

Napa Wildfire Resilience System

Phase 1 findings and the Phase 2 pathway

Moving investment upstream: from prevention and resilience to durable funding - and, where justified, investment



North Star

Move more capital and funding upstream, before disaster strikes, and deploy it in the forms that deliver the greatest equitable resilience impact.

Report position

Napa already has a strong and unusually capable resilience platform. Phase 1 has clarified how to strengthen, sustain and amplify that work, and the pathway by which an Optimization Bond architecture could coordinate existing resources and, where justified, leverage additional investment. Phase 2 should test the critical links. **The destination is not predetermined; the route is now clear.**

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Report position at a glance

Question	Current answer
What is the North Star?	Move more resources upstream, before disaster, and deploy them to achieve the greatest equitable resilience impact.
Does Phase 1 accurately reflect Napa's existing work?	Yes. Napa already has substantial delivery capability, investment, planning, data and institutional momentum. The unresolved issue is how to evidence, aggregate and sustain the value that work creates.
Is Napa ready to move forward?	Yes - to a bounded Phase 2 validation program that strengthens the underlying resilience system while testing the funding and financing pathway.
Is there a viable Napa-scale investment proposition today?	Not yet. No issuer/obligor, durable repayment source or investable cash flow for a Napa-scale resilience financing proposition has been established. That is a financing-maturity finding, not a judgment on resilience value.
Can Napa move before a statewide issuance?	Potentially. Phase 2 should test a Napa-scale implementation of the wider financing architecture: coordinating existing public, philanthropic and private resources, while testing whether a resilience facility, municipal/public financing, service-payment structure, dedicated local revenue, blended facility or Napa Resilience Bond can add durability and leverage.
Is insurance aggregation still central?	Yes. Phase 2 should explicitly test whether many community- and property-scale insurance effects can be aggregated into institutionally meaningful portfolio value and, if appropriate, a durable contribution to resilience.
Must the result be a bond?	No. A conventional bond issuance is not a prerequisite. However, Phase 1 suggests that an Optimization Bond architecture is the most promising medium- to long-term direction: an organizing structure that can coordinate and optimize existing public, philanthropic and private resources, aggregate durable institutional commitments, and leverage additional investment where that improves scale, timing or resilience. A bond issuance would become appropriate only when the necessary cash flows, issuer/obligor and credit conditions have been demonstrated.

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1. Executive summary

Napa has a substantial and increasingly sophisticated wildfire-resilience system. The central opportunity is to protect, connect and amplify that work, move more resources upstream into prevention and resilience, and test whether the resulting value can support more durable funding and, where justified, a genuine investment proposition. [1-9; 32; 42; 70-76; 77-78; 85; 105-111; 117-128; C1-C3]

Napa is a particularly strong place to undertake that validation because much of the difficult delivery work already exists: active public agencies and local organizations, a defined Enhanced Resilience Site (ERS) approach, a substantial treatment history, planning and incident evidence, watershed and infrastructure assets, engaged landowners, and real insurer and utility interest. Phase 2 does not need to invent a resilience system from scratch. It can focus on where targeted additional intervention and sustained maintenance create disproportionate system value. [1-9; 85; 105-111; 117-128; C1-C3].

Central Phase 1 finding

Napa does not have a resilience-value problem. It has a value-transmission challenge: how to evidence where resilience value lands, aggregate it where appropriate, and translate enough of it into durable resources that can sustain and scale upstream investment.

The project therefore has two connected pathways

The first is the pathway to stronger prevention and resilience outcomes: select the right interventions, define maintenance and service levels, measure performance, understand cross-system effects and direct resources toward the places where they create the greatest equitable benefit.

The second is the pathway to a real investment opportunity: verified performance -> recognized beneficiary value -> lawful and durable institutional commitments -> an appropriate capital structure -> investable cash flows, if justified.

In this report, the Optimization Bond is best understood as the organizing financing architecture, not simply the final security. Its potential value is to optimize and connect resources already in the system, fill persistent funding and maintenance gaps, aggregate otherwise fragmented sources of value and commitment, and bring in additional repayable capital only where the evidence supports it. On balance, Phase 1 suggests this is the leading medium- to long-term hypothesis for Napa; Phase 2 must test what the architecture should contain and whether any conventional issuance is warranted.

The water/wildfire nexus should be treated as a core Phase 2 lens. Napa's public evidence connects wildfire to watershed degradation, sediment and pollutant movement, reservoirs and drinking-water sources; the City CWPP and current Napa RCD work also point toward Lake Hennessey as a potentially important cross-boundary proof point. The March 2026 Napa RCD material describes proposed watershed and forest resilience treatments around Lake Hennessey, linked to wildfire risk, drinking-water protection, a PG&E utility line and long-term maintenance. A new Lake Hennessey sub-watershed group is also forming around climate resilience, wildfire preparedness and long-term stewardship. [10-12; 36-50; 56-61; 77-78; 126-128; 131-132]

The power-system lens is equally important, but more specific. The strongest Phase 2 opportunity is not generic power generation. It is the interaction between transmission/distribution infrastructure, utility corridors and rights-of-way, access and egress, containment, detection, outage avoidance and maintained landscape resilience. PG&E stakeholder evidence identifies reduced fire consequence, increased containment and avoided ignitions as top-value outcomes, with avoided outage, infrastructure damage,

operational access and future vegetation-management or event-response costs also relevant. PG&E has also described a hypothetical municipal “grand bargain” in which maintained resilience commitments could, subject to evidence and authority, support utility participation or co-funding. This is a hypothesis to test, not a PG&E commitment. [13; 66; 117-123; 129; C1]

Insurance aggregation is another explicit Phase 2 test. The goal is not to turn household premium savings into assumed cash flow. It is to test whether many property- and community-scale mitigation effects can be made visible at neighborhood, resilience-zone, insurer-book or portfolio level; whether they change expected loss, tail risk, concentration, eligibility, capacity, reinsurance or another institutional variable; and whether that aggregate value could support a durable institutional action. Household benefit, insurer portfolio value, program revenue and contracted repayment cash flow must remain separate. [21-25; 90-93; 112-116; 130]

Phase 1 also shows that the value at stake is broader than insured property or public assets. Napa's tourism economy generated \$2.8 billion of total economic impact in 2025 and supported about 15,300 jobs; the 2025 Pickett Fire produced preliminary agricultural loss estimates of at least \$65 million. These figures are context, not avoided-loss coefficients, but they show why business continuity, working lands, access, smoke and destination confidence matter to the resilience case. Phase 1 also identifies an emerging local resilience economy - treatment and maintenance capacity, home hardening, monitoring, prescribed fire and grazing, and potential productive uses for woody residues - that Phase 2 can test without assuming a bankable new revenue stream. [17; 51-53; 65; 136; 140-142]

The social and public-health pathways are also material. Napa County issued a health advisory during the Pickett Fire because smoke was expected to reach unhealthy levels around Calistoga, Pope Valley and Howell Mountain. State evidence links wildfire smoke to respiratory and cardiovascular harm and shows a sharp increase in smoke exposure across California; it also notes disruption to healthcare, education, employment and housing, with longer-lasting effects often falling on lower-income communities. Napa's aggregate wealth therefore should not obscure differences in exposure, ability to self-protect, housing security and recovery capacity. [53; 84; 103-104; 137-139]

The policy environment is increasingly aligned with the same upstream-investment challenge. Proposition 4, the California Safe Homes Act, the public wildfire catastrophe-model law, Climate Resilience District legislation and the 2026 SB 254 Natural Catastrophe Resiliency Study all create useful enabling conditions. None, however, automatically supplies the long-duration maintenance, multi-beneficiary coordination or investable cash flow that Napa is trying to solve. Phase 2 can therefore act as a practical local implementation test of a live statewide policy agenda. [115; 142-147]

The pathway to capital should also operate on more than one horizon. Napa does not need to wait for a statewide Optimization Bond. Phase 2 should test whether an earlier Napa-scale mechanism - for example a resilience facility, municipal/public financing, dedicated revenue, service-payment structure, blended facility or Napa Resilience Bond - could sustain selected interventions if the evidence and legal/financial structure support it. The proposed Measure B is relevant context because it would, if approved by voters, create a locally controlled funding source for wildfire preparedness, watershed protection and open-space preservation. It is not current funding and should not be assumed in the base case. [67; 114-115; 133-135]

Phase 2 can help participating organizations understand where Napa's resilience activity creates value for them, what additional evidence or coordination could unlock further action, and how those contributions could help accelerate a more durable upstream investment model.

For investors, there is no investment ask today. The value of the Napa Demo is that it can show how an already strong resilience platform can progress toward a well-evidenced financing architecture, durable cash flows, the Full Feasibility Study and, if justified, a Napa-scale or wider issuance. [124; C1]

2. What Phase 1 did

Phase 1 was designed to test whether Napa has a credible resilience system and a serious route to sustained upstream funding - building on, connecting, amplifying and leveraging the substantial programs and investments already in place.

2.1 The Phase 1 work

- Built a traceable public evidence base, source register and claim-boundary system covering wildfire, treatment activity, community resilience, water, infrastructure, insurance, public finance and delivery capacity.
- Mapped the local delivery ecosystem, treatment history, ERS engagement pipeline and operating workflow, planning context, incident learning and candidate beneficiaries.
- Integrated Napa Firewise and PG&E stakeholder evidence within explicit use boundaries, without treating it as public policy, technical standard or payment commitment.
- Identified candidate Phase 2 work packages and the evidence needed to validate intervention performance, maintenance and institutional value.
- Tested beneficiary, payer, funding and capital hypotheses without turning potential economic value into assumed program revenue or repayment cash flow.
- Tested in sequence value creation, resource mobilization, capital-pathway selection and financeability.
- Tested broader economic, social, public-health and policy pathways to understand where resilience value extends beyond direct asset protection and what remains to be evidenced.

2.2 What Phase 1 did not do

- It did not independently verify individual ERS certificate status, treatment quality, current condition, maintenance performance or wildfire-risk reduction; Napa Firewise operational definitions and workflow are treated as controlled source-owner evidence, not independent certification.
- It did not produce insurer pricing, coverage, underwriting, catastrophe-model or reinsurance conclusions.
- It did not establish PG&E cost savings, liability reduction, approved cost recovery, technical standards or a utility payment commitment.
- It did not establish hydrologic or water-utility avoided costs for a selected intervention package.
- It did not quantify a Napa-wide economic multiplier, social or public-health benefit, or treat a resilience-related value chain as a bankable revenue source.
- It did not select a district, assessment, fee, public issuer, obligor or repayment source.
- It did not size a Napa Resilience Bond or statewide Optimization Bond, determine debt capacity or seek investor commitments.

These are the specific evidence, authority and commitment questions that Phase 2 is designed to answer - or reject.

3. Napa already has a strong resilience platform

Napa does not begin with a blank sheet. It already has delivery capability, investment, planning, data, institutional relationships and community engagement that many jurisdictions would first have to build. That existing platform is the reason a more advanced financing test is credible here.

3.1 Local delivery and stewardship

Napa Firewise and Valley Stewards provide the clearest organizing route for community-scale action, including the ERS framework and resilience-zone thinking. Napa RCD adds forest health, planning, prescribed fire, roads, watershed, soil and agricultural capability. County, City, fire, open-space, land-trust, grower and other partners add planning, emergency management, asset ownership and delivery roles. [1-9; 15-16; 26-31; 70-76; 77-78; 79-83; 84; 88-89; 105-111; 122]

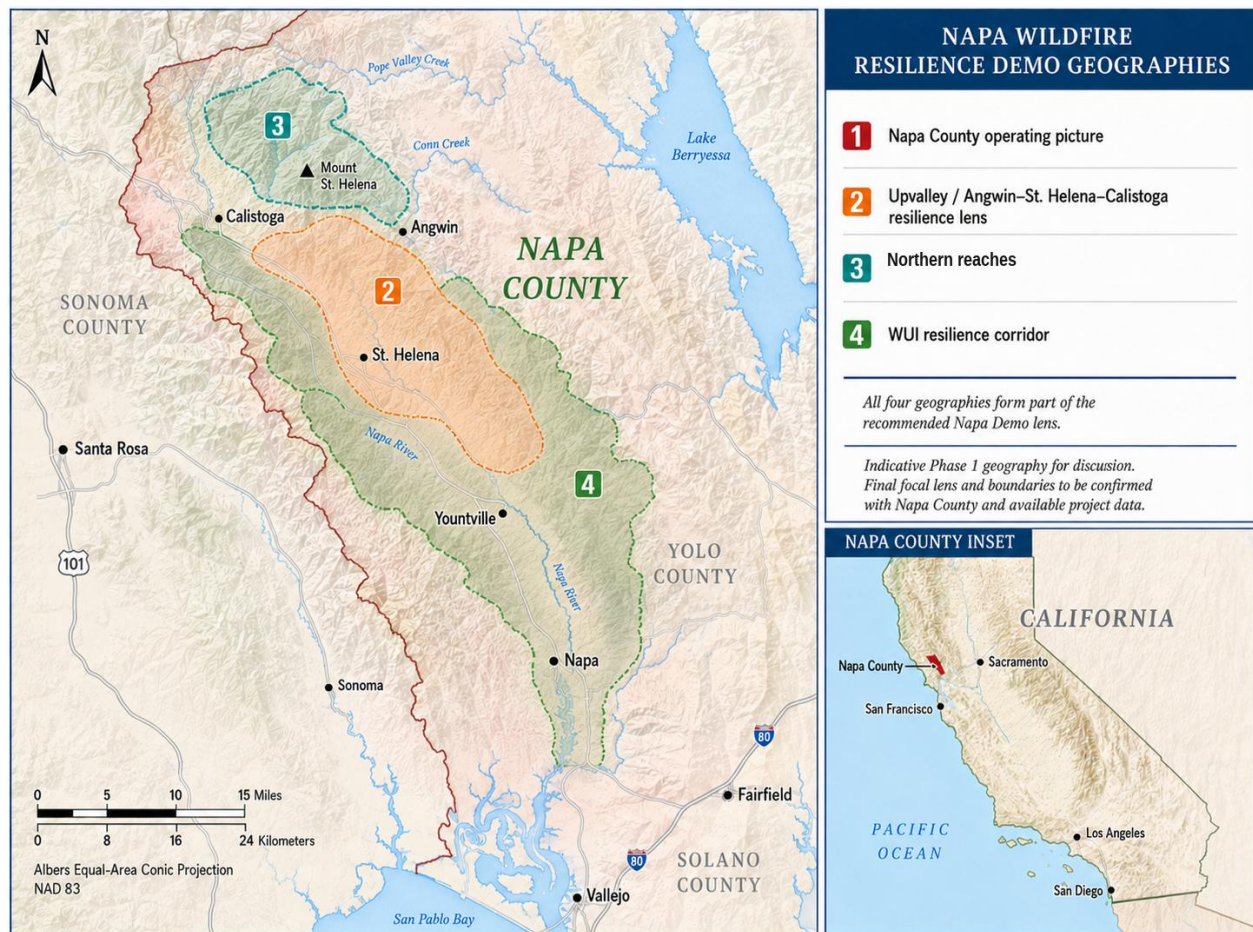


Figure 1. Napa Phase 1 demonstration geographies and evidence focus. Strategic orientation only; not an operational or project-approval map. [7; 32-41; C3]

3.2 A visible activity and project pipeline

The controlled ERS pipeline contains 552 parcel records and 551 unique assessor parcels. The source extract records 408 parcels as In Progress and 144 as Integrated. Napa Firewise describes the operating meaning as follows: In Progress means the ERS process is underway but certification is not complete; Integrated means the ERS has been signed off and a Napa Firewise/Fire Agency ERS certificate has been issued. The pipeline is useful for cluster selection and strategic screening, subject to permission and privacy controls. This alone is not parcel-level treatment or outcome evidence. The official California treatment extract provides a second anchor: 393 activity-level records, 54 projects, 99 treatments and

approximately 6,200.1 all-years dissolved acres. It confirms a substantial historical delivery footprint, while leaving current condition, connectedness, maintenance, cost and outcome to be resolved locally. [85; C2-C5]

The significance is not the acreage or parcel count alone. Napa has a visible base of real activity from which Phase 2 can select bounded clusters, corridors or watershed packages rather than inventing projects on paper. At the same time, the evidence exposes the questions that matter next: current condition, connectedness, cost, maintenance, treatment age and whether activity produces a measurable resilience service. [85; 105-111; C2-C3]

ERS operating cycle and certification

The operating model is becoming more repeatable. Napa Firewise reports that it is currently bringing approximately 10-15 new landowners into the ERS process each month and that integration typically takes about 30-60 days, depending on parcel size, evidence and site-review requirements. Certificates are valid for one year. Napa Firewise is moving toward batched assessment and renewal, with most certificates intended to be issued in February and March so that current status is available ahead of the main insurance-renewal period. These figures describe the operating position as of 27 August 2026; they are not guaranteed service levels or forecasts. [C4]

The workflow described by Napa Firewise is:

1. Landowner expresses interest.
2. Intake begins and the landowner supplies activity evidence, geography and related information.
3. Napa Firewise conducts a desktop review.
4. Preliminary ERS approval is given where appropriate.
5. A site visit is completed and activities are interrogated; larger parcels may require more than one visit.
6. Napa Firewise builds the relevant data layer.
7. Evidence is passed to CAL FIRE and the Fire Chief for sign-off.
8. The evidence is incorporated into Tablet Command.
9. A Napa Firewise/Fire Agency ERS certificate is issued and the ERS information is incorporated into the Master Resilience Plan.

This matters for Phase 2 because the annual certification cycle creates a potentially useful cohort structure: a current, time-stamped resilience status can be compared with subsequent insurance renewal and other institutional decisions, provided carrier, policy, data-rights and attribution controls are agreed in advance. [C4-C5]

3.3 Plans and incident learning are increasingly actionable

The PIRS Napa case study, City of Napa CWPP, General Plan work and Pickett Fire learning now create a stronger route from planning to bounded Phase 2 packages. The Pickett evidence is particularly useful for questions around maintained roads, containment lines, fuel-reduction projects and operational constraints. It remains a learning case, not a quantified causal claim. Phase 2 should make the transition explicit: state and local priority -> plan / CWPP action -> delivery pipeline -> selected project or maintained service -> verified outcome. That crosswalk should show what is already funded or required, what is genuinely additional, who owns delivery and maintenance, and what evidence is needed before capital is attached. [10; 18; 19-20; 86-87; 111; 125-128]

3.4 Maintenance is the investment challenge hiding in plain sight

A recurring Phase 1 signal is that wildfire resilience is not a one-off capital project. Fuel breaks, roadside access, utility corridors, home and parcel hardening, crew capacity, source-water protection and other measures lose value if condition is not inspected, renewed and maintained. PG&E stakeholder evidence is

particularly clear: ongoing corridor and pole maintenance, ingress/egress treatment, maintained crew capacity and strategic fuel breaks are among the practical conditions for sustained utility value. [77-78; 94; 117-123; C1]

This frames the financing challenge. The opportunity is to protect and amplify successful grant-funded and public programs by giving selected resilience assets a defined service level, lifecycle, renewal cycle and evidence standard. A durable financing architecture may add value where it bridges funding cycles, maintains performance between grants, or brings beneficiaries into a shared long-term service. Phase 2 should therefore define maintenance economics before it tests debt.

3.5 Water is part of the wildfire-resilience system

Wildfire and water are connected in both directions. Fire can damage vegetation and soils, increase erosion, sediment and pollutant movement, threaten reservoirs and source waters, and increase post-fire flood or debris-flow risk. Water systems, storage, pumps, access and source-water protection are themselves critical resilience assets. Napa's public sources already connect these issues across the Napa River watershed, Lake Hennessey, Milliken Reservoir and post-fire recovery. [10-12; 36-50; 56-61; 100; 126-128]

The Lake Hennessey opportunity has become more concrete. Napa RCD's March 2026 board material describes a proposed cross-boundary forest and watershed resilience project intended to protect the Lake Hennessey watershed and the City of Napa's primary drinking-water source, reduce fuels around key infrastructure, connect to existing treatment along a PG&E utility line and establish long-term maintenance. In August 2026, local partners also began forming a Lake Hennessey sub-watershed group around climate resilience, wildfire preparedness and stewardship. These developments make water a core Phase 2 lens and Lake Hennessey a candidate proof point - subject to sponsor, owner and technical validation. [131-132]

3.6 Power-system resilience is a core interface - generation is conditional

PG&E's own public work and stakeholder input point to a specific utility-resilience proposition: wildfire prevention and maintained landscape/community resilience around transmission and distribution assets, utility corridors, rights-of-way, access/egress routes and containment features. The top outcomes identified through stakeholder engagement are reduced fire consequence, increased containment and avoided ignitions; avoided outage, asset damage, operational access and future utility costs form a second tier. [13; 66; 117-123; C1]

That makes transmission/distribution and grid resilience a mandatory Phase 2 lens. Distributed generation, storage or microgrids should be considered only where a selected work package demonstrates a specific critical-service or continuity need. Conventional generation is not, on current evidence, a core Napa workstream.

This also connects directly to California's evolving utility policy framework. SB 254 requires utility wildfire-mitigation planning to take account of the time required to deploy mitigations and the risk reduced for the cost, and adds cost-efficiency measures including cost-per-avoided ignition where feasible. That makes the Phase 2 distinction between PG&E's regulated baseline duties and any incremental shared-benefit resilience service especially important. [147]

3.7 Insurance is relevant at community and portfolio scale

California policy and market sources, together with Napa Firewise evidence, support a serious insurance question but not a simple premium-savings model. Community mitigation may affect household protection, insurance availability, underwriting, concentration, expected loss, tail risk, reinsurance and

portfolio capacity. The challenge is whether those dispersed effects can be recognized and aggregated at an institutional scale, and whether any resulting institutional action is durable enough to help sustain resilience. The emerging annual ERS certification / renewal cycle could provide a useful cohort structure for this test, but only if carrier, policy-type, renewal, coverage and attribution data can be used appropriately. [21-25; 90-93; 112-116; 122; 130; C4]

3.8 Economic value extends beyond avoided property loss

Napa's economy makes continuity itself a resilience asset. Visit Napa Valley reports that 3.8 million visitors spent \$2.2 billion in the county in 2025, generating \$2.8 billion of total economic impact, supporting about 15,300 jobs and contributing \$294 million in state and local tax revenue. Separately, Napa County's preliminary assessment of the 2025 Pickett Fire identified at least \$65 million of agricultural losses across approximately 1,500 acres. These figures should not be converted into avoided-loss claims for a Phase 2 package, but they demonstrate that wildfire resilience protects business continuity, working lands, public revenues, employment and destination confidence as well as physical assets. [17; 51-52; 65; 136]

There is also a potential productive side to upstream resilience expenditure. Napa already has local examples such as Napachar, which converts vineyard woody waste and material from forest fuel-reduction work into biochar. At state level, CAL FIRE is supporting forest-sector business and workforce development, while Proposition 4 includes funding for biomass utilization, vegetative-waste infrastructure and demonstrated jobs projects. Phase 2 should treat these as value-chain hypotheses - testing feedstock, logistics, workforce, permitting, offtake and economics - not as assumed revenue or justification for treatment that would otherwise be uneconomic. [79-83; 140-142]

3.9 Social resilience and public health are material value pathways

The Pickett Fire made the health pathway local and immediate. Napa County warned that smoke could reach unhealthy levels around Calistoga, Pope Valley and Howell Mountain and highlighted elevated risks for older people, pregnant people, children and others with health concerns. California's 2026 State of Public Health Report links wildfire smoke PM2.5 to respiratory and cardiovascular harm and reports that the average annual number of smoke days per California county more than doubled between 2010-2014 and 2020-2024. [84; 137-138]

Social resilience extends beyond health. Wildfire can disrupt healthcare, education, employment, housing and essential services. Napa's overall prosperity does not mean exposure, ability to self-protect or recovery capacity are evenly distributed: the County's farmworker housing work documents an underserved workforce that is also central to the agricultural economy. Phase 2 should therefore test evacuation and access, housing and displacement risk, outdoor-worker exposure, continuity of essential services, affordability of mitigation and who bears the cost of any funding mechanism. [53; 68-69; 103-104; 138-139]

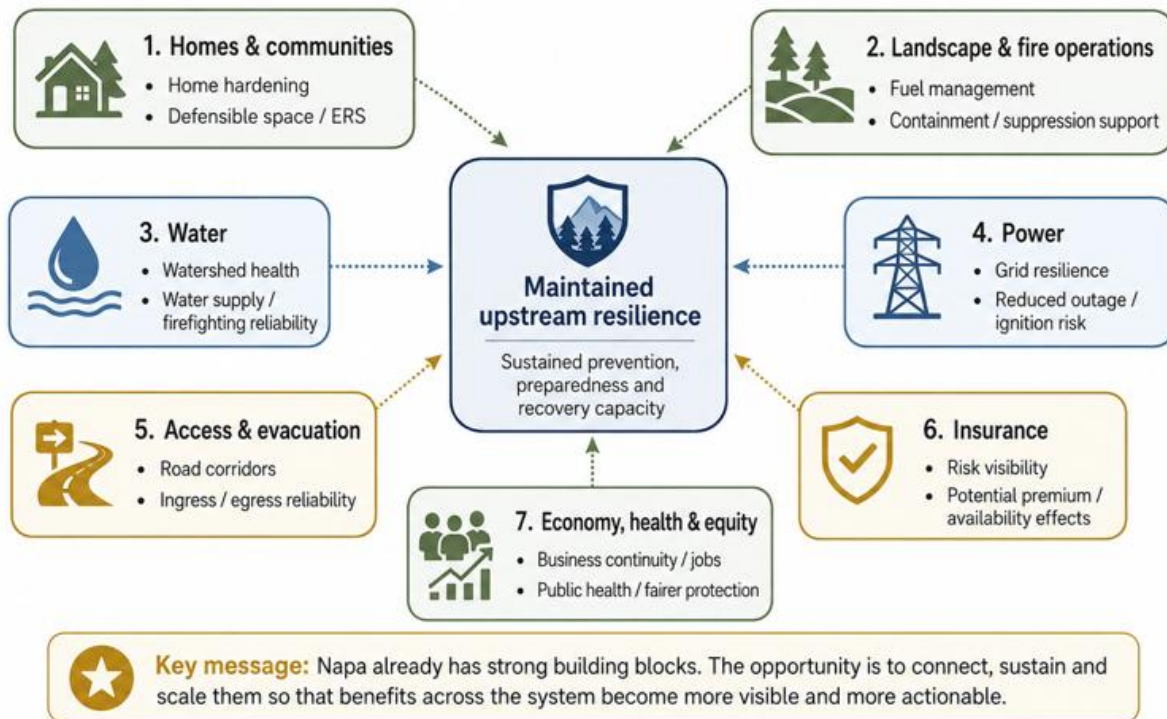
This also requires a balanced view of prescribed fire. Planned burning can itself create smoke, so the aim is not zero smoke; it is lower total long-term risk through well-managed prevention, smoke-sensitive-site planning and appropriate public-health safeguards. Napa RCD already maintains smoke-sensitive-site information that can support this design. [76; 84]

3.10 The strongest opportunities sit at system intersections

A central Phase 1 discovery is that the highest-value opportunities may not sit inside a single program. They sit where several functions overlap: a road that is also an evacuation route, a tactical fuel break and a utility corridor; a watershed treatment that protects source water, landscape condition and infrastructure; or an ERS cluster where household mitigation, suppression capability and insurance visibility reinforce one another. [35-38; 54-64; 77-78; 94; 100; 111; 117-123; 126-132; C1-C3]

Napa's wildfire resilience challenge is a connected system

Community resilience, landscape management, water, power, access, insurance and the local economy interact with one another.



That convergence is the practical reason for an optimization approach. It creates the possibility of selecting interventions for total system value rather than for one budget line, while still requiring strict controls against double counting. Phase 2 should identify where one maintained service creates several independently evidenced benefits and where a simpler single-beneficiary solution remains preferable.

3.11 Napa already has a substantial funding and investment base - the problem is fragmentation and duration

Phase 1 does not show a place waiting for outside capital to arrive. Napa Firewise has launched the Valley Stewards initiative with founding support; the County and local partners already fund mitigation; PG&E is making major system-hardening investments; state programs provide wildfire, water and forest-resilience resources; and Measure B, if approved by voters, would add a locally controlled funding source. [2; 9; 13; 67; 110; 117-122; 133-135; 142]

Napa Firewise reports that it has secured a Blue Forest / Forest Resilience Bond-type reimbursement bridge to address upfront cash-flow requirements while awaiting NRCS or other reimbursement. This is evidence that reimbursement timing and upfront liquidity are live delivery constraints in Napa. The secured bridge should not be treated as evidence of detailed transaction terms or of a wider Napa resilience financing commitment. [148-149; C4-C5]

Blue Forest publicly describes Forest Resilience Bond structures as a way to bridge reimbursement cycles and sustain implementation cash flow; its Southern Oregon-Northeastern California Watershed Resilience Bond provides a relevant working-lands comparator in which upfront project costs are financed while awaiting NRCS reimbursement. For Napa, the correct test is complementarity: the secured Forest Resilience Bond-type reimbursement bridge addresses a specific implementation-liquidity problem, while the wider Optimization Bond architecture coordinates grants, public resources, maintenance funding,

beneficiary contributions and any longer-term repayable capital. Phase 2 should validate the bridge's actual scope, boundaries and terms and test how it complements the wider architecture. [148-149; C5]

The opportunity is therefore to recognize, protect, connect and leverage what is already in place or planned. The unresolved gaps are the ones that episodic project funding often struggles to solve: long-term maintenance, cross-boundary coordination, evidence that is usable by several institutions, and a mechanism for additional beneficiaries or investors to participate without displacing public-purpose funding. This is the strongest rationale for an Optimization Bond architecture.

3.12 Policy is increasingly supportive - but it does not yet solve the whole financing problem

California's policy direction is increasingly aligned with upstream resilience, community-scale mitigation and public-private capital. That is a material tailwind for Napa. The remaining challenge is to use those tools in a structure that is locally lawful, equitable and durable rather than assuming that any single statute or grant program supplies the complete solution.

Policy / mechanism	What it enables	What Phase 2 still has to solve
Proposition 4	Large-scale state resources across wildfire, water, forest health, biomass, workforce and electricity-transmission risk. [142]	Time-limited program and capital funding does not itself create a maintained service, local commitment or repayment cash flow.
AB 888 + SB 429	Home-hardening/Zone Zero grant support and a publicly available wildfire catastrophe-model pathway can strengthen household access, community mitigation and insurance evidence. [143]	Implementation, insurer decision use and any portfolio-level contribution remain to be demonstrated.
SB 254 + 2026 resiliency study	Directly elevates community wildfire risk reduction, equitable allocation of catastrophe burdens and new public/private financing for mitigation. [145-147]	The study is a policy direction, not a Napa funding commitment; utility baseline obligations and incremental shared value must remain distinct.
SB 852 Climate Resilience Districts	Allows local governments to create districts intended to provide sustained local funding and facilitate federal, state, local and private funds for eligible resilience projects. [144]	Formation, governance, revenue authority, equity, geography and legal fit require local validation.
SB 782 disaster pathway	Can accelerate a Climate Resilience District financing route after a Governor-declared disaster and explicitly covers future-risk mitigation. [115]	It is not a general pre-disaster shortcut; under the special pathway, bond proceeds cannot fund operations, programs or services. Napa still needs a pre-disaster maintenance solution.

SB 254 is particularly relevant to the Napa demonstration. The 2026 Natural Catastrophe Resiliency Study calls for stronger community wildfire risk reduction, more equitable allocation of catastrophe burdens and new public and private financing approaches for mitigation. Napa can provide a practical local test of those ideas: where prevention creates value across communities, insurers, utilities and public agencies; how that value can be measured and aggregated; and what combination of resources can sustain resilience before disaster occurs. [145-147]

What Phase 1 now shows

Napa is not short of resilience activity or public purpose. The opportunity is to turn an already substantial platform into a maintained, measurable and better-connected resilience system - one that protects existing investment, makes visible additional economic, social, health, water, utility and insurance value, and creates a clearer route for additional capital to move upstream.

4. What Phase 1 establishes - and what remains to prove

The most important distinction is between the maturity of Napa’s resilience system and the maturity of a financing proposition. They are not the same thing.

Dimension	Phase 1 position	Interpretation
Resilience delivery maturity	Strong and advancing	Substantial organizations, programs, treatment activity, planning, community engagement and investment already exist. [1-9; 70-76; 77-78; 79-83; 84-85; 105-122]
Evidence and coordination maturity	Strong foundation	Phase 1 has brought a broad evidence base into a traceable operating picture; Phase 2 must turn that context into intervention-specific evidence.
Value creation	Credible and in several places observable	Wildfire, access, water, utility, insurance, economic, social, public-health and public-service pathways are grounded in evidence, but many remain unquantified for a selected package.
Value attribution and quantification	Partial	Phase 2 must isolate incremental effects, counterfactuals, maintenance, overlap and beneficiary incidence.
Value mobilization	Early stage	Several public, philanthropic, insurer, utility and local-revenue routes are plausible; authority and commitment are not yet established.
Maintenance / lifecycle maturity	Need is clear; funding is fragmented	Phase 1 repeatedly identifies long-term condition and maintenance as critical to value. Phase 2 must cost and define the service before selecting finance.
Investment readiness	Not yet demonstrated	No durable repayment source, issuer/obligor, debt capacity or investable cash flow for a Napa-scale resilience financing proposition is established. This is the downstream financing gap, not evidence of weak resilience work.

Plain-English interpretation

Napa is already creating and protecting real resilience value. Phase 1 has not yet shown how enough of that value can be coordinated into durable resources or repayment cash flow. The opportunity is to strengthen what already works, solve the maintenance and value-transmission gaps, and use an Optimization Bond architecture to test the optimum mix of existing funding and additional investment.

The official treatment record, ERS pipeline and local planning evidence should therefore be read as assets to build on, not as incomplete substitutes for an investment. Likewise, the absence of a current payer should not be read as absence of benefit. The next job is to determine which benefits matter enough to which institutions, under what evidence conditions, and through which lawful and equitable mechanism they can support sustained delivery.

5. The North Star and the decision architecture

North Star

Move more capital and funding upstream, before disaster strikes, and deploy it in ways that are as effective, equitable and durable as possible.

The Optimization Bond is best understood here as an organizing financing architecture, not a predetermined security. Its purpose is to solve the underlying investment challenge: identify the highest-value resilience interventions, optimize and coordinate the resources already available, fill the gaps that prevent sustained performance, and leverage additional investment only where it improves the outcome.

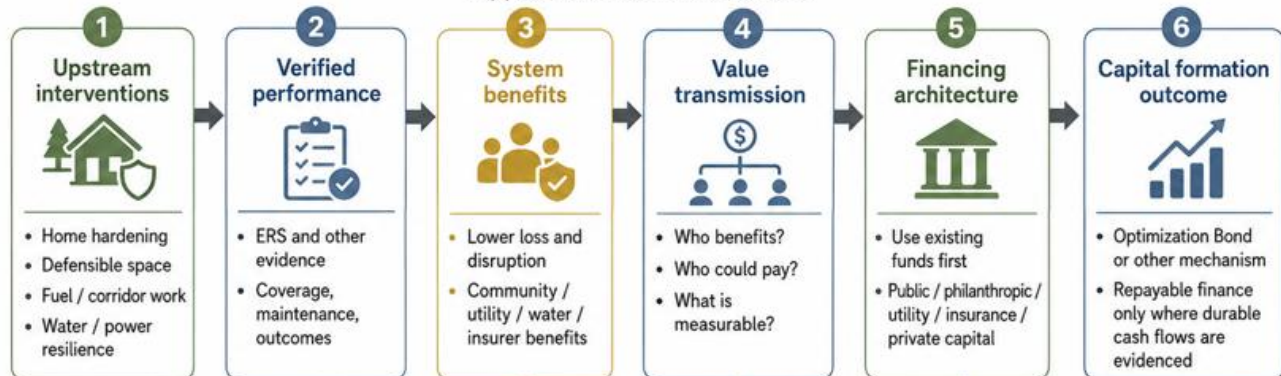
A Napa implementation could therefore combine several layers: grants and public budgets for public-good value; philanthropic or catalytic funding for evidence, equity and pre-development; utility, insurer or other service payments where a beneficiary has authority and sufficient value; dedicated local revenue where lawful; and repayable capital for the portion supported by durable cash flow. A conventional bond could finance part of that structure, but the architecture remains useful even if the optimal first implementation uses another instrument.

1. Value creation & incidence	2. Value mobilization	3. Capital-pathway selection	4. Financeability - only if selected
What changes? How strong is the evidence? Who benefits - economically, physically, socially, fiscally or strategically?	What lawful, equitable and institutionally feasible mechanism can provide resources? Benefit may legitimately remain with the beneficiary.	What is the minimum sufficient route: public budget, grant, philanthropy, service payment, guarantee, revolving support, debt, equity, institutional capital, no additional capital or stop?	Only if repayable capital is justified: are cash flows enforceable, durable and creditworthy, with a viable issuer/obligor, risk allocation and investor fit?

The governing distinction is simple: economic value is not automatically mobilizable value; mobilizable value is not automatically funding; funding is not automatically program revenue; and program revenue is not automatically repayment cash flow.

Value transmission pathway: from resilience performance to sustainable funding and investment

Phase 2 must test how verified upstream resilience creates visible value and, where justified, supports additional investment.



Important: benefit is not the same as cash flow. Phase 2 must test where value can be evidenced, aggregated and translated into durable funding or investment support.



Key message: The aim is not to force a bond. The aim is to identify the best route to sustained upstream funding, while showing where an Optimization Bond could become the most likely medium- to long-term solution.

5.1 Equity is part of capital design, not an afterthought

Phase 2 should ask who is most exposed, who benefits, who can reasonably contribute, who should not be expected to pay, and whether the proposed funding mechanism shifts costs onto households or communities that are least able to bear them. Public or philanthropic support may be the right way to protect access and affordability while allowing institutional beneficiaries to contribute where appropriate. [53; 68-69; 103-104; 130]

6. Who benefits, and what Phase 2 can unlock

Phase 2 will test where Napa's resilience activity creates value for different organizations, what additional evidence or coordination could unlock further action, and how those contributions could help accelerate a more durable upstream investment model.

Participant	Potential benefit	What Phase 2 can clarify or advance	Phase 2 decision
CSAA and other insurers/reinsurers	Better evidence on whether community mitigation changes expected loss, tail risk, concentration, eligibility, capacity, reinsurance or portfolio management.	Shape the evidence dictionary, aggregation level, MRV and decision threshold; test whether any institutional action is justified.	What evidence changes an insurance/portfolio decision, and could aggregate value support continued resilience? No premium or payment outcome is assumed.
Napa County, City and public entities	A prioritized, maintainable resilience portfolio; clearer service, fiscal, water, access and community value; stronger use of public funding.	Connect plans and projects to implementation readiness, cost, maintenance, equity and measurable public value.	Which packages merit sustained public support and through what authority?
PG&E and infrastructure owners	Reduced fire consequence, containment and ignition risk; possible outage, asset, access, response and future vegetation-management value.	Localize the PG&E value hierarchy to selected corridors/assets and distinguish baseline obligations from incremental shared-benefit service.	Is there a defined maintained resilience service with enough ratepayer/operational value and authority to justify participation? [C1]
Water agencies / source-water interests	Protection of drinking-water sources, reservoirs, operations and post-fire watershed condition.	Select a technically bounded water/wildfire package and test asset-level outcomes, O&M and budget/service relevance.	Does prevention materially improve water-system or watershed performance and justify sustained funding?
Philanthropy and catalytic funders	A high-leverage route to solve evidence, coordination, equity and pre-development barriers.	Fund the minimum work needed to reach explicit evidence and commitment gates, with additionality and exit conditions.	Does catalytic support unlock durable delivery or later resources that would not otherwise occur?
Napa Firewise, Napa RCD and delivery partners	A clearer, costed pipeline with stronger maintenance evidence and more durable funding.	Build shared intervention, cost, rights and performance architecture; reduce duplicated evidence requests.	What delivery system can sustain the required resilience standard at an affordable cost?

For organizations considering Phase 2 sponsorship, the value is practical: the Demo can turn a shared resilience opportunity into evidence that informs a specific organizational decision, while helping bring forward the common delivery, maintenance and financing architecture needed to realize that value. Sponsorship supports evidence and coordination that might otherwise remain fragmented, without pre-committing the organization to any later funding, underwriting or investment role. Participation can therefore be bounded around a concrete decision: make a specific benefit measurable and decision-useful while advancing the shared evidence, delivery and maintenance system needed for Napa. Participation does not pre-commit any organization to become a payer, investor, underwriter or obligor.

6.1 What future investors need from Phase 2

Investors are in a different position. There is not yet an investment for them to buy. Their question is how Napa gets from here to there. The Demo should therefore make the evidence pathway visible: defined intervention and use of funds -> verified performance -> beneficiary-specific value -> lawful institutional commitments -> durable cash flows -> governance and the Full Feasibility Study -> possible issuance or investment. Together with other demonstrations, Napa can provide the evidence base for the Full Feasibility Study: showing which mechanisms have been validated, where durable cash flows may exist, and what must still be resolved before investors can assess a real issuance. [124]

7. Phase 2: from evidence to validation

Phase 2 organizing question

Can Napa strengthen and sustain a bounded set of high-value resilience interventions; show where the resulting value lands across communities, public services, water, utilities, insurers and other beneficiaries; mobilize the right resources on equitable terms; and design the optimum Optimization Bond architecture - including a real investment opportunity where justified?

7.1 Workstreams

Workstream	Phase 2 test	Minimum output / gate
WS1 - Select the bounded resilience package	Choose one primary geography/intervention package with accountable owners, clear boundaries, known existing activity and a credible maintenance route; cross-walk it from state/local priorities and CWPP actions through the delivery pipeline to the selected project or maintained service, separating baseline/planned work from the incremental Phase 2 package.	Approved Phase 2 boundary, plan-to-pipeline-to-project crosswalk, delivery roles, baseline duties and additionality statement. No financing begins before the physical/service proposition is clear.
WS2 - Define baseline, counterfactual and maintenance service	Establish current condition, planned activity, comparison method, lifecycle, maintenance thresholds and degradation/renewal logic; test procurement, permitting, contractor/crew capacity, equipment, seasonal treatment windows, reimbursement timing, working-capital need and bonding/guarantee constraints where relevant.	A measurable and deliverable resilience service, not a one-off treatment claim; lifecycle cost and delivery-liquidity profile with named bottlenecks and owners.
WS3 - Quantify value and equity incidence	Measure physical, operational, fiscal, community and economic effects; map who benefits, who bears cost and where benefits overlap.	Beneficiary-specific value map with double-counting and equity controls.
WS4 - Apply the water/wildfire lens	For the selected package, test source-water, reservoir, erosion/sediment, fire-flow, water-asset and post-fire recovery implications. Use Lake Hennessey as a candidate proof point where appropriate.	Water/wildfire decision memo and asset-level evidence requirements. No avoided-cost claim without technical evidence.
WS5 - Apply the utility-resilience lens	Test ignition/consequence, transmission/distribution assets, corridors/rights-of-way, outage, access, containment and future utility-cost relevance against PG&E-informed criteria.	Segment or asset-level utility value case and explicit boundary between baseline utility duties and incremental shared resilience. [C1]

Workstreams 1-5 establish the physical/service proposition and its cross-system value before institutional payment or financing tests begin.

Workstream	Phase 2 test	Minimum output / gate
WS6 - Test Insurance Value Aggregation	Aggregate mitigation evidence from property/community scale to neighborhood, resilience-zone, insurer-book or portfolio scale; segment by carrier/book, policy type, coverage conditions and renewal cohort; test expected loss, tail risk, concentration, eligibility, capacity, reinsurance and observed premium/coverage/underwriting signals without assuming attribution.	Clear separation of household benefit, insurer/reinsurer portfolio value, program revenue and contracted cash flow; cohort and attribution protocol; institutional response if any.
WS7 - Run participant-specific decision tests	Agree before results what evidence would change a participant decision and what action could follow.	Participant decision memos: proceed, conditional, different mechanism, no direct contribution, redesign or stop.
WS8 - Test resource-mobilization routes	Test public budgets, grants, philanthropy, utility/insurer participation, service payments, local revenue, guarantees and other routes for authority, equity, additionality, duration and commitment.	Commitment register: committed, conditional, rejected, redesign, benefit-retained/no-capture.
WS9 - Design and test the Napa-scale Optimization Bond architecture	Map and optimize existing grants, public budgets, philanthropy, local revenue and planned investment; incorporate the secured reimbursement bridge / Forest Resilience Bond-type working capital and test how it complements utility/insurer/service contributions, guarantees, revolving support, municipal/public finance and a possible Napa Resilience Bond as complementary layers rather than mutually exclusive alternatives.	Preferred Napa-scale architecture showing what each funding and financing layer does, which implementation gaps it solves, what additional capital is needed, and whether an issuance adds value without duplicating an FRB-type bridge.
WS10 - Open transaction / Full Feasibility Study only when justified	If a real financing need and durable cash flows emerge, test issuer/obligor, legal authority, debt capacity, credit, risk allocation, disclosure and investor fit.	Go/no-go on transaction development. No issuance process without a real financing need and evidenced repayment support; no requirement that the architecture culminate in a conventional bond.

7.2 Testing Insurance Value Aggregation

This workstream directly addresses the question of how many dispersed community-scale insurance effects might become institutionally meaningful. It should not begin with premium savings. It should begin with a defined resilience zone or portfolio and test four separate states:

- Household / policyholder benefit - including protection, availability, affordability or reduced disruption.
- Insurer / reinsurer portfolio value - including expected loss, tail risk, concentration, capacity, reinsurance or other recognized decision variables.
- Program or aggregator revenue - only where a lawful mechanism converts some institutional value into a contribution to resilience.
- Contracted repayment cash flow - only where that contribution is explicit, durable, enforceable and suitable for financing.

The workstream should also test carrier heterogeneity, policy churn, model visibility, free-rider effects, affordability, data rights and whether value should remain with households rather than be captured. The

annual ERS batching approach creates a particularly useful design opportunity: Phase 2 can define time-stamped certificate / renewal cohorts and, where permissioned, record carrier or book, policy type, renewal date, premium and coverage terms, limits, deductibles, availability / non-renewal status, household take-up and insurer rationale. Observed changes should be separated from affordability effects and market-wide confounders. A “no direct insurer payment” result can still be useful if the evidence improves underwriting visibility, availability, public funding design or identifies a better-aligned payer. [21-25; 90-93; 112-116; 130; C4]

7.3 Delivery-finance transmission: funding is not deployment

Phase 2 should test whether a funded intervention can actually be delivered at the required pace. For the selected package, the implementation screen should cover reimbursement schedules, invoice and payment timing, landowner and contractor cash requirements, procurement and permitting, crew continuity, equipment availability, seasonal treatment windows, biomass handling or utilization where relevant, and any performance-bonding or guarantee capacity that could delay mobilization. A project can be fully funded on paper and still fail to accelerate resilience if the delivery system cannot absorb the capital.

Napa Firewise’s secured Blue Forest / Forest Resilience Bond-type reimbursement bridge makes this a live local mechanism rather than an abstract financing option. Phase 2 should establish how far that bridge addresses the implementation-liquidity constraint and where other instruments are still needed. It also reinforces the minimum-sufficient-instrument principle: use reimbursement or working-capital support where timing is the problem; grant or public funding where public-good value is the issue; and longer-term repayable capital only where durable cash flow and additionality are established. [148-149; C5]

7.4 Integrated water-power-community resilience

Phase 2 should avoid treating water, power, roads, landscape treatment and community resilience as separate silos. A selected corridor or resilience zone can be screened for wildfire spread and containment, evacuation, utility infrastructure, source-water or fire-flow dependence, community exposure and maintenance needs. The purpose is not to maximize the number of benefits claimed. It is to identify where one sustained intervention creates the greatest verified system value without double counting. [35-38; 54-64; 77-78; 94; 100; 111; 117-123; 126-132; C1]

7.5 Decision gates

Gate	Evidence threshold	Decision
Gate 1 - Phase 2 readiness	Bounded intervention, owners, plan-to-project / additionality crosswalk, costs, baseline/counterfactual, maintenance standard, delivery-capacity / liquidity screen, MRV and data rights.	Proceed to implementation/ evaluation or redesign.
Gate 2 - Value recognition	Verified or bounded outcomes and beneficiary-specific decision relevance, including equity and overlap.	Proceed to commitment testing, refine use case or stop.
Gate 3 - Resource mobilization	Lawful route plus budget/contract, commitment, duration, affordability/equity and credit evidence as relevant.	Sustain through non-repayable/service funding, seek different payer, redesign or stop.

Gate	Evidence threshold	Decision
Gate 4 - Napa architecture selection	Defined resilience services, funding/resource layers, residual financing need and minimum sufficient mechanisms; Napa-scale architecture tested before any wider issuance.	Use existing and non-repayable resources as core layers, define the Napa-scale Optimization Bond architecture, and open broader feasibility only where additional finance adds value.
Gate 5 - Financeability	Durable cash flow, issuer/obligor, legal authority, risk allocation, coverage, downside and investor fit.	Proceed to transaction development, redesign or stop.

8. From today to a real investment opportunity

The destination is not predetermined, but the route is now clear. Napa can advance on three connected horizons. These are not necessarily competing alternatives: they can become successive layers of the same Optimization Bond architecture, with existing and non-repayable resources doing the jobs they are best suited to do and additional investment added only where it creates genuine value.

Horizon	Purpose	Likely funding/capital routes	What success looks like
1. Now - strengthen upstream resilience	Fund evidence, pre-development, maintenance design and selected interventions using resources already suited to public-purpose work.	Sponsor support, grants, public budgets, philanthropy/catalytic funding, existing programs.	Better targeted, maintained and measured resilience without unnecessary financing complexity.
2. Napa-scale Optimization Bond architecture	If Phase 2 identifies defined resilience services and a resource base, coordinate the existing funding mix and add the minimum additional mechanism needed to sustain performance over time.	Existing municipal/public finance, grants, dedicated revenue, service/outcome payments, utility or insurer contributions, resilience facility, district/JPA/assessment where lawful, guarantees/revolving support, and a Napa Resilience Bond where justified.	A durable Napa architecture that protects and leverages existing investment, fills maintenance gaps, has equitable incidence and can attract additional capital where useful.
3. Wider California scaling	Use Napa and other demos to inform the Full Feasibility Study and a scalable statewide or multi-jurisdiction version of the architecture.	Optimization Bond platform, public debt, institutional capital and blended structures - only where cash flows and investor fit exist.	Replicable upstream-investment pathway supported by evidence, commitments, governance and creditworthy cash flows where repayable capital is used.

8.1 What “Optimization Bond” means in Napa

The architecture should be judged by whether it improves the use of capital, not by whether it produces a security. Its first task is to map what is already funded or planned, preserve and leverage the intended role of each source, and use each where it adds most value. Its second is to identify the residual gaps - particularly maintenance, timing, cross-boundary coordination and scale. Its third is to determine whether institutional commitments and repayable investment can fill any of those gaps on better terms than simpler public or philanthropic funding.

On balance, the evidence now points to this Optimization Bond-type architecture as the most promising medium- to long-term direction for Napa. What remains open is its final composition, the legal and governance vehicle, and whether a conventional Napa Resilience Bond or other issuance becomes one financing layer within it.

8.2 The investor pathway

Stage	Evidence state	Capital state	What investors can do
1. Phase 1 complete	Strong operating picture, more than 200 public sources, controlled local inputs, candidate work packages and explicit gaps.	No Napa-scale investment ask or durable repayment source.	Understand the problem, potential scale and evidence pathway.
2. Phase 2 testing and validation	Bounded intervention, maintenance service, counterfactual, MRV, costs, water/utility/insurance tests and value incidence.	Sponsor/grant/public/catalytic funding supports evidence and implementation.	Observe whether the proposition is becoming decision- and diligence-ready.
3. Institutional commitments	Public, utility, insurer, philanthropic and local-revenue routes tested; commitments documented as binding, conditional, rejected or redesigned.	Only committed / appropriated resources become program revenue.	Assess durability, counterparty, term, scalability and risk.
4. Napa architecture / Full Feasibility Study	Governance, issuer/obligor, legal authority, lifecycle costs, debt capacity, downside and disclosure tested for the chosen route.	Optimization Bond architecture defined; minimum sufficient financing instruments selected, with issuance tested only if necessary.	Open lender, municipal-adviser, rating or institutional diligence where warranted.
5. Capital formation	A real proposition exists only if all preceding gates are met.	Possible Napa Resilience Bond, public debt, revolving facility, commercial debt or institutional investment within the wider architecture - or no conventional issuance if it is not needed.	Consider terms, risk-return, mandate fit and investment decision.

9. Candidate Phase 2 work packages

Phase 1 supports a small set of work-package families. The strongest design is likely to choose one primary physical package and use water, utility, insurance and financing tests as companion lenses where relevant, rather than launching several disconnected studies.

9.1 Maintained ERS / community resilience cluster

A selected group of ERS-engaged parcels and adjoining landscape assets could test how home/parcel hardening, access, vegetation, water, infrastructure and maintenance combine at community scale. This route has the strongest local delivery anchor. The ERS status definitions are now operationally defined: Integrated means the ERS has completed the required sign-off process and a Napa Firewise/Fire Agency ERS certificate has been issued; certificates are annual; and Napa Firewise is moving toward February/March batching ahead of the main insurance renewal period. Phase 2 therefore needs site grouping, permissions, current-condition evidence, certificate and renewal dates, maintenance status and a clear distinction between engagement, certification and independently verified resilience performance. [1-9; 105-106; 122; C2-C5]

9.2 Access, egress and utility-resilience corridor

A maintained road or corridor package could test shared value for residents, fire operations, public agencies and PG&E. Candidate segments should be prioritized where fire pathways, utility infrastructure, containment lines, evacuation routes, community exposure and future maintenance value intersect. PG&E stakeholder evidence identifies corridor/pole maintenance, ingress/egress, maintained crew capacity and strategic fuel breaks as particularly relevant. Segment-level technical validation remains essential. [35; 54-64; 94; 99; 111; 117-123; C1]

9.3 Lake Hennessey / water-wildfire resilience package

A Lake Hennessey-centered package could connect source-water protection, forest and fuels treatment, utility infrastructure, long-term maintenance and cross-boundary stewardship. It is attractive because it links wildfire prevention to a critical public service and a clearly identifiable asset/watershed system. It should proceed only with the City, Napa RCD and other relevant owners/partners, and only after technical scope, baseline condition, hydrologic/operational outcomes, O&M, costs and authority are defined. [56-61; 77-78; 126-128; 131-132]

9.4 Insurance Value Aggregation companion test

Any selected physical package can carry a bounded insurer-facing test. The objective is to determine whether community-scale evidence can be aggregated into a portfolio-level decision signal and whether any institutional action follows. The workstream should not be designed around assumed household premium savings. [21-25; 90-93; 112-116; 130]

9.5 Napa-scale Optimization Bond architecture

In parallel, Phase 2 should maintain a live but disciplined architecture track. It should map and optimize existing public, philanthropic, utility and program resources first; identify the maintenance, implementation-liquidity, coordination and scale gaps that remain; incorporate the secured FRB / reimbursement bridge and test how it interacts with insurer, utility, service-payment or dedicated local contributions; and then determine whether municipal/public finance, a resilience facility, a Napa Resilience Bond or another repayable instrument adds value. These are potential layers of the Optimization Bond architecture, not mutually exclusive answers. The secured FRB-type bridge addresses the upfront implementation cash-flow problem and should not be duplicated by relabeling the same function as an

Optimization Bond. Measure B is an important contingent example of a possible future local funding source: it has qualified for the 3 November 2026 ballot and its filed text estimates approximately \$23 million annually for 18 years if approved, but it is not current funding or a repayment source. A wider California Optimization Bond remains a later scaling pathway, not a prerequisite for Napa action. [67; 114-115; 124; 133-135; 148-149; C1; C5]

9.6 Selection criteria

Criterion	Selection question
Delivery coherence	Can the package be implemented and maintained by accountable actors within a clear boundary, with adequate crew/contractor capacity, procurement, seasonal windows and implementation liquidity?
Evidence quality	Can plan-to-project additionality, baseline, counterfactual, outcomes, condition, costs, maintenance and current certificate / treatment status be measured without overclaiming?
Participant relevance	Does it create a real decision question for one or more participating organizations?
System value	Does it create material wildfire, community, water, utility, insurance or public-service value without double counting?
Equity	Who benefits and who bears cost? Are vulnerable households or communities protected from inappropriate burden?
Resource pathway	Is there at least a plausible lawful route to public, philanthropic, service or institutional support?
Capital additionality	Would a dedicated financing mechanism improve timing, scale or durability compared with simpler funding?
Transferability	Would the result teach something useful for wider Napa or California application?

10. Data, governance and claim discipline

The credibility of Phase 2 will depend as much on evidence governance as on the intervention itself. Public sources should inform screening and context; controlled sources should be used only within their permissions and claim ceilings; stakeholder observations should be time-stamped and attributed; and any modelled or estimated effect should be clearly separated from observed performance.

Evidence statement	Permitted use	Not permitted without more evidence
Activity exists or is planned	Operating picture and project selection.	Current condition, completion, effectiveness or avoided loss.
A plan prioritizes an action	Plan-to-project screening.	Approval, funding, readiness or investability.
A source reports operational benefit	Bounded learning and hypothesis design.	Independent causal effect or transferable coefficient.
A stakeholder identifies value	Participant decision test and data request.	Corporate policy, willingness to pay or commitment.
Economic or public value is estimated	Value-incidence and option comparison.	Program revenue or repayment cash flow.
A funder/payer expresses interest	Engagement and conditional pathway.	Contracted or appropriated durable payment.
A payment is committed	Program revenue at its evidenced terms.	Debt capacity or investment suitability without completion of the Full Feasibility Study.

10.1 Specialist handoffs

Fire ecology, engineering, insurance, actuarial, utility-regulatory, water/hydrology, public-finance, legal, municipal-advisory, credit and investment questions should move to qualified specialists at the relevant gate. The Phase 1 framework structures the evidence, claim boundaries and decisions; it does not replace those professional judgments.

11. Recommendations and next steps

The immediate task is to commission Phase 2 and make the two pathways - stronger resilience and a real investment opportunity - progress together.

Recommendation	Practical implication
Confirm the Phase 2 participant group and each decision question.	Agree what benefit, evidence and action threshold would make the work useful to each participating organization.
Select one primary physical work package and companion lenses.	Prefer a bounded, maintainable package with strong local ownership; show the chain from plan / CWPP priority through pipeline and project to maintained outcome, and apply water, utility and insurance tests where they genuinely add value.
Agree the experimental design before implementation.	Lock baseline, counterfactual, maintenance service, MRV, data rights, costs, equity tests, plan-to-project additionality and decision gates before implementation.
Treat water/wildfire as a core system lens.	Assess source-water, reservoir, watershed, fire-flow and post-fire implications; validate whether Lake Hennessey is the strongest proof point.
Use the PG&E-informed utility framework.	Prioritize transmission/distribution, corridors, rights-of-way, access, containment, ignition/consequence and maintenance; keep generation/storage conditional.
Test Insurance Value Aggregation explicitly.	Use the annual ERS batching / renewal cycle to test whether dispersed community effects become institutionally meaningful at portfolio scale; segment by carrier/book, policy type and coverage conditions, and distinguish observed outcomes from affordability, take-up and market-wide confounders.
Develop the Napa-scale Optimization Bond architecture as the leading hypothesis.	Optimize and coordinate existing funding first; incorporate Napa Firewise's secured Blue Forest / Forest Resilience Bond-type reimbursement bridge and test how it complements dedicated local mechanisms, service payments, utility/insurer contributions, blended/revolving structures and a Napa Resilience Bond as additional layers where they add value.
Match financing to the binding constraint.	Use sponsor, grant, public and philanthropic support where they are the best tools; use reimbursement bridges / working capital where timing blocks delivery; test contractor, crew, equipment and bonding/guarantee capacity; and add longer-term repayable capital only where it improves the result.
Use the policy window - and document where policy still falls short.	Align Phase 2 with Proposition 4, AB 888, SB 429, SB 254 and Climate Resilience District options; identify practical barriers around long-term maintenance, multi-beneficiary payments, utility additionality and equitable cost allocation.
Open the Full Feasibility Study only when the evidence warrants it.	Proceed when a real financing need, durable cash flow, issuer/obligor, legal route and credit/investor case are established.

Final Phase 1 conclusion

Napa already has a strong resilience platform, substantial investment and a credible route to do more. Phase 2 should use that platform to move investment upstream, strengthen prevention and resilience, protect and amplify what is already working, make the benefits visible across communities and institutions, and design the optimum financing architecture to sustain them. On balance, an Optimization Bond architecture now appears the most promising medium- to long-term direction: coordinating existing resources and leveraging additional investment where it adds scale, timing or durability. If durable, creditworthy cash flows emerge, a Napa Resilience Bond or other issuance may become one layer of that architecture before any statewide issuance. If the architecture can achieve the objective without a conventional bond, that remains a successful result.

Appendix A. Phase 2 decision outcomes

An Optimization Bond architecture is the leading medium- to long-term hypothesis, but the following decision outcomes remain legitimate if supported by evidence. Agreeing them in advance protects the demonstration from confirmation bias and ensures that the financing architecture serves the resilience objective, rather than the reverse.

Outcome	When it is appropriate	Next step
Proceed with public, grant or philanthropic funding	Public-purpose value is strong; repayable cash flow is absent or unnecessary.	Secure program support and implement with MRV and renewal/exit controls.
Proceed with contractual service or outcome payments	A public, utility, insurer or other institution has authority and makes a durable commitment.	Build the operating contract and test whether working/revolving capital is useful.
Proceed with a Napa-scale Optimization Bond architecture	A defined local resilience service, funding base and coordination need exist, with suitable governance and equitable incidence; repayable capital may or may not be required.	Complete legal, public-finance and governance work for the architecture; add a financing instrument only where it improves the result.
Proceed to the Full Feasibility Study for a Napa or wider issuance	A larger financing need and durable, creditworthy cash flows are evidenced within the architecture.	Complete issuer/obligor, legal, credit, risk, disclosure and investor diligence.
No additional capital required	Existing budgets and delivery arrangements can sustain the selected intervention.	Implement and monitor; avoid unnecessary transaction cost.
Redesign the intervention or evidence package	Value is plausible but intervention, MRV, cost or institutional route is weak.	Revise scope, geography, partner or evaluation design.
Seek a different payer or funder	Value lands with a different institution than first expected.	Re-run commitment and authority tests with the better-aligned actor.
Stop	Evidence, authority, equity, cost or value case is insufficient.	Record the result and avoid inappropriate financing or further sunk cost.

Appendix B. References and evidence controls

References are numbered sequentially for readability. The underlying project evidence register retains the canonical source identifiers, provenance, rights, validation status and claim boundaries used in the analysis.

The list below contains the public and published sources used directly in this report, together with a small number of controlled project references explicitly identified as such. Additional controlled stakeholder and project evidence is listed separately because its permitted use and evidentiary status differ from public sources.

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Evidence-control note

A supporting evidence register is maintained separately to preserve provenance, permissions, validation status and decision-use ceilings. Report reference numbers are for external readability and are not the canonical source-control identifiers. The 27 August Napa Firewise update is held as controlled source-owner evidence; the 15 September Napa Firewise clarification is held as a separate controlled update; and the Blue Forest references are public comparators only.