General Plan (Land Use & Circulation) & M-2 Area Zoning Update

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Topic Session:
Green and Sustainable Building

March 10, 2016

PLACEWORKS

Agenda

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- Welcome & Introductions
- General Plan Overview
- Presentation: Green & Sustainable Building
- Questions & Comments
- Next Steps
  - March 24: Community Amenities Topic Session

Meeting Objectives

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Deep Dive into Green and Sustainable Building

- Provide Information
- Receive comments

Group Agreements

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- Speak one at a time
- Speak respectfully
- Listen for understanding
- Speak from your own experience
- Let the facilitator guide the process
- Silence your cell phones and devices

General Plan Update Schedule

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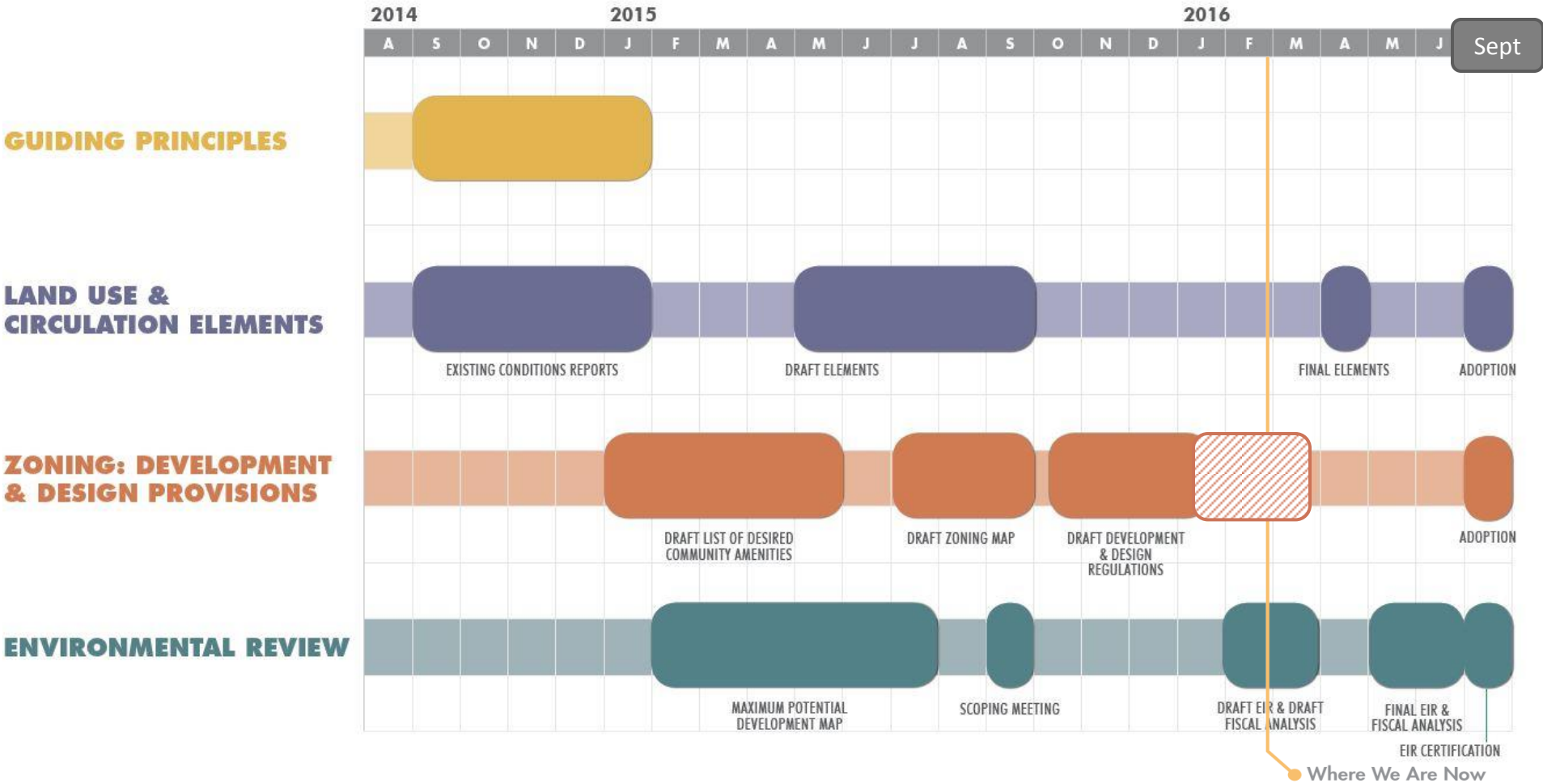
Slide 5



Realizing the General Plan Vision

Land Use and Circulation Elements

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Slide 6

GUIDING PRINCIPLES

- CITYWIDE EQUITY
- GREAT TRANSPORTATION OPTIONS
- HEALTHY COMMUNITY
- COMPLETE NEIGHBORHOODS AND COMMERCIAL CORRIDORS
- COMPETITIVE AND INNOVATIVE BUSINESS DESTINATION
- ACCESSIBLE OPEN SPACE AND RECREATION
- CORPORATE CONTRIBUTION
- SUSTAINABLE ENVIRONMENTAL PLANNING
- YOUTH SUPPORT AND EDUCATION EXCELLENCE

GENERAL PLAN

The City's Long-term Blueprint

Goal
A general, overall, desired outcome

Policy
A specific statement of commitment that sets a direction for the City to follow

Program
An action carried out pursuant to a policy to achieve a specific goal

MUNICIPAL CODE

Translates Objectives into Rules

Streets *[Title 13]*

Subdivison *[Title 15]*

Zoning *[Title 16]*
Governs Land Uses

- Development Standards
- Community Amenity Requirements
- Parking Regulations
- Code Enforcement

Storm Water *[Chapter 7.42]*

Flood Damage Prevention *[Chapter 12.42]*

Water-Efficient Landscaping *[Chapter 12.44]*

Sustainable Environmental Planning

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Menlo Park is a leader in efforts to address climate change, adapt to sea-level rise, protect natural and built resources, conserve energy, manage water, utilize renewable energy, and promote green building.

Green and Sustainable Building

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1) Green Building
2) Energy
3) Exterior Lighting
4) Water
5) Hazard Mitigation and Sea Level Rise
6) Waste Management
7) Bird-safe Design

Green Building Benefits & Policy Framework

Green & Sustainable Building Benefits

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- Promotes energy independence through optimized building performance
- Lower net energy costs
- Higher resale value
- Comfortable and productive environment for working, learning and living

Chartwell School | Seaside (Monterey County), CA

Why Build Green

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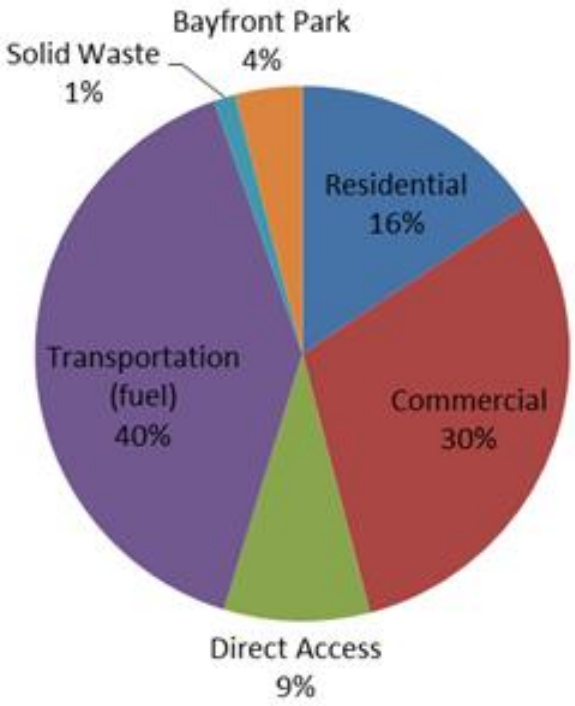
- Buildings in Menlo Park account for 46% of the total greenhouse gas emissions



California Policy Basis

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- **AB 32 Global Warming Solutions Act (2006)**
  - Reduce statewide greenhouse gas (GHG) emissions to 1990 levels by 2020
- **California's Long Term Energy Efficiency Strategic Plan (2008)**
- **AB 758 Energy Efficiency Program for Existing Buildings (2009)**
  - Requires the Energy Commission to implement program to achieve greater energy savings in the state of California's existing residential and nonresidential building stock
- **CA Governor's Executive Order (2015)**
  - Set target of reducing GHG 40% below 1990 levels by 2030

California Set Zero Net Energy (ZNE) Goals

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- Goal: buildings produce as much energy as they consume in a year
- All new residential construction in California will be ZNE by 2020
- All new commercial construction will be ZNE by 2030
- 50% of existing buildings will be retrofit to ZNE by 2030
  - The California Efficiency Strategic Plan (Sep 2008) californiaenergyefficiency.com/docs/EEStrategicPlan.pdf

Exploratorium | San Francisco, CA

Local Policy Basis

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- **Menlo Park Adopted GHG reduction target**
  - Reduce greenhouse gas (GHG) emissions by 27% by 2020 from 2005 levels.
- **Menlo Park Climate Action Plan**
  - Success dependent on measures taken in community built environment
- **El Camino Real/Downtown Specific Plan**
  - Requires LEED Silver for 4 units or more
- **Menlo Park installed PV systems on 4 City buildings in 2015 to off-set 80% of their electricity demand**

Leslie Shao-ming Sun Field Station | Stanford, CA

What does the draft propose?

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- Goal: Set the tone for 25 years to come
- Green Building
  - LEED Gold
  - EV Chargers
  - Trees: Heritage and Shade
- Energy
  - Efficiency and On-Site Power Generation
    - Goal: 80% of energy produced on-site, or other options approved by City approval
    - Possible options include: 100% renewable CCE, other local generation
  - Annual performance reporting
    - If targets not met, make corrections or pay fees

Local Case Studies

David & Lucile Packard Foundation

Los Altos, CA

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- **Certification:** LEED-NC Platinum (2012)
- **Building Type:** Office (49,000 ft^2)
- **Features**
  - Two daylit office wings with blinds and shades to control solar heat gain and glare
  - Rainwater collection for toilet flushing and irrigation
  - Stormwater retained on-site
  - Zero Net Energy performance
  - Energy use can be reduced by 65% through integrated building design and aggressive reductions in plug loads
  - Innovative use of roof-mounted photovoltaic panels will offset any energy used

Kirsch Center DeAnza College

Cupertino, CA

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- **Certification:** LEED-NC Platinum (2008)
- **Building Type:** Lab space (22,300 ft^2)
- **Features**
  - High performance envelope
  - 34 kW DC of PV, + offset
  - On-site stormwater retention
  - Zero Net Energy performance
  - Solar hot water panels
  - Low pressure demand-controlled underfloor
  - Reduced installed equipment power density
  - Natural ventilation

Yang & Yamazaki Environment & Energy

Stanford, CA

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- **Certification:** LEED-EBOM Platinum (2013)
- **Building Type:** Classroom/Office/Lab (166,000 ft^2)
- **Features**
  - High performance envelope
  - Natural ventilation (e.g. internal atria, vents w/ efficient active beams for mechanical cooling)
  - Solar photovoltaics
  - Water conservation systems (e.g. waterless urinals, dual flush toilets)
  - Recycled materials and sustainable products (e.g. concrete floors)

IDeAs Z^2 Design Facility

San Jose, CA

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- **Certification:** Zero Net Energy Building (2012)
- **Building Type:** Office remodel (6,560 ft^2)
- **Features**
  - Renovation of a 1960s concrete building
  - Uses PV to provide 100% of net energy use
  - Innovative automatic controls to minimize plug loads
  - Strategic skylight placement for maximum daylighting
  - High efficiency HVAC system
  - Ground-source heat pump driven by the photovoltaic system

San Francisco Public Utilities Commission

San Francisco, CA

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- **Certification:** LEED-BD+C Platinum (2012)
- **Building Type:** High rise office (277,500 ft^2)
- **Features**
  - 5,000 gallons of gray and black water treated onsite per day
  - Uses 60% less water than normal buildings
  - High efficiency HVAC with under-floor air distribution
  - Louvered venetian blinds automatically tilt based on sun's position
  - Dimmable LEDs
  - Ultra-low energy profile

Exploratorium

San Francisco, CA

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- **Certification:** LEED-BD+C Platinum (2014)
- **Building Type:** Public space/Cafeteria/Office (330,000 ft^2)
- **Features**
  - ZNE Performance
  - Major renovation
  - Clerestory windows and skylights provide natural daylighting
  - 1.3MW PV system
  - Radiant heating and cooling
  - Efficient HVAC with heat pumps using bay water
  - Dedicated outdoor air system (DOAS)

Jane D'Aza Convent

San Rafael, CA

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- **Certification:** LEED-NC Platinum (2014)
- **Building Type:** Multi-unit residential (6,200 ft^2)
- **Features**
  - Energy Star Appliances
  - Low-flow faucets and showerheads
  - Natural ventilation and attic vents for cooling
  - Effective daylighting
  - 7.1-kW photovoltaic system
  - Solar water-heating system
  - Wall & roof insulation

Menlo Park Draft Building Regulations

Green Building

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- How is it regulated and achieved?
  - Mandatory Requirements
  - Voluntary Programs
- What does the draft Zoning Ordinance Propose?
- What is being done locally?

Mandatory Requirements

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- CALGreen: The California Green Building Standards Code
  - First Statewide “green” building code
  - Mandatory State standards for construction (baseline)

Voluntary Program Options

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- There are guidelines and certification programs for Green Building:
  - LEED: Leadership in Energy & Environmental Design
  - CALGreen Tier 1 & Tier 2
  - Passive House

What the draft proposes

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- Achieve LEED Gold (60-68pts):
  - Building Design and Construction
  - Interior Design and Construction
  - Operations and Maintenance
  - Neighborhood Development
- One Electric Vehicle charger per every 5 parking spaces or 10% of total spaces
- Increase the replacement ratio for Heritage Tree removal

Leadership in Energy & Environmental Design (LEED)

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- The LEED rating system offers four certification levels for new construction:
  - Certified (40-49pts), Silver (50-59pts), Gold (60-69pts), Platinum (70-79pts)
- Points are achieved in nine categories:
  1. Integrative process
  2. Location & Transportation
  3. Materials and resources
  4. Water efficiency
  5. Energy and atmosphere
  6. Sustainable sites
  7. Indoor environmental quality
  8. Innovation
  9. Regional Priority
- The system is flexible and there are different guidelines for different types of projects

Voluntary Options: CALGreen Tier 1 & Tier 2

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- CALGreen: The California Green Building Standards Code
- Tier 1 & Tier 2 Options
  - Projects may elect to go for greater degree of sustainability

Voluntary Options: Passive House

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- **Intelligent design:**
  - Maintain a sealed building envelope
  - Limit energy usage for heating and cooling
- **Third party verification:**
  - Simulations
  - Inspections
  - Audits

Passive House

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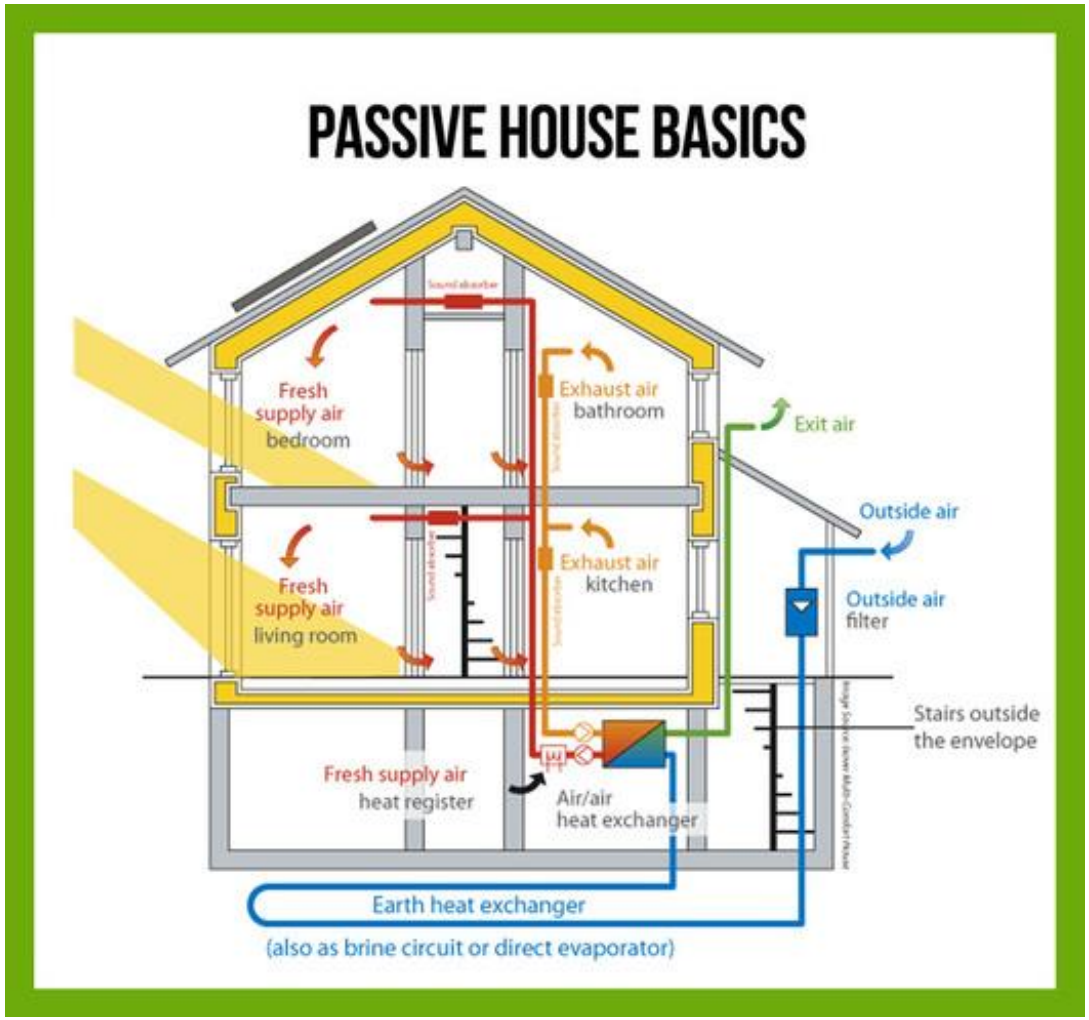

They can operate together

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Program	CALGreen	CALGreen Tier 1	CALGreen Tier 2	LEED	Passive House
Focus	Building integrity	Exceeding the building code	Exceeding the building code by greater margin	Energy, Water, Site Management Innovation, Materials and Resources	Energy Focused
Requirement	State mandated	Voluntary	Voluntary	Voluntary	Voluntary
Monitoring	Building Department	3rd Party	3rd Party	3rd Party	3rd Party

CALGreen & LEED

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- A building meeting CALgreen Tier 1 requirements would receive 58 points in LEED
  - Only 2 points from LEED Gold
- Why was LEED proposed
  - There are some elements to sustainable building not regulated by the code but that are recognized as important by LEED
    - Materials
    - Innovation

What are other jurisdictions doing beyond State requirements?

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- ConnectMenlo is not the first ordinance to include green building requirements…
  - LEED
    - Menlo Park: El Camino Real/Downtown Specific Plan requires LEED Silver
    - San Francisco: requires LEED Gold for new construction, LEED Silver for other construction types
  - CALGreen Tier 1 & Tier 2
    - Palo Alto: requires CALGreen Tier 1 for tenant improvement and renovation projects, and Tier 2 for all new construction
  - Passive House & Mix
    - San Francisco: prioritizes permitting and allows for greater FARs to incentivize Passive House, LEED Platinum, and other highly sustainable projects

Hamilton Park by Clarum
Menlo Park, CA

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- Energy Star rating
- California Green Builder Certification
- Zero Energy Home Design
- Photvoltaic system on roof (solar electric)
- Tankless water heaters
- Low emission vinyl windows
- Increased insulation
- Radiant roof barrier
- Tight ducting
- Fluorescent lighting
- Low-flow faucets and toilets
- Drought tolerant landscaping
- 47 single family homes in Belle Haven
- 20 Below Market Rate (BMR) units
- Built in 2005

Menlo Passive by Clarum
Menlo Park, CA

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- Energy Efficiency
- Comfort
- Durability
- Health
- Water conservation
- Eco Building materials
- Photvoltaic (solar electric) and solar hot water
- Heat recovery ventilator (HRV)
- High performance doors and windows
- High efficiency framing
- Reclaimed materials
- Air and moisture barrier and sealing
- Insulated inside, outside, foundation, roof and structural panels
- Drought tolerant landscaping and water efficient fixtures
- First passive home in San Mateo County
- Built in 2011 on Lemon St.

Water Use Efficiency & Recycled Water

Water Supply

Menlo Park Municipal Water District

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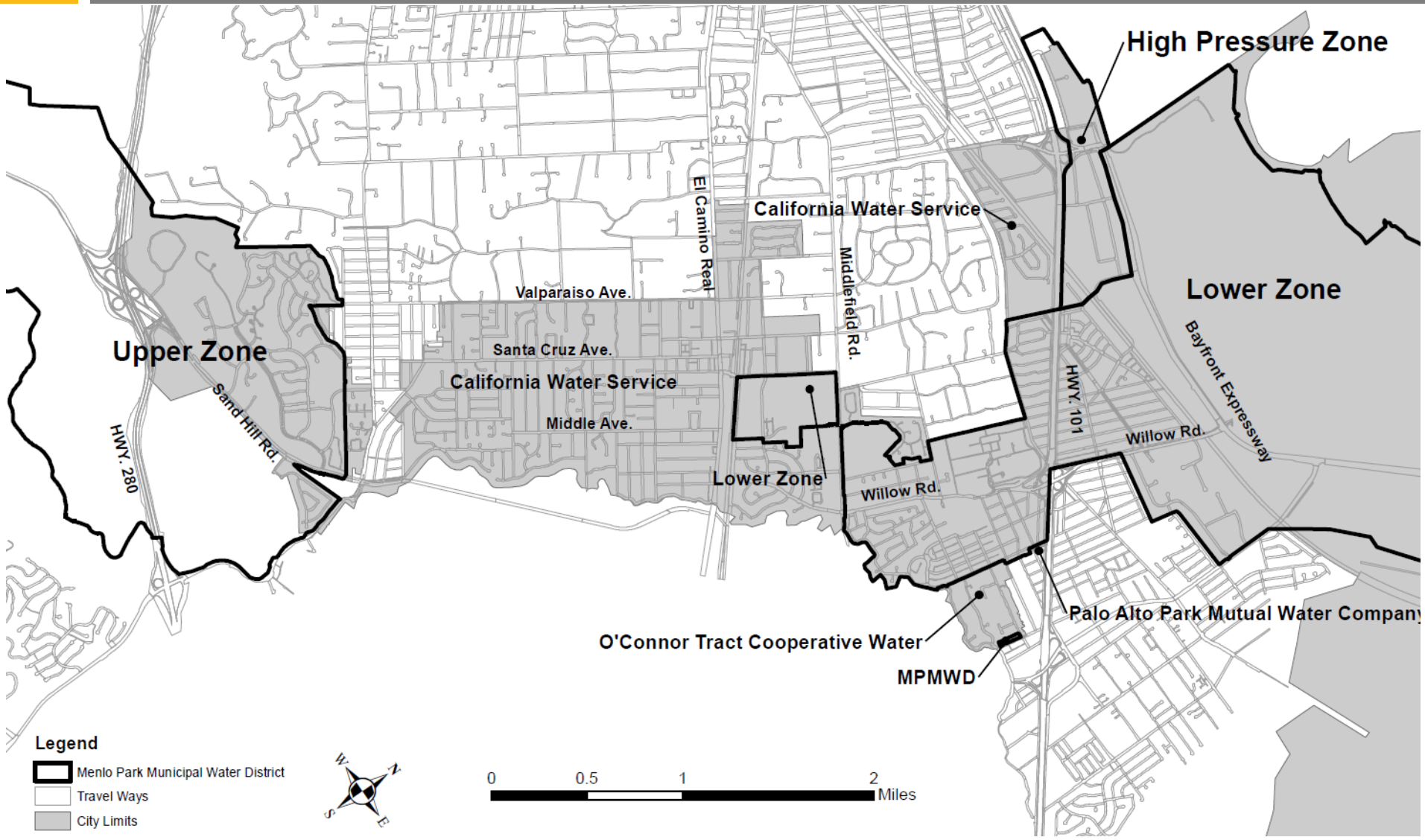

Water Supply

San Francisco Public Utilities Commission

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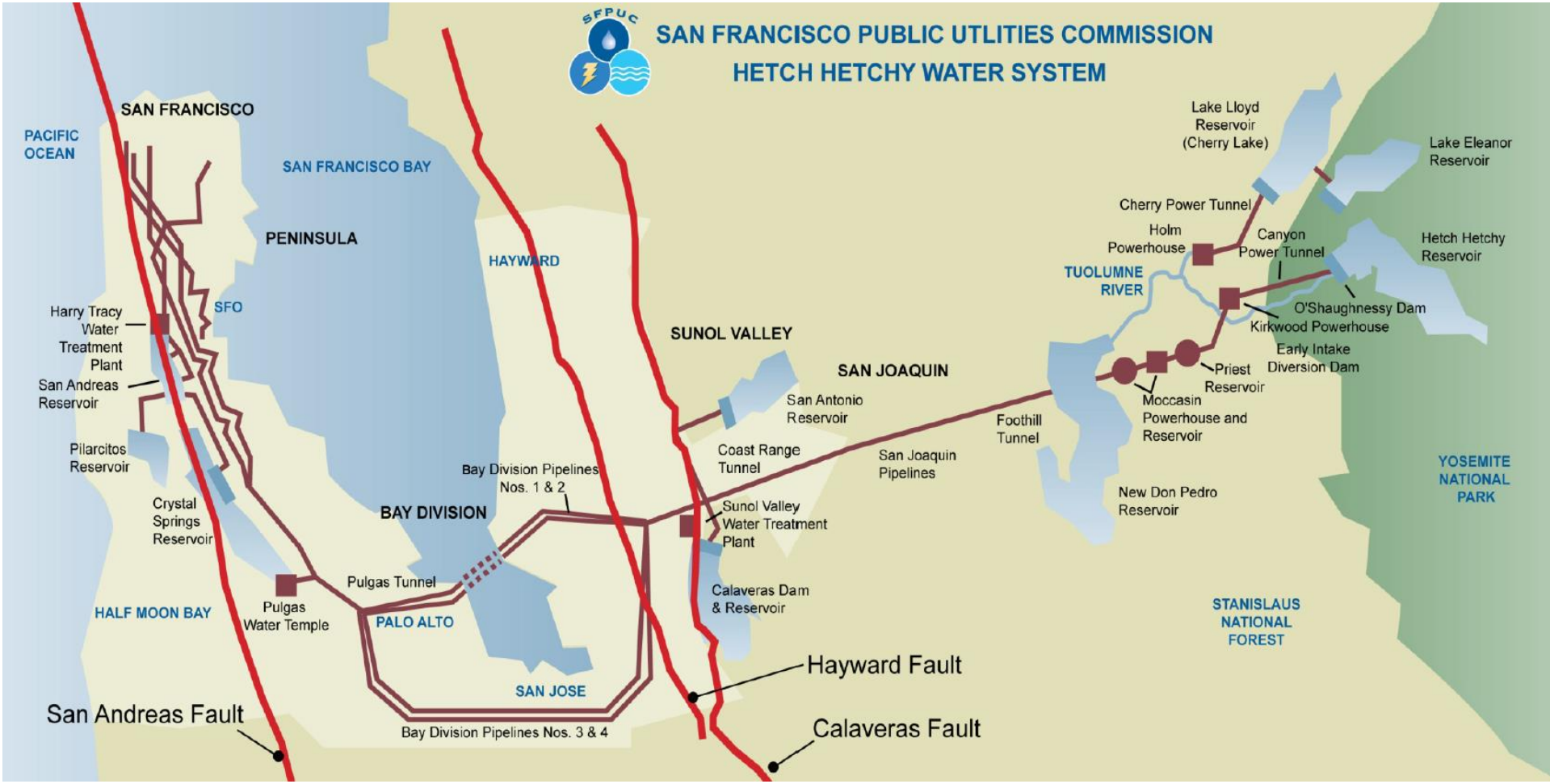

Water Demand

Urban Water Management Plan

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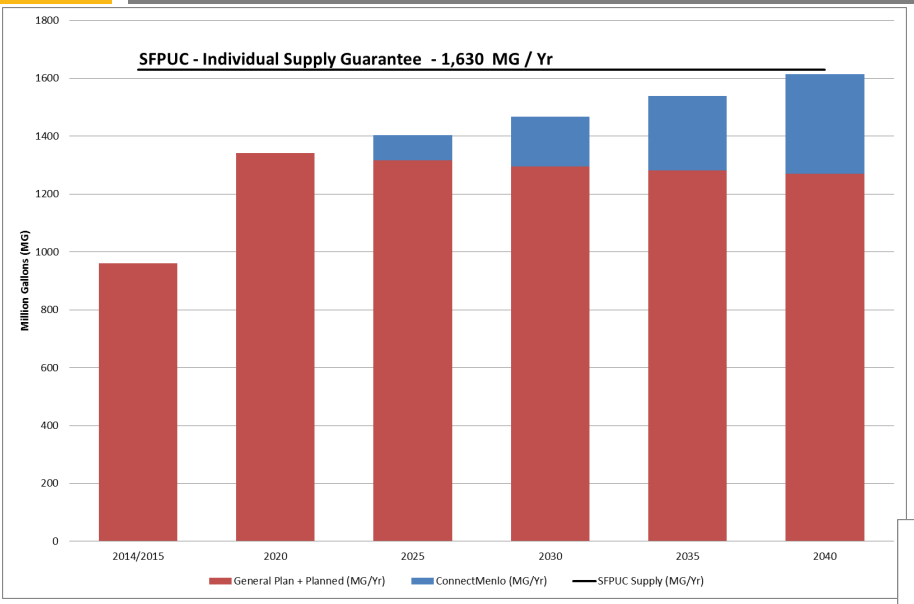

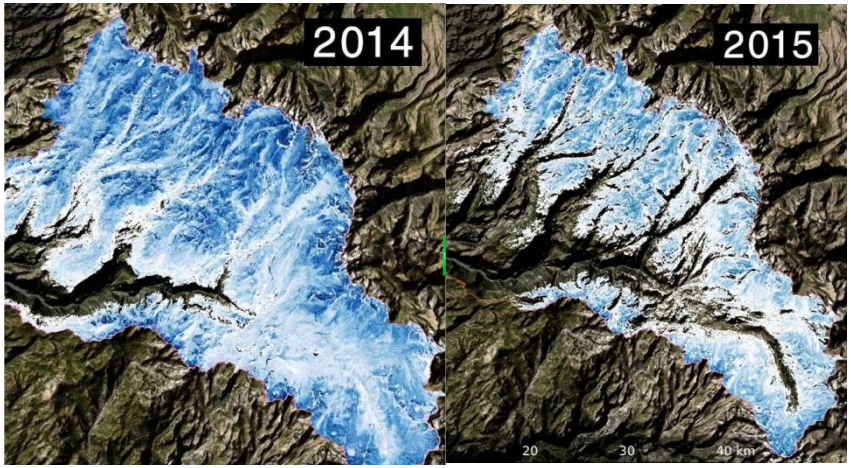

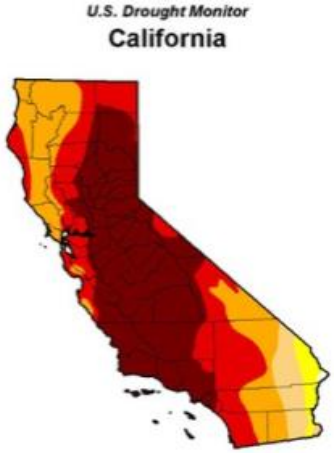

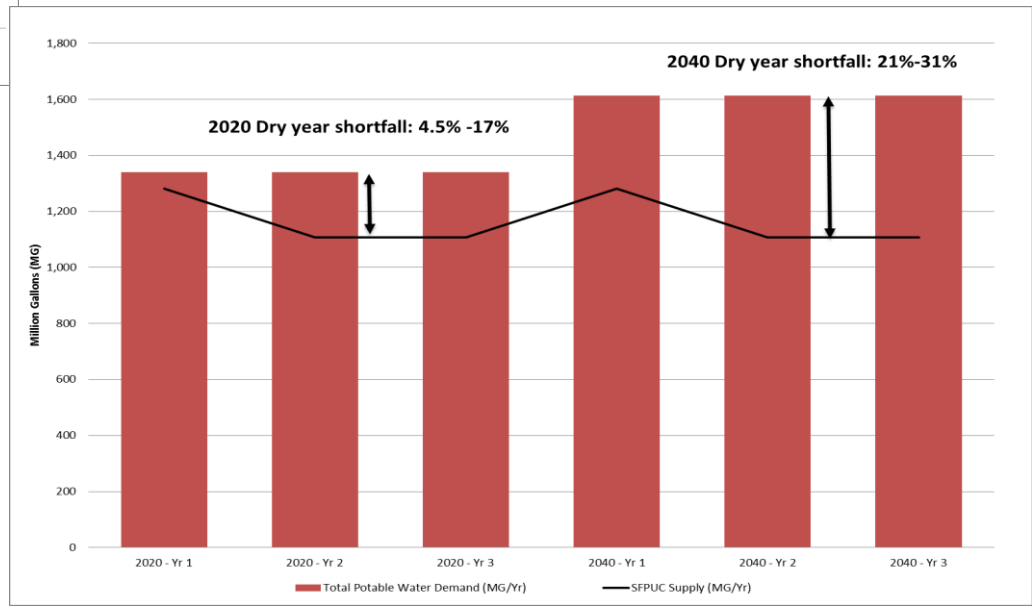

http://www.cadrought.com/nasa-images-show-dwindling-california-snowpack-from-2014-to-2015/

Water Supply

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- How to address water shortfalls?
  - Conservation
  - Recycled Water
    - Treated wastewater that is suitable for non-potable uses (irrigation, toilets, urinals, cooling)

- Water System Master Plan 2016 – Recycled Water Evaluation

Recycled Water – Potential Sources

Water System Master Plan 2016

Recycled Water On-site Treatment

Water System Master Plan 2016

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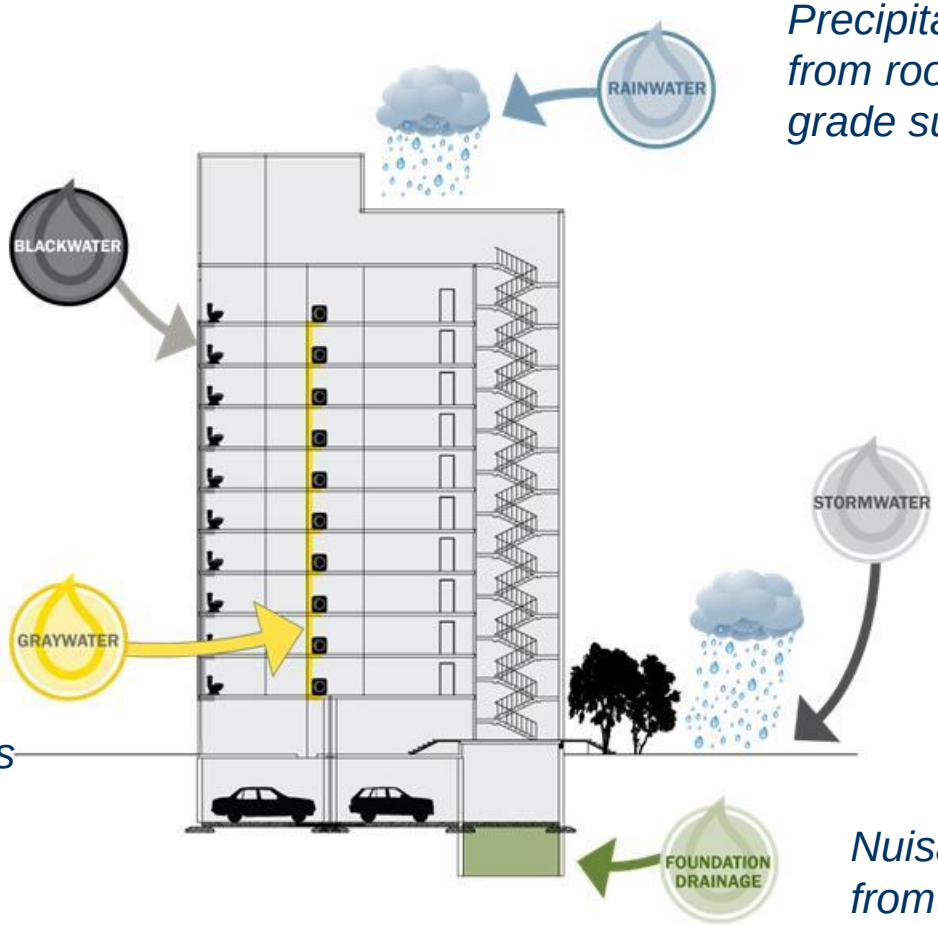
Precipitation collected from roofs and above-grade surfaces

Wastewater from toilets, dishwashers, kitchen sinks, and utility sinks



Precipitation collected at or below grade

Wastewater from clothes washers, bathtubs, showers, and bathroom sinks

Nuisance groundwater from dewatering operations

Source: SFPUC

Recycled Water On-site Treatment

Innovative, Building Resiliency

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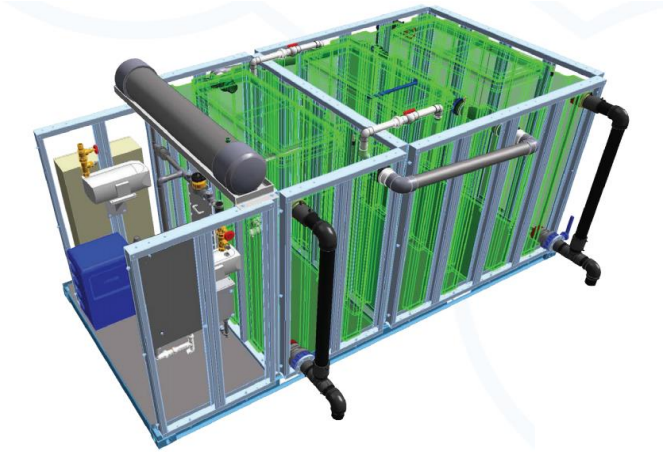
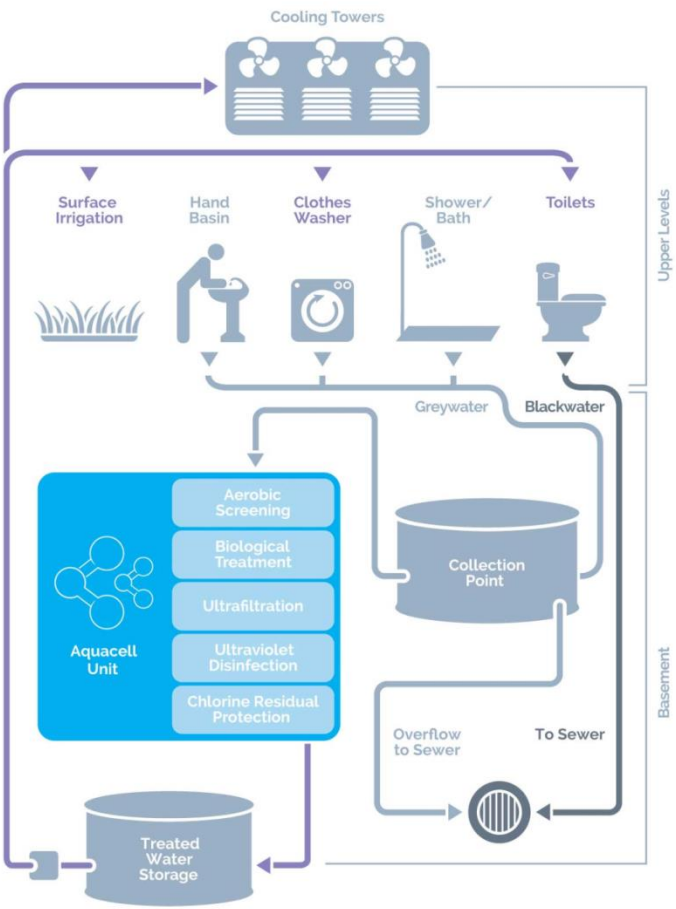


181 Fremont St., SF

SFPUC Headquarters

PG&E: 270 Folsom St., SF



http://www.dewater.com/water_recycling/greywater.html

Proposed Zoning

Water Efficiency, Recycled Water

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- Ban single pass cooling systems
  - 2013 - Palo Alto prohibited systems
- Water budgets
- Dual plumbing
  - 2008 – Requirement in Palo Alto, Redwood City
- Developments ≥ 250,000 sq. ft.
  - Alternative water sources
    - Toilets and urinals, cooling (if feasible)
    - SFPUC requirement

Hazard Mitigation
&
Sea Level Rise

Hazard Mitigation & Sea Level Rise

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- **2015 Superior Court of CA, San Mateo County - Grand Jury Report "Flooding Ahead"**
  - **8" rise between 1897-2006, tide station at Golden Gate Bridge**

Sea-Level Rise Projections for Areas South of Cape Mendocino		
Time Period	CO-CAT SLR Guidance Document (South of Cape Mendocino)	
	Feet	Inches
2000–2030	0.13 to 0.98	1.56 to 11.76
2000–2050 (mid-century)	0.39 to 2.00	4.68 to 24.00
2000–2100 (end of century)	1.38 to 5.48	16.56 to 65.76

Sources: June 2012 National Research Council report on *Sea-Level Rise for the Coasts of California, Oregon, and Washington;* Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT)

- **San Mateo County Vulnerability Assessment**
  - **100 year event + up to 197" (16.4') Sea Level Rise, above mean high high water**

Flooding

100 Year Event, Coastal and Riverine

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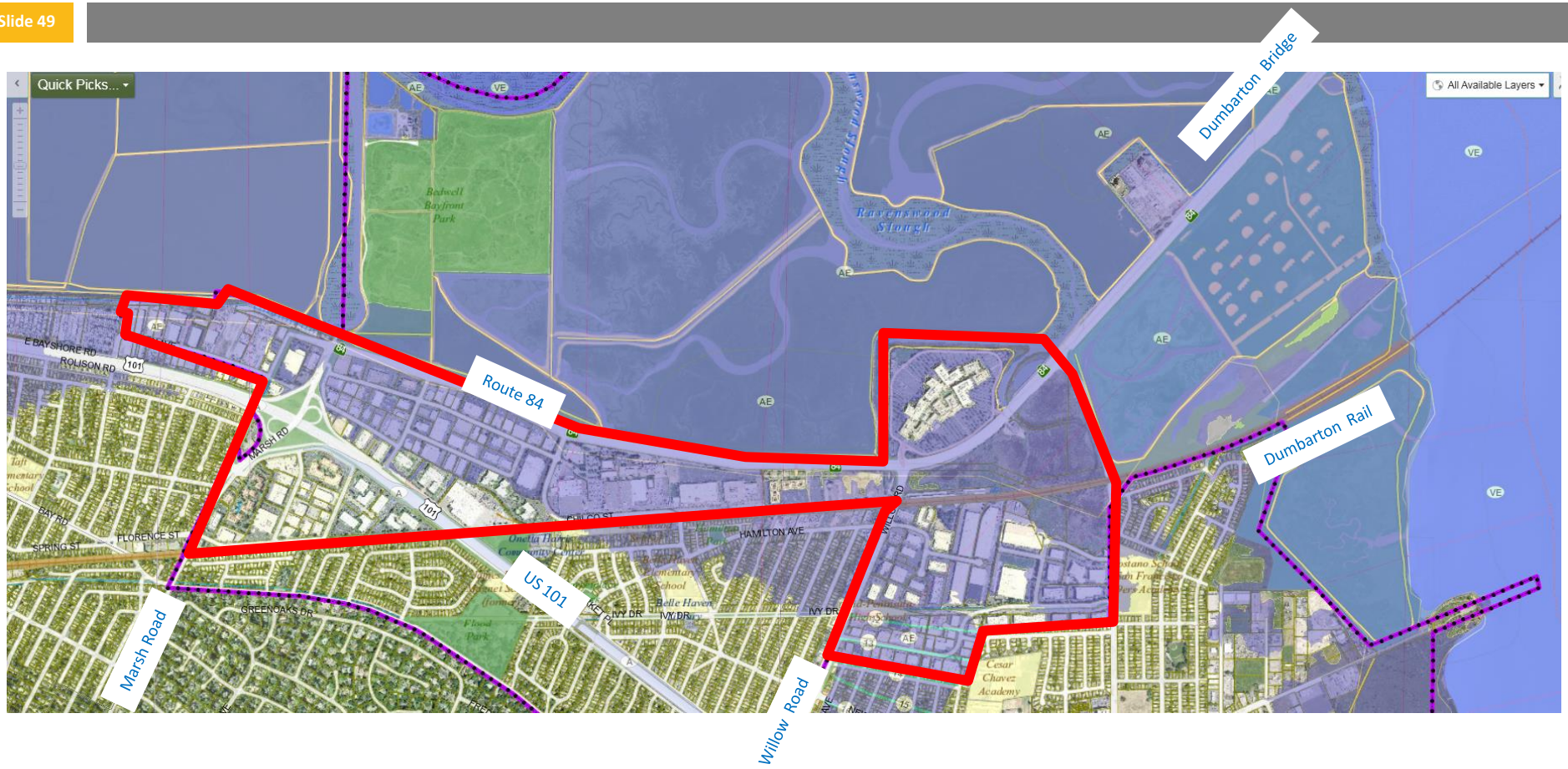

Source: Federal Emergency Management Agency (FEMA)

M-2 Area

Sea Level Rise – 3.3’

Permanent Inundation

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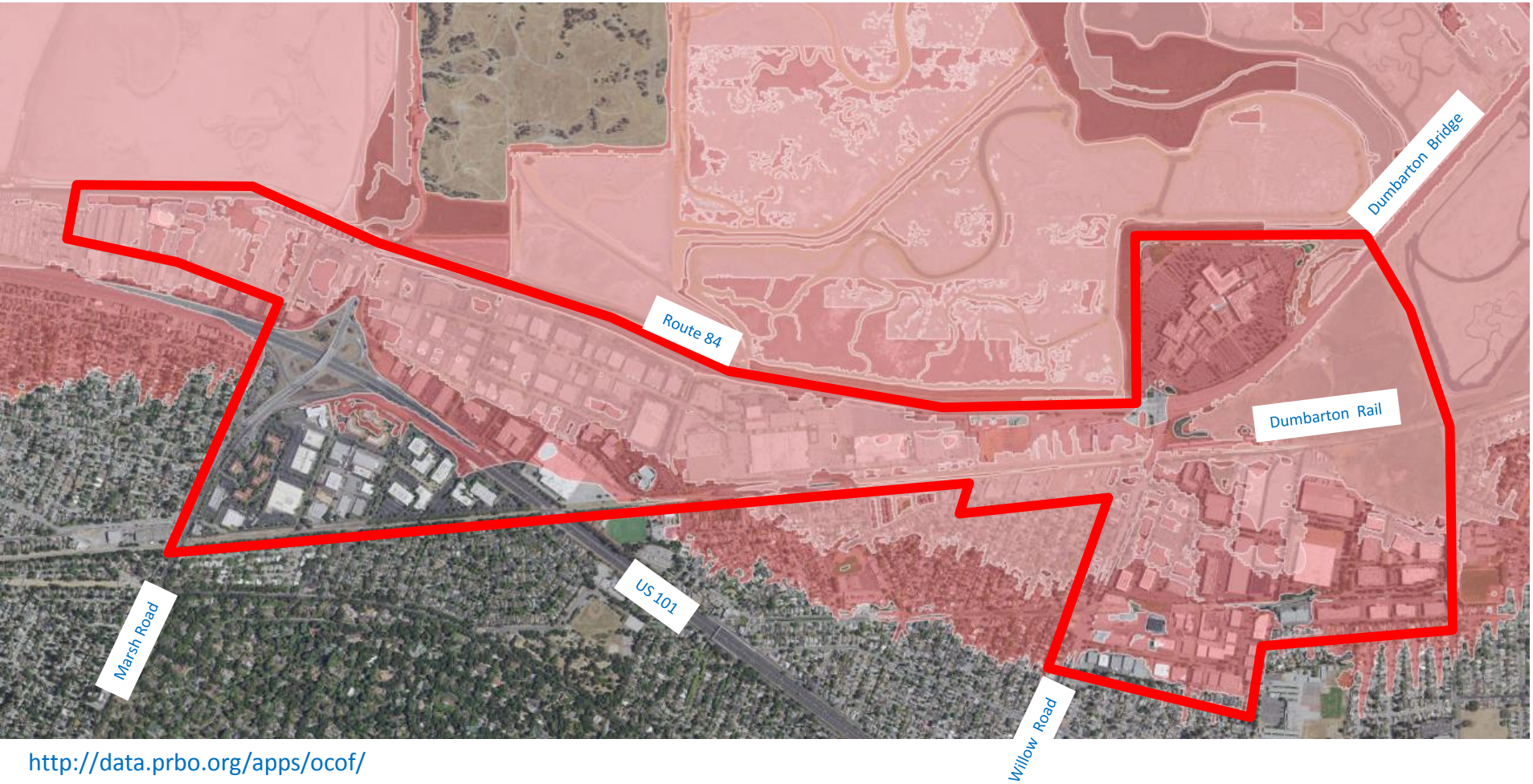

http://data.prbo.org/apps/ocof/

M-2 Area

Sea Level Rise – 3.3’

Coastal Flooding and Permanent Inundation

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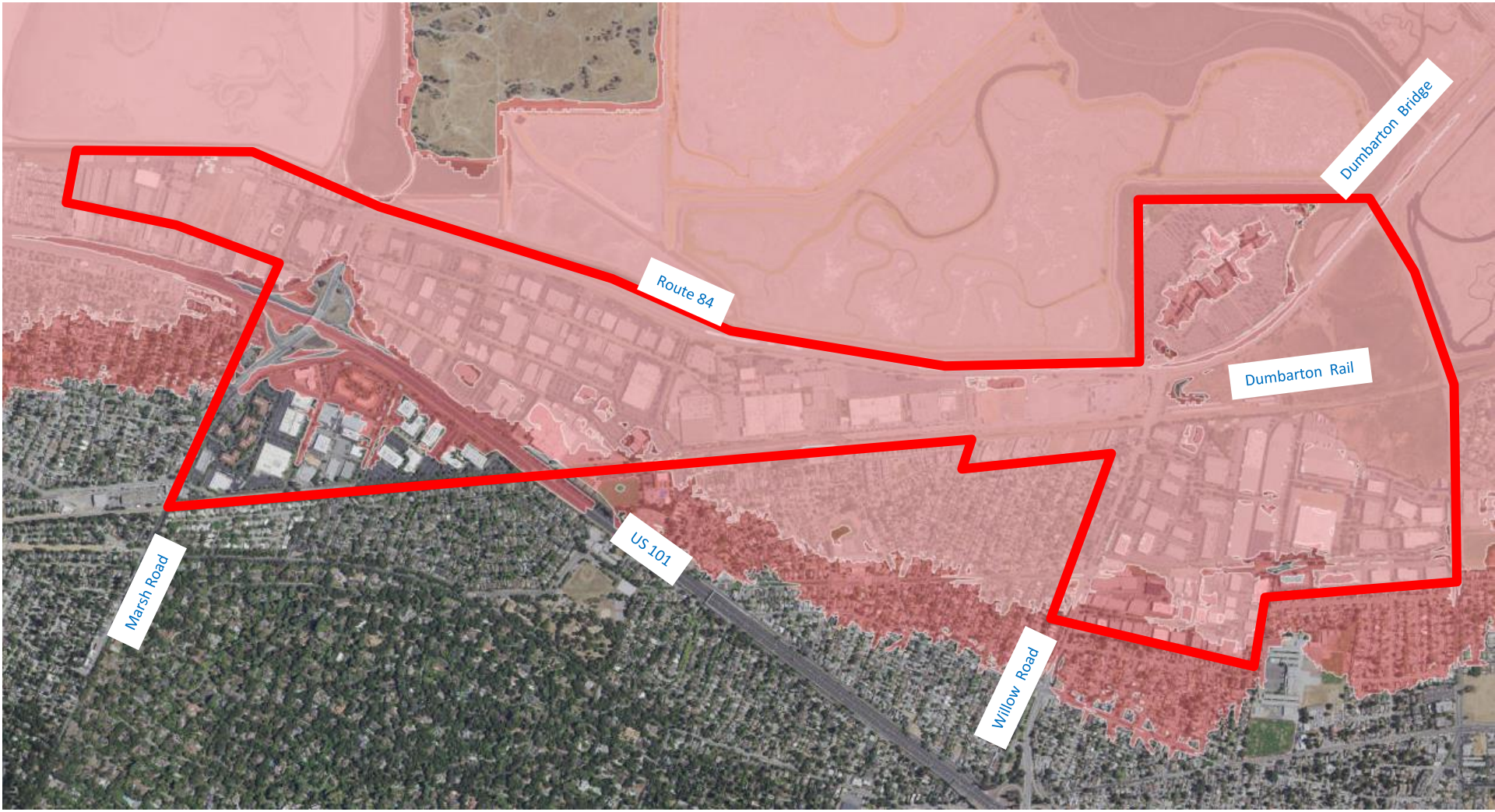

http://data.prbo.org/apps/ocof/

M-2 Area

Hazard Mitigation & Sea Level Rise

SAFER Bay

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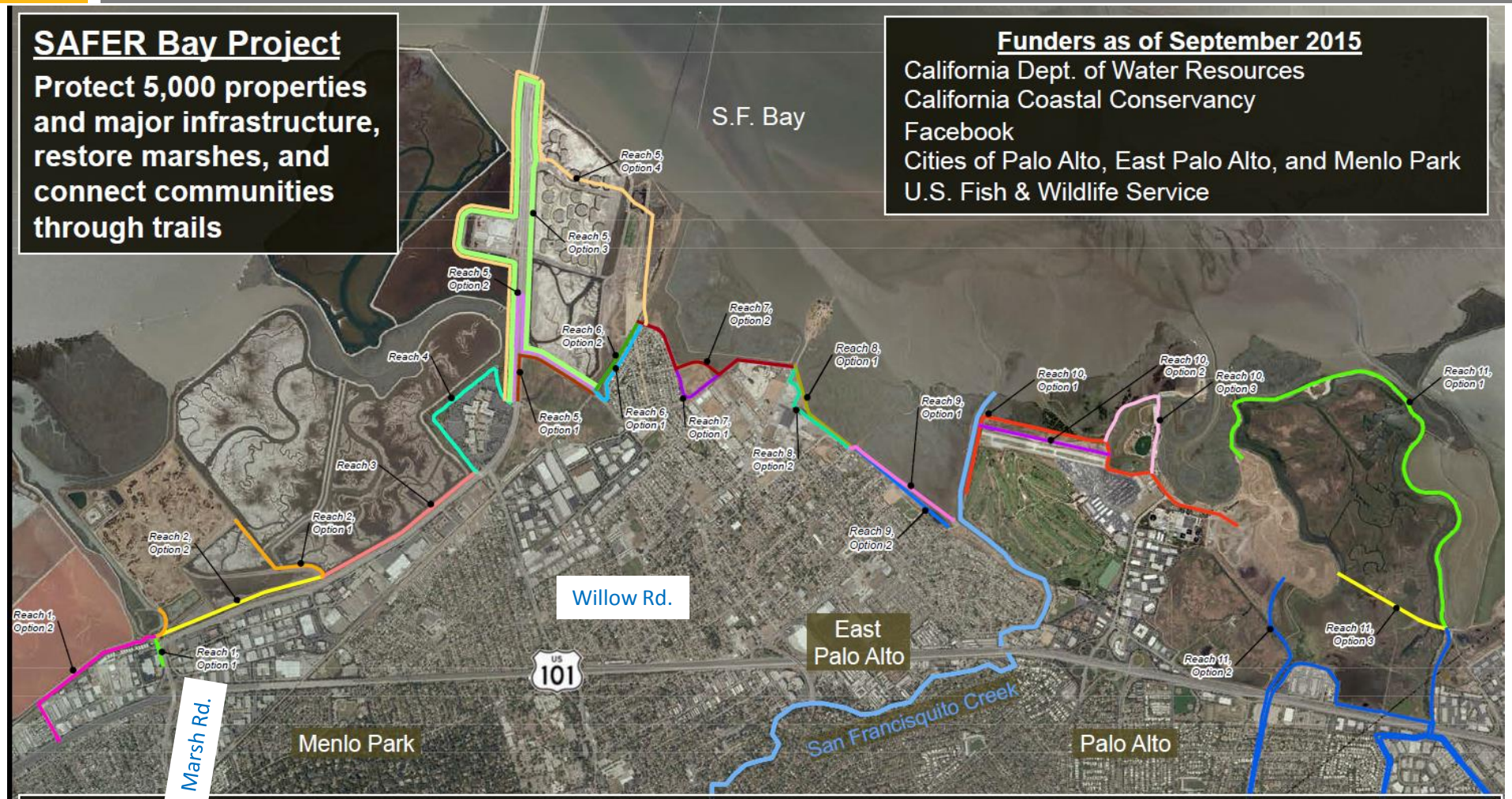

Design and analyze project elements to remove properties from the FEMA floodplain (100-year tide + 2' freeboard), with 3' of Sea Level Rise.

Construction (not yet funded) may occur in phases (1 FEMA, 2 SLR) and be geographically or temporally separable.

Hazard Mitigation & Sea Level Rise

Building Above SLR

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http://www.visualnews.com/2015/04/02/facebooks-new-hq-has-a-massive-9-acre-garden-on-the-roof/

Mitigation Planning

Resilience Strategies

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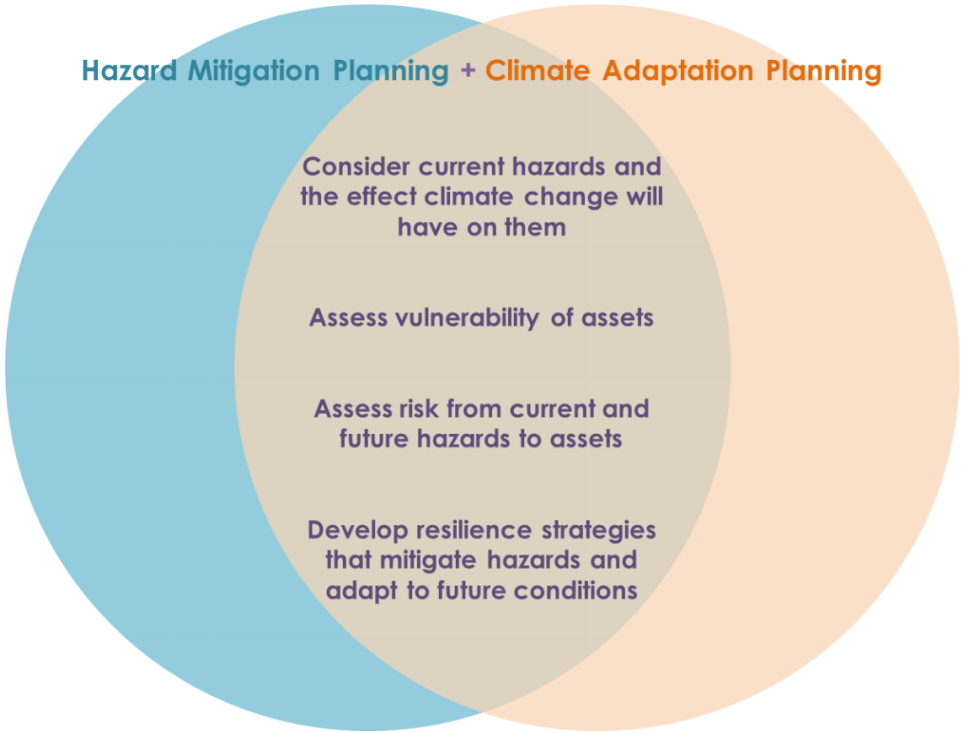

http://resilience.abag.ca.gov/projects/2016-mitigation-adaptation-plans/

- **Hazards**
  - Contribution of fair share
  - First floor elevation, SLR
- **Water Efficiency**
  - Water budgets
  - Recycled Water
    - Dual plumbing
    - On-site treatment
- **Green building and energy standards**

Two Topic Stations

- Water & Sea Level Rise
- Green Building & Energy

What do you like about the proposed zoning?

Is there any component of the proposed zoning that you would like changed?

Questions and Comments

- Questions?
- Comments on proposed zoning standards
  - Green Building
  - Energy
  - Exterior Lighting
  - Water
  - Hazard Mitigation and Sea Level Rise
  - Waste Management
  - Bird-safe Design

Next Steps

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- Topic Session on Community Amenities – March 24
- GPAC Meeting – April 21
- Revise Draft Zoning/Design Standards – April/May
- Planning Commission Study Session – May
- Draft EIR & Fiscal Analysis – May
- General Plan Adoption – September/October

For More Information

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- Visit: **www.menlopark.org/connectmenlo**
- Download App at: **connectmenlo2go.com**
- Contact: Deanna Chow
  Principal Planner
  City of Menlo Park
  Tel: (650) 330- 6733
  Email: **connectmenlo@menlopark.org**

Click on "Community Workshop and Events" and download Zoning Materials for Focus Group Meeting on Proposed M-2 Area Zoning