



Strategy to Optimize Resource Management of Stormwater

Brazilian Association of Sanitary and Environmental Engineers Meeting

June 7, 2018



Annalisa Kihara, PE
Storm Water Planning Unit Chief
Division of Water Quality



Presentation Outline



1. Why we need to rethink how rain and stormwater are managed
2. How the Water Boards are rethinking stormwater management
3. Strategy to Optimize Resource Management of Stormwater



PART 1

Rethinking Stormwater Management



Rethinking Stormwater Management



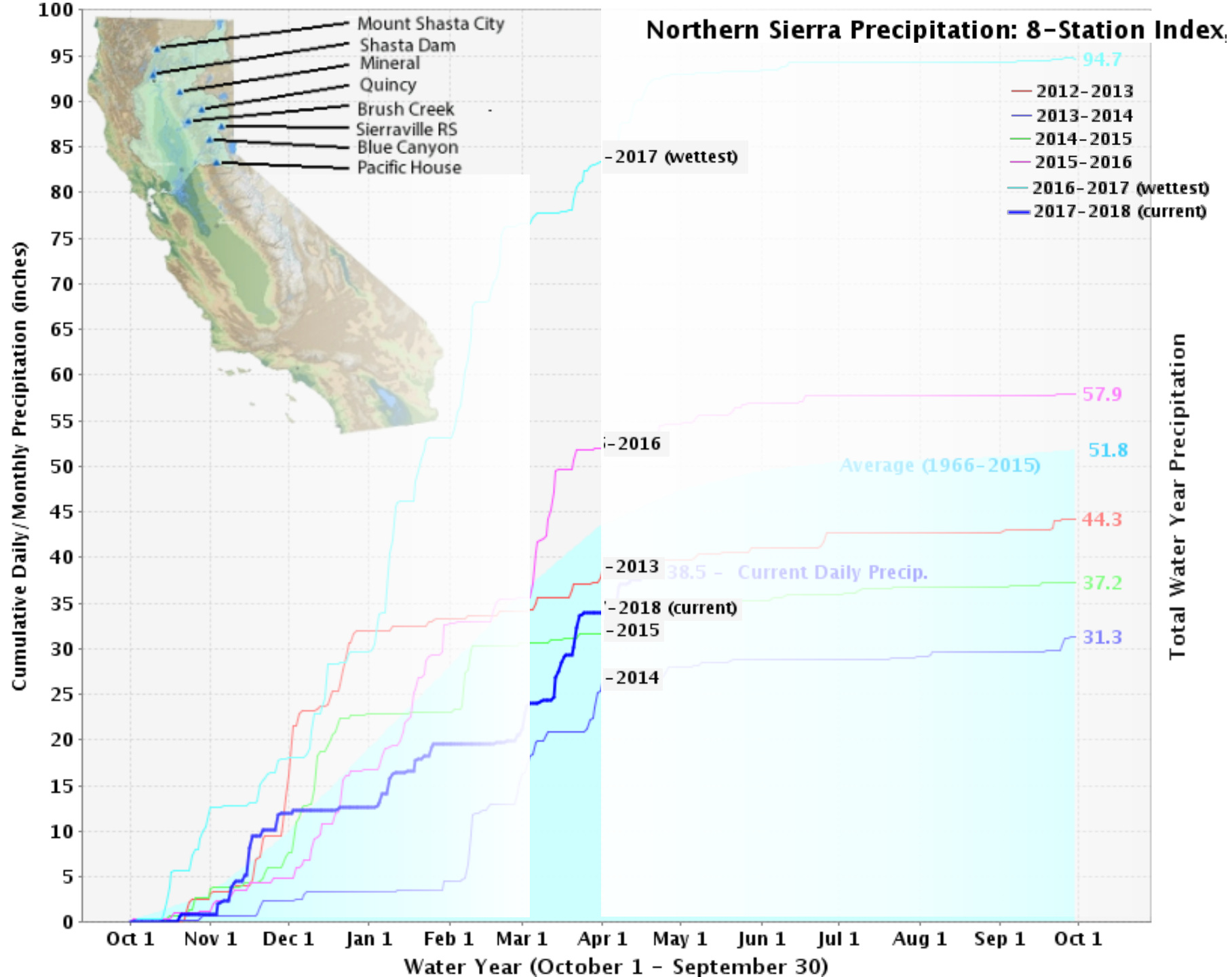
Photo: Kevin Robert Perry

Too Much...

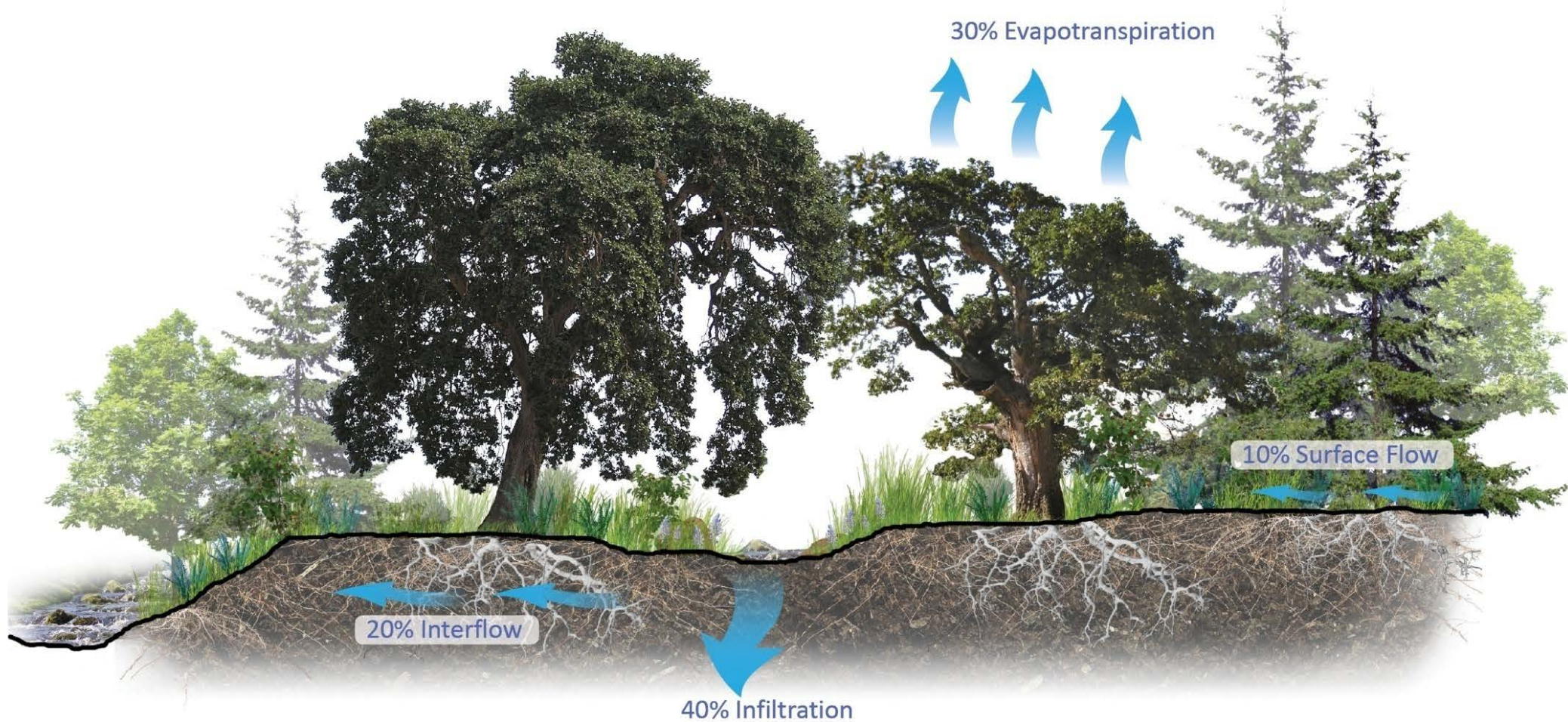


Photo: frostproofblog.com

Too Little...



Hydrologic Cycle in the Natural Landscape



Hydrologic Cycle in the Urban Environment

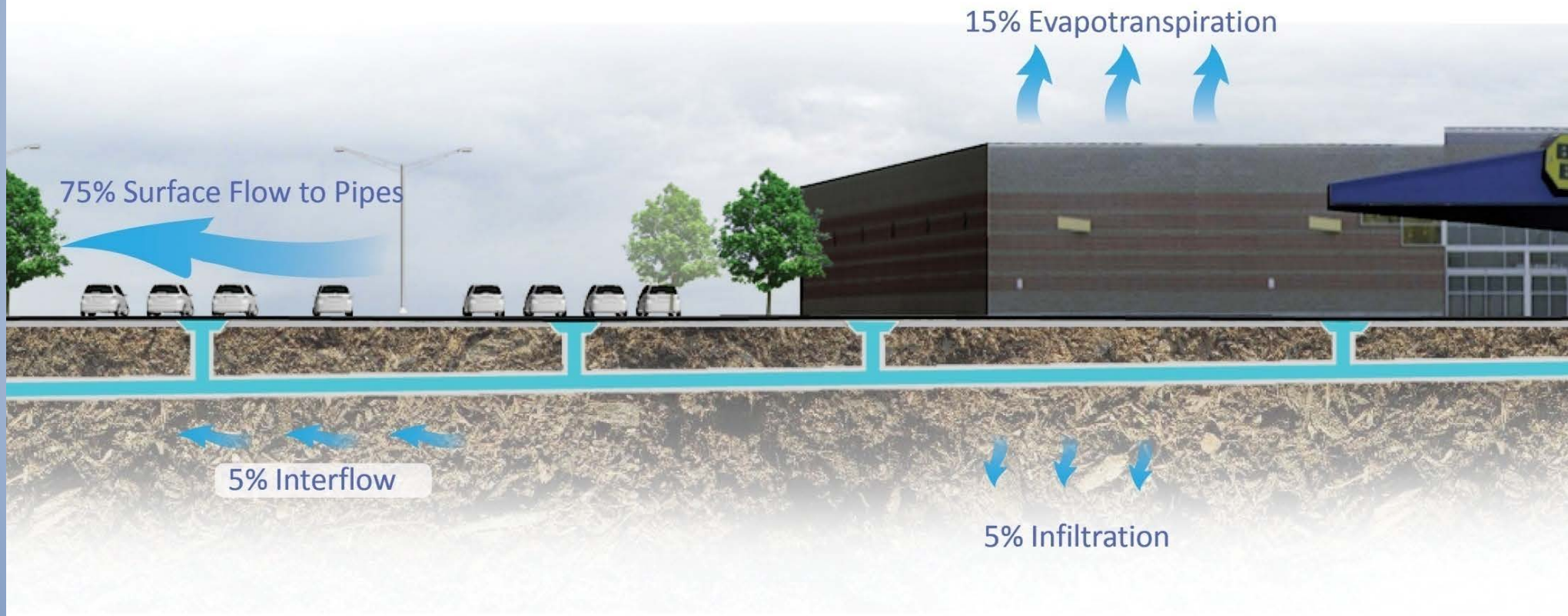


Photo: Nevue Ngan Associates

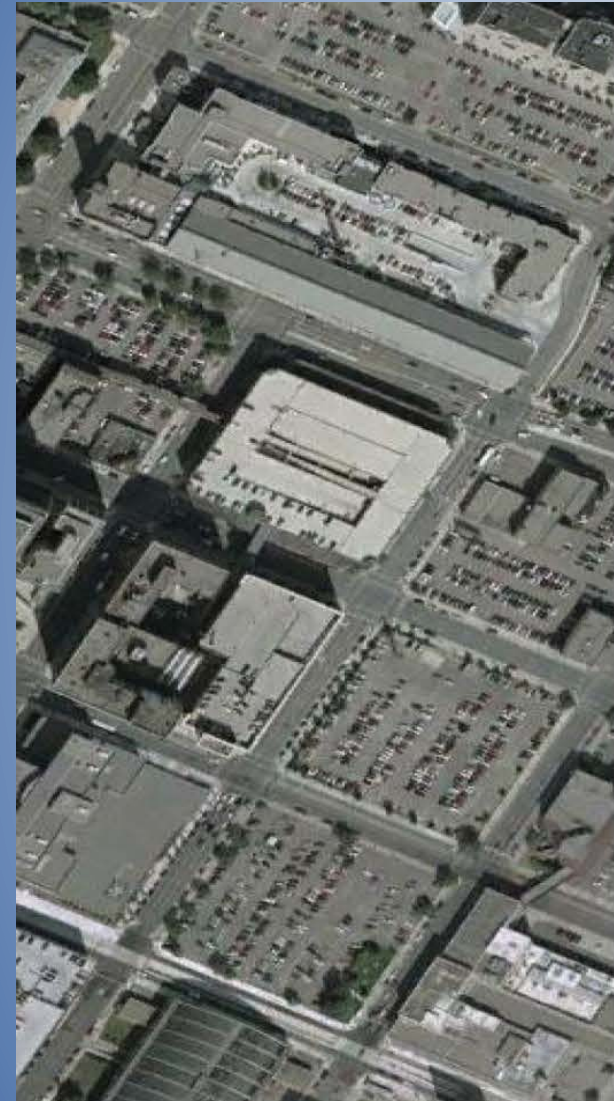
Stormwater Runoff Mobilizes Contaminants

To name a few...

- Trash
- Sediments
- Metals
- Nutrients
- Oil and Grease
- Pesticides
- Temperature



Rethinking Stormwater Management



Conventional Management Devalues Water

What are the Water Boards doing to solve these problems?



Photo: Kevin Robert Perry

PART 2

California Water Boards – Rethinking Stormwater Management



Regulation of Stormwater in the US



EPA's National Urban Runoff Program, 1979-1983



Clean Water Act Section 402 - Point Sources
NPDES (National Pollutant Discharge Elimination System) Permits

Revisit to Stormwater Management

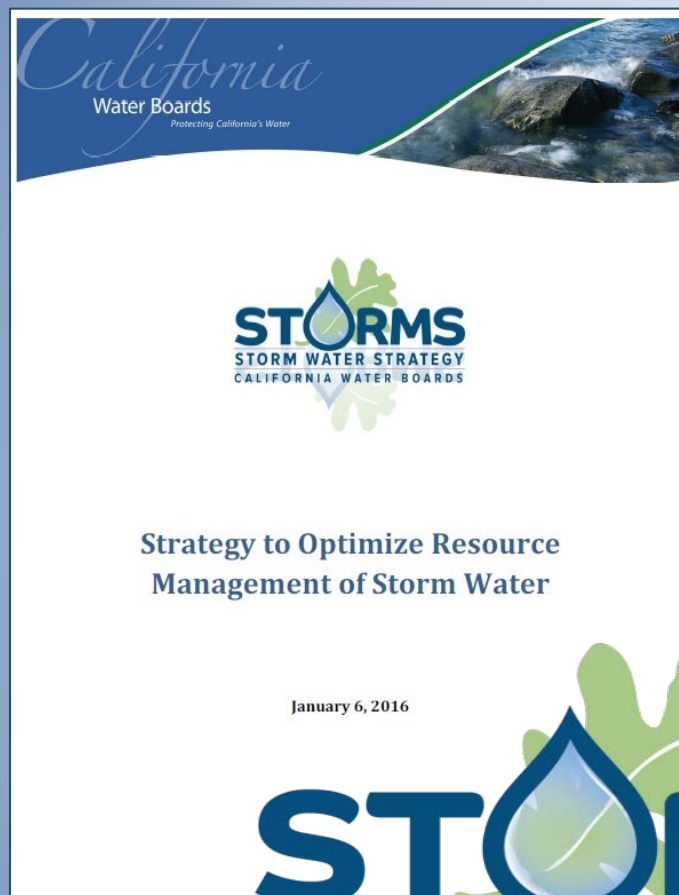


California drought

**Continued water
quality issues**

**California Water
Action Plan (2014)-
calls for multi-benefit
stormwater solutions**





January 6, 2016:

A new Storm Water Strategy
adopted to guide the State
Storm Water Program for the
next ten years

PART 3

What is the Strategy to Optimize Resource Management of Stormwater (STORMS)?



Vision:

Storm Water is sustainably managed and utilized in California to support water quality and water availability for human uses as well as the environment.

Mission:

To lead the evolution of storm water management in California by **advancing the perspective that storm water is a valuable resource**, supporting policies for collaborative watershed-level storm water management and pollution prevention, removing obstacles to funding, developing resources, and integrating regulatory and non-regulatory interests.

Change the perspective of storm water from a nuisance or hazard...

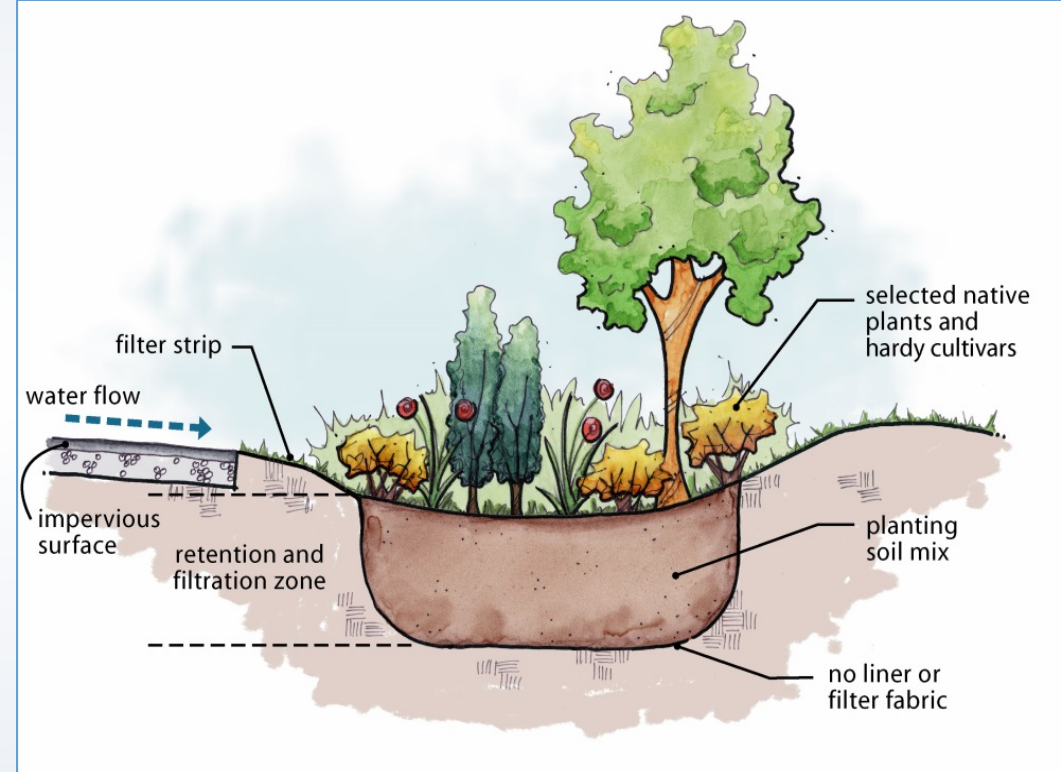


The Day After Tomorrow, 2004

...to a valuable water resource



elkhartriverrestorationassociation.org



betterground.org



Photo: Kevin Robert Perry

- Promotes the paradigm shift from *storm water as a nuisance* to *storm water as a valuable resource*
- STORMS projects will engage a wide array of storm water stakeholders through the Implementation Committee and public participation processes

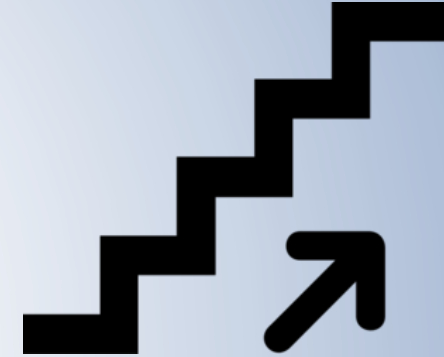
GOALS:

1. **Change the perspective** of storm water as a waste or hazard, and treat it as a valuable water resource;
2. **Manage storm water to preserve watershed processes** and achieve desired water quality outcomes;
3. **Implement efficient and effective regulatory programs;** and
4. **Collaborate to solve water quality and pollutant problems** with an array of regulatory and non-regulatory approaches.

Projects – 23 Total

PHASE I PROJECTS

- Deliverables and project completion targeted within 4 years of initiation



PHASE II PROJECTS

- Scope and priority will be influenced by lessons learned from Phase I
- Targeted for completion within 8 years of initiating the program

PHASE III PROJECTS

- Targeted for completion within 12 years of initiation the program

STORMS - Phase I Projects

Phase I Projects	Estimated Target Completion
1. Promote Storm Water Capture and Use	2019
2. Eliminate Barriers to Storm Water Capture and Use	2019
3. Develop Guidance for Alternative Compliance Approaches	2019
4. Develop Watershed-Based Compliance and Management Guidelines and Tools	2019
5. Implement Senate Bill 985	2018
6. Eliminate Barriers to Funding	2018
7. Storm Water Program “Open Data”	2019
8. Urban Pesticides Amendments	2018
9. Opportunities for Source Control and Pollution Prevention	2019

Objective 1: Increase Stormwater Capture and Use



Photo: Texas A&M AgriLife Extension Service

- **Project 1a:** Promote Storm Water Capture and Use
- **Project 1b:** Identify and Eliminate Barriers to Storm Water Capture and Use
 - Regulatory
 - Water Rights
 - Water Quality
 - Infrastructure
 - Etc....

Objective 2: Increase Stakeholder Collaboration on a Watershed Scale



- No Phase I Projects
- Incentivized through other Water Board Efforts
 - Watershed level plans
 - Funding



Objective 3: Establish Permit Pathways to Assess Stormwater Programs



Photo: Kevin Robert Perry

- **Project 3a:** Develop Guidance for Alternative Compliance Approaches for Municipal Storm Water Permit Receiving Water Limitations
- **Project 3b:** Develop Watershed-Based Compliance and Management Guidelines and Tools

Objective 4: Establish Financially Sustainable Stormwater Programs



Photo: Kevin Robert Perry

- **Project 4a:** Implement Senate Bill 985 – Incorporate Principles of Storm Water Resource Plan Guidelines into Storm Water Programs
- **Project 4b:** Eliminate Barriers to Funding Storm Water Programs and Identify Funding for Storm Water Capture and Use Projects

Objective 5: Improve & Align State Board Oversight of Stormwater Programs

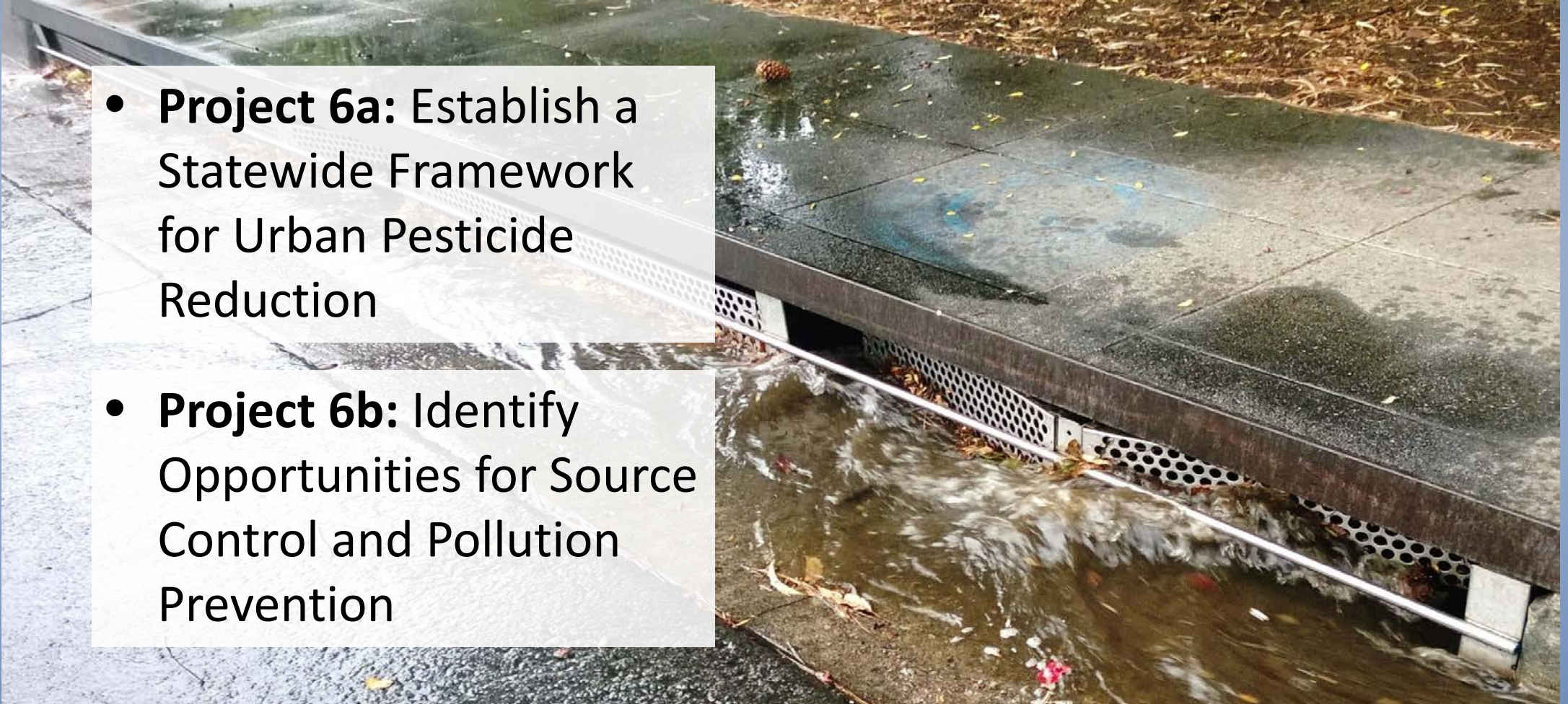
- **Project 5a:** Create Stormwater Program Data and Information “Open Data”

Map: water bodies assessed for impairment in 2010 (from State Water Board website)



Objective 6: Increase Source Control and Pollution Prevention

- **Project 6a:** Establish a Statewide Framework for Urban Pesticide Reduction
- **Project 6b:** Identify Opportunities for Source Control and Pollution Prevention



Thank You



waterboards.ca.gov/STORMS

**Annalisa Kihara, Chief
Storm Water Planning Unit**

Annalisa.Kihara@waterboards.ca.gov

(916) 324-6786



Left to Right: Jeffrey Albrecht, Beth Payne,
Annalisa Kihara, Matthew Freese, Chris Beegan