

Developing Effective Active Transportation Projects and Programs

Support for Smaller Agencies and Disadvantaged Communities



Module 4: Leveraging Data to Understand Active Transportation Needs



ATP Needs & Challenges Survey

- Mix of public, private and NGO respondents
- Vast majority of responses (96%) from organizations/agencies serving disadvantaged communities
- Nearly two-thirds of respondents spent more than 50 hours preparing their ATP Cycle 1 application(s)

As part of this project we conducted a survey to help inform these workshops

- Reached a mix of public, private and NGO respondents
- Vast majority of responses (96%) from organizations/agencies serving disadvantaged communities
- Nearly two-thirds of respondents spent more than 50 hours preparing their ATP Cycle 1 application(s)

ATP Needs & Challenges Survey

- Top 3 Challenges:
 - Lack of knowledge/tools for estimating increases in walking/biking
 - Insufficient staffing to prepare application
 - Lack of knowledge/tools for demonstrating benefits to disadvantaged communities
- Top 3 Requested Topics for Technical Assistance
 - Estimating Increases in Walking and Biking,
 - How to Use Safety Data To Estimate Decreases in Injuries/Fatalities
 - Effective Project Evaluation

The survey identified top 3 challenges as well as areas for technical assistance.

Overview

- Understanding Walking & Biking Trips
- Informing Project Development through:
 - Examining Community Characteristics
 - Evaluating Safety Conditions
 - Overlaying Data
- Cultivating Community & Stakeholder Support

How Far Do People Walk/Bike?



Source: Los Angeles County Metropolitan Transportation Authority (Metro),
First Last Mile Strategic Plan & Planning Guidelines, 2014.

Important to understand that walking and biking are better suited for shorter trips;

- 0.5 miles for walking trips; and
- 3 miles for bike trips

The Tremendous Potential

1 Mile Equals...



Photo Credit: Lynne Slasky, Associated Press

...a 20 minute walk



Photo Credit:
San Francisco Bicycle Coalition

...a 6 minute bike ride

1 mile is a short 20 minute walk or an even shorter 6 minute bike ride.
So there is a tremendous potential to convert short trips from driving to walking/
bicycling

The Tremendous Potential

**Nearly $\frac{1}{3}$ of trips
are under 1 mile...**

Source: 2009 National Household Travel Survey, California Add-On

In fact, we even see that many trips people take in California are under 1 mile

The Tremendous Potential

Nearly $\frac{1}{3}$ of trips
are under 1 mile...

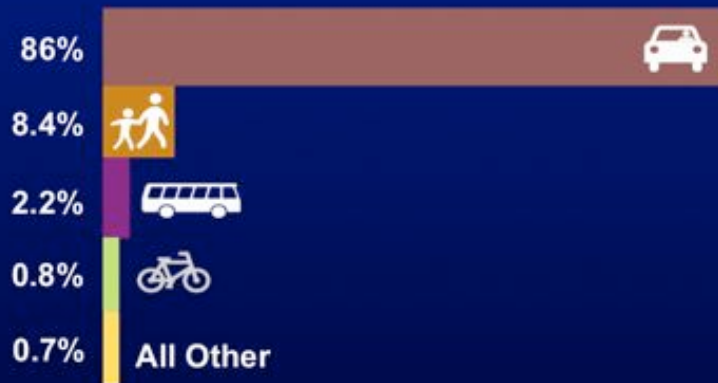
...yet $\frac{2}{3}$ of these
trips are made by car.

Source: 2009 National Household Travel Survey, California Add-On

Yet $\frac{2}{3}$ of these trips are made by car

Travel Behavior in California

2000 Mode Share



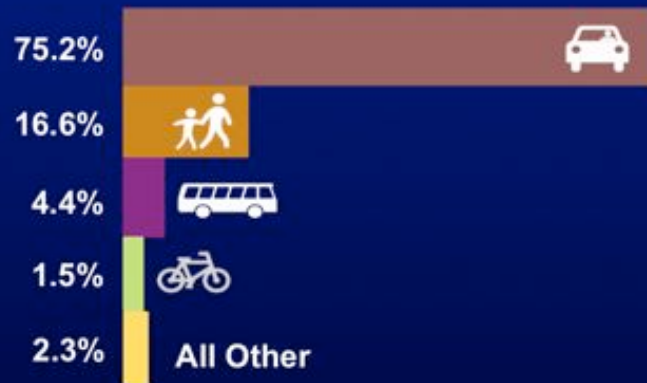
Source: Caltrans, 2010-2012 California Household Travel Survey, 2013.

It is also important to understand how people are currently getting around in California.

- Here is the breakdown of how Californians were traveling back in 2000 at a very macro level.
- You can clearly see that the auto is the dominant mode of transportation

Travel Behavior in California

2010-2012 Mode Share



Source: Caltrans, 2010-2012 California Household Travel Survey, 2013.

- 10 years later, and we can see that there has been a decline in auto use
- We see that walking, biking, and transit use have all (roughly) doubled
- Please note that “All Other” also includes carpools/vanpools, school bus trips and private transportation trips that were not separately tracked in the 2000 CHTS
- We see that Californians are increasingly multi-modal.

Exploring Community Characteristics

- Demographics
- Current Travel Behavior
- Key Community Destinations

- To begin developing your project, you will need to first review various community characteristics that will help to document the community's need for your project.
- 3 key areas you will need to evaluate are:
 - Demographics
 - Current Travel Behavior
 - Key Community Destinations

Demographics

Modes Less Traveled—Bicycling and Walking to Work in the United States: 2008–2012

American Community Survey Reports

By Brian McKenzie
Issued May 2014
ACS-2

Bicycling and walking make up a relatively small portion of commuting activity in the United States, but these nonmotorized travel modes play important roles within many of the nation's local transportation systems. Infrastructure that supports bicycling and walking expands transportation options and may complement other forms of transportation by supplementing segments of trips. Several state and local agencies have taken steps to promote pedestrian and bicycle travel. Strategies to accommodate nonmotorized travel vary across communities, but may include sidewalk modifications, pedestrian-oriented commercial centers, or bicycle lanes to name a few. In recent years, the number of cities with bicycle sharing programs has increased considerably. These efforts reflect ongoing changes in infrastructure and travel options across the nation's dynamic transportation systems. Such changes influence decisions people make about their trip to work. The American Community Survey (ACS) is an important tool for tracking how the nation's travel patterns change.

Figure 1.
2012 American Community Survey
Questionnaire

How did this person usually get to work LAST WEEK? If this person usually used more than one method of transportation during the trip, mark (X) the box of the one used for most of the distance.

<input type="checkbox"/> Car, truck, or van	<input type="checkbox"/> Motorcycle
<input type="checkbox"/> Bus or trolley bus	<input type="checkbox"/> Bicycle
<input type="checkbox"/> Streetcar or trolley car	<input type="checkbox"/> Walked
<input type="checkbox"/> Subway or elevated	<input type="checkbox"/> Worked at home → SCP to question 30a
<input type="checkbox"/> Railroad	<input type="checkbox"/> Other method
<input type="checkbox"/> Ferryboat	
<input type="checkbox"/> Taxicab	

Source: U.S. Census Bureau, 2012 American Community Survey

“Rates of nonmotorized travel generally declined as household income increased”

“Younger workers, those aged 16 to 24, had the highest rate of walking to work at 6.8 percent.”

Source: McKenzie, Brian. “Modes Less Traveled—Bicycling and Walking to Work in the United States: 2008–2012,” Available at <http://www.census.gov/prod/2014pubs/acs-25.pdf>

Demographics are important to review because they are correlated with travel behavior

- Studies of Census data have revealed very helpful travel behavior patterns that can inform how you develop a project.
- These are just a few of the findings in this study, but it really underscores how important it is for you to review the demographic data of your community.

Demographics

- Household Income Levels
- Vehicle Ownership Rates
- Age
- Languages Spoken



The screenshot shows the American FactFinder interface with a table titled 'VEHICLES AVAILABLE'. The table compares vehicle ownership rates for the total population, males, and females. The data is as follows:

Subject	Total		Male		Female	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
VEHICLES AVAILABLE						
Persons 16 years and over in households	48,170	±1,207	23,302	±1,710	27,087	±1,676
No vehicle available	1.8%	±0.5	1.4%	±0.6	2.2%	±0.7
1 vehicle available	17.8%	±1.3	18.7%	±2.0	16.4%	±1.0
2 vehicles available	61.0%	±1.2	61.6%	±1.1	59.0%	±1.0
3 or more vehicles available	19.3%	±0.7	16.2%	±0.7	22.4%	±0.8

■ Sources of Data

- U.S. Census
- American Community Survey
- CalEnviroScreen
- Public Health Departments

Talking Points:

- A few key demographic data points you will want to review are shown here.
- Looking up your community's median household income will help to document whether your community qualifies as a "disadvantaged community" under the ATP guidelines, and as shown on the previous slide, lower incomes tend to be associated with higher rates of walking and biking.
- Vehicle ownership rates are also a very easy piece of data you can pull from the American Community Survey, and households that do not own vehicles have generally been associated with higher rates of walking, biking, and transit use.
- Age is a very important demographic variable to review. Designing safe walking and biking facilities for children and seniors, especially if they are a large or expected to become a large percentage of your community, is critically important. Knowing the age make up of your community can help you better craft and meet age-specific active transportation needs.
- Lastly, finding out what languages are spoken in your community is extremely helpful in order to prepare for effective community outreach for your proeject.
- Sources for this type of demographic data are listed here.

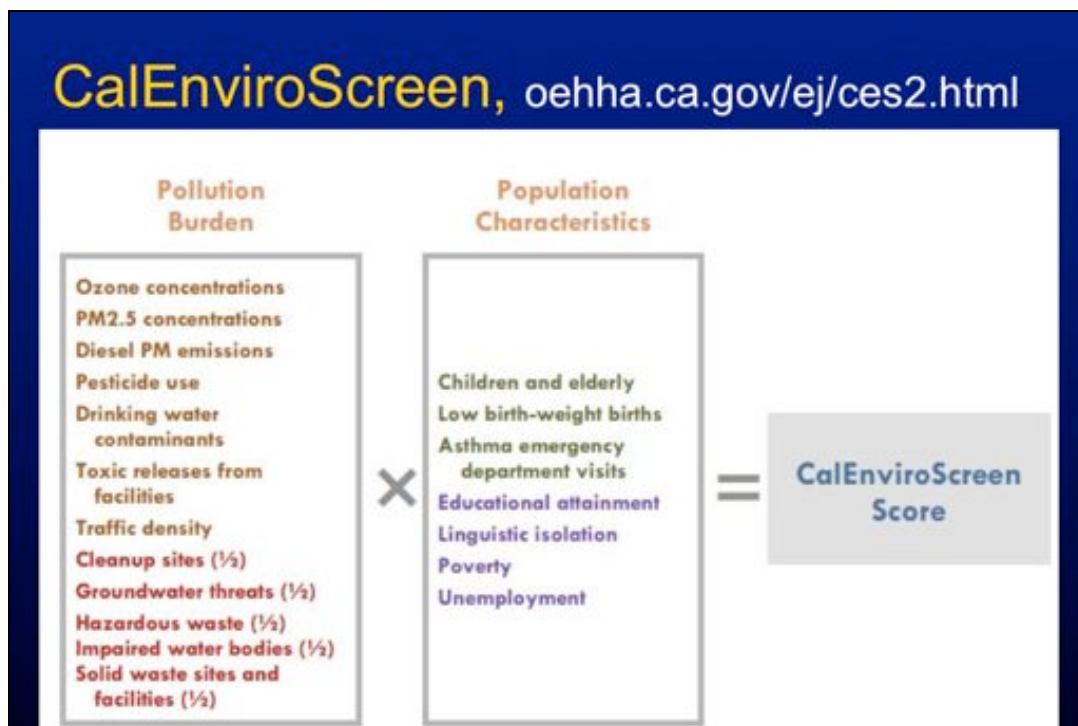
City of Arcata (Funded Disadvantaged Community Applicant)

- **“...more than 11% of residents in Arcata do not have access to a vehicle...**

Because of the project's location, relative to Arcata's most disadvantaged households, the City anticipates that **75% of ATP funding will provide direct benefits** to the disadvantaged community.”

Here is an example from a Cycle 1 funded DAC application from Arcata, in Humboldt County.

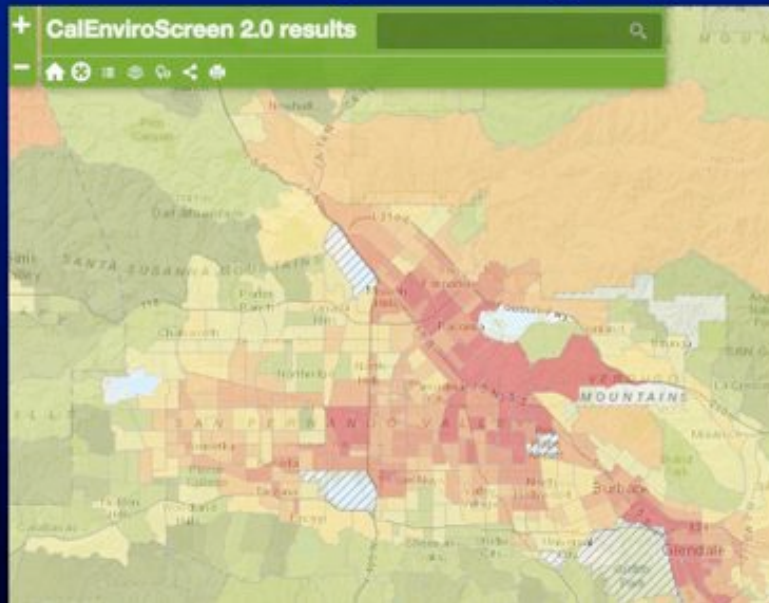
- In this case the applicant used vehicle ownership rates as part of their response to the DAC benefit question
- After the demographic data piece the response goes on to explain how the project crossed through several low-income housing projects and neighborhoods
- Based on this, the applicant then estimated how much the project would benefit its low-income residents.



CalEnviroScreen is a tool developed by CalEPA

- It generates a composite score by looking at a host of pollution burden metrics and population characteristics
- CalEnviroScreen scores are one option for qualifying as a disadvantaged community
- In addition to the composite score, CalEnviroScreen also enables you to look at any individual metric at the Census tract level, which can be used to support other sections of your application
- For example, PM2.5 concentrations and asthma emergency department visits are 2 data points that can be used in the public health section of your application

CalEnviroScreen, oehha.ca.gov/ej/ces2.html



In this screenshot of CalEnviroScreen's output you can see the higher scoring (i.e. more disadvantaged communities) are shaded in darker red

Current Travel Behavior

- Commute to Work—American Community Survey
- Ongoing Bicycle/Pedestrian Counting Program
- Automated Bicycle/Pedestrian Counters
- Short-Term Strategies
 - Student Travel Tallies
 - One-Time Manual/Automated Counts
 - Surveys

Talking Points:

- In addition to understanding the basic makeup of your community, it is critical to understand how residents are currently traveling in order to establish a baseline from which you can measure increases in walking and biking. In order to understand travel behavior, it is ideal to collect a large amount of this data over a long period of time.
- Again, you can tap the American Community Survey to retrieve commute to work data.
 - We do caution that commute trips are only a small percentage of overall trips and may not give a completely accurate picture of how residents are traveling for most of their daily needs.
- This is why it is important to establish or support an ongoing bicycle/pedestrian counting program.
 - In lieu of an ongoing counting program, a Pedestrian or Bicycle Master Plan will usually contain some amount of count data that can inform your project
- There are also many new types of automated technology that can make collecting walking and biking data much easier
- If you do not have a master plan, automated counters, or an ongoing counting program, there are a few short-term strategies to help you collect that data:
 - You can collaborate with the schools in your project area to conduct student travel tallies in the classroom; this will give you an approximate estimate for

Key Community Destinations

- Major Employment Centers
- Schools
- Health Care Facilities
- Senior and/or Community Centers
- Shopping Centers
- Public Buildings
- Transit Centers/Hubs
- Parks & Open Space
- Others?

- Now that you know what your community looks like and how many people are walking and biking, you need to know where they want and need to go
- This is why it is critically important to identify key community destinations like the ones listed here
- Your project should help connect these key destinations

Evaluating Safety Conditions

- Quantitative Data
- Qualitative Concerns
- Conduct a Site Visit

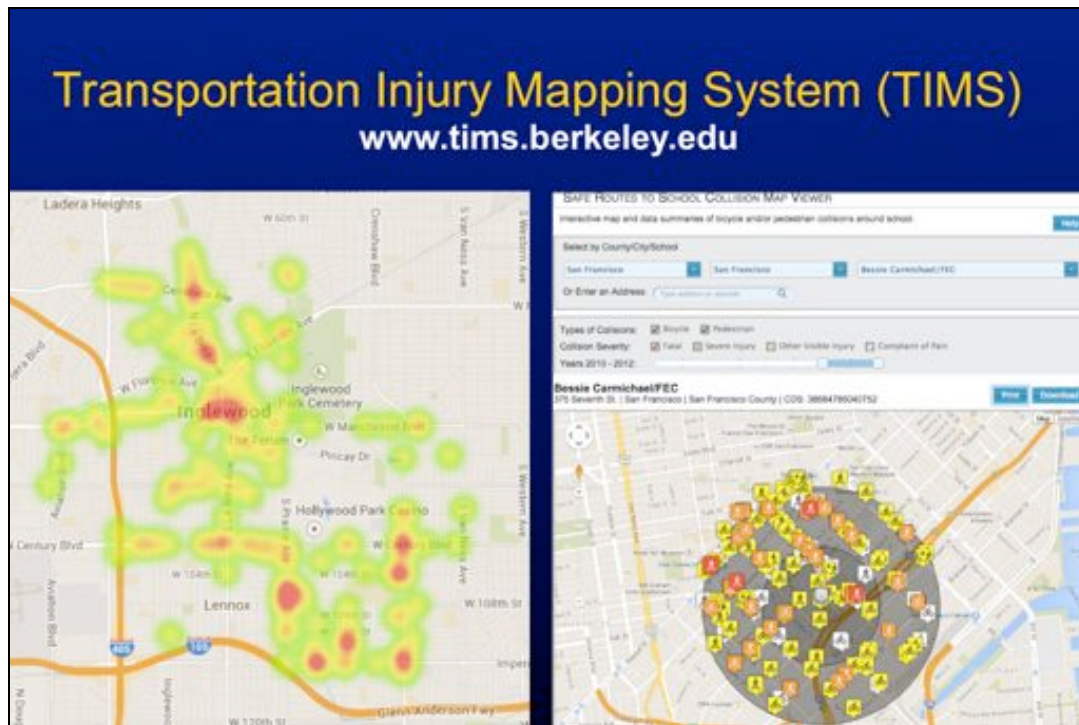


- To evaluate safety concerns, you need to address both quantitative and qualitative concerns in order to provide a complete picture of your community's safety needs and how your proposed project will address them
- Site visits and walkability assessments can be key to evaluating safety conditions

Quantitative Safety Data

- Collision Data
 - Statewide Integrated Traffic Records System (SWITRS)
 - Transportation Injury Mapping System (TIMS)
 - Safe Routes to School Map Viewer
 - Office of Traffic Safety Collision Rankings
 - Local Collision Data
- Analyzing Collision Data & Selecting Countermeasures
- Infrastructure Inventory

- Collision data will be the most readily available source of data for you to begin to evaluate the active transportation safety needs of your community.
- The state manages the SWITRS database using data submitted from local law enforcement agencies; please note that this data is generally 2-3 years behind due to a backlog of data entry
- SWITRS data can be accessed directly from the California Highway Patrol, but an easier way to access the data is through UC Berkeley Safe Transportation Research and Education Center's (SafeTREC) TIMS website
- TIMS is a free, publicly available resource that not only allows you to run queries of collision data, but also to map them
- TIMS also hosts a Safe Routes to School Map Viewer tool.
- Collaborating with your local police department or law enforcement agency is also strongly encouraged. These agencies will generally have more up to date collision reports than SWITRS
- It is important that you go beyond simply providing the number of collisions
 - You need to analyze the collision data to understand the primary collision factors and/or identify high collision corridors or hotspots that can be addressed through your proposed project
 - You then will want to identify a countermeasure or series of countermeasures to address the problem. The Crash Modification Factor web site set up by FHWA help you do this: <http://>



An example from TIMS

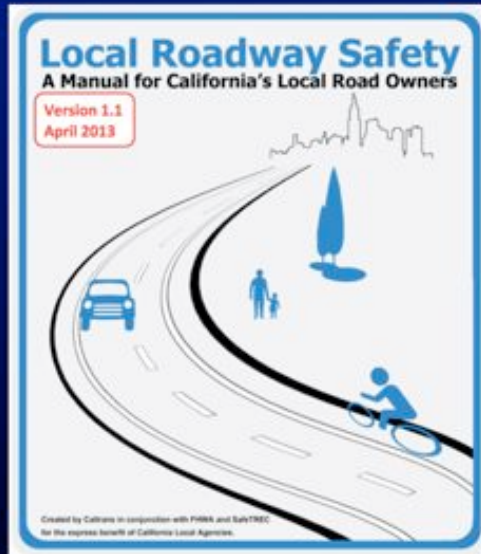
- On the left is an example query and GIS map of bicycle/pedestrian collisions in the City of Inglewood, 2010-2012, displayed as a heat map.
- Collisions can also be displayed individually and details on each collision are readily accessible.
- On the right is an example of the SRTS Map Viewer.
- This tool contains a database of all public schools in the state and can overlay bicycle and pedestrian collisions with the school location.

Office of Traffic Safety Collision Rankings www.ots.ca.gov/media_and_research/Rankings					
Agency	Year	County	Group	Population (Avg)	DVMT
Berkeley	2012	ALAMEDA COUNTY	B	115,202	917,736
		TYPE OF COLLISION	VICTIMS KILLED & INJURED	OTS RANKING	
		Total Fatal and Injury	654	9/56	
		Alcohol Involved	63	8/56	
		Had Been Drinking Driver < 21	0	54/56	
		Had Been Drinking Driver 21 - 34	26	20/56	
		Motorcycles	35	3/56	
		Pedestrians	112	1/56	
		Pedestrians < 15	10	13/56	
		Pedestrians 65+	21	1/56	
		Bicyclists	151	1/56	
		Bicyclists < 15	7	27/56	
		Composite		13/56	

This OTS web site provides comparative data on California cities and counties

- OTS compares cities of similar size to assign rankings
- Rankings are available for pedestrian and bicyclist fatalities and injuries, as well as specific age groups within those categories

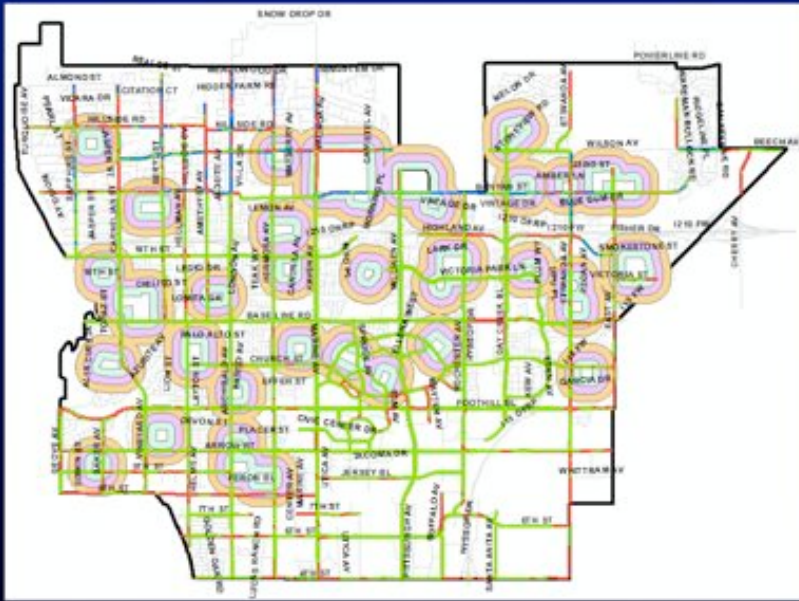
Analyzing Collision Data & Selecting Countermeasures



- Caltrans Local Roadway Safety Manual, 2013
www.dot.ca.gov/hq/LocalPrograms/HSIP/Documents/hsip/CA_SM4LROv11.pdf
- PedSafe & BikeSafe Guides, pedbikesafe.org
- Crash Modification Factors (CMF) Clearinghouse
cmfclearinghouse.org

- The Caltrans Local Roadway Safety Manual is an extremely useful and detailed guide for how to conduct safety analyses and select the appropriate countermeasures.
- Additionally, the Manual has assigned CRFs to many countermeasures based on research and consultation with FHWA. For each approved countermeasure, the Manual details the applicable crash types, locations and uses for the countermeasure.
- FHWA also has 2 guides: PedSafe and BikeSafe. These are pedestrian and bicycle specific guides for evaluating and selecting countermeasures, along with associated costs and CRFs
- Lastly, there is a national CMF Clearinghouse that contains updated research on countermeasures that may not be included in the above resources. <http://www.cmfclearinghouse.org/>

Infrastructure Inventories



- Here is an example of a sidewalk inventory from the City of Rancho Cucamonga.
- Such inventories help to better manage existing assets, as well as to prioritize repairs and installations
- Additionally, such inventories can be overlaid with sensitive populations (e.g. schools, senior centers, etc.); the above example also shows various distance buffers around schools
- Ideally, such inventorying would be completed on a community-wide basis (generally as part of a Pedestrian or Bicycle Master Plan)

Qualitative Safety Concerns



Photo Credit: Michele Buran

- Walk/Bike Audits
- Community Surveys
- Community Workshops
- PhotoVoice and VideoVoice

Talking Points

- Quantitative data—particularly collision data—only tell one part of the story.
- There are many issues that are difficult to quantify but that do have an impact on whether people feel safe enough to walk or bicycle in their community.
- To collect these qualitative community concerns, you can use these strategies:
 - Walk/bike audits: audits allow you to capture both quantitative and qualitative safety concerns
 - Community surveys: you can work with a community group or your public health department to design and administer a survey to capture whether residents are currently walking/biking and where, as well as what is preventing them from doing so
 - Community workshops
 - PhotoVoice and VideoVoice: this is a strategy that empowers community members to document a community condition affecting them either with photos or videos, as well as to express their desired solution

PhotoVoice Example

Shootings, Graffiti, Dealers & No Lights

*"At the end of this alley you'll find The Accelerated School. **Although this is a direct route to school, students often go around because they are afraid. This alley is known for gang shootings, graffiti wars, and drug dealers. It has no lighting either. How can I feel safe going to school, knowing this is happening right next to me?**"*



Sharlene, South Los Angeles
Walkability Assessment
www.werefedup.com

- Here is an example of PhotoVoice from South LA that captures safety concerns that prevent this young woman from walking to school.
- These types of safety concerns will not surface through collision data alone.

Conduct a Site Visit or Assessment



Limited number of
FREE
assessments
available each year

E-mail safety@techtransfer.berkeley.edu

<http://www.techtransfer.berkeley.edu/services/pedestrian-safety-assessments>

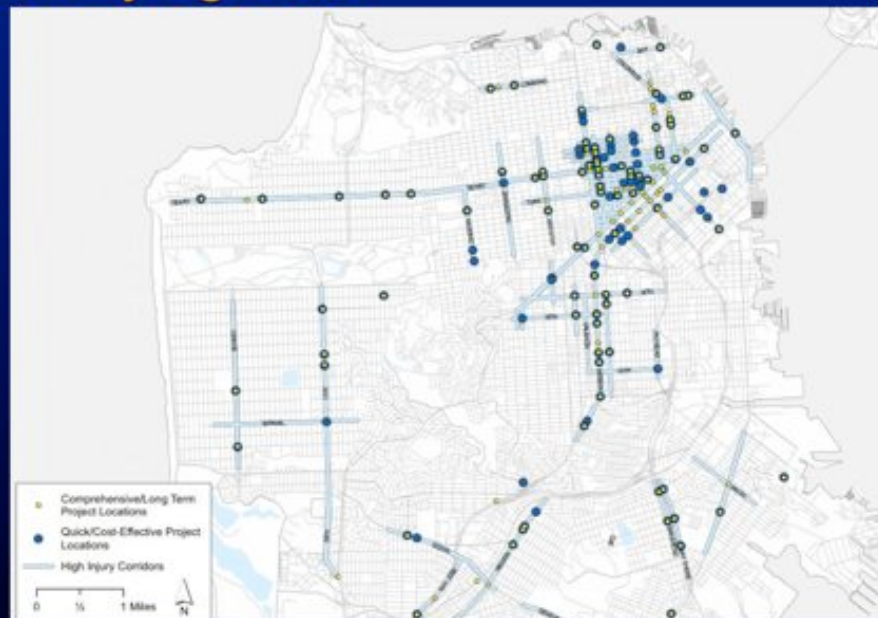
- It is very important to, at a minimum, visit the proposed project site in person to “ground truth” your own evaluation
 - It also really shows in your application if you have never visited the proposed project site
- If time permits, it is very beneficial to conduct a community wide assessment to better prepare you for future funding opportunities
- One resource you may wish to explore is UC Berkeley Tech Transfer’s Pedestrian, Bicycle, and Rural Road Safety Assessment Programs.
 - They offer a limited number of free and comprehensive assessments each year to local jurisdictions across the state.
 - It is a very popular program in high demand

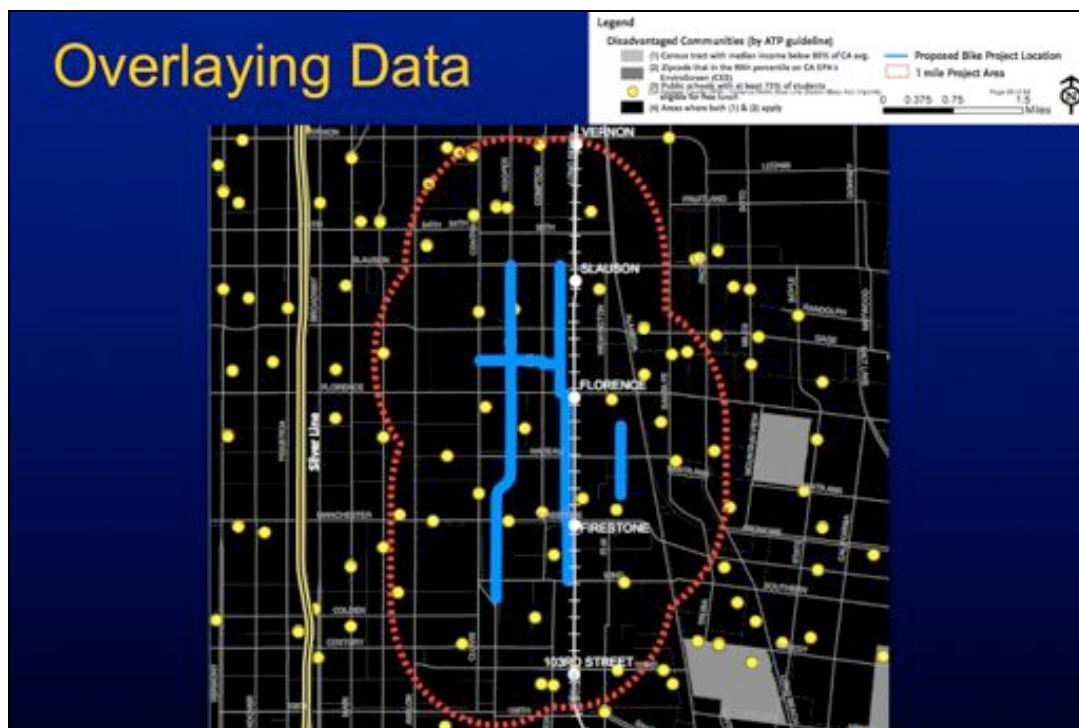
Overlaying Data



- By overlaying the various data you have collected, you can make a compelling and visual case for your community's need for the project being proposed.
- This is also a great way to collaborate with your public health department
- Here is an example from San Francisco:
 - The SF Dept. of Public Health has identified the City's network of "high injury corridors" and mapped them to the City's database of roadways
 - The identification of these corridors have been critically important in prioritizing streets for safety improvements as seen in the next slide

Overlaying Data





Here is an example from Los Angeles (ATP Cycle 1, Application ID 0446).

- Census tracts were color coded by the disadvantaged communities definitions (median household income and CalEnviroScreen), with black Census tracts fulfilling both definitions.
- Schools in the area that met the low-income school definition are highlighted in yellow
- The proposed project improvements are highlighted in blue.
- This was an effective way to demonstrate how the project would benefit disadvantaged community residents, by not only creating active transportation corridors but also connecting to the transit line that runs through the community (i.e. connecting to a key community destination).



Here is an example from Paradise, CA in Butte County (ATP Cycle 1, Application ID 0051).

- On the left, you see key community destinations near the project site highlighted, as well as schools meeting the low-income definition.
- On the right, you can see how the project connects to the community's existing Memorial Trailway and really demonstrates how the project can increase non-motorized access and travel throughout the community.

Overlaying Data



Here is an example from Oakland, CA (ATP Cycle 1, Application ID 0118).

- Here the project is highlighted, as well as the numerous local and regional destinations that would be connected through the project.

Overlaying Data



- The project also highlighted the numerous pedestrian and bicyclist collisions along nearby corridors underscoring the safety need.

Mapping Resources

- Work with your local academic institutions and/or health department
- Healthy City
www.healthycity.org/
- Community Commons
www.communitycommons.org
- Google Maps/Earth

Cultivating Community & Stakeholder Support

- Coordinate with Other Agencies Early & Often!
- Communicate with & Involve Affected Residents
- Be Open to Input/Feedback
- More on this subject in Module 8!

Talking Points

- A later module will be covering the issue of community engagement more in-depth; however, it is important to underscore the need for community and stakeholder engagement early in the process as you are evaluating your community's active transportation needs and developing a project proposal
- By involving outside partners and collaborators, such as public health, law enforcement, NGO/CBOs, you can often receive assistance with:
 - Accessing existing data sources
 - Collecting additional data (crash data, counts, etc.)
 - Community outreach
 - Providing Letters of Support
 - On the ground perspectives (i.e. "ground truthing" your assessment of active transportation needs)
- By having open lines of communication with residents and stakeholders and modifying the project application to address their feedback, you will cultivate strong community support for the project

Questions/Comments?