

## **REPORT TO GENERAL PLAN 2040 STEERING COMMITTEE**

**Subject: Dealing with Sea Level Rise in General Plan 2040**

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### **EXECUTIVE SUMMARY**

Among Bay Area cities, San Rafael is particularly vulnerable to sea level rise. More frequent tidal flooding and related risks to life and property will occur during the time horizon of General Plan 2040. There is broad interest among Steering Committee members in dealing with this issue proactively—not only in the Safety (Resilience) Element of the General Plan, but in all aspects of the Plan. The next meeting will provide an opportunity to discuss how this might be accomplished.

### **REPORT**

#### **Background**

Hazards associated with sea level rise have been documented and discussed at previous Steering Committee meetings. Many parts of the city were developed on former marshes and mudflats that sit at or near sea level. These areas are vulnerable to flooding even under current conditions, and will experience greater risks in the future. The hazard is exacerbated by subsidence, which is occurring as filled areas settle and compress. Parts of San Rafael are currently protected by a network of levees and pump stations, but this infrastructure will not be adequate to handle anticipated future conditions.

The potential impacts to property, safety, the local economy, and public health related to sea level rise are enormous and will disproportionately impact San Rafael's most vulnerable residents. However, the challenge affects not only the Canal neighborhood and nearby employment districts. It also affects areas like Downtown, Peacock Gap, Loch Lomond, Glenwood, Santa Venetia, and areas along Gallinas Creek. Much of the City's lifeline infrastructure, its public facilities, and its key transportation routes also are at risk. This issue cannot be dealt with by the General Plan Safety Element alone—it affects all aspects of General Plan 2040.

Despite recent state laws requiring General Plans to address resilience, very few cities in the Bay Area have tackled this issue head on in their General Plans. Most cities have acknowledged the issue in their General Plans, adopted policies or implementing actions to study it in the future, and deferred solutions to later. San Rafael has an opportunity—even an obligation—to take a different course and address the issue more proactively. How we will accomplish this is still open to discussion.

We are not this starting conversation from scratch. The recent [Resilient by Design](#) work raised public awareness about the issue, synthesized data and maps showing the extent of future hazards, and sparked a conversation about possible paths forward. There are ideas and options on the table for the City to consider. The [BayWAVE](#) project included a [Vulnerability Assessment](#) for the Marin Shoreline that highlights the sensitivity and adaptability of impacted assets, as well as possible adaptation strategies.

There are also national resources, like [Digital Coast](#) and [Our Coast, Our Future](#) that allow us to understand the magnitude of the challenge and the areas that would be impacted. We also have expertise on this subject among our Steering Committee members, including several members (and alternates) who specialize in climate readiness and adaptation planning.

In 2014, the San Rafael Community Development Department prepared a White Paper on sea level rise that provides an overview of the challenge and possible approaches. Although more work on this topic has been done in the last four years, the White Paper still provides an excellent primer that can help inform this conversation. Committee members are strongly encouraged to download and read the document before the next meeting. It can be downloaded [here](#). A summary of the White Paper is provided below.

### **Summary of Sea Level Rise White Paper**

The San Rafael Sea Level Rise White Paper does the following:

- Identifies the key agencies that have been involved in studying and planning for this topic
- Presents the most current information and studies on sea level rise in the Bay Area
- Identifies potential funding sources
- Summarizes the studies underway in the Marin and the North Bay (as of 2014)
- Describes adaptation techniques and tools that have been developed and tested
- Presents a preliminary review of the San Rafael shoreline and levees to be inventoried and studied, as well as potential opportunity areas for adaptation
- Presents suggestions for next steps in moving forward with long-term planning

The White Paper cites the BCDC forecasts for sea level rise, which indicate an increase of 16 inches by 2050 and 55 inches by 2100. Section VI of the Paper (P 28) and Appendix A identify the shoreline and levee areas that would be most vulnerable based on observed conditions. It also includes potential opportunity areas in San Rafael that are worthy of study for adaptation (P 29 and Appendix B). A number of challenges are specifically identified, including the need for a comprehensive approach (rather than “piecemeal” solutions), the number of different agencies involved, the number of stakeholders and property owners impacted, the evolving data on projected conditions, the diverse conditions along the shoreline, the trade-offs involved (such as view impacts associated with levees), and the very high cost (and limited funding available) for adaptation.

## **What We Hope to Accomplish at the Next Steering Committee Meeting**

We have identified the following objectives for the Steering Committee discussion:

- Identify “best practices” for addressing sea level rise in long-range city plans
- Identify potential adaptation strategies for San Rafael –what are the options, and what are their pros and cons?
- Discuss how projected sea level rise should inform land use, transportation, and economic development policies
- Identify next steps and work that needs to be done beyond the General Plan (Adaptation Plan, etc.)