



**DATE:** January 24, 2020

**TO:** BARC Governing Board

**FROM:** Allison Brooks, BARC Executive Director

**RE:** *Recommendations for Regional Approach to Flood Risk Management and Sea Level Rise*

---

In December 2019, the California Legislative Analyst's Office (LAO) released a report entitled *Preparing for Rising Seas: How the State Can Help Support Local Coastal Adaptation*. The report was a response to legislative interest in the role that the State can play in managing sea-level rise (SLR) and was useful in providing an initial overview of the threats and challenges of SLR to coastal communities. The report also highlighted the complicated intersection of SLR with other important state priorities, such as increasing the supply of affordable housing in coastal communities threatened by increased flooding and SLR, and provided some recommendations for supporting local adaptation efforts.

A less fully developed area of the report was the role of regional agencies in managing climate adaptation. While there is mention of the need for greater regional-scale coordination and shared learning among key stakeholders, and a recommendation for appropriated resources to support some level of staff to enable such coordination, the report does not adequately describe a framework by which regional agencies can bolster climate adaptation efforts at the local and regional scale to accomplish shared goals and performance metrics in adapting to climate change. We have established such a framework for climate mitigation, with clearly defined roles for regional agencies. We need a similar framework for managing climate change impacts. Coordination alone will no longer be sufficient.

This memo and accompanying presentation propose that the BARC member agencies adopt a risk-management approach in reducing the risks to our communities posed by flooding and sea level rise. A similar framework is already used for hazards such as earthquakes and is well suited to uncertain risks like flooding and SLR, which require a range of strategies to bring down the costs to local communities. Adopting a risk-management framework that assigns roles and responsibilities for key stakeholders to collectively reduce risk are critical next steps the BARC member agencies can support to put the Bay Area on a path towards resilience.

### **The Value of a Flood Risk Management Approach**

A fundamental feature of a flood-risk management approach is the concept of buying down risk. This is a very different approach than the current state of practice for flood management, which is to apply a default 100-year storm (1% probability of occurring) design level of protection across the board. This methodology essentially assigns the same level of protection to both a densely populated urban area with large immovable structures and a low-density rural area. In contrast, a risk-management approach

requires us to answer a number of preliminary questions so that we can adequately understand the problem we are trying to solve for and ultimately make both informed land use decisions and sufficient investments in protection to reduce our risk. These questions include:

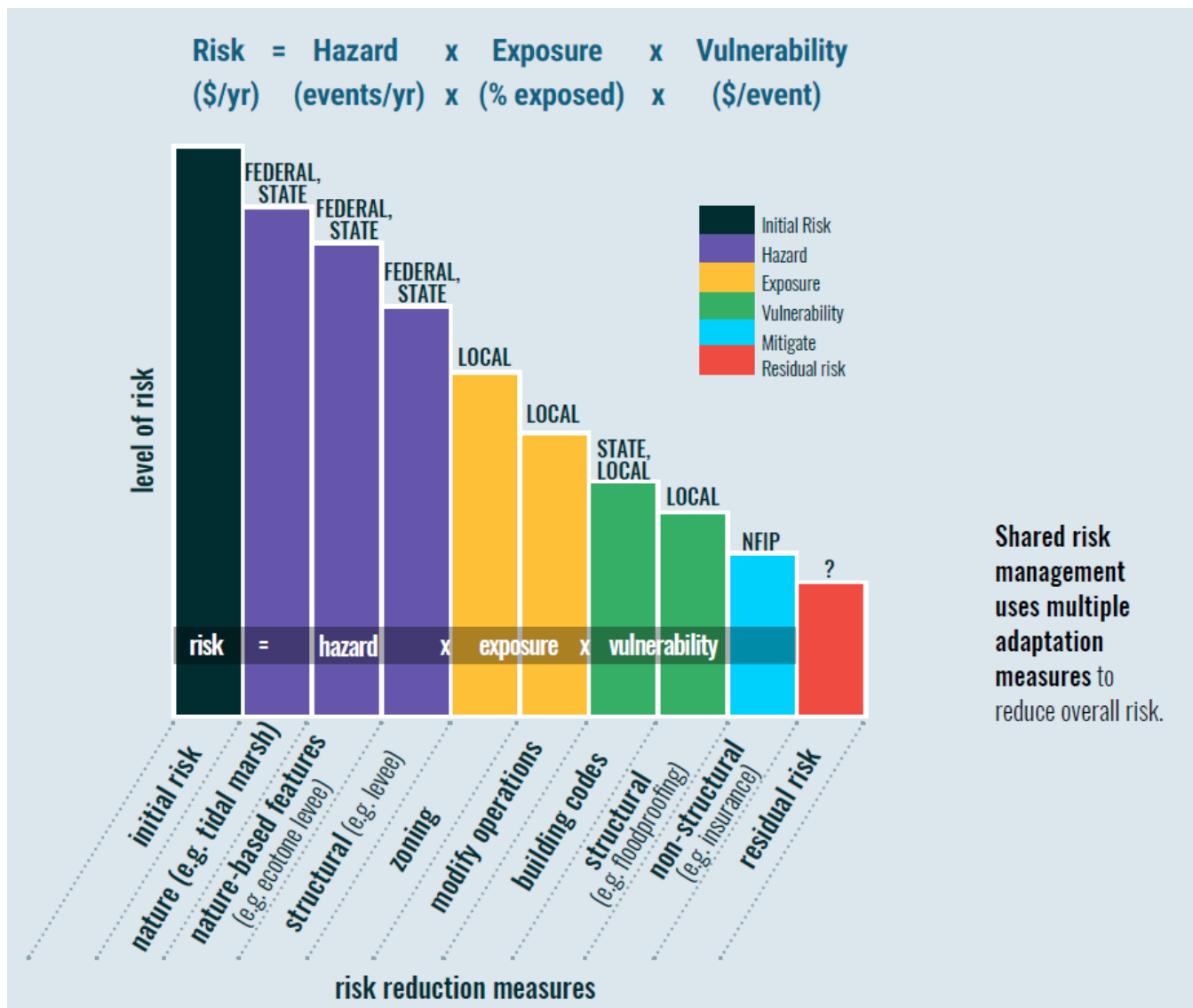
*What are we trying to protect, and why?*

*How much risk are we willing to accept, and for how long?*

*How do we pay for the cost of protection and can we afford it?*

*When does protecting a local asset become untenable?*

The answers to these questions are based on a variety of factors ranging from societal and cultural values to economics. Many of them are inherently political in nature, and cannot be determined solely through science and engineering. Although we will not be able to eliminate risk entirely, or in a universally agreed-upon way, starting with a risk management framework ensures we are asking the right questions from the outset and wisely using the resources we have in across the region and in line with our shared values.



Source: Jeremy Lowe, San Francisco Estuary Institute (SFEI)

The chart above depicts the way in which multiple adaptation measures can be combined to reduce overall risk in a risk management model. The black bar represents the initial level of risk that is present in the absence of any risk reduction measures. The different-colored sets of bars represent measures that can be undertaken to reduce the three factors that come together to comprise risk: hazard, exposure, and vulnerability. Each of these three factors are reduced through different sets of measures. As risk reduction measures are implemented by the appropriate stakeholder(s), the *initial risk* level is brought down to an *acceptable level* of risk. This framework demonstrates that risk is comprised of components that are shared across different stakeholders at different levels of government. This chart also shows that the reduction of flood risk does not only occur through costly infrastructure projects, but also through a variety of land use and property-specific actions, such as re-zoning flood-prone regions, updating building codes, floodproofing homes, and changes to insurance policies. Risk reduction is not solely dependent on building levees, and the cost of any measure should be based on what we are trying to protect.

A Regional Framework is an essential starting point for equipping the Bay Area to use a risk management approach like the one outlined above. Similar to the way in which we approach climate mitigation, we must have a shared set of guidelines and metrics that allow us to select and evaluate possible risk reduction actions. A Regional Framework would lay out agreed-upon guiding principles, establish clear roles and responsibilities of agencies to share risk effectively, ensure the appropriate allocation of resources to support local action at various phases (e.g., planning, implementation), and advance projects that best achieve the desired level of risk reduction. To ensure progress and accountability, the framework would track the performance of risk-sharing at the regional scale, using Plan Bay Area as a vehicle.

As the forum shared by the agencies who hold much of the regulatory and planning authority to establish and carry out a shared regional flood risk framework, BARC is an important venue for beginning this work. BARC staff look forward to discussing these issues with the Governing Board and Member Agencies.