Stockton Bridge Debris Mitigation Project Update

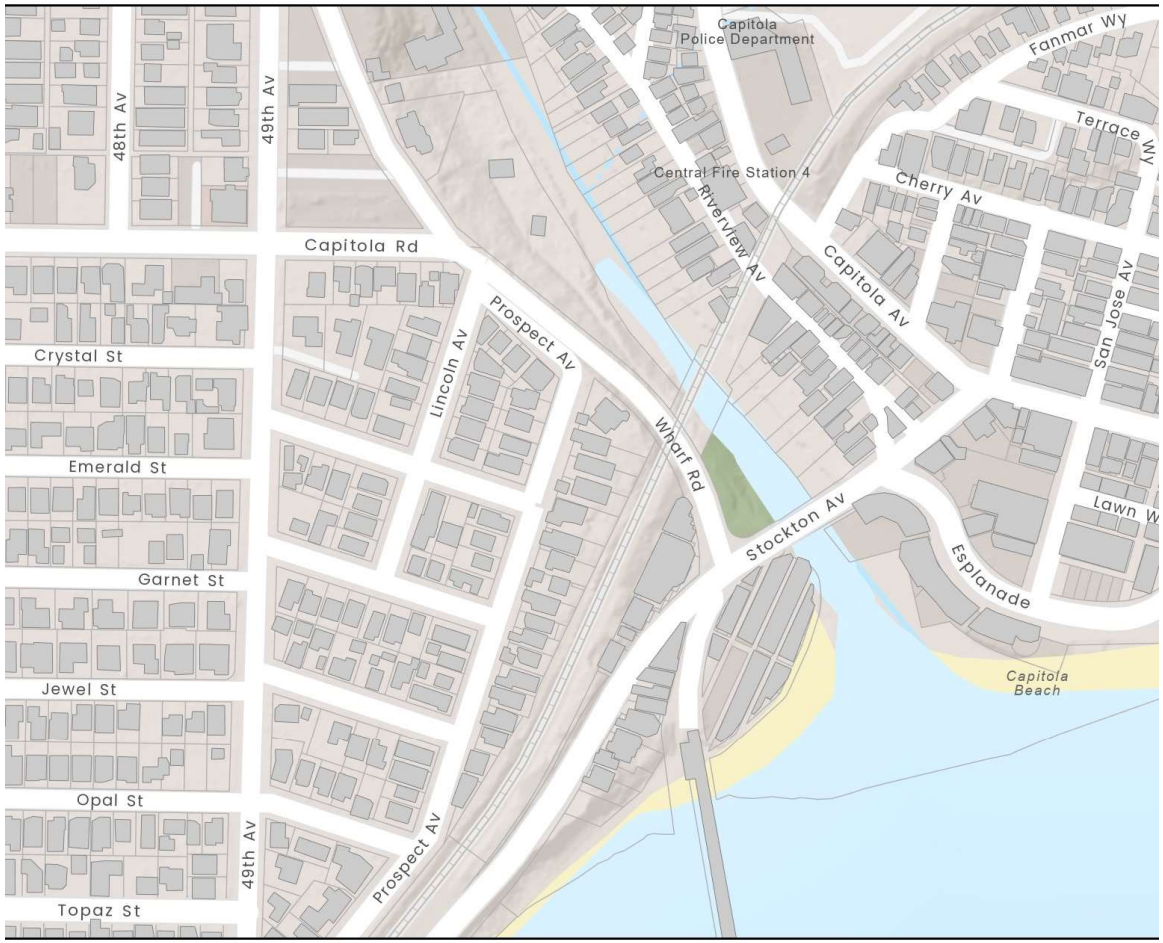
City Council

November 14, 2024

Stockton Bridge Debris Mitigation

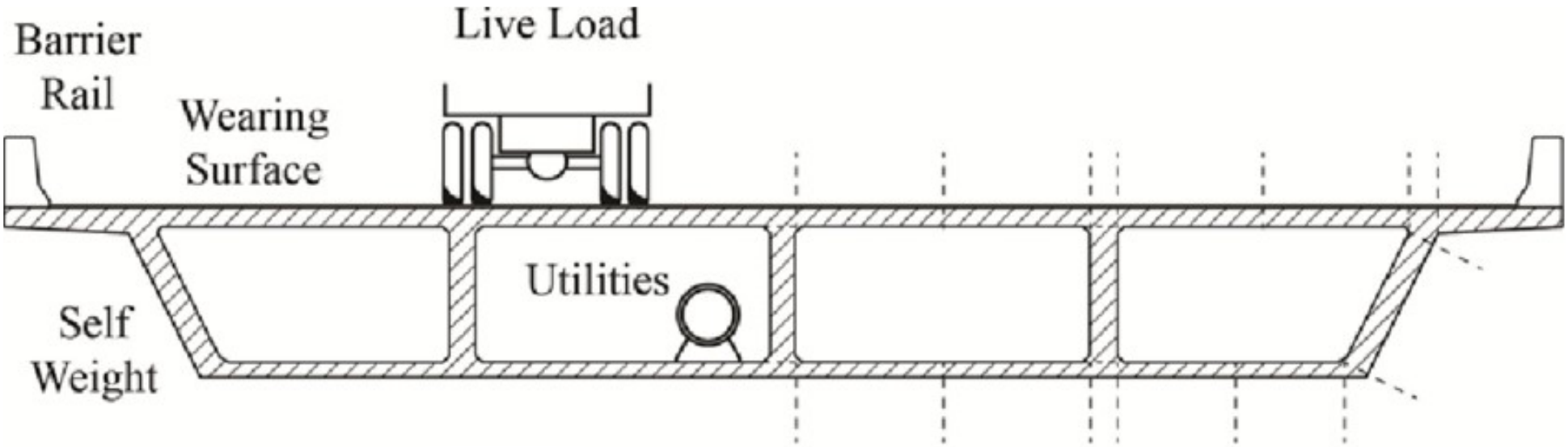
Background

- **Bridge ID**: 36C0110
- **Position**: End of the Soquel Creek watershed
- **Connectivity**: Sole Capitola crossing apart from the highway
- **Traffic Volume**: 15,000 - 20,000 ADT



Stockton Bridge Debris Mitigation

Background



- **Year Constructed**: 1934
  - Replaced an older iron and wood bridge; built by a 15-person WPA crew in ~150 days, costing $25,000
- **Structure**:
  - 3-span box girder design
  - Length: 138 ft (85 ft center span), Width: 42 ft
- **Current Condition**: “Fair” (Sufficiency Rating: 60.6)


EDGEWATER
DRUGS
STEAKS & CHOPS
POPPER GRILL
FISH AND STEAKS
SOQUEL CREEK
W-53
CAPITOLA, CALIFORNIA

Stockton Bridge Debris Mitigation

Historical Context

Earliest known bridge of its type in CA

Upstream bridges replaced

- Porter Street: 1947, replaced 1994
- Soquel Drive: 1955, replaced 2002
- Highway 1: 1947, replaced 1995

Long time flooding concerns

- Documented in City Council minutes as early as 1951
- Narrowest span is 10 ft; typical debris (e.g., fallen trees) measures 15–30 ft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Stockton Bridge Debris Mitigation
Project Identification and Funding

Project Identification

- **2013/2020 LHMP**: Identified as critical for flood management
- **2016**: Due diligence memorandum recommended debris fins; concept only report

Funding Milestones

- **FY 2022-23 Budget**: $350,000
- **AB 102**: Awarded additional $500,000 for evaluating and constructing debris diversion methods

Current Step

- Feasibility study to assess effective debris mitigation options

Stockton Bridge Debris Mitigation Feasibility Study

Professional Services Agreement CSW/ST2

Study Objectives

- Evaluate alternative mitigation measures
- Analyze debris flow patterns
- Assess hydraulic behavior

Additional Considerations

- Environmental impacts
- Permitting requirements
- Cost analysis

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Mitigation Options

1) Debris Diversion Fins

2) Debris Diversion Cage

3) Debris Diversion Piers

4) Debris Sweeper

5) Bridge Replacement

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Debris Diversion Fins

- Vertical or angled fins installed upstream to direct debris
- Reduces overall capacity and raises water level
- Significant maintenance required; high visual and ecological impact
- Least effective for flood risk reduction

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Debris Diversion Cage

- Cage installed upstream to divert and trap debris while allowing water flow
- Moderately effective, with potential for blockage
- Regular maintenance for small debris
- Effective for large debris control; less visually intrusive than fins; moderate cost

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Debris Diversion Piers

- Vertical structures installed at the bridge piers to redirect debris
- Hydraulically effective, may vary depending on flow conditions
- Requires regular maintenance
- Minimal visual impact; minimal impact on recreational activities

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Debris Sweeper

- Mechanical device that clears floating debris from the water to prevent buildup around piers.
- Limited effectiveness; high potential for failure
- Requires frequent maintenance and repairs

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Bridge Replacement

- Replace the existing with a free span bridge
- Requires significant funding and planning
- Most effective option for reducing risk and enhancing capacity
- Minimal environmental impact; preserves character while improving transportation and connectivity.

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Mitigation Option Summary

Option	Hydraulic Feasibility	Cost	Environmental Impact	Recreational Impact	Flood Risk Reduction
Debris Diversion Fins	Reduces capacity, raises water level	Moderate	Significant visual and ecological impact	High disruption	Least effective
Debris Diversion Cage	Feasible but risks blockage	Moderate	Moderate visual impact	Moderate disruption	Moderately effective
Debris Diversion Piers	Feasible with minimal blockage	Moderate	Minimal visual impact	Minimal disruption	Moderately effective
Debris Sweeper	Low effectiveness, high failure rate	Low	Minimal impact	Minimal disruption	Least effective, unreliable
Bridge Replacement	Most effective, improves flood capacity	High	Minimal impact, preserves aesthetics	Minimal disruption	Most effective

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Recommended Mitigation

Bridge Replacement

- Most effective long-term solution
- Increases hydraulic capacity and reduces flood risk
- Minimal environmental and aesthetic impact
- Temporary circulation impacts

If Directed

- Initiate planning and design for replacement
- Pursue state and federal grants
- Continue interim monitoring of debris accumulation

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Historic Significance & Community Heritage

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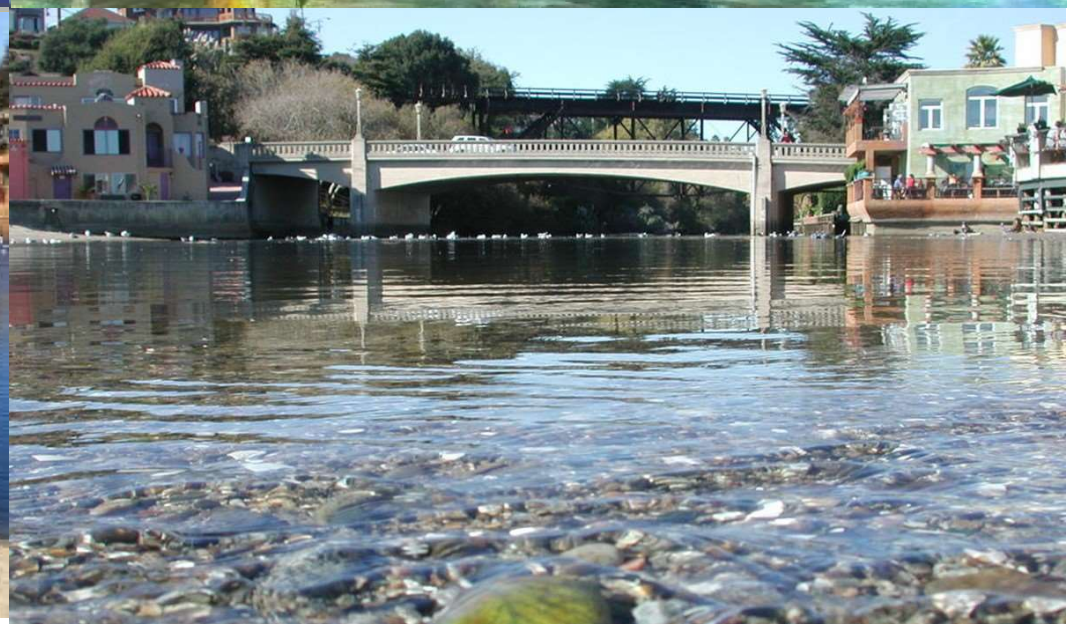
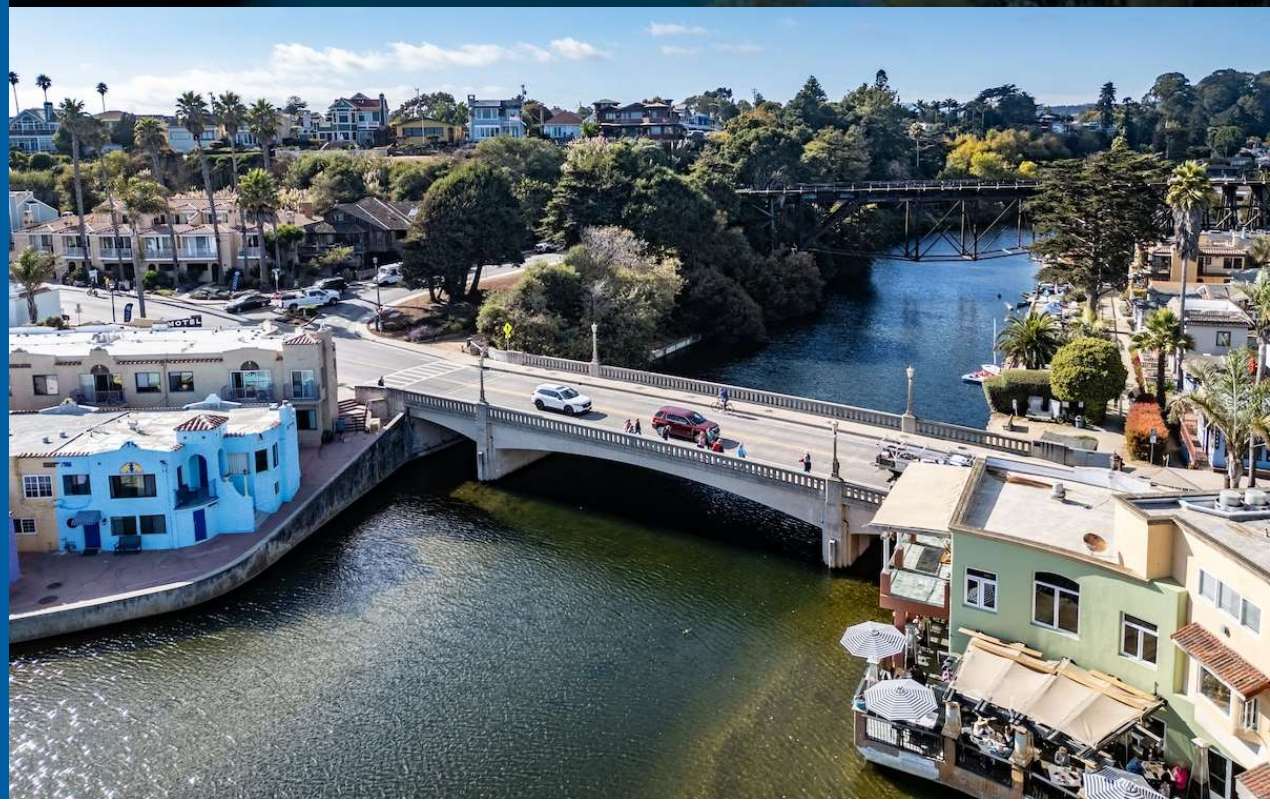
Artistic Landmark & Cultural Icon



Visual Impact & Community Character



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Transportation & Connectivity

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Transportation & Connectivity

Stockton Bridge Debris Mitigation
Long-Term Development Process

Multi-year effort to deliver a solution that honors the bridge's legacy while ensuring durability and community benefit.

Community Engagement: Regular input to align with local goals.

Environmental Compliance: Meets all regulatory standards.

Design & Engineering: Optimizes function, aesthetics, and resilience.

Funding: Ongoing pursuit of grants and resources.

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Fiscal Impact

Total Project Funding: $850,000

- **$500,000** from California Department of Water Resources (CDWR)
- **$350,000** from FY 2022-23 budget

Current Phase

- Covers design phase, pending CDWR approval

Next Steps

- Continue exploring additional funding sources for full implementation

Recommended Action

- Direct staff to utilize available funding to develop project plans/permits and solicit public feedback to rebuild Stockton Bridge to address flood risk and debris accumulation