

# A New Paradigm in Trail Design

# CV//LINK

CONNECTING THE COACHELLA VALLEY

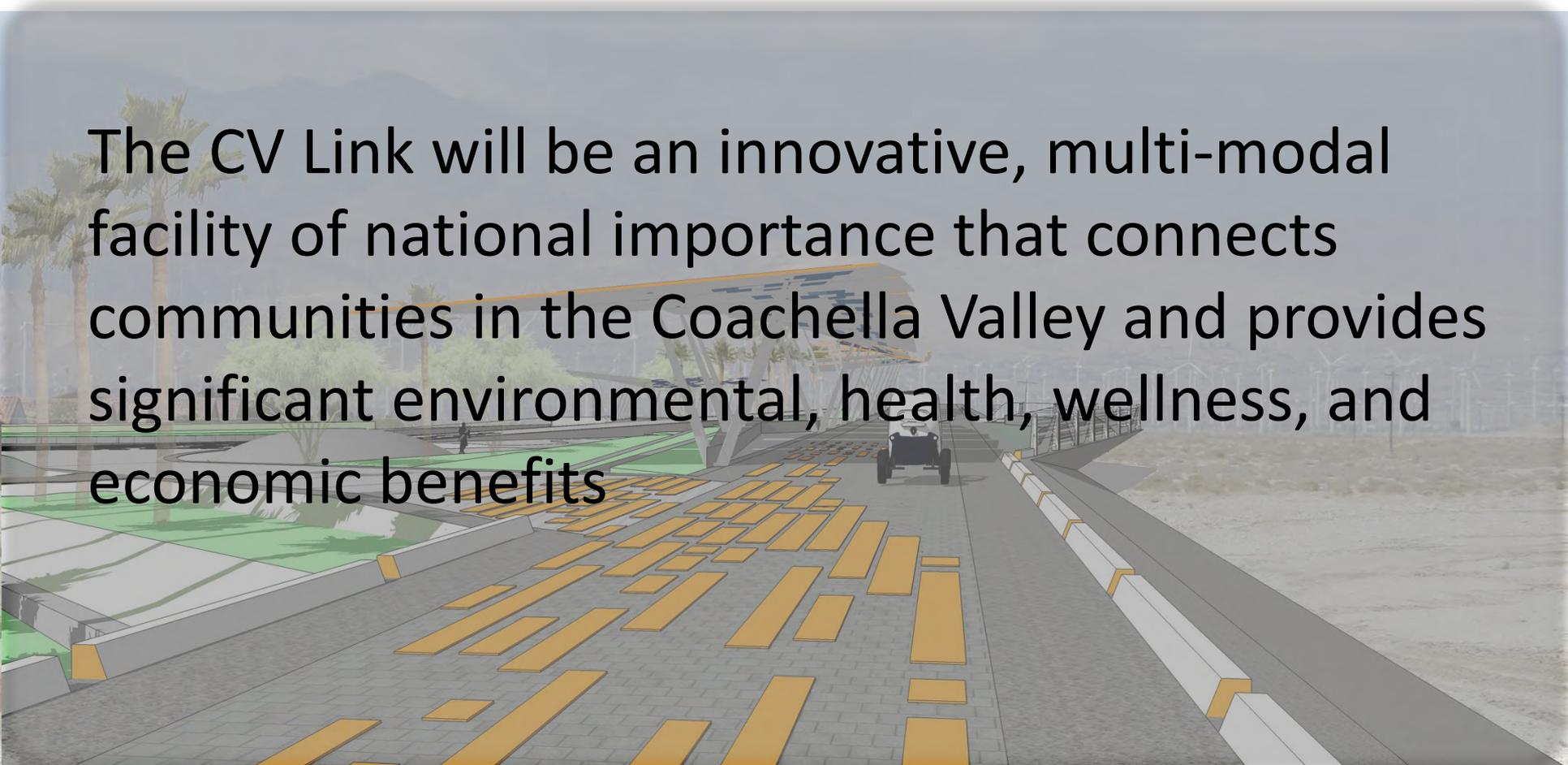
Mike Shoberg | George Hudson | Karen Vitkay



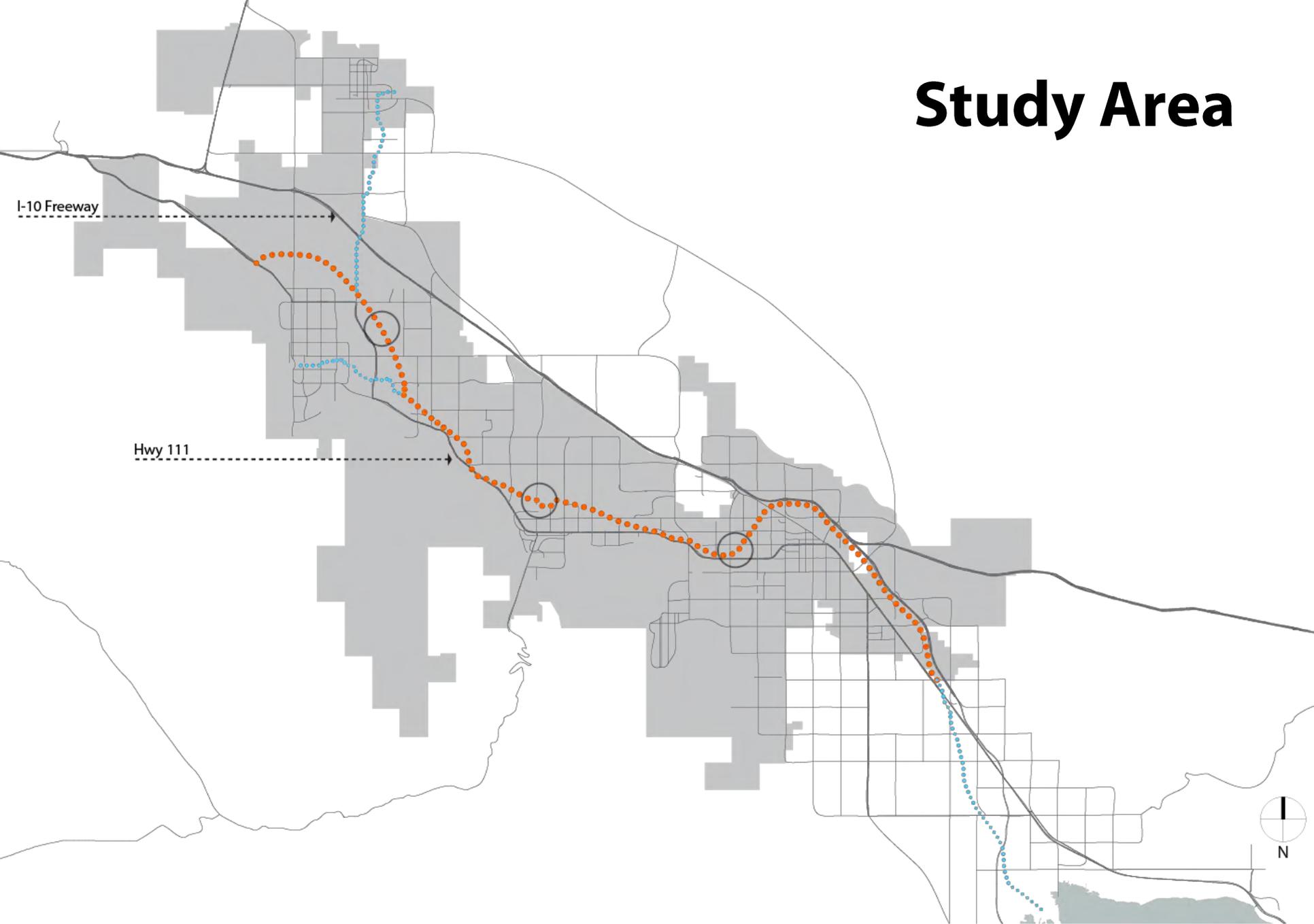
California Trails Conference  
April 2014

# Vision

The CV Link will be an innovative, multi-modal facility of national importance that connects communities in the Coachella Valley and provides significant environmental, health, wellness, and economic benefits

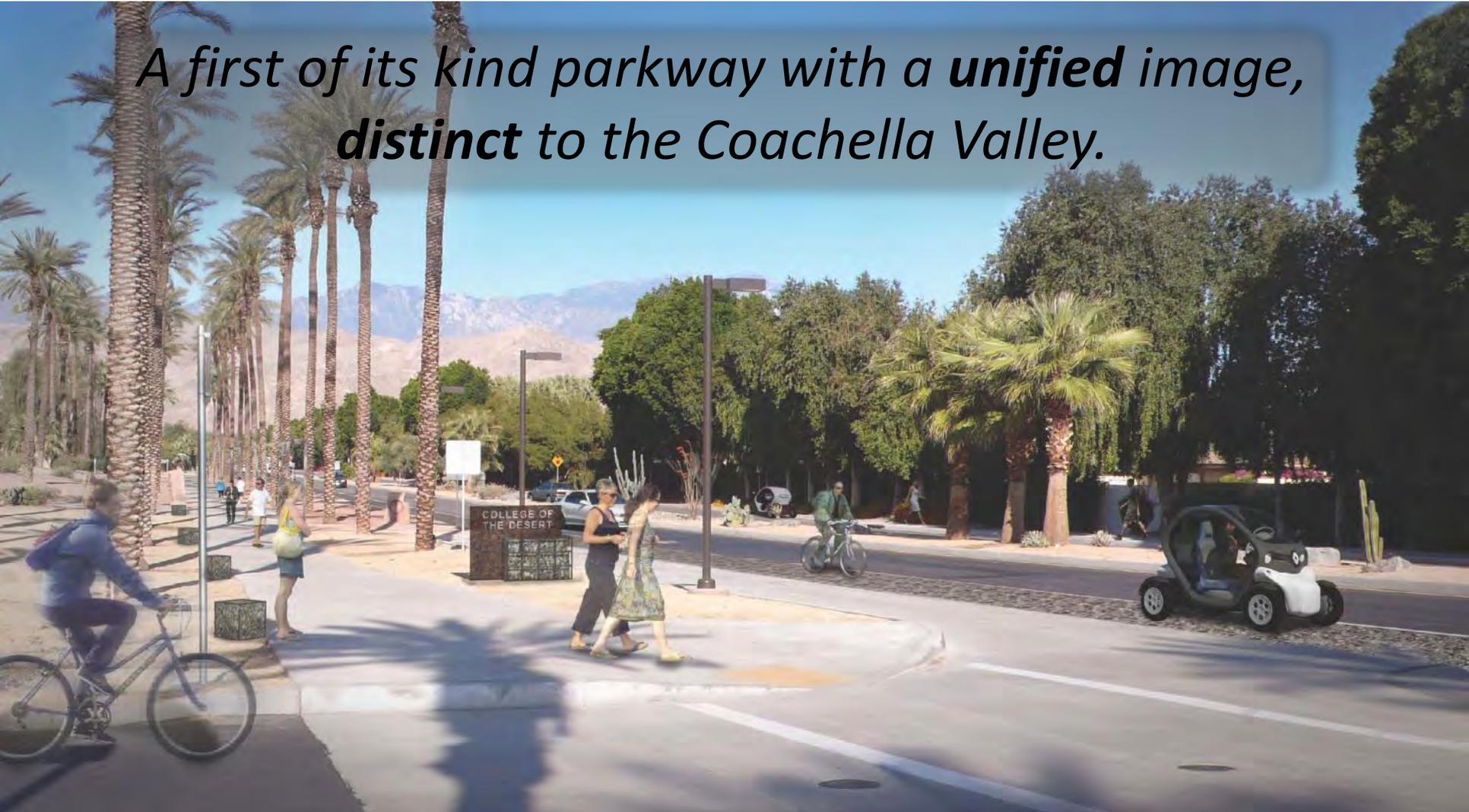
An architectural rendering of a multi-modal transportation facility. The foreground shows a wide, paved walkway with a pattern of grey and yellow rectangular tiles. A small, dark-colored vehicle is driving on a road to the right. In the background, there are palm trees, a modern building with a large, curved roof, and a body of water. The scene is set in a desert environment with mountains in the distance.

# Study Area



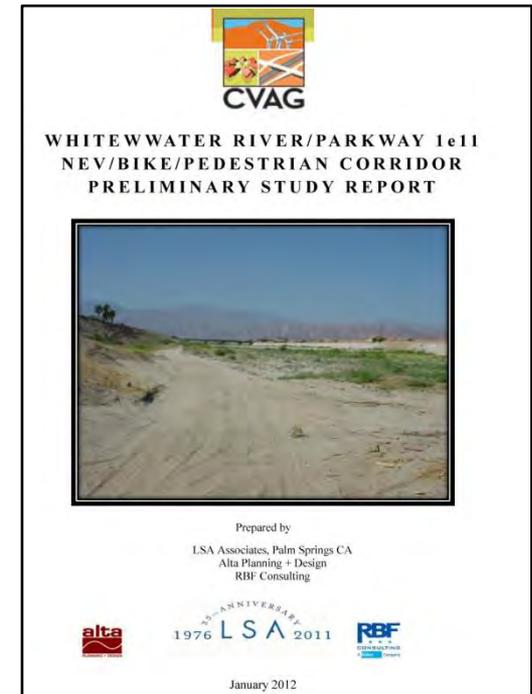
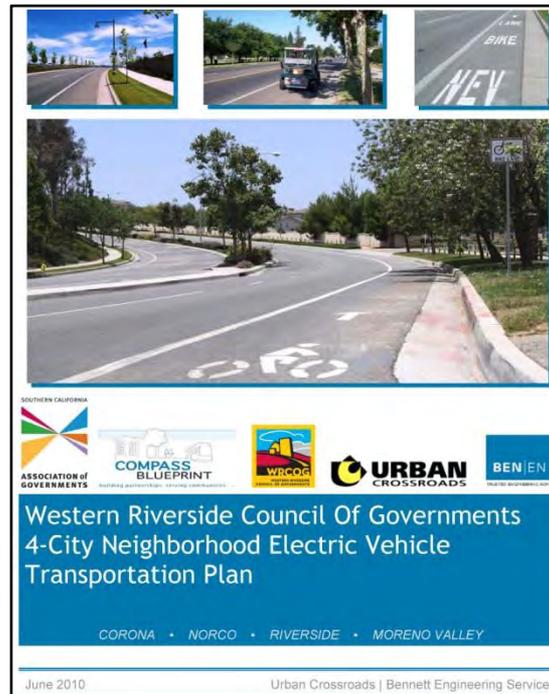
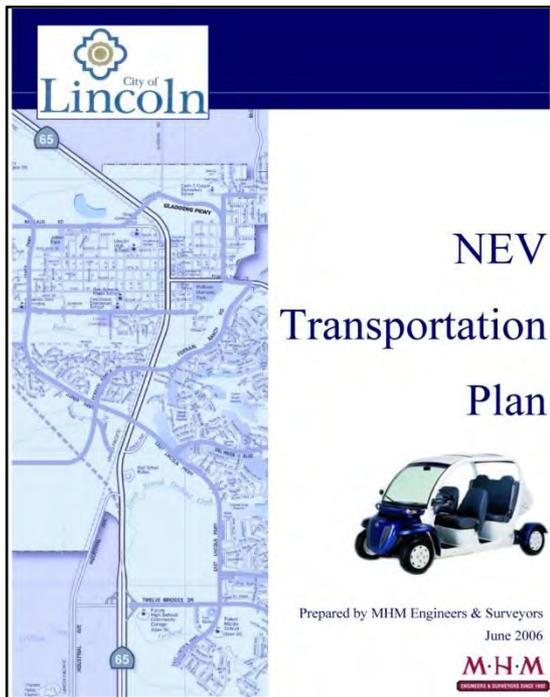
# Challenge

*A first of its kind parkway with a **unified image, distinct to the Coachella Valley.***



# Design Standards: *Guidance*

- Lincoln NEV Plan, 2006
- AARP, Policy & Design, 2011
- Whitewater River/Parkway 1e11 PSR, 2012
- WRCOG NEV Plan, 2010
- AASHTO/FHWA guidance



# Design Standards: *The Users*



PEDESTRIAN



CYCLIST



LSEV

# Design Standards: *User Requirements*

PED: 24"  
WIDTH: 3' min  
SURFACE: soft or hard  
SPEED: 7 min / ¼ mile



PEDESTRIAN

CYCLIST: 30"  
WIDTH: 4' min  
SURFACE: hard  
SPEED: 10 min/mile



CYCLIST

LSEV: 5.5'  
WIDTH: 7' min  
SURFACE: soft or hard  
SPEED: 12 min for 5 miles



LSEV

# Design Standards: *Criteria*

- Vehicle envelope, operating width
- Design speed – right sizing
- Existing conditions



# Design Standards: *Modal Compatibility*

- Infeasible to have three separate treads
- Cyclists and LSEVs on one shared tread
- Pedestrians separate
- Similar speeds, movements, surface preferences



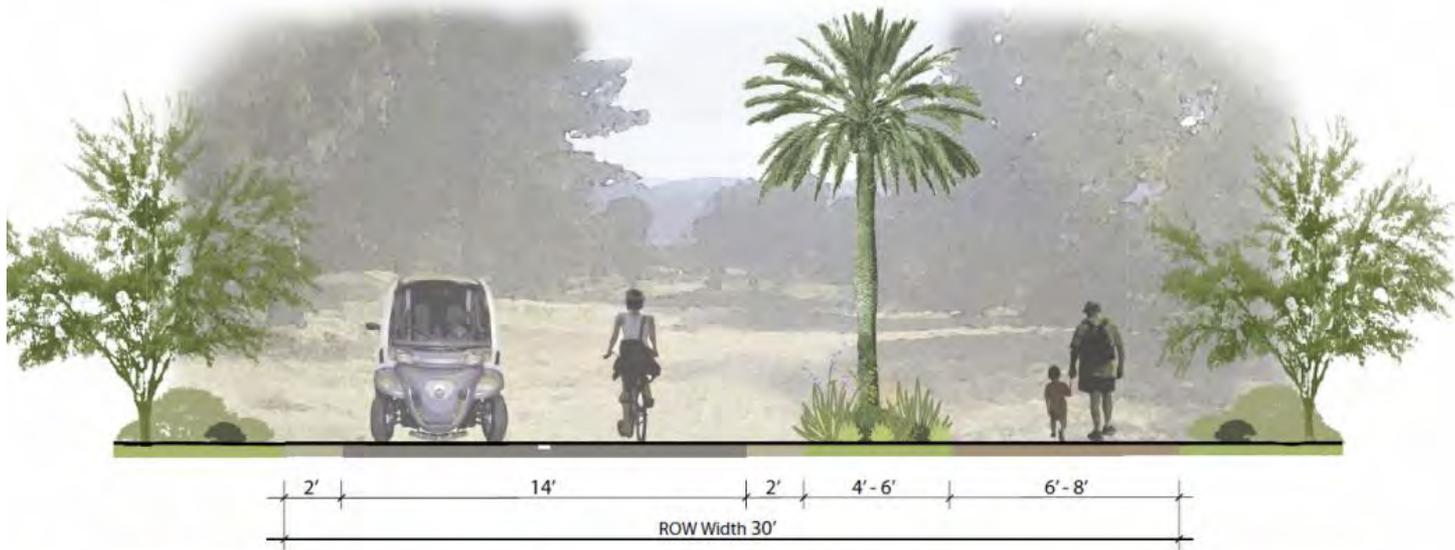
# Design Standards: *Field Confirmation*



14' - 0"

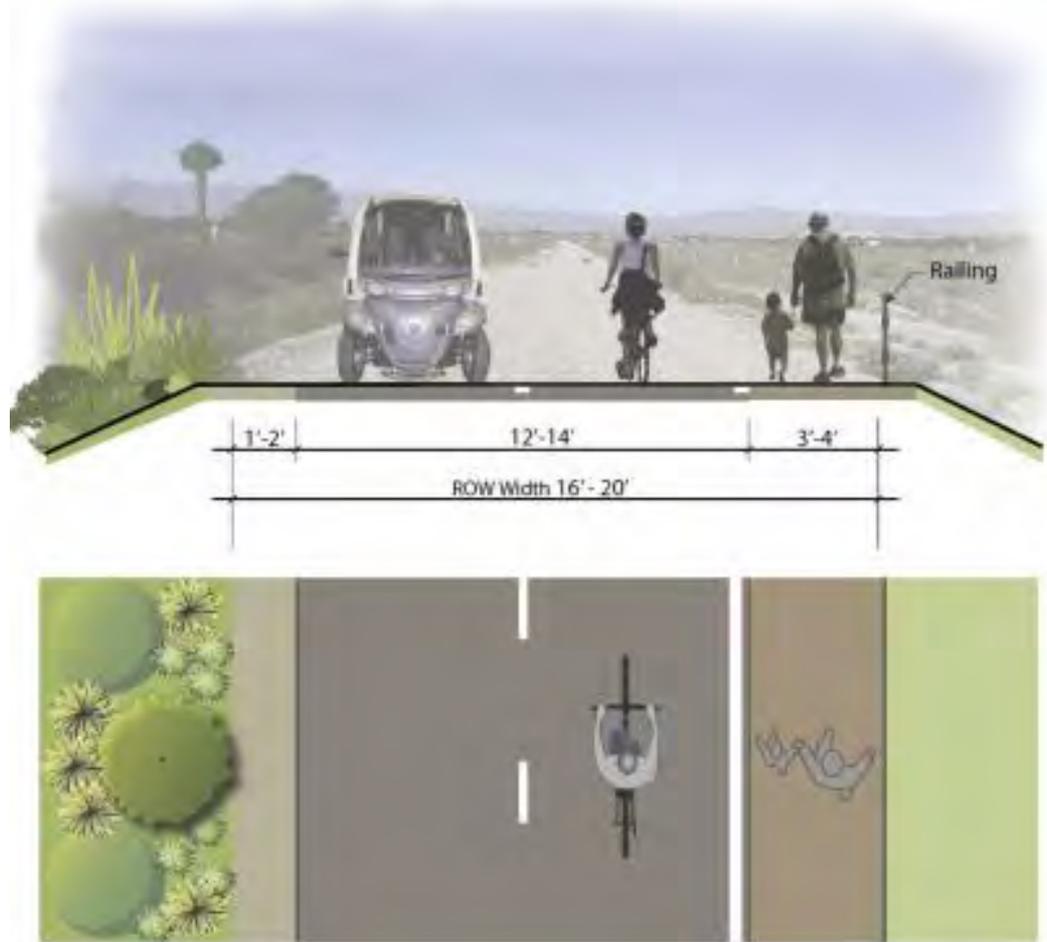
# Design Standards: *Off-Street*

- Separate pedestrian path where possible



# Design Standards: *Off-Street*

- On levee
- 20' width typical



# Design Standards: *On-Street*



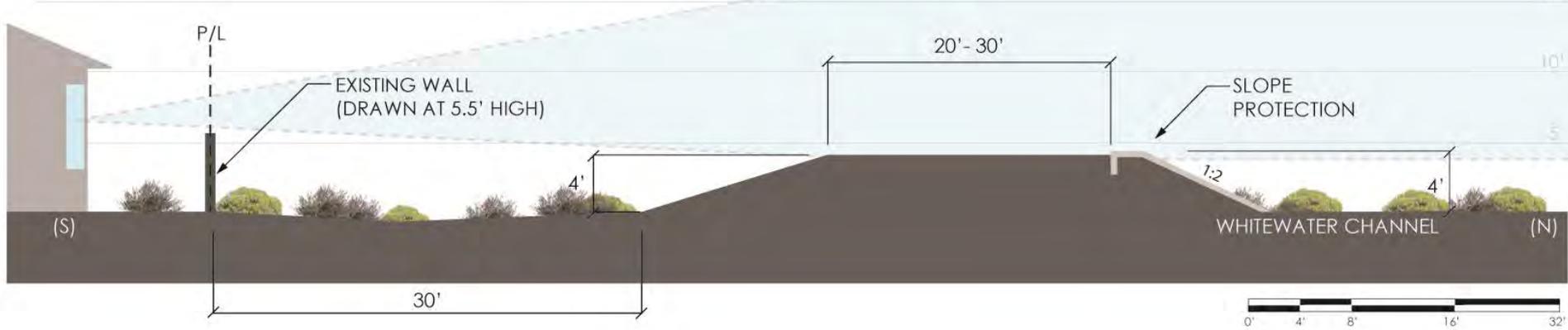
- *Maintain consistency with the experience of the separated facility.*

# Community Concerns

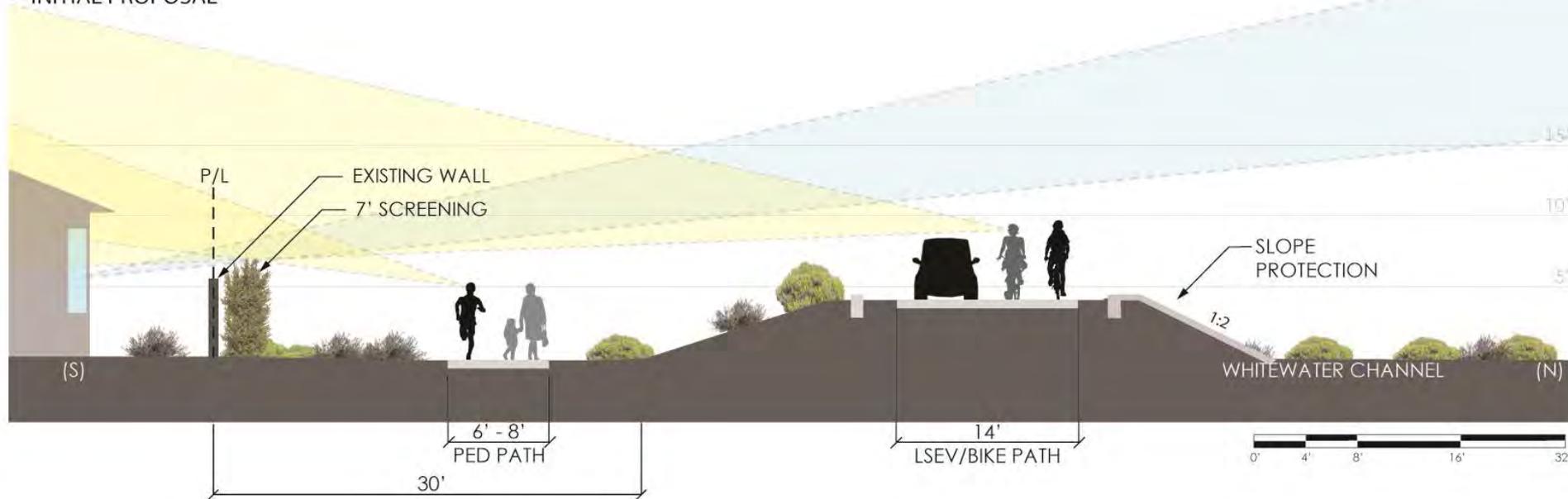
- Views in (privacy) and out (amenity)
- Crime, graffiti, litter & illegal dumping
- Noise
- Harsh conditions will limit use
- Light spillover
- ...all leading to a reduction in property values

A - A'  
EXISTING CONDITION

# Views

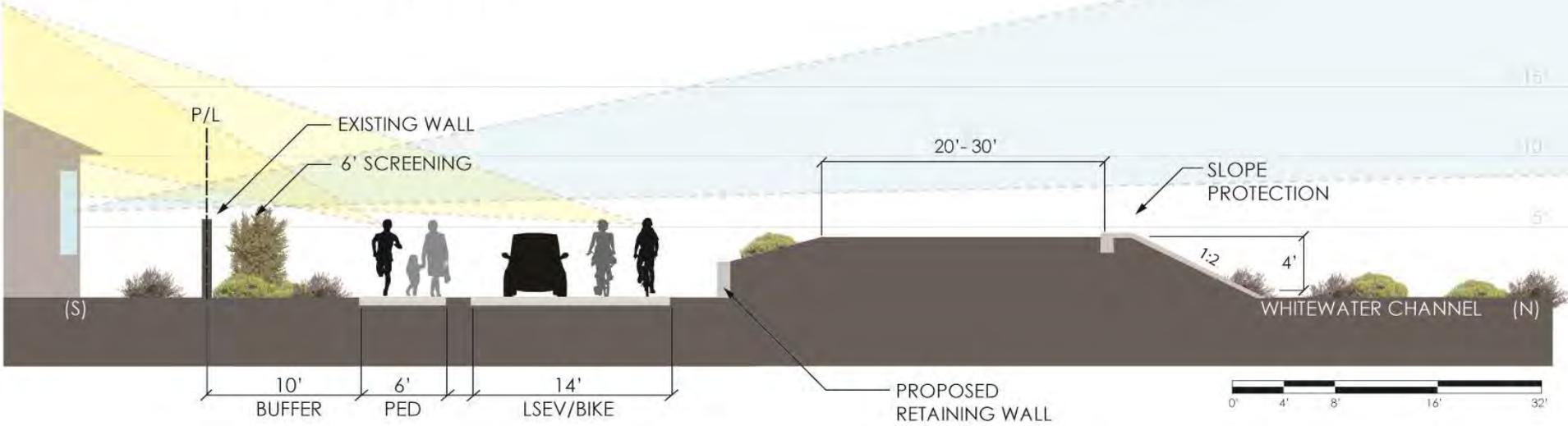


A - A'  
INITIAL PROPOSAL

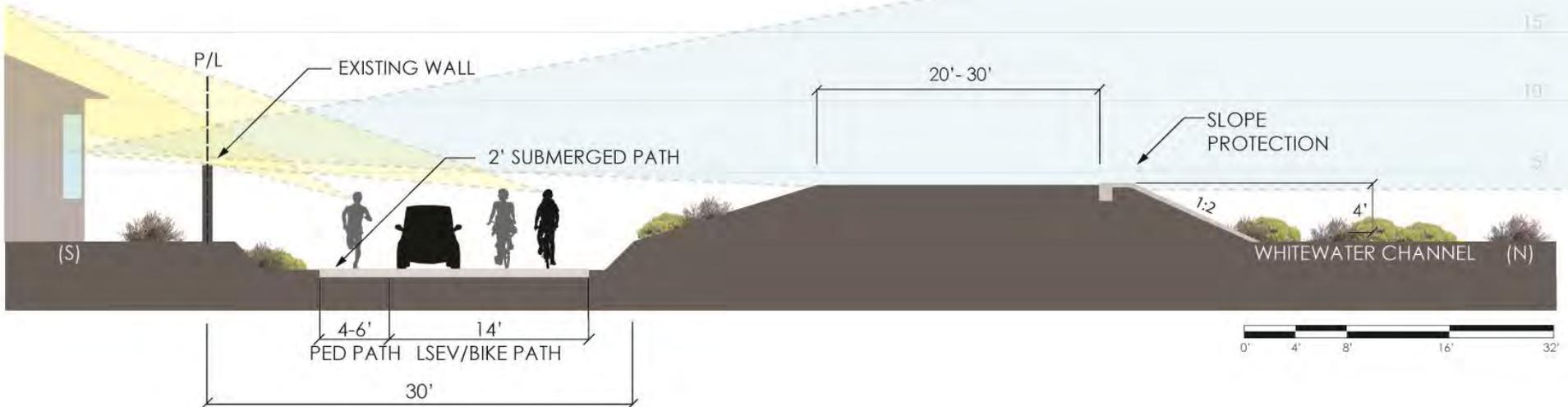


A - A'  
OFF LEVEE PATH WITH ENHANCED SCREENING

# Views



A - A'  
OFF LEVEE PATH WITH SUBMERGED PATHWAY



# Vandalism and Litter

- Existing Condition – Flood Control Channel
- More eyes on the corridor, replacing illegitimate use with legitimate use
- High level design, vandal resistant
- Managing agency, prompt responses to issues



# Crime

- Crime Prevention Through Environmental Design (CPTED)
- Programmed activities/ events – activate the space
- Ranger patrols, community trail watch
- Infrastructure - call boxes, CCTV cameras

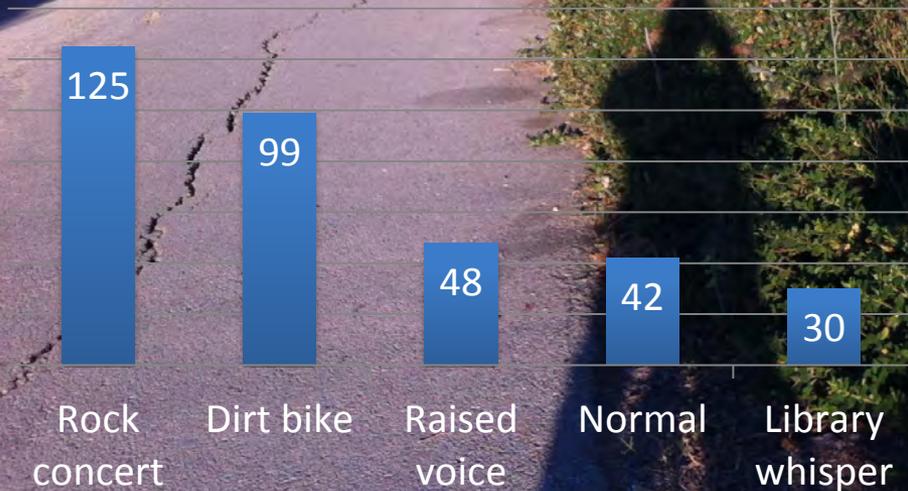


- National Survey of 372 trails in 1995-96:
  - Litter virtually non-existent on developed trails but a major problem on un-developed trails
  - 97% had no major crime issues over a two-year period
- Perceptions vary...MN study of trail-adjacent landowner attitudes to vandalism and crime:
  - Proposed trails: 75% had concern
  - Established trails: <6% had concern
- Burke-Gilman Trail, WA (12 mi., 8 yrs. data):
  - 1.25 break-ins per year, less than neighborhood average
- Brushy Creek, Santa Rosa, CA:
  - 65% of adjacent residents say trail enhanced quality of life

# Noise From Legitimate Users

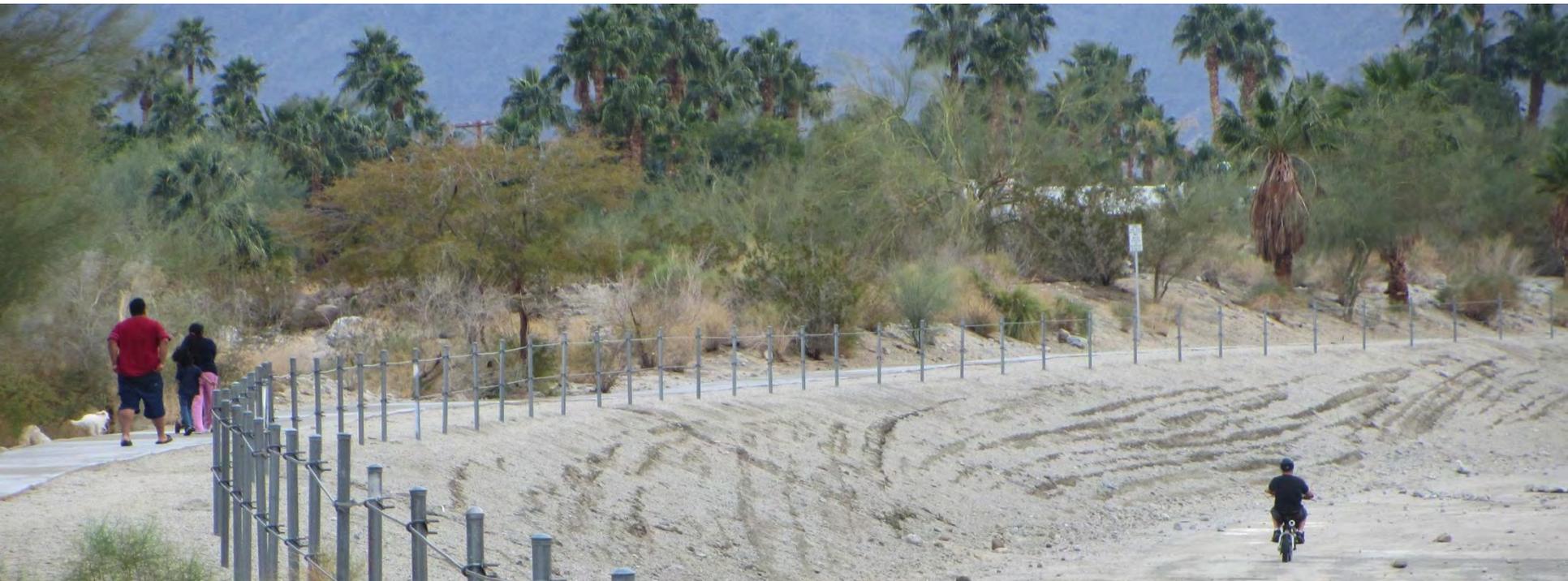
- Courtesy signage
- Elevation / Soundwall
- White noise

Decibels at 20 feet away



# Noise From Motorcycles & ATVs

- Vigorous enforcement and penalties
- Paved trail less attractive to off-roaders
- Community effort



Bear Creek Trail, La Quinta

# Harsh Conditions

- Levee could serve as windbreak
- LSEVs, electric assist bicycles less affected
- Provide appropriate amenities – water, shade
- Most of the top 10 bicycling places in America have temperature extremes

A 90 degree day with 40 mph winds on the levee



# Light Spillover

- Shielding can be designed to keep light on path
- Motion sensors (normally dim)
- Low height bollards
- Submerged path

Low power bollard lights  
with proximity sensors,  
Davis, CA

# Property Values

**\$510** higher median home values for every  $\frac{1}{4}$  mile closer to a trail in Minneapolis-St. Paul

**11%** higher values for homes within  $\frac{1}{2}$  mi. of Monon Trail (IN)

**6%** higher values *near* trail; **0%** difference *adjacent* to Burke-Gilman Trail (WA) – compared to similar homes not near

**87%** of owners adjacent to Luce Line Trail (MN) believed the trail increased or had no effect on their property value

# Creating **Legacies**

Foster **Connection**

Enhance **Function**

Distinct **Destination**

Make it **Iconic**



# ICONIC Design

ORIGINAL MEMORABLE TIMELESS

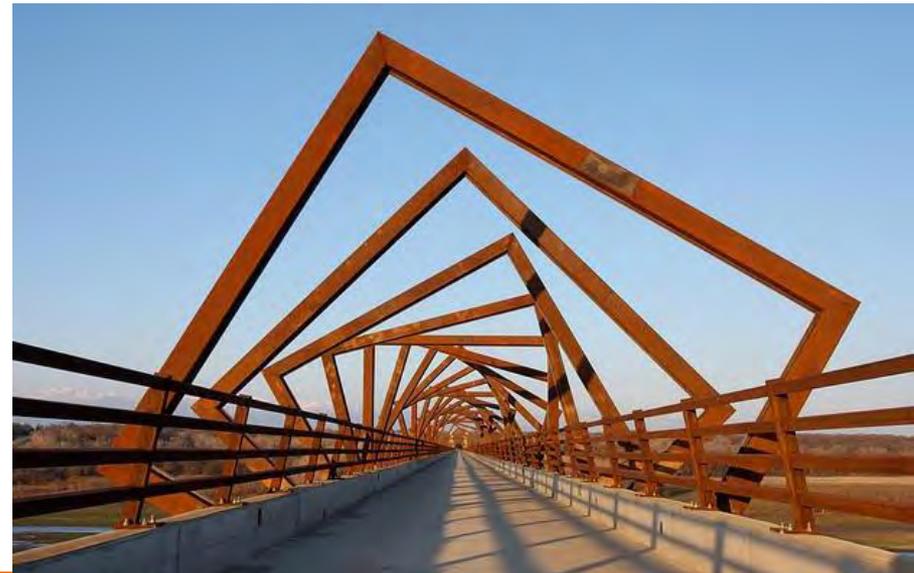


# SYDNEY OPERA HOUSE



# Precedents

## *Innovative Trails + Iconic Landscapes*





# Concept **CONTRAST**



## Coachella Valley

- arid, dry
- brown, earthy, muted
- flat, horizontal
- rough, rocky, textured

## CV Link

- cool, lush
- vibrant, colorful
- dynamic, vertical
- sleek, modern



## Highway 111

- indirect, inefficient
- anonymous

## CV Link

- direct, efficient
- fun, social



## Whitewater Channel

- heavy, static
- angular

## CV Link

- light, dynamic
- fluid

# Concept **CONTRAST**

Vibrance - *pulsing or throbbing with energy or activity*

Motion - *movement, efficient and direct*

Levity - *light, playful, unexpected*

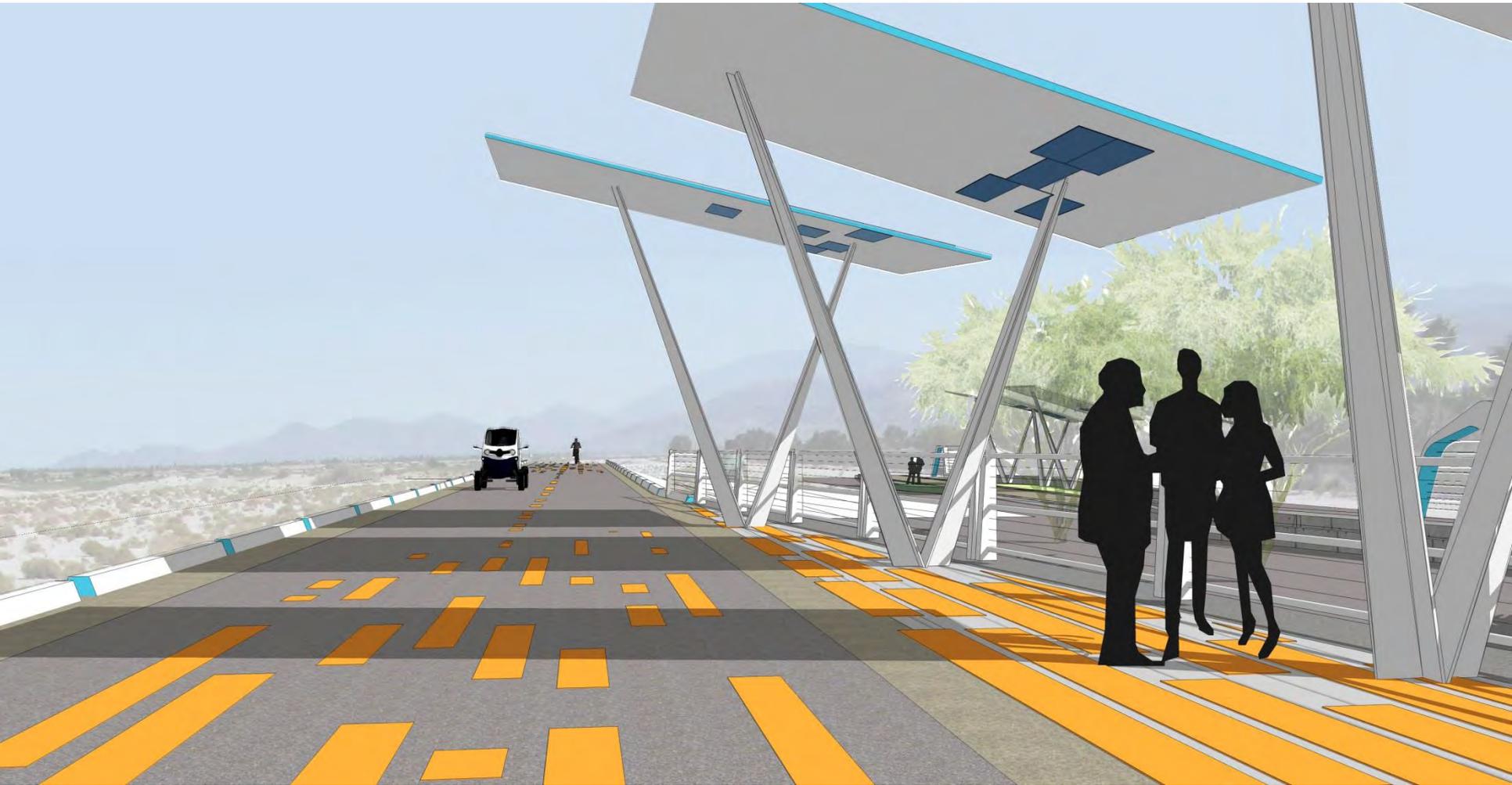


# WEST Valley

- Low independent levee(s)



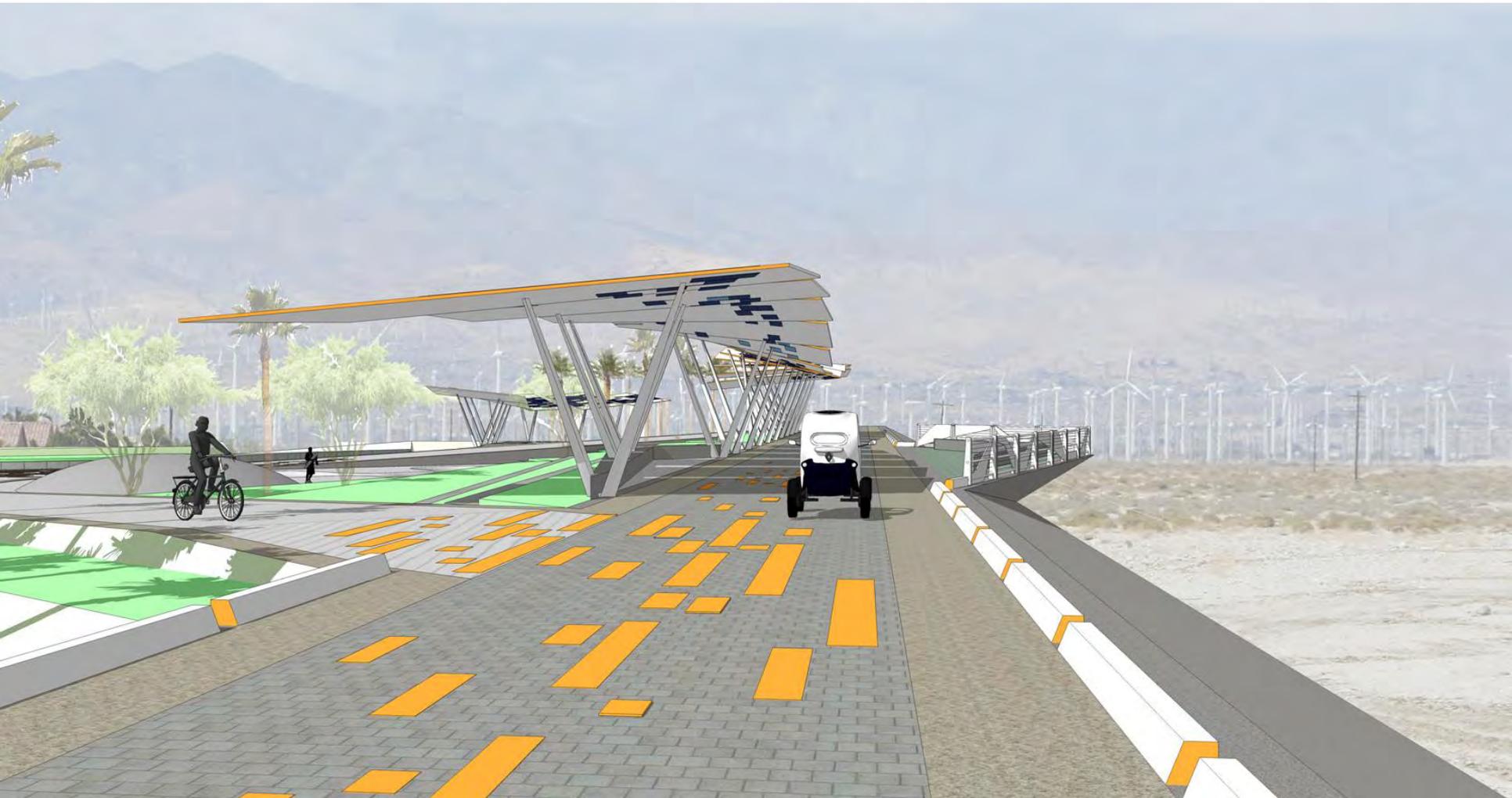
# WEST Valley



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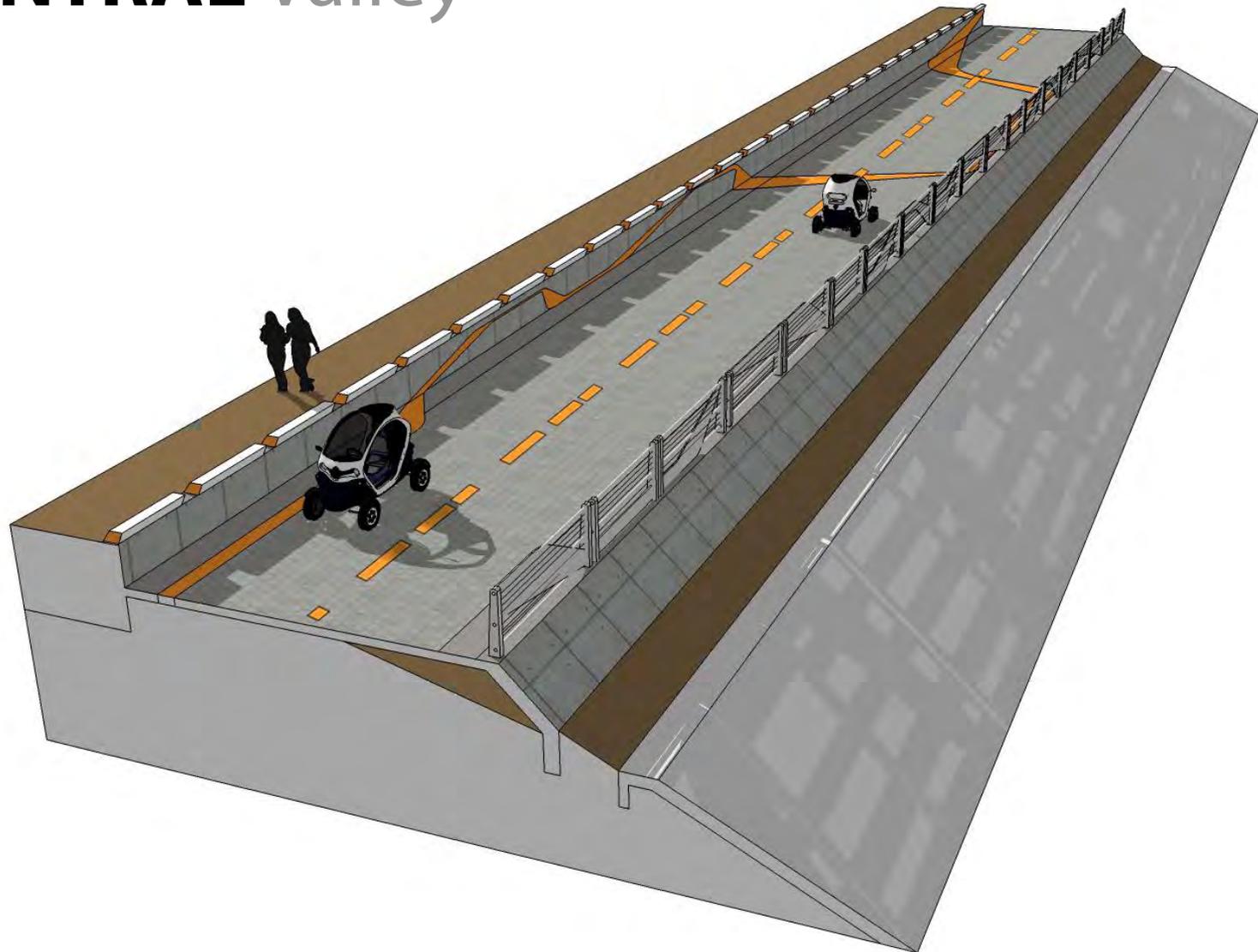


# CENTRAL Valley

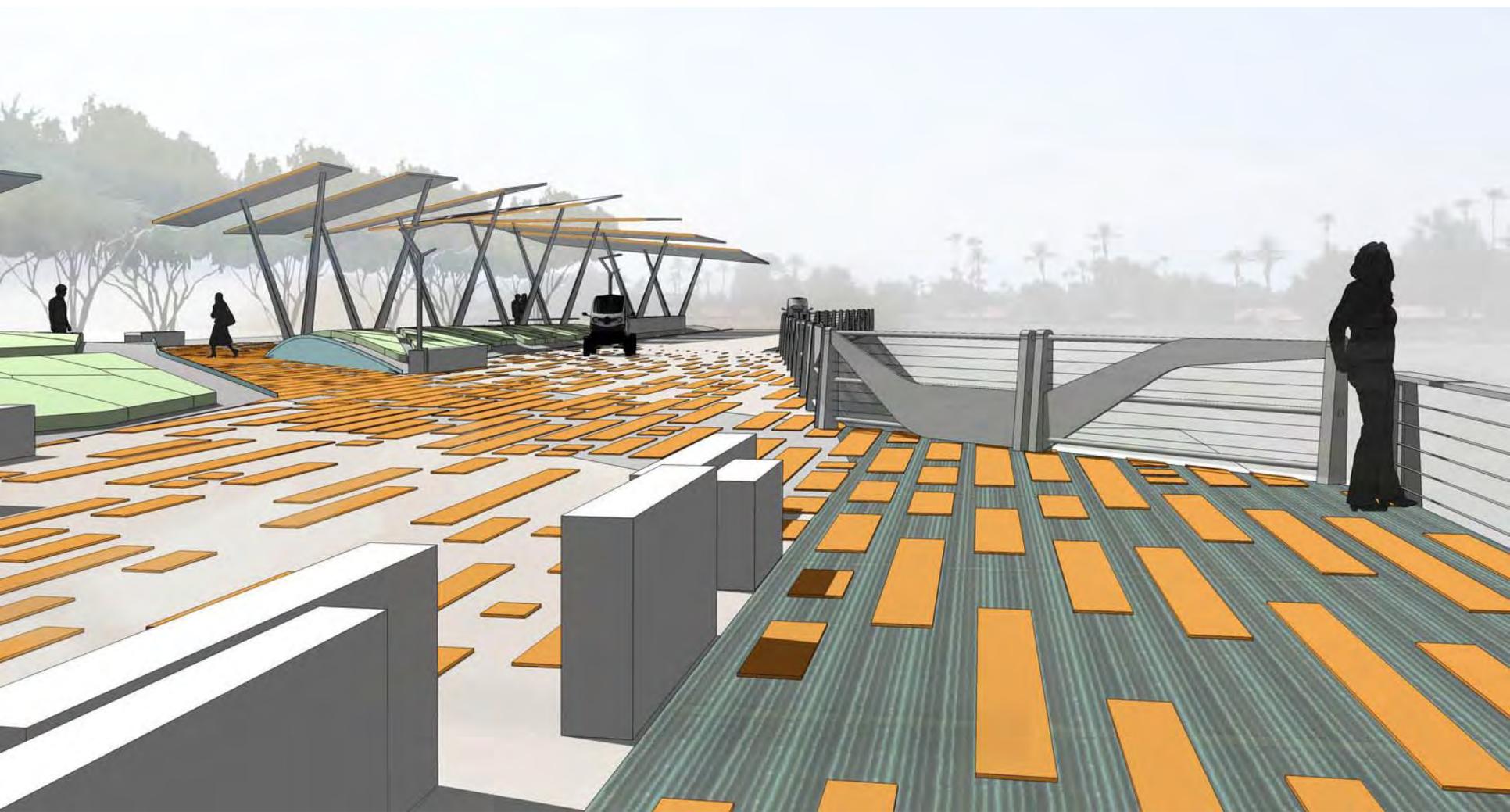
- Trapezoidal channel



# CENTRAL Valley



# CENTRAL Valley



*McAuliffe & Company*

# **EAST** Valley

- High independent levee



# **EAST** Valley

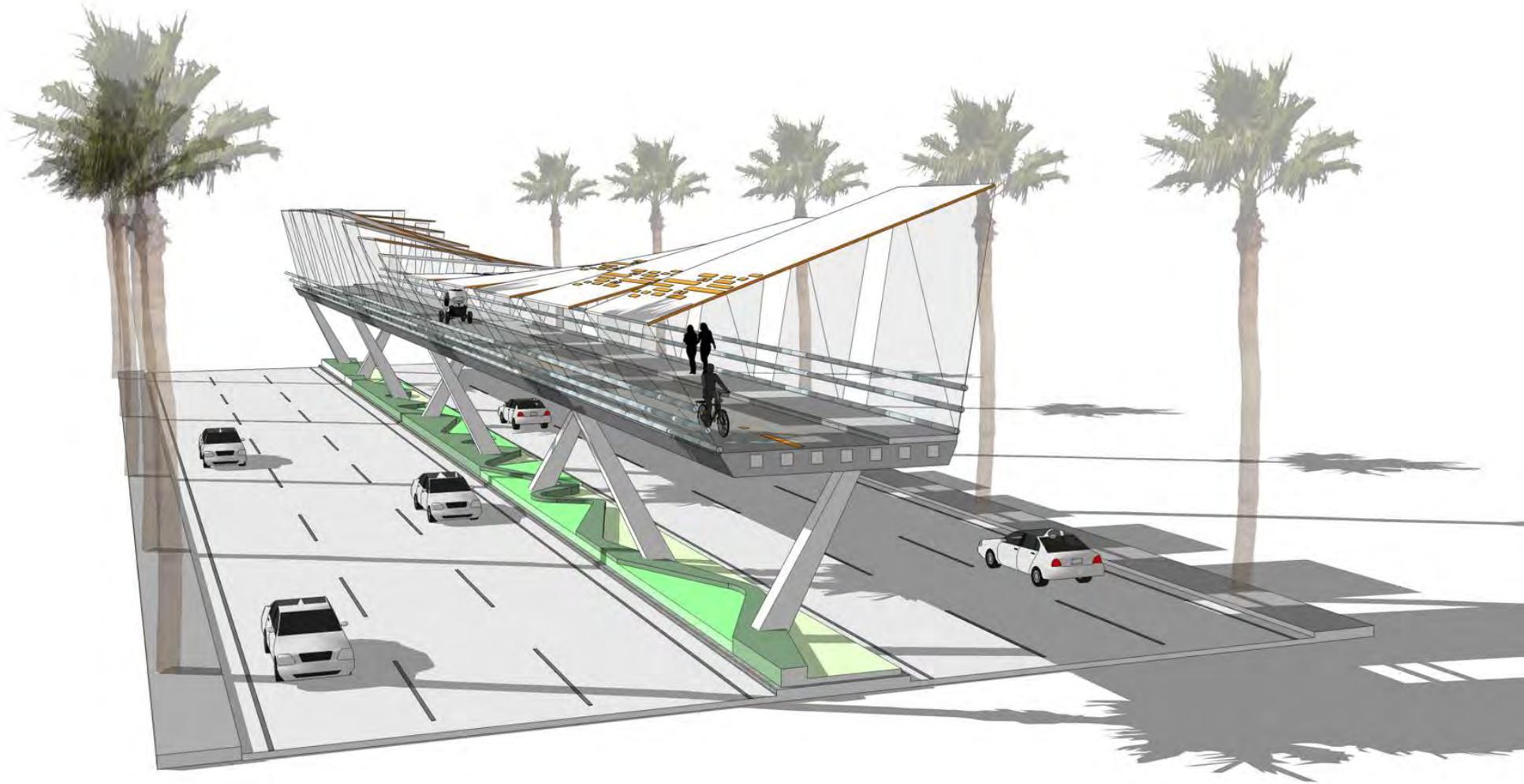


*Hermann Design Group*

# On-Street



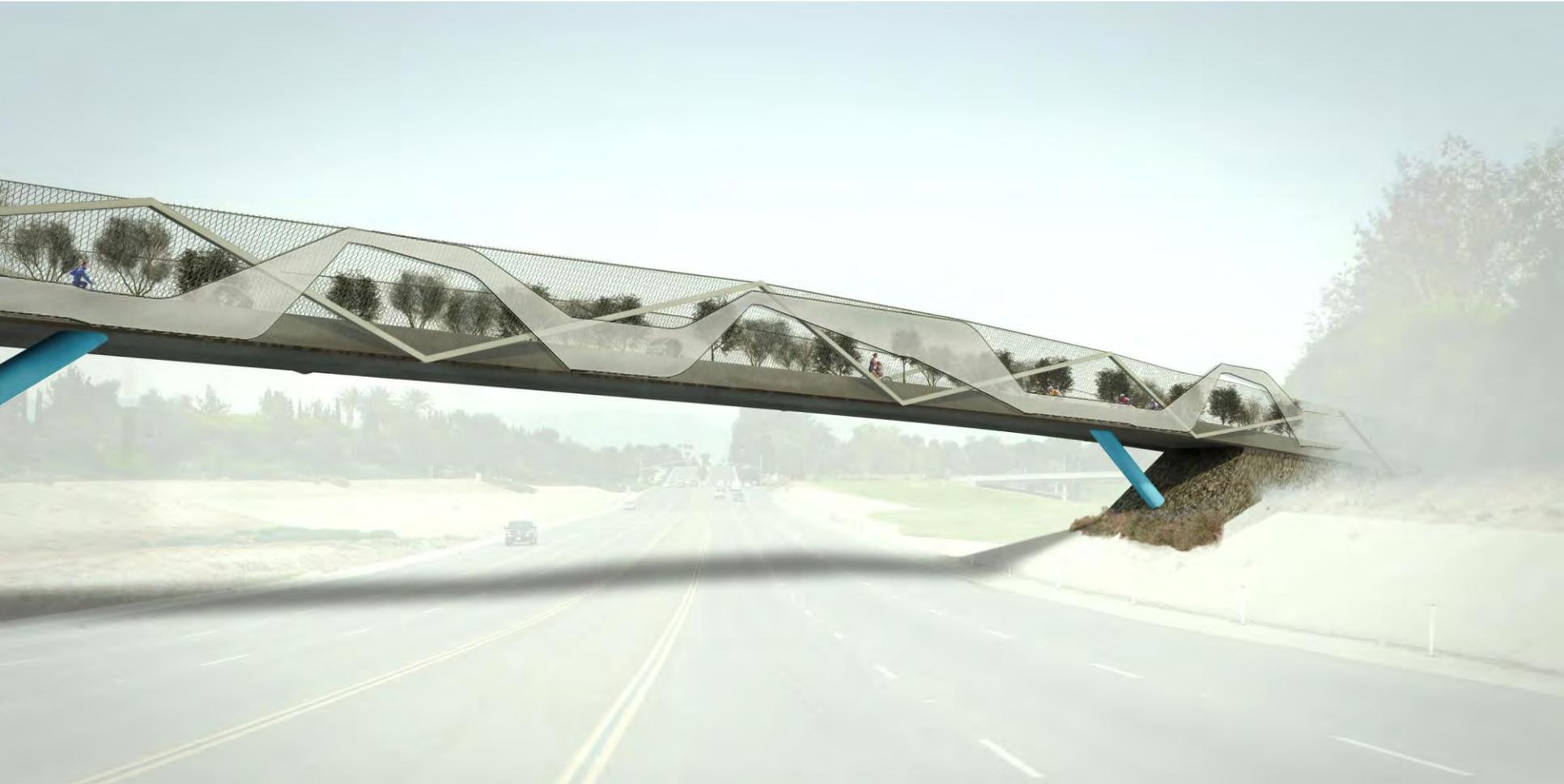
# On-Street



# On-Street

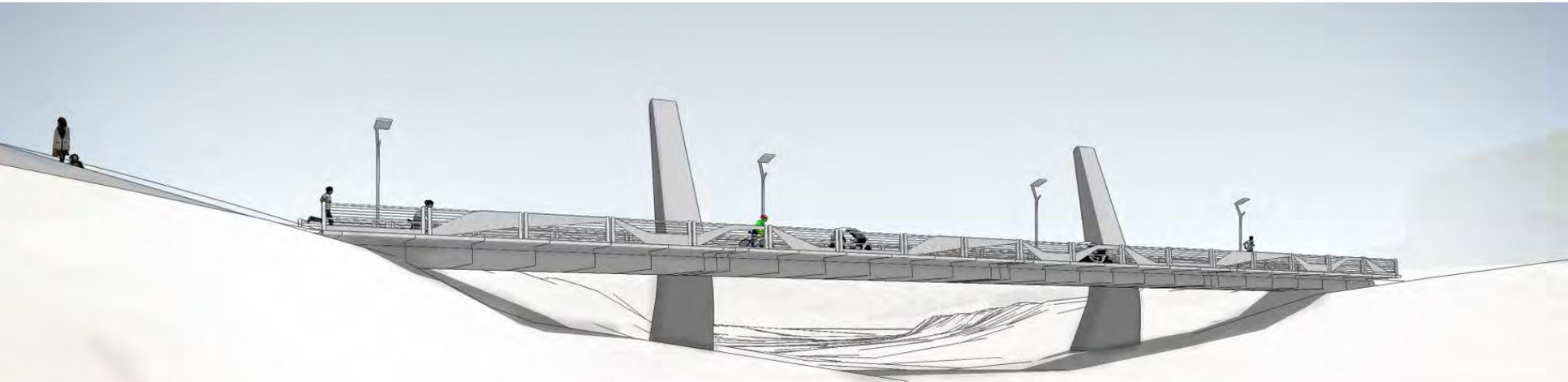
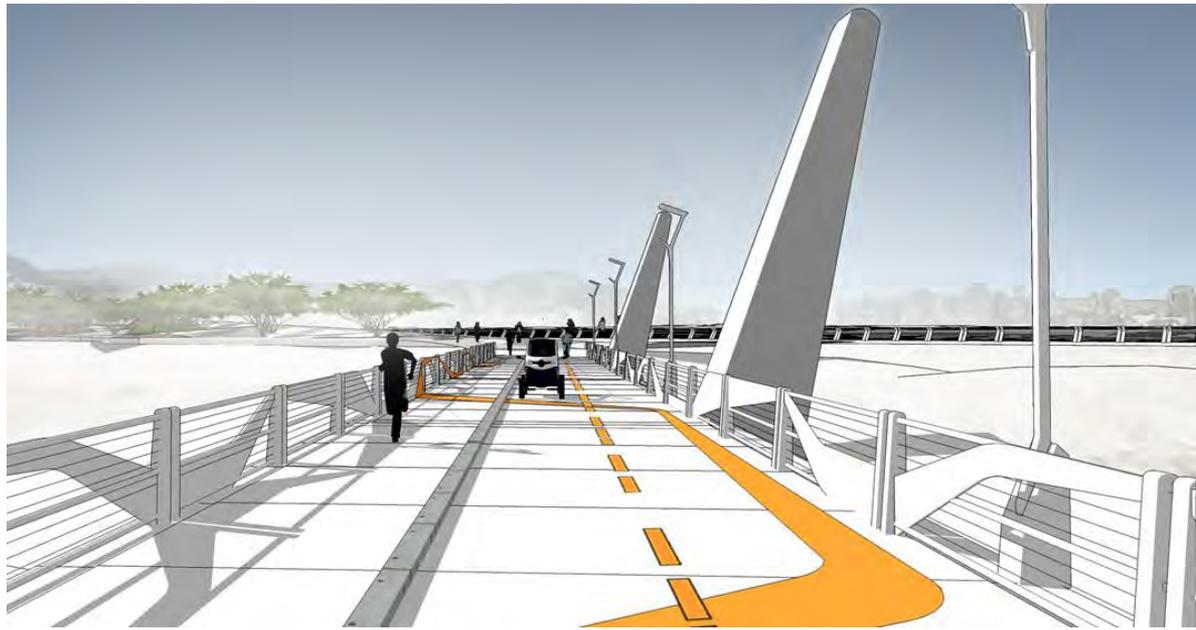


# Bridges at Roadways



*McAuliffe & Company*

# Bridges at Channels

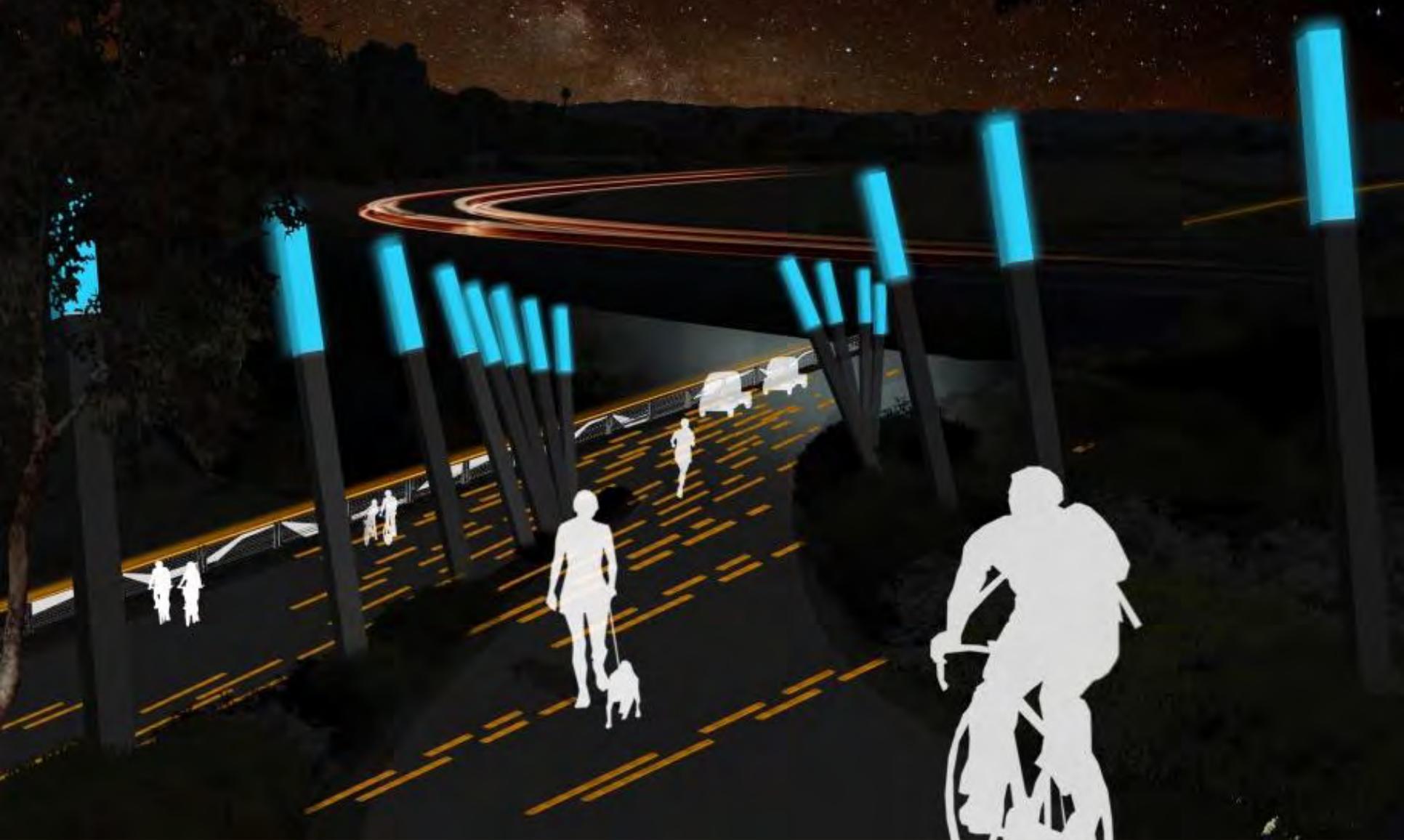


*Hermann Design Group*

# Underpasses



# Underpasses

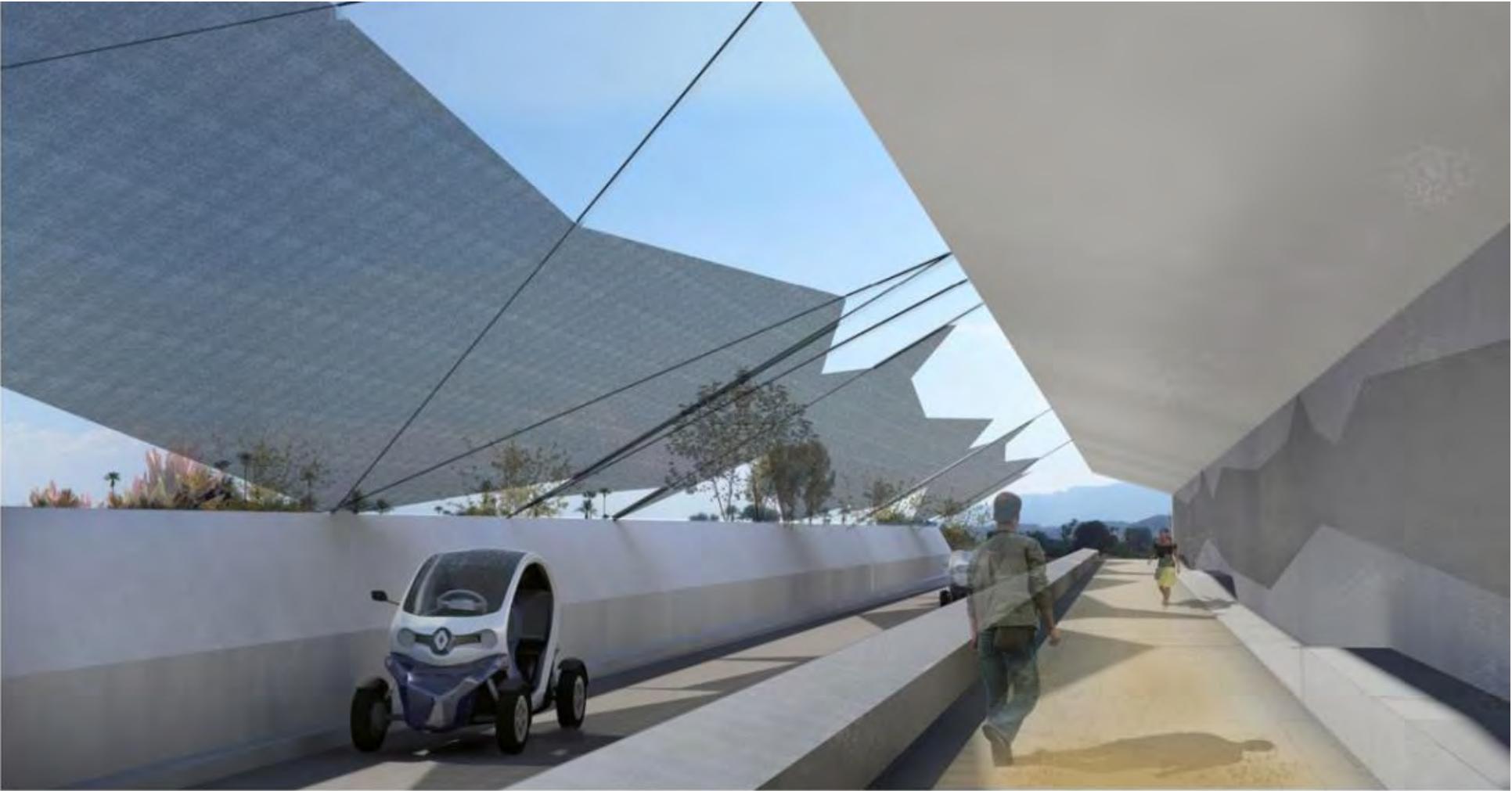


# Subterranean

Minimizes visual impacts  
and safety concerns



# Subterranean



*McAuliffe & Company*

# Interpretation + Education

## *Valley Innovations*

- Wind farms
- Solar
- Aerial Tramway
- PEV readiness
- Air quality monitoring
- Pathway user counts



# Art

- Alternative energy sources
- Interactive and inviting
- Light and digital projection
- Motion activated
- Wind, water, and solar themes



*Digital Art, Santa Clara*



*Energy Generating Art, Singapore*

# www.coachellavalleylink.com



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