Coyote Creek Watershed

Southern Marin Flood Protection & Watershed Program

<u>Meeting 1</u>

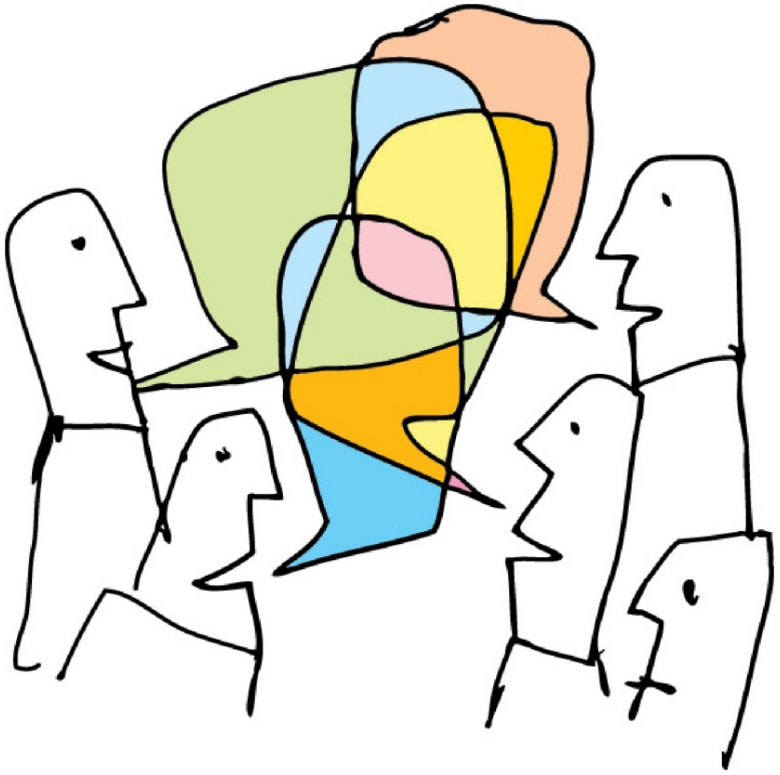
introduction to the program…

April 29, 2015

Tonight's meeting…

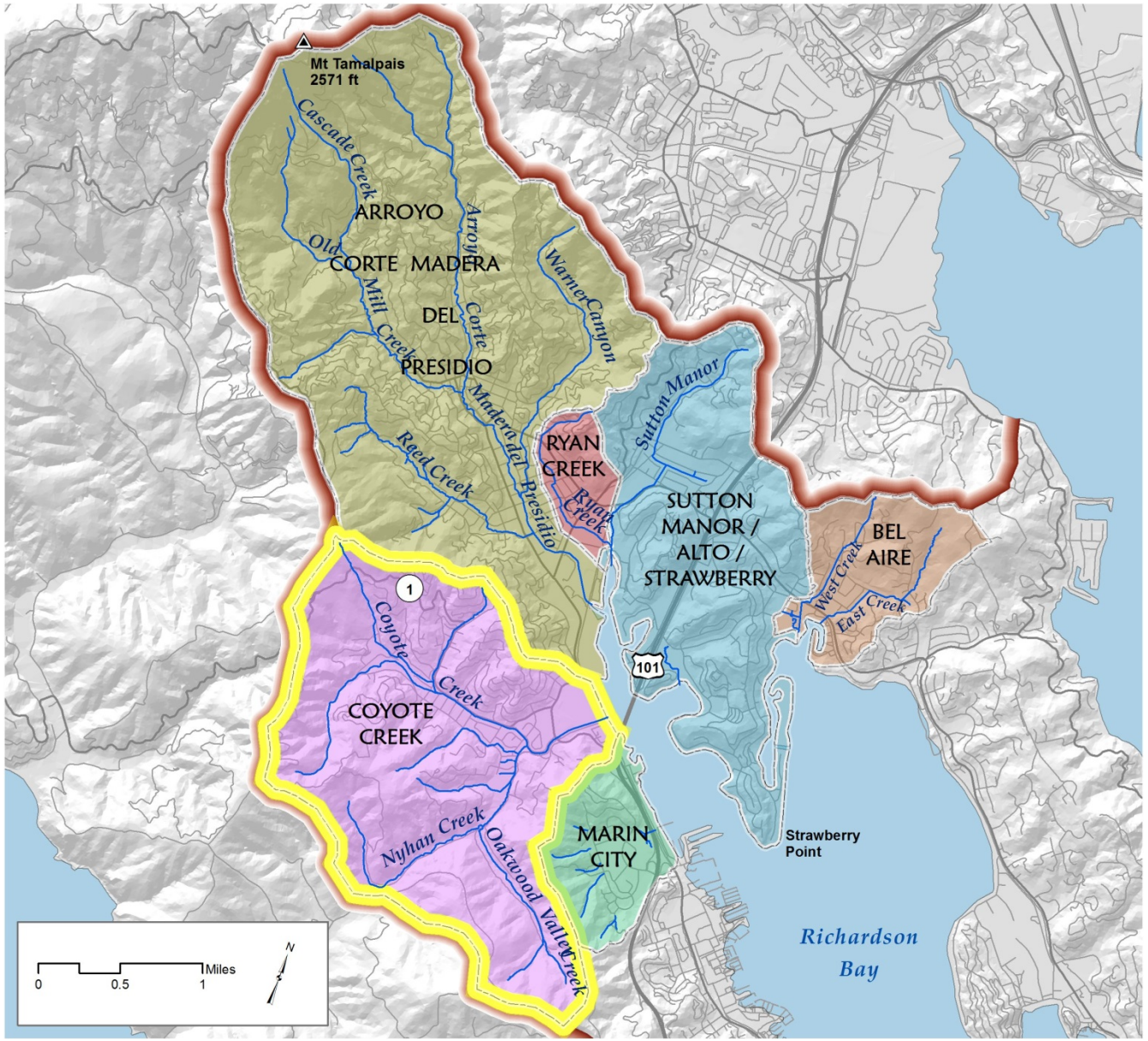
- Overview of the watershed
- Our approach for planning and collaboration
- Infrastructure and potential needs
- Shoreline Study overview
- Watershed Guide introduction
- FEMA program update

Providing feedback…

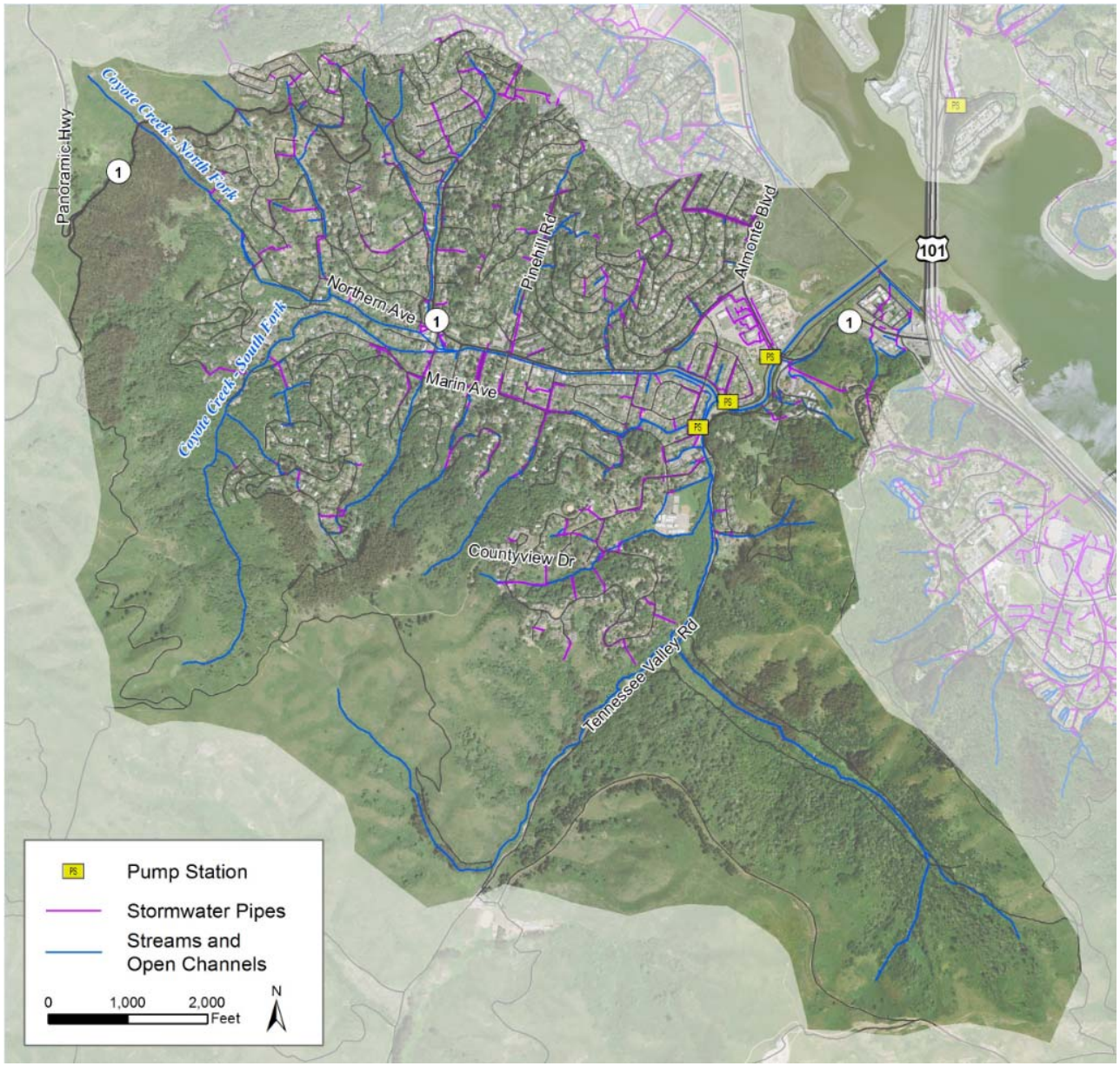


- Question and answer period
- Breakout to stations
- Comment cards
- Email

Our watershed…



Our watershed…

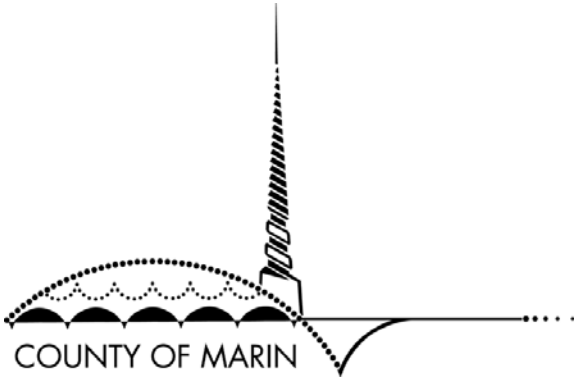


Our purpose…

Working at the Watershed Scale

- Encourages collaboration across jurisdictions
- Combines flood protection and habitat restoration elements
- Supports cost effective solutions
- Incorporates local knowledge
- Encouraged and supported by state and local agencies

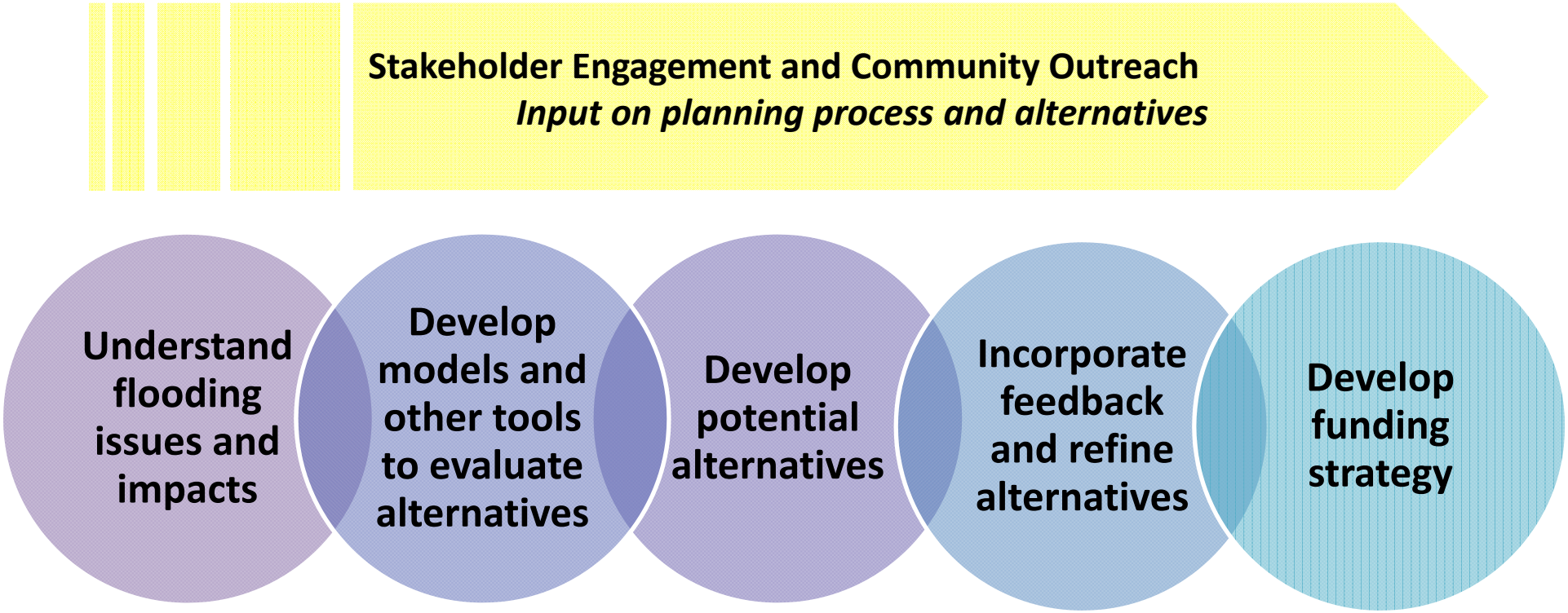
Our partners…



Marin County Flood Control &
Water Conservation District

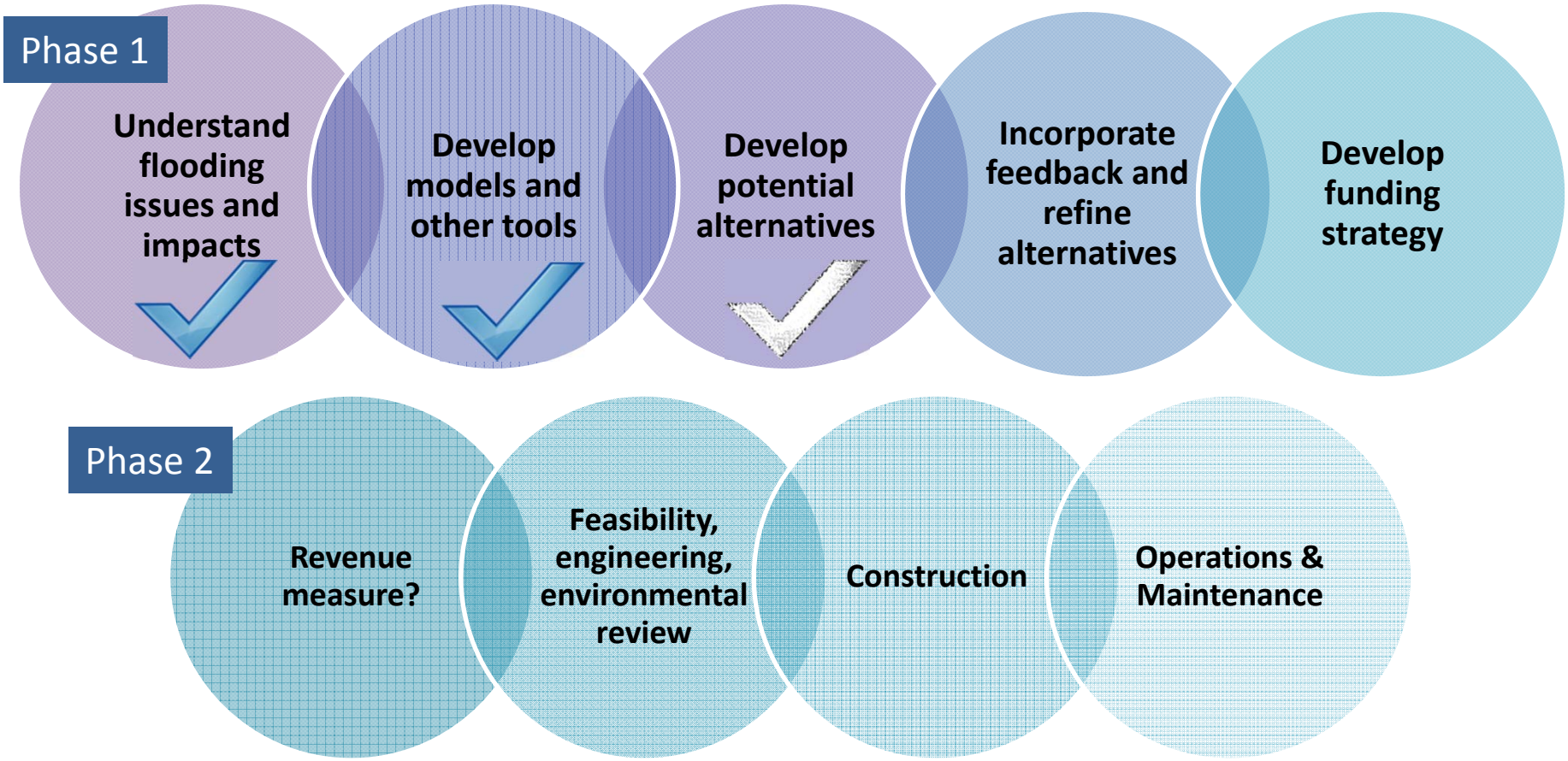
Zone 3 & Zone 4

Our approach…



Our approach…

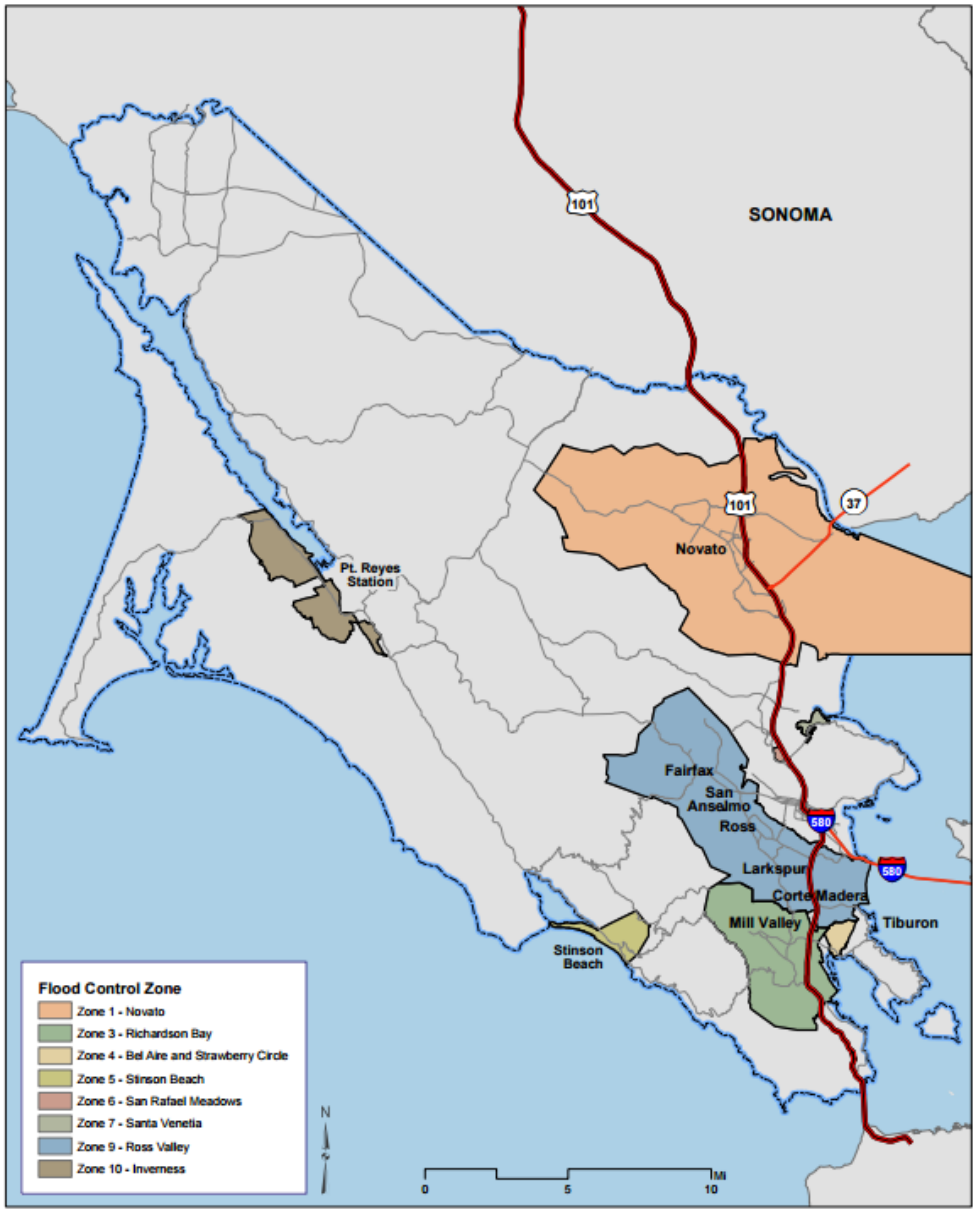
Stakeholder Engagement and Community Outreach
Input on planning process and alternatives



Our schedule…

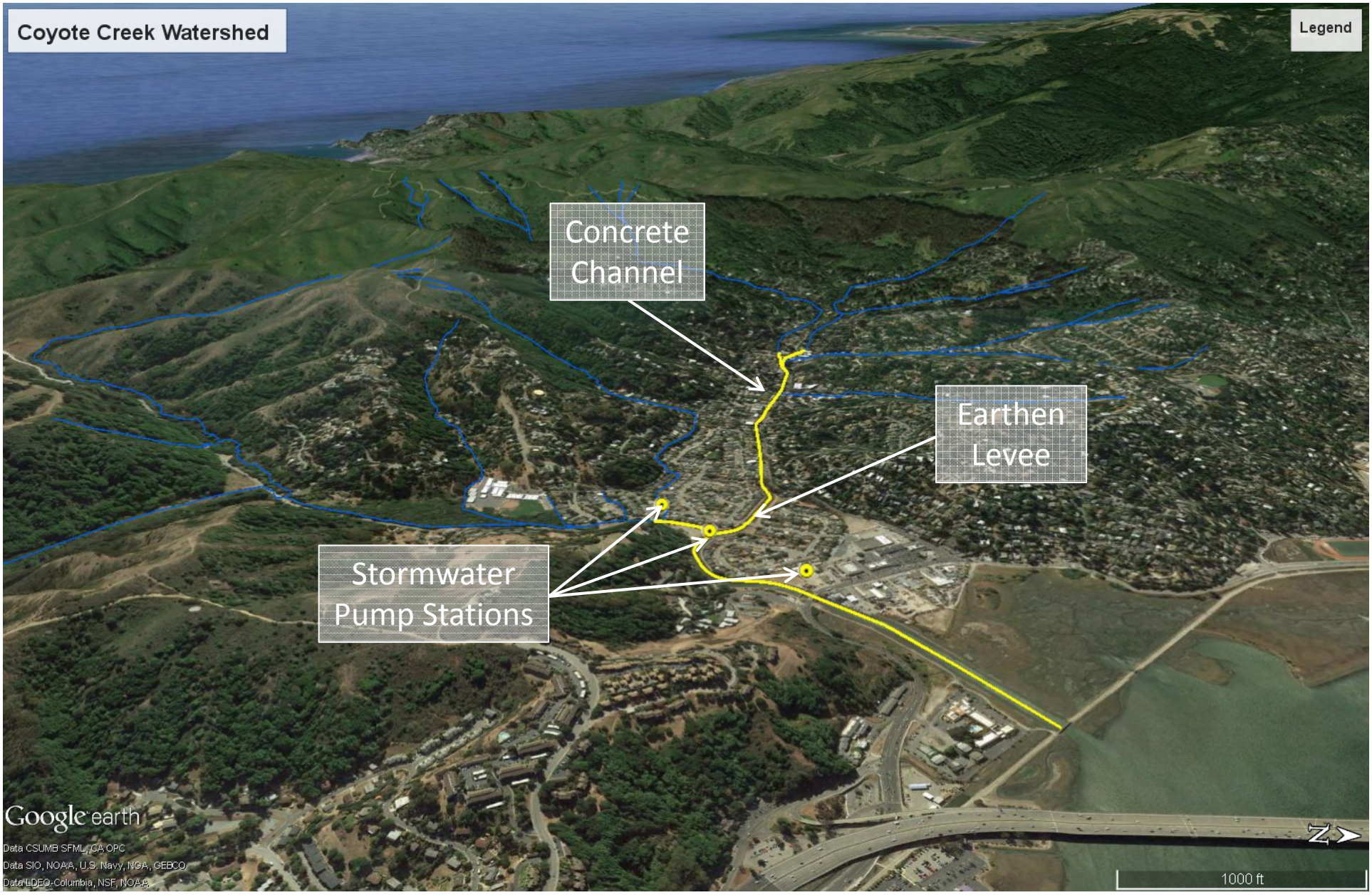
Deliverable	Description	Date
Community Meetings: Meeting 1	Introduce the Program and Watershed Guide. Identify potential flood and watershed alternatives	April through July
Meeting 2	Review riverine and tidal flood issues and considered alternatives. Input on the Guide.	July through September?
Meeting 3	If needed to refine alternatives by watershed	Fall/Winter
Shoreline Study	Introduce sea level rise scenarios and potential options	Fall
Watershed Guide	Finalizing text and then will begin draft layout and graphics	Final expected in 2015
Funding Needs	Funding needed for considered alternatives	Late 2015?

What is Flood Control Zone 3?

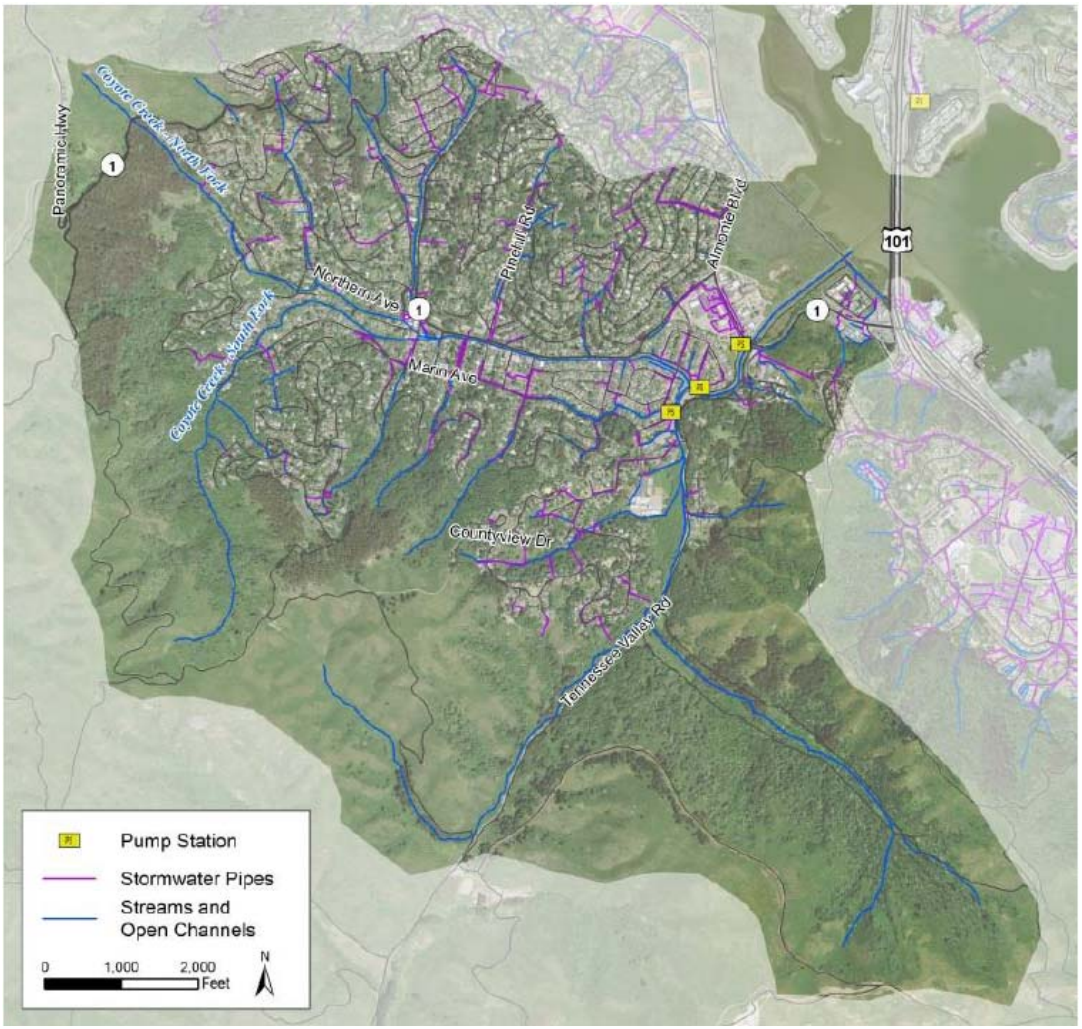


- Helps fund infrastructure designed to reduce flood risk
- Regular source of revenue from ad valorem property tax
- Supplemental tax measure could provide additional revenue source; requires 2/3 approval of voters

Existing infrastructure & potential needs…



Existing infrastructure & potential needs…



STEP 1

IDENTIFY FLOODING ISSUES

- Creek Overflow
- Storm Drain Overflow
- Stormwater Ponding
- Tidal Inundation

Existing infrastructure & potential needs…

STEP 2

ASSESS POTENTIAL PROJECTS

- Bypass
- Channel Restoration
- Creek Maintenance
- Drainage Improvements
- Fish Passage Barrier Removal
- Floodwalls/Levees
- Habitat Restoration
- Structure Elevation
- Increase Conveyance
- Stormwater Pump
- Shoreline Adaptation
- Stormwater Detention

Existing infrastructure & potential needs…

STEP 3

DEVELOP COST ESTIMATES

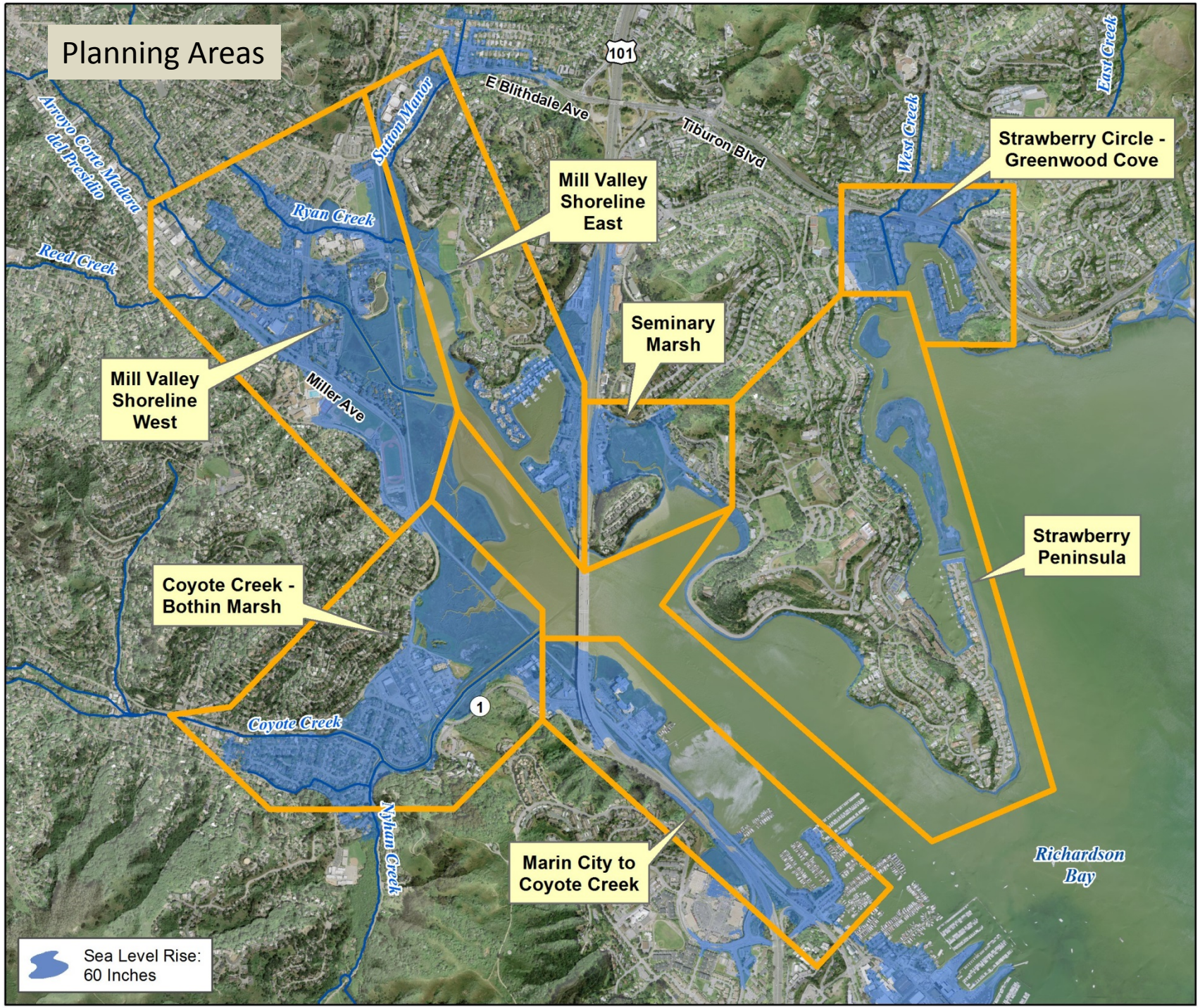
- Conceptual, appraisal level
- For planning purposes only
- Would need to be refined for design and construction
- For projects which have not already been the subject of a prior and recent report or study
- For projects which have been the subject of a recent report or study, prior cost estimates will be included where available

Shoreline Study goal…

Provide the education and engineering basis for future **Adaptation Planning**

Make it Real

- Makes no final recommendations or ranking
- Concept level only


Planning Areas
Arroyo Corte Madera del Presidio
Reed Creek
Ryan Creek
Sutton Manor
E Blithdale Ave
101
Tiburon Blvd
West Creek
East Creek
Mill Valley Shoreline East
Strawberry Circle - Greenwood Cove
Seminary Marsh
Mill Valley Shoreline West
Miller Ave
Strawberry Peninsula
Coyote Creek - Bothin Marsh
1
Coyote Creek
Nyhan Creek
Marin City to Coyote Creek
Richardson Bay
Sea Level Rise: 60 Inches

Study parts…

1. Develop sea level rise scenarios, inundation maps and limited vulnerability assessment

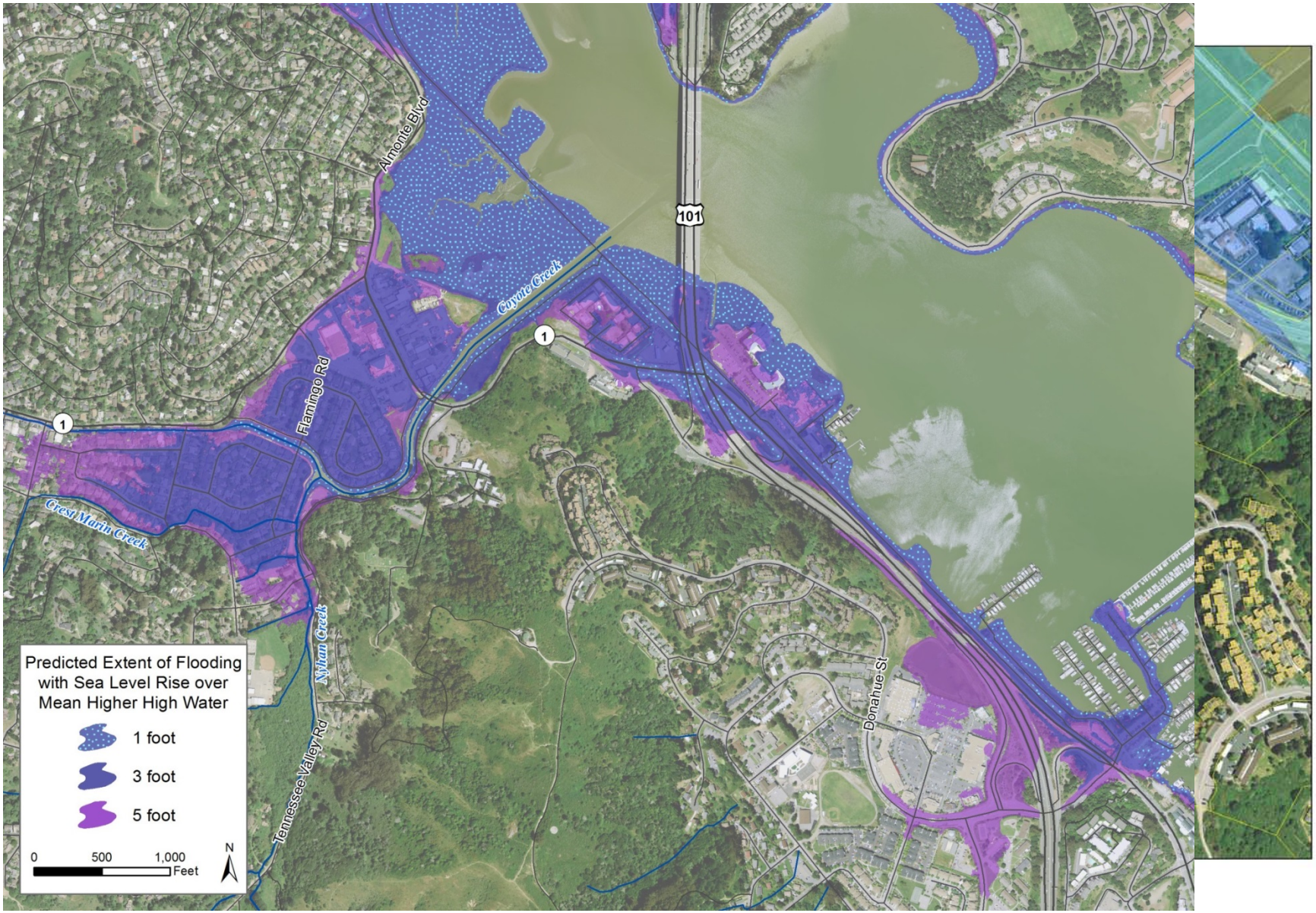
2. Describe adaptation alternatives
   - Hard/soft, pros/cons, impacts, typical cost ranges

3. Adaptation approaches and trade-offs
   - Limit of direct coastal flooding, phasing

4. Order of magnitude example cost estimates

5. Next steps and pilot projects for grant funding

Sea level rise extents... still water only




Build a
barrier?

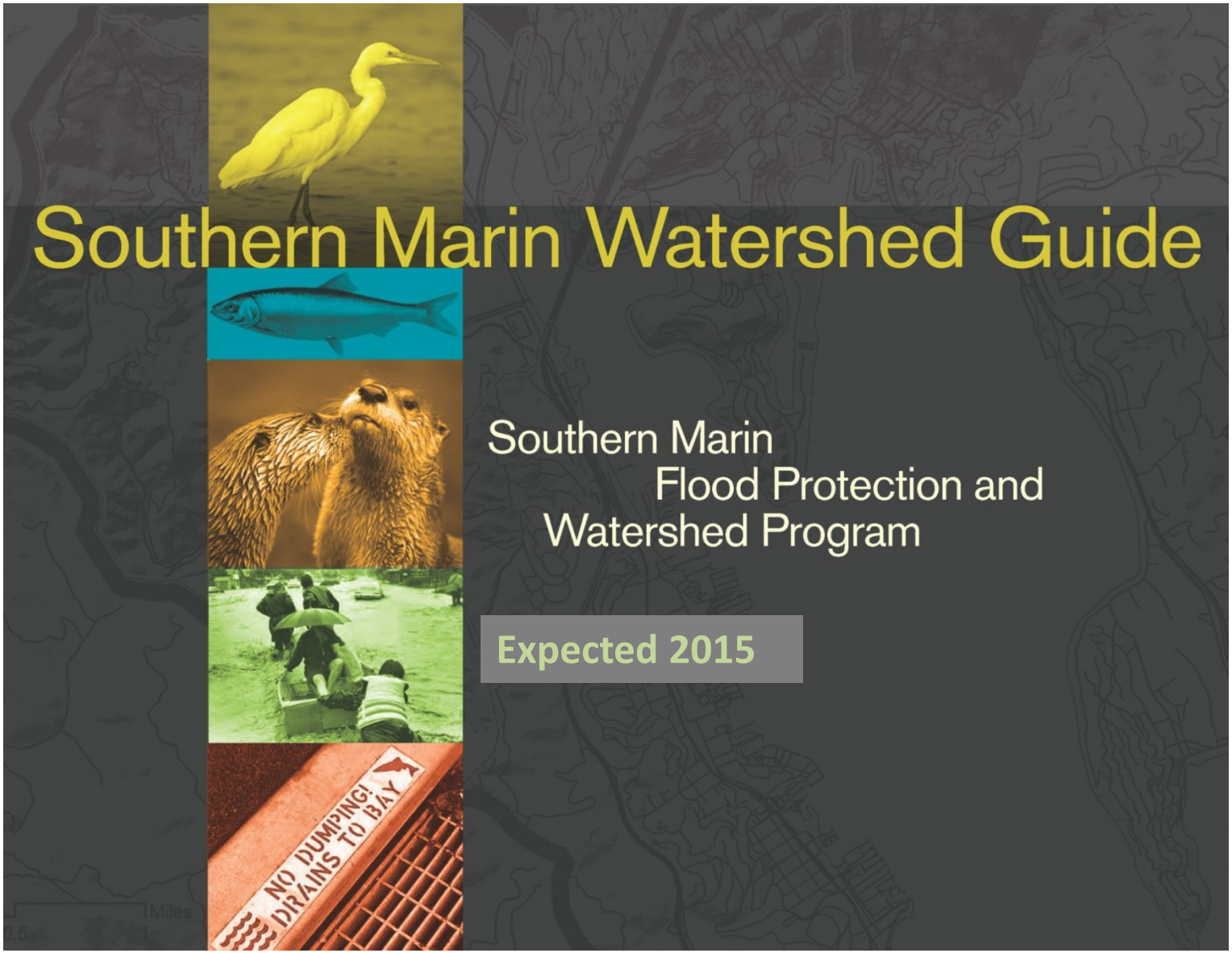

Raise and
extend the marsh?

FEMA Community Rating System

Discounts for Flood Insurance

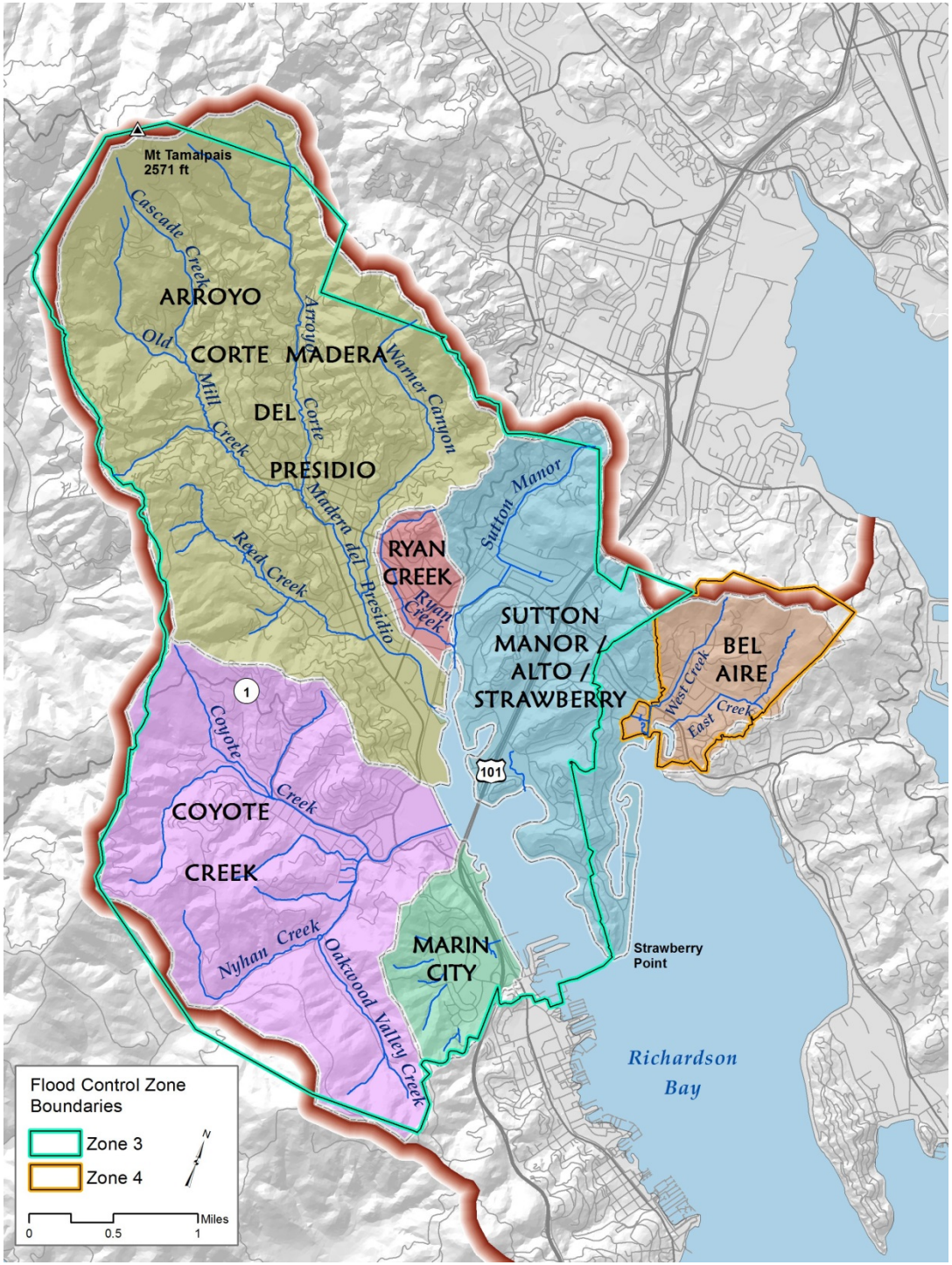
- Voluntary incentive program
- Implemented by the County and would affect unincorporated areas only
- CRS score by Oct 2015; Discounts in flood insurance costs would be applied as insurance policy is renewed after May 2016
- Difficult to predict the exact amount of the discount, but current estimation is for a reduction of either 5% or 10%
- Future implementation of additional community floodplain management activities may result in additional discounts

Watershed Guide: Introduction



Watershed Guide: Purpose

- Describe the watershed, where we live, and the habitat for other species
- Define existing conditions for the creeks and flood history
- Explain how current flood protection facilities function
- Show future sea level rise conditions, tidal impacts, and possible adaptation measures
- Describe completed and potential projects


Mt Tamalpais
2571 ft
Cascade Creek
ARROYO
CORTE MADERA
DEL
PRESIDIO
Old Mill Creek
Arroyo Corte Madera del Presidio
Warner Canyon
Read Creek
RYAN
CREEK
Ryan Creek
Sutton Manor
SUTTON
MANOR /
ALTO /
STRAWBERRY
BEL
AIRE
West Creek
East Creek
101
1
Coyote Creek
COYOTE
CREEK
Nyhan Creek
Oakwood Valley Creek
MARIN
CITY
Strawberry
Point
Richardson
Bay
Flood Control Zone
Boundaries
Zone 3
Zone 4
N
Miles
0
0.5
1

Flood History

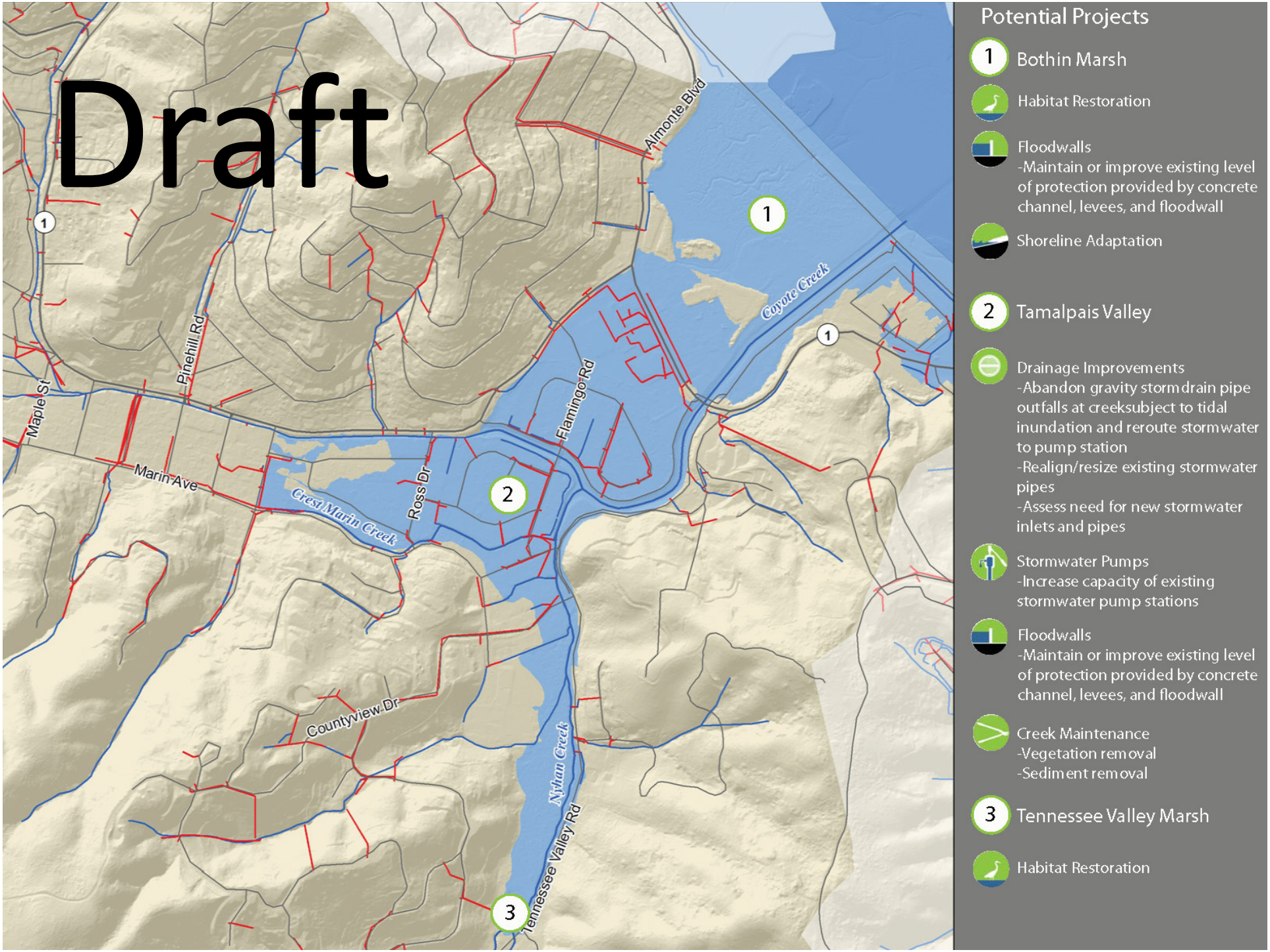
As early as 1889, a surveying crew camped near Throckmorton and Miller Avenues in present-day Mill Valley described having to move camp due to excessive water flowing from Cascade Canyon (Murray 2006). Between 1907 and the present, 17 major floods have inundated significant portions of southern Marin (Stetson 2012 and Murray 2006).

In 1925, floodwaters in Mill Valley moved upright redwood trees from Marion Avenue to Cascade Drive and washed a warehouse into Arroyo Corte Madera del Presidio Creek (Murray 2006).

In the quarter century between 1938 and 1963, eight floods, including three of the five most severe, created havoc and damaged infrastructure. As was true through the Bay Area, a combination of frequent storms and unchecked urban development lead to unanticipated flood damages. During the 1955 flood, 80 mile per hour winds ripped off the roofs of houses after 12 inches of rain fell in two days (Murray 2006).

In 1982, intense rains pelted the watershed and massive mudslides killed five people. The worst flooding, however, occurred in 2005. Twenty-five inches of rain fell in the wettest December in half a century saturating the ground and filling creeks with water.

(above) Mill Valley resident Bill Kier remembers the flooding of Arroyo Corte Madera del Presidio that resulted from a combination of high tide, a stiff wind out of the Golden Gate, and the debris blocking culverts. "I wake up on New Year's Day 2006 and it just looks like an ocean out there." (left) Flooding in 1982.


Draft
Almonte Blvd
Pinehill Rd
Maple St
Marin Ave
Crest Marin Creek
Ross Dr
Flamingo Rd
Coyote Creek
Countyview Dr
Nyhan Creek
Tennessee Valley Rd
1
2
3
Potential Projects
1 Bothin Marsh
Habitat Restoration
Floodwalls
-Maintain or improve existing level of protection provided by concrete channel, levees, and floodwall
Shoreline Adaptation
2 Tamalpais Valley
Drainage Improvements
-Abandon gravity stormdrain pipe outfalls at creeksubject to tidal inundation and reroute stormwater to pump station
-Realign/resize existing stormwater pipes
-Assess need for new stormwater inlets and pipes
Stormwater Pumps
-Increase capacity of existing stormwater pump stations
Floodwalls
-Maintain or improve existing level of protection provided by concrete channel, levees, and floodwall
Creek Maintenance
-Vegetation removal
-Sediment removal
3 Tennessee Valley Marsh
Habitat Restoration

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Please visit marinwatersheds.org to follow progress on the Watershed Program

CONTACTS

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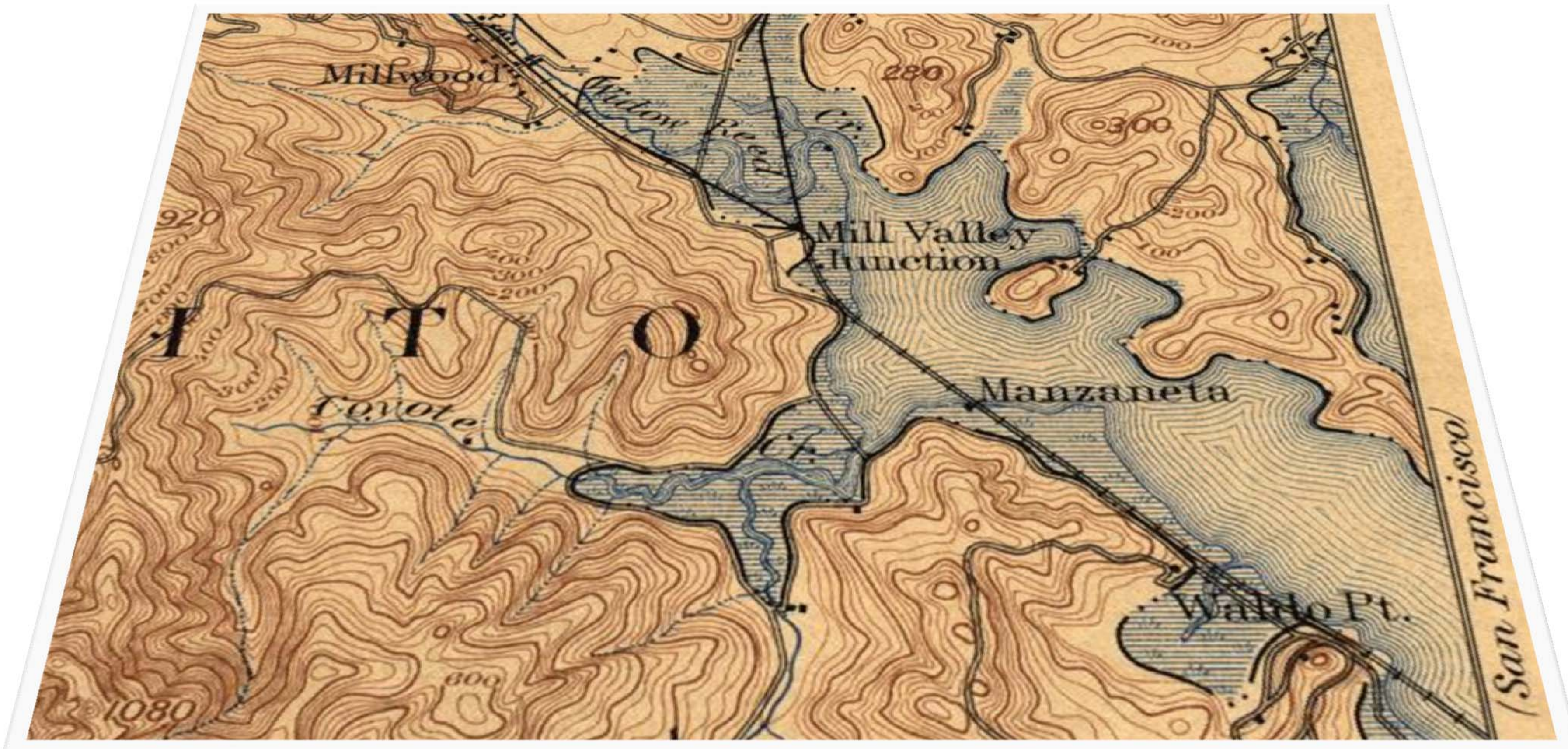
Thank You!



Millwood
Widow Reed
Cr.
280
300
200
100
920
Mill Valley
Junction
T
O
Coyote
Manzaneta
Cr.
Waldo Pt.
(San Francisco)
600
1080