



**ARAPAHOE COUNTY**

# **Introduction to State Regulation 86 for Graywater and HB 24-1362**

Arapahoe County Public Health

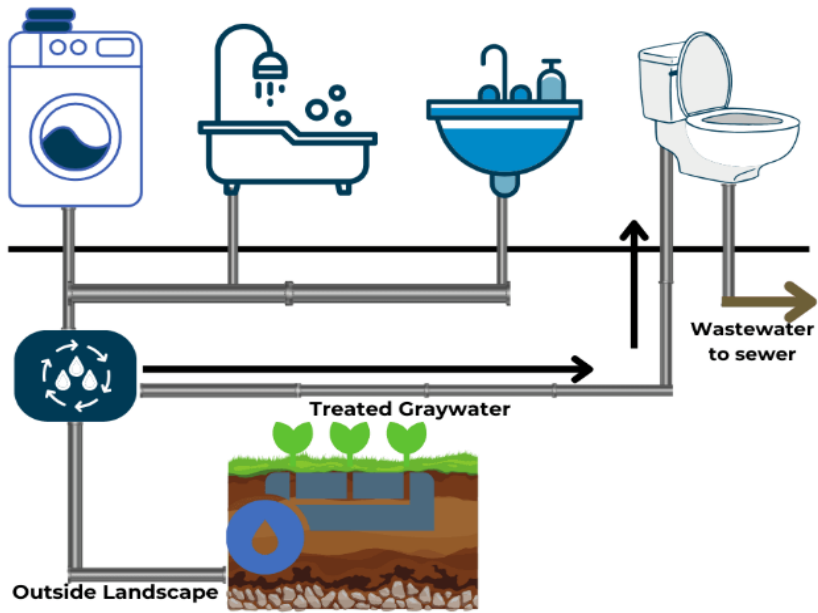
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Board of County Commissioners Study Session

Diana Rashash, PhD CPH EI

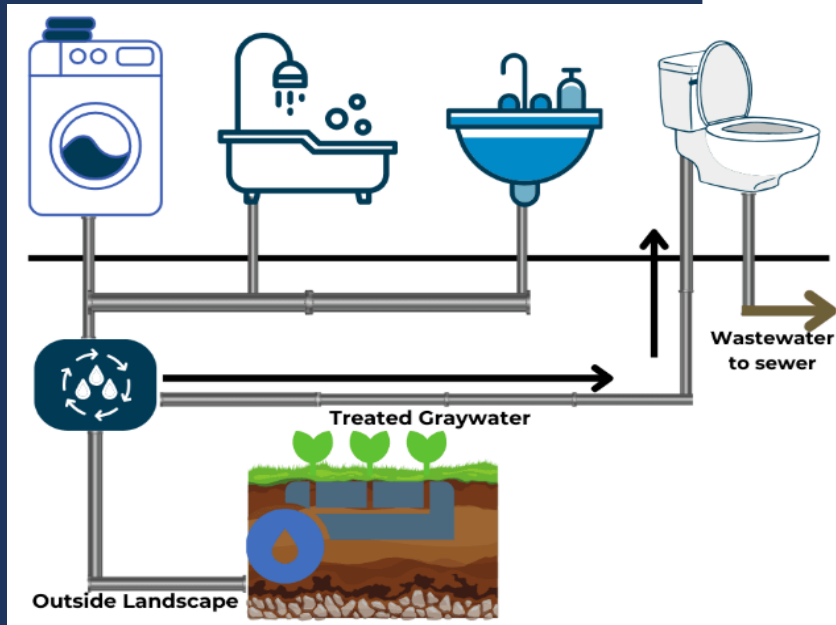
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# What is Graywater?



- Graywater sources may include bathroom sinks, bathtubs, showers, laundry sinks, and laundry machines
- Graywater sources may not include water from toilets, urinals, kitchen sinks, or dishwashers

# How is Graywater Reused?



- “Gray” to “Black”: The graywater is used to flush toilets, then goes to septic system or municipal sewer
- Laundry to Landscape: The graywater is pumped to an underground irrigation system.

# Why Reuse Graywater?

## How Much Water Do We Use?



Source: Water Research Foundation, Residential End Uses of Water, Version 2. 2016

- Graywater reuse is one tool to help conserve water:
  - Indoors: toilets, showers, and laundry are main water uses
  - Outdoors: irrigation uses a lot of water
- Aurora Water stated that water demand during the irrigation months is nearly triple the off-season demand

Scenario: 1,000 ft<sup>2</sup> of yard irrigated with 1-inch of water =  
**~624 gallons of water**  
(we will come back to this number...)

# Why Reuse Graywater?

- Pros:
  - Potential for less water use overall
  - Potential for less potable water used for irrigation
- Cons:
  - May result is higher strength wastewater
  - Plumbing complexity (especially backflow and cross connections)
  - Operation & Maintenance requirements
  - High cost to benefit ratio
  - Health and environmental concerns
  - Water rights



# Alternatives to Reuse



- Other methods to conserve water do exist:
  - Town of Castle Rock Considerations
    - Use ultra low-flow devices
  - Shorten shower by 1 minute
  - Use smart irrigation practices
  - Switch to native, low water demand grasses, flowers, shrubs, and trees



# Graywater Use Categories

## Single family homes:

- Laundry to landscape: 250 gpd
- All graywater sources:
  - Subsurface irrigation
  - Indoor toilet and urinal flushing
  - Indoor/outdoor firefighting
  - Volume allowed: 400 gpd

## Non-single family homes:

- All graywater sources
  - Subsurface irrigation
  - Indoor toilet and urinal flushing
  - Indoor/outdoor rural fire protection
  - Volume allowed: 2,000 gpd (no limit for rural fire protection)

# Peer Agency Experience with Graywater Programs

- How many systems do you have?
  - Denver: 0 L2L, 27 flush systems (pilot program)
  - Pitkin County: 0
  - Castle Rock: 29 “flush” systems in one subdivision; some were removed due to homeowner dissatisfaction
  - Grand Junction: 0 (relatively new program)
  - Fort Collins: 0, only permit reuse for flushing (estimate a 30-65 year return on investment for system installation)
  - Golden: 0 (L2L only, some interest, no applications)
  - **Arapahoe County:** IBC has allowed graywater since 2015 — still no installations
- Key Challenges Across Jurisdictions



# Arapahoe County Survey Results



- Approximately 90 surveys distributed to developers, municipalities, and water districts.
- 17 responses received:
  - 9 municipal
  - 8 water/sanitation district
  - 0 developers

# Arapahoe County Survey Results



- “Which would you like to see implemented?”
  - Neither: 7
  - Laundry to Landscape (L2L): 4
  - Flushing (toilets & urinals): 2
  - Both: 3
  - Left question blank: 1

# Arapahoe County Survey Results



- “Greatest concerns with graywater program implementation?” (choose top 3)
  - Cross connections: 10
  - Operation & Maintenance: 9
  - Oversight: 8
  - Homeowner understanding: 8
  - Water rights: 5
  - Potential environmental issues with L2L: 4
  - Implementation costs: 1

# Arapahoe County Survey Results



- “Other water saving options to consider?” (fill in the blank)
  - Left question blank: 8
  - Landscape policies/xeriscape requirements & incentives: 7
  - Turf reductions: 2
  - Push for water conservation fixtures & fixture rebates: 2
  - Artificial turf options: 1
  - Expanded use of Reg 84 water (WWTP “reclaimed water”): 1
  - Fully metered system & loss prevention/leak detection program: 1
  - Conservation-based rate structure: 1



# Arapahoe County Survey Comments - Opposition


- “If done within a water providers’ service area, would be in conflict with the provider’s rules and regulations, and the objectives of the provider’s augmentation plans.”
- “Risk is too high for these in-home systems. Expensive and difficult to oversee appropriate programs. Should be voluntary. Systems should automatically be opted-out, with opt-in carefully controlled.”
- “Concerns with cross-connections and long-term O&M for graywater systems.”



# Arapahoe County Survey Comments - Supportive

- “Would love to see this happen! Has been something Englewood Sustainability Commission has been very interested in. I'd just want to ensure systems like Laundry to Landscape are properly implemented so there is not contamination / pollution.”
- “The District Board and Management like the idea of using graywater for customers to save on water use. The District would like to inspect any systems installed or some other measure to make sure there are no cross connections with potable water.”

# Regulatory Framework

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- Regulation 86: Graywater Control Regulation
  - Colorado Plumbing Code (3 CCR 720-I) – allows for graywater piping within structures
  - International Building Code (Chapters 13 & 14)
  - Graywater use must conform with Colorado water rights



# Local Adoption

- HB24-1362: Measures to Incentivize Graywater Use
  - 2024 Legislation made Regulation 86 an “opt-out” program, rather than “opt-in”
  - A Board of County Commissioners may adopt a resolution or an ordinance to:
    - **Prohibit the installation of graywater treatment works and the use of graywater in the county or municipality**
    - **Prohibit one or more categories of graywater use**
  - The legislation takes effect January 1, 2026



# Local Adoption

- CRS 25-8-205.4: Statewide authorization of graywater use – local government notice is required to opt out
- CRS 25-8-205.4(4): Unless a Board of County Commissioners adopts a resolution or an ordinance to the contrary, a person may install indoor graywater treatment works only in new construction projects
- CRS 25-8-205(1)(g)(II): A county that has adopted an ordinance or resolution regarding the use of graywater has exclusive enforcement authority

# Policy Option 1: Take No Action



- County automatically opts in (January 1, 2026)
- All indoor and outdoor graywater systems permitted
- Regulation 86 program still required
- Oversight must be assigned to a department
- Significant costs and coordination needs even with low adoption

# Policy Option 2: Prohibit All Systems

- Requires Plumbing Code amendment
- Simplifies administration
- No new workload or liability
- No local Regulation 86 adoption



# Policy Option 3: Prohibit Outdoor Systems Only



- Maintain indoor allowance
- Avoid outdoor complexity
- Revisit if demand grows
- Regulation 86 program still required
- Board of Health Recommendation

# Fiscal Impact Summary

- Option 1 Fiscal Impact:
  - Initial lift: 0.75–1.25 FTE across departments
  - Low-use setup: 0.27 FTE; 0.13 FTE/year ongoing
  - No cost recovery structure in place
  - Software updates may be required



# Staff Recommendation

- Prohibit outdoor systems
- Maintain indoor reuse (code-compliant)
- Minimizes risk, supports sustainability
- Preserves future flexibility if demand or capacity changes

# Next Steps / Questions

- Request BoCC direction on graywater policy
- Draft resolution if needed, or develop internal guidance
- Clarify departmental oversight and code/program changes
- Staff available for legal, fiscal, or operational follow-up