

## OBSTRUCTIONS & SETBACKS: BRIDGES



The vertical clearance to obstructions across the width of a bike path shall be a **minimum of 8 feet and 7 feet over shoulder.**

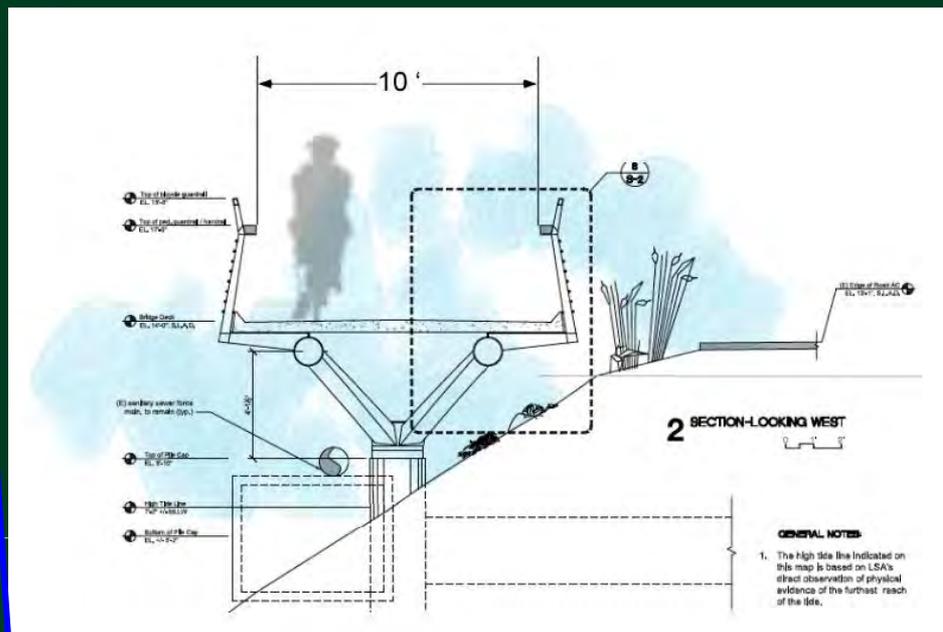
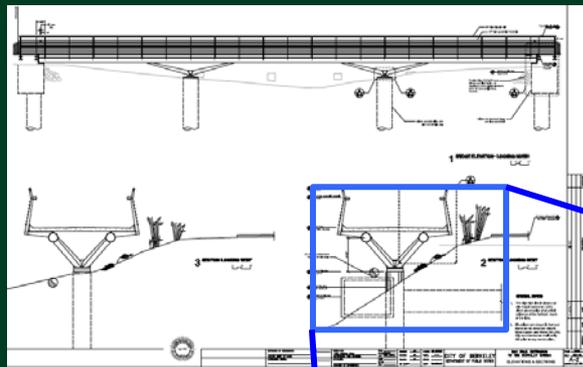
Source: CALTRANS HDM, Chapter 1000

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### OBSTRUCTIONS & SETBACKS

The clear width of a bicycle path on structures between railings shall be **not less than 10 feet**.



Source: CALTRANS HDM, Chapter 1000

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# OBSTRUCTIONS & SETBACKS: TUNNELS



# OVERVIEW

- Perspectives
- Design Standards, Guidelines, and Design Exceptions
- Planning and Space
- Design for Safety
- **Design for Sustainability**
- Summary



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### WHAT IS SUSTAINABLE DESIGN?



## A WELL-DESIGNED SUSTAINABLE BICYCLE PATH

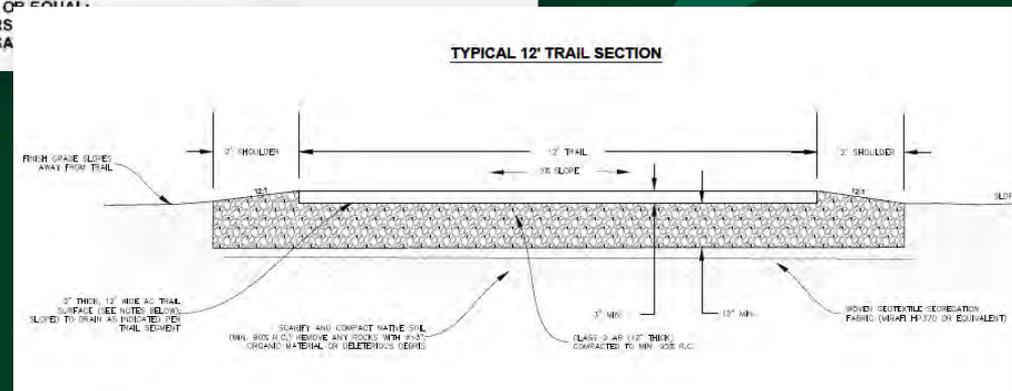
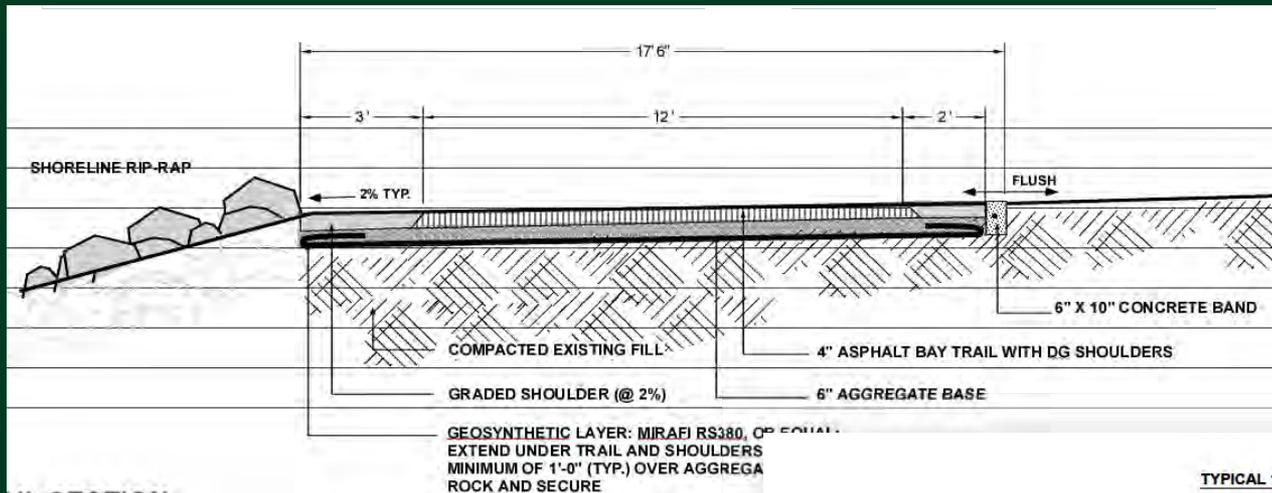
- Manages stormwater runoff (water quality)
- Adheres to or exceeds standards and references guidelines to:
  - Accommodate site conditions
  - Create path integrity
- Specifies materials that are durable (reduce life cycle replacement costs)
- Understands time and growth of related plantings

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# STRUCTURAL PATH DESIGN

- Soils and geotechnical recommendations



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### PATH SURFACES



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### PATH / MAINTENANCE

LOW

Concrete



Asphalt

HIGH

Stabilized DG / Rock

PATH



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### EDGING / MAINTENANCE

LOW      Flush Concrete Curb  
↑  
Wood Header Board  
↓  
HIGH      Native Soils

EDGING



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### SITING, GRADING, AND DRAINAGE



MOUNT VERNON TRAIL, VIRGINIA



AMAZON BIKE PATH, EUGENE, OREGON



PAUL DOUGLAS BICYCLE TRAIL,  
COOK COUNTY, ILLINOIS

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### DESIGN / MAINTENANCE



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### DESIGN / MAINTENANCE



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### PLANTING DESIGN, TIME, AND MAINTENANCE

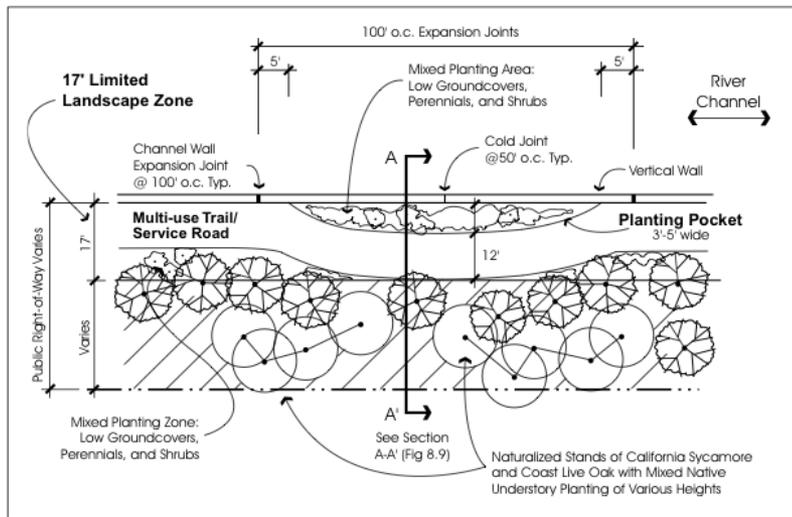
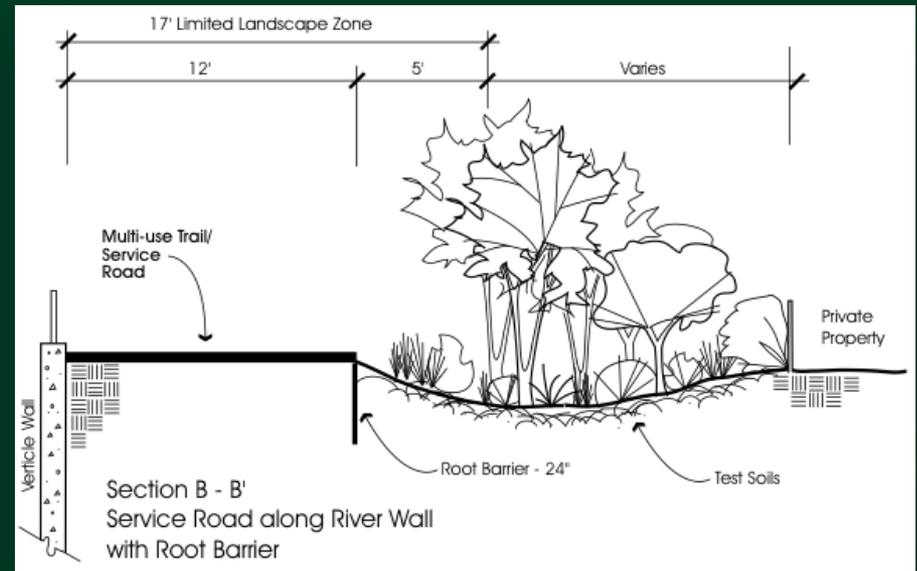


Figure 8.10 Design Guideline 3: Planting Patterns and Setbacks with Planting Pockets Along Trapezoidal & Rectangular Entrenched (Plan View)

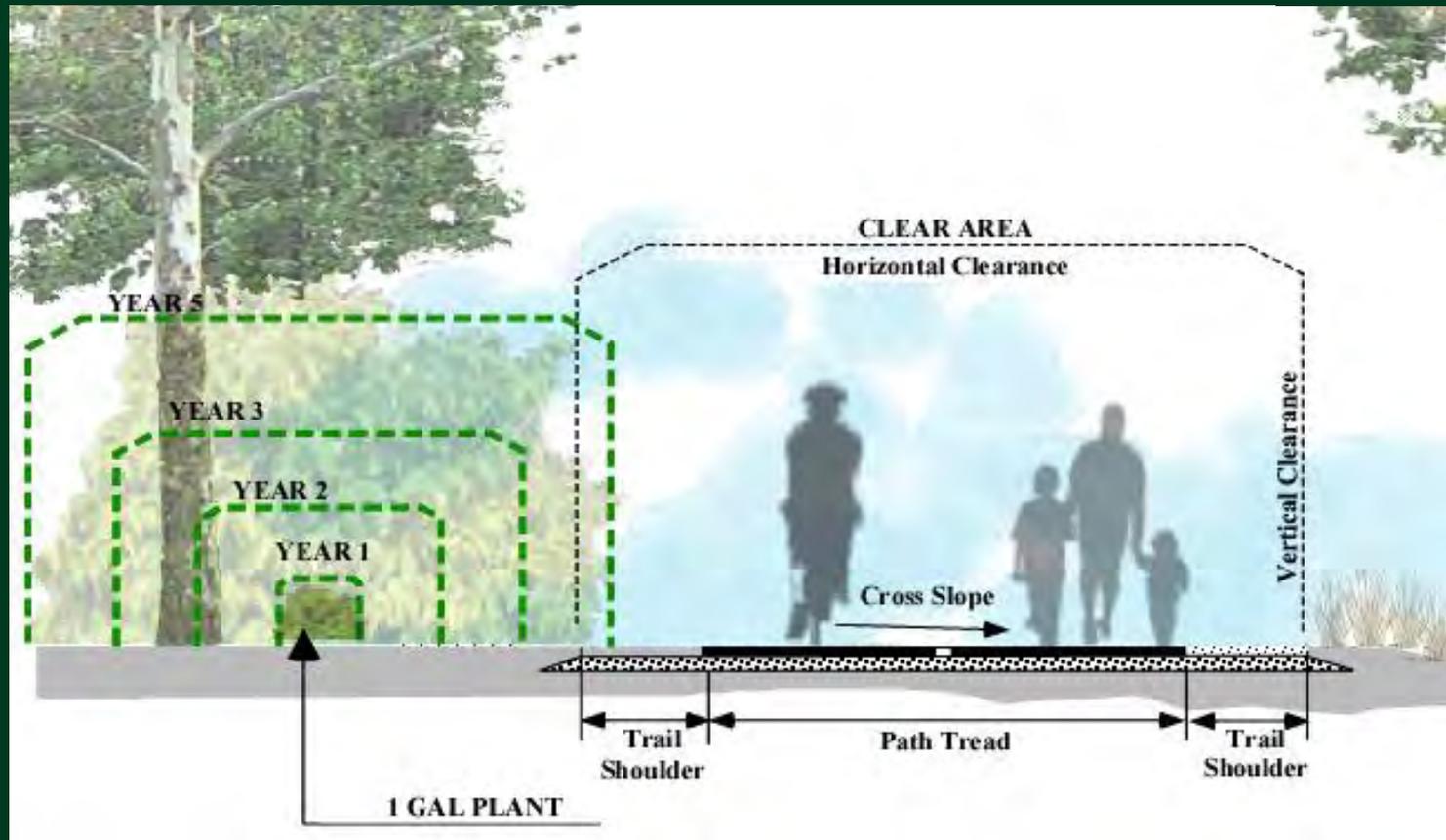


#### LOS ANGELES RIVER MASTER PLAN

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### PLANTING DESIGN, TIME, AND MAINTENANCE



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### OVERVIEW

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## PRIMARY GOAL – SAFETY

- Did the path design accommodate all “standards”? If not, what other design accommodations are being provided (e.g., signs/pavement markings/railings) ?
- Were design exceptions required? And documented?
- Did the design conservatively use the “guidelines”?
- Is the path signed for its intended use? Beginning to end?
- Are the path and sight distances clear of obstruction? If not, what other design accommodations (e.g., signs/pavement markings) are being provided?
- Are dynamic setting conditions considered (e.g., adequate drainage, planting growth habits)?

## LESSONS LEARNED

- Few actual “STANDARDS” and mostly guidelines for design . . . But important guidelines from a safety perspective.
- Controlling user behavior is not an absolute idea.
- More space is usually safer.
- Designing with safety in mind:
  - Reduces unintended consequences.
  - Guides and informs the user.
- Design for sustainability (and safety) involves a comprehensive perspective of space, materials, soils, adequate drainage, and plant growth dynamics.

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WHY THINK ABOUT SAFETY AND SUSTAINABILITY? HOW ARE  
THESE “PARTNERS”?



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