Acknowledgements

This report lays out a vision for the bicycle to become a major mode of travel in Silicon Valley. It is presented by Joint Venture Silicon Valley and the Silicon Valley Bicycle Coalition, in partnership with Nelson\Nygaard Consulting Associates, Inc. The report was made possible by generous funding from Google, and by additional funding from Facebook and Stanford University. The authors would like to thank the following people for their invaluable assistance:

• Jeral Poskey, Google, Inc.
• Kevin Mathy, Facebook, Inc.
• Lesley Lowe, Stanford University
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INTRODUCTION

The bicycle is the most efficient form of transportation ever invented. It is five times more efficient than walking, carbon-neutral, and a powerful tool to reduce motor vehicle congestion and health and wealth disparities in our region.

Despite increases in vehicle congestion and widening peak-hours, only 1.7%1 of Silicon Valley residents bike to work. There are a variety of reasons why people choose not to bicycle to work, but a primary deterrent is fear of being hit by a motor vehicle. A meaningful increase in bicycle commuters in the Valley will require safe and connected bikeways that are comfortably separated from motor vehicles.

This report documents the existing physical environment for bicyclists in Silicon Valley. It identifies current challenges that prevent people from biking, presents rationale for making investments in bicycling facilities, and offers next steps for creating a safe, continuous, and connected bikeway network that would make bicycling a compelling alternative for Silicon Valley residents. It will also be used as a guide to measure regional progress moving into the future.

A regionally-connected, safe, and highly utilized bicycle network can be achieved if Silicon Valley leaders commit to collaborate in the development of high-impact policies and projects.
Silicon Valley is poised to become a leader in bicycling...

Silicon Valley offers ideal bicycling conditions—a mild year-round climate and a relatively flat topography. Because many transit options are at capacity and roadway congestion is at a historic high, people are looking for travel alternatives. With right-of-way holdings that would provide ample room for the highest quality bike infrastructure, Silicon Valley has the opportunity to apply its innovative spirit to design and build bikeways for the 21st century.

...but today’s bikeway network is insufficient and fractured.

The bicycle networks in Silicon Valley are clustered and discontinuous. They force bike commuters to traverse freeways and railways at inefficient and poorly-designed crossings, and to travel along high-speed roadways with little room for error. Invisible jurisdictional boundaries, coupled with city and county policy and program constraints, introduce discontinuities in the bikeway network that compromise the user experience.

In addition to these systemic gaps in the regional bikeway network, low-stress bikeway networks are needed to draw families traveling to school or social destinations. The concept of a fully built low-stress
network is sometimes referred to as an 8-to-80 network, meaning that users from eight to eighty years of age feel comfortable and confident riding on the network. Neighborhood streets with low traffic volumes may be comfortable without significant infrastructure, but as motor vehicle speeds and volumes increase, people need greater separation from cars to maintain acceptable levels of comfort.

Many on-street bikeways feel unsafe for all users, and some low-stress bikeways cannot be accessed without traveling far out of one’s way, navigating high-speed streets, or crossing large and stressful intersections. A solitary high-stress barrier within a low-stress route can be enough to prevent someone from choosing to bike. To improve the bicycling environment and attract new bicycle commuters, Silicon Valley will need to take an innovative and collaborative approach to funding, designing, and building connected bikeways.

How do we get there?

Visionary cities like Davis, CA have some of the highest bicycling rates in the world because they prioritize safe and comfortable bikeways. Twenty percent of commuters in Davis bike to work.

That doesn’t happen overnight. It took Copenhagen over forty years of incremental changes to become a leading bicycle city—and they are still improving.

If Silicon Valley leaders and policy-makers prioritize programs, policies, and practices that integrate a low-stress bicycling experience into our transportation system, safe streets that provide a seamless bicycling experience can be achieved here as well.

The time to be bold is now.

The time to start is now.
BENEFITS OF BICYCLING

The research is clear—bicycling is good for people and their communities:

• When more people bike, there is less motor vehicle traffic.
• Those who bike live longer, healthier lives.
• Good bicycle infrastructure creates safer roadways for all road users.
• Bicycling reduces our impact on the environment.
• Bicycle infrastructure builds our economy and is one of the most equitable ways for people to get around.

Auto-dependency is no longer practical. Decades of roadway expansion designed exclusively for motor vehicles have resulted in protracted vehicle congestion. Adding safe, high-quality bicycle facilities requires less space than road expansion, reduces auto demand and delay, and costs far less than road expansion projects.

Bicycling is good for you. People who bike and walk as part of their daily routine live longer, healthier lives, are less susceptible to serious medical conditions, and have lower medical bills.

More comprehensive bicycle infrastructure makes biking safer, and not just for the bicyclist; protected bike lanes reduce crash numbers for all roadway users.
Bicycling is good for you.
People who bike and walk as part of their daily routine live longer, healthier lives, are less susceptible to serious medical conditions, and have lower medical bills.
HEALTH BENEFITS

Reduces cardiovascular risk.

Regular bicycling, like bicycling to work, reduces cardiovascular risk by 11%. Commuting by bicycle more than halves the likelihood of experiencing a heart attack.³

-11% cardiovascular risk

Results in fewer sick days.

On average, bicyclists take 15% fewer sick days at work and live two years longer than non-bicyclists.⁴

-15% sick days

Reduces health care costs.

Using bike-to-work incentives can result in a 4.4% decrease in healthcare costs, compared to a national increase of 24.6% in healthcare costs.⁵

+24.6% healthcare costs

-4.4%

Bicycles make you happier.

Bicycle commuters are less stressed, have greater feelings of relaxation, and are more satisfied with their commute than those who drive or take transit to work, even in winter.⁶

less stress

more satisfaction

Bike-friendly growth decreases negative health outcomes.

Smart growth strategies that encourage bicycling can reduce premature deaths, heart attacks, asthma attacks, other respiratory symptoms, chronic and acute bronchitis, and respiratory-related ER visits.⁷

>95 fewer cases of acute bronchitis

>1,025 fewer asthma attacks

>60 fewer premature deaths
Compared to other modes of transportation, bicycling and walking are the best for the environment. The entire lifecycle of a bicycle is essentially carbon-neutral. Bicycle riding reduces greenhouse gas emissions and improves regional air quality.

Bicycling is good for the planet.
ENVIRONMENTAL BENEFITS

**Biking to work reduces CO2.**

Commuting four miles by bike saves 2,000 miles of driving and 2,000 lbs of CO2 per year.\(^8\)

4 mile bike commute results in:

-2,000 lbs of CO2

-2,000 miles of driving

That’s the equivalent of a 5% reduction in the average American’s carbon footprint!

**More overall walk and bike trips reduces CO2.**

Increasing the mode share of all bike and walking trips from 12% to 15% could lead to fuel savings of 3.8 billion gallons per year and a 33-million-ton reduction in GHGEs per year.\(^9\)

**Bikes have a carbon-neutral life cycle.**

When the complete life cycle of the following modes are taken into account, the carbon emissions (grams per passenger per kilometer) are approximately:\(^10\)

That is equivalent to replacing 19 million conventional cars with hybrids!

**BIKE VISION**

**BENEFITS OF BICYCLING**

271 Grams CO2 per passenger per kilometer

101

21
Bicycling contributes to local economies. Home values rise when bike lanes and paths are installed nearby. Not only does bicycle access contribute to the local economy, but bike projects also save money since they cost substantially less than auto infrastructure projects. Bicycle infrastructure projects create more jobs per dollar spent than auto infrastructure projects.

Bicycling helps us prosper.

Source: Flickr user PaulKrueger
ECONOMIC BENEFITS

Bike projects create more jobs.

Bicycling and walking projects create 11-14 jobs per $1M spent, versus only seven jobs per $1M spent on highway projects.11

Bike lanes are less expensive than roads.

One mile of street widening for cars is equivalent to 600 miles of bike lanes; 300 miles of buffered bike lanes; 120 miles of bike boulevards; and 30 miles of off-street bike trails.12

Bike parking costs less to build than car parking.

It costs $150-$300 to install a bike rack for two bikes compared to $36,000 for one parking spot in a parking structure in Silicon Valley.7, 13

Bicyclists spend more on local retail.

People on bicycles spend more on local retail per week than other modes: $163 per week compared to $143 per week.14
Comprehensive bicycle infrastructure makes the transportation network safer, and not just for the bicyclists; protected bike lanes reduce crash numbers for all roadway users.

Source: Jonathan Schuppert

Bicycling makes us safer.
SAFETY BENEFITS

Bike lanes make roads safer for all.

Protected bike lanes can result in a 40-50% drop in injury crashes for all road users (drivers, cyclists, and pedestrians).15

Bicyclists make roads safer for all.

Cities with high bicycling rates ... ... tend to have lower crash rates for all road users.16

Build it safely and they will come.

Bicycle safety improvements attract proportionately more people to bicycling than automobile safety improvements.17

40–50% reduction in crashes on streets with protected bike lanes ... for all road users

For example, a 10% increase in bike safety will result in more than 10% increase in the share of people commuting by bicycle.
Bicycling is a more equitable transportation option compared to driving a car. The cost of purchasing, operating, and maintaining a bicycle is small when compared to the same costs for a car. Bicycling provides people with access to jobs that would be otherwise unavailable, and for a fraction of the cost.

Source: Flickr user Joe Linton

Bicycling levels the playing field.
SOCIAL EQUITY BENEFITS

The lowest-income households bike most.

Households earning less than $20,000 per year are roughly twice as likely to bike for transportation as all other income groups.\(^{18}\)

Bicycling is more affordable.

The average cost of operating a vehicle for one year in 2013 was approximately $10,000. The cost of operating a bicycle for a year in 2013 was roughly $300.\(^{19}\)

Bicycling benefits zero-vehicle households.

Households with people of color are less likely to have access to a motor vehicle.\(^{20}\)

Share of U.S. households without motor vehicles

<table>
<thead>
<tr>
<th>Race</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>21%</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>13%</td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td>13%</td>
</tr>
<tr>
<td>Asian</td>
<td>11%</td>
</tr>
<tr>
<td>Two or more races</td>
<td>11%</td>
</tr>
<tr>
<td>White</td>
<td>7%</td>
</tr>
</tbody>
</table>
Communities such as Davis, CA have experienced rapid bicycle mode share growth after investing in their bikeway network. Meanwhile, Silicon Valley’s journey to work mode share has remained low and fairly static over the last five years. Fortunately, new collaborative efforts for better bike planning are underway, but many more are needed.

For example, Redwood City, Menlo Park, Palo Alto, Mountain View, and Stanford have formed a new partnership to tackle their transportation challenges collectively, rather than individually. The “Managers Mobility Partnership,” convened by Joint Venture Silicon Valley, has made bike infrastructure a top priority and is working to create a continuous, high-quality north-south bicycle corridor traversing their cities.
WHERE ARE BIKEWAYS LOCATED?

Off-street shared-use paths are separated from traffic and are used by both pedestrians and bicyclists. On-street bike lanes are painted adjacent to the curb or parked cars to provide some separation from traffic but do not include physical barriers between bicyclists and moving motor vehicles. Bike routes use signs to bridge gaps in the network, requiring bicyclists to share the motor vehicle travel lane; in Silicon Valley it is not unusual to see bicyclists sharing a travel lane with motor vehicles traveling at 35 MPH and above. At this speed, bicycle-involved collisions are more likely to result in serious injury or death. Bike boulevards are also classified as bike routes, but they are typically found on low-volume neighborhood streets that have low speed limits and traffic calming elements such as roundabouts. Finally, protected bike lanes provide physical separation from motor vehicles using parked cars, raised curbs, or traffic hit-posts; they are gaining traction in the U.S. and are beginning to be seen as the gold standard for effective street design.

Today, there are approximately 1,125 miles of bikeways throughout Santa Clara County and San Mateo County. Approximately 258 of those are off-street shared-use paths, 611 are bike lanes, and 258 are bike routes or bike boulevards. There is currently less than one mile of protected bike lanes in both counties combined.

In Silicon Valley, not all bikeways are created equal. A bike boulevard, if planned and designed correctly on a low volume street, is low-stress and can accommodate all users. Alternatively, bike routes are not suitable for...
## WHAT KINDS OF BIKEWAYS ARE AVAILABLE?

### What percent of the road network has a bikeway?

Bikeways data derived from Santa Clara Valley Transportation Authority, Metropolitan Transportation Comission, and study partners

### State of Biking in Silicon Valley

*Includes Arterial Bike Routes and Bike Boulevards*

<table>
<thead>
<tr>
<th></th>
<th>Shared-Use Paths</th>
<th>Bike Lanes</th>
<th>Bike Routes*</th>
<th>Protected Bike Lanes</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Mateo County</td>
<td>12%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Santa Clara County</td>
<td>8.9%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palo Alto</td>
<td>13.5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redwood City</td>
<td>16.9%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>San Jose</td>
<td>8.6%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stanford</td>
<td></td>
<td></td>
<td></td>
<td>62.4%</td>
</tr>
<tr>
<td>Mountain View</td>
<td>11.6%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menlo Park</td>
<td>9.7%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Menlo Park, Redwood City, and Mountain View have lower percentages due to a smaller road network.*
all users as bicyclists are required to share lanes with high-speed traffic. Such a bikeway will only be used by the most confident bicyclists and is ineffective at capturing latent bicyclist demand. Bike lanes that lack adequate buffers along high-speed and high-volume streets are equally ineffective at encouraging bike commute trips by less confident riders.

There are some areas in Silicon Valley where the overall density of bikeways would be considered a system gap. If bikeways are not continuous throughout the region, the capacity to get new bicyclists on the road is hobbled. **A safe bike network that is convenient, connected, continuous, and complete entices people of all ability levels to travel by bicycle.**

### WHO BIKES TO WORK TODAY?

Throughout most of Silicon Valley, bikeways support only strong, confident bicyclists. Cities that have taken a bolder approach to systemwide bicycle improvements have more bicycle commuters. Palo Alto, Stanford University (within Palo Alto), and Mountain View have bicycle mode share greater than the regional average, and over the past five years have shown notable growth in bicycle commuting.
## HOW HAS BIKE COMMUTING CHANGED?

**Percent of people who bike to work in select Silicon Valley communities, 2011 to 2015**

<table>
<thead>
<tr>
<th>Year</th>
<th>San Mateo County</th>
<th>Santa Clara County</th>
<th>Palo Alto</th>
<th>Redwood City</th>
<th>San Jose</th>
<th>Stanford University</th>
<th>Mountain View</th>
<th>Menlo Park</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>1.2</td>
<td>1.6</td>
<td>8.4</td>
<td>1.4</td>
<td>0.9</td>
<td>35.4</td>
<td>3.8</td>
<td>7.8</td>
</tr>
<tr>
<td>2012</td>
<td>1.3</td>
<td>1.7</td>
<td>8.6</td>
<td>1.7</td>
<td>0.9</td>
<td>40.3</td>
<td>4.1</td>
<td>7.3</td>
</tr>
<tr>
<td>2013</td>
<td>1.1</td>
<td>1.7</td>
<td>8.6</td>
<td>1.4</td>
<td>0.9</td>
<td>41.6</td>
<td>5.0</td>
<td>6.6</td>
</tr>
<tr>
<td>2014</td>
<td>1.3</td>
<td>1.8</td>
<td>9.0</td>
<td>1.9</td>
<td>0.9</td>
<td>42.2</td>
<td>5.5</td>
<td>7.3</td>
</tr>
<tr>
<td>2015</td>
<td>1.3</td>
<td>1.9</td>
<td>9.3</td>
<td>2.3</td>
<td>1.0</td>
<td>44.0</td>
<td>6.0</td>
<td>6.6</td>
</tr>
</tbody>
</table>
WHERE CAN WE IMPROVE BICYCLE SAFETY?

Significantly, many of the intersections with high concentrations of bicycle-involved collisions between 2011 and 2015 are on the borders between cities:

- Los Gatos Road & Austin Way, border of Monte Sereno, Saratoga, and Santa Clara County
- Tully Road & Senter Road, border of San Jose and Santa Clara County
- Palo Alto Avenue & El Camino Real, Palo Alto
- Monterey Road & Tully Road, border of San Jose and Santa Clara County
- Saratoga Road & Massol Avenue, Los Gatos
- Rengstorff Avenue & Central Expressway, Mountain View
- San Antonio Road & El Camino Real, border of Mountain View and Los Altos
- Stevens Creek Boulevard & De Anza Boulevard, Cupertino
- Story Road & King Road, San Jose
- Middlefield Road & Loma Verde Avenue, Palo Alto
- San Antonio Road & El Camino Real, border of Mountain View and Los Altos
- Ravenswood Avenue & Alma Street, Menlo Park
### How Has Bike Safety Changed?

**Annual collisions per 1,000 bike commuters**

<table>
<thead>
<tr>
<th>Location</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Mateo County</td>
<td>62</td>
<td>54</td>
<td>65</td>
<td>52</td>
<td>46</td>
</tr>
<tr>
<td>Santa Clara County</td>
<td>63</td>
<td>52</td>
<td>51</td>
<td>49</td>
<td>50</td>
</tr>
<tr>
<td>Palo Alto</td>
<td>41</td>
<td>36</td>
<td>37</td>
<td>32</td>
<td>34</td>
</tr>
<tr>
<td>Redwood City</td>
<td>79</td>
<td>62</td>
<td>82</td>
<td>54</td>
<td>50</td>
</tr>
<tr>
<td>San Jose</td>
<td>108</td>
<td>90</td>
<td>96</td>
<td>87</td>
<td>78</td>
</tr>
<tr>
<td>Stanford University</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Mountain View</td>
<td>27</td>
<td>23</td>
<td>14</td>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td>Menlo Park</td>
<td>20</td>
<td>28</td>
<td>41</td>
<td>28</td>
<td>30</td>
</tr>
</tbody>
</table>
WHERE ARE COMMUTERS TRAVELING AND WHAT WOULD THEIR BIKE COMMUTE LOOK LIKE?

More than 26,000 commute trips of eight miles or less are made to and from the Stanford area per day. A vast majority of those trips require that people cross El Camino Real and Alma Street, which in many cases would be too stressful for a bicyclist who is interested in bicycling but concerned about safety.

More than 30,500 commute trips of eight miles or less are made to and from the business park areas near Google, NASA, and Intuit. The limited crossing options at U.S. Highway 101 force bicyclists far out of their way to find a low-stress crossing or lead them to rely on crossings that have a road design hostile to bicyclists.

More than 55,000 commuter trips of eight miles or less are made to and within the business park areas home to Cisco Systems and Oracle. To effectively bicycle in the area, people on bikes are required to use a number of stressful connections, including those over Montague Expressway and U.S. Highway 101, that are inhospitable except to the most confident bicyclists.
“While half of my route has a bike lane and traffic volumes are quite low, the second half is on a 40 mile-per-hour road that crosses both the Caltrain tracks and Central Expressway. Even for someone like me, who has been bike commuting for 12 years, the intersection at Mary and Evelyn is hair-raising!”

— Silicon Valley Bicycle Commuter
GAPS AND KEY OPPORTUNITIES

The most prominent reason people do not bicycle is because they fear getting hit by a motor vehicle. Today, the network gaps pose too many risks for a person who is interested in, but concerned about, bicycling. With a bold push by cities and counties in Silicon Valley, tomorrow’s landscape can feature a regionally-connected network suitable for all bicyclists.

The existing networks of low-stress bikeways in Silicon Valley are disjointed by high-stress barriers, including intersections, high-speed arterials, and freeway and expressway overcrossings, leaving islands of low-stress bikeways as stranded investments. Oftentimes, like the patterns of collisions, these barriers occur at city boundaries where bicycle network improvements would require inter-jurisdictional, County, or State collaboration. Grant funding and planning efforts that are regional rather than city-specific would unlock stranded investments in Silicon Valley and create a superior bicycle network.
EXISTING GAPS AND NETWORK BARRIERS

Significant barriers to bicycling in Silicon Valley include:

- High-stress streets
  - Bike routes on streets with posted speed limits above 30 mph
  - Streets with unprotected bike lanes that are exposed to fast-moving motor vehicles
- High-stress intersections
  - Street crossings of more than two lanes
  - Crossings with freeway on and off ramps
- Out-of-direction travel
  - Limited-access expressways that disrupt the street grid
  - Railroad crossings
  - Waterways that force bicyclists far out of their direction of travel

High-stress streets where bicycles do not have sufficient separation from motor vehicles are one of the most common barriers.
Only the most confident bicycle rider can operate on these streets, and most still experience dangerous and uncomfortable situations. For people who do not consider themselves strong and confident bicyclists, exposure to high volumes of fast motor traffic prevents them from bicycling and limits the functionality of the bike network.

**Intersections and interchanges present major barriers that are pervasive throughout the Silicon Valley bicycle network.** Many bike lanes end just before intersections, forcing people on bicycles to merge with traffic on high speed, multi-lane arterial streets. Freeway interchanges pose even more dramatic barriers, frequently having inclines and lane configurations that force bicyclists to merge with vehicles traveling at high speeds as they approach or exit freeway ramps. These high-stress intersections effectively isolate islands of high-quality bicycle facilities and impact the ability of a user to connect across them.
Low-stress bikeways greatly reduce the chance of a collision with an automobile by prioritizing bicycle travel on streets with low volumes and speeds, or by providing separation from faster moving car traffic.

Bicycle boulevards are low-speed, low-traffic streets that prioritize bicycle travel by diverting vehicle traffic onto adjacent streets. Protected bike lanes allow greater protection for a person bicycling on a street with high traffic and speed. At large and busy intersections, enhanced crossings connect the bikeways.

By implementing innovative solutions that reduce the stress of bicycling at critical connections, Silicon Valley can leverage existing low-stress facilities to create a world class bicycle network that comfortably accommodates all users.

**What is a low-stress bikeway?**

Traffic stress is the perceived sense of danger associated with riding in or adjacent to vehicle traffic. A low-stress bikeway is suitable for all ages and abilities, including children.

**San Jose maintenance priorities lead to more low-stress bikeways**

San Jose has been able to rapidly implement green and buffered bike lanes. When the San Jose Public Works Department is resurfacing a street or intersection, the department communicates with the city Department of Transportation to assess the feasibility of putting in bike lanes, allowing for a streamlined approach to road resurfacing and bike facility implementation.

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### Facility Type

<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Level of Separation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off-street Path/Trail</td>
<td>HIGH</td>
</tr>
<tr>
<td>Protected Bike Lane</td>
<td>HIGH</td>
</tr>
<tr>
<td>Buffered Bike Lane</td>
<td>HIGH</td>
</tr>
<tr>
<td>Bike Lane</td>
<td>HIGH</td>
</tr>
<tr>
<td>Bicycle Boulevard</td>
<td>HIGH</td>
</tr>
<tr>
<td>Bike Route</td>
<td>HIGH</td>
</tr>
</tbody>
</table>

### Street Speed and Volume

- **Family**
- **Commuter**
- **Recreational Cyclist**
Building For Tomorrow

FREEWAY AND RAILWAY CROSSINGS

Silicon Valley is crisscrossed by freeways and the Caltrain railroad tracks. A handful of fully separated bicycle and pedestrian bridges and tunnels in Silicon Valley provide ideal crossings for freeways and railroad tracks. However, most people have to travel far out of their way to access them. Shared interchange crossings must be designed to protect people on bicycles from motorists entering and exiting the freeway. Additional grade-separated bridges and tunnels will improve the network. Grade-separated tunnels and bridges are expensive projects, but will provide crucial connections that greatly expand the Silicon Valley bike network and should play a more prominent role in road improvement conversations.
Arterial crossings are often the links between low-stress bikeways. Intersection design, signal changes, and road striping can provide clear guidance on who has right-of-way at an intersection with multiple modes traveling in multiple directions. **Safety should not be sacrificed for reductions in vehicle delay.**
Building For Tomorrow

BUFFERED OR PROTECTED FACILITIES

The primary factor in determining level of traffic stress is the separation between fast-moving motor vehicles and bicycles. On streets with higher traffic and speeds, a protected bike lane or a shared-use path will create an enjoyable environment, encouraging more people to bike. Both the National Association of City Transportation Officials (NACTO) and Caltrans provide guidance on protected bike lanes that should be the default design for arterial streets.
A shared-use path provides complete separation from motor vehicles and is a preferred design to attract bicyclists of all ages and abilities. Shared-use path connections across streets should provide an equally low-stress experience. Treatments to support a safe and intuitive environment include traffic signals, flashing beacons, and wayfinding signs with pavement markings.
Wayfinding is a critical part of a bikeway network. It helps people navigate the network by confirming turns in the route, informing decision-making, and indicating the way to popular destinations. When combined with branding, wayfinding also alerts roadway users that they are on a bicycle priority street. The City of Berkeley has branded their low-stress bicycle boulevard network to help people on bikes stay on low-stress streets throughout the city.
MOVING FORWARD

Cities with progressive bicycle policies are recognized by the League of American Bicyclists as Bicycle Friendly Communities. The common thread between all bicycle-friendly communities is that city leaders have committed to a purposeful strategy of policies and thoughtful planning to make bicycling safer and more convenient. To have a high-functioning regional bicycle network, it is essential for Silicon Valley’s cities and counties to implement a suite of policies and planning and design practices that support efforts to overcome current barriers to bicycling. Joint Venture Silicon Valley and Silicon Valley Bicycle Coalition will use the following framework as benchmarks to work with cities in the region moving forward. It represents pivotal steps that Silicon Valley partners can take together to make measurable progress toward a vision of safe and connected bikeways for people of all ages and abilities.

**Partnerships**

1. Foster an active and effective advocacy community by working with bicycle advisory committees (BACs).
   • BAC actively engages with planning department
   • BAC meets at least once per month
   • BAC has recommendation responsibility to Council or Planning Commission

2. Participate in regional planning forums, such as the Managers Mobility Partnership, that focus on filling in bicycle network gaps that occur at city boundaries.
   • Membership with Joint Venture Silicon Valley’s collaborative working group
   • Active participation within the working group

3. Establish a permanent staff position that works primarily on active transportation policy and programming.
   • Full-time position in planning or public works dedicated to active transportation
   • Active transportation staff are involved in land development review
   • Active transportation staff actively included in capital improvement project development and project prioritization

**Policies**

4. Update and implement bicycle or active transportation master plans.
   • Current bicycle or active transportation plan is less than five years old
   • Active transportation plan is reference document for land development and project review
   • Dedicate an annual budget for implementation of projects and programs in the bicycle or active transportation master plan
   • Utilize protected bike lanes as the default bikeway design for high-volume streets
   • Integrate the bicycle or active transportation plan into other modal plans to resolve conflicts between transit, bicycle, parking, and loading networks
   • Include miles of connected, protected bikeways as a performance measure

5. Adopt Vision Zero policies and enact programs and design standards intended to achieve zero traffic fatalities.
   • Adopt Vision Zero policy with the goal of implementing safer street design
   • Use Vision Zero goals to direct and prioritize education, engineering, enforcement, and evaluation of street safety
   • Weigh anticipated safety benefits of street design over costs of motor vehicle delay

6. Modify city/county analytical requirements of the California Environmental Quality Act (CEQA) to enact statewide reforms that update transportation impact analyses.
   • Implement State CEQA reforms adopted by Senate Bill 743 allowing for more flexibility in bike facility design and implementation
**Projects**

7. Modify regional grant criteria to quantify relative utility of a proposed project.
   - Modify grant criteria so that proposed projects that connect existing low-stress networks are more strongly considered.
   - Use quantitative measures of connected, low-stress network to prioritize grant allocation.

8. Adopt NACTO design standards.
   - Officially adopt NACTO design standards as default design rather than as an exception.
   - Fully integrate staff in implementing NACTO designs including professionals in planning, design, engineering, maintenance, parks, and inspection.

9. Formalize a workflow between city and county planning departments and public works to leverage street resurfacing and redesign opportunities to implement bike facilities.
   - Prior to undertaking resurfacing projects, assess if a street can be reconfigured to accommodate suitable bike infrastructure.

**CONCLUSION**

Like other visionary bicycling cities in the US including Davis, CA, Eugene, OR, Boulder, CO, Minneapolis, MN, and Salt Lake City, UT, adopting bold policies that reward visionary street design and cultivate collaboration between cities and counties will help grow bicycling in Silicon Valley. Once the Valley establishes a suite of protocols that allow it to create continuity and connectivity between all of its high-quality bikeways, the region will be able to move more happy people by bicycle.

Silicon Valley has the potential to create a world-class bicycle network that improves overall safety for all road users. Achieving this vision will not be easy. It will require better collaboration between Silicon Valley cities, counties, and transportation agencies; it will require leadership within local governments and by citizen action committees to advance modified transportation priorities; and it will require substantial funding of bicycle infrastructure. Tradeoffs may be required, but they will benefit all road users with reduced congestion, enhanced safety, and a more pleasant road experience. Silicon Valley is world-renowned for being a hub of innovation – it is this innovative spirit that will carry the Valley forward in creating better roadways for everyone.

**Success Stories**

**Mountain View Mobility Coordinator**

The Mobility Coordinator position in Mountain View is a perfect example of leveraging private and public resources for a shared good. Google provided initial funding to the city to help support the creation of a new Transportation Planner position that works on bicycle and pedestrian programs and projects within the city. The work will not only benefit Google employees and Mountain View residents, it will also help bicycle commuters that must connect through the city on their way to other destinations.

**The Sunnyvale Bicycle and Pedestrian Advisory Commission**

In 2016, the Sunnyvale BPAC made an official recommendation to City Council that the city adopt a Vision Zero policy and pursue policies, programs, and projects consistent with achieving zero road fatalities. The Sunnyvale BPAC built support within the community with the help of the Silicon Valley Bike Coalition. With community backing and the BPAC endorsement, Council approved moving forward on Vision Zero and will begin work on the program this year.
SOURCES

22. Ibid.