

California Plumbing Code 2016 Recycled Water Revisions

**WaterReuse
Central Valley/Sierra Foothills Chapter
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Presentation Overview

- Plumbing Code Background
- AB 2282
- Issues to Consider
- Plumbing Code Revision Process

What is California Plumbing Code?

- California Building Standards Code: 12 parts
 - California Code of Regulations, Title 24
 - Adopted by California Building Standards Commission (CBSC)
- California Plumbing Code
 - Part 5 of Title 24
 - Based on model code selected by CBSC: International Association of Plumbing and Mechanical Officials (IAPMO) Uniform Plumbing Code
 - Amendments by California State agencies

Current Recycled Water Provisions

- 2013 California Plumbing Code, Chapter 16A, Part II, Non-Potable Water Reuse Systems
 - Informal: “Dual Plumbing Code”
- Focus: dual plumbed buildings with recycled and potable water systems
- All building types: commercial, office buildings, theatres, condominiums, schools, prisons, etc. as allowed by SWRCB (Title 22)
- Uses: toilets, urinals, trap primers for floor drains, & other allowed uses
- Reclaimed water source: municipal wastewater

Dual Plumbing Code History

- Before 2010: No California adopted plumbing code for recycled water
- 2002 Recycled Water Task Force: recommendations
- 2006: Water Code §13577, DWR authorized to adopt design standards for Plumbing Code for dual plumbed buildings
- 2009: DWR adopted, published in 2010 California Plumbing Code

Other Dual Plumbing Regulations

- Title 22 Water Recycling Criteria, Division 4, Chapter 3
 - Article 4, Use Area Requirements
 - Article 5, Dual Plumbed Recycled Water Systems (in buildings or irrigation at individual residences)
 - Signage, cross-connection testing, etc.
- Title 17, Div. 1, Ch. 5, Art. 2, Protection of Water Systems
 - Backflow protections for public water supply

AB 2282

- Passed 2014
- Required Actions
 - Mandatory Installation: Establish criteria for mandating installation of recycled water systems for newly constructed single-family and multifamily residential buildings (HCD) and commercial and public buildings (CBSC)
 - How: Establish standards for construction of recycled water systems (HCD & CBSC)
 - Undertake research

Overlapping Authorities

- Four state agencies
- Plumbing Code (Title 24)
 - Department of Water Resources
 - California Building Standards Commission
 - Department of Housing and Community Development
- Titles 17 & 22
 - State Water Resources Control Board

AB 2282 Coverage

- Research:
 - Indoor applications
 - Potential outdoor applications consistent with Title 22
- Adoption of standards
 - Installation of recycled water systems for newly constructed buildings
 - Implied: building site landscaped areas

AB 2282 Implementation Assumptions

- Applies to recycled water provided from source external to use site
- Implies source is treated municipal wastewater in definition of “recycled water” reference to Title 22 regulations (H&SC §17921.5(a), 18940.6(a))
- Excludes water sources on use site (rainwater, graywater, black water, etc.)

“Whether”: Criteria to Mandate

- Objectives (implied in AB 2282)
 - Facilitate future cost-effective expansion of recycled water use in areas where recycled water may be served in future

Criteria to Mandate

- Areas identified in local planning efforts
 - Master plans, feasibility studies, facilities plans
 - Facilities plans funded by SWRCB
 - Urban Water Management Plans
 - Local ordinances
- New construction within areas identified within certain time horizon
- Note: Water Code §13579-13580.7
- Potential for indirect or direct potable reuse that precludes need for dual distribution & plumbing

Criteria to Mandate: Cost

- Water agencies often ignore costs of dual distribution or on-site plumbing if paid for by developers or home buyers
 - Not free: A real cost to society
- Cost-effectiveness to serve residential areas
 - Not well documented, needs research: costs may be very high (>\$10,000/AF)
- Incremental cost to dual plumb new buildings vs retrofit existing buildings
- Incremental cost to dual plumb from property line to buildings in new construction vs retrofit
- Design point of connection to facilitate later retrofit

Criteria to Mandate: Stranded Costs

- Dual plumbing that is never used is equivalent of stranded cost to homeowner and society generally
- Unused dual plumbing essentially increases the unit cost of recycled water for society as whole

“What” to Mandate

- Which components of recycled water plumbing system to mandate
- Just within buildings, ready for future connection to reclaimed water?
- Special landscape irrigation features?

“How”: Chapter 16A, Part II

- Addresses the “How to”
- Standards for construction, monitoring, cross-connection testing of recycled water systems at use sites, signage
- Within buildings
- Vague reference to plumbing on premises outside buildings (DWR authority may not apply)

Chapter 16A, Part II

Indoor Single Family Residence Issues

- Building types:
 - Single family houses not addressed (not currently allowed in Title 22)
 - Must Title 22 be amended to allow single family house use?
 - Are current provisions in Chapter 16A adequate or practical for single family structures?

Cross-Connection Protection of Occupants

- Potable water may be used as makeup water for recycled water
- Gray water or rainwater may be used as makeup water for recycled water
- Recycled water may be used as makeup water for gray water or rainwater systems
- What backflow protection is adequate to protect potable water from nonpotable water?
- What backflow protection is adequate to protect recycled water from other nonpotable water?

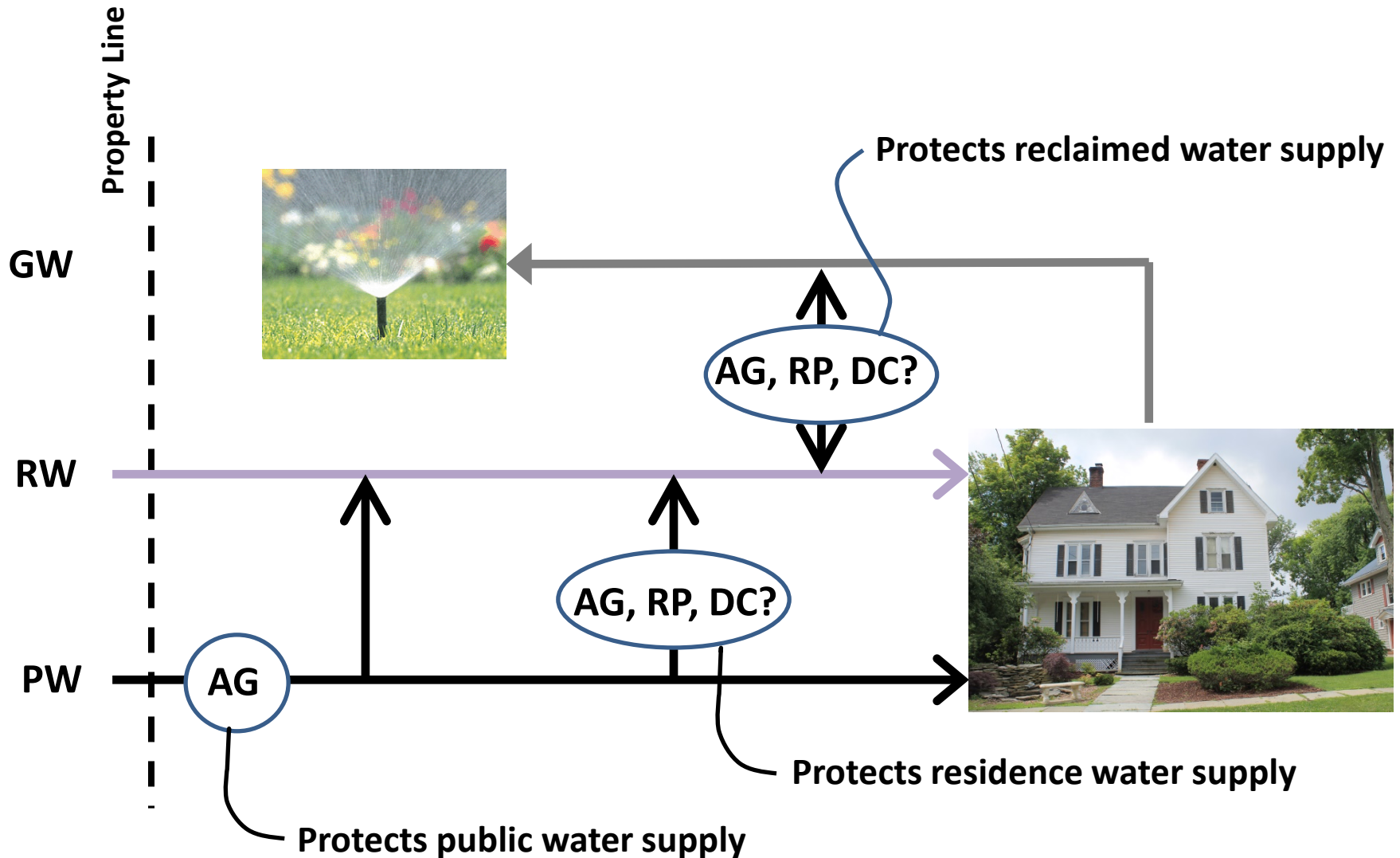
Signage

**CAUTION
RECYCLED WATER,
DO NOT DRINK.
DO NOT CONNECT TO
DRINKING WATER
SYSTEM.**

**NOTICE
CONTACT
BUILDING MANAGEMENT
BEFORE PERFORMING
ANY WORK ON THIS
WATER SYSTEM.**

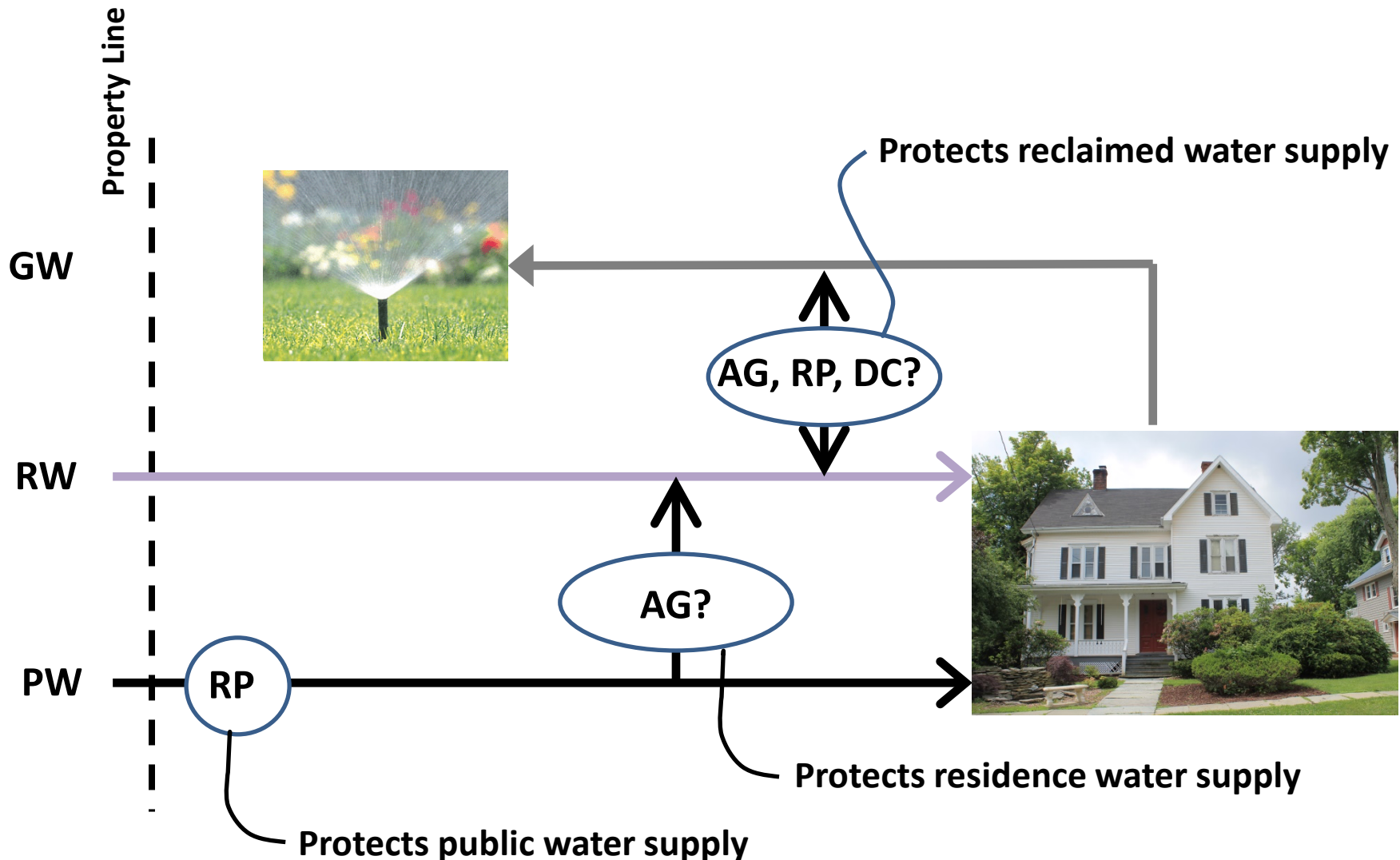
3 Scenarios in Title 17, §6703

(c)(1) Potable Supplements Recycled



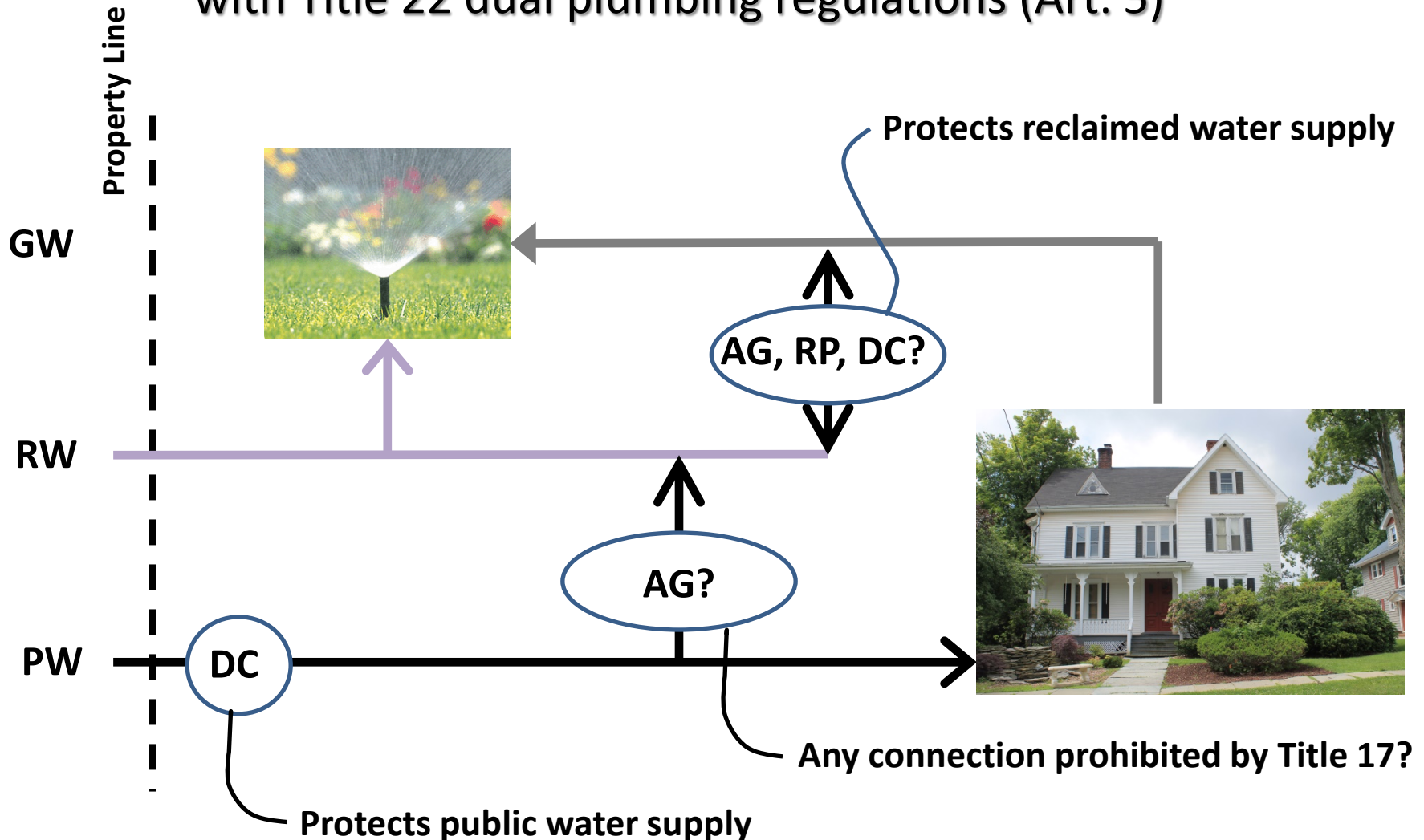
3 Scenarios in Title 17, §6703

(c)(2) No interconnection with the potable



3 Scenarios in Title 17, §6703

(c)(3) Residences using RW for landscape irrigation conforming with Title 22 dual plumbing regulations (Art. 5)



The Gap

- Plumbing between point of connection or property line and structures
- Plumbing for irrigation or other external uses
- Not clearly addressed in Ch 16A
- An item of confusion for local building officials that needs clarification
- Is there legal authority to adopt standards for this (DWR, CBSC, HCD, SWRCB)?

Chapter 16A Improvements

- How well are current standards working?
- Are current standards adequate or suitable for single-family residences to protect occupants?

Where to Put AB 2282 Standards

- 2015 IAPMO model plumbing code, Chapter 15
 - Alternate water sources (gray, recycled)
- 2015 IAPMO model plumbing code, Chapter 16
 - Now rainwater capture systems
- Green Building Code
- Considerations
 - Consolidating related standards in one location facilitates
 - Consistency
 - Use by builders, water purveyors, state officials
 - Integration of Ch 16A provisions with any new AB 2282 provisions
- Cross Reference between Green and Plumbing Codes

Drafting Committee

- California Building Standards Commission
- California Department of Housing and Community Development
- California Department of Water Resources
- State Water Resources Control Board
 - Division of Drinking Water
 - Division of Water Quality
- State Architect
- State Fire Marshall

Stakeholder Input

- Steering committee
 - State agencies, representatives of key stakeholder perspectives
- Subcommittees
 - Maintenance, Testing and Inspection
 - Backflow Prevention and Cross-Connection
 - Enforcement, Compliance, Minimum Water Quality
 - Onsite Treated Water
 - Ad Hoc (Beneficial Uses, Fire Suppression Systems, etc.)
 - Missing Need: Criteria for Mandated Plumbing in New Construction
- Public workshops for all stakeholders
- Public comment period

Schedule

- 14 June 2016: Stakeholder meeting
- 28-29 July 2016: Subcommittee meetings
- Aug-Oct 2016: Stakeholder/Subcommittee meetings
- Aug-Nov 2016: Green Building Focus Group meetings
- Dec 2016: State agency initial submittal of code changes to CBSC
- Spring 2017: DWR adoption
- June 2017: CBSC adoption

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