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New Development Water Conservation Requirements

Ryan Grisso

North Marin Water District

Introduction

- North Marin Water District (NMWD) serves 20,000 connections for approximately 60,000 people in the greater Novato, California area.
- NMWD implements a comprehensive conservation program that includes New Development Requirements (Implemented since 2000).
- New Development Requirements were enacted to improve new development efficiency and to combat the ever increasing sentiment from existing customers who feel their conserved water is supplying new, inefficient development.

Introduction

- Presentation will focus on:
  - Current Procedures and Specifications
  - Timeline of Implementation
  - Water Use Comparisons
  - Recommendations and Lessons Learned

Current Procedures

- Enforced through the NMWD Regulation 15 section e. as a condition of water service.
- Included in all water service agreements and water service requests.
- Enforcement assisted through the local City's building department permitting procedure and County planning department. Inspections completed by NMWD staff.
- Deposit held ($1,000) for compliance for smaller remodeling and single service water service requests.

Current Specifications

- High-Efficiency Clothes Washers
  - Front loading horizontal-axis washers with Modified Water Factor less than 5.5

Current Specifications

- 2 gallon per minute (gpm) Showerheads
- 1.5 gpm Lavatory Faucets Residential
- 0.5 gpm Lavatory Faucets Commercial

Current Specifications

- High-Efficiency Toilets
  - Maximum average of 1.28 gallons per flush
  - Must be on the District's Qualified List
- High-Efficiency Dishwashers

Current Specifications

- Irrigated Turf Limitations
  - 800 square foot maximum for residential
  - No turf allowed for commercial

Residential

Commercial

Current Specifications

- Drip Irrigation on all non-turf landscape areas

- Weather Based Irrigation Controllers (ET Controllers)

Current Specifications

- Soil Amendment Requirements
  - 10 yards per 1000 square feet

Soil Amendment

- Mulch Requirements
  - 3 inches thick

Mulch

Current Specifications

- Additional Landscape Efficiency Requirements
  - Low volume multi-stream rotating sprinkler heads (added in 2008)
  - Matched precipitation with high degree of distribution uniformity.
  - 24 inch non-overhead irrigated buffer between plantings and hard surfaces (added in 2008)

Implementation Timeline

Implementation Timeline

1999: HE washer requirement

2003: Sunset of Landscape Credits replaced with requirements

2004: Drip irrigation for non turf landscape areas.

2006: HET, showerheads 2.0 gpm, no turf for commercial, soil amendment, Et Controllers

2008: Multi-stream rotators, increased urinal efficiency, 24 inch non-spray irrigation buffer

Initial Implementation in 1999

- New development requirements kicked off with the front loading washer requirement
- Initiated through the water service agreements and enforced with meter installations
- Set-backs along the way regarding “Energy Star” classification versus front loading

Second Implementation Phase 2003

- Previous connection fee credits for low water use landscape installation were sunset and replaced with low water use landscape specifications. Included:
  - 800 Square foot maximum for lawn area
  - Turf strip elimination (none less than 8 feet)
  - Soil amendment and mulch specifications

Third Implementation Phase 2004

- Drip Irrigation required for all non turf planted areas was required to help prevent overspray and useless watering of bark areas.
  - Response to a required turf strip replaced with low water use plants while spray irrigation remained.
  - Vast planting areas of singular type shrubbery and low water use plants were being overhead irrigated and in some cases most of the area was bark.

Fourth Implementation Phase 2006

- HETs Required
- Weather Based Irrigation Controllers (Et Controllers)
- Improvements to the soil specification requirements (10 yards per 1000 square feet)
- No turf allowed in commercial development
- First year of City permit sign-off

Fifth Implementation Phase 2008

- Increased Urinal Efficiency
- Multi-stream rotating sprinklers for residential turf
- 24 inch non-spray irrigation landscape area adjacent to all hardscape areas.
- One showerhead per shower/bathroom (at 2.0 gallons per minute)

Water Use Comparison

Water Use Comparisons

Single Family (Individually Metered)	**Development Code Description**	**Number of Households**	**Average Annual Use** (Gallons per day)	**Average Peak Usage** (Gallons per day)	**Average Lowest Usage** (Gallons per day)
Built before 1993	Older Housing Stock	14,014	332	547	156
Built Between 1993 and 2000	Development Subjected to Federal Plumbing Code	756	404	679	168
Built Between 2000 and 2003	Development Subjected to federal Plumbing Code and Washing Machine Requirement only	538	400	619	188
Built Between 2003 and 2006	Housing Subjected to Federal Plumbing Code, Washing Machine and Initial Landscape Requirements	1047	265	412	137

Recommendations

Recommendations

Recommendation: Work closely with the local City, County or other land use agency to include the water conservation requirements and water utility signatory as a condition for final occupancy.

Lesson Learned: Meter installation hold back as an incentive for compliance proves hard to track because often the meters are scheduled for installation before the development is complete. Delays in final occupancy proved to be a greater incentive for full and timely compliance and are usually requested once the construction is near complete.

Recommendations

Recommendation: Create a plan stamp created to be used at the land use approval level, that identifies the existence of water conservation requirements above and beyond normal code and notifies developer of the potential delay in occupancy for non-compliance and to contact the water utility for approval.

Lesson Learned: Many developers and/or builders were claiming they were never notified and this plan stamp provides another layer of outreach. This is important given the fact that NMWD is a separate entity from the local land use approval agencies.

Recommendations

Recommendation: Establish a Water Conservation deposit for water service applicants. This was mainly aimed single service water service applications, but has been extended for additional compliance coverage. $1,000 seems to be working to help ensure compliance.

Lesson Learned: Some water service applicants may fall through the land use approval agency process and this deposit provides additional compliance assurance.

Recommendations

Recommendation: Make sure your requirements cover all aspects of the efficiency measure to ensure long term savings.

Lesson Learned: When specifying weather based irrigation controllers, make sure they are required to not just install them but activate them and have them operate using weather data.

Recommendations

Recommendation: Find a way to inspect and approve the onsite landscape soil amendment process. Ask for progress inspections or delivery receipts and compare to landscape square footage. Soil samples and independent lab analysis and recommendations could also be required.

Lesson Learned: Landscape soil is a leading factor to poor landscape appearance resulting in overwatering to compensate. Some landscape areas are impenetrable with the soil probe and water runoff is abundant.

Recommendations

Recommendation: Make sure you have enough staff time to administer the program and staff with the expertise to understand both indoor and outdoor requirements. NMWD's program requires roughly a 0.25 FTE employee for program management.

Lesson Learned: Regulating new development can kill your work week. Inspection requests can add up rapidly.

Conclusion

Ryan Grisso
North Marin Water District
www.nmwd.com
(415) 897-4133 ext. 8421