

Bridging Conservation and Risk Reduction: Opportunities for Special Districts to Engage in Local Hazard Mitigation Planning

Leveraging Partnerships and Tools to Build Sustainable Programs

Environmental Law Institute Webinar

September 9, 2025



Equilibrium
Economics



Pairing Hazard Planning with Policy

Leveraging tools and activating partnerships

Partnerships, Funding, and Policy Case Studies

HEALTHY LANDS & HEALTHY ECONOMIES:

NATURE'S VALUE IN
SANTA CLARA
COUNTY

Measure Q – Parcel Tax (2014)
Instituted a \$24 annual parcel tax for 15 years

NATURAL INFRASTRUCTURE ASSESSMENT

CITY OF SNOQUALMIE

Surface Water Fee (2020)

Instituted a \$24 annual parcel tax for 15 years

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FEMA

MITIGATION POLICY – FP-108-024-01

I. TITLE:

Consideration of Environmental Benefits in the Evaluation of Acquisition Projects under the Hazard Mitigation Assistance (HMA) Programs

II. DATE OF ISSUANCE:

JUN 18 2013

III. POLICY STATEMENT:

FEMA Mitigation Policies (2013-2022)
Funding for drought, wildfire, flood mitigation

V. SCOPE AND APPLICABILITY:

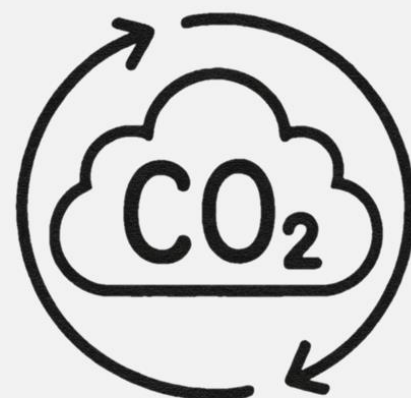
This policy applies to the Pre-Disaster Mitigation (PDM) and the Flood Mitigation Assistance (FMA) Programs for which the application period is open on or after the date of this policy and to the Hazard Mitigation Grant Program (HMGP) for major disasters declared on or after the date of issuance of this policy. Further, the policy only applies to property acquisitions for the purpose of open space and subsequent relocations or demolitions.

VI. AUTHORITY:

Sections 203 and 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) (42 U.S. Code [U.S.C.] §§ 5133; 5170c) authorize the PDM Program and HMGP, respectively. Section 1366 of the National Flood Insurance Act of 1968 (NFIA), as amended by the Biggert-Waters Flood Insurance Reform Act of 2012, (42 U.S.C. § 4104c) authorizes the FMA Programs. Regulations that implement the HMGP can be found at Title 44 Code of Federal Regulations (CFR) §§ 206.430–206.440. The FMA Program regulations can be found at Title 44 CFR Part 79. Regulations for property acquisition and relocation for open space can be found at Title 44 CFR Part 80. General requirements for BCA can be found in the Office of Management and Budget's (OMB) Circular A-94, *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*.



Recreation Model



Carbon Model



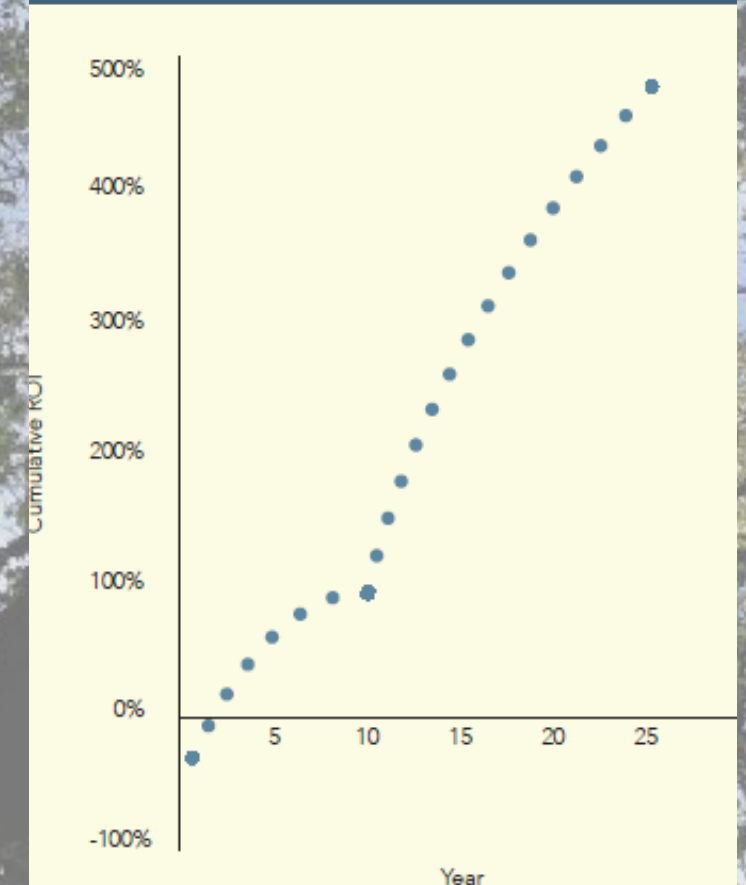
Ecosystem Service Framework

Case Study: Conservation District of Santa Cruz

TABLE 8: Summary of Bokariza MAR ROI Results

Cumulative Costs	Year 1	Year 5	Year 10	Year 15	Year 20	Year 25
Maintenance Costs	\$5,000	\$25,000	\$50,000	\$75,000	\$100,000	\$125,000
One-time Costs	\$70,000	\$70,000	\$70,000	\$70,000	\$70,000	\$70,000
Opportunity Costs	\$15,224	\$76,120	\$152,240	\$228,360	\$304,480	\$380,600
TOTAL	\$90,224	\$171,120	\$272,240	\$373,360	\$474,480	\$575,600
Cumulative Benefits	Year 1	Year 5	Year 10	Year 15	Year 20	Year 25
Water Supply	\$49,590	\$247,950	\$495,900	\$1,406,250	\$2,316,600	\$3,226,950
Flood Control	\$446	\$2,230	\$4,460	\$6,690	\$8,920	\$11,150
Habitat	\$960	\$4,800	\$9,600	\$14,400	\$19,200	\$24,000
Total	\$50,996	\$254,980	\$509,960	\$1,427,340	\$2,344,720	\$3,262,100
TOTAL	\$50,996	\$254,980	\$509,960	\$1,427,340	\$2,344,720	\$3,262,100
Cumulative ROI	Year 1	Year 5	Year 10	Year 15	Year 20	Year 25
	-43%	49%	87%	282%	394%	467%

FIGURE 7: Cumulative Return on Investment of Bokariza MAR over Years 1-25



Case Study: Conservation District of Santa Cruz



Policy: Measure Q

Santa Cruz County-wide parcel tax
\$87 annual per parcel
\$7.5M per year

Case Study: City of Snoqualmie

TOTAL ANNUAL VALUE OF ECOSYSTEM SERVICES PROVIDED BY THE CITY-OWNED PORTION OF SNOQUALMIE'S URBAN FOREST:

Ecosystem Service	Low	High
Stormwater Retention	\$5,760,484	\$7,079,149
Carbon Sequestration	\$45,820	\$81,213
Water Quality	\$57,472	\$147,305
Total	\$5,863,776	\$7,307,668

\$5.8M
TO
\$7.3M

**ANNUAL DOLLAR
VALUE (IN MILLIONS) OF
EVALUATED GOODS AND
SERVICES GENERATED BY
PUBLIC FORESTS**

Case Study: City of Snoqualmie

Policy: Ordinance 1198 Amendment

Expanded the list of eligible utility-funded activities to include forest management

+\$4.7M to +\$5.7M increased funding from the stormwater fee increase

King
Conservation
District

City of
Tukwila

City of
Snoqualmie

Case Study: Hazard Mitigation Applications



June 2013

Mitigation Policy FP-108-024-01

2013

Introduction of ecosystem services in PDM and HMA grants using BCA tool

2016

Creation of Climate Resilient Mitigation Activities enabling water storage (aquifer storage) valuations

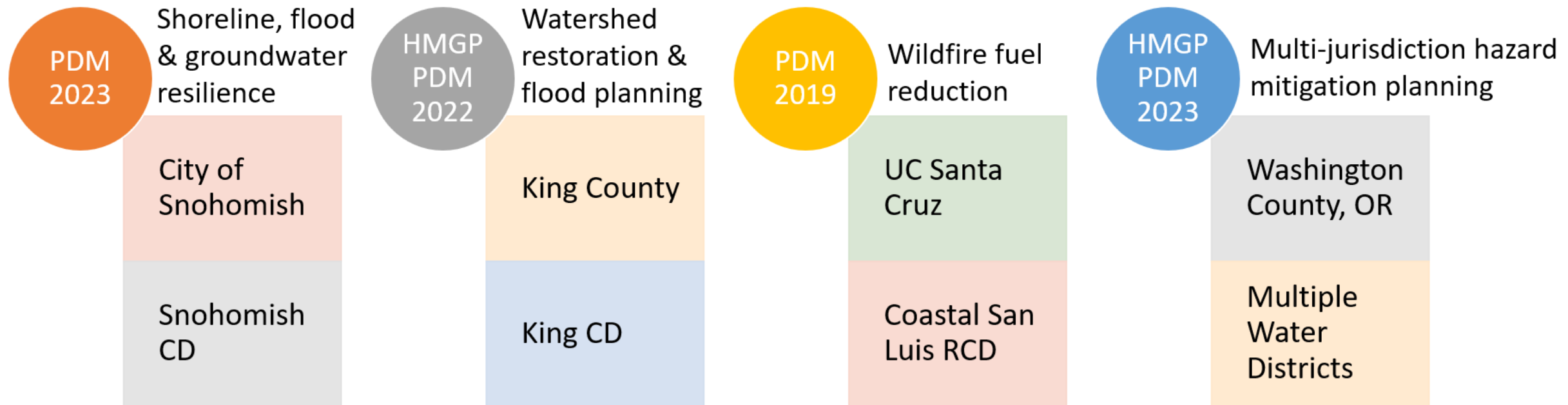
2017

Drought and wildfire mitigation projects become valid as CRMAs

2021

FEMA updates original 2013 values for more robust valuation and inclusion of more land cover types

Examples of CD Collaboration in Hazard Mitigation





Other Applications of Ecosystem Service Framework

- Asset Management: Capital Investment Portfolio and Operating Budgets
- Risk Modeling: Monetizing Risk Abatement with BMPs
- Compost Program: Return on Investment of Compost and Biosolids Applications
- Tree Regulation: Using Ecosystem Service Value to Inform Tree Canopy Management and Critical Areas

Thank you



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