

# Policy Frameworks Discussion: Natural Environment, Flood Resilience, & Environmental Justice

Planning Commission, June 11, 2024

# Planning Commission: Review Process

- **April 9:** *Ad Hoc Review Working Groups formed*
- **May 28:**
  - *Safety, Implementation & Governance*
  - *Ad Hoc Group #2: Economic Development, Infrastructure & Utilities, Noise*
- **June 11:**
  - Ad Hoc Group #1: Flood Resilience, Environmental Justice
  - Ad Hoc Group #2: Natural Environment
- **June 18:** Historic Resources; Arts, Culture, & Creativity; Public Facilities
- **June 25:** Ad Hoc Group #1: Parks & Recreation, Transportation
- **July 23:** Final Comments

# Meeting Overview

- Consultant Overview of Policy Frameworks: Natural Environment, Flood Resilience, and Environmental Justice
  - Clarifying Questions
- Ad Hoc Committee Presentations: Natural Environment, Flood Resilience, and Environmental Justice
  - Clarifying Questions
- Public Comment
- Commissioner Comment



# Ad Hoc Request

- Provide consolidated comments on assigned Frameworks, given Council-approved General Plan Vision, Pillars, and Principles
  - Use provided forms to organize feedback and facilitate its use by the GP team
  - Consolidated comments will represent the consensus of the Ad Hoc
  - Disagreements may be noted
- PC members may comment on other Frameworks as part of the review discussion when Ad Hocs report out

# Framework Review Form

In light of the Vision, Pillars, and Guiding Principles prepared by the GPAC and adopted by the City Council (<https://www.planpetaluma.org/documents#gpuvision>):

What are the most important policies in this framework? We recommend identifying the top 5 (or fewer) policies and ranking them in order of importance.

Policy	Explanation

What concerns do you have about the policies in this framework? For example, are they unclear? Should they be softened or strengthened? Do you disagree with the policy direction?

Policy	Explanation

# Providing Feedback

## Online Feedback Form for each Framework

- Provide goal- and policy-specific feedback
- Provide general feedback



Review other Policy Frameworks and provide feedback:  
<https://www.planpetaluma.org/policy-frameworks>

# What feedback do you have?

## Considering your technical expertise...

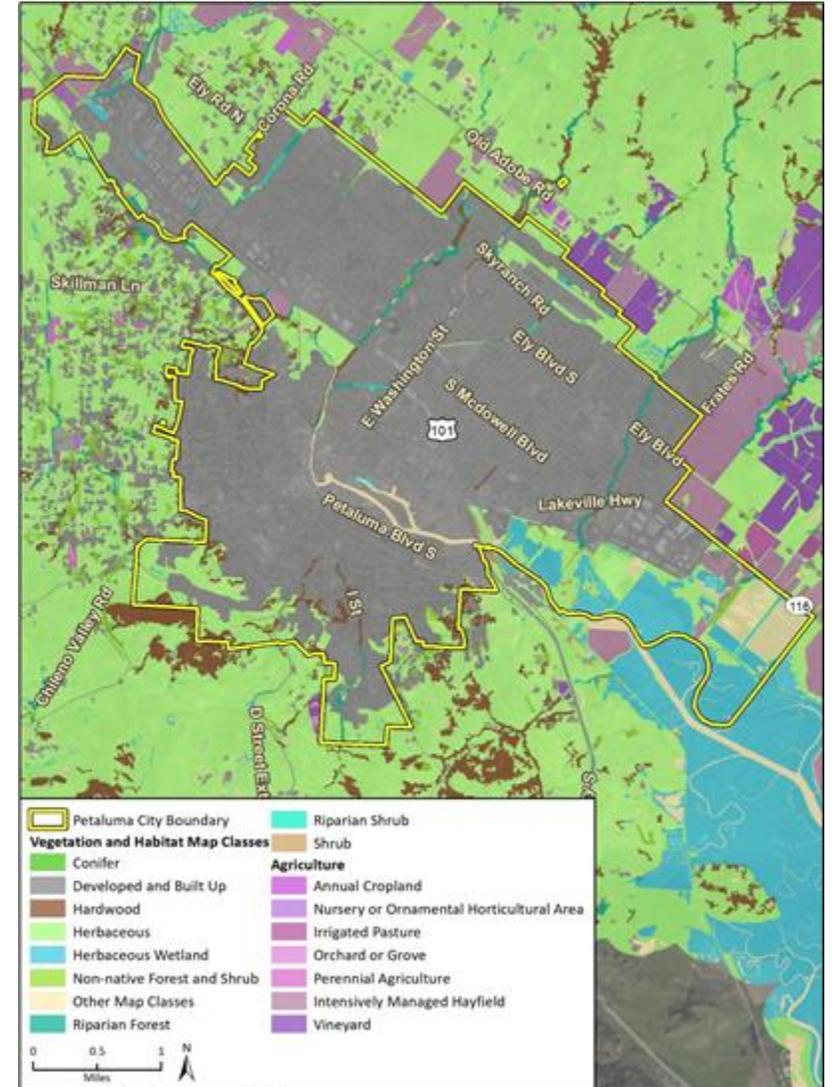
- What are the **most important** policies in this framework?
  - We recommend identifying the top 5 (or fewer) policies and ranking them in order of importance.
- What **concerns** do you have about the policies in this framework?
  - For example, are they unclear? Should they be softened or strengthened? Do you disagree with the policy direction?
- **Trees:** Is there specific feedback regarding organization of all tree related policies in a single element or with an organizational crosswalk to track all tree related policies through multiple elements of the General Plan?
- **Environmental Justice**
  - Other than the Equity Priority Areas identified in Figure 1, are there additional low-income areas that are disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation?
  - Does the framework address the challenges residents face in reducing their exposure to pollution and accessing health, social, and other services through the City?

# Natural Environment Policy Framework

# Foundations: Existing Conditions

Petaluma is a steward of the environment.

- Petaluma River is the “spine” of the city but needs further enhancement and preservation
- Strong legacy of preserving open space, watersheds and habitat
- Urban Growth Boundary preserves agriculture and open space
- Region home to many important plants and animal species



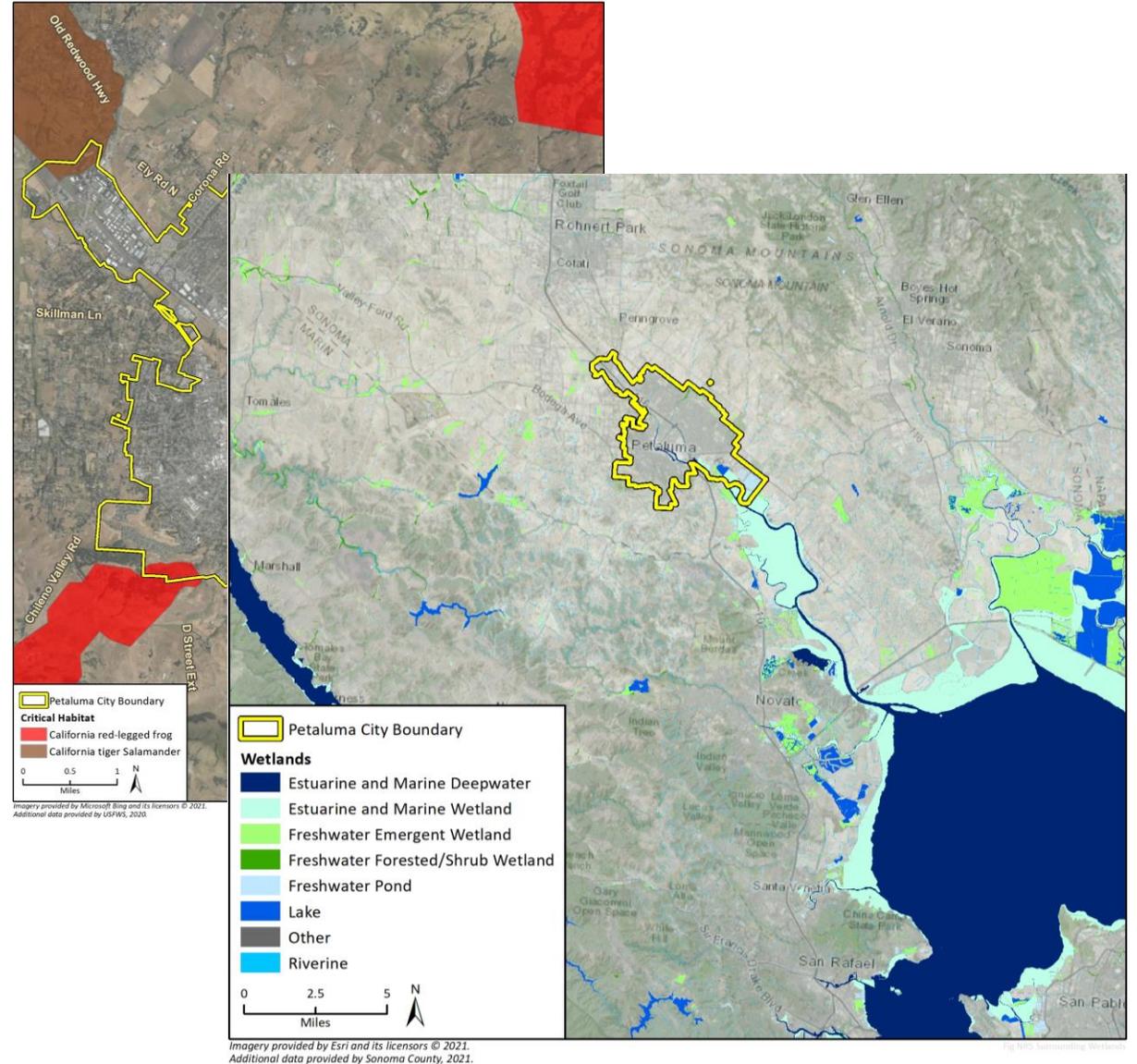
# Biological Resources & Special-Status Species

Petaluma has numerous biological resources that are subject to federal and state regulations and that shape planning decisions.

- Numerous wetlands and waterways subject to the rules and regulations of the Federal Clean Water Act
- Wetlands provide critical habitat and play a significant role in reducing flood risk while supporting biodiversity.
- The Sonoma Valley Wildlife Corridor Project (a conservation effort led by the Sonoma Land Trust) is adjacent to the city.

**Petaluma is home to several special-status plant and animal species.**

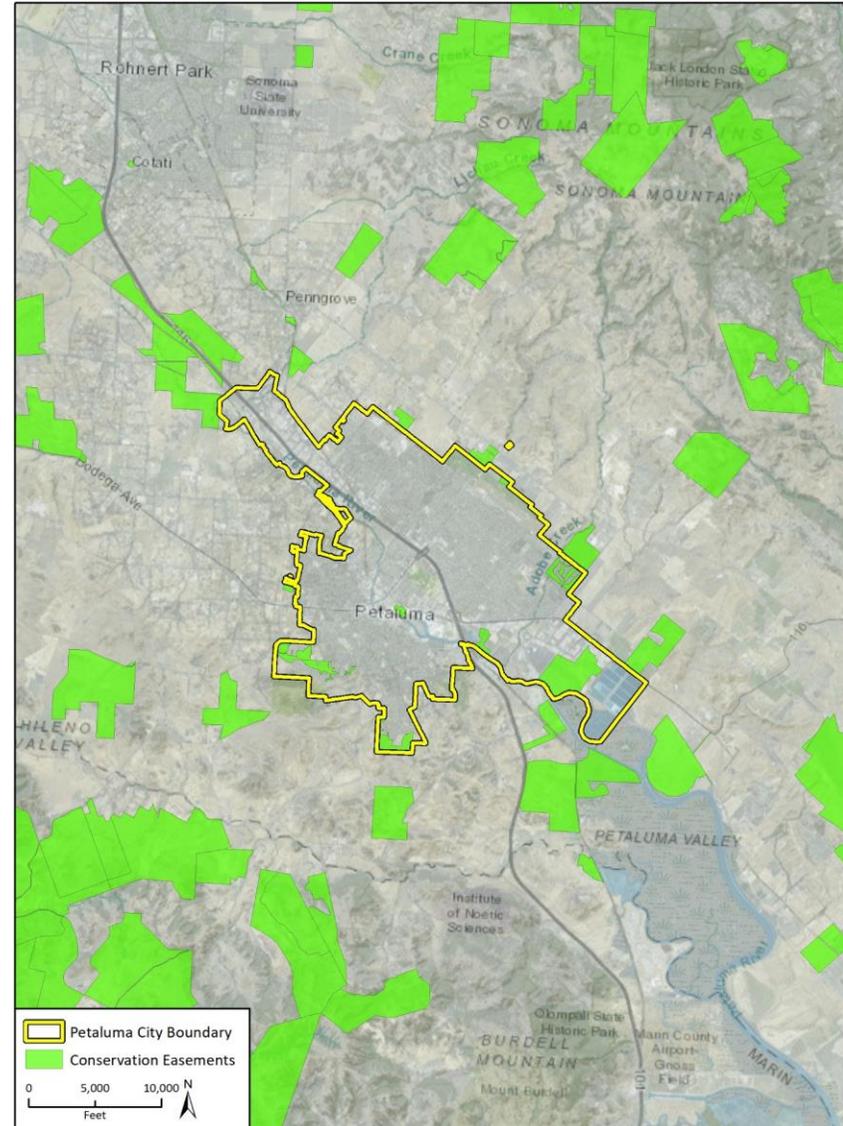
- Most notably, the California Red-legged frog (*Rana draytonii*) and the California tiger salamander (*Ambystoma californiense*), both have critical habitat within the City's boundary.



# Natural Resource Areas

The city is central to a network of conservation easements.

- Several conservation easements are surrounding the city's vicinity, providing visual access to the city's residents and visitors.



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Additional data provided by CCED, 2019.

# Foundations: Community Priorities

## Vision

- **Petaluma is a vibrant river town rooted in the relationship between our people and the land.** We acknowledge that Petaluma is the traditional territory and unceded lands of the Coast Miwok peoples. We appreciate that our name springs from those tribes who first called this land home. Our identity also evolves from our deep agricultural roots, historic downtown, living river, and preserved open spaces. We honor this legacy to celebrate, protect, and restore our natural landscapes and habitats both within and outside our community. Together, we sustain a resilient ecosystem for humans, wildlife, and the earth.
- **We relish our spirited, distinctive neighborhoods where we live, work, and play.** Our friendly, beautiful, and nature-filled streets, parks, urban forest, and accessible river, bike lanes and trails, and walking paths connect people and help keep residents healthy.
- **We are forward-thinking leaders.** We have adapted to climate change with a community-driven, whole systems, and nature-based approach to development.

## Pillars

- **Geographic context and sense of place.** Petaluma is distinguished by its topography, watersheds, coastal climate, surrounding greenbelt, and intact oak and riparian habitats. Petaluma's community character stems from its agricultural heritage, history as a river town, historic neighborhoods, legacy of growth management, sense of community, and engaged and forward-thinking population. The General Plan must preserve Petaluma's distinctive sense of place.

## Guiding Principles

2. Preserve and enhance Petaluma's natural environment and surrounding open spaces.
3. Protect and restore the natural function of the Petaluma River and its tributaries while expanding complementary recreational, entertainment, and civic opportunities.
16. Be a leader in advancing these guiding principles within the region and beyond.

# Natural Environment Goals

Goal ENV-1:  
Community  
Integrated with  
Nature

Goal ENV-2:  
Healthy, Protected,  
and Productive  
Natural Lands

Goal ENV-3: Water  
Resource  
Management

Goal ENV-4: Green  
Infrastructure

Goal ENV-5:  
Native American  
Heritage

# **Goal ENV-1: Community Integrated with Nature**

- Policy ENV-1.1: Environmental Stewardship

# **Goal ENV-2: Healthy, Protected, and Productive Natural Lands**

- Policy ENV-2.1: Create Network of Healthy Habitats
- Policy ENV-2.2: Create Network of Open Spaces
- Policy ENV-2.3: Preserve Open Space
- Policy ENV-2.4: Maintain Natural Lands

# **Goal ENV-3: Water Resource Management**

- Policy ENV-3.1: Minimize Erosion and Runoff
- Policy ENV-3.2: Protect the River and Creeks
- Policy ENV-3.3: Prevent Development Pollutant Discharge
- Policy ENV-3.4: Promote Sustainable Development Practices

# **Goal ENV-4: Green Infrastructure**

- Policy ENV-4.1: Utilize Green Infrastructure

# Goal ENV-5: Native American Heritage

- Policy ENV-5.1: Partner with Native American Tribes
- Policy ENV-5.2: Promote Local Native American Heritage

# Flood Resilience Policy Framework

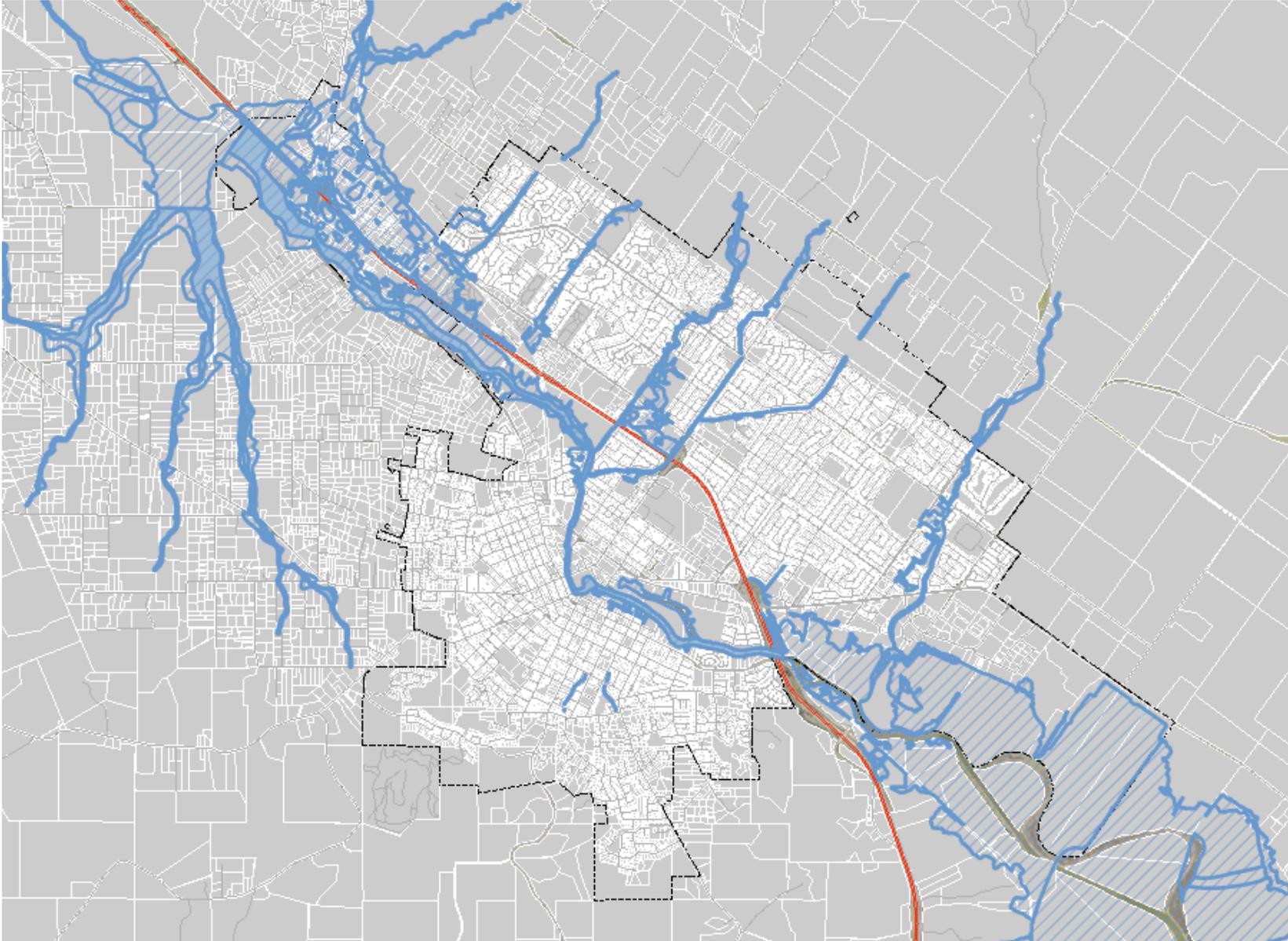


**Water comes down the land, creeks and river from rain**



**Water also comes up the River from the Bay**

# Current FEMA 100-yr (1% Chance) Floodplain



- FEMA maps show modeling based on historic precipitation data and existing land use.
- Utilized to meet regulations required for funding mechanisms and compliance
- FEMA maps do not consider climate change impacts, including increased precipitation, changes to development patterns, and sea level rise, and do not compound with the following sea level rise maps.

A photograph of a wooden truss bridge spanning a river. The bridge has a curved top and is supported by several vertical posts. The water is calm, reflecting the bridge and the sky. On the left bank, there are trees and a building. The sky is blue with some clouds. The left side of the image is overlaid with a semi-transparent green rectangle containing text.

**Where does  
SLR affect  
the City in  
the Future?**

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# MODEL PROCESS WAS PRECISE, PETALUMA FOCUSED

## USED BEST MODEL

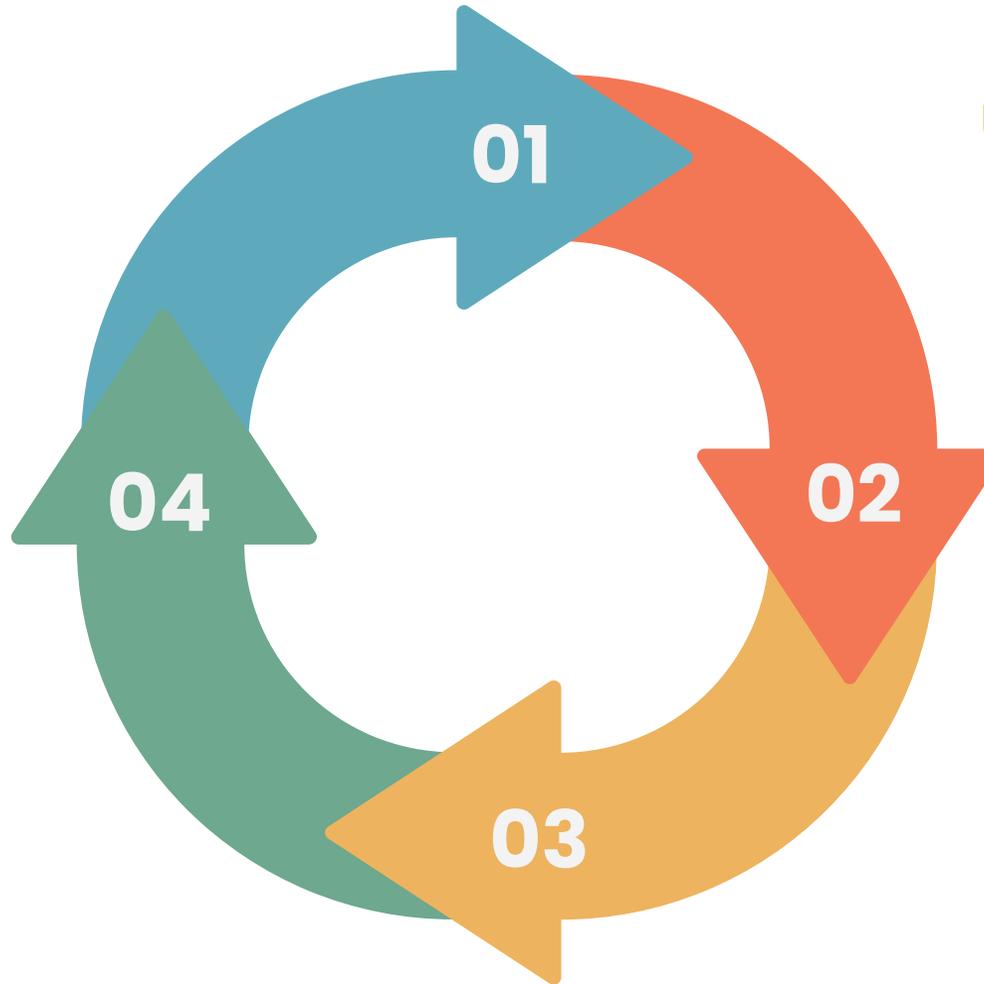
HEC-HMS and HEC-RAS 2D

## USED BEST, PETALUMA DATA

Rainfall data, terrain data (ground surface), structure data

## GOT AS GRANULAR AS POSSIBLE

We walked the streams to determine roughness values, hundreds of culverts/bridges



01

02

03

04

## RAN MODEL, COMPARED TO DATA, DOUBLE CHECKED

Calibrated to the three largest events of record, checked model results carefully for reasonableness stream by stream, reach by reach

# PETALUMA FLOOD MODELING

Includes Climate Change Impacts, Uses Petaluma Specific Data

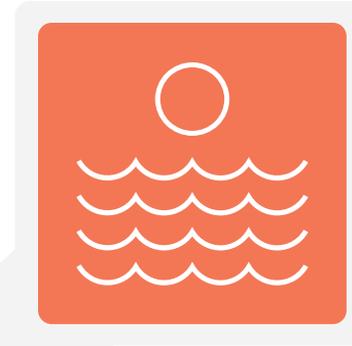
## SEA LEVEL RISE

Based on current science



## MEAN HIGHER HIGHTIDE

The average of the highest tides each year as provided by NOAA.



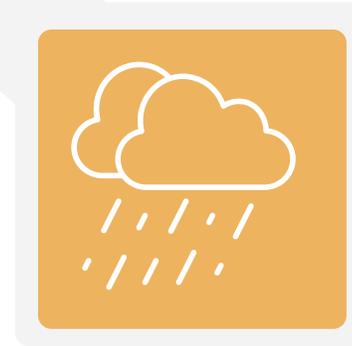
## HYDROLOGY and HYDRAULICS

Ground Surface Terrain, Field Surveys, Land Uses, Vegetation levels



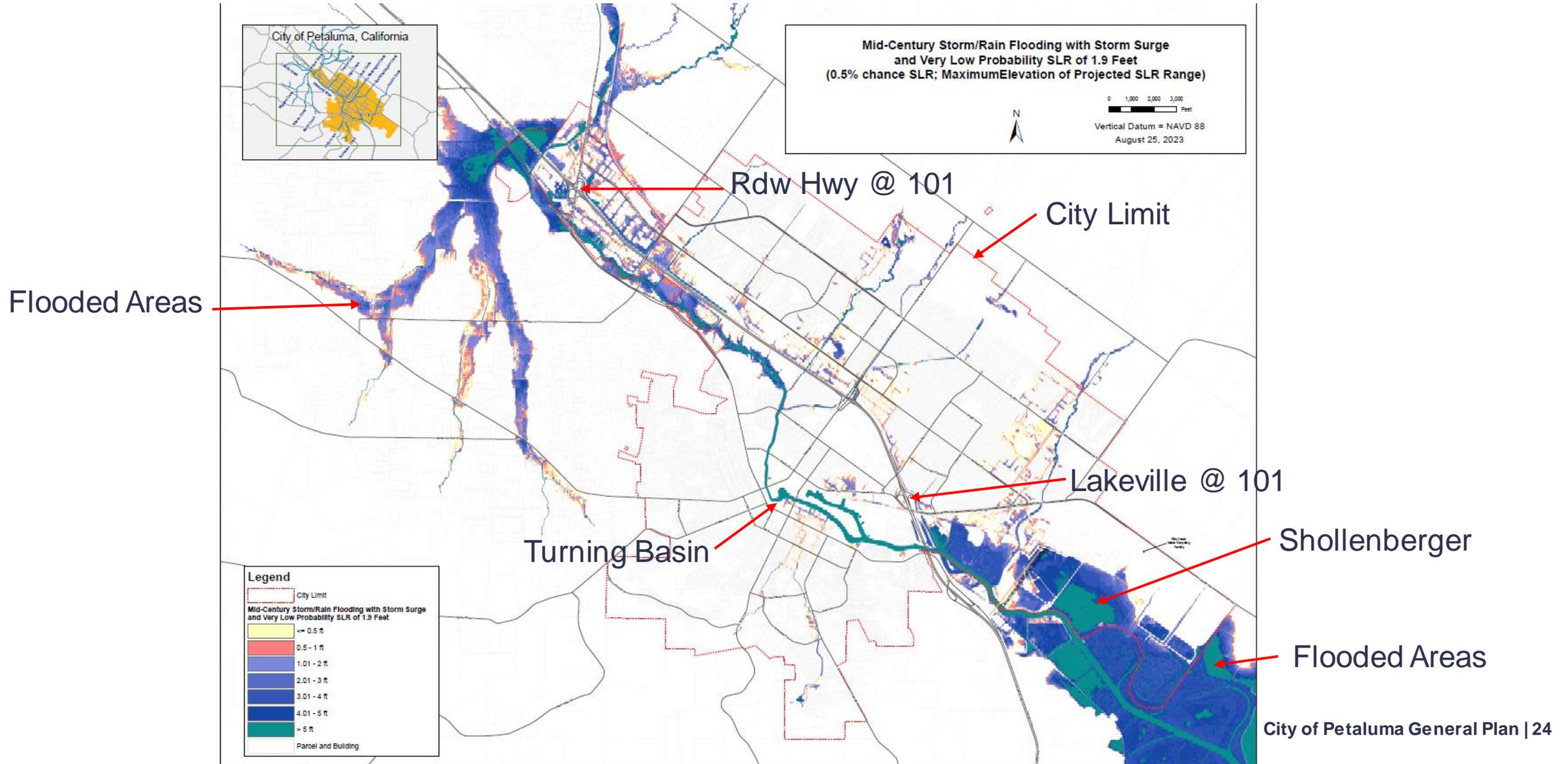
## RAIN

Custom rain study specific to Petaluma in 2023. Considered how much rain is reasonable, where it falls in the watershed heaviest, and how quickly it falls.

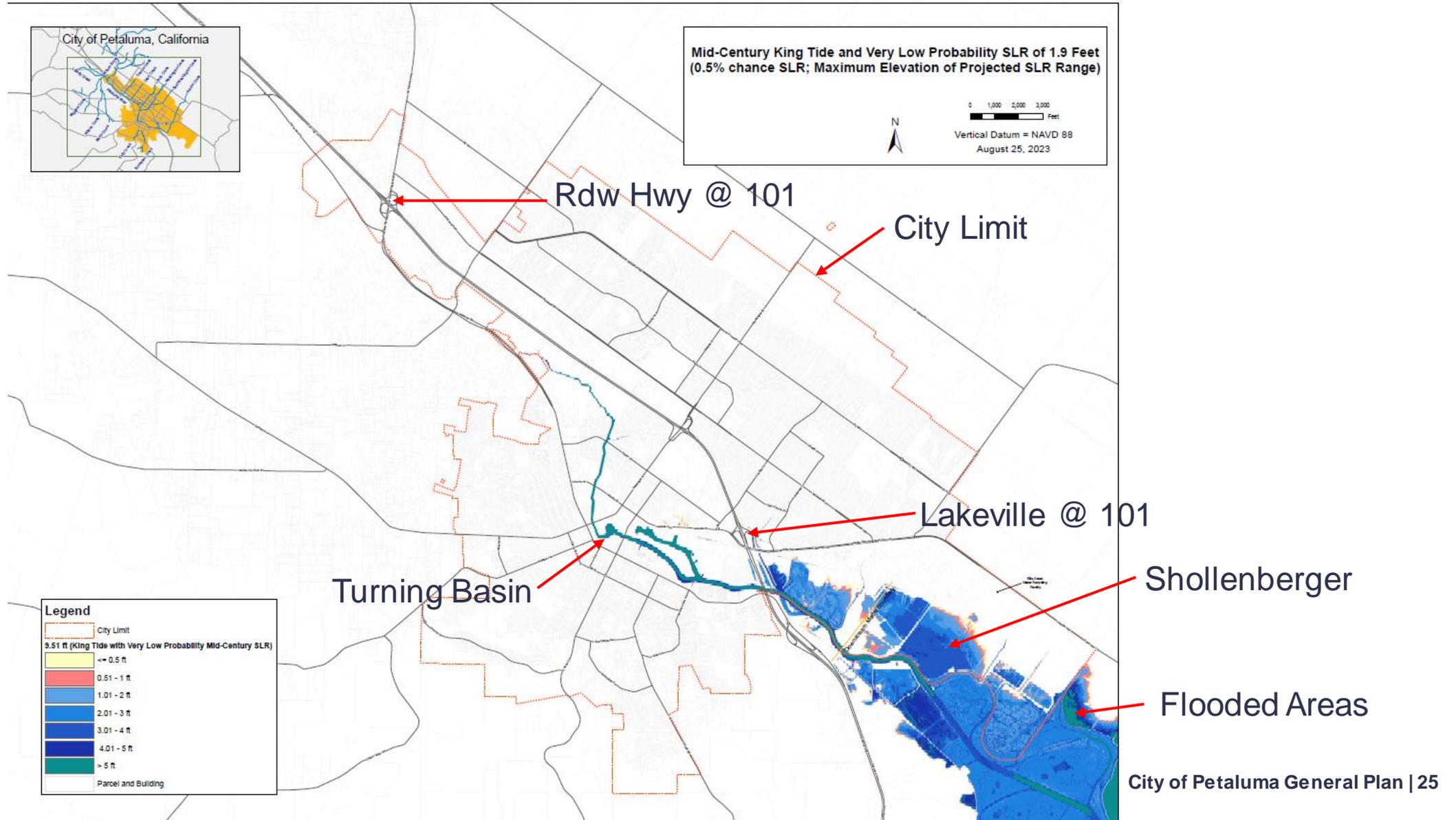


**FLOOD  
MODEL**

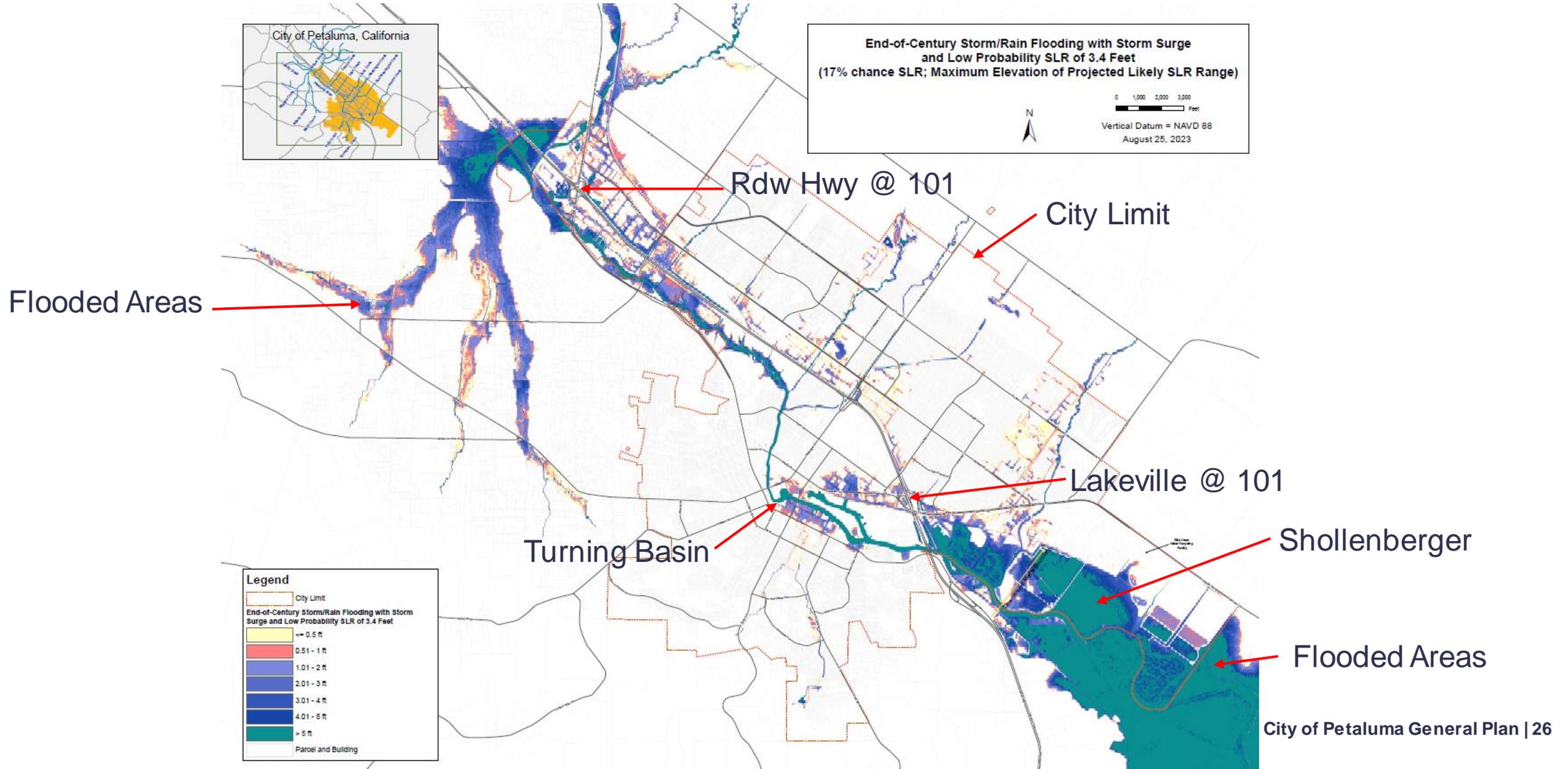
# Mid-Century SLR (1.9 feet), Rain and Storm Surge



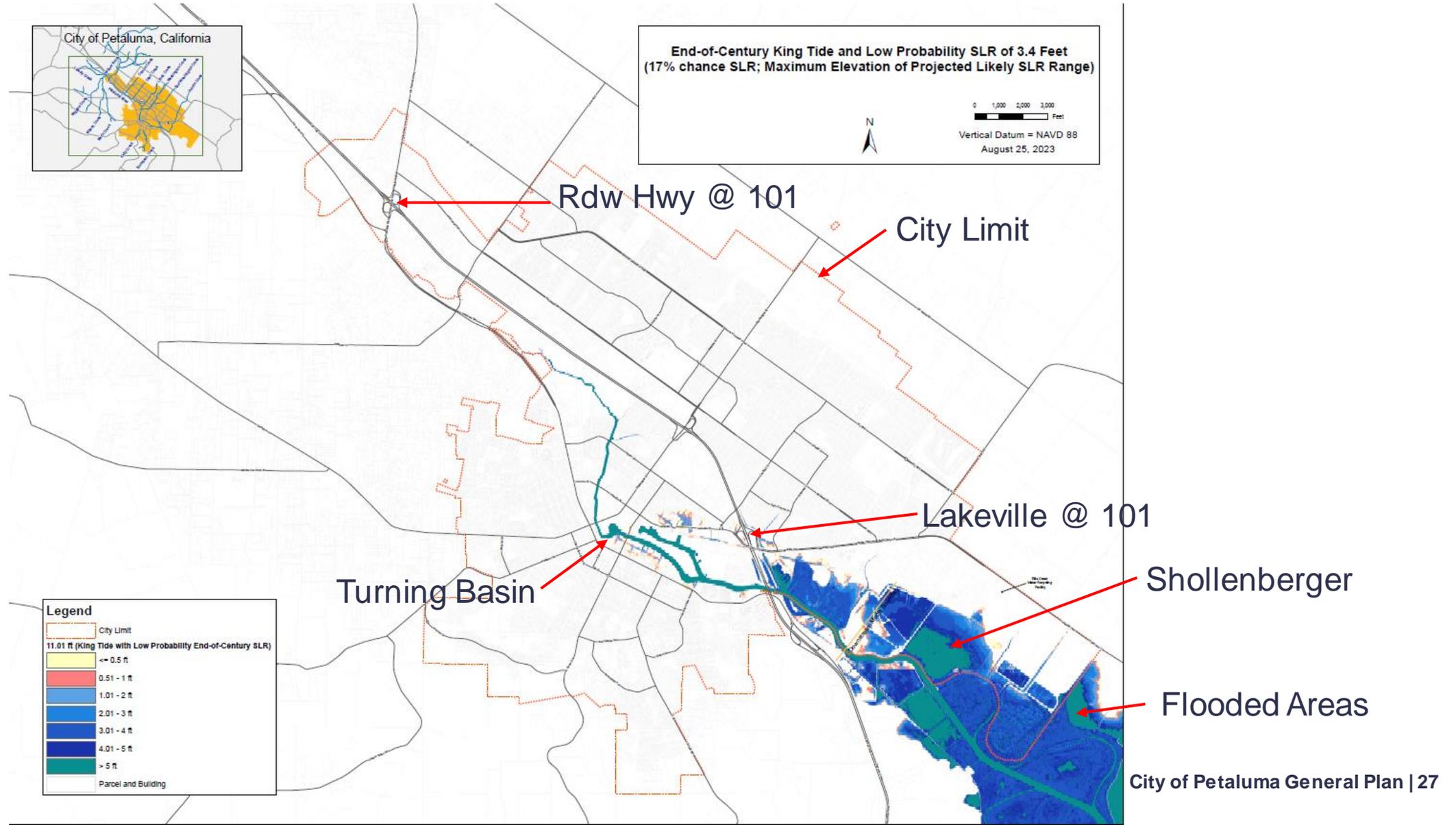
# Mid-Century SLR (1.9 feet), King Tide



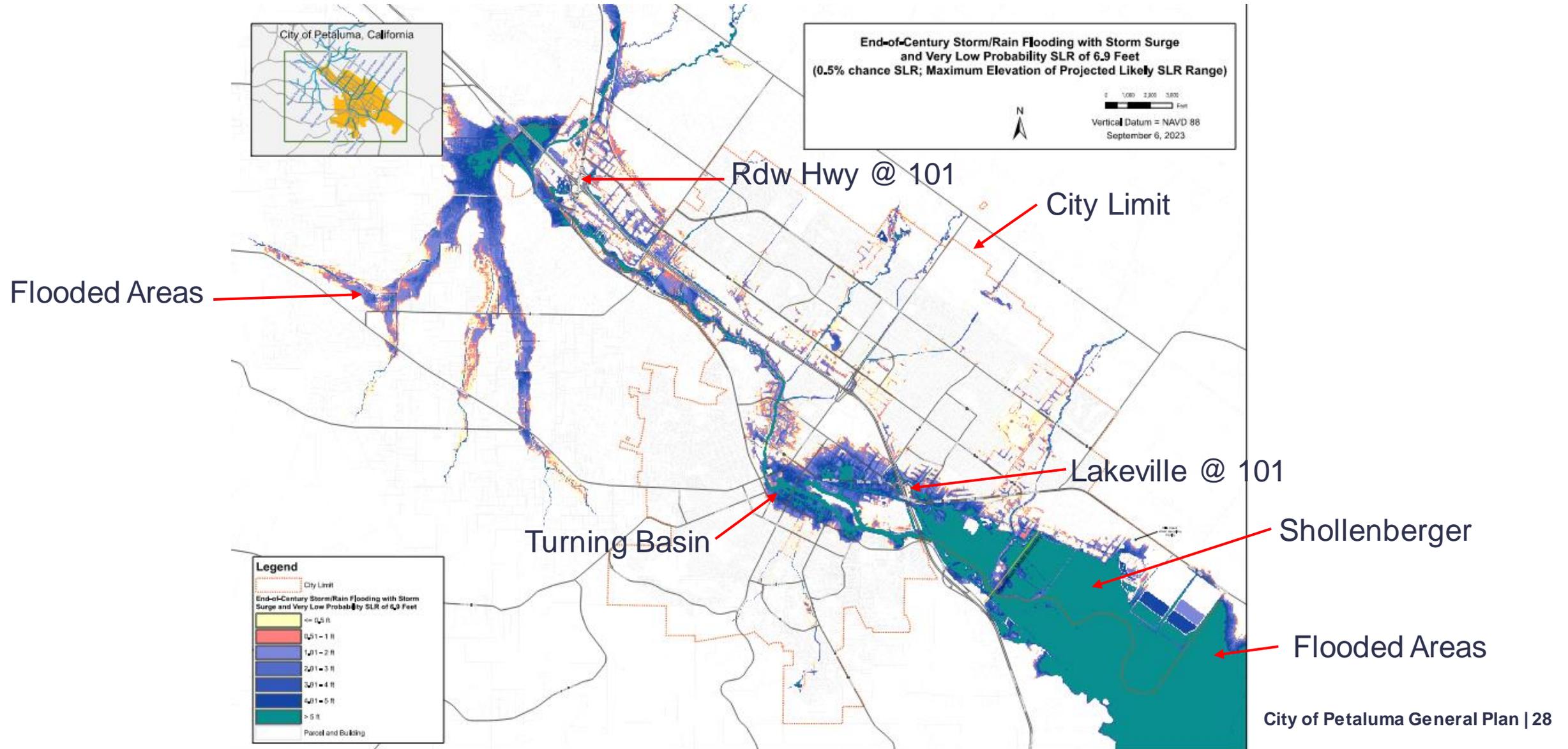
# End-of-Century SLR (3.4 feet), Rain and Storm Surge



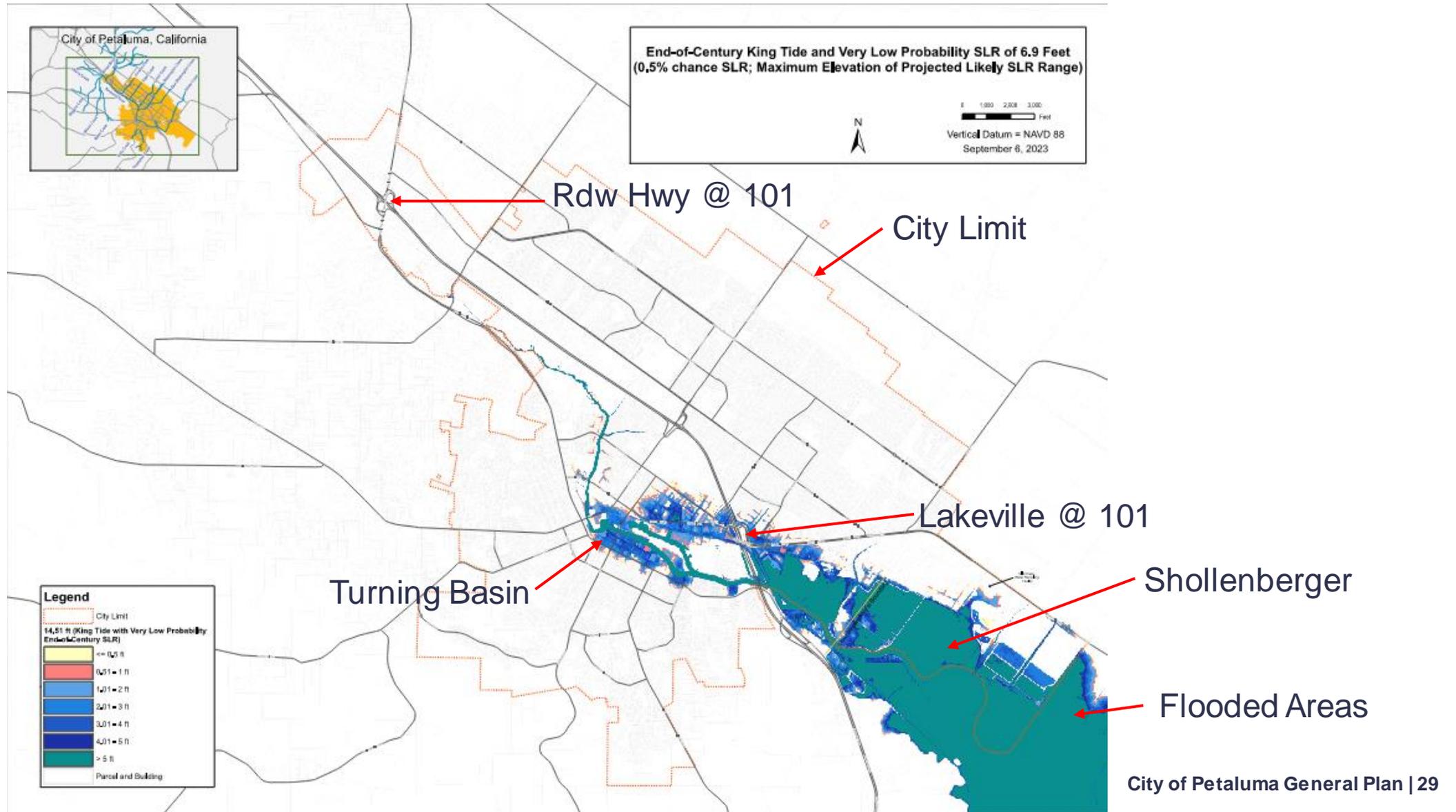
# End-of-Century SLR (3.4 feet), King Tide



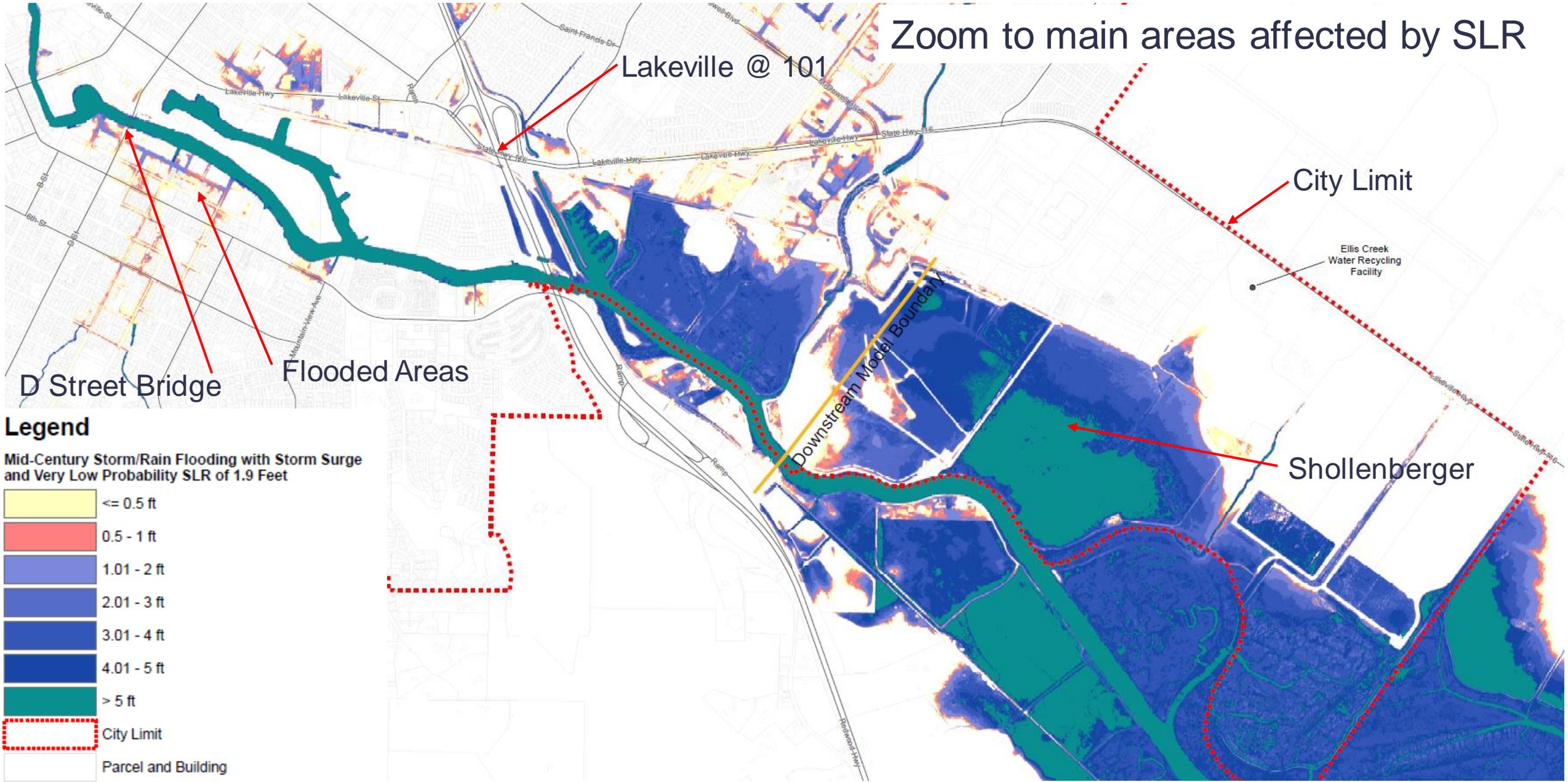
# End-of-Century SLR (6.9 feet), Rain and Storm Surge



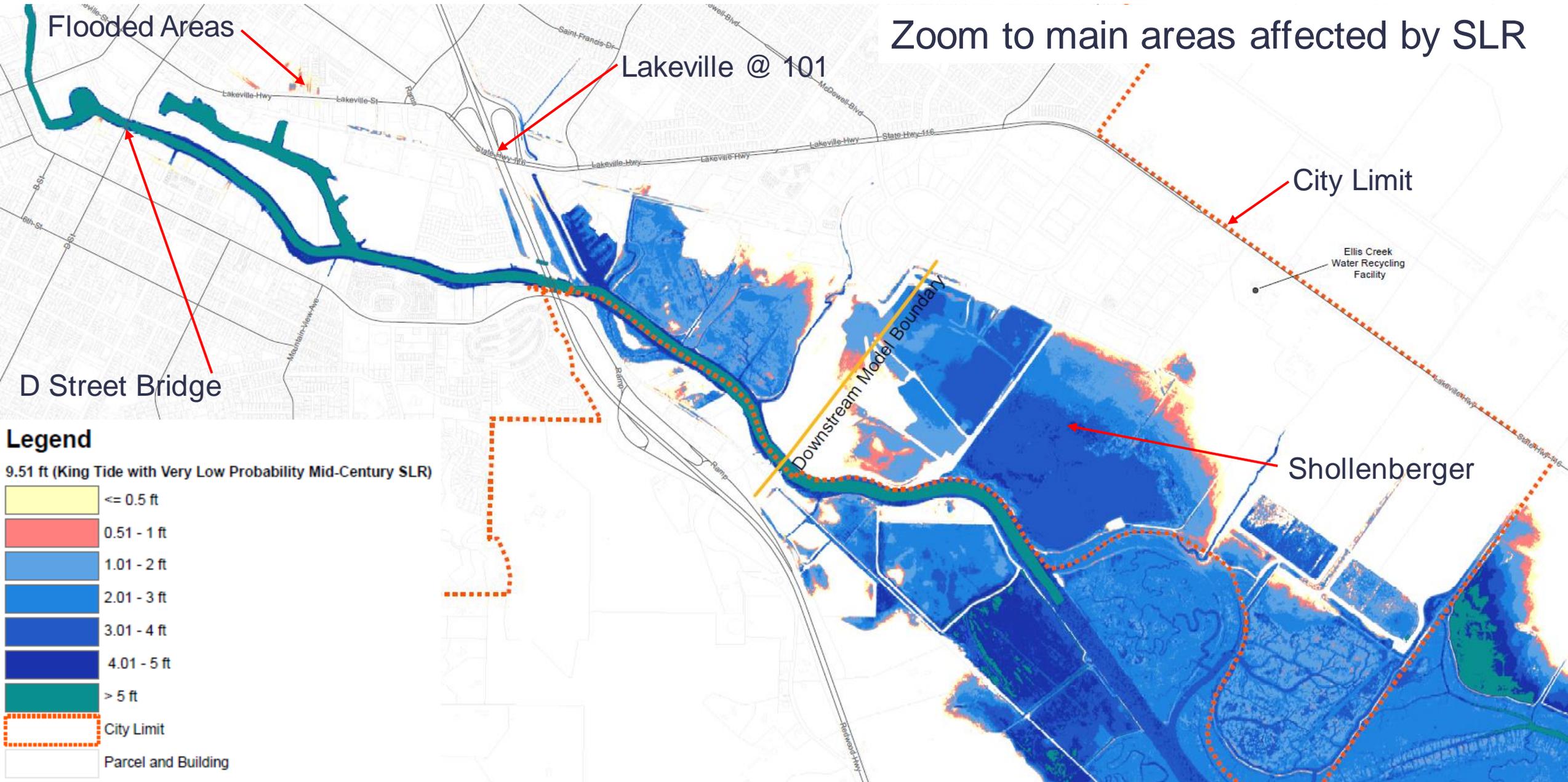
# End-of-Century SLR (6.9 feet), King Tide



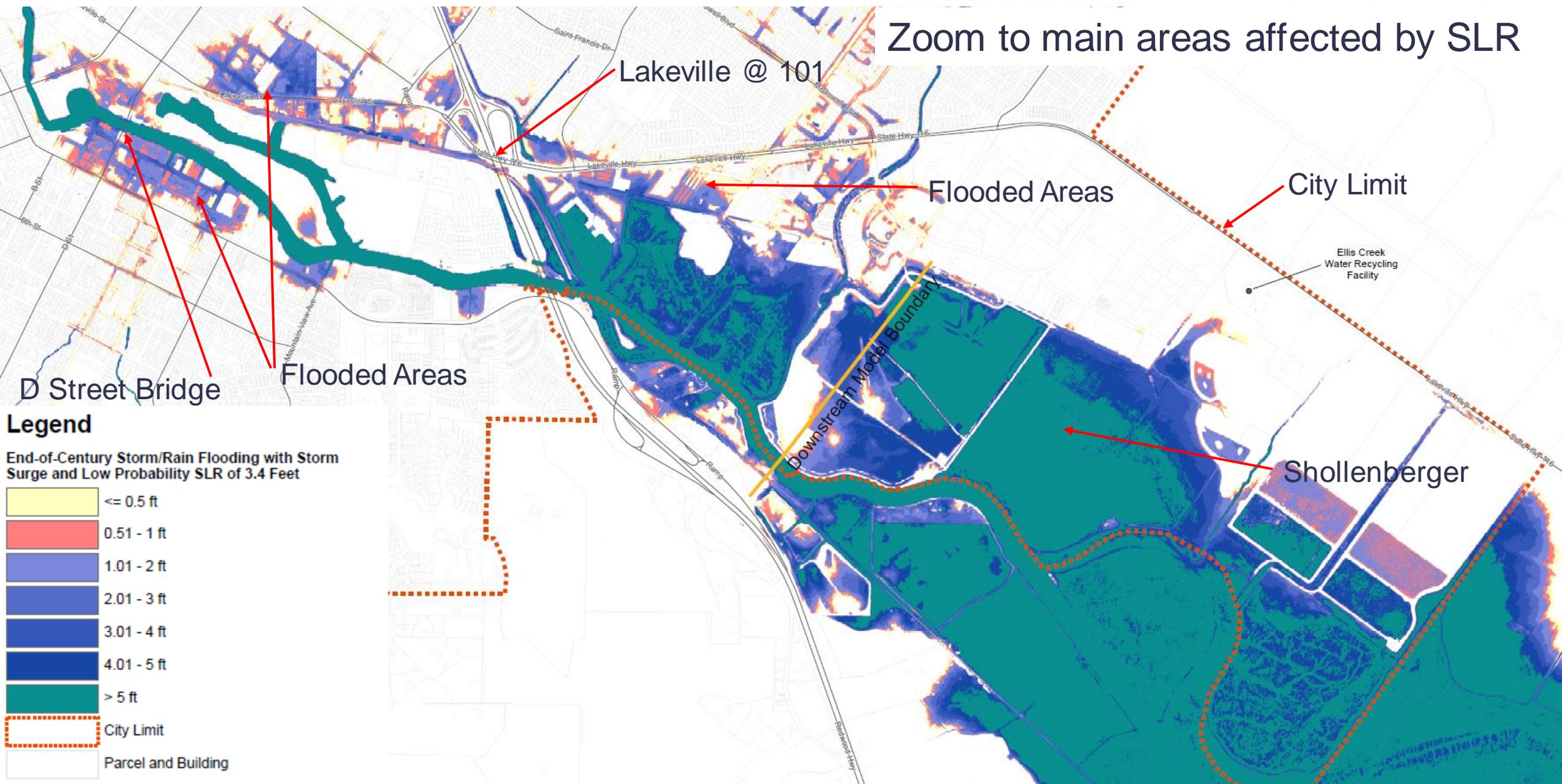
# Mid-Century SLR (1.9 ft), Rain + Storm Surge



# Mid-Century SLR (1.9 feet), King Tide

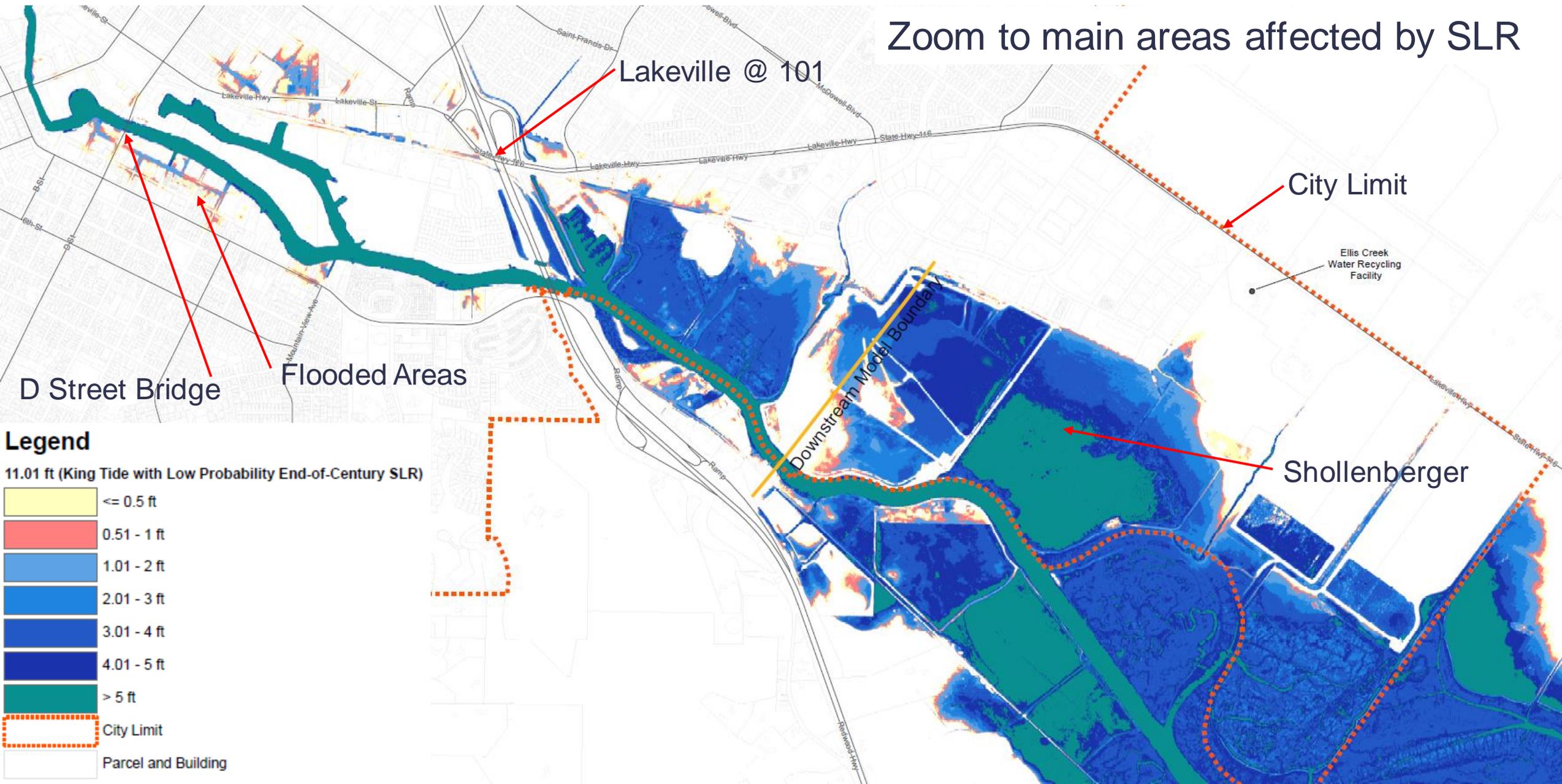


# End-of-Century SLR (3.4 ft), Rain + Storm Surge



# End-of-Century SLR (3.4 feet), King Tide

Zoom to main areas affected by SLR

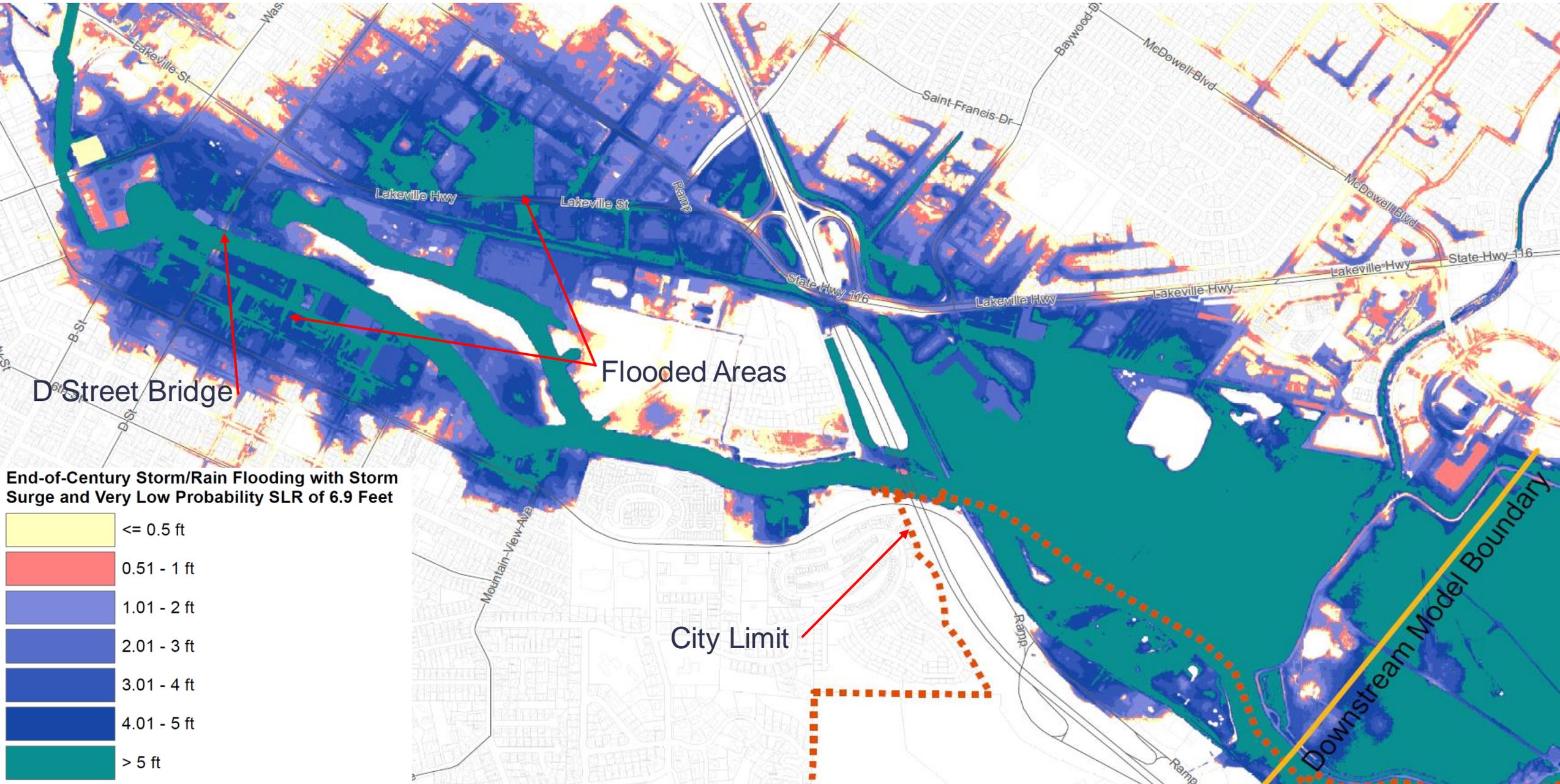


## Legend

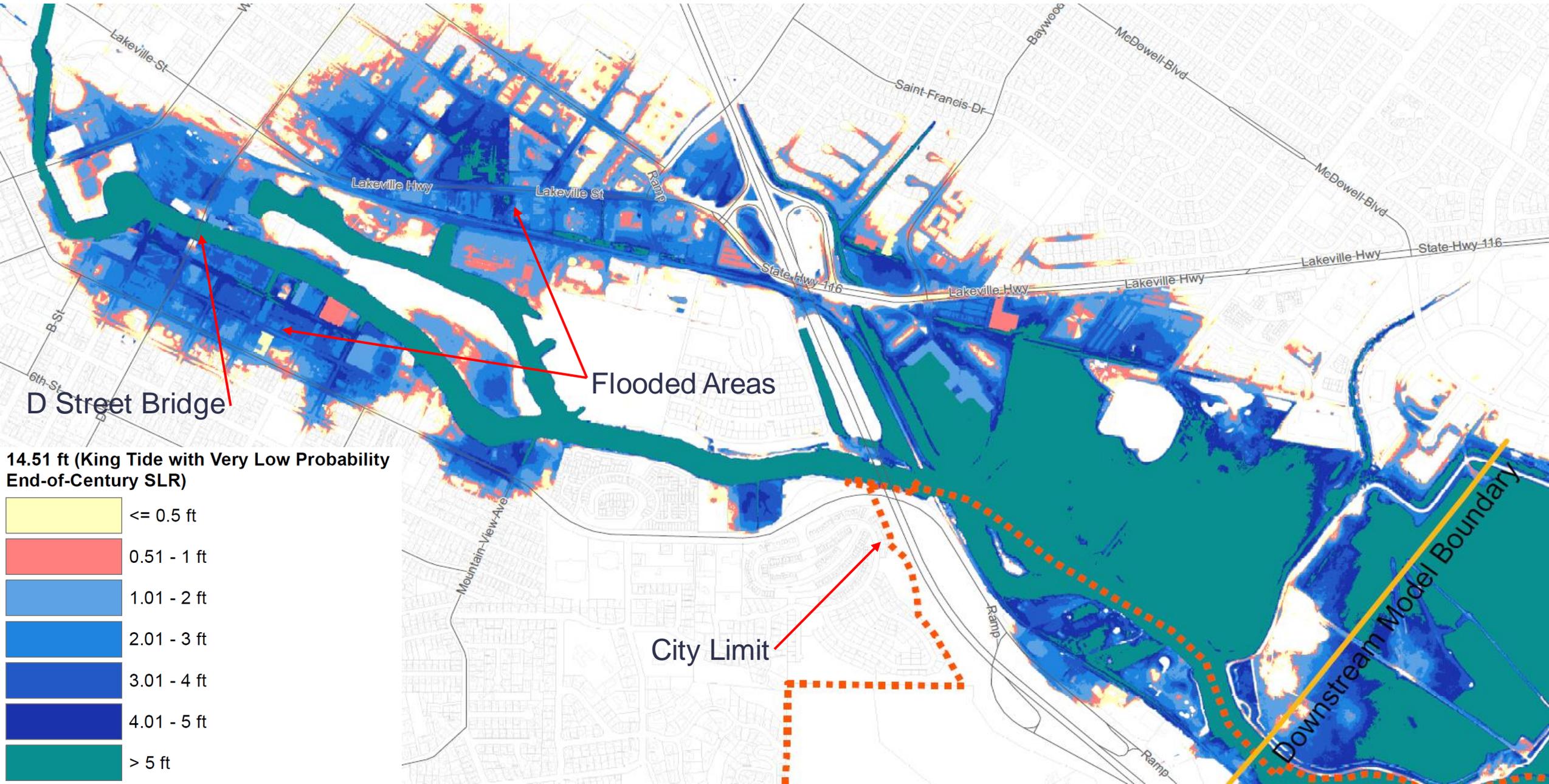
11.01 ft (King Tide with Low Probability End-of-Century SLR)

- <= 0.5 ft
- 0.51 - 1 ft
- 1.01 - 2 ft
- 2.01 - 3 ft
- 3.01 - 4 ft
- 4.01 - 5 ft
- > 5 ft
- City Limit
- Parcel and Building

# Very Low Probability, End of Century SLR (6.9'), Storm Surge



# Very Low Probability, End-of-Century SLR (6.9'), King Tide



# Foundations: Community Priorities

## Vision

- **We are prosperous.** Our City infrastructure and facilities are sustainably financed, resilient, and well-maintained.
- **We are forward-thinking leaders.** By achieving carbon neutrality in 2030, we demonstrate that equitable, carbon-neutral, regenerative communities and economies are possible through action and collaboration with other cities, communities, and our region. We have adapted to climate change with a community-driven, whole systems, and nature-based approach to development.

## Pillars

- **Climate Action, Resilience, and Sustainability.** Petaluma is committed to bold action to achieve carbon neutrality by 2030 and to building resilience to climate change impacts, including sea level rise, increasing temperatures, drought, and wildfire intensity. The General Plan must build climate-ready communities using science, technology, and bold ways of thinking to advance change in our relationship with the natural environment and to plan for current and future impacts.

# Foundations: Community Priorities

## Guiding Principles

1. Achieve carbon neutrality by 2030 and equitably foster a **sustainable and resilient community** in which today's needs do not compromise the ability of the community to meet its future needs.
3. **Protect and restore the natural function of the Petaluma River** and its tributaries while expanding complementary recreational, entertainment, and civic opportunities.
13. **Ensure infrastructure supports infill development and addresses the impacts of climate change.**
16. **Be a leader** in advancing these guiding principles within the region and beyond.

# Flood Resilience Goals

Goal FR-1:  
Safe from the  
Current Flood

Goal FR-2:  
Understand the  
Future Flood

Goal FR-3:  
Flood  
Adaptation  
Master Plan

Goal FR-4:  
Prepared for  
Flood Recovery

Goal FR-5:  
Future Looking  
Plans and  
Regulations

Goal FR-6:  
Safe Against  
Rising Floods

Goal FR-7:  
Empowered  
Stakeholders

# Flood Resilience Goals

Goal FR-1: Safe from the current flood

**Policy Areas FR-1.1:**  
Understand the current flood conditions

**Policy Areas FR-1.2 & FR-1.3:**  
Exceed FEMA standards  
Reduce current risk

Goal FR-2: Understand the Future Flood

**Policy Area FR-2.1:**  
Track climate change impacts

**Policy Area FR-2.2:**  
Model future floods

Goal FR-3: Flood Adaptation Master Plan

**Policy Area FR-3.1**  
Develop a Flood Adaptation Master Plan

**Policy Area FR-3.2**  
Study the impacts of future floods

Goal FR-4: Prepared for Flood Recovery

**Policy Area FR-4.1**  
Prepare post-disaster plans

Goal FR-5: Future Looking Plans & Regulations

**Policy Area FR-5.1**  
Update building codes to provide future flood resilience

Goal FR-6: Safe Against Rising Floods

**Policy Area FR-6.1:** Build for long-term flood resilience

**Policy Area FR-6.2:** Develop flood control efforts

**Policy Area FR-6.3:** Identify funding sources

**Policy Area FR-7.1:** Expand public education

**Policy Area FR-7.2:** Partner with regional stakeholders

**Policy Area FR-7.3 and FR-7.4:** Encourage development and community to protectively adapt

Goal FR-7: Empowered Stakeholders

# **Goal FR-1: Safe from the Current Flood**

- Policy FR-1.1: Understand the current flood conditions
- Policy FR-1.2: Exceed FEMA standards
- Policy FR-1.3: Reduce current risk

# **Goal FR-2: Understand the Future Flood**

- Policy FR-2.1: Track climate change impacts
- Policy FR-2.2: Model future floods

# **Goal FR-3: Flood Adaptation Master Plan**

- Policy FR-3.1: Develop a Flood Adaptation Master Plan
- Policy FR-3.2: Study the impacts of future floods

# **Goal FR-4: Prepared for Flood Recovery**

- Policy FR-4.1: Prepare post-disaster plans

# Goal FR-5: Future Looking Plans and Regulations

- Policy FR-5.1: Update building codes to provide future flood resilience

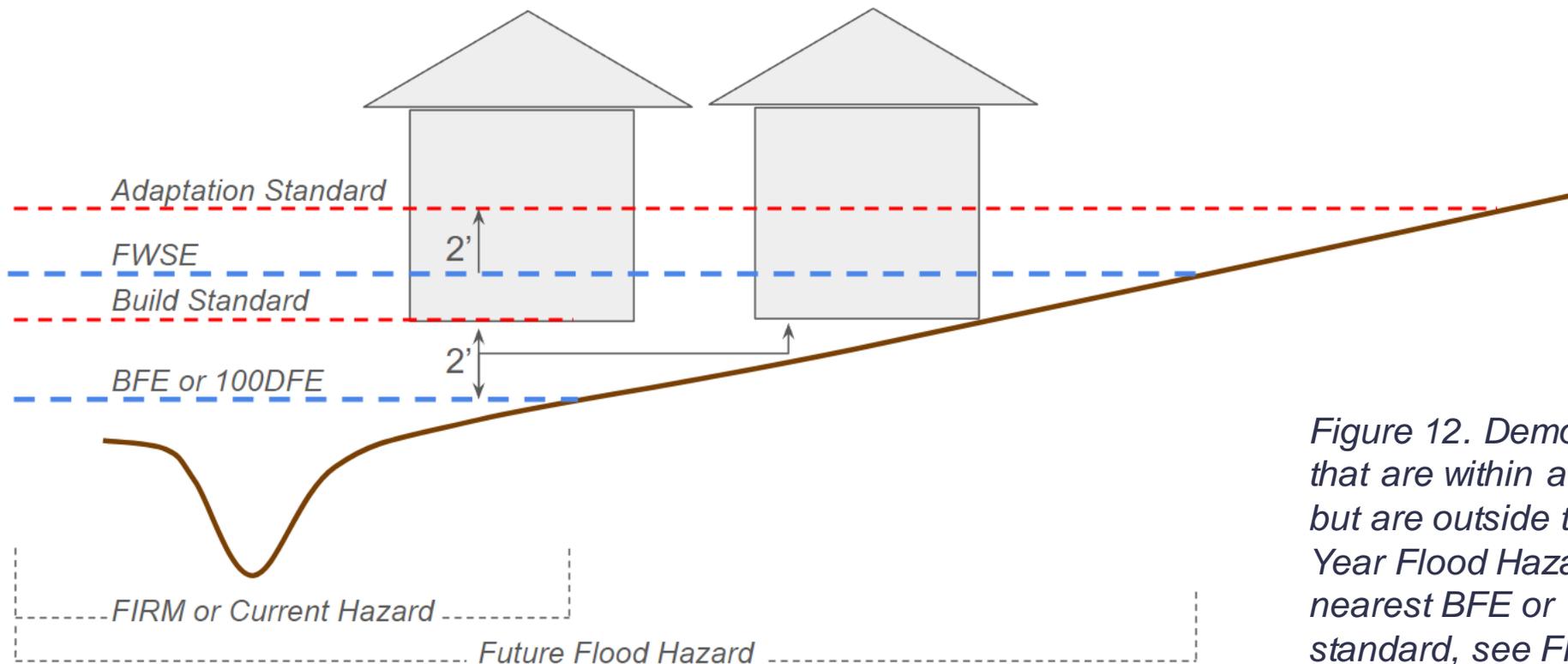


Figure 12. Demonstrating how projects that are within a future flood hazard map but are outside the FIRM or Current 100-Year Flood Hazard Map will reference the nearest BFE or 100DFE to set their FFE standard, see FR-5, General Plan Standards

# **Goal FR-6: Safe Against Rising Floods**

- Policy FR-6.1: Build for long-term flood resilience
- Policy FR-6.2: Develop flood control efforts
- Policy FR-6.3: Identify funding sources

# **Goal FR-7: Empowered Stakeholders**

- Policy FR-7.1: Expand public education
- Policy FR-7.2: Partner with regional stakeholders
- Policy FR-7.3: Promote proactive adaptation
- Policy FR-7.4: Support community efforts

# Health, Equity & Environmental Justice

# Environmental Justice Element

- The Environmental Justice Element is a new General Plan element to comply with recent state law (the Planning for Healthy Communities Act).
- Requires identification of “disadvantaged communities” (DACs), which are low-income areas with high pollution and health burden
- Must minimally address five topic areas (see list to the right)
- Requires outreach and engagement with identified DAC’s
- Requires goals, policies, and actions that address health, equity, and environmental justice priorities in DACs

**Reduce Pollution Exposure:** air quality, water quality, soil quality, and land use compatibility

**Promote Food Access:** grocery stores, farmers’ markets, community gardens, etc.

**Promote Physical Activity:** walkable and bikeable communities, access to transit, safety

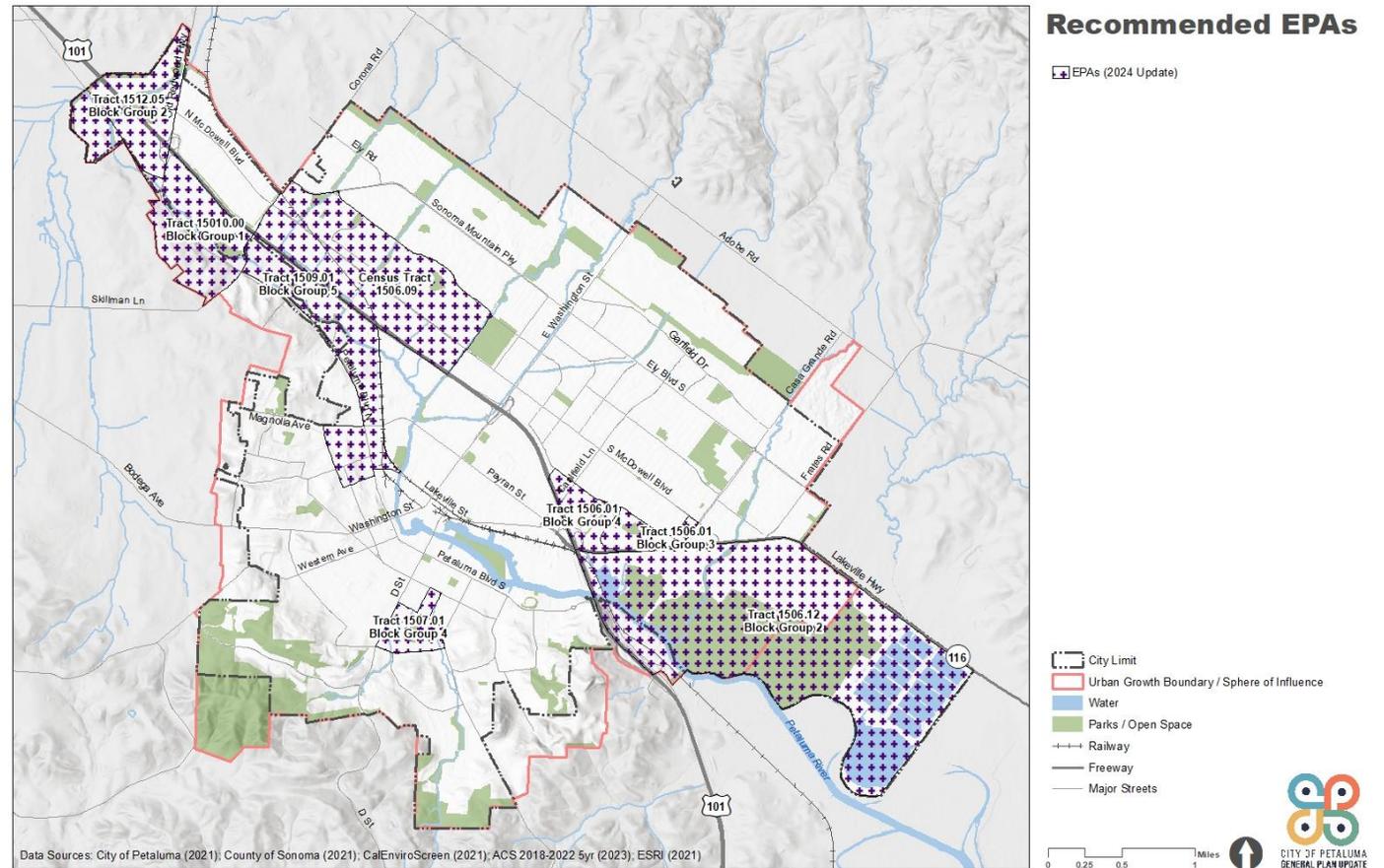
**Promote Public Facilities:** parks, schools, health facilities, etc.

**Promote Safe and Sanitary Homes:** housing location, quality, and affordability

# Foundations: Existing Conditions

## Petaluma must address environmental justice.

- The City of Petaluma refers to DACs as “Equity Priority Areas” (EPAs) in order to center equity and equitable investments as part of the General Plan process.
- Multiple areas in the city are considered Equity Priority Areas
- Pollution and health burdens are primarily related to transportation:
  - Highway-related air pollution
  - Low access to transit
  - High diesel particulate matter



# Foundations: Community Priorities

## Vision

- **We are caring and connected.** We celebrate our differences by providing inclusive community spaces for the diverse people that form Petaluma and by cultivating a sense of belonging. We welcome newcomers seeking refuge, a place to call home, and new opportunity. Our engaged residents and local government ensure equity, livability, opportunity, and access for all residents. We embrace each other's cultures, lift each other up, and move forward together.
- **We invest in each other.** We are a community where children and youth thrive, families in all forms are supported, and our elders flourish as they age in place. We provide plentiful and varied housing choices, convenient access to healthy local food, and an educational system that builds leaders. We support all residents with accessible city services.
- **We relish our spirited, distinctive neighborhoods where we live, work, and play.** We enjoy active, animated communities throughout our city along with an energetic historic downtown. Our friendly, beautiful, and nature-filled streets, parks, urban forest, and accessible river, bike lanes and trails, and walking paths connect people and help keep residents healthy. It is safe, easy, and enjoyable to travel across and around town and to neighboring communities with human, electric, and hybrid transport.
- **We are forward-thinking leaders.** By achieving carbon neutrality in 2030, we demonstrate that equitable, carbon-neutral, regenerative communities and economies are possible through action and collaboration with other cities, communities, and our region. We have adapted to climate change with a community-driven, whole systems, and nature-based approach to development.

# Foundations: Community Priorities

## Pillars

- **Equity, Justice and Demographic Changes.** Current demographic trends indicate that Petaluma will have an older, more diverse population well into the future. Petaluma commits to advancing social and economic justice to create an inclusive and equitable city in which all can thrive. The General Plan must prioritize supporting those who have been most affected by injustice and inequity and advances bold action in terms of housing, transportation, public spaces and intergenerational and multi-cultural programs in order to take advantage of opportunities and meet challenges as they arise.
- **Participatory Decision-Making and Government Transparency.** Success in these endeavors will depend on an engaged community that participates in decision making and a government that is open and transparent. The General Plan must reflect the perspectives of Petaluma's diverse population, ensuring that opportunities to engage in public dialogue are accessible to all and setting the stage to address and solve future challenges with integrity, creativity and collaboration.

## Guiding Principles

4. Promote social and economic justice to address structural social and economic inequities and racism.
5. Ensure the health and wellness of all residents.
6. Physically and psychologically integrate and connect the East and West sides of town.
7. Create a welcoming, affordable, accessible, and age- and family-friendly city.
12. Prioritize cycling, walking, transit, and other transportation alternatives over automobiles.

# Health and Environmental Justice Goals

Goal HEEJ-1:  
Public Health

Goal HEEJ-2:  
Leader in Equity

Goal HEEJ-3:  
Pollution  
Reduction

Goal HEEJ-4:  
Equitable Access  
to Services +  
Facilities

Goal HEEJ-5:  
Access to  
Healthy Food

Goal HEEJ-6:  
Safe and  
Sanitary Housing

Goal HEEJ-7:  
Physical Activity

Goal HEEJ-8:  
Engaged  
Community

Goal HEEJ-9:  
Age Friendly

# Goal HEEJ-1: Public Health

- Policy HEEJ-1.1: Advance Health in All Policies
- Policy HEEJ-1.2: Promote Health Services and Programs
- Policy HEEJ-1.3: Advance Regional Health Equity Priorities
- Policy HEEJ-1.4: Support the Healthcare System
- Policy HEEJ-1.5: Limit Firearms and Cannabis Sales

## **Goal HEEJ-2: Leader in Equity**

- Policy HEEJ-2.1: Advance Equity in City Administration
- Policy HEEJ-2.2: Enhance Language Access
- Policy HEEJ-2.3: Distribute Resources Equitably

## **Goal HEEJ-3: Pollution Reduction**

- Policy HEEJ-3.1: Minimize Air Pollution
- Policy HEEJ-3.2: Reduce Vehicle-Related Pollution
- Policy HEEJ-3.3: Expand the Tree Canopy

## **Goal HEEJ-4: Equitable Access to Services + Facilities**

- Policy HEEJ-4.1: Support Climate Adaptation
- Policy HEEJ-4.2: Expand Transit Services
- Policy HEEJ-4.3: Improve Community Safety
- Policy HEEJ-4.4: Support Reentry Services

## **Goal HEEJ-5: Access to Healthy Food**

- Policy HEEJ-5.1: Strengthen the Local Food Economy
- Policy HEEJ-5.2: Reduce Food Insecurity
- Policy HEEJ-5.3: Promote Good Nutrition

# **Goal HEEJ-6: Safe and Sanitary Housing**

- Policy HEEJ-6.1: Improve Housing Quality
- Policy HEEJ-6.2: Reduce Homelessness
- Policy HEEJ-6.3: Increase Housing Resilience

# **Goal HEEJ-7: Physical Activity**

- Policy HEEJ-7.1: Promote Active Transportation
- Policy HEEJ-7.2: Improve Safe Routes to School

## **Goal HEEJ-8: Engaged Community**

- Policy HEEJ-8.1: Enhance Equitable Engagement Practices
- Policy HEEJ-8.2: Advance Youth Civic Engagement
- Policy HEEJ-8.3: Foster Board and Commission Leadership

## **Goal HEEJ-9: Age Friendly**

- Policy HEEJ-9.1: Support Safe Aging in Place
- Policy HEEJ-9.2: Support Social Services for Older Adults
- Policy HEEJ-9.3: Provide Education and Training

A photograph of a street corner in Petaluma, California. The scene is dominated by historic, multi-story buildings. On the right, a prominent red brick building with white architectural details houses 'PRODIGY HAIRDRESSING'. To its left, a blue building features a 'Fermi' sign. Further left, a white building with a clock tower is visible. The street is lined with parked cars, and a traffic light shows a green light. A street sign for 'Kentucky St' is visible. A large, white, semi-transparent 'Thank you!' text is overlaid in the center of the image.

# Thank you!