestrian Safety Solutions Toolbox

Signalized Intersections

PROTECTED RIGHT TURN PHASE

Magnitude Cost: $3,000 – 5,000

Protected right turn phases may be used where vehicle and pedestrian volumes are high to separate the two conflicting movements.

Benefits
- Reduces conflicts and collisions between right-turning motorists and pedestrians.

Constraints
- Increases pedestrian wait time at crossings
- Requires right-turn only lane.

Typical Applications
- Signalized intersections where high right-turning vehicle movements and high volumes of crossing pedestrians.
- Locations with a documented history of right-turning vehicle and pedestrian conflicts or collisions.

Design Considerations
- Protected right turn phases could be considered where:
  o There is inadequate sight distance for pedestrians and vehicles to see each other - inadequate sight distance means insufficient stopping sight distance for motorists and/or pedestrians do not have sufficient line of sight to judge a safe gap to cross based on prevailing vehicle speeds;
  o Geometric or operational characteristics may result in unexpected conflicts;
  o There are an unacceptable number of pedestrian conflicts with right-turn movements;
  o Heavy pedestrian volumes; and
  o Heavy right-turning vehicle volumes.

Additional Guidance
- California Manual on Uniform Traffic Control Devices

3 The cost range covers retiming and reprogramming the signal and one or two additional signal heads.
MODIFY SIGNAL TIMING

Cost Range: $1,000 – $3,500 (per intersection)\(^4\)

Adjusting existing signal timings to better accommodate pedestrians. This could include reducing the amount of vehicular green time to decrease pedestrian wait time at signals.

Benefits
- Provides additional crossing times and reducing wait times.
- Can be used to manage vehicle speeds along a corridor.

Constraints
- Improving conditions for one mode is often done at the expense of others (e.g. increased delay).

Typical Applications
- Signalized intersections where pedestrian cross times are inadequate for pedestrian volumes.
- Locations with a documented crash history of pedestrians frequently crossing against the signal.
- Along a corridor signal timing could be modified to help manage vehicle speeds – e.g., establishing progression for a vehicle speed of 13 mph.

Design Considerations
- Allow pedestrians sufficient time to cross the street, including seniors, children, and people with disabilities.
- A walking speed of 3.5 feet per second should be used to calculate the minimum pedestrian clearance interval (flashing red hand plus yellow and any all-red phases).
- Where pedestrians walk slower than 3.5 feet per second, or pedestrians who use wheelchairs routinely use the crosswalk, consider a walking speed of less than 3.5 feet per second.
- Provide a walk interval at least 7 seconds long to allow time for a pedestrian to leave the curb or shoulder before the clearance time begins.

Additional Guidance
- *California Manual on Uniform Traffic Control Devices*
- *NACTO Urban Street Design Guide*

\(^4\) The cost range covers retiming and reprogramming a single intersection at the low end to more complex situations such as adjusting coordinated signals at the high end.
CONVERT PERMISSIVE PHASE TO PROTECTED OR PROTECTED/PERMISSIVE PHASING

Cost Range: $3,000 - $5,000

Adjust signal phasing to allow left-turning vehicles a protected or protected/permissive left-turn phase instead of a permissive phase.

Benefits
- Reduce left-turning conflicts with pedestrians and vehicles
- Improve vehicle turning-related safety for pedestrians and improve safety for left-turning motorists.
- Improve left-turning operations

Constraints
- Less green time for through and right turn movements
- Less green time for pedestrian crossings

Typical Applications
- Signalized intersections where left-turning vehicle-pedestrian crashes are frequent.
- Signalized intersections where left-turning vehicles and pedestrians have frequent conflicts.

Design Considerations
- Consider protected or protected/permissive phasing at intersections with a history of left-turning collisions, where pedestrian-vehicle turning conflicts are high, and intersections with large skews.

Additional Guidance
- California Manual on Uniform Traffic Control Devices
- NCHRP Report 617: Accident Modification Factors for Traffic Engineering and ITS Improvements
- FHWA Toolbox of Countermeasures and Their Potential Effectiveness for Pedestrian Crashes
- NACTO Urban Street Design Guide

5 The cost range covers retiming and reprogramming the signal and one or two additional signal heads.
INSTALL PEDESTRIAN COUNTDOWN TIMERS

Magnitude  Cost: $300 - $1,000 (per device)\(^6\)

Static Walk/Don’t Walk pedestrian signals with countdown signal informing pedestrians of the time remaining to cross the street.

Benefits
- Fewer pedestrians cross the street late in the countdown as compared to signal heads with only the Flashing Don’t Walk light

Constraints
- Typically a network-wide or subarea wide treatment to create consistency for road-users, but it expensive to implement throughout an area

Typical Applications
- Signalized intersections
- Particularly useful to pedestrians for longer distance crossings so pedestrians know how much time remains before signal changes
- May be useful where crash or conflict patterns indicate pedestrians cross frequently against the signal

Design Considerations
- Countdown pedestrian signals are particularly suitable for crosswalks where the pedestrian change interval is more than 7 seconds to inform pedestrians of the number of seconds remaining in interval.
- Where they are installed, push buttons to activate the pedestrian signal should be easily accessible by pedestrians, wheelchair users, and bicyclists for each crossing.

Additional Guidance
- California Manual on Uniform Traffic Control Devices
- NACTO Urban Street Design Guide

\(^6\) The cost range covers the device cost and additional installation.
IMPLEMENT LEADING PEDESTRIAN INTERVAL (LPI)

Cost Range: $1,000 - $2,000

A leading pedestrian interval gives pedestrians a 2-5 second head start before the concurrent vehicle phase turns green to allow pedestrians to enter and occupy the crosswalk before turning vehicles get there.

**Benefits**
- Pedestrians are more visible in the crosswalk before vehicles start moving.
- Helps reduce conflicts with pedestrians and turning vehicles.
- Relatively low cost to implement

**Constraints**
- Reduces green time for vehicle movements.
- May add to delays at intersections operating near capacity.

**Typical Applications**
- Intersections where frequent turning vehicle movements make pedestrian crossing movements uncomfortable.
- Intersections with a documented history of turning movement-related vehicle-pedestrian crashes.

**Design Considerations**
- The leading pedestrian interval should give a minimum head start of 3-7 seconds depending on crossing distance.
- May be combined with a curb extension to improve visibility at high-conflict intersections.

**Additional Guidance**
- California Manual on Uniform Traffic Control Devices
- ITE Traffic Engineering Handbook
- ITE/FHWA Traffic Calming: State of the Practice
- NACTO Urban Street Design Guide

---

7 The cost range covers reprogramming of a single crossing to reprogramming an entire intersection.
IMPLEMENT FLASHING YELLOW ARROW (FYA)

Cost Range: $7,500

A flashing yellow arrow with a leading pedestrian interval gives pedestrians a 2-5 second period when vehicles may turn if no conflicts are present but must yield to crossing pedestrians.

Benefits
- Intended to communicate to motorists that caution should be used in making maneuver and motorists must yield to oncoming vehicles and crossing pedestrians
- Relatively low cost to implement

Constraints
- Reduces green time for vehicle movements.
- May add to delays at intersections operating near capacity.
- Does not provide a protected head start for pedestrians

Typical Applications
- Intersections where frequent turning vehicle movements make pedestrian crossing movements uncomfortable.
- Intersections with a documented history of turning movement-related vehicle-pedestrian crashes.

Design Considerations
- The FYA leading pedestrian interval should give a minimum head start of 3-7 seconds depending on crossing distance.
- May be combined with a curb extension to improve visibility of and for pedestrians.

Additional Guidance
- California Manual on Uniform Traffic Control Devices
- Improved Pedestrian Safety at Signalized Intersections Operating the Flashing Yellow Arrow

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8 The cost range covers a new controller or upgrade and replacement of the signal head and labor, per approach.
Marked Uncontrolled Crosswalks at Two-Way Stop-Controlled Locations

INSTALL RAISED INTERSECTION/PEDESTRIAN CROSSING

Cost Range: $10,000 – $50,000 (per crossing/intersection)\(^9\)

A pedestrian crossing or intersection area raised vertically to give motorists and pedestrians a better view of the crossing area. A raised crosswalk is essentially a speed table marked and signed for pedestrian crossing.

Benefits
- Increases visibility of pedestrians by motorists
- Slows motorists’ travel speeds

Constraints
- Can be difficult to navigate for large trucks and buses.
- May present drainage challenges
- Emergency response times may be increased

Typical Applications
- Two-lane roadways where pedestrian volumes are high (greater than 50 pedestrians per hour) and vehicle speed control is needed.
- Locations where low-volume streets intersect with high-volume streets or where a street changes its street type or functions.
- Locations where conflict and/or crash patterns reflect vehicle-pedestrian crashes due to unsafe speeds and failure to yield to pedestrians.

Design Considerations
- Locate raised intersection/crossings where vehicles have adequate stopping sight distance to see and slow. Consider nighttime visibility.
- Challenging locations for raised crosswalks include designated transit routes or at locations with steep grades or sharp curves.
- Raised crosswalks should be long enough to allow a passenger vehicle’s front and rear wheels to be on top of the table at the same time. Average wheelbase for passenger vehicles is about 9 feet.\(^{10}\)
- Consider drainage patterns resulting from installation and consider impacts on emergency response times.

Additional Guidance
- ITE/FHWA Traffic Calming: State of the Practice
- California Manual on Uniform Traffic Control Devices
- NACTO Urban Street Design Guide

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\(^9\) The low end of the cost range represents the cost of implementing the treatment as part of a larger project while the high-end of the range represents the costs of the design and installation as a standalone project.

\(^{10}\) http://www.nhtsa.gov/cars/rules/CAFE/NewPassengerCarFleet.htm
INSTALL RAISED MEDIAN/REFUGE ISLANDS

Magnitude Cost: $15,000 – 25,000 (per island)\textsuperscript{11}

Provides a raised refuge area in the median for pedestrians to stop while crossing the street. Can also help narrow roadway cross-section to slow vehicle speeds.

Benefits
- Creates possibility of two-stage crossings for pedestrians
- Can be used as a gateway to high pedestrian activity
- Can be used to help slow vehicle speeds

Constraints
- Must have at least 6 feet of space to accommodate wheelchairs; not all streets will have adequate space
- Physical barrier in the street

Typical Applications
- Intersections where:
  - pedestrians volumes are greater than 20 pedestrians per hour;
  - vehicle ADT volumes are greater than 12,000; and,
  - sufficient width to provide a refuge (minimum of 6 feet).
- Locations with a high frequency of pedestrian crashes.
- Locations with long blocks and vehicle speeds are higher than desired or posted.
- Multilane roadways with pedestrian crossing needs

Design Considerations
- Raised median/refuge island should be located in places where pedestrians commonly cross (e.g., transit stops, schools, etc.)
- Can be located at intersection crossings as well as midblock crossings

Additional Guidance
- California Manual on Uniform Traffic Control Devices

\textsuperscript{11} The low end of the cost range covers implementation while the high end includes design costs.
Marked Uncontrolled Crosswalks at Two-Way Stop-Controlled Locations

INSTALL IN-STREET “YIELD FOR PEDESTRIANS” SIGNS ★

Magnitude Cost: $800 (per crossing)12

Signs placed in the middle of opposing travel lanes to increase driver awareness of pedestrians and the legal responsibility to yield right-of-way to pedestrians in the crosswalk.

Benefits
- Increases the number of motorists that yield to pedestrians in the crosswalk
- Reinforces the right of pedestrians in the travel-way

Constraints
- If used too often, motorists may ignore the signs
- Less effective on higher volume streets
- May require more maintenance than roadside signs.

Typical Applications
- Undivided two-lane road locations near schools and other pedestrian generators.
- In-street “Yield for Pedestrians” signs are commonly used in areas with lower vehicle volumes, low speeds (less than 35 mph), and poor yielding rates by motorists.
- Crash or conflict patterns resulting in vehicle-pedestrian crashes related to failure to yield by vehicles or unsafe speeds.

Design Considerations
- Per the California MUTCD (Section 2B.12), the in-street sign(s) should be placed in the roadway at the crosswalk location on the center line, lane line, or on a median island.
- Consider vehicle clearance widths for roadway design vehicles to avoid signs being hit.
- Use in-streets signs strategically, overuse will lead to lower compliance.

Additional Guidance
- California Manual on Uniform Traffic Control Devices

12 Cost range includes the cost of the sign and installation.
Pedestrian Safety Solutions Toolbox

Marked Uncontrolled Crosswalks at Two-Way Stop-Controlled Locations

STRIPE ADVANCE STOP AND YIELD LINES

Magnitude Cost: $1,000 (per crossing)$^{13}$

Advance stop and yield lines reduce vehicle encroachment into the crosswalk, improve drivers' view of pedestrians, and reduce multiple threat situations for pedestrians.

Benefits
- Increase pedestrian-motorist visibility at the crosswalk.
- Reduce multiple threat situations for pedestrians

Constraints
- May interfere with vehicle operations and contribute to queuing at congested locations.
- Potential sign clutter

Typical Applications
- At multilane locations where marked crosswalks are present and vehicular ADT is greater than 12,000 per day.
- At intersections where pedestrian volumes are greater than 20 per day and vehicular ADT is greater than 8,000 per day.
- At locations where vehicle encroachment into the crosswalk is common.
- In advance of Rectangular Rapid Flashing Beacons and Pedestrian Hybrid Beacons

Design Considerations
- Yield lines should be placed 4 to 50 feet in advance of controlled marked crosswalks based; distance is based on vehicle speeds, street width, on-street parking, nearby land uses, and demand for queuing space.
- Yield lines should be placed a minimum of 4 feet in advance of uncontrolled marked crosswalk locations.

Additional Guidance
- California Manual on Uniform Traffic Control Devices

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$^{13}$ Cost includes striping, signs, and labor.
Marked Uncontrolled Crosswalks at Two-Way Stop-Controlled Locations

RESTRICT PARKING AT INTERSECTION APPROACHES

Magnitude Cost: $600 (per approach)\(^{14}\)

Red parking zones on the approaches to an intersection or crosswalk allow for improved sight distance between pedestrians waiting to cross or entering the crosswalk and approaching motorists.

Benefits
- Increase pedestrian-motorist visibility at the crosswalk.

Constraints
- Reduces available parking supply in area of restriction.

Typical Applications
- Locations where sight distance is currently limited and could be improved by removing parked vehicles.
- Locations with a history of frequent collisions or other documented safety concerns.

Design Considerations
- Each location should be evaluated to determine whether parking removal is appropriate.
- A minimum 10 foot red zone should be painted on all crosswalk approach legs.
- Longer red zones should be used at locations with a greater need for improved visibility due to unique sight distances, higher vehicle speeds, road geometry, or other conditions.

Additional Guidance
- *California Manual on Uniform Traffic Control Devices*

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\(^{14}\) Order of magnitude cost includes parking restriction sign, paint, and labor.
Pedestrian Safety Solutions Toolbox

Marked Uncontrolled Crosswalks at Two-Way Stop-Controlled Locations

INSTALL PEDESTRIAN LIGHTING

Magnitude Cost: $6,000 (per light)\(^{15}\)

Pedestrian lighting may increase nighttime street visibility for pedestrians where existing illumination does not readily address crossing locations.

Benefits
- Increases visibility of pedestrians waiting to cross and in the crossing.

Constraints
- Potential to restrict and/or clutter sidewalk environment near the crosswalk.

Typical Applications
- Crossings or areas with high levels of nighttime pedestrian activity (e.g., greater than 20 pedestrians per hour).
- Locations with a high frequency of nighttime pedestrian crashes.
- Could also be considered for crossings with lower pedestrian volume activity if crossing conflict is severe or unexpected (e.g., pedestrian crossing location across a higher speed roadway).

Design Considerations
- Illumination could be used to contribute to the identity of a district or neighborhood and serve as a unifying element in the streetscape.
- Lighting should be scaled to the street and land use contexts to avoid light pollution/trespass and ensure a comfortable illumination quality for users.

Additional Guidance
- \textit{California Manual on Uniform Traffic Control Devices}

\(^{15}\) Cost includes materials and labor per light.
Pedestrian Safety Solutions Toolbox

Marked Uncontrolled Crosswalks at Two-Way Stop-Controlled Locations

REDUCE CORNER RADII

Cost Range: $15,000 - $60,000 (per corner)\(^{16}\)

Reduces right-turning vehicle speeds at an intersection by forcing sharper turns. Reduced corner radii also shorten crossing distances for pedestrians.

Benefits
- Reduces right-turning vehicle speeds at the intersection.
- Reduces pedestrian exposure by reducing crossing distance.

Constraints
- Potential drainage changes needed in some retrofits.
- Less effective at reducing speeds before and after turns.

Typical Applications
- Intersections with average right-turn speeds above 15 miles per hour and where pedestrian volumes are greater than 20 pedestrians per hour.
- Intersections with a documented crash history of right-turning vehicle and pedestrian conflicts.

Design Considerations
- Corner curb radii should accommodate the roadway type’s design vehicle turning movements.
- A smaller curb radius expands the pedestrian area and allows for better pedestrian ramp/crosswalk alignment.
- Minimize effective turning radius where possible.
- Consider existing drainage infrastructure needs for modifications.

Additional Guidance
- California Manual for Uniform Traffic Control Devices
- NACTO Urban Street Design Guide

\(^{16}\) Cost range depends on site conditions such as the need to relocate drainage or utilities as well as the need for surveying and/or design.
Pedestrian Safety Solutions Toolbox

Marked Uncontrolled Crosswalks at Midblock Locations

INSTALL PEDESTRIAN SIGNAL

Magnitude Cost: $225,000 (per installation)

Provides pedestrians with a signal-controlled crossing at a mid-block location or at a previously stop-controlled intersection where pedestrian volumes warrant full signalization. The signal remains green for the mainline traffic movement until actuated by a push button to call a red signal for traffic.

Benefits
- Has nearly 100 percent rate of motorist yielding behavior at crossing locations.
- Same appearance as standard traffic signal, so motorist understanding is high.

Constraints
- Must be activated by pedestrians.
- More costly than other crossing treatments.

Typical Applications
- Locations meeting traffic signal warrants for pedestrians as defined in the California MUTCD (Part 4).
- Locations where there are conflict or crash patterns between vehicle-pedestrians.
- Typical applications include:
  - Locations with four or more lanes and vehicle volumes greater than 15,000 per day
  - Locations with pedestrian volumes greater than 20 per hour and speed limits greater than 35 mph
  - At locations where multi-use paths intersect with roadways.

Design Considerations
- The push button to activate the pedestrian signal should be easily accessible by pedestrians, wheelchair users, and bicyclists (if applicable).

Additional Guidance
- California Manual on Traffic Control Devices
- NACTO Urban Street Design Guide
- NCHRP Report 562 Improving Pedestrian Safety at Unsignalized Crossings
INSTALL PEDESTRIAN HYBRID BEACON (PHB)

Magnitude Cost: $150,000 (per installation)$^{17}$

A pedestrian hybrid beacon is a pedestrian activated display that is unlit when not in use. It begins with a yellow light alerting drivers to slow, and then displays a solid red light requiring drivers to remain stopped while pedestrians cross the street. Finally, the beacon shifts to flashing red lights to indicate motorists may proceed after pedestrians have completed their crossing.

**Benefits**
- Higher rates of motorists yielding than crosswalks without PHB.
- Reduces pedestrian-involved crashes.
- Less delay to motor vehicle drivers than a signal.

**Constraints**
- Must be activated by pedestrians.
- More costly than other crossing treatments.
- Initially, may be unfamiliar to motorists.

**Typical Applications**
- Conditions consistent with the California MUTCD guidance.
- Typical locations include:
  - Locations with four or more lanes and vehicle volumes greater than 15,000 per day
  - Locations with pedestrian volumes greater than 20 per hour and speed limits greater than 35 mph
  - At locations where multi-use paths intersect with roadways.

**Design Considerations**
- The push button to activate the pedestrian hybrid beacon should be easily accessible by all users.

**Additional Guidance**
- *California Manual on Uniform Traffic Control Devices*
- *NACTO Urban Street Design Guide*
- *NCHRP Report 562 Improving Pedestrian Safety at Unsignalized Crossings*

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$^{17}$ Cost includes design, materials, and installation.
Marked Uncontrolled Crosswalks at Midblock Locations

INSTALL RECTANGULAR RAPID FLASHING BEACON (RRFB)

Magnitude Cost: $30,000 (per installation)

These crossing treatments include signs that have a pedestrian-activated “strobe-light” flashing pattern to attract motorists’ attention and provide awareness of pedestrians and/or bicyclists that are intending to cross the roadway.

Benefits
- Provides a visible warning to motorists at eye level.
- Increases motorists yielding behavior at crossing locations over round yellow flashing beacons (80 to 100 percent compliance).
- Allows motorists to proceed after yielding to pedestrians.

Constraints
- Flashing beacons must be activated by pedestrians.
- Motorists may not understand the flashing lights of the RRFB, so compliance may be lower than with a traffic signal.

Typical Applications
- Midblock crossings with pedestrian volumes of 20 or more pedestrians per hour and documented midblock crossing pedestrian collisions.
- Locations with:
  - three or more lanes and posted speeds of 30 mph or higher without a raised median.
  - three or more lanes and posted speeds of 40 mph with or without a raised median
- Locations where multi-use paths intersect with roadways.

Design Considerations
- The push button should be easily accessible by pedestrians, wheelchair users, and bicyclists (if applicable).
- Consider adding a push button in the median island for crossings of multi-lane facilities.
- Automated pedestrian detection may also be installed; it would increase cost of installation.

Additional Guidance
- California Manual on Uniform Traffic Control Devices
- NCHRP Report 562 Improving Pedestrian Safety at Unsignalized Crossings
Marked Uncontrolled Crosswalks at Midblock Locations

INSTALL CROSSING ISLAND (PEDESTRIAN REFUGE)

Magnitude Cost: $15,000 – $25,000 (per crossing island)\(^{18}\)

- Provides a raised refuge area in between opposing travel streams for pedestrians to stop while crossing the street. They can be used at intersections or mid-block crossings.

**Benefits**
- Reduces pedestrian exposure at marked and unmarked crosswalks.
- Requires shorter gaps in traffic to cross the street by allowing pedestrians to cross in two phases.
- Can help reduce vehicle speeds.

**Constraints**
- Streets with constrained right-of-way may not have sufficient width to allow for a crossing island.

**Typical Applications**
- Four or more lane roadways without a raised median where:
  - Posted speeds are 30 mph or less and vehicular ADT is between 9,000 and 12,000 per day.
  - Posted speeds are 35 mph and vehicular ADT is 9,000 per day or less.
- Often used in areas with high levels of vulnerable pedestrian users, such as near schools or senior centers/housing, or a demonstrated pedestrian crash history.

**Design Considerations**
- Must have at least 6 feet of clear width to accommodate people using wheelchairs.
- At crossing locations where bicyclists are anticipated, a width of 10 feet or greater is desirable to accommodate bicycles with trailers or groups of bicyclists.
- Can be applied in conjunction with other treatments.

**Additional Guidance**
- *California Manual for Uniform Traffic Control Devices*
- *NACTO Urban Streets Design Guide*
- *NCHRP Report 562 Improving Pedestrian Safety at Unsignalized Crossings*

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\(^{18}\) Cost range varies from installation alone at the low end to design and installation at the high end.
Marked Uncontrolled Crosswalks at Midblock Locations

INSTALL CURB EXTENSIONS

Magnitude Cost: $15,000 (per extension)\(^{19}\)

An extension of the curb or the sidewalk into the street, usually at an intersection, that narrows the vehicle path, inhibits fast turns, and shortens the crossing distance for pedestrians.

Benefits
- Shortens crossing distances for pedestrians.
- Reduces motorist turning speeds.
- Increases visibility between motorists and pedestrians.
- Enables permanent parking
- Enables tree and landscape planting and water runoff treatment.

Constraints
- More easily implemented on streets with on-street parking.
- Physical barrier can be exposed to traffic.
- Greater cost and time to install than standard crosswalks.
- Can present turning radius problems to large vehicles.

Typical Applications
- Mid-block or intersection pedestrian crossings on streets with unrestricted on-street parking.
- Crossing locations with pedestrian collision history.
- Streets with on-street parking where:
  - pedestrian volumes ≥ 20 pedestrians per hour;
  - ADT ≥ 1,500 vehicles per day; and,
  - average right-turn speeds ≥ 15 mph.

Design Considerations
- Include a passage for bicycles to prevent conflicts with vehicles.
- Provide accessible curb ramps and detectible warnings.
- Include landscaping on the curb extension to differentiate the pedestrian travel path.

Additional Guidance
- California Manual for Uniform Traffic Control Devices
- ITE/FHWA Traffic Calming: State of the Practice
- FHWA Designing Sidewalks and Trails for Access Part II

\(^{19}\) Costs will vary based on the length and drainage requirements.
Pedestrian Safety Solutions Toolbox

Marked Uncontrolled Crosswalks at Midblock Locations

INSTALL RAISED PEDESTRIAN CROSSING

Magnitude Cost: $10,000 – $50,000 (per crossing)\(^20\)

Raised pedestrian crossings bring the level of the roadway even with the sidewalk, providing a level pedestrian path and requiring vehicles to slow. Raised crossings can be used at midblock crosswalks or intersections.

Benefits
- Increases visibility for pedestrians and motorists
- Slows motorists.

Constraints
- Can be difficult to navigate for large trucks, snow plows, and low ground clearance vehicles.

Typical Applications
- Raised crosswalks are typically provided at midblock crossings on two-lane roads where pedestrian volumes ≥ 50 pedestrians per hour and speed control is needed and there is a document history of pedestrian crossing-related collisions.
- Raised crosswalks may be provided at intersections where low-volume streets intersect with high-volume streets or where a roadway context changes (e.g. commercial to residential).

Design Considerations
- Raised crosswalks should be even with the sidewalk in height and at least as wide as the crossing or intersection.
- Provide detectable warnings for pedestrians where they cross from the sidewalk into the crossing area.
- Consider drainage needs and provide appropriate treatments.
- Use colored asphalt as opposed to brick or decorative surface materials to make the crossing smoother for those with mobility impairments.
- Raised crosswalks should not be used on transit routes or where there are steep grades or curves.

Additional Guidance
- California Manual for Uniform Traffic Control Devices
- FHWA Designing Sidewalks and Trails for Access Part II of II: Best Practices Design Guide
- NACTO Urban Street Design Guide

\(^20\) The cost range varies from inclusion as part of a larger project to the design and installation as a standalone project.
Marked Uncontrolled Crosswalks at Midblock Locations

INSTALL HIGH VISIBILITY CROSSWALK

Magnitude Cost: $2,500 (per crossing)\(^{21}\)

High visibility crosswalks consist of reflective roadway markings and accompanying signage at intersections and priority pedestrian crossing locations.

Benefits  
- Communicates potential for pedestrian crossings to motorists.  
- Designates a preferred crossing location for pedestrians.  
- Increases motorists’ awareness of crossing pedestrians.

Constraints  
- Can be more effective with other types of traffic control (signals, stop signs)\(^{22}\).  
- Motorist compliance is lower than other midblock treatments.

Typical Applications  
- Locations near schools, parks, hospitals, senior centers, or other pedestrian generators  
- Peak hour pedestrian volumes are higher than 40 per hour and vehicle ADT is greater than 1,500 per day.  
- Location is 300 feet or more from another crossing with documented history of pedestrian crossing collisions.

Design Considerations  
- Striping can vary (continental, triple four, ladder, zebra, etc.)  
- Minimum width is 6 feet, but wider crossings are preferred in areas with high number of pedestrians.  
- Striped crosswalks alone should not be used where:  
  - the speed limit exceeds 40 mph  
  - the ADT is 12,000 or greater and there are four or more lanes without a raised median or crossing island  
  - the ADT is 15,000 or greater and there are four or more lanes with a raised median or crossing island  
- Ensure sufficient sight distance for vehicles and pedestrians  
- In school zones, yellow striping should be used.

Additional Guidance  
- NCHRP Report 562: Improving Pedestrian Safety at Unsignalized Crossings  
- California Manual on Uniform Traffic Control Devices

\(^{21}\) Cost based on design, paint, and installation.  
IMPLEMENT A ROAD DIET OR ROAD RECONFIGURATION

Cost Range: $30,000 - $150,000 (per mile)"}^{23}

In a road diet project, a street’s roadway space is reconfigured or restriped to reduce the number of vehicle lanes to prioritize speeds consistent with a pedestrian- and bicycle-oriented environment.

**Benefits**
- Decreases vehicle speeds
- Increases driver awareness of bicyclists and pedestrians
- Reallocation of space for pedestrians and bicyclists
- Improves comfort level for pedestrians and bicyclists.

**Constraints**
- Can be more effective with other types of traffic control (signals, stop signs).
- At uncontrolled locations (midblock), motorist compliance is not as high as with other treatments.

**Typical Applications**
- Four or five lane undivided roadways with vehicular ADT of 20,000 or less, or peak hour directional volumes of 875 or less.
- Locations with a documented history of left-turning or speed-related collisions or conflicts with pedestrians.

**Design Considerations**
- Lane reconfiguration/road diet projects should have a traffic analysis conducted prior to implementation.
- The reconfiguration of the roadway space should be context sensitive, taking into account the operations, user needs, and land use context of the roadway.

**Additional Guidance**
- NCHRP Report 562: Improving Pedestrian Safety at Unsignalized Crossings
- California Manual on Uniform Traffic Control Devices
- NACTO Urban Street Design Guide

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^{23} Cost range covers the range from design and restriping only to more complicated projects involving planning, outreach, and more complex design.
Appendix D
Street Trees
## Recommended Street Tree Species List for Oakland

The City maintains a list of tree species that are approved for planting as streets trees. Species are approved based on factors such as water consumption, tendency to heave sidewalks and maintenance needs.

<table>
<thead>
<tr>
<th>No.</th>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arbutus unedo</td>
<td>Strawberry Tree</td>
<td>S</td>
</tr>
<tr>
<td>2</td>
<td>Cercis canadensis</td>
<td>Eastern Redbud</td>
<td>S</td>
</tr>
<tr>
<td>3</td>
<td>Lagerstroemia indica X L. fauriei</td>
<td>Crape Myrtle</td>
<td>S</td>
</tr>
<tr>
<td>4</td>
<td>Photinia fraseri</td>
<td>Photinia</td>
<td>S</td>
</tr>
<tr>
<td>5</td>
<td>Prunus cerasifera 'Thundercloud'</td>
<td>Purple Leaf Plum</td>
<td>S</td>
</tr>
<tr>
<td>6</td>
<td>Pyrus kawakamii</td>
<td>Evergreen Pear</td>
<td>S</td>
</tr>
<tr>
<td>7</td>
<td>Rhus lancea</td>
<td>African Sumac</td>
<td>S</td>
</tr>
<tr>
<td>8</td>
<td>Tristania laurina 'Elegant'</td>
<td>Water Gum</td>
<td>S</td>
</tr>
<tr>
<td>9</td>
<td>Acer buergeranum</td>
<td>Trident Maple</td>
<td>M</td>
</tr>
<tr>
<td>10</td>
<td>Aesculus carnea 'Briottii'</td>
<td>Red Horsechestnut</td>
<td>M</td>
</tr>
<tr>
<td>11</td>
<td>Eriobotrya deflexa</td>
<td>Bronze Loquat</td>
<td>M</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Geijera parviflora</td>
<td>Australian Willow</td>
<td>M</td>
</tr>
<tr>
<td>13</td>
<td>Ginkgo biloba 'Saratoga' or 'Autumn Gold'</td>
<td>Maidenhair Tree</td>
<td>M</td>
</tr>
<tr>
<td>14</td>
<td>Koelreuteria bipinnata</td>
<td>Chinese Flame Tree</td>
<td>M</td>
</tr>
<tr>
<td>15</td>
<td>Koelreuteria paniculata</td>
<td>Golden Rain Tree</td>
<td>M</td>
</tr>
<tr>
<td>16</td>
<td>Laurus nobilis 'Saratoga'</td>
<td>Saratoga Laurel</td>
<td>M</td>
</tr>
<tr>
<td>17</td>
<td>Magnolia grandiflora 'Saint Mary'</td>
<td>Saint Mary Magnolia</td>
<td>M</td>
</tr>
<tr>
<td>18</td>
<td>Maytenus boaria 'Green Showers'</td>
<td>Mayten Tree</td>
<td>M</td>
</tr>
<tr>
<td>19</td>
<td>Metrosideros excelsus</td>
<td>New Zealand Christmas Tree</td>
<td>M</td>
</tr>
<tr>
<td>20</td>
<td>Olea europa 'Swan Hill'</td>
<td>Olive</td>
<td>M</td>
</tr>
<tr>
<td>21</td>
<td>Pyrus calleryana 'Aristocrat'</td>
<td>Aristocrat Pear</td>
<td>M</td>
</tr>
<tr>
<td>22</td>
<td>Carpinus betulus 'Fastigiata'</td>
<td>European Hornbem</td>
<td>L</td>
</tr>
<tr>
<td>23</td>
<td>Fraxinus oxycarpa 'Raywood'</td>
<td>Raywood Ash</td>
<td>L</td>
</tr>
<tr>
<td>24</td>
<td>Gliditsia triacanthos inermis 'Shademaster'</td>
<td>Thornless Honey Locust</td>
<td>L</td>
</tr>
<tr>
<td>25</td>
<td>Nyssa sylvatica</td>
<td>Sour Gum or Tupelo</td>
<td>L</td>
</tr>
<tr>
<td>26</td>
<td>Pistacia chinensis 'Keith Davey' or 'Pearl Street'</td>
<td>Chinese Pistache</td>
<td>L</td>
</tr>
<tr>
<td>27</td>
<td>Platanus acerifolia 'Yarwood'</td>
<td>London Plane</td>
<td>L</td>
</tr>
<tr>
<td>28</td>
<td>Podocarpus gracilior</td>
<td>African Fern Pine</td>
<td>L</td>
</tr>
<tr>
<td>29</td>
<td>Quercus rubra</td>
<td>Red Oak</td>
<td>L</td>
</tr>
<tr>
<td>30</td>
<td>Quercus coccinea</td>
<td>Scarlet Oak</td>
<td>L</td>
</tr>
</tbody>
</table>

1Oakland Planning Code section
Appendix E
Oakland Public Schools in SRTS
### Oakland public schools in Safe Routes to Schools program (2015 - 2016)

<table>
<thead>
<tr>
<th>School Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Achieve Academy Elementary</td>
</tr>
<tr>
<td>ASCEND (K-8)</td>
</tr>
<tr>
<td>Bella Vista Elementary</td>
</tr>
<tr>
<td>Bridges Academy Elementary</td>
</tr>
<tr>
<td>Brookfield Elementary</td>
</tr>
<tr>
<td>Burckhalter Elementary</td>
</tr>
<tr>
<td>Cleveland Elementary</td>
</tr>
<tr>
<td>Community United Elementary</td>
</tr>
<tr>
<td>Emerson Elementary</td>
</tr>
<tr>
<td>EnCompass Academy Elementary</td>
</tr>
<tr>
<td>Fred T. Korematsu Academy</td>
</tr>
<tr>
<td>Fruitvale Elementary</td>
</tr>
<tr>
<td>Learning Without Limits Elementary</td>
</tr>
<tr>
<td>Lincoln Elementary</td>
</tr>
<tr>
<td>Manzanita Community Elementary</td>
</tr>
<tr>
<td>Manzanita SEED Elementary</td>
</tr>
<tr>
<td>Markham Elementary</td>
</tr>
<tr>
<td>Martin Luther King Jr. Elementary</td>
</tr>
<tr>
<td>Montclair Elementary</td>
</tr>
<tr>
<td>New Highland Elementary</td>
</tr>
<tr>
<td>Peralta Elementary</td>
</tr>
<tr>
<td>Parker Elementary</td>
</tr>
<tr>
<td>Piedmont Avenue Elementary</td>
</tr>
<tr>
<td>Place @ Prescott Elementary</td>
</tr>
<tr>
<td>Futures Elementary</td>
</tr>
<tr>
<td>Garfield Elementary</td>
</tr>
<tr>
<td>Glenview Elementary</td>
</tr>
<tr>
<td>Global Family Elementary</td>
</tr>
<tr>
<td>Greenleaf Elementary</td>
</tr>
<tr>
<td>Hoover Elementary</td>
</tr>
<tr>
<td>International Community Elementary</td>
</tr>
<tr>
<td>Esperanza Elementary</td>
</tr>
<tr>
<td>La Escuelita (K-8)</td>
</tr>
<tr>
<td>Lafayette Elementary</td>
</tr>
<tr>
<td>Laurel Elementary</td>
</tr>
<tr>
<td>Redwood Heights Elementary</td>
</tr>
<tr>
<td>RISE Community Elementary</td>
</tr>
<tr>
<td>Sankofa Academy (K-8)</td>
</tr>
<tr>
<td>Sequoia Elementary</td>
</tr>
<tr>
<td>Edna Brewer Middle</td>
</tr>
<tr>
<td>Westlake Middle</td>
</tr>
<tr>
<td>United for Success Middle</td>
</tr>
<tr>
<td>Life Academy Middle</td>
</tr>
<tr>
<td>Bret Harte Middle</td>
</tr>
<tr>
<td>Oakland International High</td>
</tr>
<tr>
<td>Oakland Tech High</td>
</tr>
</tbody>
</table>
Appendix F
Pedestrian Plan Survey Questions
1. If you live in Oakland, what is your five digit ZIP code? (Skip the question if you don’t know it or don’t live in Oakland.)

2. If you work in Oakland, what is the five digit ZIP code of your primary work location? (Skip the question if you don’t know it or don’t work in Oakland.)

3. How often do you walk in Oakland?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Every day</th>
<th>A few times a week</th>
<th>A few times a month</th>
<th>A few times a year</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>To go to work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To get to transit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To go to school</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>To shop or run errands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For social purposes (visit friends, eat out, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For exercise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For fun or recreation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. If you walk in Oakland, what do you MOST enjoy about it?

5. If you walk in Oakland, what do you LEAST enjoy about it?

6. Below is a list of potential barriers to walking. In your opinion, how much do they discourage people from walking in Oakland?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>A lot</th>
<th>Some</th>
<th>Not too much</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speeding or aggressive/distracted driving</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor lighting (for walking at night)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missing or broken sidewalks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Few or no pedestrian amenities (benches, street trees, bus shelters, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crosswalks do not exist or are too far apart</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Streets are too wide and feel unsafe to cross</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No destinations to walk to, or destinations are too far away</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time to cross at traffic lights is too short</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missing curb ramps (i.e., mini-ramps that lead down from the sidewalk to the street at intersections and crosswalks)</td>
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<tr>
<td>Steep hills</td>
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</tbody>
</table>

7. If you were in charge of Oakland’s Pedestrian Program, what would you do to make walking in Oakland easier, safer or more pleasant? To submit your ideas or suggestions for specific blocks, intersections or other locations, please use the Pedestrian Master Plan’s online mapping tool.

8. Increase enforcement of failure to stop and/or speeding laws among drivers

   - Yes, the streets feel unsafe because drivers speed or don’t stop at crosswalks
   - Yes, but also target cyclists and pedestrians who break traffic laws
   - No, traffic safety generally isn’t a problem in Oakland
   - No, there are more important laws to enforce
   - I’m not sure how I feel about this
9. Ticket parked cars that block the sidewalk more often
   - Yes, blocking the sidewalk is inconsiderate and dangerous
   - Yes, but only if it’s near a school, so that kids can walk to school safely
   - No, parking on my street is very difficult because the street is narrow or there aren’t enough spaces
   - No, the Police Department has more important things to do
   - I’m not sure how I feel about this

10. Do you own a retail, service or restaurant business in Oakland? (Y/N)

11. What type of retail business is it?
   - Retail
   - Service
   - Restaurant
   - Other (specify below)

12. Below is a list of factors that you might use to choose where to locate your business. How much did each factor contribute to where you located your business?

13. From the list below, rank the five types of projects that are most important to you.

14. Are there other types of physical projects that should be included in the Pedestrian Master Plan? Why?

15. Are there any types of physical projects that should NOT be included in the Pedestrian Master Plan? Why not?
16. From the list below, rank the five programs or policy changes that are most important to you

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Most important</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
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</thead>
<tbody>
<tr>
<td>Street fairs and other events which create open streets for pedestrians</td>
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<tr>
<td>Campaigns against unsafe or distracted driving</td>
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<td>Lower speed limits</td>
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<tr>
<td>Removal of parking near intersections with poor sightlines or blind spots</td>
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<tr>
<td>Activities to promote and encourage walking to school</td>
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<tr>
<td>More crossing time for pedestrians at traffic signals</td>
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<tr>
<td>Restrictions on turning right when the light is red</td>
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</tbody>
</table>

17. Are there other types of programs or policy changes that should be included in the Pedestrian Master Plan? Why?

18. Are there any other types of programs or policy changes that should NOT be included? If so, why not

19. Use the space below to submit any additional ideas or comments you have regarding Oakland’s Pedestrian Master
Additional Resources:

ADA Transition Plans:
http://www2.oaklandnet.com/government/o/PWA/o/EC/s/ADA/DOWD005072

OakDOT GIS Dashboard:
http://oakbec.s3.amazonaws.com/MapLanding/maps/DOTDashboard.html

City of Oakland 2002 Pedestrian Master Plan:

Oakland Pedestrian Counts Map:
http://www.oaklandbikemaps.info/counts/

Oakland's Adopt-A-Spot Program:
http://www2.oaklandnet.com/government/o/PWA/o/FE/s/ID/OAK024735#Adopt a Spot