



# STINSON BEACH OWTS CLIMATIC ADAPTATION STUDY

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CSW | ST2



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# STINSON BEACH OWTS CLIMATIC ADAPTATION STUDY

## RISK ASSESSMENT AND ACTION PLAN

- Background / History
- Vulnerability Assessment
- Funding Research
- Regional Meetings
- Action Plan
- Public Outreach



## WASTEWATER ADAPTATION STRATEGY

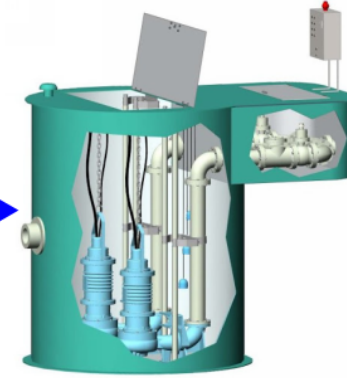
- Data Collection
- Adaptation Strategies
- Public Outreach

# ADAPTATION STRATEGY

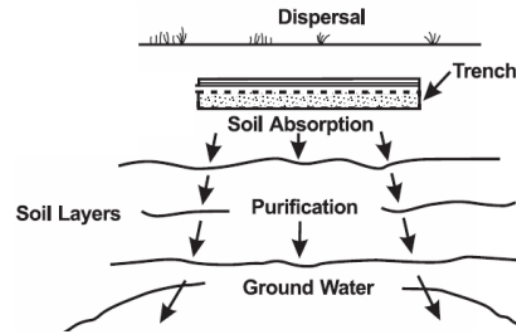
## SMALL COMMUNITY WASTEWATER SYSTEM SCHEMATIC



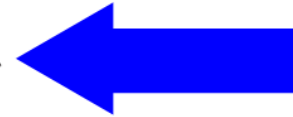
STEP TANK EFFLUENT PUMPING SYSTEM



COMMUNITY PUMP/LIFT STATION



WASTEWATER DISPERSAL



# DATA COLLECTION – WASTEWATER LOADING RATES

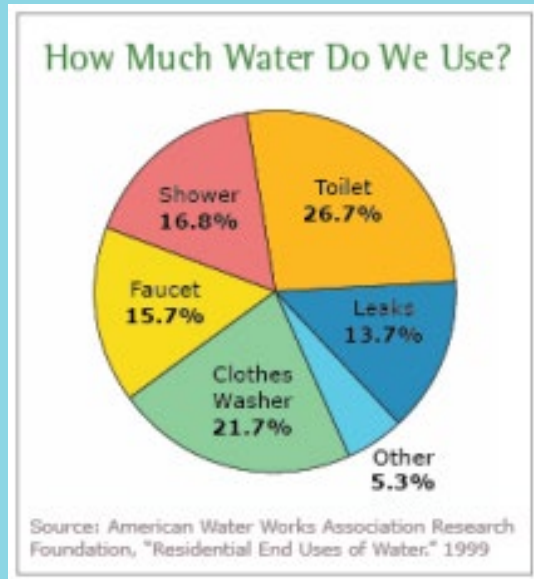


TABLE 2: TYPICAL INDOOR HOUSEHOLD WATER USE

Type of Use	Daily Use (gallons/person)	Approximate % of Total Indoor Use
Toilets	18.5	26.7
Clothes Washers	15.0	21.7
Showers	11.6	16.8
Faucets	10.9	15.7
Leaks	9.5	13.7
Other	1.6	2.2
Baths	1.2	1.7
Dishwashers	1.0	1.4
<b>Total</b>	<b>69.3</b>	<b>100.0</b>

## Marin County 2017 – 2019 Wastewater Flow Summary

Watershed	Design Flow	Average Flow	Delta
	(gpd)	(gpd)	(gpd)
Bolinas Lagoon	425	92	333
Novato Creek	416	113	303
Richardson Bay	340	106	234
Ross Valley	336	102	234
San Antonio Creek	585	95	490
Southern Coastal Creek	226	75	151
Tomales Bay	394	115	279
Average =	389	100	289

### AVERAGE WATER USE PER HOUSEHOLD

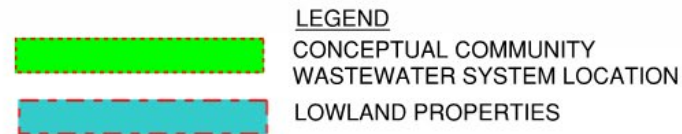
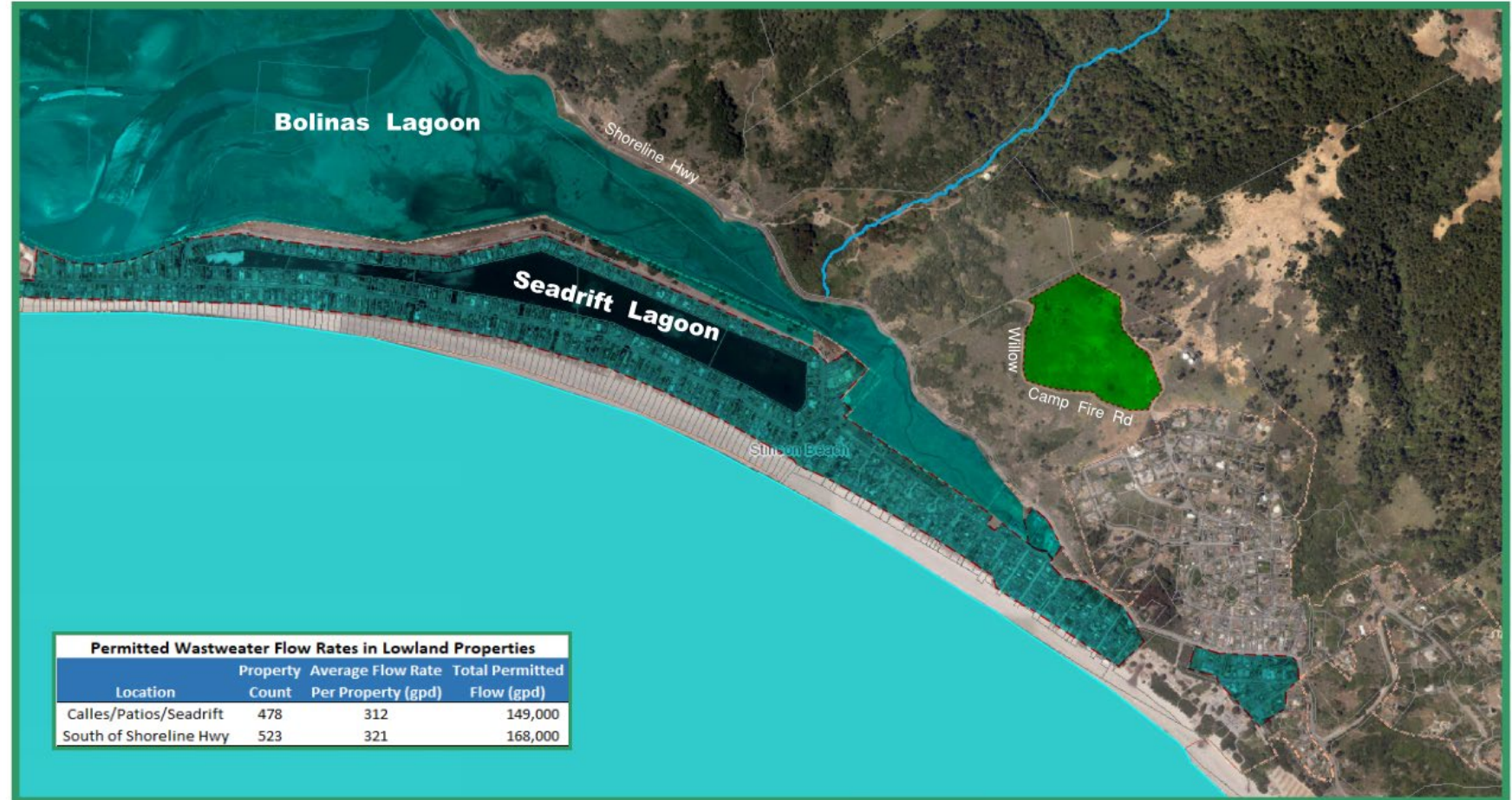
= 2.53 persons / household x 69.3 ga / person

= **175 gal / household**

(2020 Census – average household 2.53 persons)

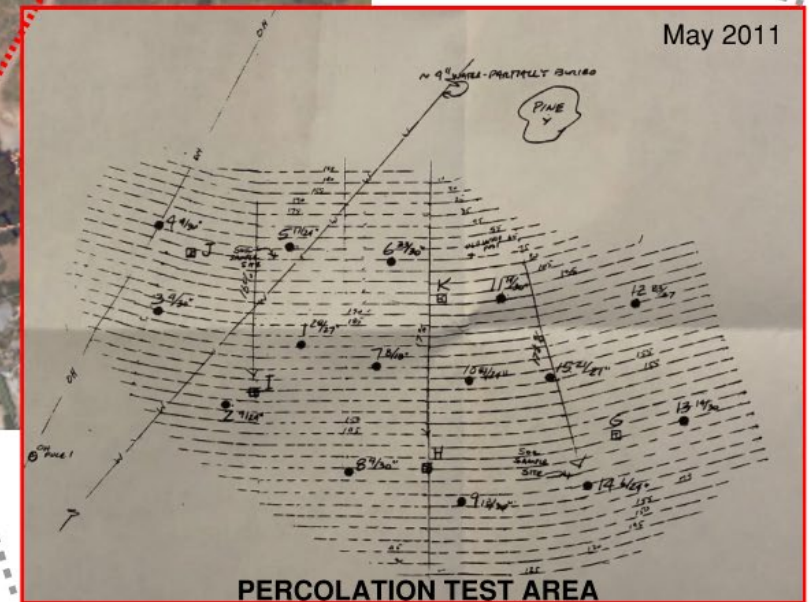
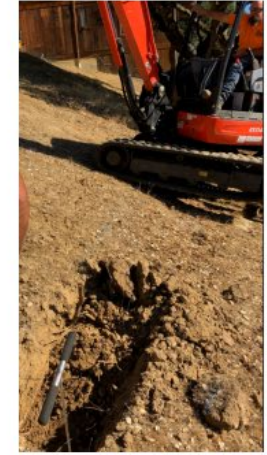
# ADAPTATION STRATEGIES

## LEACH FIELDS SPRAY IRRIGATION



# ADAPTATION STRATEGIES

Agency Outreach For  
Soils Testing

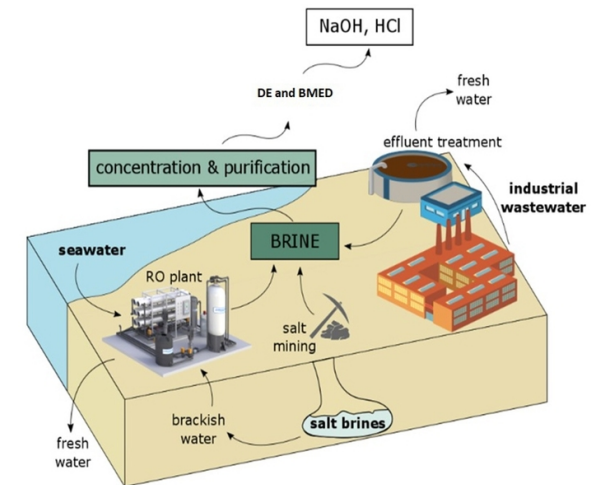


## SMALL COMMUNITY WASTEWATER SYSTEM SCHEMATIC

# ADAPTATION STRATEGIES

## ALTERNATIVE TERTIARY TREATED WASTEWATER USES

- Town “Purple Pipes”
  - Fire Suppression System
  - Irrigation System
  - Flushing toilets for Public Restrooms
- Surface Water Discharge
  - Coordination with Desalination Brine Discharge
- Sand Dune Restoration / Dispersal



# OUTREACH



- **County of Marin & West Marin Adaptation Group**  
*Presented concept to Nov. meeting of County coordinated regulatory group*
- **Greater Farallones National Marine Sanctuary**  
*Expressed support, open to creative collaborations with adaptation efforts*
- **California Coastal Commission**  
*Sees need for increased resources for infrastructure planning efforts*
- **California Coastal Conservancy**  
*Provided funding suggestions and will alert District to future opportunities*
- **San Francisco Bay Regional Water Quality Control Board**  
*Provided State Water Board contact for funding conversation*
- **Golden Gate National Recreation Area Staff**  
*Supportive partners in comprehensive adaptation efforts  
Will be reviewing dispersal site evaluation plans internally*



# CURRENT FUNDING



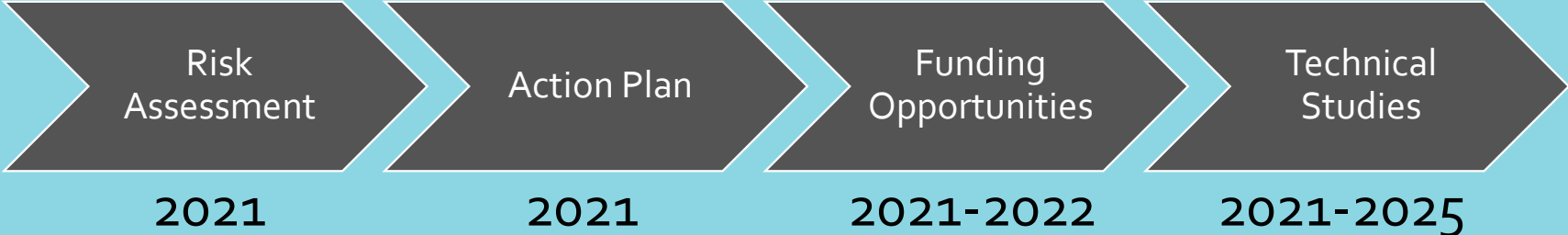
- **Department Of Water Resources Water Recycling Funding Program**
  - *Program supports planning efforts with 50% match*
  - *Awards typically range from \$75-100K*
  - *Popular program, demand currently exceeds availability*
- **FEMA Hazard Mitigation Assistance (HMA) Grant Programs**
  - *Engage with Local Hazard Mitigation Plan update currently underway*
  - *Building Resilient Infrastructure and Communities (BRIC)*
- **Coastal Conservancy, Ocean Protection Council, Marin Community Foundation do not currently have applicable funding opportunities**

# UPCOMING FUNDING



- **AB-1500** (Eduardo Garcia and Mullin)  
Would enact a **\$6.7 billion resilience bond** entitled the *Safe Drinking Water, Wildfire Prevention, Drought Preparation, Flood Protection, Extreme Heat Mitigation, and Workforce Development Bond Act of 2022*.
- **SB-45** (Portantino, Allen, Hurtado, and Stern)  
Would enact a **\$5.5 billion resilience bond** measure entitled *Wildfire Prevention, Safe Drinking Water, Drought Preparation, and Flood Protection Bond Act of 2022*.

## NEAR TERM GOALS



## LONG TERM GOALS



**TENTATIVE SCHEDULE**