



CHAPTER 4:

toolboxes

IN THIS CHAPTER:

- 1. Engineering Toolbox**
- 2. School Zone Signage & Markings Guide**
- 3. Programming Toolbox**
- 4. Creative Placemaking & Programming**

A toolkit of improvements and countermeasures was utilized during the recommendations process to fit the unique challenges and opportunities of the Morongo Basin. **Chapter 4** outlines these tools and how they address four components of recommendations: Engineering, Safe Routes to School, and Programming, and Creative Placemaking.

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4.1.

ENGINEERING TOOLBOX

This section provides a set of engineering tools that can be used to create safer and more comfortable walking and biking environments.

The icons to the right categorize the different recommendation types that can be found within this section of engineering tools. These tools generally fall under three categories: Bicycle, Pedestrian, and Traffic Calming. Their use and intent are outlined on the following pages, noting improvement benefits and design considerations. Please refer to the latest editions of Caltrans HDM, FHWA, MUTCD, and other federal or state guidelines for specific engineering design and signage standards.

References:

- 1 MUTCD (CA)
- 2 FHWA Small Town and Rural Multimodal Networks (2016)
- 3 NACTO Urban Design Bikeway Guide
- 4 Essentials of Bike Parking (APBP) (2016)
- 5 ADA Best Practices Toolkit for State and Local Governments
- 6 National Center for Safe Routes to School
- 7 FHWA Safety Program - Road Diet Information Guide
- 8 Safety Benefits of Raised Medians and Pedestrian Refuge Areas - FHWA
- 9 pedbikesafe.org (FHWA)
- 10 Pedestrian Hybrid Beacon Guide-Recommendations and Case Study
- 11 Flexing Rumble Strip Design for Bicycle Accommodation (Rumble Strips and Rumble Stripes - FHWA)
- 12 Caltrans Highway Design Manual (HDM)

bicycle



Bicycle-related treatments in this toolbox include bikeway facilities, bicycle parking, amenities, signage, and intersection elements. While bikeway facilities can be classified into three categories— off-street, on-street, and shared street— these broad categories include more specific bikeway types. Recommended treatments depend on the context — including street type, vehicle traffic speed, volume, and more.

pedestrian



This set of pedestrian-related treatments focuses on enhancing pedestrian visibility, reducing motorist speed, and improving pedestrian infrastructure. Providing and improving pedestrian facilities like sidewalks and crossing treatments can help create a more comfortable and safer experience for students walking to school.

traffic calming



The purpose of traffic calming is to reduce the speed and volume of traffic to acceptable levels in order to improve livability, reduce vehicle collisions, and create a safer environment for students, bicyclists, and pedestrians. Recommended treatments depend on the context — including street type, vehicle traffic speed, volume, and more.



CLASS I: BIKE PATH

An off-street bikeway facility that is physically separated from any street or highway, commonly planned along rights-of-way such as waterways, utility corridors, flood control access roads, railroads, and similar paths that offer continuously separated riding opportunities¹².

BENEFITS:

- Generally used to serve corridors not served by streets and highways or where wide right-of-way exists
- Can provide recreational opportunities or serve as commute routes
- Offers bicycling opportunities not provided by the road system

DESIGN & OTHER CONSIDERATIONS:

- Right-of-way availability
- High costs associated with new construction and long-term maintenance



CLASS II: BIKE LANE

A portion of the roadway that is designated by striping, signaling, and/or pavement markings for the exclusive use of bicyclists. They are established along streets and corridors where there is significant bicycle demand, and where there are distinct needs that can be served by them¹².

BENEFITS:

- Delineates right of way assigned to bicyclists and motorists and provides for more predictable movements by each

DESIGN & OTHER CONSIDERATIONS:

- Roadway reconfiguration may be needed if insufficient room exists for side-by-side sharing of existing streets by motorists and bicyclists
- Locations with right-turn-only lanes should provide a minimum 4-foot width for bicycle use between the right-turn and through lane when bikes are permitted. Where posted speed is greater than 40 miles per hour, minimum width should be 6 feet¹²
- Installation of rumble strips allowed by HDM Chapter 300 Index 302.1



CLASS II: BUFFERED BIKE LANE

An additional striped buffer can provide greater separation between bicyclists and vehicular traffic. Buffered bike lanes are recommended where roadway space allows¹².

BENEFITS:

- Provides greater shy distance between motor vehicles and bicyclists
- Provides space for bicyclists to pass another bicyclist without encroaching into the adjacent motor vehicle travel lane

DESIGN & OTHER CONSIDERATIONS:

- Different design guidelines for each striping pattern
- More suitable than un-buffered Class II bike lanes on roadways with high vehicle speeds or volumes
- Typically wider than traditional Class II bike lanes in order to accommodate buffer



CLASS III: BIKE ROUTE / SHARROWS

Class III bikeways are designated roadways where bicycles and motor vehicles share a roadway. Design standards require specific signage, but additional enhancement can be provided by using shared roadway markings, or "sharrows"¹².

BENEFITS:

- Provides continuity to other bicycle facilities (usually Class II bikeways)
- Designates preferred routes through low volume roads

DESIGN & OTHER CONSIDERATIONS:

- Assure that these routes are suitable as shared roadways
- Prior to designation as a bikeway, routes may need additional improvements for bicycle travel
- Maintain routes in a manner consistent with the needs of bicyclists



CLASS III: BIKE BOULEVARD

A bicycle boulevard is a low-stress shared roadway Class III bicycle facility, designed to offer priority for bicyclists operating within a roadway shared with motor vehicle traffic.



CLASS IV: CYCLE TRACK

A cycle track is a protected bikeway that includes a physical barrier between bicyclists and motor vehicle traffic. It combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane.



COLORED-PAVEMENT

Colored pavement is used to increase the visibility of bikeways or, more commonly, zones with a high potential for motor vehicle/bicycle conflicts, by indicating cyclist right-of-way with a distinctive color. They are intended to regulate, warn, or guide traffic.



RUMBLE STRIPS

Rumble strips use both noise and vibration to alert the driver that he or she is leaving the appropriate travel path. The strategic placement of rumble strips is important as practitioners balance safety effects for motorists and bicyclists¹¹. Installation of rumble strips allowed by HDM Chapter 300 Index 302.1.

BENEFITS:

- Increases comfort for bicyclists by reducing motorist speeds and volumes, if diversion is included
- Connects residential roads to commercial corridors/community services

DESIGN & OTHER CONSIDERATIONS:

- May require additional paved surface to provide sidewalk space for pedestrians
- Diversion design restricts vehicle movements.

BENEFITS:

- Dedicates and protects space for bicyclists in order to improve perceived comfort and safety
- Eliminates risk and fear of collisions with over-taking vehicles
- Reduces risk of 'dooring' compared to a bike lane and eliminates the risk of a doored bicyclist being run over by a motor vehicle

DESIGN & OTHER CONSIDERATIONS:

- Streets with high bicycle volumes, motor vehicle volumes/speeds
- Consider transit stops to manage bicycle & pedestrian interactions
- Requires additional maintenance for debris due to limited vehicle access
- Caltrans Design Information Bulletin (DIB) 89-01

BENEFITS:

- Increases awareness of bicyclists
- Can be used to indicate an area of potential conflict between bicyclists and motor vehicles

DESIGN & OTHER CONSIDERATIONS:

- Currently under Interim Approval by FHWA for optional use
- Costly to maintain
- Green, blue, and red are among the colors that have been tested
- Multiple meanings; dedicated cycling corridor, can also mean a shared mode facility or a "mixing zones" with cars

BENEFITS:

- Effective countermeasure for reducing roadway departure crashes
- Flexibility in design and strategic placement can successfully accommodate variety of users

DESIGN & OTHER CONSIDERATIONS:

- Offset of the rumble strip from the lane can be adjusted to best accommodate bicyclists. This may mean using edgeline rumble strips to provide additional paved shoulder space beyond the rumble strip, or increasing the offset where very narrow paved shoulders exist
- Rumble strip application, design and placement on one roadway may not fit the context of another roadway
- Implementation of rumble strips should always consider bicycle-friendly design such as "skip" rumble strips.





TWO-STAGE TURN QUEUE BOX

Two-stage turn queue boxes offer bicyclists a safe way to make left turns at multi-lane signalized and unsignalized intersections from a cycle track or bike lane.

BENEFITS:

- Designates area for bicyclists waiting to proceed in a different direction and formalizes two-stage turn maneuvers in a predictable pattern
- Reduces turning conflicts between bicyclists and motor vehicles³

DESIGN & OTHER CONSIDERATIONS:

- Should be placed in a location downstream of the cross street intersection stop line and downstream of the crosswalk across the cross street
- Multiple positions are available for queuing boxes, depending on intersection configuration³
- Under Interim Approval by FHWA, allowing interim use, pending official rulemaking



INTERSECTION BICYCLE BOX

The bike box is an intersection improvement design to prevent bicycle/vehicle collisions, especially between drivers turning right and bicyclists proceeding forward¹.

BENEFITS:

- Increases the visibility of stopped bicycle traffic at a intersection
- Reduces the number of conflicts between bicyclists and turning motorists at intersections
- Reduces the number of bicycles and motor vehicles encroaching into pedestrian crosswalks when stopped at an intersection
- Can help mitigate intersection right-turn ("right-hook") conflicts

DESIGN & OTHER CONSIDERATIONS:

- Placed at least 10 feet in advance of the pedestrian crosswalk or the intersection stop line
- Limited to signalized intersections



BICYCLE PARKING

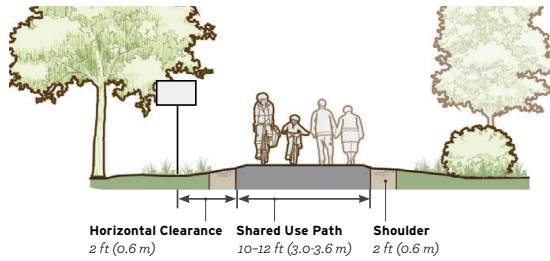
Bicycle parking provides a location for bicyclists to securely lock or store their bikes. Short-term bicycle parking includes bike racks (inverted U, post and ring) and bike corrals. Long-term parking can include bike lockers and stations⁴.

BENEFITS:

- Improves first and last mile connections when installed near bus stops, schools, and parks
- Supports bike upright without putting stress on wheels
- Allows for locking of frame and at least one wheel

DESIGN & OTHER CONSIDERATIONS:

- Placement varies based on facility type
- Long-term bicycle parking more costly to maintain and implement over short-term bicycle parking



SHARED USE PATH

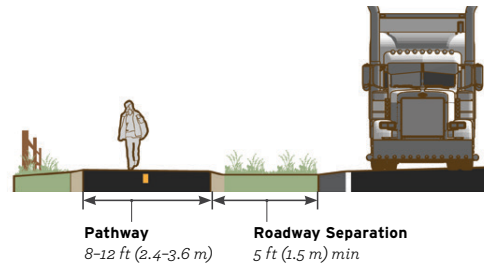
Shared use paths or multi-use trails are separated from roadway traffic and offer network connectivity opportunities outside the traditional roadway network. The separated facility provides a pathway for bicyclists, pedestrians, and other non-motorized transportation users to travel on².

BENEFITS:

- Provides a low-stress separated facility for active transportation users
- Supports tourism through convenient access to natural areas or as an enjoyable recreational opportunity itself²

DESIGN & OTHER CONSIDERATIONS:

- 8 ft minimum for low traffic scenarios²
- 12-14 ft recommended for heavy use pathway²
- Often located in parks, greenbelts, or utility corridors



SIDEPATH

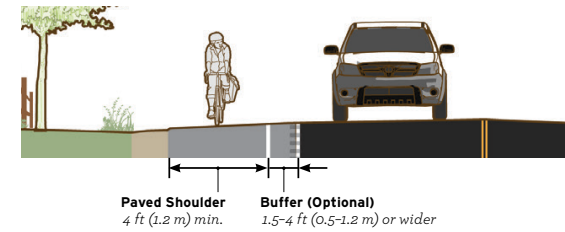
Sidepaths are bidirectional shared use paths located immediately adjacent and parallel to a roadway. They can offer a more comfortable experience compared to on-roadway facilities, allow for reduced roadway crossing distances, and maintain rural and small town community character².

BENEFITS:

- Completes networks where high-speed roads provide the only corridors available²
- Provides a more appropriate facility for users of all ages and abilities than shoulders or mixed traffic facilities on roads with moderate or high traffic intensity²

DESIGN & OTHER CONSIDERATIONS:

- Requires a wide roadside environment to provide for separation and pathway area outside of the adjacent roadway²
- Minimum recommended pathway width is 10 ft. Provide a minimum of 2 ft clearance to signposts or vertical elements²



PAVED SHOULDER

Paved shoulders are located on the edge of roadways and can be enhanced to serve as a functional space for bicyclists and pedestrians to travel in the absence of other facilities with more separation².

BENEFITS:

- Provides a stable surface off the roadway for pedestrians and bicyclists to use when sidewalks are not provided²
- Provides advantages for all roadway users, by providing space for bicyclist, pedestrians, and motor vehicles²

DESIGN & OTHER CONSIDERATIONS:

- Added shoulder or edge line rumble strips, of bicycle-tolerable design, can minimize impacts to bicyclists and reduce roadway departure crashes¹¹
- Requires a wider roadway to provide an accessible shoulder space²
- Consider posted roadway speed limits, planned functional roadway classifications, available ROW, existing shoulder ROW, clearance for and breaks within rumble strips¹¹





SIDEWALK

Sidewalks are physically separated from the roadway by a curb or unpaved buffer space, providing dedicated space intended for use by pedestrians that is safe, comfortable, and accessible to all.

BENEFITS:

- Enhances pedestrian network connectivity
- Provides safe mode of travel
- Provides opportunities for walking
- Provides connections to neighborhoods and key community destinations

DESIGN & OTHER CONSIDERATIONS:

- Right-of-way availability
- Utility conflicts
- Maintenance costs



CURB RAMP

A curb ramp is a ramp cutting through a curb or built up to it to provide a route to safely transition from a roadway to a curbed sidewalk and vice versa.

BENEFITS:

- Eliminates the vertical edge of the curb for easy access
- Provides accessibility to people with physical disabilities and who use wheelchairs

DESIGN & OTHER CONSIDERATIONS:

- Must meet specific standards for width, slope, cross slope, placement, and other features in order to be compliant with Title II of the ADA⁶
- Additional detectable warnings are required



MEDIAN REFUGE ISLANDS

Median refuge islands are protected spaces placed in the center of the street to facilitate bicycle and pedestrian crossings.

BENEFITS:

- Provides a protected space for pedestrians and bicyclists to wait for an acceptable gap in traffic
- Reduces the overall crossing length and exposure to vehicle traffic for a bicyclist or pedestrian
- Decreases the amount of delay that a bicyclist will experience to cross a street

DESIGN & OTHER CONSIDERATIONS:

- Right-of-way availability
- Should be at least 4 feet wide (preferably 8 feet wide for accommodation of pedestrian comfort and safety)



HIGH-VISIBILITY CROSSWALKS

High-visibility ladder crosswalks provide a designated walkway for pedestrians to cross from one side of a street to the other³.

BENEFITS:

- More visible to approaching vehicles and have been shown to improve yield behavior³
- Creates a more comfortable and safe crossing experience for pedestrians³

DESIGN & OTHER CONSIDERATIONS:

- Supplemental measures may be required to reduce traffic speeds, shorten crossing distances, and/or provide an active warning of pedestrian presence
- Site location and pedestrian demand
- Engineering judgment may be required to assess need
- Yellow school crosswalks are to be installed within 500 ft of school



MID-BLOCK CROSSING

Midblock crosswalks facilitate crossings to places that people want to go but that are not well served by the existing traffic network.



PUSH BUTTONS

Pedestrian push buttons are electronic buttons used by pedestrians to change traffic signal timing to accommodate pedestrian street crossings⁷.



PEDESTRIAN SIGNAL HEADS

Pedestrian signal heads provide special types of traffic signal indications exclusively intended for facilitating pedestrian traffic - consisting of illuminated symbols of a walking person, upraised hand, and countdown timer⁸.

BENEFITS:

- Allows pedestrians to cross in the middle of a long block without walking all the way to a signalized intersection crosswalk

DESIGN & OTHER CONSIDERATIONS:

- Pedestrian demand for the facility
- May be supplemented with traffic control devices for optimal effect
- Design needs to consider stopping sight distances, effects of grade, cross slope, need for lighting, and other factors, making use of warrants similar to those used for standard intersections

BENEFITS:

- Provides pedestrians at a traffic signal with sufficient time to cross a roadway

DESIGN & OTHER CONSIDERATIONS:

- Shall clearly indicate which crosswalk signal is actuated by each pedestrian pushbutton
- Are not needed if pedestrian recall is already in place for the traffic signal.
- Refer to MUTCD Chapter 4E. Pedestrian Control Features for specific design standards

BENEFITS:

- Indicates to pedestrians when to cross, when not to cross, and how many seconds are left to cross

DESIGN & OTHER CONSIDERATIONS:

- Need to have pedestrian push button to supplement it
- Refer to MUTCD Chapter 4E. Pedestrian Control Features for specific design standards



pedestrian



ADVANCED YIELD LINE

Advanced yield lines are roadway markings that encourages drivers to slow down in advance when approaching a pedestrian crossing.

BENEFITS:

- Offers more visibility of pedestrians crossing the roadway
- Reduces the likelihood of multiple-threat crashes

DESIGN & OTHER CONSIDERATIONS:

- Must be supplemented with a crosswalk that is 20-50' from the facility and R1-5 or R1-5a MUTCD signage



SPEED FEEDBACK SIGN

A dynamic message sign that uses radar or laser technology to determine the speed of an approaching vehicle and then displays the speed to the driver. If motorists are speeding, the sign flashes the exceeded speed along with 'SLOW DOWN' or 'YOUR SPEED'.

BENEFITS:

- Activates when drivers exceed posted speed limit by five miles per hour
- Can be effective in reducing motorist speeds on wide roadways

DESIGN & OTHER CONSIDERATIONS:

- Physical constraints include requiring a special type of pole, space for footing, and if the signs are not solar — a source of electricity



PEDESTRIAN HYBRID BEACON

A pedestrian hybrid beacon (PHB) is a traffic control device used to increase motorists' awareness of pedestrian crossings at uncontrolled marked crosswalk locations. A PHB is distinct from pre-timed traffic signals and constant flash warning beacons because it is only activated by pedestrians when needed¹⁰.

BENEFITS:

- PHBs can lead to lower conflict and crash rates for pedestrians and vehicles¹⁰
- Clearly indicates that a crosswalk is being used and that all motorists must come to a complete stop¹⁰

DESIGN & OTHER CONSIDERATIONS:

- Should be located outside the functional area of a signalized intersection and outside of any turn lanes or acceleration lanes¹⁰
- In addition to the signal head displays, stop lines and marked crosswalks are required at PHB crossings. Advance stop lines should be used on multi-lane crossings to reduce the potential for second threat crashes¹⁰



RRFB

Rectangular rapid flash beacons (RRFBs), a type of active warning beacon, that combines a pedestrian warning sign with user-activated light-emitting diodes (LEDs). The device flashes amber when activated through a pedestrian push button or by pedestrian detection.

BENEFITS:

- Increases driver yielding behavior at crossings because they use an irregular flash pattern similar to emergency flashers on police vehicles

DESIGN & OTHER CONSIDERATIONS:

- Use in combination with a crosswalk, wheelchair ramps, advance warning signs or pavement markings, and overhead lighting
- Usually implemented at high-volume pedestrian crossings



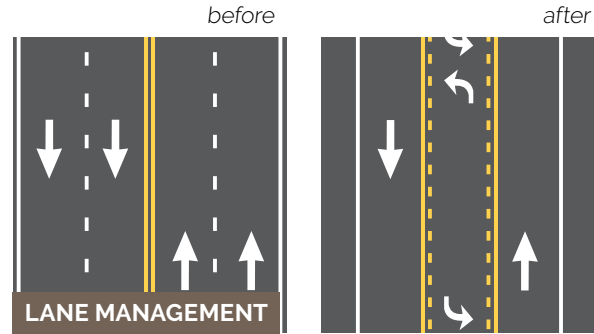
CURB EXTENSION

Curb extensions visually and physically narrow the roadway, creating safer and shorter crossings for pedestrians while increasing the available space for street furniture, benches, plantings, and street trees.



TRAFFIC CIRCLE

Mini roundabouts and neighborhood traffic circles lower speeds at minor intersection crossings and are an ideal treatment for uncontrolled intersections.



LANE MANAGEMENT

Also known as roadway reconfiguration, lane management involves reconfiguring or narrowing motor vehicle lanes to accommodate parking and often times, the addition of bikeway facilities or transit stops. Lane management can transform a street that was formerly difficult for a bicyclist to travel. When bicycle lanes are striped, bicyclists are more visible and motorists know where to look for them.

BENEFITS:

- Improves ability of pedestrians and motorists to see each other
- Reduces speed of turning vehicles
- Shortens pedestrian crossing distances

DESIGN & OTHER CONSIDERATIONS:

- Appropriate where there is an on-street parking lane
- May require relocation of fire hydrants to maintain adequate curbside access in case of a fire
- Impacts on drainage

BENEFITS:

- Allows motorists and bicyclists to yield instead of making complete stops
- Reduces vehicle speeds by forcing motorists to maneuver around them

DESIGN & OTHER CONSIDERATIONS:

- Residential traffic circle is typically characterized by (1) a non-traversable center island, (2) no splitter islands on the intersection approaches, and (3) either yield control or no control
- Careful attention should be paid to available lane width and turn radius
- Ensure landscaping does not impede sight distance

BENEFITS:

- Reduces vehicle-to-vehicle conflicts
- Improves safety by reducing vehicle operating speeds, decreasing crash severity of all users when they do occur

DESIGN & OTHER CONSIDERATIONS:

- Requires data analysis and engineering judgment to determine road diet applicability
- Geometric and operational design features (e.g. turn lanes, traffic volumes, transit routes etc.) should be carefully considered and applied during design reconfiguration



pedestrian, bicycle, traffic calming

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4.2. SCHOOL ZONE

SIGNAGE & MARKINGS GUIDE

The California Manual on Uniform Traffic Control Devices (CA-MUTCD), Part 7 “sets forth basic principles and prescribes standards that shall be followed in the design, application, installation, and maintenance of all traffic control devices and other controls required for the special pedestrian conditions in school areas”.

This section of Morongo Basin Active Transportation Plan will provide an overview of these guidelines for markings and signage requirements that may be found in the recommendations for the nine schools within their respective school zones and along designated corridors. The following icon-key sections help explain and denote the different types of school zone traffic control devices.

“It is important to stress that regardless of the school location, the best way to achieve safe and effective traffic control is through the uniform application of realistic policies, practices, and standards developed through engineering judgment.

Pedestrian safety depends upon public understanding of accepted methods for efficient traffic control. This principle is especially important in the traffic control of pedestrians, bicycles, and other vehicles within the vicinity of schools. Neither school pedestrians nor other road users can be expected to move safely in school areas unless they understand both the need for traffic controls and how these controls function for their benefit.”

- CA-MUTCD Section 7A.01



signage

Road signs are used to provide regulations, warnings, and guidance information to road users. School signs help advise road users that they are approaching a school zone/crosswalk or whether there is a reduction in the posted speed limit.



markings

Markings have defined and important functions in a proper scheme of school area traffic control. Often, they are used to supplement the regulations or warnings provided by traffic signs, signals, or other devices. In other instances, they are used alone, and produce results that cannot be obtained by the use of any other device to control, alert, or convey messages to road users.



Assembly A (CA)

SW24-1 (CA)



W16-5P



OR

W16-6P



Assembly B (CA)

SW24-2 (CA)



Assembly E (CA)



R1-9 (CA)

Assembly C (CA)



SR4-1 (CA)

Assembly D (CA)

SW24-3



S1-1



200 FT

W16-2aP

OR

OR

OR



W16-2P

W16-5P

W16-6P

SCHOOL WARNING

- Shall be used on streets with prima facie 25 MPH.
- Shall be posted adjacent to school grounds/boundary.
- Posted up to 500 feet in advance school boundary.
- Conventional size 36" X 48" unless otherwise determined by engineer.

SCHOOL CROSSWALK WARNING

- Shall be posted at yellow crosswalks adjacent to schools or for crosswalks along school routes.
- Shall NOT be posted if crosswalk is controlled by STOP, YIELD or Traffic Signal.
- Can be posted at white crosswalks.
- ASSEMBLY B: Conventional size 36" X 48" unless otherwise determined by engineer.
- ASSEMBLY E: Conventional size 90" x 24" unless otherwise determined by engineer.

SCHOOL SPEED LIMIT

- Shall be used on streets with prima facie 25 MPH.
- Shall be posted adjacent to school grounds/boundary.
- Posted up to 500 feet in advance school boundary.
- Conventional size 36" X 48" unless otherwise determined by engineer.

SCHOOL ADVANCE WARNING

- Shall be posted on street in advance of a school crosswalk.
- Shall be used in advance of Assembly B, C or E.
- Conventional size 36" X 48" unless otherwise determined by engineer.



Crosswalk Markings

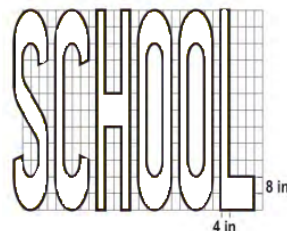


Traditional Parallel Line Crosswalk



Crosswalk with Ladder Design

Pavement Markings



CROSSWALK MARKINGS

- Marked crosswalks adjacent to schools (within 600 feet) shall be yellow
- If one leg of the crosswalk is yellow, then all shall be yellow

PAVEMENT MARKINGS

- Shall be used in advance of all yellow school crosswalk
- Shall NOT be used where the crosswalks is controlled by Stop, Yield or Traffic Signals
- XING shall be placed at least 100 feet in advance of the school crosswalk
- Shall be yellow if they are within a school zone (600')
- Installed in a single lane
- May be used at remote locations along school routes, but outside the school zones
- Yellow paint shall not be used outside of the school zone; markings must be white

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4.3

PROGRAMMING TOOLS

This chapter covers non-infrastructure programming opportunities that agencies in the Morongo Basin can partake in to improve walking and biking in the region. There are six “Es” associated with Safe Routes to School; however, they can also be applied to active transportation planning in generally. Previous sections in this chapter covered traffic control and engineering improvements - the Engineering ‘E’ of SRTS. However, this chapter covers non-infrastructure programming opportunities that agencies in the Morongo Basin can partake in to improve walking and biking in the region.

This section offers a set of active transportation programs under the categories of Education, Encouragement, Enforcement, and Evaluation that can be implemented as a part of this Plan. While infrastructure improvements focus on physical elements to improving safety, non-infrastructure programs and policies can also have an important impact in increasing the number and safety of people walking and biking.

Often referred to as the sixth ‘E’, Equity is also a consistent theme across the implementation of all ‘Es’. In order to successfully achieve the goals defined in this Plan and as a part of SRTS, it is important consider how both infrastructure and non-infrastructure strategies can address the needs of low-income students and students of color.

The programming tools defined in this section focus on Education, Encouragement, Enforcement, and Evaluation. Shown to the right, brief summaries of each ‘E’ are provided alongside icon-keys that help define each programming strategy detailed in the following pages.

education



The implementation of educational program efforts in the community can have a lasting cultural impact. These programs can introduce students and community members to new infrastructure and help build understanding of safe practices. Education can equip students and parents with the knowledge, skills, and confidence to bike and walk to a desired destination.

encouragement



By investing in an encouragement strategy, the SRTS Plan can foster the community’s growth towards active transportation trends. These can take place in the form of events, clubs, and activities that inspire walking, bicycling, or carpooling through fun activities or incentives.

enforcement



Enforcement efforts can help ensure that the community is creating safe and responsible behaviors on the road and building respect among all road users. Focused enforcement of traffic laws surrounding school sites should include controlling vehicle speed, encouraging motorists to yield to pedestrians in crosswalks, and encouraging proper walking and biking behaviors.

evaluation



This Plan evaluated baseline existing school area conditions which have served as the basis for many of the improvement recommendations. Continued program evaluation in the future will allow for progress monitoring of the impact of both programming and engineering improvements. This allows for tracking of successes or the ability to modify the Plan in order to achieve desired results.



EDUCATION PROGRAMS

DETAILS

DESCRIPTION

PEDESTRIAN RODEO	<ul style="list-style-type: none"> • Audience: Elementary School • Lead / Champion(s) PTA, parents, local law enforcement, community organizations 	<p>A pedestrian rodeo is an event that teaches students specific walking safety tips and rules of the roadway. Participants are led through a mini city that simulates the functionality of streets, intersections, pedestrian crossings, and more. Pedestrian rodeos can be organized for different school, district, and City-wide events.</p>
BIKE RODEO	<ul style="list-style-type: none"> • Audience: Elementary, Middle School • Lead / Champion(s) PTA, parents, local law enforcement, bicycling advocacy group, community organizations 	<p>A bike rodeo is an event that teaches students the proper techniques of riding a bicycle safely. The goal is to provide an opportunity for students to learn and develop bicycle riding skills in a fun and noncompetitive environment. Bike rodeos consist of stations that teach participants a specific bike riding or handling skill through a laid-out course that can simulate the functionality of streets, intersections, and crosswalks. Participants are generally guided through these courses by adult instructors who can provide tips and explain how the participant should navigate through each scenario. Bike rodeos are often accompanied with other activities such as bike and helmet fitting and a station that explains the basic rules of the road before student participants head off to the skill stations.</p>
TRAIL TREKKERS	<ul style="list-style-type: none"> • Audience: Adults • Lead / Champion(s): Bicycle advocacy groups, local environmental groups, Morongo Basine Healthcare District 	<p>Trail Trekkers refer to an organization of volunteers that help to maintain and spread awareness of local trails. Groups like these can sponsor hikes, create interpretive guides, and publicize and distribute maps of trails and walking and biking routes. Instead of a separate group, Trail Trekkers can be incorporated into existing groups such as the Morongo Basin Healthcare District.</p>
HEALTHY MORONGO	<ul style="list-style-type: none"> • Audience: Adults • Lead / Champion(s): Morongo Basin Healthcare District 	<p>Coordinate with Morongo Basin Healthcare District to inform residents about health benefits of walking and biking. Include pamphlets and programs at the annual health and resource fair. Provide healthcare incentives for those that walk or ride a bike recreationally.</p>

EDUCATION PROGRAMS

DETAILS

DESCRIPTION

BIKE SAFETY & SKILLS TRAINING

- Audience: Elementary, Middle, High School, Adults
- Lead / Champion(s): Bicycle advocacy group, local volunteers, PTA

The training involves teaching participants how to safely operate a bicycle. It consists of both a sit-down discussion as well as hands-on training where participants can apply their knowledge on the road. A certified instructor may be required.

BIKE REPAIR WORKSHOP

- Audience: Middle, High School Adults
- Lead / Champion(s): Bicycle advocacy group, local volunteers, PTA

While bike rodeos focus on helping students develop proper bicycle handling and riding skills, learning how to repair and maintain your own bicycle is also an important component of bicycle safety. Generally geared towards middle and high school students, these workshops can also help encourage interest in biking past school-age. These can be offered as a one-time course or a multi-session training and be combined with other educational programming.

BIKE & PED SAFETY EDUCATION CAMPAIGN

- Audience: Parents, Elementary Middle, High School, Adults
- Lead / Champion(s) PTA, parents, local law enforcement, community organizations

A safety education campaign seeks to educate motorists on the rights of pedestrians and bicyclists, and to educate pedestrians and bicyclists on safe behavior. The campaign could display messages on banners related to speeding and yielding to pedestrians in crosswalks, or print them on maps, posters, or bumper stickers.

WALK WISE, DRIVE SMART

- Audience: Senior Adults
- Lead / Champion(s): Senior centers

Walk Wise, Drive Smart is a program aimed to improve the walking environment with a primary target of senior adults. Educational workshops are held that teach safe walking and driving behavior to raise awareness of risks for those advancing in age. Partnerships could be undertaken with the Yucca Valley Senior Center or Twentynine Palms Senior Center.

SUGGESTED ROUTES TO SCHOOL MAPS

- Audience: Elementary, Middle, High School
- Lead / Champion(s) District, City, local law enforcement, community organizations

Suggested routes to school maps are a simple way to showcase the quickest and safest ways to access a particular school. These maps generally help indicate where crosswalks, signals, and crossing guards are located and walking distances and times from school. Often times, people have misconceptions about how far places are and how long it will take for them to walk or bike there. Suggested routes to school maps usually include a ¼ and ½ mile radius or walkshed from the school, indicating 10-15 minute walk times.





ENCOURAGEMENT PROGRAMS

DETAILS

DESCRIPTION

WALKING SCHOOL BUSES & BIKE TRAINS

- Audience: Elementary School
- Lead / Champion(s): School, PTA, parents,

Walking School Buses and Bike Trains are events where adults or guardians volunteer to walk or bike to school with students in their neighborhood via a pre-planned route and schedule. Parents have the option of dropping their children off or picking up their children from a "bus/ train stop". Walking School Buses and Bike Trains offer parents a means of safely transporting their children to and from school using active transportation.

COMPETITIONS / CHALLENGES

- Audience: Elementary, Middle, High School
- Lead / Champion(s): District, schools, PTA, parents, local law enforcement, bicycling advocacy group, community organizations

Schools can incentivize students who walk and/or bike to and from school. The Golden Sneaker Walking Contest is an example that has been implemented in various cities and school districts. The program is a walking competition between classes at each school. Each class strives to have as many students walking and/or biking to and from school as possible. At the end of the competition, the class that has the most participants wins the Golden Sneaker award or other prizes.

WALK & BIKE TO SCHOOL DAY

- Audience: Elementary, Middle, High School
- Lead / Champion(s): Schools, PTA, parents, District

Walk to School Day and Bike to School Day are events that seek to encourage students to walk or bike to school. Every year, students from around the world participate in the International Walk to School Day in early October. Nationally, organizers host Bike to School Day in early May. Outside of these two days, ongoing Walk and Bike to School Days can be organized by individual schools to continue to encourage students to walk and bike throughout the school year.

PARK & WALK

- Audience: Elementary School, Parents
- Lead / Champion(s): PTA, Parents, Schools

Park & Walk programs encourage parents to park at a farther location, either at a park or several blocks away, to then walk their child(ren) to school. Safe Routes to School programs and efforts focus on improving opportunities for students to walk and bike to school. However, it is a reality that many students live too far from school to be able to do so. Park & Walk programs allow parents to park and walk their young children to school all while reducing traffic congestion within drop-off zones.

OPEN STREETS EVENTS

- Audience: Elementary School, Parents
- Lead / Champion(s): Bicycle advocacy group, SCAG, community organizations

At Open Streets events, primary roads are closed to vehicle through traffic and the streets are transformed into plazas for walking, bicycling, and other community activities. The event encourages waking and bicycling but offering the opportunity for people to walk or bike away from the stress of traffic and sponsoring booths where people can learn the benefits of active transportation.

ENFORCEMENT PROGRAMS

DETAILS

DESCRIPTION

CROSSING GUARDS

- Audience: Elementary School
- Lead / Champion(s) PTA, parents, local law enforcement

An adult crossing guard program can help to re-enforce the laws of the roadway while also providing added visibility, supervision, and assistance to school pedestrians crossing the street. Though there are already adult crossing guards in place at many of the schools, a review of current locations, conditions, and needs is recommended.

SCHOOL SAFETY PATROL PROGRAM

- Audience: Middle, High School
- Lead / Champion(s): Local law enforcement, schools, PTA, parents

A school safety patrol program is a cost effective way to improve overall safety while providing traffic calming during the peak school periods. The program and enforcement benefits are similar to the adult crossing guard program, but with school students being heavily involved. Programming should follow the guidelines set for in the CA-MUTCD (Part 7), with coordination between the appropriate jurisdictions to train and obtain proper equipment. This program provides another great opportunity for parents to get involved to help supervise student patrol members.

TARGETED ENFORCEMENT CAMPAIGN

- Audience: Parents, motorists
- Lead / Champion(s) Local law enforcement, District, schools

Partnering with local law enforcement can help ensure that traffic laws are followed within and surrounding school zones. The campaign can use a variety of methods to enforce traffic laws. For example, the City can install active speed monitors at schools to warn drivers about their speeds, such as the speed feedback signs recommended at a few locations to slow traffic speeds in school zones. While law enforcement officers can utilize a progressive ticketing method to change behavior, it should also be paired with education or a campaign to reinforce safe roadway behavior.

SPEED ENFORCEMENT CAMPAIGN

- Audience: Parents, motorists
- Lead / Champion(s) Local law enforcement, District, schools

The campaign would place speed feedback trailers at specific locations where pedestrians are present. It seeks to curb speeding by warning motorists of their current speed, and thus slow down if they are going above the posted speed limit.

TRAFFIC COMPLAINT HOTLINE

- Audience: Adults
- Lead / Champion(s) Local law enforcement

Setup a hotline to report non-emergency traffic violations to law enforcement. This can help law enforcement agencies keep track of complaint areas and prevent concerns prior to incidents happening. It will also improve engagement of community members with officers.



enforcement



EVALUATION PROGRAMS

DETAILS

DESCRIPTION

EVALUATION PROGRAMS	DETAILS	DESCRIPTION
<p>PARENT SURVEYS</p>	<ul style="list-style-type: none"> • Audience: Parents • Lead / Champion(s): City, District, Schools 	<p>Online Parent Surveys can be a cost-effective way to gather feedback on effectiveness of programs and improvements made as part of this plan. It is recommended that after improvements are implemented, the City should conduct parent surveys to evaluate the effectiveness of this Plan and improvements through before and after data.</p>
<p>STUDENT TRAVEL TALLIES</p>	<ul style="list-style-type: none"> • Audience: Elementary, Middle, High • Lead / Champion(s): City, District, Schools 	<p>Teachers and school administrators can aid in administrating an in-class travel tally to collect data on student's travel modes both in the morning and afternoon periods. Similar to parent surveys, it is recommended that the City coordinate with the District or school to conduct tallies after implementation of improvements near a school to evaluate the effectiveness of those treatments.</p>
<p>COLLISION DATA & ANALYSIS</p>	<ul style="list-style-type: none"> • Audience: -- • Lead / Champion(s): City 	<p>Pedestrian and bicyclist-related collisions evaluated for each school establish baseline safety conditions. Follow up analysis of pedestrian and bicycle collisions over time can give feedback on the safety improvements made, or identify areas where further improvements may be warranted. This is particularly important as more students and guardians walk and bike to school; the City can monitor and evaluate corridors and/or intersections as travel behavior changes.</p>
<p>BIKE / PEDESTRIAN COUNTS</p>	<ul style="list-style-type: none"> • Audience: -- • Lead / Champion(s): City 	<p>Bike and pedestrian counts contribute to a more thorough understanding of travel behavior and thus improve the ability to calculate the costs and benefits of bike and pedestrian improvements. They can be integrated into existing vehicle counts or completed at high traffic locations and commercial districts. Counts are useful at illustrating the need for infrastructure when requesting grant funding.</p>

4.4.

CREATIVE PLACEMAKING & PROGRAMMING

This section provides a set of public art-related elements often integrated as part of active transportation infrastructure.

The icons to the right categorize the relation of each element to either bicycle, pedestrian, or overall programming. Within each page, a description, benefits, photos, and example projects are summarized for these elements. The purpose of this toolbox is to provide inspiration for the types of projects that can help support pedestrian and bicycle infrastructure within the Morongo Basin with the inclusion of the local arts community.

bicycle element



Bicycle-related public art includes artistically designed bike racks, trailheads, and possibly other bicycle amenities. These elements help integrate art into community, while supporting and promoting a healthy and bikeable environment.

pedestrian element



This set of pedestrian-related public art includes artistic crosswalks, benches, shading, wayfinding etc. These elements can help enhance pedestrian visibility, improve pedestrian infrastructure, and create a community-inspired environment for walking and even taking transit.

programming



The toolbox include a description for public arts programming in the form of commissioning artists and also artist-led community engagement. These programs have been used to integrate public art and local artists in larger active transportation projects to support walking and biking in a artistic and community-drive way.



ARTISTIC BIKE RACKS

Artist designed bike racks can create playful and functional sculptural objects, contributing to the built environment.

BENEFITS:

Artist designed bike racks are functional. They provide a unique sensibility to the community. Pedestrians and bicyclists notice these unusual forms and their presence reinforces active transportation activities. Involvement of local artists in these projects create a greater sense of pride and allow for the arts community to contribute to the perception and functionality of their community.

EXAMPLES:

As part of the Metro Public Art Collection in Nashville, local artists were commissioned to design and fabricate unique bike racks as part of the city's green and healthy living initiative. The program has been rolled out in several communities over several years.



"Ground Ball" | Kristina Colucci | Nashville, TN



"Shelves" | Zach Duensing | Nashville, TN



"Microphone" | Franne Lee, Keith Harmon, and Mac Hill | Nashville, TN

PROTECTED BIKE LANES

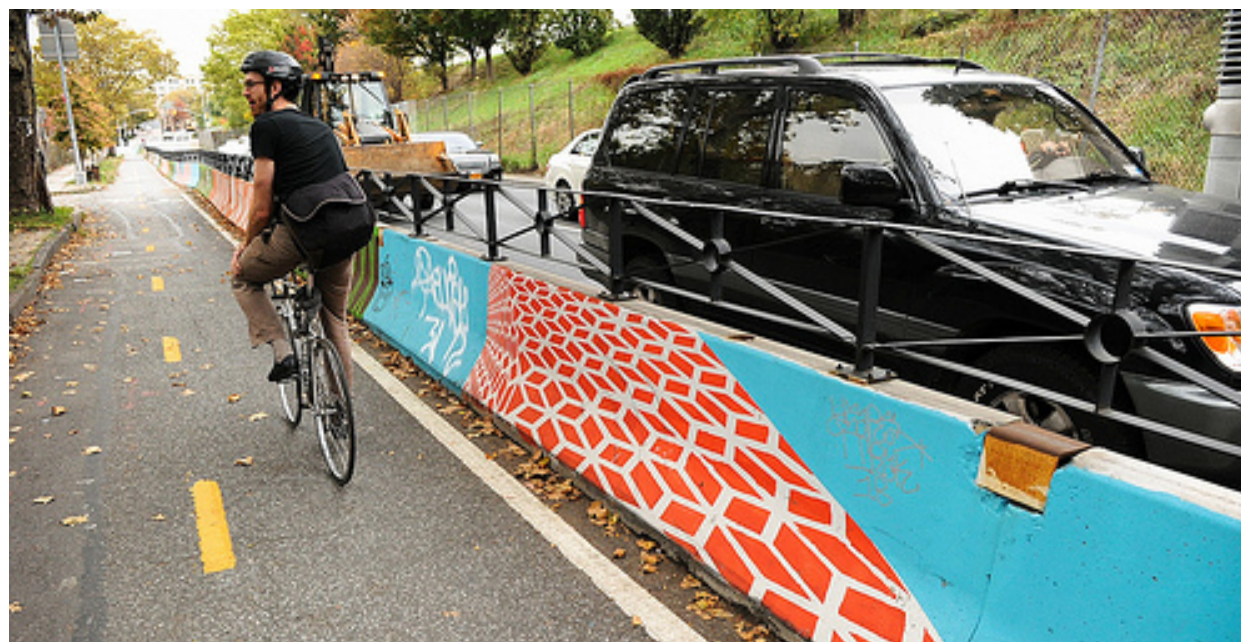
Colorful embellished surfaces help with visibility and artists may choose to use reflective materials as part of their design concept for heightened visibility. Protected bike lanes with artistically designed elements can provide this type of visibility on roadways with high traffic volumes and in conflict zones.

BENEFITS:

These projects help to create a greater level of perceived safety for the pedestrian and car drivers. Protected bike lanes can be customized with paint and other relatively inexpensive materials. Some projects include minor landscape elements that are also artist designed to soften the look of this primarily concrete infrastructure. Involvement of local artists in these projects create a greater sense of pride and allow for the arts community to contribute to the perception and functionality of their community.

EXAMPLES:

The New York City Department of Transportation's (NYC DOT) Barrier Beautification program funded the painting of protected bike lanes on Flushing Avenue. The program changes exhibits every 11 months and pays artists up to \$2,500. The Tactical Urbanist Guide provides a how to for the painting of concrete barriers at <http://tacticalurbanismguide.com/materials/concrete-jersey-barrier/>



Flushing Avenue Protected Bike Lanes | New York City, NY



"Face to Face" | Debra Hampton



Debra Hampton holding stencil designs



bicycle element



ARTISTIC CROSSWALKS

Artist designed crosswalks can be permanent or temporary. They provide visual cues to drivers and pedestrian with striking color and/or patterns, creating a unique visual marker in the built environment.

BENEFITS:

Crosswalk design can be reflective of a theme that is identified with the community and its visual attributes. Artist designed crosswalks are highly visible to cars and pedestrians.

Temporary crosswalks can bring special attention to areas where cars and pedestrians are learning new ways to interact safely. Artist crosswalks can also be used near schools and can involve students and the school community at large.

Involvement of local artists in these projects create a greater sense of pride and allow for the arts community to contribute to the overall perception and functionality of their community.



"Couleur Additive" | Carlos Cruz-Diez | Los Angeles, CA

picture credit: Jacob Fisher



"Grand Prix & Leopard Shard" | Hataya Tubtim | Long Beach, CA

picture credit: DLBA



Temporary Crosswalk | SCAG GoHuman Illuminate Riverside picture credit: KOA / Aurelio Campos

PEDESTRIAN SEATING

Artist designed seating is part of creating a unique look and feel to a place. Seating areas can consist of a single bench or a complete rest areas with landscape and shade elements.

BENEFITS:

Artist designed seating may employ a variety of materials. They can be singular sculptural objects or complete installations that include seating, shade and landscape. Seating installations are generally more noticeable and can reflect the character and visual sensibility of a community. Involvement of local artists in these projects create a greater sense of pride and allow for the arts community to contribute to the overall perception and functionality of their community.

EXAMPLES:

As part of the replacement of bus shelters and seating areas by Long Beach Transit, local artist were asked to create benches and sculptural objects to be incorporated into bus stops. The program created uniquely designed street furniture which serves transit users better giving them areas for shelter and seating.

Phoenix artist, Kevin Berry, designed bus shelters on Goldwater Boulevard—one at Indian School Road and the other just south of Camelback Road. The project consists of two bus shelters with cast concrete benches, artist-designed trash receptacles, a privacy wall, and tree grates and guards.



"Couleur Additive" | Carlos Cruz-Diez | Los Angeles, CA

picture credit: Jacob Fisher



Goldwater Boulevard Bus Shelters | Kevin Berry | Phoenix, AZ



pedestrian element



SHADE STRUCTURES

Artistically designed shade structures are particularly important in areas of high intensity sun and wind. These structures can be incorporated with seating and landscape.

BENEFITS:

Provides pedestrians and bicyclists with places to rest on long journey. Provides shelter from heat, wind and cold. Gives pedestrians a feeling of security near busy roads. Involvement of local artists in these projects create a greater sense of pride and allow for the arts community to contribute to the perception and functionality of their community.

EXAMPLES:

Bloomcanopy is a grouping of shade structures installed adjacent to Pierce Street Market in Downtown Phoenix. The piece was commissioned by the Phoenix Office of Arts and Culture. The shade structures were designed by Christopher Malloy of MAP.



"Bloomcanopy" | Christopher Malloy | Phoenix, AZ

WAYFINDING

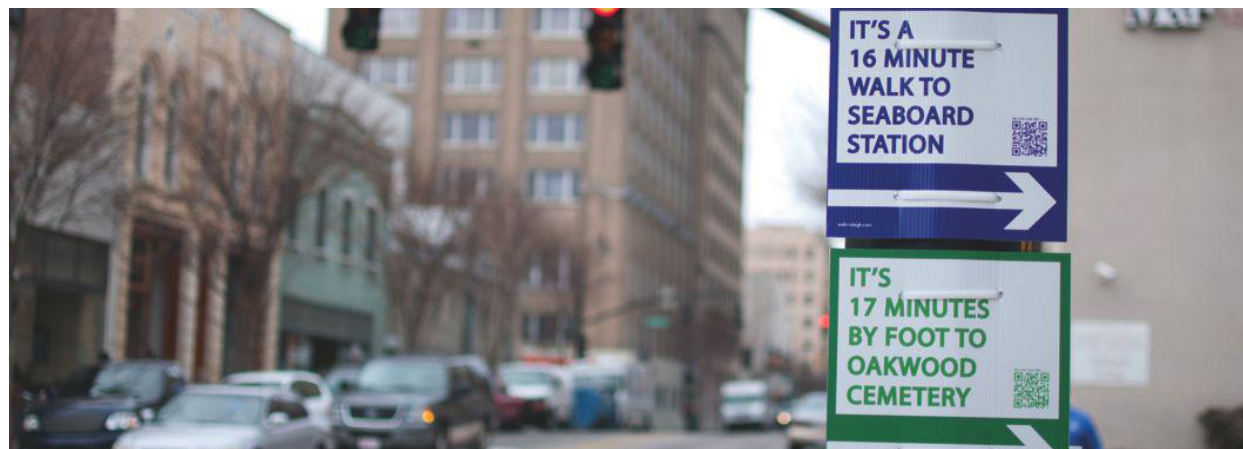
Artist designed wayfinding is often conceived as a small art treasure hunt within a community. Designs can stand out by using atypical colors and shapes, or they may blend in by adopting the local vernacular and opt for employing a whimsical approach to the text.

BENEFITS:

Artist designed wayfinding projects have often been oriented towards cultural and historic destinations in the community. Artist designed wayfinding is a way to direct visitors to more eclectic and off the beaten track destinations. Involvement of local artists in these projects create a greater sense of pride and allow for the arts community to contribute to the overall perception and functionality of their community.

EXAMPLES:

Matt Tomasulo is an artist located in Raleigh, North Carolina. He is a passionate entrepreneur, urban designer, and civic instigator focused on bucking the status quo to shape healthier, connected, and economically vital 21st century communities. His work is positioned yet playful, and ranges from public art to neighborhood development. Matt created Walk [Your City] (on Facebook and the web) and helps you boost your community's walkability, linking informational street signs for people with web-based campaign management and data collection to complement traditional approaches to wayfinding.



Walk [Your City] | Matt Tomasulo | Raleigh, NC



pedestrian element



ARTISTIC STREETSCAPING

Artist designed streetscapes may include traffic circles, bump-outs, median and designated pedestrian rest areas. They may be permanent, temporary, or mobile so that they may be placed in various locations.

BENEFITS:

These projects help to create a greater level of perceived safety and accommodation for pedestrians and bicyclists. They help to create visible, physical barriers from car traffic. When landscaped areas are combined with street furniture, they can be part of an overall strategy to promote active transportation and safety, and encourage community gathering enhancing opportunities for social, cultural and economic participation. Involvement of local artists in these projects create a greater sense of pride and allow for the arts community to contribute to the perception and functionality of their community.

EXAMPLES:

Located in the City of Laguna Beach, the streetscape renovation/ pocket park creation project is composed of a sculpture, a series of stools, and are-shaped and re-surfaced planter. The detailed cut out shapes of the sculpture and the mosaic details on the stool tops were inspired by the rich tide pool habitat of Laguna Beach located just a block away from the project site. The project was conceived by Shin Gray Studio in Los Angeles, California.

Commissioned by the Clark County's Department of Parks and Recreation, the County hired two internationally-known public artists, Barbara Grygutis of Tucson and Buster Simpson of Seattle, and rising Phoenix artist Kevin Berry. Planning, design and execution of this first major public art project by Clark County took seven years. It was dedicated in October, 2010. Instead of designing discrete artworks, the three-artist team together designed the necessary furniture for the trailheads and waysides and the layout and planting of the trailheads in partnership with landscape architectural firm J.W. Zunino and Associates. The artists designed the signs, benches, and shade shelters for the trailheads. They also rescued and included in some trailheads, broken chunks of the historic Stardust Hotel and Casino, which was built on the Las Vegas Strip in 1955. (The hotel opened in 1958, closed in 2006 and was imploded March 13, 2007.) The artists used weathering steel for the shade shelters, which is designed to rust to a steadily deepening color.



"Road Blossoms" | Shin Gray | Laguna Beach, CA



Flamingo Arroyo Trail | Buster Simpson, Barbara Grygutis, & Kevin Berry | Las Vegas, CA

COMMISSIONING ARTISTS

Programs that have been successful tend to have adopted specific standards in seeking and commissioning artists for transportation public art projects. Arts Connection, the official arts organizations for the County of San Bernardino can facilitate these best practices which include:

PROCESS:

- Preparing and widely distributing a Request for Qualifications to identify local artists who possess the skills to work in collaboration with a design team for the project
- Artist honorariums for design proposals
- Using art professionals as part of a selection panel to review qualifications
- Working with artists to identify sources for necessary insurance
- Working with artists to identify fabricators
- Creating commission agreements that employ reasonable insurance requirements and payment schedules
- Providing plaques for artworks so the public can be informed of who created the artwork

PUBLIC ENGAGEMENT

Artists can be employed to open up public dialogue, and reach out to audiences who might otherwise not get involved in traditional civic processes. Arts engagement can help residents to envision future needs, articulate community values, and identifying issues. These types of activities can take many forms, and have proven to be very successful in reaching historically marginalized communities.

BENEFITS:

Increased diverse participation in the planning process or public dialogue; community members have a role in providing input to select types and themes for public art projects. Arts Connection as the official arts organization of San Bernardino County has overseen many of these projects and can provide the appropriate oversight in these projects.



