TOWN OF CARRBORO UPDATED BIKE PLAN 2020

ACKNOWLEDGEMENTS

Thank you to the local residents, community leaders, and government staff that participated in the development of this Plan through meetings, workshops, events, comment forms, and plan review. Special thanks to those who participated as steering committee members, listed below.

PROJECT STEERING COMMITTEE

The Steering Committee was made up of local residents, government staff, and community members.

- Colleen Barclay, Carrboro Bicycle Coalition
- Lisa Brown, Carrboro Northern Transition Area Advisory Committee
- Becki Cleveland, Carrboro Recreation and Parks Commission
- Chris Colvin, Carrboro Resident
- Ray Enoch, Carrboro Fire-Rescue Department
- Barbara M Foushee, Carrboro Board of Alderman
- Lyndsay Gavin, Environmental Advisory Board
- Rachel Gaylord-Miles, Carrboro Planning Board
- Tyler Gilmore, Orange Literacy – ESOL Program Coordinator
- Linda Haac, Carrboro Transportation Advisory Board
- Kevin Hicks, Triangle Bikeworks
- Charlie Hileman, Carrboro Resident
- Brent Hobby, Carrboro Police Department
- Barbara Jessie-Black, PTA Thrift Shop
- Rachel Kelley, Carrboro Resident
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- Steve Rogers, NCICL (North Carolina Interscholastic Cycling League)
- Tamara Sanders, Clean Machine Bike Shop
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- Jon Scott, Carrboro Resident
- Daniel Snipes, Carrboro Public Works Department
- Kurt Stolka, UNC Chapel Hill Transportation and Parking
- John Vine-Hodge, NCDOT Division of Bicycle and Pedestrian Transportation
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Prepared for the Town of Carrboro, North Carolina

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Cover art adapted from the League of American Bicyclists' Bicycle Friendly Community Program

Prepared by Alta Planning + Design
Adopted by the Town of Carrboro on _____.

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1 THE VISION

Photo Credit: The Town of Chapel Hill

2020 VISION STATEMENT:

"Envisioning Carrboro as a place where biking is accessible, safe, and convenient for everyone between the ages of 8 to 80."

PROJECT BACKGROUND

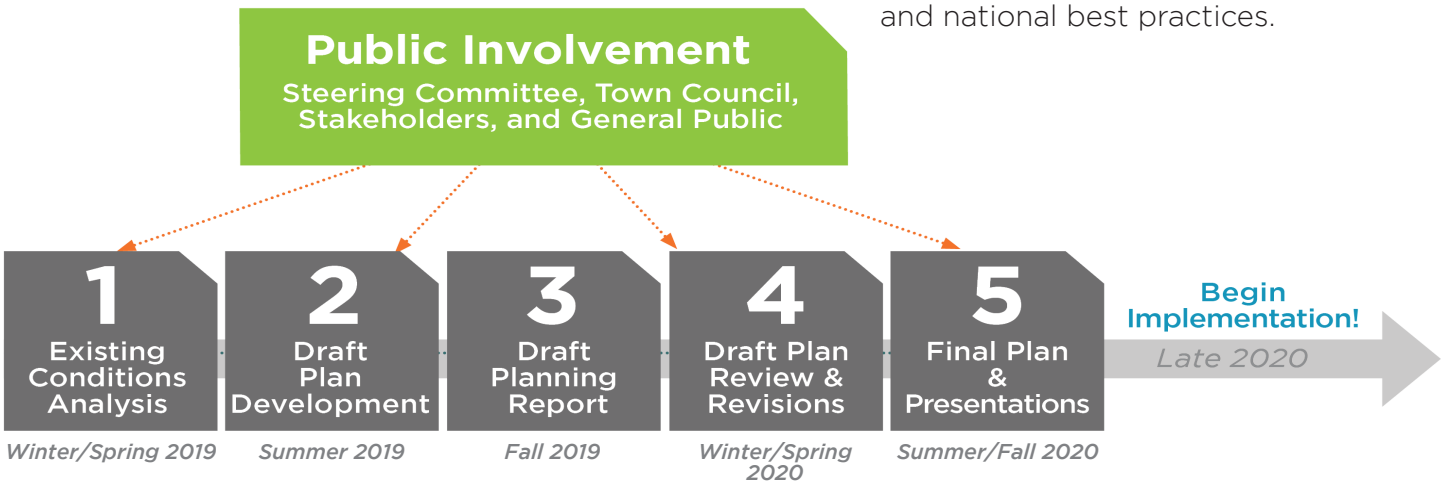
The Town of Carrboro is a bikeable community because of its long-standing commitment to biking as a safe and efficient form of transportation. The 2020 Carrboro Bicycle Plan is a new plan, based on the 2009 Bicycle Plan, showing the Town's continued commitment. The new Vision Statement is a simplification of the 2009 vision.

While Carrboro is one of the most bikeable places in North Carolina today, the Town is dedicated to evaluating opportunities for improvement to ensure biking in Carrboro is safe, fun and accessible for all ages and abilities. Furthermore, this "8 to 80" vision is one which was fully embraced by the Steering Committee and truely reflects what Carrboro is aiming to accomplish.

This '8 to 80' vision is representative of the desire for maximum participation across the age and ability spectrum. There will always be outliers, whether that is a 90 year old who still rides a bike, or the 50 year old who is injured and unable to. The vision isn't so much about setting goals for specific age groups, rather it is more about making biking enclusive to people of all ages and abilities.

The graphic below illustrates the planning process for this Updated Bike Plan. This plan aims to:

- **Engage** an active steering committee of stakeholders to guide the planning process;
- **Develop** an Equity Framework to ensure all residents are considered;
- **Recommend** projects and programs that embrace the "8 to 80" vision but acknowledge difficulties that may arise with implementation;
- **Present** a final plan that is a reflection of community needs and national best practices.



REFLECTION ON THE 2009 PLAN

The previous Carrboro Bicycle Plan, adopted in 2009, was the first of its kind for the Town. Despite having bike lanes since the 1970s, bicycle infrastructure was largely implemented as opportunities arose and policies developed incrementally rather than through a comprehensive vision. This process was guided by a clear vision statement, which also outlined the goals and objectives of the Bicycle Plan. The vision proposed for this updated Plan (p5) is effectively a distillation of that previous statement shown below.

Despite the benefits of such a vision, the rate of growth of Carrboro's bicycle network has slowed in recent years. This could be due to any number of factors including the implementation of easier projects first, the difficultly associated with installing bicycle facilities on roads which are not maintained by the town, and changes to funding mechanisms. This updated Plan reassesses the existing conditions, identifies new projects, and provides updated design standards to account for advancements in bicycle facility design which have occured over the past 10 years.

"Carrboro will be a place that is bicycle-friendly; where people have an accessible, safe, and convenient option of bicycling for transportation, recreation, and health; where bicycle lanes and greenways provide a connected system within and outside Town; where future development provides access and facilities for bicyclists; where bicycle transportation is the easy choice; and where programs educate, inspire, and encourage residents and enforce safe bicyclist and motorist behavior."

EXISTING PLANS AND DOCUMENTS

The following plans and documents, both local and regional, have been reviewed as part of the updated Plan. More information about these plans can be found in the Appendix.

- **CONNECT 2045 (2019)** - The Triangle's Metropolitan Transportation Plan
- **NC 54 Safety Study (2019)** - Bike-Ped Safety analysis in Carrboro-Chapel Hill
- **NC 54 W Corridor Study (2018)** - Carrboro-Graham Corridor Assessment
- **203 S Greensboro Project (2018)** - Orange Co. Southern Branch Library
- **Carrboro Economic Sustainability Plan (2017)**
- **Carrboro Downtown Parking Plan (2017)**
- **Carrboro Community Climate Action Plan (2017)**
- **Carrboro Bicycle Program Review (2016)**
- **Carrboro Bike Parking Ordinance (2015)**
- **Carrboro Affordable Housing Goals and Strategies (2014)**
- **Carrboro Safe Routes to School Plan (2012)**
- **Morgan Creek Greenway Study (2010)**
- **Bolin Creek Greenway Concept Plan (2009)**
- **Carrboro Bicycle Plan (2009)**
- **Residential Traffic Management Plan (2006)**
- **Downtown Traffic Circulation Study (2005)**
- **Carrboro Vision 2020 Plan (2000)**

PLAN GOALS

These goals build upon the vision statement and help to inform this Plan's analysis and recommendations. As shown below, there is no other single type of investment in Carrboro that could support this many issues related to quality of life.

ENHANCE CONNECTIVITY

Create a network of bike routes that allow Carrboro residents and visitors to access activity centers and surrounding communities by bike.

CREATE A POSITIVE ECONOMIC IMPACT

Recognize the economic benefits of a bicycle-friendly community, and capitalize on the return on investment for bike infrastructure.

PROTECT THE ENVIRONMENT

Reduce the level of transportation-related greenhouse gas emissions in Carrboro by increasing the share of people of commute to work by bike.

ADVANCE EQUITY

Create a network of bike routes that allow ALL Carrboro residents to safely and easily access parks and activity centers by biking and strive to make Carrboro a place where cycling rates are not predictable by race.

ENHANCE HEALTH

Provide transportation options and recreational opportunities that promote an active lifestyle.

INCREASE SAFETY

Address the safety and level of comfort of the transportation system for people who bicycle; Reduce the number of bicycle crashes, injuries, and fatalities over time.

INCREASE LIVABILITY

Implement complete street solutions which will incorporate all modes, including bicycles, to support healthy, safe, and bikeable neighborhoods.

CRITICAL MASS

Increase the mode share of bicycling to further encourage people to bike.

BENEFITS OF INCREASED BICYCLING

By increasing the rates of bicycling, we can help to improve people's health and fitness, increase the livability of our community, decrease automobile dependency, improve environmental conditions by reducing greenhouse gas emissions, and develop a greater sense of community.

The following section outlines the many benefits of bicycling and this Plans main themes: connectivity, economic benefit, environment, equity, health, and safety.

Photo credit: BikeCarrboro

Photo credit: Carrboro Recreaction and Parks Department

Connectivity

Almost all of Carrboro falls within a 2-mile radius of its town center (roughly at Town Hall), meaning that many of the Town's centers of employment, recreation, education, shopping, and culture are within a reasonable bicycling distance of one another.

Similarly, nearby destinations such as UNC Chapel Hill, the Town of Chapel Hill, and rural Orange County are all within a similar bicycling distance. The challenge becomes making safe, comfortable, and convenient bikeways and greenways across these distances, which is a goal of this Plan.

60% of all driving trips **made in the U.S.** are shorter than five miles (see chart below), indicating an opportunity to shift those trips to bike trips with a connected, low-stress network.

26% of young people **nationally** (aged 16 to 34) don't have a driver's license and rely on other means of transportation according to the National Household Travel Survey.

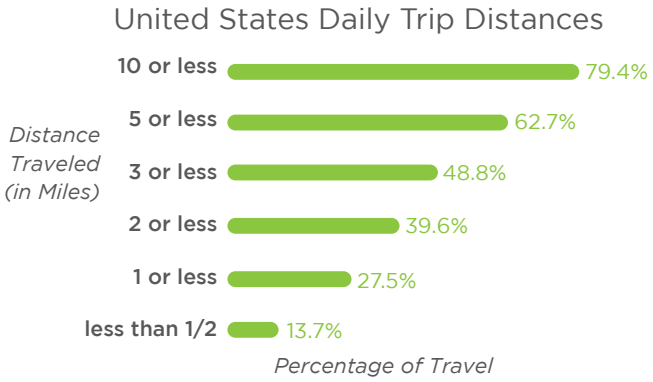
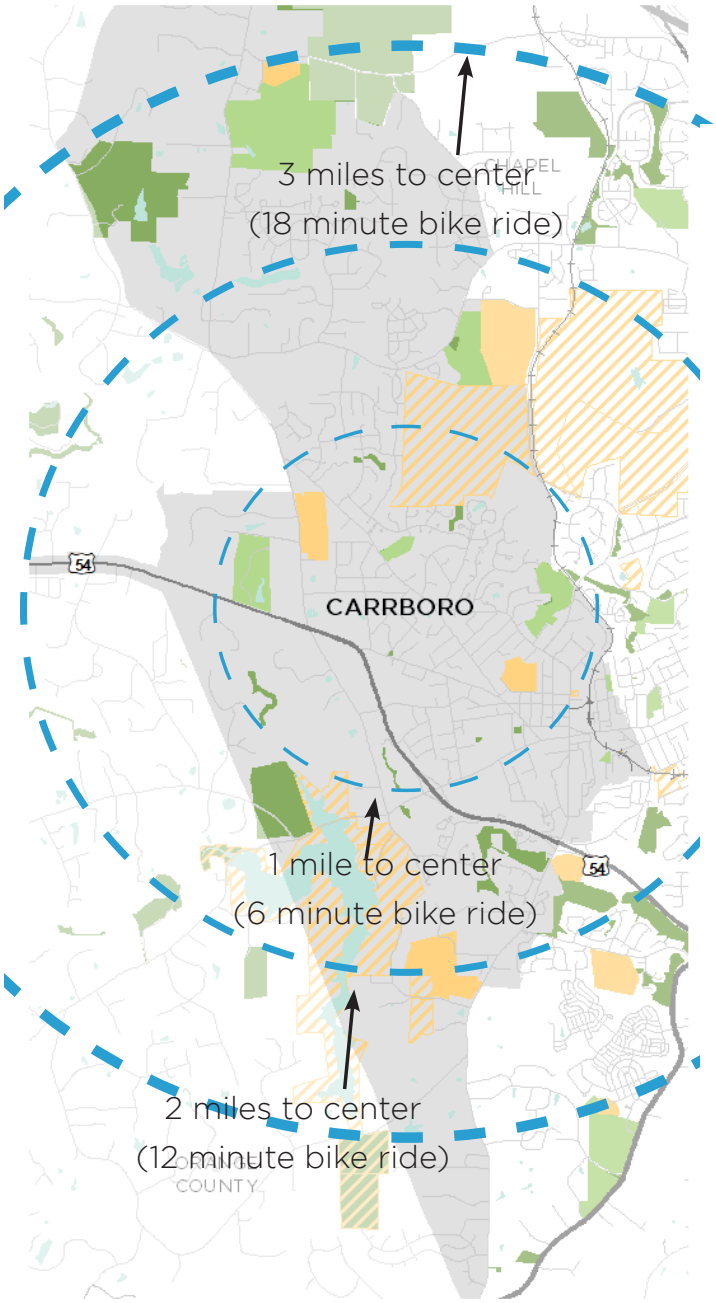


Chart from the Bicycle and Pedestrian Information Center, www.pedbikeinfo.org

MAP 1: EXAMPLE TRIP DISTANCES & BICYCLE RIDE TIMES IN THE CARRBORO AREA



Economic Impact

There are many economic benefits of biking in the form of tourism, development and maintenance of facilities, increased property values, commercial activity, and infrastructure savings.

Below are some key economic trends related to bicycling and greenway trails:

- In North Carolina, every $1.00 of initial trail construction supports $1.72 annually from sales revenue, sales tax revenue, and benefits related to health and transportation.*
- A study of the behavioral effects of completing a critical link in the American Tobacco Trail (ATT) found that with the connection installed over I-40, use of the ATT increased by 133%, with an additional $3.7 million spent annually on goods and services for those using the trail.*
- Nationally, cities report higher retail sales along bicycling corridors. In San Francisco, 66% of merchants reported increased sales after bike lanes were installed on Valencia Street.**
- The raw cost for the installation and maintenance of bicycle facilities is negligible compared to those same costs for cars and highways, although bicycle projects do require local match with NCDOT.
- Bicycling, when it can be used in a community as a viable form of transportation, can at least partially replace car ownership and maintenance, keeping household disposable income available for other important wants and needs.

**Institute of Transportation Research and Education, 2017.*
***People for Bikes*

"Trails can be associated with higher property value, especially when a trail is designed to provide neighborhood access and maintain residents' privacy. Trails, like good schools or low crime, create an amenity that commands a higher price for nearby homes. Trails are valued by those who live nearby as places to recreate, convenient opportunities for physical activity and improving health, and safe corridors for walking or cycling to work or school."

- Headwaters Economics (www.headwaterseconomics.org/trail)

Carrboro's identity as a bicycle-friendly town influences the businesses in the area. Photo credit: Open Eye Cafe/Carrboro Coffee Roasters

Environment

Bicycle facilities, greenways, and other trails can help increase rates of bicycling (and walking) to reduce rates of driving and thus reduce greenhouse gas emissions; a goal of the Town's climate action plan. Off-road facilities, like greenways, eliminate most opportunity for conflicts with motorized vehicles, which can help encourage newer people bicycling to leave their cars at home. With careful design, greenways can be incorporated into natural areas and act as natural buffer zones that protect streams, rivers, and lakes by filtering pollutants, minimizing runoff from impervious surfaces and limiting soil erosion. Greenways and trails also help guide movement of people walking and bicycling through natural areas and preserve sensitive areas. Simultaneously, these can provide the community with safe and appealing opportunities to access the outdoors can spur environmental stewardship and the appreciation of the natural beauty in Carrboro and the surrounding region. Increased time spent outdoors in nature has been shown to increase wellbeing and provide health benefits, both physically and mentally.

Based on data from the EPA, doubling the share of people who commute by bike, from 5% to 10% (and assuming that all this increase came from people who drive alone) Carrboro can reduce emissions from the Transportation sector by 4.2% (or a 1.3% reduction in total emissions).

ENVIRONMENTAL HEALTH BENEFITS OF WALKABLE AND BIKEABLE COMMUNITIES

CURRENT U.S. ENVIRONMENT & HEALTH STATISTICS

ASTHMA IS THE LEADING CHRONIC DISEASE IN CHILDREN and the number one reason for missed school days

(CDC)

Exposure to **TRAFFIC EMISSIONS** is linked to exacerbation of **ASTHMA, REDUCED LUNG FUNCTION, ADVERSE BIRTH OUTCOMES** and childhood **CANCERS**

(CDC)

40% OF ALL TRIPS in the U.S. are **TWO MILES OR LESS**, and two-thirds of them happen in cars

(NHTS, 2009)

ENVIRONMENT & HEALTH BENEFITS

A minimum of **20 MINUTES OF PHYSICAL ACTIVITY, 3X WEEK, STRENGTHENS THE LUNGS**, including those of individuals living with asthma

(US National Lib of Medicine)

IF 8% MORE CHILDREN LIVING WITHIN 2 MILES OF A SCHOOL* WERE TO WALK OR BIKE TO SCHOOL, the air pollution reduced from not taking a car would be **EQUAL TO REMOVING 60,000 CARS FROM THE ROAD** for one year

(Pedroso, 2008, SRTS)

BIKING 2 MILES, rather than driving, **AVOIDS EMITTING 2 lbs OF POLLUTANTS**, which would take 1.5 months for one tree to sequester.

(EPA, 2000 and NC State, 2001)

*for all schools across the United States

Equity

According to the American Community Survey, about 8% of Carrboro households do not have access to an automobile (2017). Of the households without an automobile, 43% are of minority race/ethnicity (2015). Households without access to vehicles are not well-served by auto-oriented transportation solutions and require walking, bicycling, and transit infrastructure.

Similarly, children under 16, seniors who no longer drive, and people with disabilities who cannot drive deserve safe ways to access community destinations without depending on an automobile.

Automobile dependent communities in the United States spend over $8,500 of their household income on transportation compared to households living in communities with more accessible land use and more multi modal systems. In those communities, it was found that approximately $5,500 of household income went to transportation costs according to a 2000 study.[1]

1 Barbara McCann (2000), Driven to Spend; The Impact of Sprawl on Household Transportation Expenses, STPP (www.transact.org)

Photo credit: Scott Scala

Photo credit: BikeCarrboro

Health

A growing number of studies show that the design of our communities—including neighborhoods, towns, transportation systems, parks, trails and other public recreational facilities—affects people's ability to reach the recommended daily 30 minutes of moderately intense physical activity (60 minutes for youth).

CURRENT U.S. HEALTH STATISTICS

80% of Americans **DO NOT ACHIEVE** the recommended 150 minutes per week of **MODERATE EXERCISE**

(CDC)

2/3 of Americans **ARE OVERWEIGHT OR OBESE**

(CDC)

CARDIOVASCULAR DISEASES are the **#1 CAUSE OF DEATH** in the United States

(American Heart Association)

61% of American adults 65 years or older **HAVE AT LEAST ONE ACTIVITY-BASED LIMITATION**

(CDC)

1 in 5 Americans report their **STRESS LEVELS AS EXTREME**

(American Psychological Association)

On average, **CHILDREN** spend more than **7.5** hours per day **IN FRONT OF A SCREEN**

(Kaiser Family Foundation)

HEALTH BENEFITS

Residents of **WALKABLE AND BIKEABLE COMMUNITIES** are **2.4x** as **LIKELY TO MEET PHYSICAL ACTIVITY GUIDELINES** compared to those who do not live in walkable neighborhoods

(Frank, 2005)

For every **0.6 MILE WALKED** there is a **5% REDUCTION IN THE LIKELIHOOD OF OBESITY**

(Frank, 2004)

20 MINUTES WALKING OR BIKING each day is associated with **21% LOWER RISK OF HEART FAILURE FOR MEN** and **29% LOWER RISK FOR WOMEN**

(Rahman, 2014 and 2015)

PHYSICAL ACTIVITY HELPS PREVENT OR DELAY ARTHRITIS, OSTEOPOROSIS AND DIABETES, while helping maintain balance, mental congition, and independence

(NIH-National Institute on Aging)

BIKE COMMUTERS REPORT LOWER STRESS LEVELS compared to auto commuters

(New Economics Foundation)

Youth who engage in **60 MINUTES** of moderate to vigorous **PHYSICAL ACTIVITY** daily have **BETTER COGNITIVE PROCESSING, ATTENTION SPANS, ACADEMIC PERFORMANCE AND SELF-ESTEEM**

(Institute of Medicine)

Safety

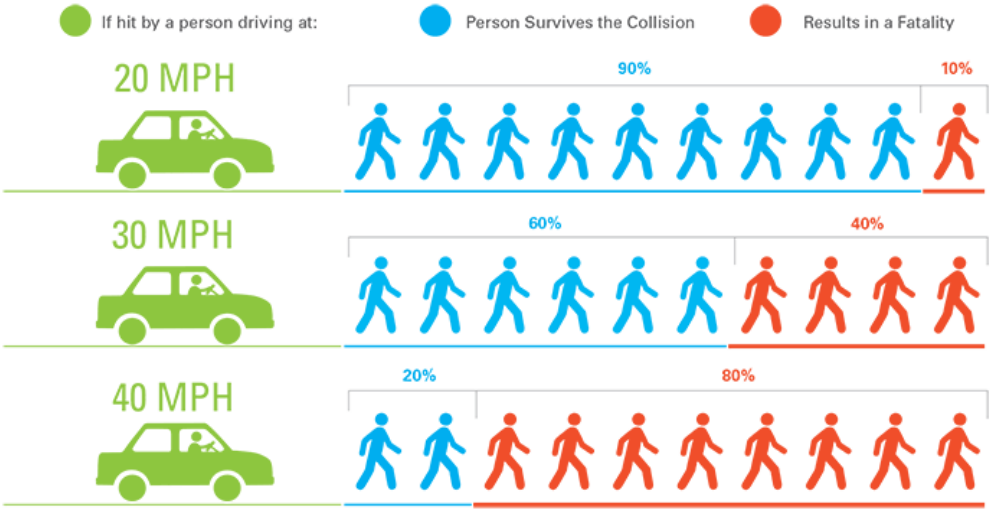
There are many factors that influence the safety, both perceived and actual, that people who bicycle experience.

The following is an example of different safety strategies:

- Before and after studies of bicycle lane installations show a crash reduction of 35 percent (CMF ID: 1719) for vehicle/bicycle collisions after bike lane installation.
- Simply getting more people on bicycles is in itself a safety measure. Shifts from driving to active modes tend to reduce total per capita crash rates in an area, thus providing a safety benefit.
- Straightforward reduction of speed limits can have a profound effect on safety, and comfort for people who bicycle or walk (as seen in the graphic below).

From 2012 through 2016, Carrboro had an average of 4 reported bike crashes per year. During those 5 years, the lowest number of reported bike crashes was in 2016 with 1 crash and the highest number of reported bike crashes was in 2015 with 7 crashes.

Statewide, North Carolina had an average of 935 bike crashes per year during those same 5 years. (North Carolina Pedestrian and Bicycle Crash Data Tool, pedbikeinfo.org)



Source: SFMTA Vision Zero, Institute of Transportation Engineers, US Dept. of Transportation
https://www.ite.org/technical-resources/topics/speed-management-for-safety/speed-as-a-safety-problem/