

# Metro First/Last Mile Training: Collaborating in a Diverse Context

April 10, 2018



# First/Last Mile Training Program



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# Project Purpose

## First/Last Mile Program Objectives

- Expand the reach of transit
- Improve safety of transit users
- Improve rider experience

## First/Last Mile Training Objectives

- Provide experience with first/last mile planning methods
- Prompt development of improvement plans
- Understand how to work with Metro



# Workshop Materials: Workbook

## The First, Last, and Toughest Mile.

FIRST/LAST MILE TRAINING WORKBOOK



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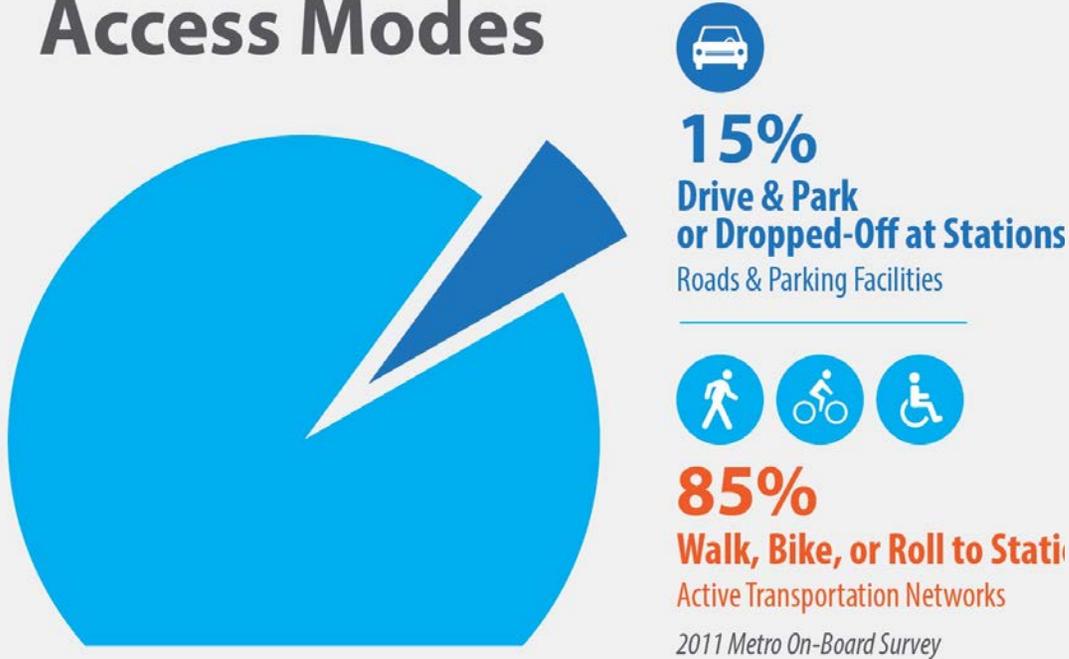
# Metro Sustainable Transportation Plans



# Access to Metro Stations

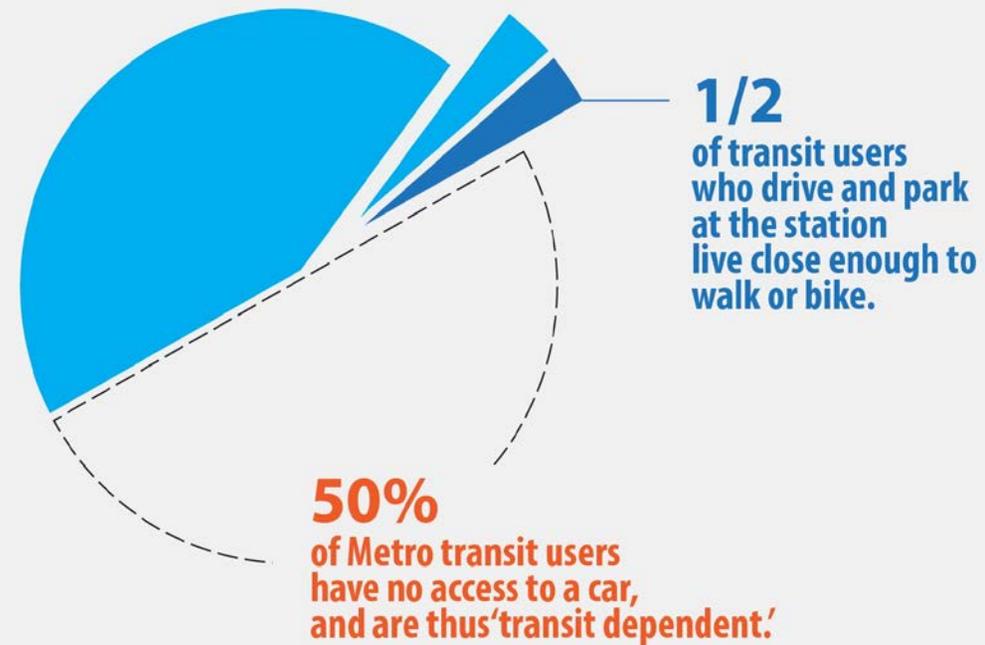


## Access Modes



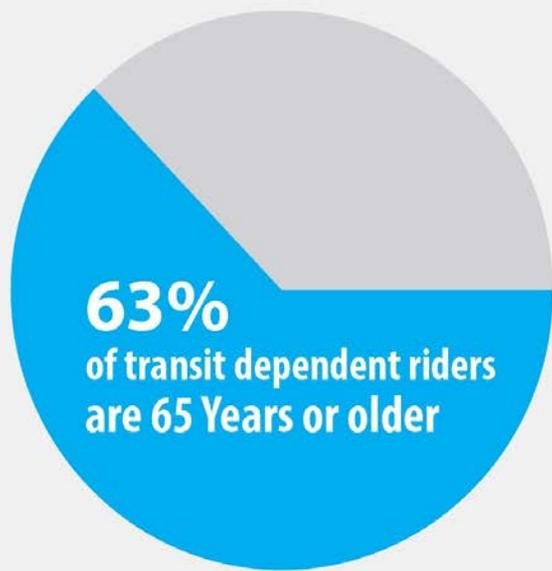
	Access Distance	VMT	GHG	Calories Burned	Cost
Car (Drive & Park)	High	High	High	Low	High
Walk, Bike, or Roll	Low	Low	Low	High	Low

## Mobility Choice



# Age and Transit Dependency

## Age & Mobility

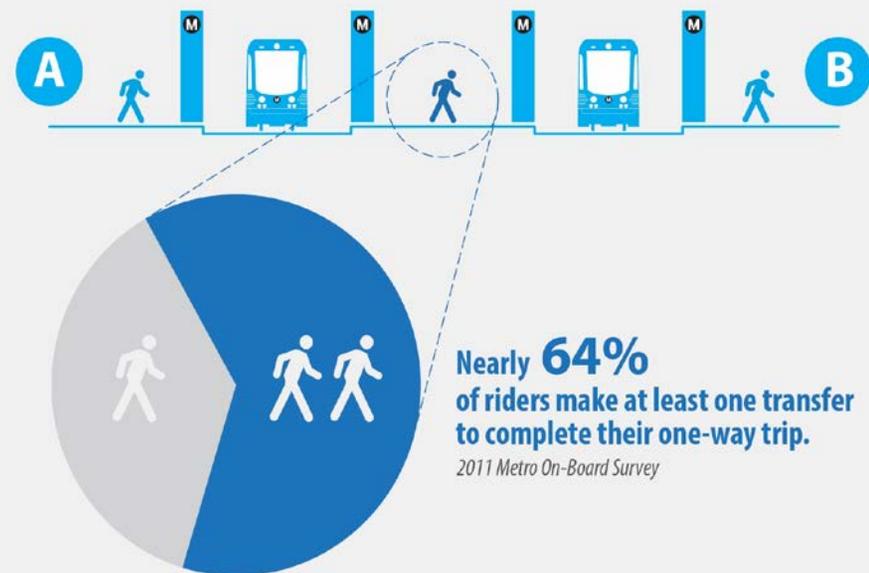


2011 Metro On-Board Survey



2012 RTP/SCS

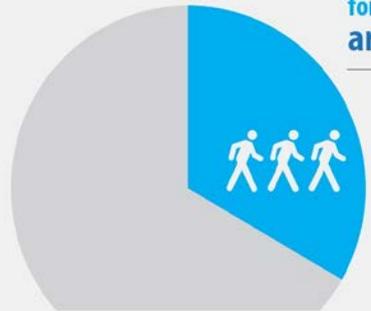
## Transfer Activity



# Pedestrian + Bicyclist Safety

## Pedestrian Safety

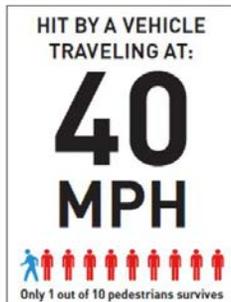
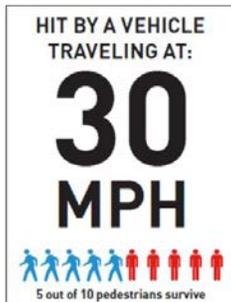
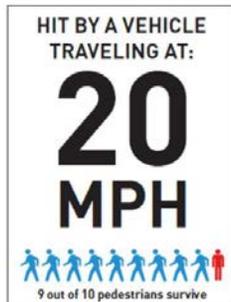
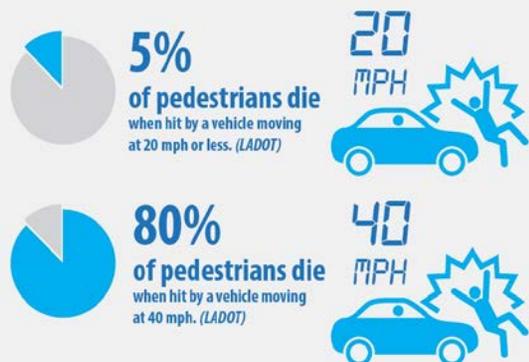
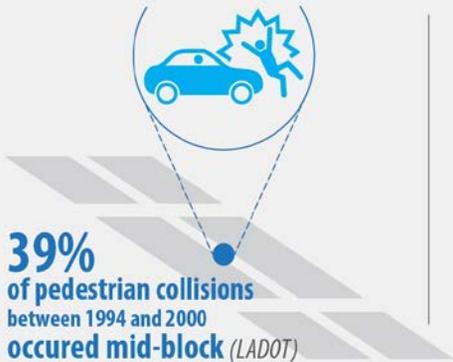
Pedestrian fatality rates for children under age 4 and seniors over age 70 in L.A. are double the national standard.



Pedestrian fatalities represented **36.8%** of all traffic fatalities between 1994 & 2000 in L.A. (LADOT)

## Bicyclist Safety

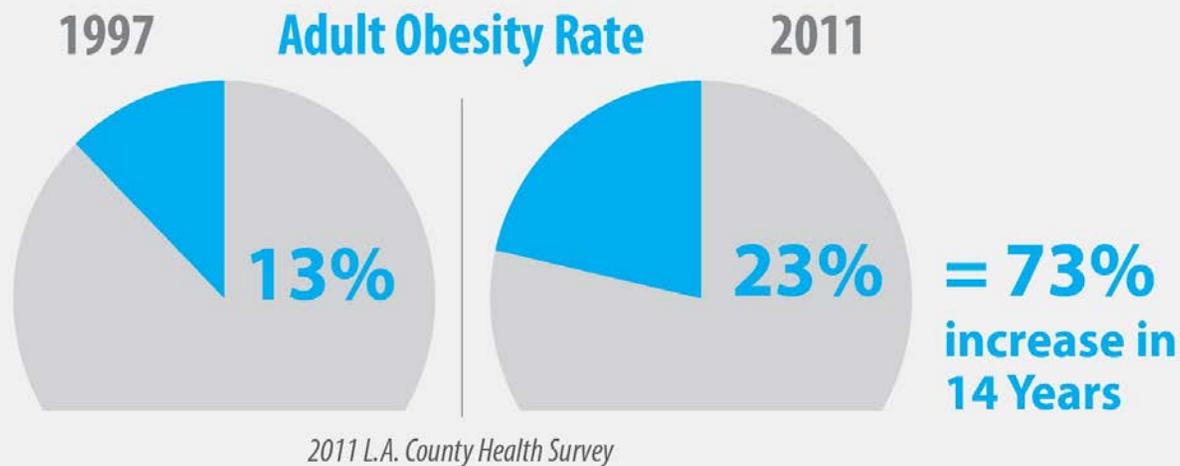
Accidents involving bicyclists have risen by **90%** in L.A. since 2002 (CHP)



# Los Angeles County Public Health

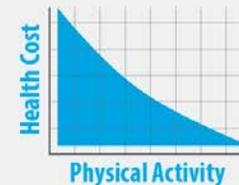


## Health & Mobility



**"The economic costs of obesity for Los Angeles County for both the public & private sectors due to health care costs and lost productivity costs is roughly \$6 billion annually."**

*The California Center for Public Health Advocacy*



**\* A 25% reduction in L.A. County obesity related health care costs would pay for the entire Measure R transit expansion program.**

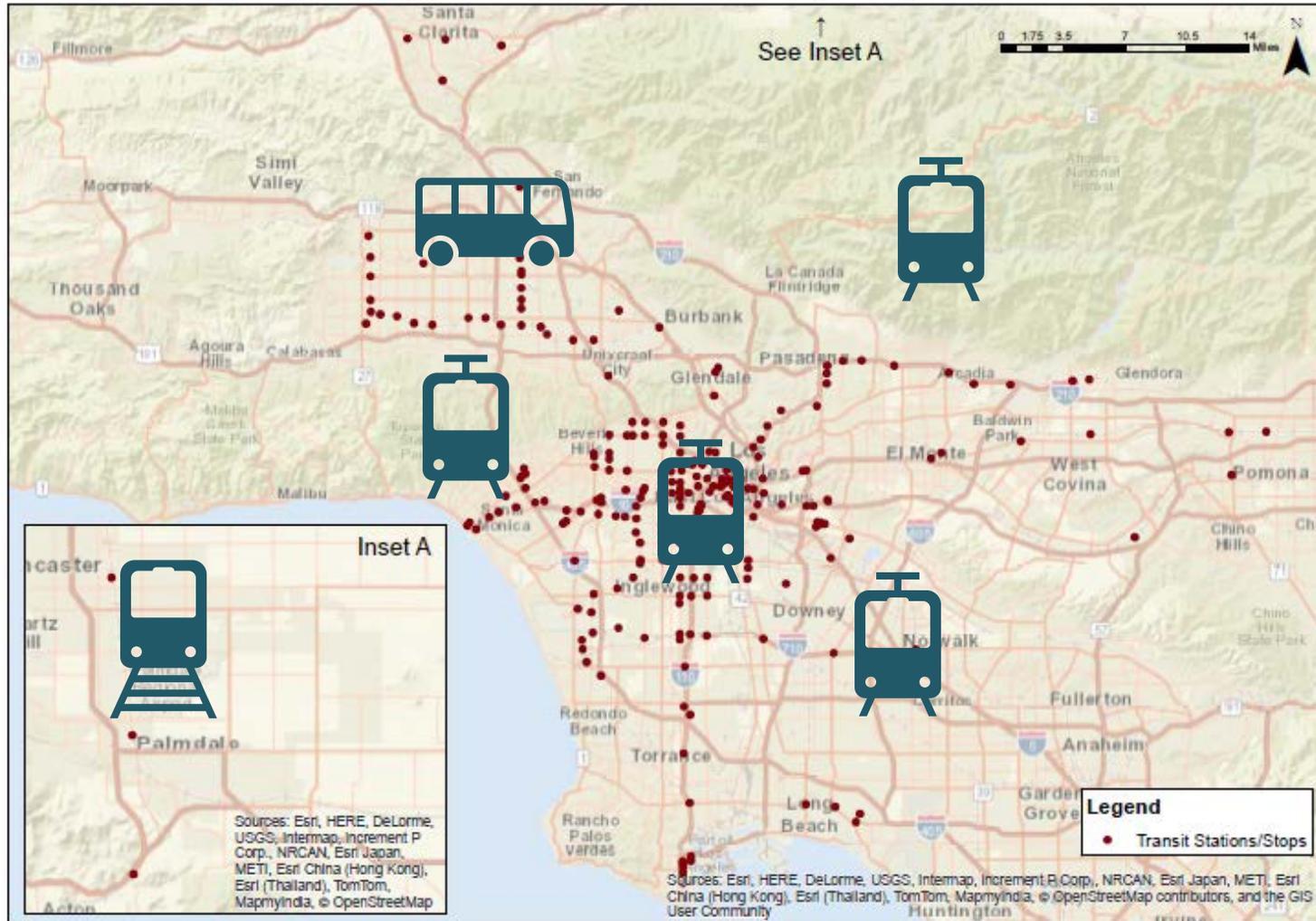


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# First/Last Mile Station Areas



## First Last Mile Analysis-Transit Stations/Stops in LA County



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# LA County: Diverse Station Areas



1. FLORENCE/LA BREA, LAX LRT LINE—Older Downtown – High Density- Light Rail Transit
2. VAN NUYS, ORANGE BRT LINE - Older Retail Strip - High Density – Bus Rapid Transit
3. BERGAMOT/26<sup>TH</sup>, EXPO LRT LINE – Media Job Center-Moderate MU Density-Light Rail Transit
4. LYNWOOD, GREEN LINE - Older Auto Strip, Moderate Density-Light Rail Transit under Freeway
5. DOWNTOWN AZUSA, GOLD LINE – Older Downtown – New MU Developmt– Light Rail Transit
6. PALMDALE HIGH SPEED RAIL STATION - Rural –Low Density –High Speed and Commuter Rail

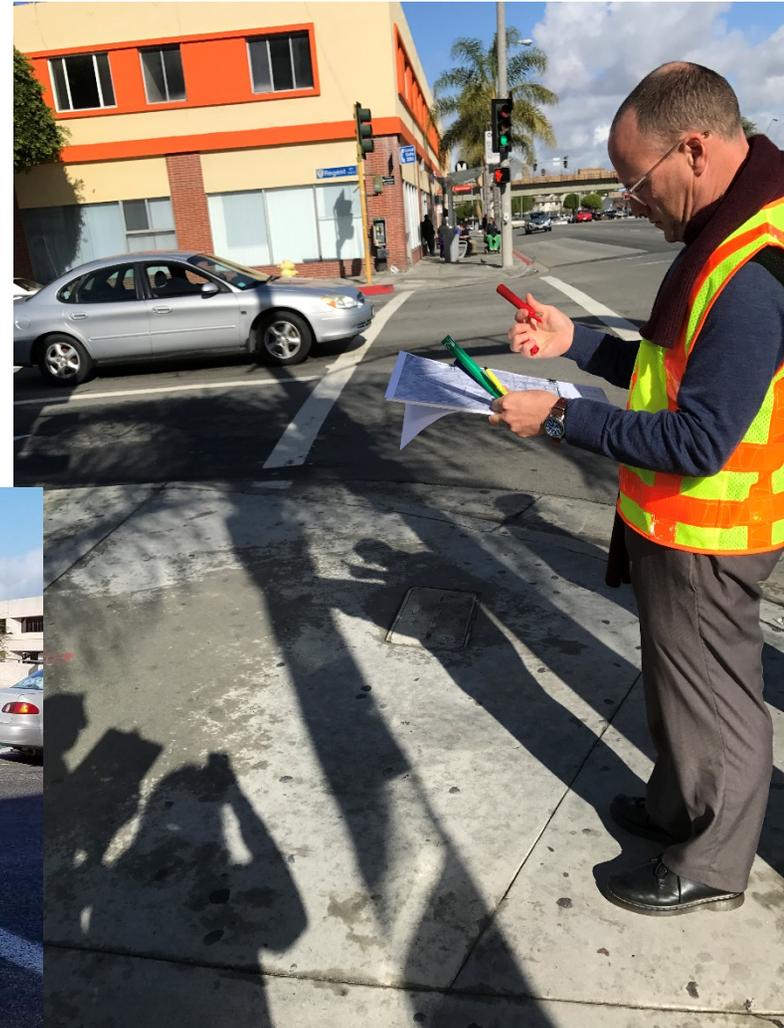


# Inglewood New LRT to LAX



## 1. FLORENCE/LA BREA, INGLEWOOD CRENSHAW TO LAX LRT LINE

Older Downtown – High Density- Light Rail Transit



# Van Nuys Civic Center BRT Station

## 2. VAN NUYS CIVIC CENTER, ORANGE LINE – BUS RAPID TRANSIT + FUTURE VAN NUYS BRT/LRT

Older Retail Strip+Civic Center- High Density – Bus Rapid Transit



# Lynwood: Green Line -Freeway Median

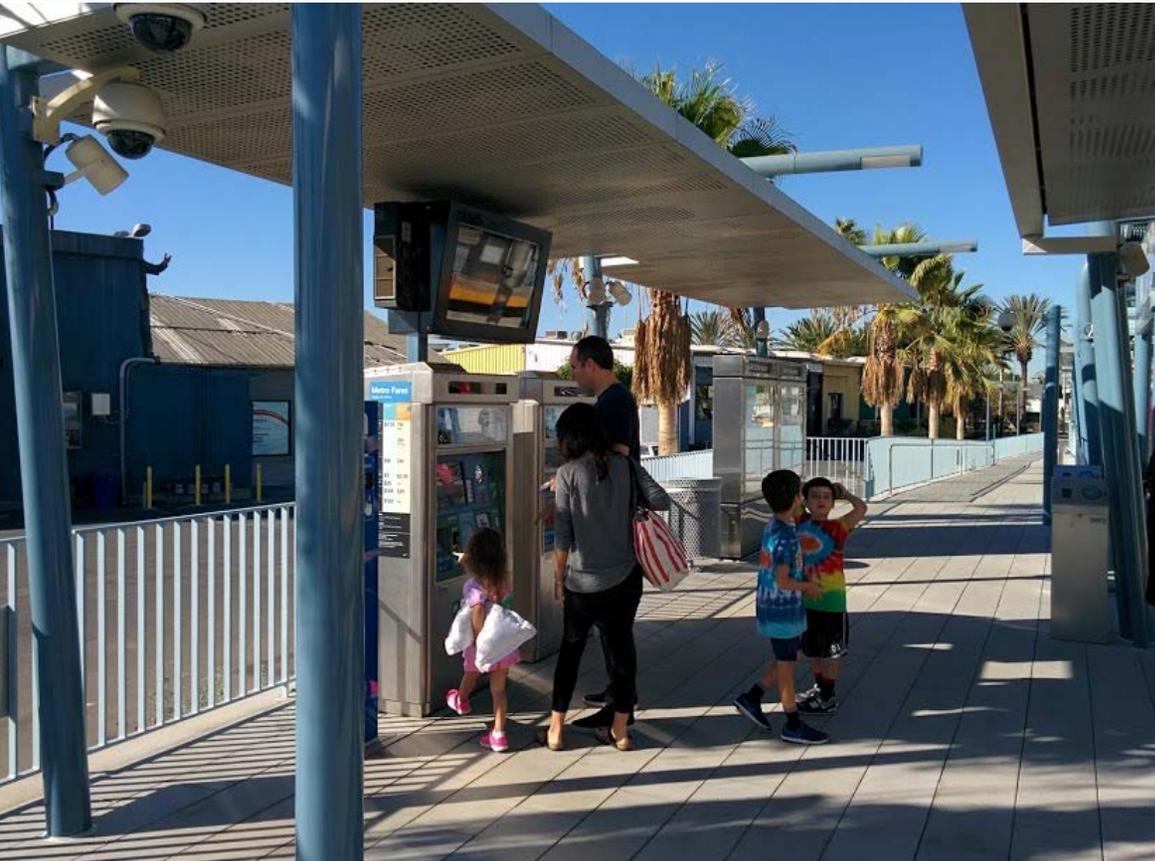
## 4. LONG BEACH BOULEVARD STATION, LYNWOOD, GREEN LINE - Older Auto Strip, Moderate Density-Light Rail Transit under Freeway



# Santa Monica Bergamot Station



**3. BERGAMOT/26<sup>TH</sup> ST, SANTA MONICA, EXPO LRT LINE – Media Job Center- Moderate MU Density-Light Rail Transit**



# Downtown Azusa Light Rail Station



**5. DOWNTOWN AZUSA, GOLD LINE** – Older Downtown – New MU Development – New LRT



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# Palmdale High Speed Rail Station Area



**6. PALMDALE HIGH SPEED RAIL STATION -**  
Rural –Low Density –High Speed and  
Commuter Rail



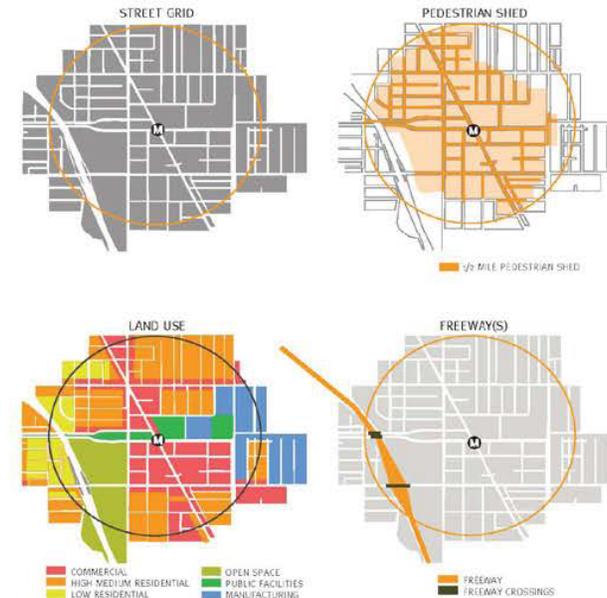
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# Planning Process: Phase 1

## Phase 1: Analyze Access Barriers and Strengths

### PHASE 1A: DATA ANALYSIS + MAPPING

- GIS Mapping Tools
- ATSP Station Analysis of Walkshed and Bikeshed
- Transportation Injury Mapping System (TIMS)



### PHASE 1B: WALK AUDIT TO OBSERVE CONDITIONS

- Station Area Checklists
- Transit, Bicycle and Pedestrian Facilities
- Micro-scale, Ground Truthing
- Note Strengths as well as Access Barriers

**STATION AREA CHECKLIST**

Name of Station: \_\_\_\_\_  
 Date: \_\_\_\_\_

Item	Description	Rating	Comments
<b>1. SAFETY</b>			
1.1	Adequate lighting. Regulators and street lighting on blocks within shed. Provide walk	1-2	
1.2	Eye-on-the-street. People are not walking, sitting on benches and are looking toward the street or toward the shed area.	1-2	
1.3	Well-maintained public realm. Sidewalks are smooth and without cracks.	1-2	
1.4	50-foot buffer for bikes. Bike lanes are separated from sidewalks and are clearly marked.	1-2	
1.5	50-foot buffer for pedestrians. Pedestrian sidewalks are clear from parked cars, utility poles, and other obstacles.	1-2	
1.6	People identify as a local resident. Clear and legible signage for the shed area.	1-2	
1.7	Clear safety signage. Stop signs, yield signs, and other signs are clearly visible and legible.	1-2	
<b>2. AESTHETICS</b>			
2.1	Sense of place. Includes a mix of uses, architecture, historic, or otherwise design that is distinctive and memorable.	1-2	
2.2	Neat and tidy. Construction, debris, and other items are not visible on sidewalks, streets, or in public areas.	1-2	
2.3	Strategically placed pedestrian amenities. There are a variety of pedestrian amenities (e.g., seating, restrooms, water, bicycle racks) and they are well-maintained.	1-2	
2.4	Attractive kiosks & vendor areas. Kiosks and vendor areas are present in pedestrian-friendly areas and are well-maintained.	1-2	
2.5	Pedestrian-friendly amenities are limited. Limited public seating, restrooms, water, and other amenities are present in the shed area.	1-2	
2.6	Overall, station area feels pleasant & is attractive. Overall, there is a pleasant atmosphere in the shed area, and the amenities are well-maintained and accessible.	1-2	
2.7	Walking Area Provides Shelter and Shade. Durable, weather-resistant materials are used for seating and other amenities.	1-2	
2.8	Cleanliness and Maintenance.	1-2	



# Planning Process: Phase 2



## PHASE 2: Identifying Improvements and Developing a FLM Action Plan



### 2A. Review Pathway Toolkit and Case Studies

Pedestrian Improvements

Bicycle Improvements and Disabled Access  
Survey

Transit Connections, Drop Off, Car Share

Safety Convenience and Attractiveness

FLMP Case Studies



### 2B. Mapping Pathway Network and Improvements

Identify Key Problems/Solutions

Pedestrian Safety, Access and Comfort

Other Users Safety, Access and Comfort

Urban Design, Signage and Legibility

Presentation of Charrette Findings

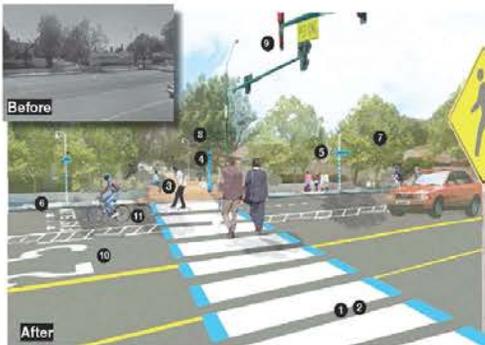


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# Planning Process: Phase 3



## PHASE 3: Refining First Last Mile Pathway Network Improvements



### 3A. Community Engagement in Refining Pathway

Pedestrian, Cyclist, Transit User, Driver Concerns  
Develop Public Support from Key Constituencies

Show Safety Data to Support Improvements

Include features for wide range of stakeholders

### 3B. Technical Input to Customize Improvements

Review Nearby Best Practice Improvements

Identify Unique Conditions and Local Concerns

Adapt Proposed Improvements to Local Concerns

Develop Before/After Performance Measures

CASE STUDY 6

Item #	Description	Unit	Qty	Unit Cost	Total Cost
12	New Traffic Signal - Single Phase	SA	1	\$1,000,000	\$1,000,000
13	New Traffic Signal - Ped & Main Arm	SA	1	\$500,000	\$500,000
14	New Traffic Signal	SA	1	\$500,000	\$500,000
15	Signal Modification (pedestrian)	SA	1	\$100,000	\$100,000
16	Signal Modification (main)	SA	1	\$100,000	\$100,000
17	Signal Modification (side)	SA	1	\$100,000	\$100,000
18	Signal Modification (main)	SA	1	\$100,000	\$100,000
19	Signal Modification (side)	SA	1	\$100,000	\$100,000
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97	Signal Modification (side)	SA	1	\$100,000	\$100,000
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100	Signal Modification (main)	SA	1	\$100,000	\$100,000



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# Planning Process: Phase 4



## Phase 4: Developing Costs, Phasing and Funding Options



### PHASE 4A: DEVELOP IMPROVEMENT PHASING AND PRIORITIES

- Integrate Improvements with New Development Projects
- Combine Bicycle Lanes, Crosswalks and Roadway Striping
- Prioritize Projects with Supportive Property Owners
- Set Performance Measures: Safety, Mode Shift, Tax Revenue

### PHASE 4B: DETERMINE COSTS AND FUNDING OPTIONS

- Metro Technical Assistance with Estimating Unit Costs
- Metro First/Last Mile Planning & Implementation Funds
- Metro Call for Projects, Prop C, Measures R & M
- Cal EPA Cap + Trade including AHSC
- Caltrans Active Transportation & Caltrans Regional Surface Transportation Program



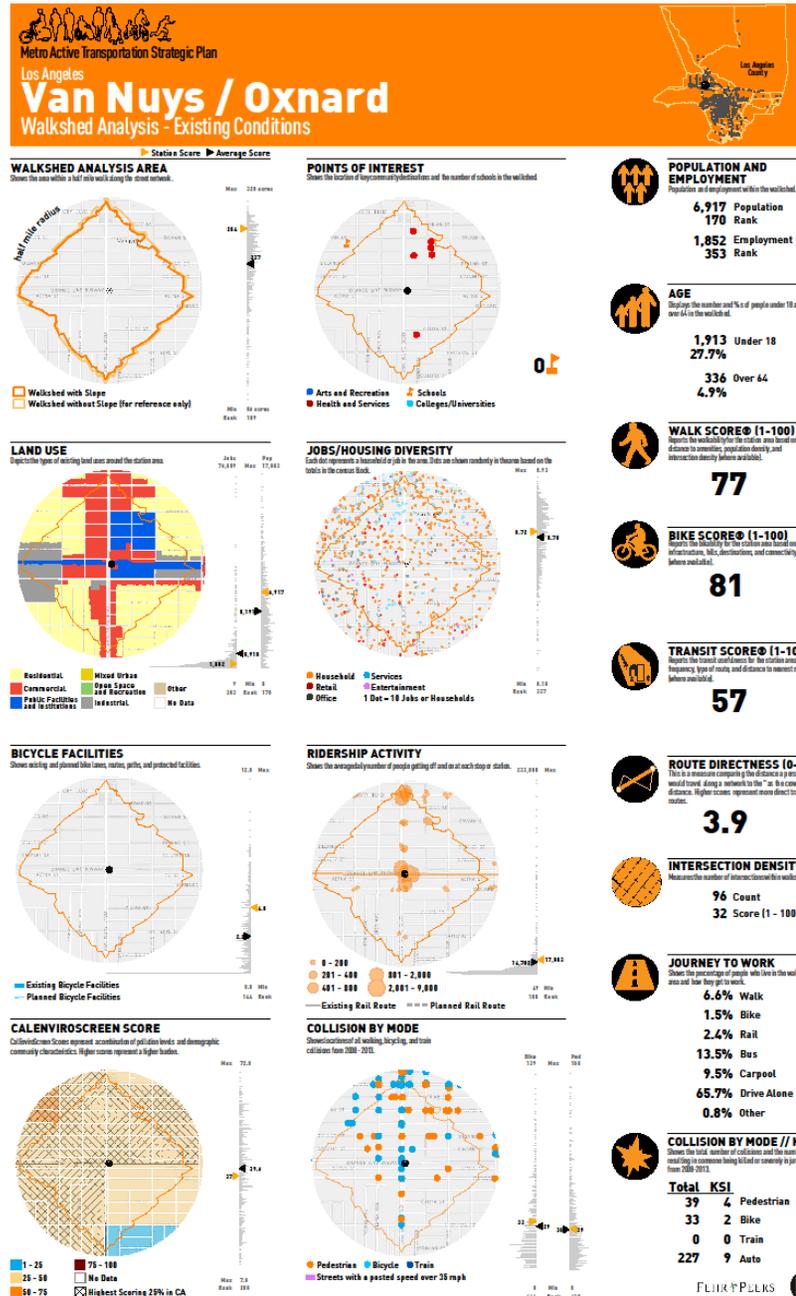
# Phase 1A: Analyzing Walkshed Data



What can we learn from the GIS maps?

Commercial corridor and government service center

High pollution and poverty index (CalEnviroScreen)



Age Distribution of Population

Jobs/Housing Density

Travel Mode to Work

KSI Bike/Ped Collisions



# SafeTREC TIMS Injury Mapping

## MAP OF BIKE/PED INJURY COLLISIONS 2006-2014

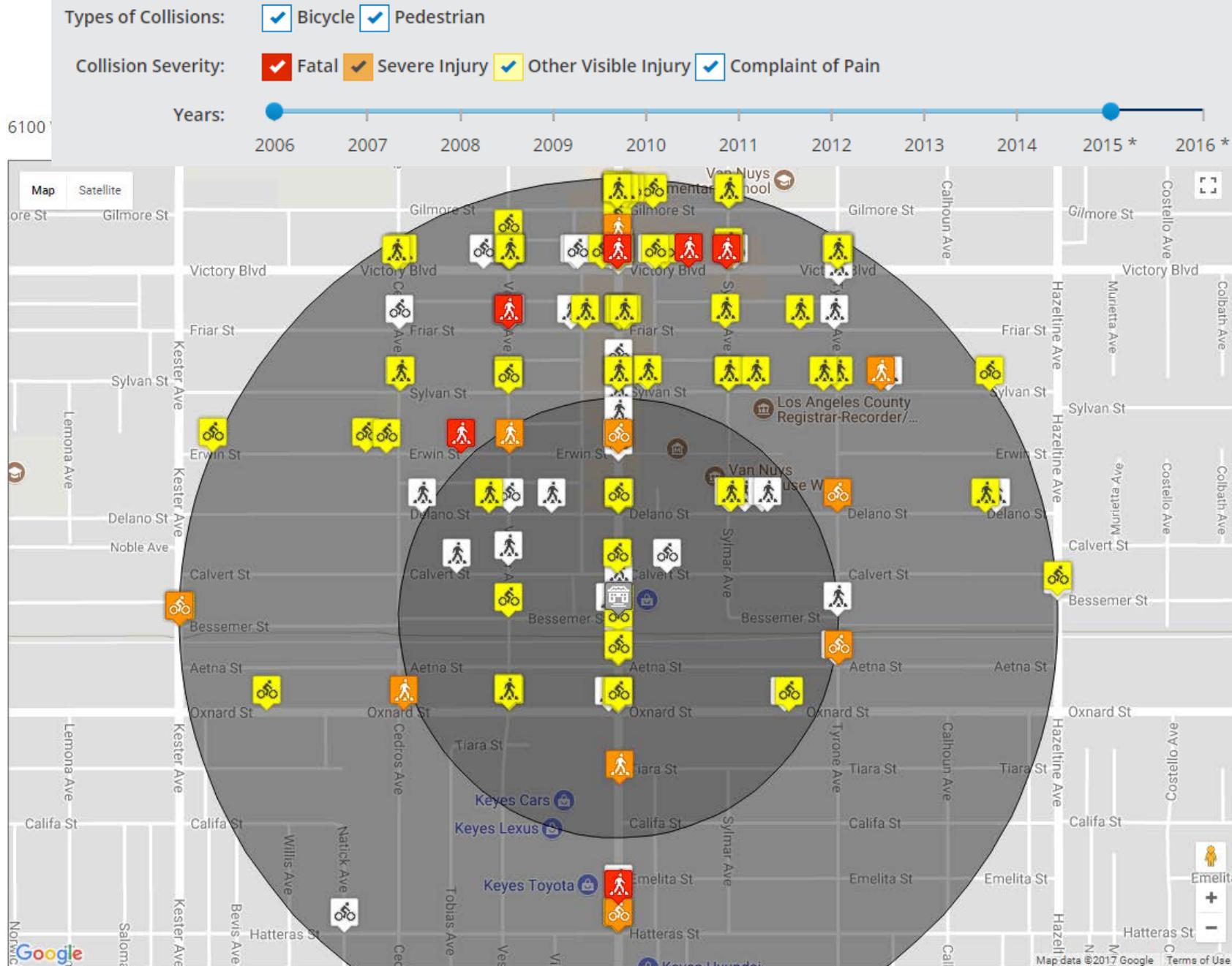
Red = Fatal

Orange = Serious

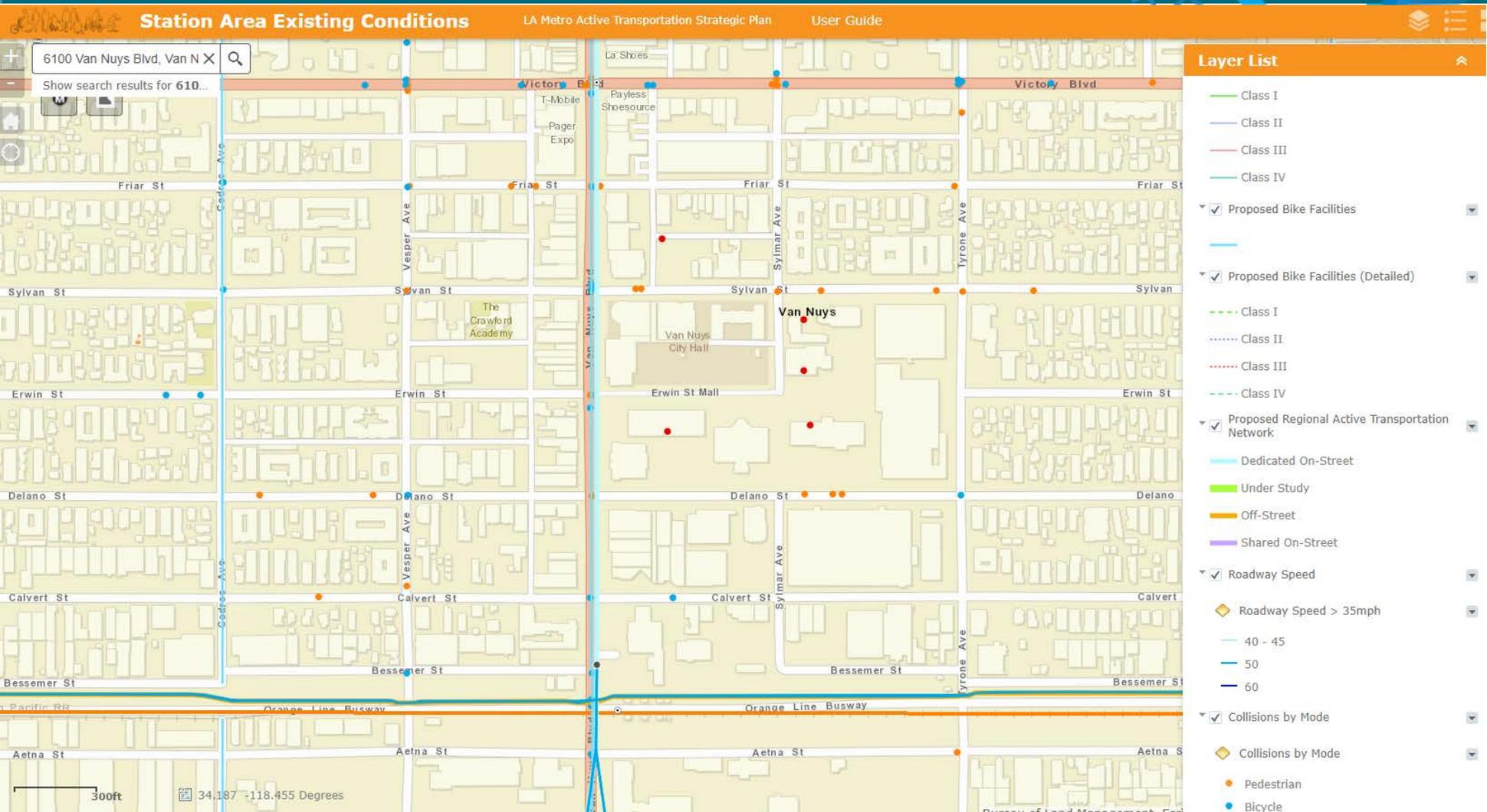
Yellow=Injury

White=Pain

TIMS uses SWITRS data generated by Police reports, provides ongoing performance measure



# ATSP GIS Mapping Tools



**What can we learn from the ATSP GIS maps?**

Van Nuys Blvd. is part of Regional Active Transportation Network

High rate of bike and pedestrian injuries





## FINDINGS ON GIS DATA MAP USE

- 1. Do you use GIS mapping tools often?** Only for parcel research, zoning, not transportation planning. Smaller and poorer cities have less GIS capability. Larger and rapidly growing cities have more. Need staff training and standardized data formats
- 2. Do you use TIMS injury mapping?** Rarely— most didn't know it was available. Some use their own SWITRS data to identify High Injury Network or focus areas. (ie LA Vision Zero)
- 3. Use ATSP GIS maps?** Rarely—only for applying for Metro or ATP Grants for required data. Many unaware of ATSP GIS resource.

# Station Area Walk Audit



**10:10 AM**  
**WALK AUDIT TRAINING**

# Walk Audit Training

- **Bring people together** to discover access barriers and strengths and observe behavior of transit users.
- Focus on **evaluating conditions** walking to and from transit station
- **Groups of 5-7 people** will walk for about **1 hour** evaluating conditions on city streets for about **1 mile**
- **Document** route on an aerial map, with photographs and on checklists
- **GOAL: Exchange perspectives, understand experience of transit users, pedestrians, cyclists, disabled**



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# Walk Audit Instructions

1. Make sure your **Station Name and Route #** is at the top of each page, as well as the weather condition and team member names and email addresses
2. The **Team Leader** will use the **Walk Audit Map** to notate the **Strengths, Barriers and Observed Behaviors** with the symbols shown on the Walk Audit Map. Use the red, blue and green sharpies to make the notations with a circle, line or shaded area. The **Observer** will document the observations on the Observations Sheet. For example put B-1 for Barrier #1 on the map. Use the circle for a spot location, a line for a linear location and the shading for an area.

Access Barriers



Access Strengths



Observed Behaviors



3. The **Photographer's Assistant** will document the photos taken of Strengths and Barriers along with the precise location of the photos on the Walk Audit on the Photographer Instructions Page and/or Map. Add any notes on the back of the page.

# Walk Audit: Team Leader Instructions & Observations

## WALK LEADER INSTRUCTIONS

Name/Route # \_\_\_\_\_  
 Weather Condition: \_\_\_\_\_  
 Date & Time: \_\_\_\_\_

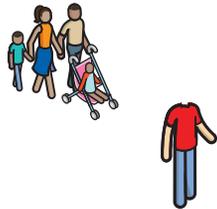
The team leader should review the Team Leader Checklist to assure that you have all your proper materials before departing for your walk

**Checklists**—Assign one person to observe the conditions identified on each of the five checklists. One person can be assigned to more than one checklist.

There are 5 checklists:

- Safety—for issues related to safety and comfort
- Aesthetics—for issues related to the sense of place and experience
- Accessibility—for issues related to sidewalk, crosswalk
- Transfer—Transfer - for issues related to transfers between transit pathway, drop-off, parking and bicycle facilities modes
- Behaviors—documenting people's behavior and response to the environment around the station area

Consider multiple constituencies (gender, age, abilities, etc.) in your observations



### Team Instructions

- Make sure to add the Route # and the team member's name, email address to all the team leader instructions, photographer instructions, walk audit maps and checklists.
- Assign one person to take the assigned photos and another to document the photographs, including the location, on the photo index sheet - you only need one or two examples of each barrier to show the character of the route.
- Use the aerial photos to document strengths, barriers and observed behaviors according to the instructions on the maps

### When you return to the training site

- Please return the clipboards and safety vest at the check-in desk
- Keep your checklists, marked up aerial photos, and notes with you for use during the charrette
- Meet as a team to complete the 5 checklists and tally up the total score on each checklist based on the conditions that your team observed on the Walk Audit. Note special characteristics and add include any additional comments that your team has about the route on the last page
- Assign one person to provide a summary of your team's findings at the report back session

TEAM MEMBER	ROLES	EMAIL
	Team Leader	
	Observer	
	Photographer	
	Photographer's Assistant	
	Safety & Accessibility Issues	
	Aesthetics & Transfers Issues	
	Behavior Issues	

## WALK AUDIT OBSERVATION

Station Name/Route # \_\_\_\_\_  
 Date & Time: \_\_\_\_\_  
 Observer's Name: \_\_\_\_\_

**Instructions:** Use the following form to document the Barriers, Strengths and Observed Behaviors that your team observes on your Walk Audit. Numbers must correspond to the numbering on the Walk Audit Map. Use the back side of this sheet if you require more space.

BARRIERS	
B-1	
B-2	
B-3	
B-4	
B-5	
B-6	
B-7	
B-8	
B-9	
-	

STRENGTHS	
S-1	
S-2	
S-3	
S-4	
S-5	
S-6	
S-7	
S-8	
S-9	
S-10	
S-11	
S-12	
S-13	
S-14	
S-15	
S-16	
S-17	
S-18	
S-19	
S-20	
S-21	

OBSERVED BEHAVIORS	
O-1	
O-2	
O-3	
O-4	



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# Walk Audit: Station Area Checklists

## STATION AREA CHECKLIST

Station Name/Route # \_\_\_\_\_  
 Date & Time: \_\_\_\_\_  
 Team Member Name: \_\_\_\_\_

### 1. SAFETY

	Disagree/ Lacking	Somewhat/ Adequate	Strongly Agree/Ample
<b>1.1 Adequate lighting.</b> Regularly spaced and frequent lighting that is directed towards the sidewalk and any bikeways. Provides sufficient illumination.	1	2 3 4	5
<b>1.2 Eyes-on-the-street.</b> People are out walking, which makes it feel safe. Ground-floor windows and entries are not covered or obscured. People are nearby who would see or hear me if I needed assistance.	1	2 3 4	5
<b>1.3 Well maintained public realm.</b> Sidewalks are smooth and without cracks, vegetation is trimmed, etc.	1	2 3 4	5
<b>1.4 Safety buffer for bikes.</b> Bikes are adequately separated from vehicle travel lanes. Consider type and quality of buffer—sufficient width, painted material, bollards, etc.	1	2 3 4	5

## STATION AREA CHECKLIST

Station Name/Route # \_\_\_\_\_  
 Date & Time: \_\_\_\_\_  
 Team Member Name: \_\_\_\_\_

### 2. AESTHETICS

**2.1 Sense of place.**  
Inclusion of unique street characteristic, landmarks, or streetscape design that sets this space apart from other areas. A special sense-of-place.



	Disagree/ Lacking	Somewhat/ Adequate	Strongly Agree/Ample
	1	2 3 4	5

## STATION AREA CHECKLIST

Station Name/Route # \_\_\_\_\_  
 Date & Time: \_\_\_\_\_  
 Team Member Name: \_\_\_\_\_

### 3. ACCESSIBILITY

	Disagree/ Lacking	Somewhat/ Adequate	Strongly Agree/Ample
<b>3.1 High quality sidewalks.</b> Sidewalks are large enough for pedestrians to walk, pass, and jog comfortably in opposing directions. There are very few disruptions to the sidewalk quality (e.g. smooth paving and the signage and poles are set back). Vehicles are not blocking the pedestrian right-of-way.	1	2 3 4	5
<b>3.2 Clear, safe crossings.</b> Signalized intersections are provided that allow ample time to cross the street, frequent crossings, and are a walkable distance (or provide a median for people to rest 1/2 way), for people of all abilities. Crosswalks are supplied with functioning push buttons and are painted for safety.	1	2 3 4	5

## STATION AREA CHECKLIST

Station Name/Route # \_\_\_\_\_  
 Date & Time: \_\_\_\_\_  
 Team Member Name: \_\_\_\_\_

### 4. TRANSFERS



	Disagree/ Lacking	Somewhat/ Adequate	Strongly Agree/Ample
<b>4.1 Clear transit transfer signage.</b> Transit information is posted for all modes. Wayfinding directional signage directs passengers to transfer points and connection locations.	1	2 3 4	5
<b>4.2 Real-time information.</b> Real-time (e.g. next bus/train) signage is available and easy to see.	1	2 3 4	5

## STATION AREA CHECKLIST

Station Name/Route # \_\_\_\_\_  
 Date & Time: \_\_\_\_\_  
 Team Member Name: \_\_\_\_\_

### 5. BEHAVIORS

During My Walk I Saw People Who Were: \*

Circle One:



**5.1 Avoiding sidewalks.**

# Walk Audit: Barriers



Narrow sidewalks

# Walk Audit: Barriers



Uplifted sidewalks

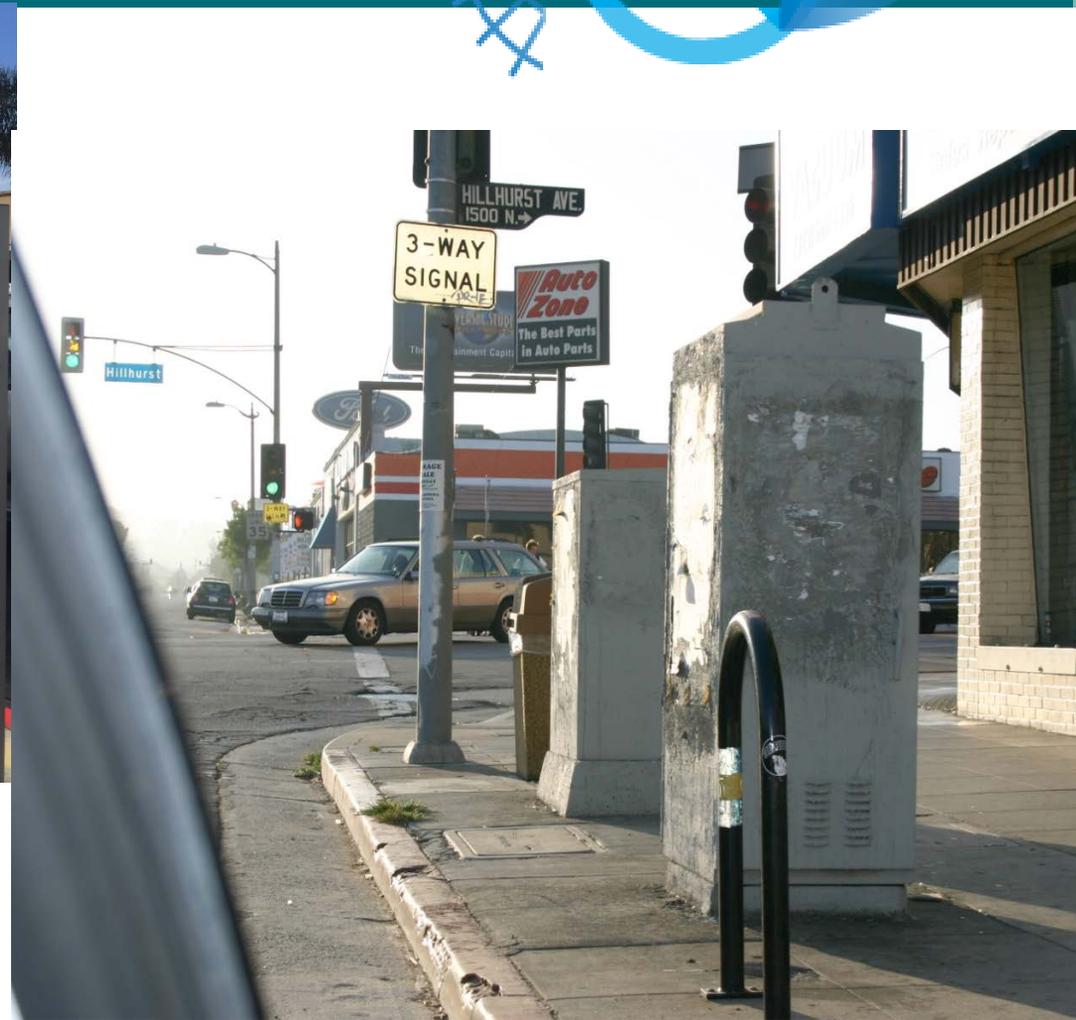


Poor sidewalk paving

# Walk Audit: Barriers

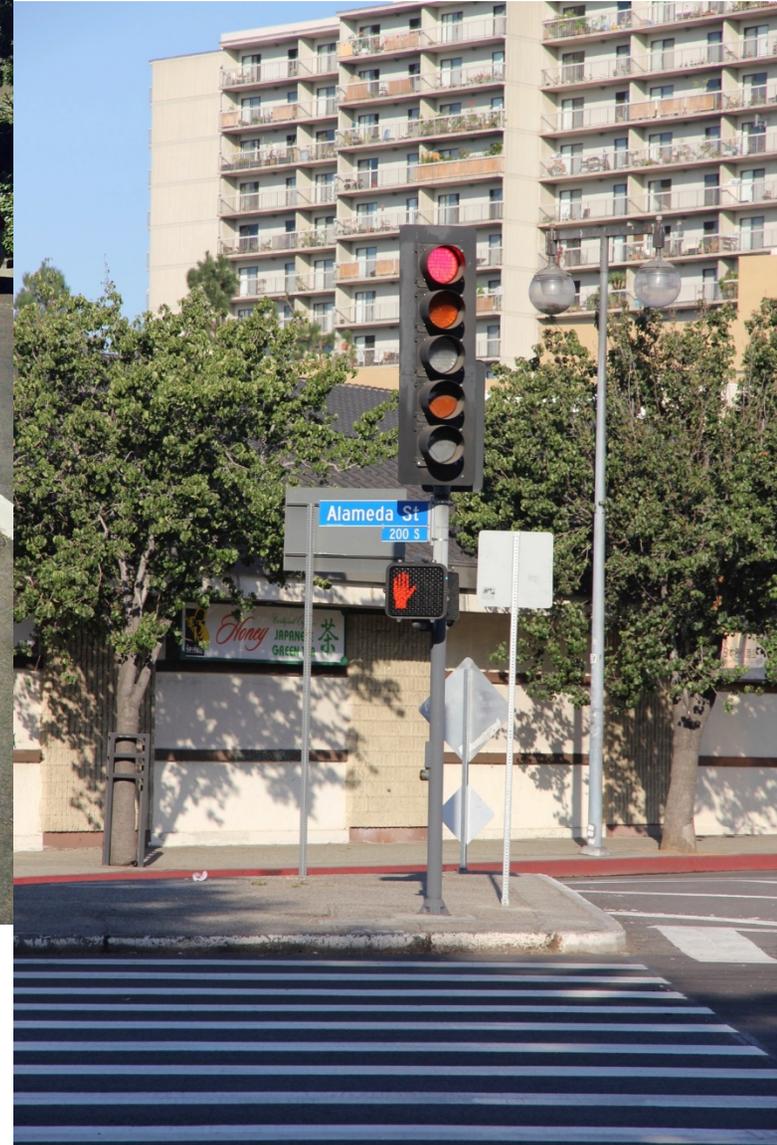


Sidewalk Obstructions



Obstructions blocking drivers view of pedestrians

# Walk Audit: Barriers



Lack of Disabled Access Ramps

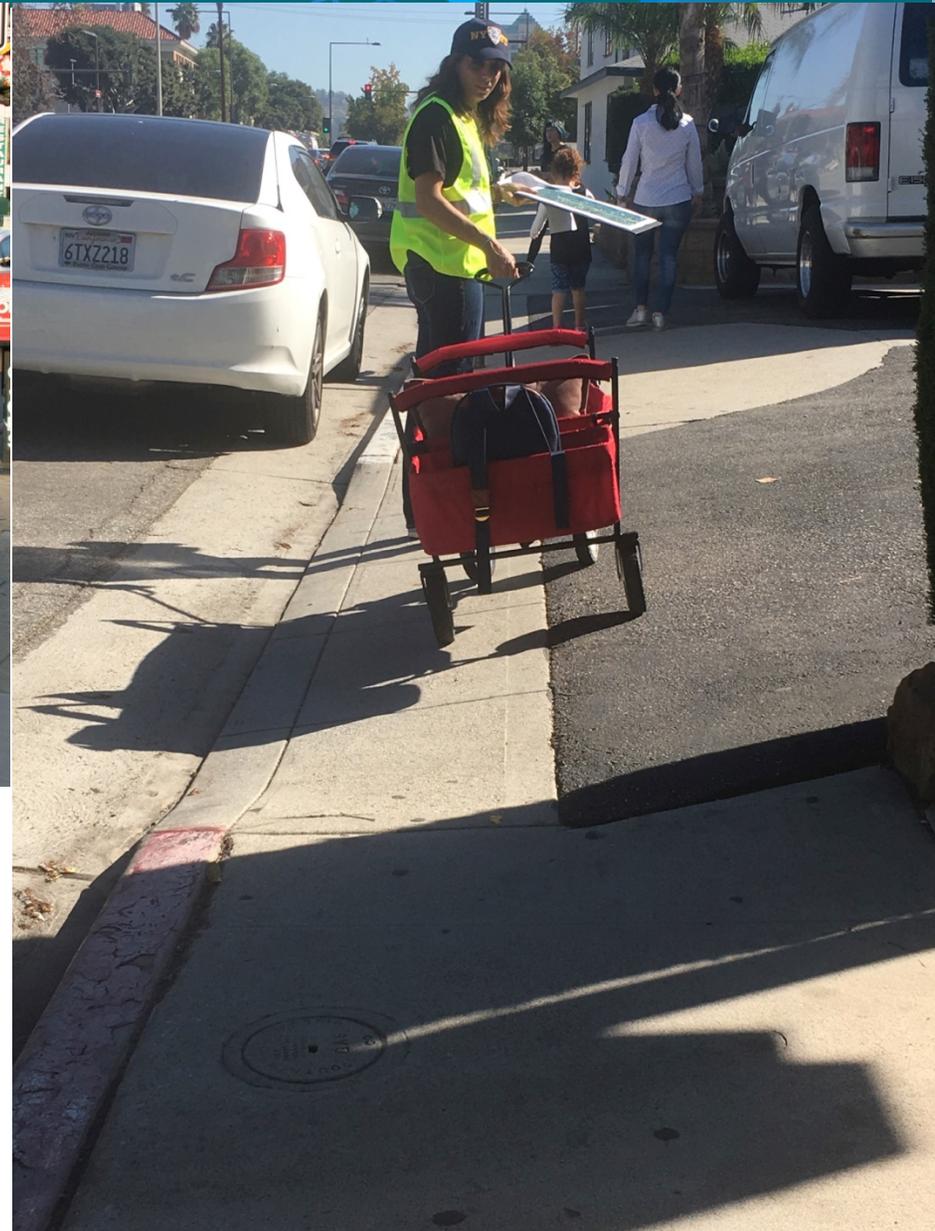


# Walk Audit: Barriers



Poorly marked Crosswalks

# Walk Audit: Barriers



Long crossing distances



Steep driveways

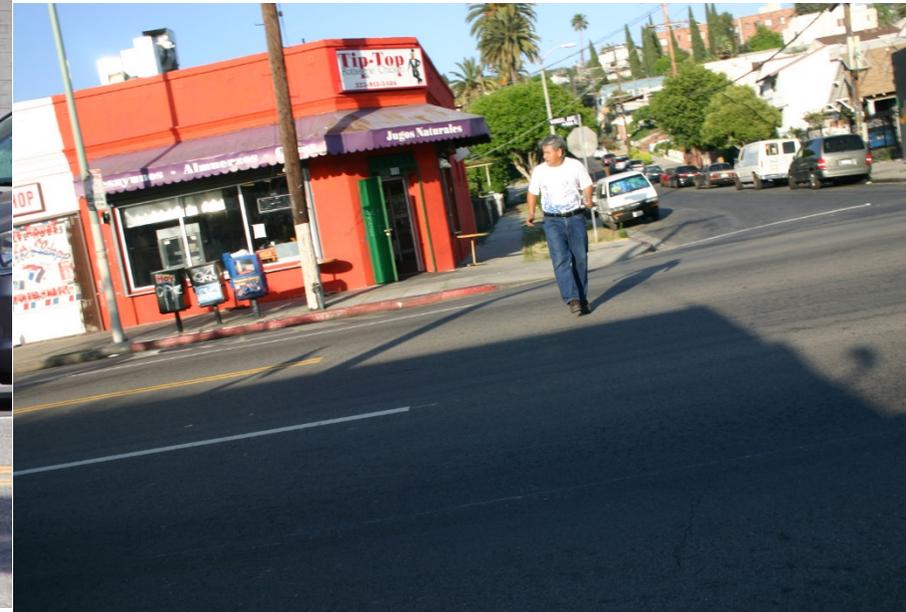
# Walk Audit: Barriers



Incomplete crosswalks at intersection  
**Metro**

Lack of crosswalk

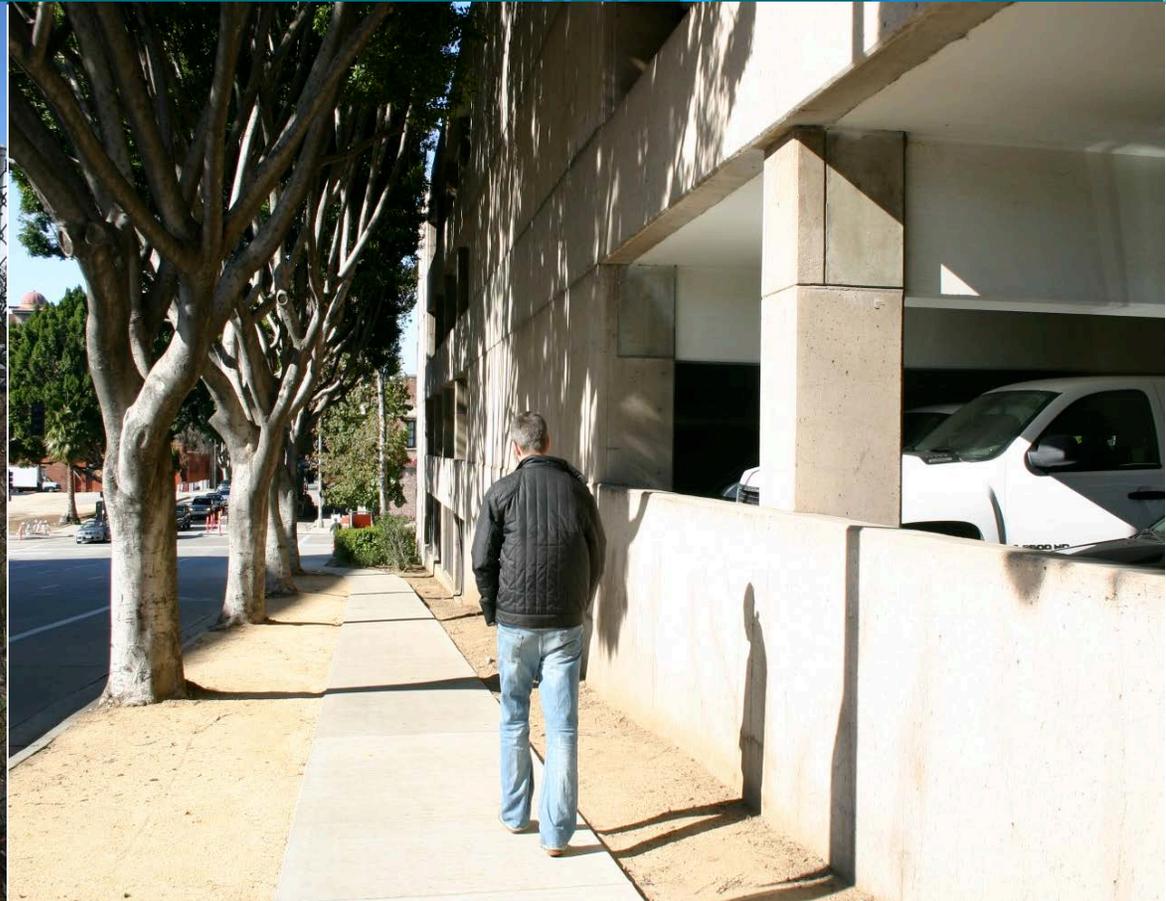
# Walk Audit: Barriers



Lack of Pedestrian Crossing at Transit Stops

Lack of Marked Crosswalk

# Walk Audit: Barriers



Vacant Lots and Blank Walls/Inactive frontages

# Walk Audit: Strengths

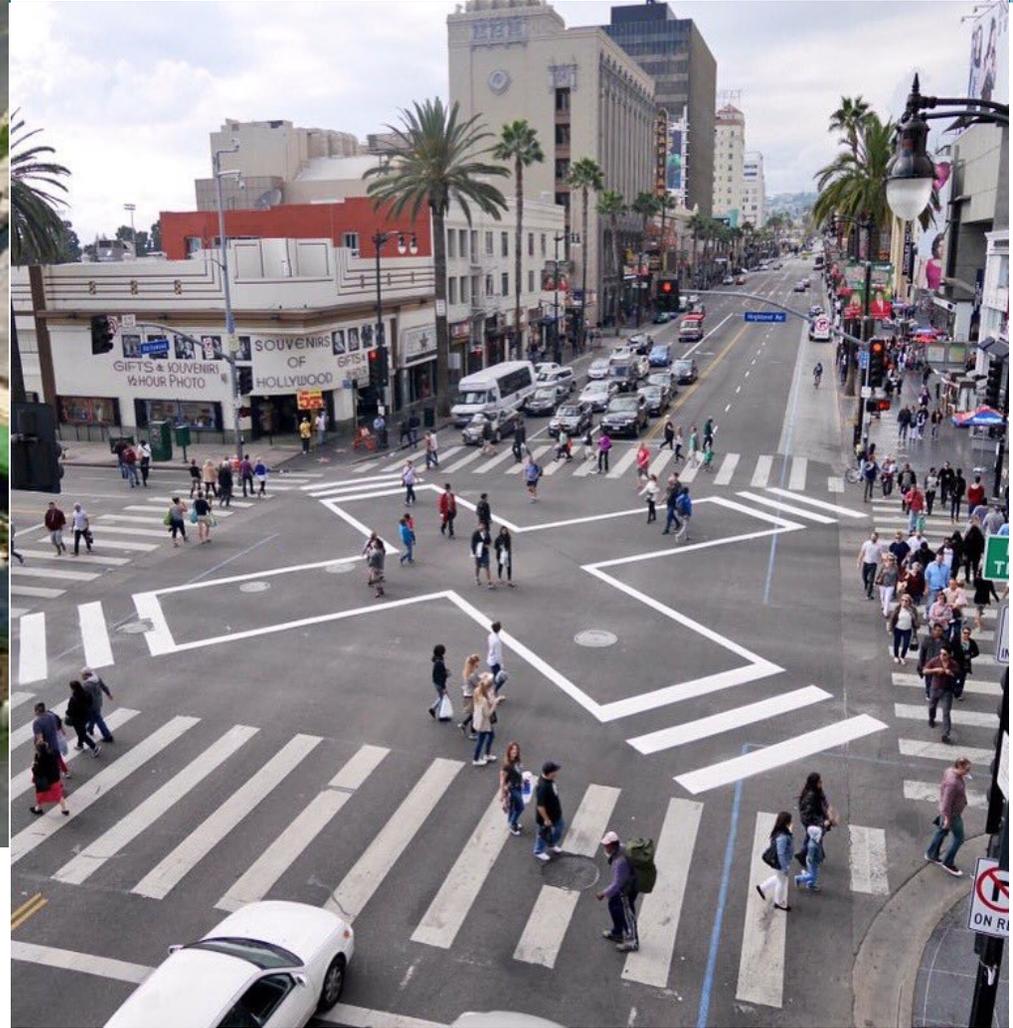


Clear, safe crossings

# Walk Audit: Strengths



Easy direct Pedestrian crossings



# Walk Audit: Strengths



Disabled curb ramps are provided



# Walk Audit: Strengths



High quality sidewalks



# Walk Audit: Strengths



Safety buffer for pedestrians

# Walk Audit: Strengths



Pedestrian Lighting



# Walk Audit: Strengths



Safety buffer for bikes



# Walk Audit: Strengths



Clear safety signage and traffic calming



# Walk Audit: Strengths



Pleasant landscaping



# Walk Audit: Strengths



Shaded seating & waiting areas

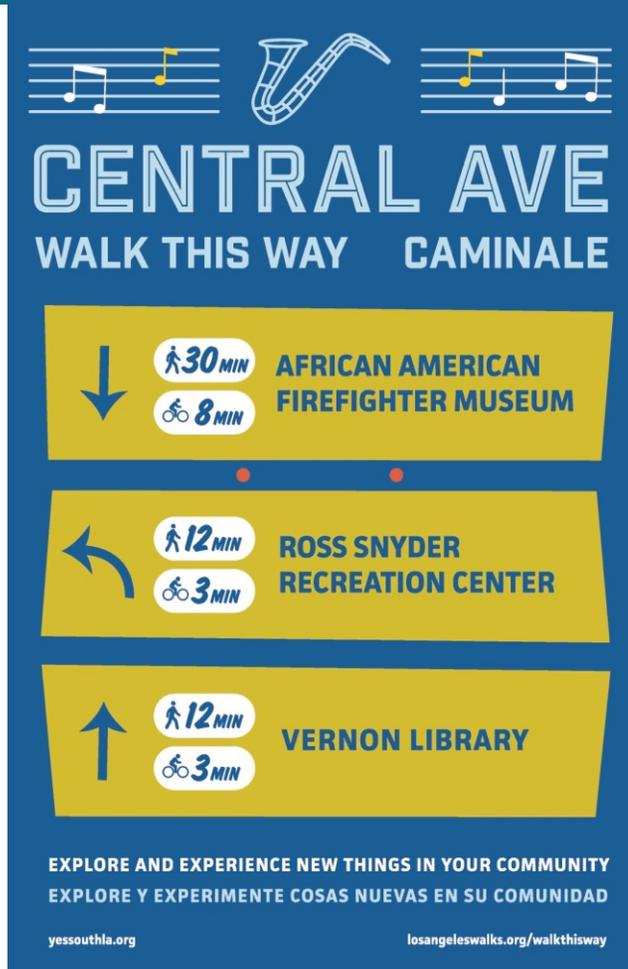
# Walk Audit: Strengths



Pedestrian amenities



# Walk Audit: Strengths



The sign features a blue background with white musical notes and a white graphic of a street curving upwards. Below the title, three yellow boxes provide directions to local landmarks with walking and cycling times. At the bottom, there are two lines of text in English and Spanish, and two website URLs.

**CENTRAL AVE**  
WALK THIS WAY CAMINALE

- ↓ 30 MIN WALK / 8 MIN BICYCLE: AFRICAN AMERICAN FIREFIGHTER MUSEUM
- ↶ 12 MIN WALK / 3 MIN BICYCLE: ROSS SNYDER RECREATION CENTER
- ↑ 12 MIN WALK / 3 MIN BICYCLE: VERNON LIBRARY

EXPLORE AND EXPERIENCE NEW THINGS IN YOUR COMMUNITY  
EXPLORE Y EXPERIMENTE COSAS NUEVAS EN SU COMUNIDAD

yessouthla.org losangeleswalks.org/walkthisway



High quality signage



# Walk Audit: Strengths

Real-time Transit  
information



# Walk Audit: Strengths



Eyes on-the-street

# Walk Audit: Strengths



Attractive kiosks & vendor areas



# Walk Audit: Strengths



People enjoying themselves

# Walk Audit: Observed Behaviors



Drivers speeding



Drivers not yielding to pedestrians

# Walk Audit: Observed Behaviors



Vehicles blocking sidewalk



# Walk Audit: Observed Behaviors



# Walk Audit: Observed Behaviors



Risky behavior: not crossing at crosswalk or corner

# Walk Audit: Barriers



Lack of adequate bicycle parking

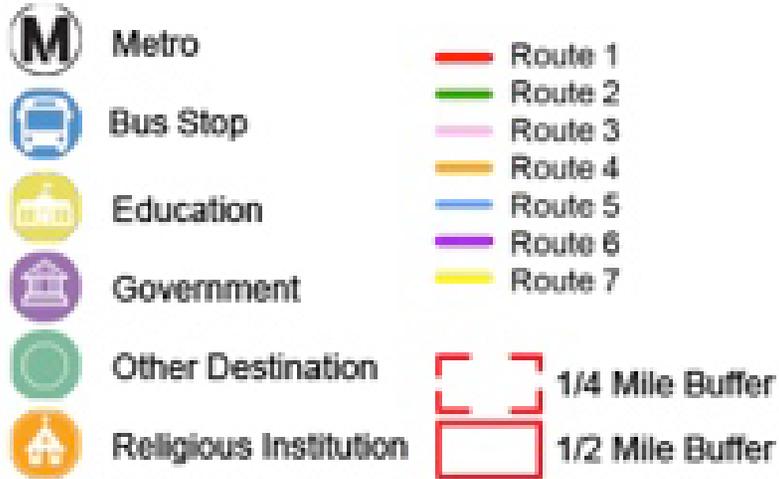
# Walk Audit: Observed Behaviors



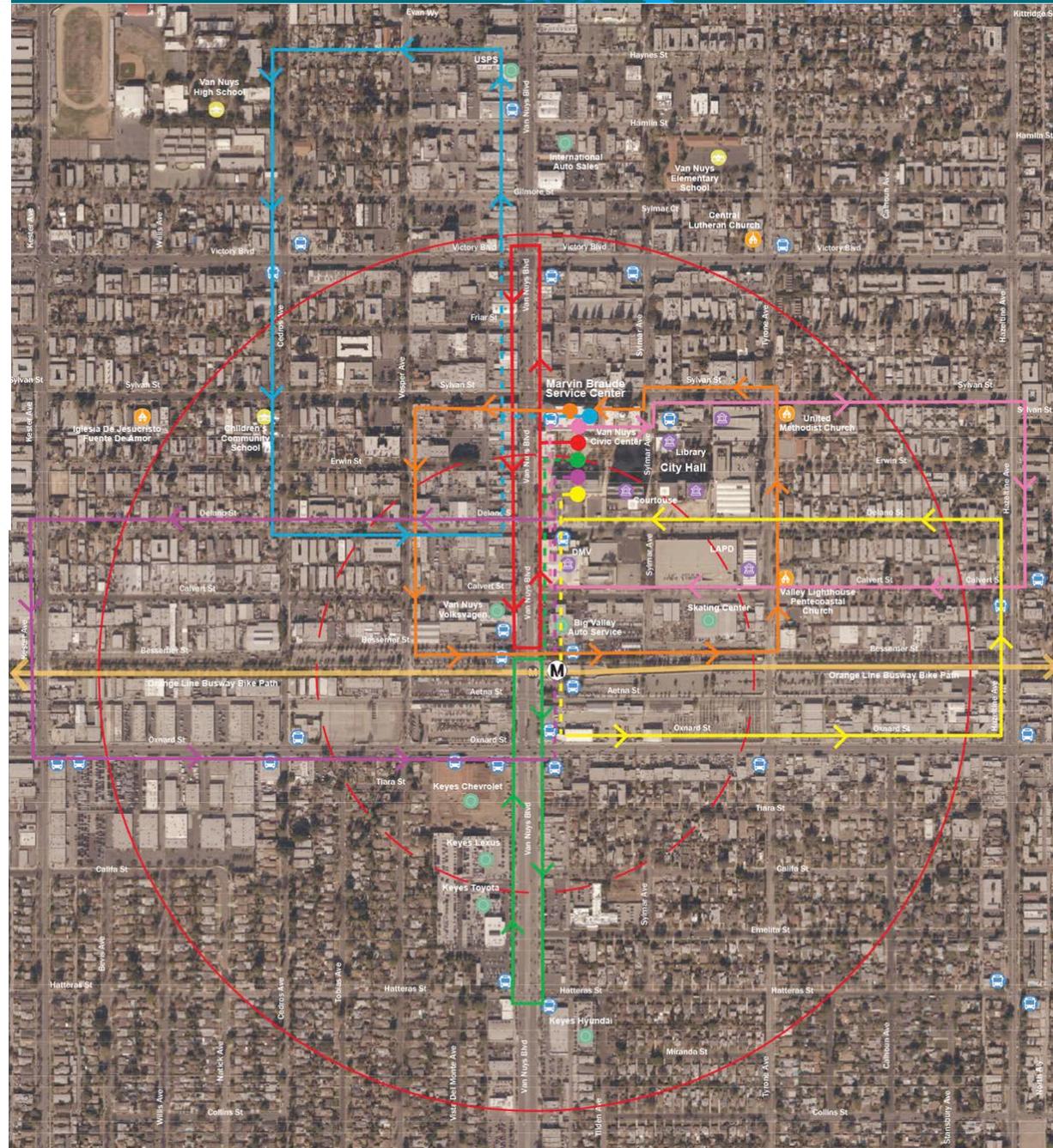
Biking on sidewalks due to lack of safe on-street cycling facilities

# Walk Audit: Map of Routes

## Legend



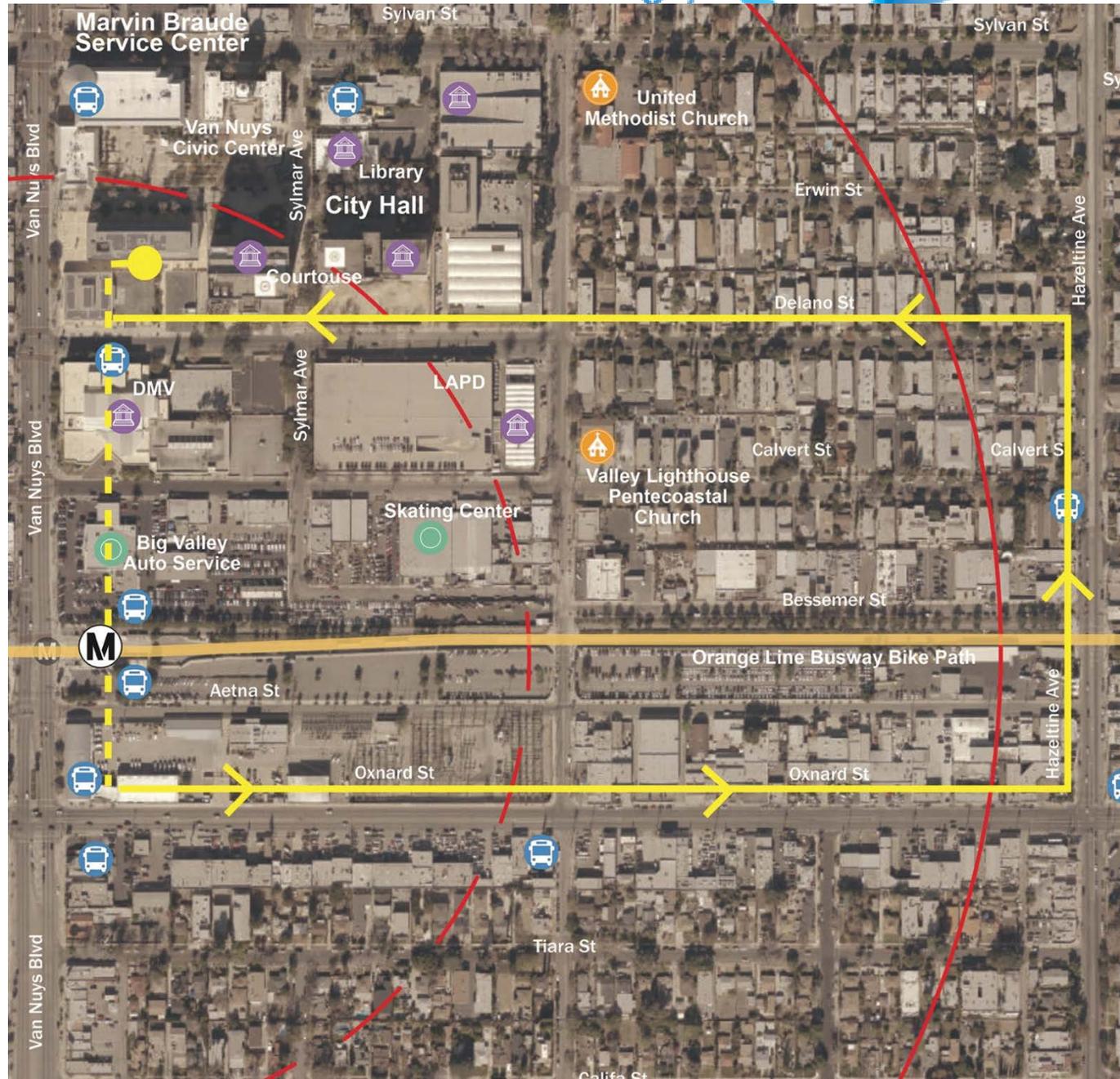
Routes link schools, housing, businesses to transit station, serve variety of transit users



# Walk Audit: Aerial Photo with Each Route

The dashed portions of a route line indicate that your team isn't responsible for evaluating that portion of the route as another team will complete the evaluation

Use the map symbols to make notations on the map and to describe **Barriers**, **Strengths** and **Behaviors** on the Walk Audit Observations Forms



Access Barriers      Access Strengths      Observed Behaviors



**Metro**