Chicago Metropolitan Agency for Planning

Model Water Use Conservation Ordinance

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Preface

Introduction

This document is an update of the 1980 Model Water Use Conservation Ordinance completed by the Northeastern Illinois Planning Commission (NIPC). The need for this proposed ordinance resulted from various federal acts, advances in water efficiencies as well as from the findings of the Northeastern Illinois Regional Water Supply/Demand Plan (RWSDP) adopted on January 26, 2010. This document is intended to serve as an implementation tool for the water conservation recommendations detailed in the above plan. The RWSDP was the result of a three-year planning effort undertaken by the Chicago Metropolitan Agency for Planning (CMAP) and the Regional Water Supply Planning Group (RWSPG) in response to Executive Order 2006-1 issued in January 2006 by the Governor of Illinois. CMAP formed the RWSPG in 2006 as part of the scope-of-work contract with the Illinois Department of Natural Resources (IDNR).

As the region's population increases to 12 million, withdrawals from Lake Michigan, groundwater sources and inland rivers must be balanced with demand projections to attain sustainability. Recommendations of the RWSDP emphasize the importance of water use conservation at all sectors to maintain the demand at levels that are comparable to supplies. The 2010 CMAP Model Water Use Conservation Ordinance will give governmental bodies in the northeastern Illinois region a mechanism for more sustainable water use.

Municipalities may choose to adopt the entire ordinance and insert it as a chapter in their codes, adopt portions of it or modify existing ordinances to include relevant items. It should be noted that water conservation ordinances may need to updated as local situations change and water efficient technologies continue to advance. Governing bodies in the region may benefit from using this document as a marketing tool to educate their residents and businesses on the various aspects of water conservation and to form partnerships for addressing sustainable water use.

This update to the 1980 document incorporates the Energy Policy Act (EPAct) which took effect in 1992 – implemented in Illinois in 1994 - and has been updated several times, the most recent being in 2005. The water-related requirements of the act require and encourage the installation of water use efficient plumbing fixtures and appliances in new construction. This document builds on these guidelines and references EPAct at the relevant sections.

Methodology

This ordinance is a result of extensive review of over 60 existing ordinances and research on water conservation measures. Documents such as the Green Code Supplement of the International Association for Plumbing and Mechanical Officials (IAPMO) and the US Environmental Protection Agency (EPA)WaterSense publications were important sources that informed the ordinance with up to date and

state of the art material. Appendix A lists key resources and ordinances examples. In addition, staff obtained feedback from the various experts in the field as part of a Technical Advisory Committee that was convened to review the pre-final draft.

Document organization

The document addresses conservation measures by sectors: Residential and Commercial/Industrial/Institutional. For the latter sector, the ordinance does not address the specifics of operations which are mostly unique to the industrial processes; rather it takes a more general approach that covers the basic measures that apply to most activities in this sector. Ordinance items are also organized by use classification: indoors and landscape. Additional sections of the document include variances, water waste, pricing, violations and education. The Commentary section provides more information about the ordinance items and includes examples in the "In Practice" section, where available, as well as additional resources in the "Learn More" section. Local examples are highlighted where applicable. To demonstrate the effectiveness of some of the quantifiable water use conservation measures, calculations of water savings are included, where possible. The Appendices include sample forms that are used elsewhere in the country that a local unit of government may review prior to designing its own forms.

Adopting the ordinance

CMAP recommends that prior to adoption or modification of existing ordinances to include water use conservation measures, local units of government should embark on a 1-2 year public information campaign to promote awareness and empower residents with knowledge of specific actions to be taken for insuring reduction in water demand. Where possible, such efforts should be complemented by assistance in the form of rebates or retrofit kit distribution that may ease the burden on residents and businesses as well as insure a smoother transition to water efficiency. The public information campaign will be most successful if it continues even after the ordinance has been adopted to increase compliance and to maintain a presence of the need for water conservation in the community. It is important that local governments inform the public about the enforcement program that will be employed. This ordinance does not specify enforcement actions as this might be best addressed at the local level and according to local circumstances. Furthermore, this ordinance is not exhaustive on water use regulations, there are several aspects, e.g. Water Emergency Regulations, that are not addressed. It is more appropriate for local governments to address such matters.

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Definitions

Automatic shutoff: A mechanism that must be pressed to start or stop the flow of water.

Commercial: Local definitions apply. Otherwise, refers to property with 5 or more dwelling units or any commercial-use building and associated landscape that provides or distributes a product or service, such as hotels, restaurants, office buildings, commercial businesses or other places of commerce.

Decorative water features: Decorative water-related construction such as but is not limited to fountains, ponds, waterfalls, man-made streams.

Dedicated Landscape Accounts: Accounts that have dedicated irrigation meters, mostly non-residential uses. Such accounts generally have specified landscape coverage/area exceeding a certain amount, determined by the local unit of government.

Developed Landscape Area: All outdoor areas under irrigation and water features but excluding hardscape areas.

Dual Flush Toilet: A high efficiency toilet that is designed with two flush volumes, a reduced flush (0.8 gpf) for liquid waste and a full flush (1.6-1.28 gpf) for solid waste.

Electrohydraulic toilet: A toilet fixture of siphonic or washdown design that uses a motor, pump, and controller to assist flushing action.

Energy Policy Act of 1992 (EPAct): A federal Act that defined national uniform plumbing standards among other provisions.

ENERGY STAR: A national joint energy efficiency program of the U. S. Environmental Protection Agency and the U. S. Department of Energy. www.energystar.gov

Fixture: A receptacle, device, or appliance that is supplied with water or that receives liquid or liquid-borne wastes and discharges such wastes into the drainage system to which it may be directly or indirectly connected (e.g. toilet, clothes washer, etc)

Fixture Fitting: A terminal device designed to control and guide the flow of water (e.g. faucet aerators, pre-rinse spray valves).

Flushometer-Valve Activated Toilet: A toilet that flushes by a valve that discharges a predetermined quantity of water to the fixture and is actuated by direct water pressure.

Gravity Tank-type Toilet: A toilet with a tank that is located above or integral with the toilet for the purposes of flushing the fixture by the force of gravity.

High efficiency plumbing fixtures and fittings: Fixtures that are more efficient than the Energy Policy Act of 1992 standards and are defined in Section 1.0 for residential fixtures and Section 8.0 for commercial and industrial fixtures.

High Water Use Plants: Plants characterized by high transpiration rates, shallow rooting, the need for frequent watering during summer months or with exposure to hot and drying climatic conditions. (Local Units of Governments may wish to supplement this with a Plant List)

Industrial: Local definitions apply. Otherwise, refers to any industrial-use building with associated landscape. Water users that are primarily manufacturers or processors of materials as defined by the Standard Industrial Classifications (SIC) Code numbers 2000 through 3999 i.e. manufacturing/industrial; including food production, apparel, lumber & wood products (not furniture), furniture & fixtures, paper & allied products, printing & publishing, chemicals (plastics, drugs, cleaners, paint, etc.), petroleum refining, rubber & misc. plastic products.

Institutional: Local definitions apply. Otherwise, refers to any civic building with associated landscape, water-using establishment dedicated to public service. This includes schools, courts, churches, hospitals, and government facilities. All facilities serving these functions are to be considered institutions regardless of ownership.

Landscape Plans: This includes a planting plan, an irrigation plan, and a grading plan drawn at the same scale and that clearly and accurately identify specified plants, irrigation layout, equipment, finish grades and drainage, specifications and construction details, plan sheet numbers and drawing date of plans.

Light Commercial: Refers to the USEPA definition i.e. restaurants and hotels. See Section 8.0.1.1

Local Unit of Government (Local Government): Any county or municipality having the ability to promulgate ordinances including those having enforceable penalties related to water use.

Low Water Use Plants: Plants that, generally, once established can survive on 2 irrigations per month during the summer months. (Local Units of Governments may wish to supplement this with a Plant List)

Manual Faucet: A faucet that is actuated and closed through manual operation.

Metering Faucet: A faucet that after actuation dispenses water of a predetermined volume or for a predetermined period of time. Note: The volume or cycle duration can be fixed or adjustable.

Non compliant plumbing fixtures and fixture fittings: Fixtures and fittings that use more water than the Energy Policy Act of 1992 standards.

Overspray: Water that would be delivered by irrigation nozzles beyond the targeted landscape area during windless conditions onto any adjacent hardscapes or other non-landscaped areas during an irrigation cycle.

Pressure-assist Toilet: A Flushometer tank toilet as defined in ASME A112.19.2.

Private or Private Use: Applies to fixtures and fixture fittings located within a single family residence, apartment, condo, townhome, or duplex unit; private bathrooms in hotels or hospitals; and to restrooms in commercial establishments where the fixtures are intended for the use of a family or an individual. These terms are used interchangeable throughout the document.

Public or Public Use: All buildings or structures that are not defined as private or private use such as multifamily residences (apartments, condos, duplexes) with shared laundry facilities, dorms, salons, etc. These terms are used interchangeable throughout the document.

Recycling System: A system that reuses or recirculates water for multiple uses instead of a non-recycling system that uses water once and then discards it. A recycling system often is embedded with a cleansing mechanism to allow for multiple uses with comparable water quality.

Remodel: construction in which fixtures, fittings, appliances, and/or systems outlined in this ordinance are replaced.

Residential: property with 4 or fewer dwelling units or any unit with private use fixtures and appliances and associated landscape. (Local government may choose to modify definition to reflect local conditions)

Runoff: Irrigation water that is not absorbed by the soil or landscape area to which it is applied and which flows onto other areas.

Self Closing Faucet: A faucet that is designed to close itself as soon as the activating mechanism is released.

Semi-Public: private clubs and fraternal organizations.

Single-Pass Cooling System: An equipment-related system (includes air conditioning, refrigeration and other cooling systems) that removes heat by transferring it to a water source which is then discarded after a single use/circulation.

Tank-type Toilet: Same as gravity tank-type toilet.

Turf: A surface layer of earth containing a dense growth of grass and its matted roots; sod, requiring frequent watering during the growing season.

Water closet: A fixture with a water containing receptor that receives liquid and solid body waste and on actuation conveys the waste through an exposed integral trap into a drainage system, also referred to as a toilet.

Water Factor: The number of gallons per cycle per cubic foot that a clothes washer uses. A lower water factor indicates a more efficient clothes washer. (ENERGY STAR website)

WaterSense: A national water efficiency and partnership program of the U.S. Environmental Protection Agency. www.epa.gov/watersense

Acronyms

ASME: American Society of Mechanical Engineers www.asme.org

ASSE: American Society of Safety Engineers www.asse.org

AWWA: American Water Works Association: www.awwa.org

CSA: Canadian Standards Association www.csa.org

EPA: Environmental Protection Agency www.epa.gov

gpd: gallons per day

gpf: gallons per flush

gpm: gallons per minute

HET: High Efficiency Toilet- using an average of 1.28 gallons per flush or less. Dual flush HET flow rate is calculated by the composite average flush volume of two reduced flushes and one full flush

HEU: High Efficiency Urinal-using 0.5 gallons per flush or less.

HEW: High Efficiency Clothes Washer-are typically front loading, horizontal axis washers with similar load capacity of a conventional washer but with a reduced water use.

IAPMO: International Association of Plumbing and Mechanical Officials www.iapmo.org

IWA: International Water Association www.iwahq.org

PSI: pounds per square inch

Residential - Indoors

1.0 Plumbing Fixtures and Fixture Fittings: Plumbing fixtures and fittings in all new and remodeled construction shall not exceed the following flow rates and must be a labeled WaterSense product, if available. The following flow rates shall at a minimum maintain alignment with the most current EPA WaterSense product specification standards, where applicable, for all items listed below.

1.0.1 Toilets (water closets). No toilet shall have a flush volume greater than 1.6 gallons per flush.
1.0.1.1 Gravity, Pressure Assist and Electro-Hydraulic Tank-type Toilets. All gravity, pressure assist and electro-hydraulic tank type toilets shall have a maximum effective flush volume of not more than 1.28 gallons of water per flush in accordance with ASME A112.19.2/CSA B45.1 or ASME A112.19.14 and shall comply with the EPA WaterSense Tank-Type High Efficiency Toilet Specification. Note: The effective flush volume for dual flush toilets is defined as the composite average flush volume of two reduced flushes and one full flush.
1.0.1.2 Flushometer-Valve Activated Toilets. All flushometer-valve activated toilets shall have a maximum flush volume of not more than 1.6 gallons per flush in accordance with ASME A112.19.2/CSA B45.1.

1.0.2 Faucets. No faucet shall have a flow volume greater than 2.2 gallons per minutes at 60 psi.
1.0.2.1 Lavatory Faucets. The maximum flow rate for lavatory faucets shall be 1.5 gallons per minute at 60 psi in accordance with ASME A112.18.1/CSAB125.1 and shall comply with the EPA WaterSense High Efficiency Lavatory Faucet Specification.
1.0.2.2 Kitchen Faucets. The maximum flow rate for kitchen faucets shall be 2.2 gallons per minute at 60 psi.

1.0.3 Showerheads. The maximum flow rate for showerheads shall be 2.0 gallons per minute at 80 psi in accordance with ASME A112.18.1/CSA B125.1. The showerhead shall be supplied by an automatic compensating valve that complies with ASSE 1016 or ASME A112.18.1/CSA B125.1 and specifically designed for the flow rate of the showerhead being used.

Section 1.0 COMMENTARY

This section provides maximum water usage figures for various plumbing fixtures and fittings. The flow rates represent a 20%-32% reduction in water use above the water use standards in the national Energy Policy Act of 1992 (EPAct) where applicable.

Fixture/Fitting	EPAct 1992 Standard	Ordinance Standard	% Reduction with Ordinance
Toilet	1.6 gpf	1.28 gpf	20%
Faucets	2.2 gpm/60 psi	1.5pgm/60 psi	32%
Showerheads	2.5 gpm/80 psi	2.0 gpm/80 psi	20%

Note: Specific system and source water pressure can vary by community, thus affecting flow rates.

1.0.1 Toilets: Toilets typically account for 27% of total residential indoor water use and are often the single largest indoor user of water. Replacing outdated (pre-EPAct) toilets with a High Efficiency Toilet (HET) or dual flush toilets can produce substantial water savings particularly in older communities. High Efficiency Toilets use 1.28 gallons per flush or less. Typically dual flush toilets provide 1.6 gpf for the full flush and 1.1 gpf for the reduced flush yielding a composite average flush volume of 1.27 gpf and are therefore classified as High Efficiency Toilets. Flushometer-valve Activated Toilets may not apply to residential development in all communities and are not currently endorsed by the EPA WaterSense program at the reduced rate (< 1.6 gpf) for commercial or residential use. Local decisions should be made as to what is appropriate for a specific community. Water Savings: By replacing a 3.5 gpf toilet with a High Efficiency Toilet (HET) using 1.28 gpf or less, an average household can save about 32 gallons a day or 11,500 gallons a year. Note: Typically 1.6 gpf toilets are not replaced with HETs as it is not usually cost-effective. Replacement toilets can be color matched by a plumber to maintain coordination with other fixtures.

1.0.2.1 Lavatory Faucets: Faucets typically account for 16% of total residential indoor use. Most residential faucets are not self closing or metered but usually manual faucets. It is important to use high efficiency faucets and educate residents on behaviors linked to associated water saving practices, such as turning off the faucet while shaving or tooth brushing. Water Savings: By replacing a 2.2 gallon per minute (at 60 psi) faucet with a 1.5 gallon per minute faucet or aerator, an average household can save about 15 gallons per day or 5,500 gallons per year.

1.0.2.2 Kitchen Faucets: Kitchen faucets provide an additional opportunity to save water in the household. The maximum flow rate for kitchen faucets is slightly higher than lavatory faucets. Often kitchen faucet can be equipped with multiple settings with varying flow rates dependent on type of activity (e.g. cleaning, filling pots, etc).

1.0.3 Showerheads: Showerheads typically account for 17% of total residential indoor use. Multiple showerheads per shower compartment are becoming more common in newer or more expensive housing. The number of showerheads is not addressed in this model ordinance but local officials may wish to address it. Multiple showerheads per showerhead compartment will neutralize water savings gained even when using high efficiency showerheads as outlined in this ordinance. This ordinance does not address the issue of heating water as hot water efficiency is dependent on location and distance between the hot water source and the hot water fixture as well as overall system design. Water Savings: By replacing a 2.5 gallon per minute showerhead with a 2.0 gpm showerhead, an average household can save about 7 gallons per day or 2,400 gallons a year.

A non-positive shut off valve can be installed with or embedded in showerheads to save additional water by allowing the user to temporarily stop the flow of water while bathing. Local governments may choose to include this in their ordinance. However, the additional water savings gained from this fitting is dependent on the extent of use by the resident. Also proper selection of shut off valves is important to avoid scalding.

Note: There is a summary table of water savings for fixtures, where applicable, at the end of the Residential Indoor section. The status of WaterSense product specification and the availability of WaterSense labeled products as of the print date of this document are found in Appendix B.

In Practice
Austin, TX: http://www.ci.austin.tx.us/watercon/downloads/WCTFPolicyDoc.pdf
Los Angeles: http://clkrep.lacity.org/onlinedocs/2009/09-0510_rpt_atty_4-30-09.pdf

Learn More: EPA WaterSense Program-Product Information:
http://www.epa.gov/watersense/pp/index.htm

2.0 Appliances: This section applies to all new and remodeled construction.

2.0.1 Dishwashers. Dishwashers shall comply with US EPA ENERGY STAR Program Requirements.

2.0.2 Clothes Washers. Clothes washers shall comply with the EPA ENERGY STAR program requirements.

Section 2.0 COMMENTARY

2.0.1 Dishwashers: Dishwashers typically account for 1% of total residential indoor use. Although this amount is relatively small when compared to other fixtures, efficient dishwashers use less water and less energy due to decreased hot water use per cleaning cycles. The requirements for ENERGY STAR appliances addresses both water and energy usage. This section applies to single family as well as to multifamily (apartment, condo, duplex, townhome) with in-unit dishwashers.

2.0.2 Clothes washers: Clothes washers typically account for 22% of total indoor use. As with dishwashers, clothes washers can use a significant amount of energy as well. The requirements for ENERGY STAR appliances addresses both water and energy usage. Most ENERGY STAR clothes washers are front loading machines without a central agitator that allows clothes to tumble in a reduced amount of water. Additionally newer clothes washers often have a high spin option that reduces the amount of residual water in clothes thus allowing for shorter dry times and additional energy savings. High Efficiency Washers (HEWs) is a term often used to describe these types of machines. Additionally all ENERGY STAR clothes washers have a water factor that gauges water consumption. The lower the water factor the less water a clothes washer uses per cycle. As of 2011, all residential ENERGY STAR clothes washers will have a maximum water factor of 6.0 gallons of water per cycle per cubic foot of capacity. This section applies to single family as well as to multifamily (apartment, condo, duplex, townhome) with in-unit clothes washers. Shared multifamily laundry facilities will be addressed in the Commercial/Industrial/Institutional Indoor Section. Water Savings: By replacing a 39 gallon per load clothes washer with 27 gallon per load model, an average household can save about 12 gallons per day or 4,500 gallons a year.
In practice
Los Angeles: http://clkrep.lacity.org/onlinedocs/2009/09-0510_rpt_atty_4-30-09.pdf
Learn More
Energy Star: http://www.energystar.gov/index.cfm?c=appliances.pr_appliances
California Urban Water Conservation Council: http://www.cuwcc.com/mou/bmp3-residential.aspx
WaterSense-New Homes: http://www.epa.gov/watersense/spaces/new_homes.html
Alliance for Water Efficiency:
http://www.allianceforwaterefficiency.org/Residential_Clothes_Washer_Introduction.aspx

3.0 Residential Retrofits

3.0.1 Retrofit on Resale. All residential property owners, prior to change of ownership must certify that the structure has plumbing fixtures/fittings (toilets, faucets, and showerheads) that comply with the standards of the Energy Policy Act of 1992. Noncompliant plumbing fixtures/fittings must be replaced with high efficiency plumbing fixtures/fittings as defined in Section 1.0 Plumbing Fixtures in this ordinance. This applies to all residential properties built prior to January 1, 1994.

3.0.2 Retrofit on Purchase. All residential property buyers within (X) days of change of ownership must certify that the structure has plumbing fixtures/fittings (toilets, faucets, and showerheads) that comply with the standards of the Energy Policy Act of 1992. Noncompliant plumbing fixtures/fittings must be replaced with high efficiency plumbing fixtures/fittings as defined in Section 1.0 Plumbing Fixtures in this ordinance. X=60-90 days. This applies to all residential properties built prior to January 1, 1994.

3.0.3 Retrofit on Reconnection. All residential property buyers must attach appropriate verification that the structure has plumbing fixtures/fittings (toilets, faucets, and showerheads) that comply with the standards of the Energy Policy Act of 1992. Noncompliant plumbing fixtures/fittings must be replaced with high efficiency plumbing fixtures/fittings as defined in Section 1.0 Plumbing Fixtures in this ordinance when applying for new water service. This applies to all residential properties built prior to January 1, 1994.

Section 3.0 COMMENTARY

A local government may choose one of the following three options outlined in the section: Retrofit on Resale, Retrofit on Purchase, or Retrofit on Reconnection. The basic principle of residential retrofits is to accelerate fixture and fitting replacement using existing processes such as the purchase and sale of a home. The options vary by responsible party (buyer or seller) and by time of enforcement (before the sale, after the purchase or before reconnection).

Although similar ordinances are present in several cities and counties in the United States, it is important to note that each ordinance is designed for the specific community and no two ordinances are the same in scope or structure. Economic incentives, applicability, compliance, and enforcement options need to be locally assessed for successful adoption.

Economic Incentives: To ease the burden of retrofits, economic incentives such as rebates, tax credits and/or utility bill credits may be introduced in conjunction with a Retrofit ordinance. Additionally some communities/utilities offer complementary low flow showerheads and faucet aerators to property owners. Generally rebates are given for more expensive retrofit items such as toilets, where an average rebate can be up to $150 per toilet. Rebates are typically sponsored by utilities and/or local governments with the goal of reducing overall water use. Rebates can be issued through a check or connected through the utility in the form of a bill credit. The details of issuing tax credits for this purpose should be decided by the local unit of government. Local government should consider the benefits and drawbacks of implementing such a measure as it may not be appropriate in every situation.

Applicability: Applicability can include but is not limited to the type of fixtures chosen, type/age of housing, ordinance effective date, replacement fixture rates, unincorporated or incorporated land, etc. In Illinois, the Energy Policy Act of 1992 was enacted on 01/01/1994. Therefore any home built after this date is exempt from this section as water efficient fixtures/fittings are already standard practice. Other sample exemptions include: historical buildings, transfers within family, extreme economic hardship, foreclosures, eminent domain, teardowns, etc. Extreme economic hardship can include low-income families as defined by local government. Additionally local governments may qualify the types of properties to which this ordinance may apply (e.g. only property transactions over $100,000).

Compliance: Compliance can be achieved by customer verification or through a site visit by municipal/utility representative. Often local governments or utilities that use customer verification (self submission of compliance form to appropriate entity) will draft instructions to assist customers on how to verify fixture/fitting flow rates and manufacture date, which are generally stamped or engraved on fixtures and fittings manufactured after 1994 as a component of the Energy Policy Act of 1992.

Enforcement: Enforcement typically entails submission of a compliance form which can be included in Disclosure Forms and/or in a stand-alone document. Sample forms are in Appendix C. Local governments can choose to apply a filing fee to cover administrative costs (link below). Penalties widely range but usually take the form of increasing monetary fines with each violation.

Notes:
Transfer of responsibility from buyer to seller is often used as an additional option for those local governments that choose 3.0.1 Retrofit on Resale. A sample Transfer of Responsibility Form is in Appendix D.

Typically 1.6 gpf toilets are not replaced with HETs as the replacement of higher flow rate toilets are more cost-effective.

The Energy Policy Act of 1992 standards are outlined in Section 1.0 Commentary.

In practice
Retrofit on Resale: Santa Cruz County, CA
http://sccounty01.co.santa-cruz.ca.us/eh/Water_Resources/water_conservation.htm
Retrofit on Purchase: San Diego, CA
http://docs.sandiego.gov/municode/MuniCodeChapter14/Ch14Art07Division04.pdf
Retrofit on Reconnect: DeKalb County, GA
http://allianceforwaterefficiency.org/Water_Efficiency_Watch_May_-_June_2008.aspx?terms=Dekalb#DeKalb
Filing Fee example: San Diego, CA
http://www.sandiego.gov/water/conservation/selling.shtml

Residential - Indoors
Variances

- Local government may waive the requirements in Section 3.0 based on certain household characteristics such as extreme economic hardship, historical landmark designation, transfers within a family, foreclosures, eminent domain, teardowns, etc.

- Noncompliant faucets may be fitted with aerators to achieve reduced flow rate in lieu of full fixture replacement. Note: there may be longer wait times for hot water due to reduced flow in older homes where original piping was installed for higher flow rate fixture fittings. Increased insulation and recirculation systems can be used to help neutralize any discrepancies.

Residential Summary Tables

Water Savings

Fixture	Potential Water Savings (gallons)/household/day	Potential Water Savings (gallons)/household/year
Toilet	32	11,500
Lavatory Faucet	15	5,500
Showerhead	7	2,400
Clothes Washer	12	4,500

Energy Savings

Fixture	Energy Savings (kWh/household/day)	Energy Savings (kWh/household/year)
Lavatory Faucet	.84	307
Showerhead	.86	315
Clothes Washer	1.4	511

Note: These tables contain general savings estimate. Both water and energy savings will be dependent on local factors, the specific conservation program implemented, and customer behavior.

Sources: Regional Water Supply Plan, 2010.
Vickers, Amy. Handbook of Water Use and Conservation: WaterPlow Press, Amherst, MA, 2001.
WaterSense Draft Specification for Showerheads-Supporting Statement
All calculations use a regional per capita of 2.8 persons/ household.

Residential - Landscape

4.0 Vegetation

4.0.1 Turf Area and Location. The combined size of turf (plus other high water use plants) or other water features shall be limited to no more than X% of the total developed landscape area.

4.0.2 Soil Depth. Areas planted with turf grass shall have a minimum of 6 inches of topsoil depth. The soil shall be blended with compost in a ratio of soil to compost appropriate to the local soil characteristics. The compost shall be incorporated in the top 2 inches of the native soil.

4.0.3 Mulching. All exposed soil shall be covered with a 2- to 3-inch layer of mulching material.

4.0.4 Planting. Residents are encouraged to use native plants and/or low water use plants.

Section 4.0 COMMENTARY

4.0.1 Turf Area Location: The local government may choose to decide on the optimum area (X% above) dedicated to turf, high water use plants or water features. Such areas in ordinances from elsewhere in the country range from 25- 35% of the total developed landscape area. The 2009 WaterSense Single-Family New Home Specification calls for turf area to not exceed 40% of the landscaped area with an exemption for homes equal to or less than 1,000 square feet. Other ordinances prohibit the establishment of turf during the summer months in which peak water usage occurs. Local governments may determine the strategy that best suit their circumstances.

Developed Landscape Area refers to all outdoor areas under irrigation + water features. The footprint of the home and permanent hardscape areas such as driveways, sidewalks and patios are not included. It is important that local governments take the necessary precautions to insure that this article does not constitute an overall increase in hardscape or impervious areas.

In Practice

The Village of Winfield, IL prohibits the establishment of turf (planting of sod or seed) from July 1st through September 1st unless a permit has been issued by the Village Manager.
http://www.villageofwinfield.com/DocumentView.aspx?DID=98

Learn More

2009 WaterSense Single-Family New Home Specification:
http://www.epa.gov/watersense/docs/home_finalspec508.pdf

4.0.2 Soil Depth: Compost refers to decaying organic matter, such as leaves or grass clippings, used to improve soil structure.

In Practice: The City of Leander, TX has a similar soil depth requirement.
Learn More: http://www.leandertx.org/pdfs/WaterConservationOrdinance03.15.2007.pdf

4.0.3 Mulching: Mulching material refers to a permeable arrangement of organic and/or inorganic materials that will help to retain soil moisture, suppress weeds, and allow free movement of oxygen into and out of the soil.

Learn More: 2009 WaterSense Single-Family New Home Specification:
http://www.epa.gov/watersense/docs/home_finalspec508.pdf

4.0.4 Planting: Local governments may wish to publish a list of recommended plants to aid residents in planting schemes. The US EPA's Midwest Native Plant List is located in Appendix E in addition to the electronic link provided below along with other relevant lists for the region.

Native/Low water use plant Lists: The Shedd Aquarium has a list of native plants found at
http://sheddaquarium.org/greatlakes/files/native_plants_infosheets.pdf
EPA, Green Landscaping, Green Acres, Native Plant Fact Sheets, Illinois Resources:
http://www.epa.gov/greenacres/nativeplants/factsht.html#Native Plant
EPA, Midwest Native Plant List: www.epa.gov/greenacres/nativeplants/plants.html#plant lists

Learn More: Marin Municipal Water District, CA: http://www.marinwater.org/documents/O385.pdf

5.0 Irrigation

5.0.1 Landscape Irrigation Equipment. Any new system installed within the residential areas of the Municipality (for landscape areas > X acres) must be equipped with rain and soil moisture sensing devices and freeze gauges that shut off the systems and that are approved as to number and type by the Director of Public Works/Planning.

- Sprinkler heads must not spray onto or over any hardscape areas, including streets, sidewalks, driveways, decks, patios and buildings.
- Strips of land less than 6 feet in width shall be irrigated by drip or micro irrigation systems.

Check valves of a specified breakaway pressure rating must be installed at irrigation heads as needed to prevent low head drainage and puddling.

5.0.2 Landscape Irrigation Days. At even numbered addresses, landscape irrigation may occur only on Wednesdays and Saturdays. Odd numbered addresses may irrigate only on Thursdays and Sundays.

5.0.3 Landscape Irrigation Schedules. Between the months of April through October, landscape irrigation shall not occur between 10:00 AM and 6:00 PM. Irrigation shall not continue beyond 2 hours per irrigation day nor more than ¾ inch during the allocated schedule**.**

5.0.4 Irrigation Permits: Residents may receive permits for the irrigation of new landscape to allow watering at any time of day on any day for the initial 30 days and every other day for the next 30 days for a total of one 60-day period.

Section 5.0 COMMENTARY

5.0.1 Landscape Irrigation Equipment: This requirement can be met if the local unit of government requires permits for the installation of automatic irrigation systems. The Local government can either decide on the threshold for requiring permits based on size of proposed development and of landscape areas or insert this section within the Landscape Ordinance, where available. The Local government may add additional requirements as it sees fit to prevent overspray and to insure that spray heads do not have significant overlapping spray.

5.0.2 Landscape Irrigation Days: Due to the amount of rain that falls in this region, irrigating landscapes bi-weekly should be sufficient for healthy lawns. Studies have shown that odd/even irrigation schedules may increase water usage because homeowners assume they should water every other day, even though they did not water that often before. Typical lawns will stay healthy with one inch of water (rainfall and/or irrigation) every five to seven days. Local governments that already enact a Sprinkling Ordinance may choose to modify their ordinances accordingly.

5.0.3 Landscape Irrigation Schedules: See Irrigation Permits and Variances for other allowances. Lake Michigan permittees, as a condition of permit, are required to adopt an ordinance to "restrict

nonessential outside water use to prevent excessive, wasteful use." The restriction of lawn sprinkling between May 15 and September 15 each year is the minimal requirement.

5.0.4 Irrigation Permits: The permitting system provides relief for residents who wish to install new landscape that might require additional watering during the first stages of growth.

In Practice: The Village of Algonquin, IL has a Water Conservation Program that includes outside water use restrictions. Landscape watering is prohibited between the hours of 9:00 AM and 6:00 PM. Under certain conditions, outside watering is allowed on alternate days of the week, on alternate mornings or none at all.

Learn More: 2009 WaterSense Single-Family New Home Specification:
http://www.epa.gov/watersense/docs/home_finalspec508.pdf

6.0 Homebuilders: Homebuilders are required to offer a low water-consuming landscape option for any landscape proposals offered to homebuyers.

Section 6.0 COMMENTARY

It is more efficient to plant water-efficient landscapes during the building phase than having to remove turf and install low water consuming landscapes. Local units of government may wish to provide credits/expedited approval and permitting processes for developers who provide water efficient landscapes to the buyers.

7.0 Homeowner Associations: HOA must not require water intensive landscaping in their rules/regulations.

Section 7.0 COMMENTARY

The intent of this requirement is to insure that residents who are members of HOAs maintain the ability to implement water-efficient landscaping without undue HOA regulations that might prohibit this.

In Practice: The Sable Ridge Homeowners Association, FL, established guidelines consistent with the 'Florida Friendly Landscapes' for residences in their area. "Florida-friendly landscaping" means quality landscapes that conserve water, protect the environment, are adaptable to local conditions, and are drought tolerant. The principles of such landscaping include: planting the right plant in the right place, efficient watering, appropriate fertilization, mulching, attraction of wildlife, responsible management of yard pests, recycling yard waste, reduction of stormwater runoff, and waterfront protection. Additional

components include practices such as landscape planning and design, soil analysis, the appropriate use of solid waste compost, minimizing the use of irrigation, and proper maintenance.

Learn More: A complete document for the Sable Ridge guidelines can be found at http://sableridgehoa.com/document/5165851sable_ridge_florida_friendly_landscape_guidelines--final_draft.pdf?6623

Residential - Landscape Variances

- The local government may waive the above requirements if presented with compelling evidence that the site is not suitable for the recommended plantings.
- The requirement for turf and high water use plants, does not apply where the developed landscape areas are less than 1,000 square feet. In areas where irrigation is done from recycled water-rainwater, the combined size of the turf areas and swimming pools/water features shall be limited to no more than 40% of the total developed landscape area.
- Irrigation using a micro-spray, micro-jet, drip, bubbler system, soaker hose, hand-held hose equipped with an automatic shut-off nozzle is allowed anytime and on any day.
- The use of water for irrigation from a recycled water system is allowed with no constraints on irrigation schedules. Recycled system components shall be identified as non-potable water sources.
- The use of discharge water from a water-to-air air-conditioning unit or other water-dependent cooling system is not limited under the requirements of this ordinance.

Commercial/Industrial/Institutional - Indoors

8.0 Plumbing Fixtures and Fittings: Plumbing fixtures and fittings in all new and remodeled construction shall not exceed the following flow rates and must be a labeled US EPA WaterSense product, if available. The following flow rates shall at a minimum maintain alignment with the most current US EPA WaterSense product specification standards, where applicable, for all items listed below.

8.0.1 Toilets (water closets). No toilet shall have a flush volume greater than 1.6 gallons per flush.
8.0.1.1 Gravity, Pressure Assist and Electro-Hydraulic Tank-type Toilets. All gravity, pressure assist and electro-hydraulic tank type toilets in light commercial locations shall have a maximum effective flush volume of not more than 1.28 gallons of water per flush in accordance with ASME A112.19.2/CSA B45.1 or ASME A112.19.14. Note: The effective flush volume for dual flush toilets is defined as the composite average flush volume of two reduced flushes and one full flush.
8.0.1.2 Flushometer-Valve Activated Toilets. All flushometer-valve activated toilets shall have a maximum flush volume of not more than 1.6 gallons per flush in accordance with ASME A112.19.2/CSA B45.1.

8.0.2 Urinals. Urinals shall have a maximum flush volume of not more than 0.5 gallons of water per flush (e.g. High Efficiency Urinals, HEUs) in accordance with ASME A112.19.2/CSA B45.1 or IAPMO Z124.9.

8.0.3 Public or Public Use Lavatory Faucets. Lavatory faucets installed in bathrooms of buildings or occupancies other than for residential or private use shall be self closing, metering faucets or manual faucets and must comply with the flow rates below. Private bathroom faucets in hotels and hospitals are an exception and shall have a maximum flow rate of 1.5 gallons per minute at 60 psi in accordance with ASME A112.18.1/CSA B125.1.
Self Closing and Manual Faucets. The maximum flow rate shall be 0.5 gallons per minute at 60 psi in accordance with ASME A112.18.1/CSA B125.1.
Metering Faucets. Metering faucets shall deliver not more than 0.25 gallons of water per cycle.

8.0.4 Showerheads. The maximum flow rate for showerheads shall be 2.0 gallons per minute at 80 psi in accordance with ASME A112.18.1/CSA B125.1. The showerhead shall be supplied by an automatic compensating valve that complies with ASSE 1016 or ASME A112.18.1/CSA B125.1 and specifically designed for the flow rate of the showerhead being used. This does not apply to emergency safety showers and emergency eye wash stations.

Section 8.0 COMMENTARY

This section provides maximum water usage figures for various plumbing fixtures and fittings. The water usage figures represent a 20%-50% reduction in water use above the water use standards in the national Energy Policy Act of 1992 where applicable.

Fixture/Fitting	EPAct 1992 Standard	Ordinance Standard	% Reduction with Ordinance
Toilet	1.6 gpf	1.28 gpf	20%
Urinal	1.0 gpf	0.5 gpf	50%
Faucets	2.2 gpm/60 psi	1.5 gpm/60 psi	32%
Showerheads	2.5 gpm/80 ps	2.0 gpm/80 psi	20%

gpf=gallons per flush
gpm=gallons per minute
psi=pounds per square foot

Improving plumbing fixtures and fittings can save water in addition to potentially reducing the long-term operating costs for businesses and institutions.

8.0.1 Toilets: Currently the EPA does not have specifications for commercial flushometer-valve toilets most often found in higher public traffic locations such as airports, theaters, arenas, schools. However the EPA does include light commercial locations such as hotels and restaurants in their tank type High-efficiency Toilet Specification. A more extensive definition for light commercial may be developed by the Local government if desired. Signage is often needed to accompany the installation of dual flush HETs in light commercial settings to help ensure the fixture is used properly and expected water savings are achieved. Automatic/sensor toilets are not recommended in this ordinance. All other commercial, institutional and industrial uses should follow the EPAct standard of 1.6 gpf until higher efficiency products have been tested and approved for these uses.

8.0.2 Urinals: EPA Specifications for High Efficiency Urinals (HEUs) are currently under development by the WaterSense program. Waterless urinals are not included in this model ordinance but may be considered in the future as education and technology advance. Waterless urinals are used in the region but not on a large scale and with varying performance ratings.

Learn More: List of HEUs
http://www.allianceforwaterefficiency.org/uploadedFiles/Resource_Center/Library/products/urinals/HEU-2009-03-06.pdf

8.0.3 Public or Public Use Lavatory Faucets: Flow rates can be achieved by fixture replacement or retrofit (i.e. aerators). Private bathrooms in hotels are generally used similar to private residential bathrooms and therefore are held to the same standard as outlined in Residential Indoor Section 1.0.2.

8.0.4 Showerheads: This applies to but is not limited to hotels, motels, and locker rooms (e.g. schools, private and public gyms, etc). This ordinance does not address the issue of heating water as hot water efficiency is dependent on location and distance between the hot water source and the hot water fixture as well as overall system design.

Water Savings
Water Savings from ordinances for commercial and industrial accounts will be heavily dependent on specific facility characteristics. Water savings can be substantial, especially in more water-intensive businesses such as restaurants and hotels. Toilet and faucet water savings can be expected to exceed residential savings (Residential-Indoor Commentary section 1.0.1 and 1.0.2) assuming increased use per fixture/fitting. Showerheads, assumed to mainly be used in hotels, may have similar water savings as the residential showerhead water savings documented in Residential-Indoor Commentary section 1.0.3.

Note: The status of WaterSense product specification and the availability of WaterSense labeled products as of the print date of this document are found in Appendix B.

In Practice: Los Angeles: http://clkrep.lacity.org/onlinedocs/2009/09-0510_rpt_atty_4-30-09.pdf
Miami-Dade County:
http://www.miamidade.gov/conservation/library/WUE_standards_manual_final.pdf

Learn More: WaterSense Products: http://www.epa.gov/watersense/pp/index.htm

9.0 Appliances: Applies to all new and remodeled construction.
9.0.1 Dishwashers. Commercial dishwashers shall comply with the EPA ENERGY STAR Program requirements.

9.0.2 Clothes Washers. Public use clothes washers shall comply with the EPA ENERGY STAR Program requirements.

9.0.3 Drinking Fountains. Drinking fountains shall be self closing.

Section 9.0 COMMENTARY

9.0.1 Dishwashers: ENERGY STAR dishwashers use 31% less energy and 33% less water than standard models and apply advanced technology to improve performance.

9.0.2 Clothes Washers: Applies to commercial and institutional laundry mats, multifamily residences (apartments, condos, duplexes) with shared laundry facilities, dorms, salons, etc. Most ENERGY STAR clothes washers are front loading machines without a central agitator that allows clothes to tumble in a reduced amount of water while using less energy. All ENERGY STAR clothes washers also have a water factor that gauges water consumption. The lower the water factor the less water a clothes washer uses per cycle. As of 2007, the maximum water factor for a commercial ENERGY STAR washer is 8.0 gallons of water per cycle per cubic foot of capacity. Local governments may consider offering assistance programs to encourage laundry facilities in utilizing water efficient machines.

9.0.3 Drinking Fountains: Drinking fountains should be self closing to avoid water waste. Additionally drinking fountains are a more accessible option to provide drinking water. CII customers are encouraged to consider the benefits and drawbacks of installing drinking water fountains, where appropriate, in lieu of providing bottled drinking water. Reduction of plastic waste, transport and cost are a few possible benefits. Some 30 local governments in the United States and Canada have taken action to reduce the use of bottled water within their jurisdictions including New York City, San Francisco and Seattle. In 2008, Chicago introduced a $0.05/bottle tax.

In Practice: Portland, Oregon, Proposed Commercial Code Change 06/09/09
http://www.portlandonline.com/bds/index.cfm?c=48074&a=249766

Learn more: ENERGY STAR, Dishwashers
http://www.energystar.gov/index.cfm?c=dishwash.pr_dishwashers
ENERGY STAR, Clothes washers
http://www.energystar.gov/index.cfm?c=clotheswash.pr_clothes_washers
Bottled Water. http://www.nytimes.com/2008/06/17/nyregion/17water.html

10.0 Water recycling systems in Commercial Facilities: All new and remodeled commercial car-wash and laundry facilities shall be equipped with a water recycling systems.

Section 10.0 COMMENTARY

Commercial car-wash facilities have high water use requirements. Recycling systems in these facilities are feasible, and many newer installations are equipped in this way in their original design. This section includes both conveyor and in bay commercial car-wash systems. Lake Michigan permittees, as a condition of permit, requires that all newly constructed or remodeled car wash installations be equipped with a water recycling system.

In commercial laundry facilities, a water recycling system is one way to reduce potable water use. However other options can be considered on a community by community basis. Likewise replacing existing systems with recycling systems may not be feasible in all cases due to current building structure, and water quality issues to name a few. A local government needs to decide what types of facilities are appropriate for water recycling systems based on local conditions.

In Practice:
Metropolitan Water District of Southern California, Model Water Conservation Ordinance
http://www.centralbasin.org/brochures/ordinance_MWDSC-Model-Water-Conservation.pdf
Oxnard, CA.
http://publicworks.cityofoxnard.org/Department.aspx?DepartmentID=14&DivisionID=99&ResourceID=742

Learn More: Alliance for Water Efficiency, Commercial Laundry.
http://www.allianceforwaterefficiency.org/commercial_laundry.aspx

11.0 Eating and Drinking Establishments

11.0.1 Pre-rinse Spray Valves. The maximum flow rate for a pre-rinse spray valve installed in a commercial/institutional kitchen to remove food waste from cookware and dishes prior to cleaning shall be 1.6 gallons per minute at 60 psi. Where pre-rinse spray valves with maximum flow rates of 1.3 gallons or less are installed, the minimum static pressure shall be 30 psi. Commercial/institutional kitchen pre-rinse spray valves shall be equipped with an integral automatic shut off. All new and existing establishments that serve food must install a pre-rinse spray value in accordance with this section.

11.0.2 Drinking water. Drinking water shall be served only upon request in public and private eating and drinking establishments including but not limited to restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink is served and/or purchased. Establishments shall clearly communicate this ordinance requirement to customers through table tents, noted in the menu or other form of clearly visible signage within the establishment.

Section 11.0 COMMENTARY

The purpose of this section is to increase efficiency and limit water waste in food and beverage related establishments and mainly applies to commercial and institutional establishments.

11.0.1 Pre-rinse Spray Valves: The EPA WaterSense program is currently developing performance specification for High-efficiency pre-rinse spray valves. The pre-rinse spray valve standard (1.6 gpm/60 psi) was set in the Energy Policy Act of 2005 and is reflected in the ordinance. Given the frequency of dishwashing in a food establishment, replacement of outdated pre-rinse spray valves to efficient spray valves described above could yield notable water savings. The EPA estimates that replacing an outdated pre-rinse spray valve with a more efficient valve can save between 6,400 to 20,000 gallons per pre-rinse spray valve per year. High efficiency pre-rinse spray valves typically reduce the amount of hot water use and thus could provide energy savings as well. Often local governments will provide free or discounted high efficiency pre-rinse spray valves to local businesses. Ultimately local governments should decide on the applicability and range of this ordinance section in order to fit the needs of the community.
Water Savings: Replacing a 3 gallon/minute pre-rinse spray valve with a 1.6 gallon/minute fitting will save 180 gallons for 3 hours of use and save between $900 and $1050 a year in water, sewer and heating costs.

In Practice: Manhattan Beach, CA: http://www.citymb.info/Index.aspx?page=1672
Ocean City, NJ: http://www.amwater.com/files/Conservation%20Program%20Direct%20Mailer.pdf

Learn More: Food Service Technology Center, pre-rinse spray valves:
http://www.fishnick.com/equipment/sprayvalves/
Lakewood, CO: http://www.wapa.gov/es/pubs/fctsheet/PreRinseValves.pdf

11.0.2 Drinking water: Reducing potable water use in eating and drinking establishments can decrease utility bills and reduce commercial water waste. This section is not meant to discourage drinking water in establishments but only to reduce water waste.

In Practice: Claremont, California. http://www.ci.claremont.ca.us/download.cfm?ID=26446
Las Vegas, NM. http://www.lasvegasnm.gov/Water%20Conservation%20Ordinance%2001-14.pdf
Santa Fe, NM. http://www.santafenm.gov/index.aspx?NID=1295

12.0 Ice Machines: For new and remodeled construction, ice machines shall be air cooled and shall comply with the US EPA ENERGY STAR for Commercial Ice Machines.

Section 12.0 COMMENTARY

ENERGY STAR Commercial ice machines are 15% more energy efficient and 10% more water efficient than standard machines and can save businesses over $100 a year on water and energy utility bills. Water Savings: Savings will vary on use but on average business reduce energy use by 1,160 kWh and 2,700 gallons per year.

In Practice: East Bay Municipal Utility District:
http://www.ebmud.com/services/account_information/new_service/regulations/water_efficiency_requirements.pdf
City of Austin: http://www.ci.austin.tx.us/watercon/downloads/EquipmentGuide.pdf

Learn More: ENERGY STAR, Ice Machines
http://www.energystar.gov/index.cfm?c=comm_ice_machines.pr_crit_comm_ice_machines
http://www.energystar.gov/ia/partners/prod_development/new_specs/downloads/ice_machines/Ice_Machine_Decision_Memo.pdf

13.0 Commercial, Industrial and Institutional Retrofits

13.0.1 Retrofit on Resale. All commercial, industrial, and institutional property owners, prior to change of ownership must certify that the structure has plumbing fixtures/fittings (toilets, urinals, faucets, and showerheads) that comply with the Energy Policy Act of 1992 standards. Noncompliant plumbing fixtures must be replaced with high efficiency plumbing fixtures/fittings (toilets, urinals, faucets, and showerheads) as defined in Section 8.0 Plumbing Fixtures in this ordinance. This applies to all commercial, industrial, and institutional property built prior to January 1, 1994.

13.0.2 Retrofit on Purchase. All commercial, industrial, and institutional property buyers within (X) days of change of ownership must certify that the structure has plumbing fixtures/fittings (toilets, urinals, faucets, and showerheads) that comply with the Energy Policy Act of 1992 standards. Noncompliant plumbing fixtures must be replaced with high efficiency plumbing fixtures/fittings (toilets, urinals, faucets, and showerheads) as defined in Section 8.0 Plumbing Fixtures in this ordinance. X=60-90 days. This applies to all commercial, industrial, and institutional property built prior to January 1, 1994.

13.0.3 Retrofit on Reconnection. All commercial, industrial, and institutional property buyers must attach appropriate verification, when reconnecting water service, that the structure has plumbing fixtures/fittings (toilets, urinals, faucets, and showerheads) that comply with the Energy Policy Act of 1992 standards. Noncompliant plumbing fixtures must be replaced with high efficiency plumbing fixtures/fittings (toilets, urinals, faucets, and showerheads) as defined in Section 8.0 Plumbing Fixtures in this ordinance when applying for new water service. This applies to all commercial, industrial, and institutional property built prior to January 1, 1994.

Section 13.0 COMMENTARY

A local government may choose one of the following three options outlined in the section: Retrofit on Resale, Retrofit on Purchase, or Retrofit on Reconnection. The basic principle of commercial retrofits is to accelerate fixture and fitting replacement using existing processes such as the purchase and sale of a home. The options vary by responsible party (buyer or seller) and by time of enforcement (before the sale, after the purchase or before reconnection).

Although similar ordinances are present in several cities and counties in the United States, it is important to note that each ordinance is designed for the specific community and no two ordinances are the same in scope or structure. Economic incentives, applicability, compliance, and enforcement options need to be locally assessed for successful adoption.

Economic Incentives: To ease the burden of retrofits, economic incentives such as rebates, tax credits and/or utility bill credits may be introduced in conjunction with a retrofit ordinance. Additionally some communities/utilities offer complementary low flow showerheads and faucet aerators to property owners. Generally rebates are given for more expensive retrofit items such as toilets and urinals. An average rebate can be up to $150 per toilet, often more for commercial, industrial and institutional customers. Rebates are typically sponsored by utilities and/or local governments with the goal of reducing overall water use. Rebates can be issued through a check or administered through the water utility in the form of a bill credit. The details of issuing tax credits for this purpose should be decided by

the local unit of government. Local governments should consider the benefits and drawbacks of implementing such a measure as it may not be appropriate in every situation.

Applicability: It should be noted that all commercial gravity tank-type toilets and flushometer valve toilets did not comply with the EPAct 1.6 gallons per flush standard until January 1, 1997. Thus a commercial retrofit ordinance could apply to structures built before 1997 as opposed to 1994 with residential retrofits. A local government may choose to have separate ordinances to address this discrepancy. However, it is common to address commercial, industrial and residential retrofits together as seen in examples referenced in Section 3.0 of this ordinance. Qualifying dates are not always included in these ordinances but can serve the purpose of determining the appropriate structures. For consistency, 1994 is used for this section. The Energy Policy Act of 1992 standards are outlined in the Section 8.0 Commentary.

Reference Section 3.0 Commentary for Compliance and Enforcement Commentary as well as additional information on retrofits.

In Practice: All of the examples outlined in the Residential Retrofits Section 3.0 include commercial property and/or industrial property examples as well.

Commercial/Industrial/Institutional - Indoors Variances

- Local Governments may waive the requirements in Section 13.0 based on certain property characteristics such as historical landmark designation, foreclosures, eminent domain, teardowns, etc.

- Noncompliant faucets may be fitted with aerators to achieve reduced flow rate in lieu of full fixture replacement. Note: there may be longer wait times for hot water due to reduced flow where piping was originally installed for higher flow rate fixture fittings. This generally applies to residential properties but in certain cases may apply to commercial, industrial, and institutional properties. Increased insulation and recirculation systems can be used to help neutralize any discrepancies.

Commercial/Industrial/Institutional – Landscape

14.0 Vegetation

14.0.1 Soil Depth. Areas planted with turf grass shall have a minimum of 6 inches of topsoil depth. The soil shall be blended with compost in a ratio of soil to compost appropriate to the local soil characteristics. The compost shall be incorporated in the top 2 inches of the native soil.

14.0.2 Mulching. All exposed soil shall be covered with a 2- to 3-inch layer of mulching material.

14.0.3 Planting: All new commercial development with proposed landscaped areas greater than X square feet shall use native and/or non water intensive planting. Turf planting and high water use plants shall not exceed X% of the landscaped area. Strips of land less than 15 feet in width and planting beds shall be irrigated by low flow or spray irrigation using low angle spray nozzles.

Section 14.0 COMMENTARY

14.0.1 Soil Depth: Compost refers to decaying organic matter, such as leaves or grass clippings, used to improve soil structure.

In Practice: The City of Leander, TX has a similar soil depth requirement.
Learn More: http://www.leandertx.org/pdfs/WaterConservationOrdinance03.15.2007.pdf

14.0.2 Mulching: mulching material refers to a permeable arrangement of organic and/or inorganic materials that will help to retain soil moisture, suppress weeds, and allow free movement of oxygen into and out of the soil.

Learn More: 2009 WaterSense Single-Family New Home Specification:
http://www.epa.gov/watersense/docs/home_finalspec508.pdf

14.0.3 Planting: The Local government may consider a more detailed classification of commercial uses and the maximum allowed percentage (X) of turf planting. The Local government may choose to publish an approved plant list to guide businesses in their choice of planting. See Appendix E for a regional list recommended by USEPA.

In Practice: The City of Leander, TX amended its Landscape Ordinance in March 2007 to include water conservation measures that described landscape requirements

Learn More: http://www.leandertx.org/pdfs/WaterConservationOrdinance03.15.2007.pdf

15.0 Irrigation

15.0.1 Landscape Irrigation Days. At commercial accounts, landscape irrigation may occur only on Tuesdays and Fridays.

15.0.2 Landscape Irrigation Equipment. See section 5.0.1 in Residential-Outdoor. In addition, and for commercial/industrial accounts, applicants are required to submit a water use plan that addresses the measures taken to minimize evaporation loss of water from landscaped areas, utilization of low water using plants and use of non-potable water for irrigation.

Section 15.0 COMMENTARY

15.0.1 Landscape Irrigation Days: Communities that receive Lake Michigan water are required to have restrictions on landscape irrigation in accordance with their water use permits. This requirement should be applied in all communities in the northeastern Illinois region as it reduces water lost due to evaporation and thus provides for more efficient irrigation.

In Practice: The Village of Sugar Grove, IL enacts a water conservation ordinance that specifies the Permitted Hours of Water Use as "a time period between six o'clock (6:00) A.M. and nine o'clock (9:00) A.M. and between six o'clock (6:00) P.M. and nine o'clock (9:00) P.M." The Village also implements an even/odd watering days schedule.

Learn More: The Village of Sugar Grove Ordinance language can be found at http://www.sterlingcodifiers.com/codebook/index.php?book_id=606

1**5**.0.2 Landscape Irrigation Equipment: The Local government shall decide on what size development shall require the permits.

16.0 Water Budgets: The local unit of government shall require dedicated landscape accounts to devise maximum annual water allotments that their facilities require. This water budget will be calculated as follows:

1. Multiply total acres of turfed area by 4.9 feet
2. Multiply total acres of newly turfed area by 1.0 feet
3. Multiply total acres of water surface by 6.2 feet
4. Multiply total acres of low water use landscape area by 1.5 feet

The sum of the above shall be the annual water budget for the facility. Dedicated landscape accounts will pay an agreed rate for their water budget and a higher rate for more water usage.

Section 16.0 COMMENTARY

Water budgets can be calculated by various methods and the local unit of government may wish to use the method that is most suitable to its purposes. The main purpose for setting water budgets is to offer on-site technical assistance and/or audits to accounts that exceed 20% (or whatever percentage determined by the local unit of government) of the water usage stated in the predetermined budget. This can be an influential method in reducing water waste at a major water-consuming sector.

In Practice: The City of Phoenix uses this method to calculate water allotments/budgets. There is a separate budget for golf courses and local governments may wish to implement a similar approach. EPA WaterSense developed a Landscape Water Budget Tool to guide the builder, landscape professional, or irrigation partner through the water budget calculations.

Learn More: Article IX, Water Conservation Code, City of Phoenix, AZ
http://www.municode.com/resources/gateway.asp?pid=13485&sid=3
WaterSense Landscape Water Budget Tool:
http://www.epa.gov/watersense/nhspecs/water_budget_tool.html

17.0 Reporting: Dedicated landscape accounts shall provide a report on an annual basis to the local unit of government on facility water conservation practices. Such report will provide a detailed description of water conservation technologies, irrigation schedules and their connection to weather and soil conditions, plant type and topography as well as aggregate water usage versus predetermined water budget.

Section 17.0 COMMENTARY

The local unit of government may wish to provide a questionnaire or a survey to the above mentioned accounts for ease of reporting. When difficult to implement, this requirement maybe added to existing ordinances, e.g. Landscape Ordinances, as part of permit requirements and approvals or incorporated in the business license renewal process, where applicable. In this case, instead of regular reporting, the enforcing agency might require to view the conditions stated in Section 17 above from applicants seeking permits or approvals and may ask for site inspection as part of the occupancy requirements.

In Practice: The California Urban Water Conservation Council (CUWCC) has guidance documents for agencies reporting on dedicated landscape accounts available at
www.cuwcc.org/WorkArea/downloadasset.aspx?id=10032

Commercial/Industrial/Institutional - Landscape Variances

- Accounts that demonstrate their ability to provide 50% of their irrigation from recycled water via rainharvesting, e.g. rain barrels or cisterns, are waived from the water budget requirement.
- Areas with existing native vegetation that remain undisturbed, areas around the trunk of existing trees, shrub beds and wildscapes shall be exempt from the soil depth requirement.
- Detention and water quality ponds may not be counted towards the above landscape area requirements.

Rainwater Harvesting

Pending State Legislation permitting the use of rainwater harvesting for non-potable purposes (a minimum code of standards is expected from the IL Department of Public Health by January 2011), the following sections should be considered by local governments for inclusion in their model water conservation ordinance.

18.0 Rainwater Harvesting for Landscape Irrigation: Local governments may allow the installation of a rainwater harvesting system to be used for landscape irrigation provided it conforms to all requirements of the local government's plumbing code.

Section 18.0 COMMENTARY

Rainwater harvesting is the collection and storage of runoff from small impervious catchments, usually home or building roofs, for later use. In most cases, residential or small-scale commercial landscape irrigation application involves installation of a buried storage tank and an irrigation pump. Inflow is provided by a consolidated roof gutter system, commonly found installed on homes or buildings. Rain water harvesting is a common sense viable way to afford the opportunity to provide adequate moisture to plantings without depleting the potable water supply system. Local governments can direct how the rainwater should be stored, how much, how it should be treated and distributed.

In practice: Rainwater Harvesting landscaping Rebate, Albuquerque Bernalillo County, New Mexico.
http://www.abcwua.org/content/view/132/222/
Prescott, AR: http://www.cityofprescott.net/services/water/conservation.php

19.0 Rainwater Harvesting for Toilet and Urinal Flushing: Local government may allow the installation of a rainwater harvesting system to be used for indoor non-potable uses such as toilet and urinal flushing provided that the system is designed by a licensed professional using accepted design standards and is in compliance with the requirements of the local government's plumbing code.

Section 19.0 COMMENTARY

The northeastern Illinois region receives abundant rainfall that can be utilized for indoor non-potable uses. Rainwater can be used for toilet and urinal flushing to conserve potable water. Treatment standards and plumbing requirements may vary between residential and commercial/industrial/institution use. Potable water savings may be substantial considering that toilets represent the number one water use in households.

In practice: The City of Santa Fe, NM implemented a Rainwater Catchment Permit Program in response to increased interest from local businesses and individuals.
http://www.santafenm.gov/index.aspx?NID=2052

Portland, Oregon allows residents to use rainwater for indoor purposes, such as toilet flushing, through a permit process. Using rainwater for toilet flushing in commercial applications requires additional treatment of the rainwater. http://www.portlandonline.com/bps/index.cfm?a=114750&c=42113

Learn More: Santa Fe, NM http://greenfiretimes.com/wp-content/uploads/2009/12/GFT1130finalb.pdf
Alliance for Water Efficiency:
http://www.allianceforwaterefficiency.org/Alternative_Water_Sources_Intro.aspx

Water Waste

Water Waste is defined in sections 20.0-31.0 found in the of this model ordinance. Water Waste is the general misuse or inefficient use of potable water.

20.0 Hydrants: Unauthorized use of hydrants is prohibited. Authorization must be obtained from the local government's water department or utility.

Section 20.0 COMMENTARY

Unauthorized use of hydrants wastes water and can cause a drop in water pressure that could negatively affect the ability of a fire departments to suppress fires. In addition, such uses can pose a safety issue when individuals are exposed to high water pressures and can damage underground water infrastructure. Unauthorized use can be defined by local government; however, authorized use typically includes use for the purpose of fire suppression and maintenance use such as water main flushing.

In Practice: The Village of Sugar Grove, IL prohibits the opening or withdrawal of water from fire hydrants except by authorized personnel. The Village of Orland Park issues a hydrant meter to requestors of hydrant usage.
Oak Lawn, IL: http://www.oaklawn-il.gov/Departments/Public-Works/Water/Fire-Hydrant-Use-Ordinance.aspx

21.0 Leakages: Leaks for private water lines must be fixed within X days of notification by water utility/or discovery of the leak. X=5-30 days. Leaks include but are not limited to a broken sprinkler head, a leaking valve, leaking or broken pipes or a leaking faucet.

Section 21.0 COMMENTARY

Leaks can be a major source of water waste. It is estimated that the average household loses 2,000-20,000 gallons of water per year from leakage. Resident may contact a professional plumber to assist in leak detection and repair. Some local governments offer free irrigation water audits to detect leaks and offer solutions.
In Practice: Austin, TX: http://www.ci.austin.tx.us/watercon/waste.htm, http://www.ci.austin.tx.us/watercon/leakdetection.htm
Free audit: http://www.ci.austin.tx.us/watercon/irrigation.htm

Learn More: Alliance for Water Efficiency: Leaks:
http://www.allianceforwaterefficiency.org/Household_Leaks.aspx

22.0 Water Meters: The local government shall require that all new water services be metered. In addition existing non-metered services shall be metered as part of any major remodel.

Section 22.0 COMMENTARY

This ordinance section is appropriate for adoption in communities where universal metering is not already being practiced. Universal metering allows utilities to track water use, collect volume-based revenue, track conservation efforts and monitor leaks. Ideally every connection would be metered. Newer communities generally are almost if not completely metered whereas older communities may need to invest in universal metering programs. Volunteer metering programs can also be implemented to help accelerate metering installation in older communities in addition to this ordinance. Lake Michigan permittees, as a condition of permit, must meter all new connections and meter existing nonmetered services as part of any major renovation.

Additionally some local governments may choose to require sub meters for commercial and industrial accounts that have high water use processes. Sub meters can help inform the utility and the customer of water use for specific processes as well as monitor any conservation efforts including leak detection.

In practice: Chicago, IL, Meter Save Program https://www.metersave.org/
Learn more: Alliance for Water Efficiency
http://www.allianceforwaterefficiency.org/Metering_and_Submetering_Library_Content_Listing.aspx

23.0 Impervious Areas

23.0.1 Impervious Watering. No person shall knowingly permit the irrigation of a landscape on premises owned, leased, or managed by the person in a manner that causes a substantial amount of water to fall upon impervious areas (sidewalks, driveways, streets, gutters or ditches).

23.0.2 Impervious Washing. No person shall wash impervious areas (sidewalks, driveways, streets, etc.) with water except in emergencies to remove spills of hazardous materials or eliminate dangerous conditions.

Section 23.0 COMMENTARY

Impervious areas such as sidewalks, driveways, streets, gutters and paved ditches do not allow water to infiltrate the ground at the point of contact. Alternatively these areas create runoff, often picking up debris and pollutants along their way to the sewer system and afterwards to the wastewater treatment plant. The speed and quantity at which runoff is introduced to sewer systems can cause flooding in certain areas leading to environmental and personal property damage. Prohibiting watering and washing of impervious areas can help to mitigate these issues in a community and eliminate one source of water waste. Overwatering often resulting in impervious watering and is addressed in Sections 5.0 and 15.0 of this ordinance.

24.0 Installation: Fixtures and fixture fittings shall be installed in strict accordance with the manufacturer's instructions to maintain their rated performance.

Section 24.0 COMMENTARY

In order to achieve the intended water savings fixtures, fittings, and appliances need to be properly installed. In certain cases, improper installation can lead to an increase in water use. In addition local governments require certain fixtures and fittings to be installed by a licensed plumber. However, these requirements will vary throughout the region. The possibility of this requirement should be considered by the enforcing entity when adopting a water conservation ordinance. This section may need to be modified to include local rules and regulations.

In practice: Las Vegas, NM http://www.lasvegasnm.gov/WATER%20CONSERVATION%20082109.pdf

25.0 Decorative Water Features: All decorative water features (i.e. fountains, etc) shall re-circulate water within the device.

Section 25.0 COMMENTARY

Recirculating or recycling decorative water features increase water efficiency while maintaining their intended purpose.

In Practice: Denver, Colorado. http://www.denverwater.org/OperatingRules/OperRules14/
Las Angeles, CA http://www.ladwp.com/ladwp/cms/ladwp012434.pdf
Fishers, IN http://www.fishers.in.us/egov/docs/1248971359_22094.pdf
Tucson, AZ http://www.ci.tucson.az.us/water/ord-7178.htm

26.0 Cooling Systems: Single pass cooling systems are prohibited.
26.0.1 Air Conditioning Systems. Closed system air conditioning is required in all new and remodeled construction.

26.0.2 Air Cooled Models. Install air cooled equipment in lieu of water cooled equipment when possible in new and remodeled construction.

26.0.3 Cooling Towers. Cooling towers, not utilizing recycled water, shall operate a minimum of four (4) cycles of concentration. Newly constructed cooling towers shall be operated with conductivity controllers, as well as make-up and blowdown meters.

Section 26.0 COMMENTARY

Single pass cooling systems are not an efficient use of potable water. Water used for cooling must be recycled or recirculated before discharging. Installing such a system can be cost effective and save money in the long term. All Lake Michigan permittees, as a condition of permit, have to adopt an ordinance that requires the "installation of closed system air conditioning in all new construction and in all remodeling."

In practice: Las Angeles, CA http://www.ladwp.com/ladwp/cms/ladwp012434.pdf
Nevada State Water Plan
http://water.nv.gov/WaterPlanning/wat-plan/PDFs/pt3-1a.pdf
San Diego County Water Authority
http://www.sdcwa.org/manage/pdf/ordinances/Rincon.pdf
San Antonio
http://www.saws.org/conservation/Ordinance/Ch34_Ordinance_2009.pdf

Learn more: Portland, OR http://www.portlandonline.com/water/index.cfm?c=30586&a=247444

27.0 Point-Of-Use Reverse Osmosis Water Treatment Systems: Reverse Osmosis Water Treatment Systems shall be equipped with automatic shutoff valves to prevent water wasting whenever there is no call for producing treated water.

Section 27.0 COMMENTARY

This requirement is pertinent where additional treatment of water takes place. When considering Point-of-Use (POU) technologies, many water systems and their customers face concerns about potential water losses related to typical POU devices. Reverse Osmosis (RO) units typically use two to four gallons of water to produce one gallon of drinking water. The fluctuation in efficiency is due to many factors that continually change within the RO system, including incoming water pressure, backpressure produced by the storage tank and age and condition of the RO membrane itself. This may result in a large amount of water wasted if the system is continually operating.

Learn More: The Arizona Department of Environmental Quality has a Point of Use Compliance Program Guidance document that can be viewed at
http://www.azdeq.gov/environ/water/download/pointofuse.pdf

28.0 Audit, Leak Detection and Repair:

28.0.1 Audits. All public water systems that serve customers within the governmental boundary shall perform an annual water audit.

28.0.2 Leak Detection and Repair. Leak detection and monitoring shall be performed on a scheduled basis as appropriate for the public water system at a minimum of every (X) years. Cost effective leaks must be repaired as soon as possible.

Section 28.0 COMMENTARY

28.0.1 Audits: Annual audits provide a public water system or utility with current data of how their system is operating and opportunities for efficiency improvements as well as potential opportunities to increase revenues. Lake Michigan permittees, as a condition of permit, are required to submit an annual audit form to the Illinois Department of Natural Resources (IDNR) to track both accounted for and unaccounted for water use. The Lake Michigan audit form allows for additional leakage based on the age of pipes found in a permittees distribution system. However, this practice is not typical outside of the Lake Michigan region. Therefore the IWA/AWWA audit method is recommended for utilities not receiving Lake Michigan water. Ideally the entire region would use the same audit form for efficiency and analysis purposes with a central reporting agency/location independent of water source. Aligning audit methods with a national organization could further provide efficiency and analysis potential.

In practice: The Massachusetts Department of Environmental Protection requires an annual audit report from public water suppliers. http://www.mass.gov/dep/water/approvals/wmgforms.htm#audit

Learn More: IWA/AWWA Water Audits and Water Loss Control Programs, Manual 36.
http://www.awwa.org/Resources/WaterLossControl.cfm?ItemNumber=47957&navItemNumber=48161

28.0.2 Leak Detection and Repair: Leak Detection and repair should be performed in collaboration with water audits. Leaks can be a cause of major water and revenue loss for a public water system. Local

government should decide the appropriate minimum number of years to perform scheduled leak detection based on local conditions. It is generally expected that cost effective leaks should be repaired as soon as possible. Lake Michigan permittees, as a condition of permit, are required to adopt "leakage monitoring and correction for storage, transmission and distribution systems" where applicable to the particular user.

29.0 Demolition and Construction: Recycled or non potable water shall be used for demolition and construction purposes when possible.

Section 29.0 COMMENTARY

Water use on demolition and construction sites generally does not need to meet drinking water standards e.g. water used for dust control. This is one way to decrease the amount of potable water used while seizing an opportunity for water reuse. This section applies to building and road construction sites.

In practice: Metropolitan Water District of Southern California, Model Water Conservation Ordinance
http://www.centralbasin.org/brochures/ordinance_MWDSC-Model-Water-Conservation.pdf

30.0 Water Softeners: Actuation of regeneration of all water softeners shall be by demand initiation as opposed to a timer-based system.

Section 30.0 COMMENTARY

Water Softeners: This ordinance section is applicable to communities where well water is the water source, and household water softening units are needed or in use.

In Practice: New Holstein, WI
http://www.nhutilities.org/customer_services/default.asp?CategoryNumber=6&SubcategoryNumber=2
Francis Creek, WI: http://www.franciscreek.org/government.cfm

31.0 Car Washing: Vehicles must be washed with a hose that has an automatic shut-off valve.

Section 31.0 COMMENTARY

This prevents excessive runoff that tends to flow over impervious areas, e.g. streets, sidewalks, etc.

In practice: Aurora, IL http://www.aurora-il.org/publicworks/waterproduction/conservation.php

General Water Waste COMMENTARY

Often local governments will have water waste hotlines and/or a website for customers to anonymously report water waste violations outlined in their ordinance. Reported violators will then receive a warning or fine associated with the violation as defined by the water conservation/water waste ordinance.

In practice: Austin, TX: http://www.ci.austin.tx.us/watercon/waste.htm
San Antonio: http://www.saws.org/conservation/waterwaste/whatiswaste.cfm

Pricing

32.0 Pricing: The local government shall implement conservation pricing structures and economic incentives that encourage desirable water management practices. This is best achieved in the presence of timely billing based on metered usage. See Appendix E for a sample bill.

Section 32.0 COMMENTARY

Conservation pricing structures include seasonal rates (higher per unit water rate during the peak usage summer months), uniform rates or increasing block rates in which the unit price of water increases as the quantity of water used increases. Including a volumetric charge that is related to water use can send a conservation message to users. Water rates that reflect the full cost of water, better communicate the value of water while insuring adequate supplies for users. Potential revenue from conservation pricing maybe used to subsidize targeted user groups and fund other conservation programs. The Local government may choose to adopt the pricing structure most suitable to their situation.

In Practice: The Village of Algonquin implements water conservation rates during the months of June, July and August when consumption charges are increased 3 times the combined rate per 1,000 gallons for all water consumed above 18,000 gallons. A survey by the Village in 2007 showed that only 8.7% of residents paid the surcharge. More information can be found at: http://www.co.mchenry.il.us/departments/waterresources/pdfDocs/AlgonquinWaterConservationProgram.pdf

The Village of Burr Ridge, IL adopted an increasing rate structure for residential accounts (effective March 1, 2008) that charges various rates for 3 tiers as follows:

Basic Water Consumption Charge: $3.10 per thousand gallons consumed
Second Tier 60,001- 80,000 gallons: $5.30 per thousand gallons
Third Tier in excess of 80,000: $6.90 per thousand gallons.

Learn More: For a literature review on full-cost pricing see the Northeastern Illinois Regional Water Supply/Demand Study
http://www.cmap.illinois.gov/uploadedFiles/committees/watersupply/Documents/FY10-0079_RWSPG_PLAN_final_low_res.pdf
Seattle Public Utilities: http://www.cityofseattle.net/util/Services/Water/index.asp

Information and Outreach

33.0 Information and Outreach: The governmental department responsible for water supply and treatment shall make available educational materials that aim to increase awareness of the value of water and promote water conservation measures. The department shall also inform the public and maintain a public information program about the water conservation measures outlined in this ordinance.

Section 33.0 COMMENTARY

An information and outreach program serves as the backbone to any water conservation/efficiency program or effort. A successful public information program/campaign can smooth a community's transition before, during and after the adoption of a water conservation ordinance and inform residents on the importance of water to a community from a quality of life standpoint as well as to inform the residents about the goals of the ordinance. Lake Michigan permittees, as a condition of permit, are required to develop and implement "public programs to encourage reduced water use."

An information program/campaign can be tailored to budget availability and local needs and can include such strategies as listed in Sections 33-36 of this ordinance. Workshops, brochures, water bill inserts are additional strategies. Television, radio, newspaper and web media outlets have also been engaged for such efforts.

Becoming a US EPA WaterSense Promotional Partner can greatly assist local governments in establishing a public information program/campaign by providing basic outreach materials such as brochures and literature that can be customized to reflect local needs while promoting a nationally consistent message for water conservation.

Learn more: http://www.epa.gov/watersense/Partners/Promotional.html

In practice: Las Vegas, NM
Current ordinance: http://www.lasvegasnm.gov/Water%20Conservation%20Ordinance%2001-14.pdf
Proposed update:
http://www.lasvegasnm.gov/Water%20Conservation%20Ordinance%20Suggested%20Changes%20_3_.pdf

Learn more: Village of Algonquin, IL has a detailed information and outreach program to accompany its water conservation program. Their marketing campaign included door hangers, brochures, and refrigerator magnets for residents. Direct mail pieces were sent to businesses about irrigation and drought tolerant plants. Every elementary school in the village was given a presentation about where their water comes from, water plant operations and water conservation tips. Outreach also include a "Who can save the most water" poster contest. http://www.algonquin.org/

34.0 Water Conservation Signage

34.0.1 Public, Semi-Public and Government Restroom and Shower facilities. These facilities shall post no less than one water conservation sign in each restroom and shower facility. Each sign shall not be less than 8.5 by 11 inches in size and may either be a local government-provided sign or a sign developed using local government-provided text. Either format must cite this ordinance. Signage must be posted in a visible location within the facility.

34.0.2 Hotels, Motels and other Lodging Facilities. These facilities shall display a minimum of one water conservation informational card or brochure in a visible location per guest room. Card or brochure may be local government-provided or developed using such text.

Section 34.0 COMMENTARY

Water conservation signage can be a part of an overall information and outreach program and increases awareness about water conservation and efficiency practices directly at the source of water use (e.g. faucet, shower, etc).

34.0.2 Hotel, Motels and other Lodging Facilities: The informational card or brochure could also inform the guest about an option to reuse linens (towels and sheets) during the duration of their stay (assuming it is more than one night) to save the water and energy associated with linen cleaning.

In practice: Santa Fe, NM
http://www.santafenm.gov/index.aspx?NID=1295
Raleigh, NC
http://www.raleighnc.gov/portal/server.pt/gateway/PTARGS_0_2_105539_0_0_18/Stage_2_Water_Conservation_Ordinance-347.pdf

35.0 Water Conservation Literature Distribution

35.0.1 Retail Plant Nurseries. Retail plant nurseries shall provide customers who purchase outdoor plants with local government-provided low water use landscape literature at the time of sale. Labeling of low water use plants is also encouraged.

35.0.2 Landscape Contractors and Architects. Landscape contractors and architects shall provide prospective clients with municipal-provided low water use landscape literature and water efficient irrigation guidelines before presenting a service contract. Literature shall include but not limited to information on rain sensors, freeze gauges and cisterns.

35.0.3 Realtors, Attorneys, Banks and Other Closing Real Estate Transactions. These individuals or entities shall provide the purchasing party of a home, business or property with municipal-provided indoor and outdoor water conservation literature at the time of closing.

35.0.4 Governing Body. The local unit of government shall provide relevant indoor and outdoor water conservation literature to: 1) all persons applying for a building permit, and 2) all customers initiating new water service from a local government-operated water utility.

Section 35.0 COMMENTARY

Literature distribution can be part of an overall information and outreach program and may use existing avenues as opportunities to inform residents about proper and efficient indoor and landscape water use. Information to be included on literature will be location/situation specific.

In practice: Las Vegas, NM
Current ordinance: http://www.lasvegasnm.gov/Water%20Conservation%20Ordinance%2001-14.pdf
Proposed update:
http://www.lasvegasnm.gov/Water%20Conservation%20Ordinance%20Suggested%20Changes%20_3_.pdf

36.0 Water Utility Bill Format: All water utilities that serve customers within the local government's boundaries, shall issue regular water bills to all customers that include:

1) Usage in gallons/day and per billing cycle
2) Historical water use
3) Comparative water use within customer class
4) Water conservation tips

Section 36.0 COMMENTARY

Water bill format and frequency can be important information and outreach tools for promoting water conservation. Water bill format can be modified to include usage in gallons, historical water use, comparative water use and water conservation tips. Displaying usage in gallons provides the customer with a more logical unit to understand water use. Historical water use, generally the previous 12 months displayed in a chart, allows the customer to compare their current water use to the previous year's corresponding water use to observe any changes that may have occurred. Comparative water consumption within a customer class gives customers a point of reference to compare their water use to the average. Finally including water conservation tips on the water bill would be a dedicated outlet for information and outreach materials as part of a public information program/campaign. The additional cost of adding these features to a water bill may include the purchase of new billing software or modifications to current software and some initial set up fees. However in the long term, such additions are not expected to be burdensome to the utility. Local government must decide which features are appropriate for their customers. A sample bill including all features is included in Appendix F.

Frequency of billing can also be an information tool for customers. Increased billing frequency can allow customers to more precisely track water use, observe seasonal variations, detect leaks, and adjust water use according to direct and frequent water use feedback. Ideally customers would receive monthly bills; however, it is acknowledged that an increase in billing frequency comes with an additional cost that must be considered by the local unit of government and/or utility.

In practice: Durham, NC
http://www.durhamnc.gov/departments/wm/pdf/how_to_read_new_bill.pdf

Learn More: Sample water bill, Better Bills: Promoting Conservation through Bill Design.
http://www.betterbills.org/

The Commonwealth of Massachusetts, Executive Office of Environmental Affairs and Water Resources Commission. "Water Conservation Standards." Billing Frequency, July 2006.
http://www.mass.gov/Eoeea/docs/eea/water/water_conservation_standards.pdf

Violations/Enforcement

37.0 Violations/Enforcement: For a first violation by any resident of the requirements of this ordinance, the local unit of government shall issue a written notice. For a second violation within the preceding twelve (12) calendar months, a surcharge in the amount of $125 shall be added to the customer's water bill. Each subsequent offense shall have a fine of $500. After a fifth or subsequent violation, the local unit of government may restrict water service to the customer following a hearing held by local unit of government where the customer has an opportunity to respond to the local unit of government's information. Full service may be restored no later than 48 hours after implementation of the action resulting in termination and payment of all charges. The local unit of government may recover reasonable attorney fees, court costs, court reporter fees and other expenses of litigation, if applicable.

Section 37.0 COMMENTARY

Local governments may choose the penalty structure most suitable for their situations.
Notice: the issued written notice must be posted at a conspicuous place on customer's premises or by US mail, first class, postage prepaid addressed to customer's billing address
Payment: customers can pay for violations within their water bill payments.
Dispute: customers may dispute any penalty levied pursuant to this section within (15-30 days) of issuance to the Department/Municipality or to a designated hearing officer.

In Practice: The Village of Sugar Grove, IL enacts a similar fining structure through the Village Code. More information can be found at:
http://www.sterlingcodifiers.com/codebook/index.php?book_id=606

The Village of Algonquin has a zero tolerance policy for water restrictions violations and fines range from $100- $300.

The Village of Homer Glen's water conservation ordinance outlines fines from $150 up to $750 for the third offense. http://www.homerglen.org/regulations/WaterConservationMeasures.htm

38.0 Severability: In the event that any section, clause, provision or part of this Ordinance shall be found and determined to be invalid by a court of competent jurisdiction, all remaining valid parts that are severable from the invalid parts shall remain in full force and effect. If any part of this Ordinance is found to be invalid in any one or more of its several applications, all-valid applications that are severable from the invalid application shall remain in effect.

Section 38.0 COMMENTARY

In the event of contest any part of this ordinance, this section allows for the section, clause, provision or part in contest to be ruled invalid without jeopardizing the remaining valid sections, clauses, provisions or parts.

In Practice: Vernon Hills, IL
http://www.vernonhills.org/village/resolutions/Ordinance/2003-47.htm

39.0 Ordinance/Code Conflict: All ordinances/codes or parts of ordinances/codes in conflict with this ordinance are hereby repealed only to the extent necessary to give this Ordinance full force and effect.

Section 39.0 COMMENTARY

Often water conservation ordinances will overlap topics with other municipal ordinances/codes such as a landscape/irrigation ordinance or plumbing codes. This section ensures that the water conservation ordinance is viewed as the predominant ordinance on the included issues of concern.

In Practice: San Antonio, TX http://www.saws.org/conservation/ordinance/

Appendix A

There are several key resources, ordinances examples and experts that CMAP relied on during the development of the model ordinance. Additional information can be found in the original sources.

Key Resources

Water Sense: www.epa.gov/watersense
WaterSense is the national water efficiency and partnership program of the U.S. Environmental Protection Agency. The WaterSense website contains helpful information on each of their products including: supporting statements and background information, savings calculations, current market status of products, performance standards and testing results, specific WaterSense labeled product requirements, general facts sheets, manufacturers, retailers and distributors that sell WaterSense products, available rebates, water efficiency information, a resource list, a guide for teaching water conservation to kids, and more. In addition, if a local government and/or utility become a WaterSense Partner, the WaterSense Partner website contains a library of outreach materials (brochures, handouts, bill stuffers, etc.) that can be customized for a local outreach and education campaign.

Handbook of Water Use and Conservation by Amy Vickers: http://www.waterplowpress.com/
This handbook provides the basics for starting a water conservation program including: 10 key steps for a successful water program, water use background information on different customer sectors, detailed information on a large variety of conservation measures (water/energy savings, benefits, costs, etc.), water audits steps, case studies, list of resources, detailed appendices, and more.

International Association of Plumbing and Mechanical Officials (IAPMO) Green Code Supplement:
http://www.iapmo.org/Pages/IAPMO_Green.aspx
IAPMO is a membership-based organization with over 80 years of experience working with plumbing and mechanical systems that develops product codes, standards, testing, and certification among other services. The Green Code Supplement offers detailed standards to aid the implementation of sustainable practices at the local level. The Green Code Supplement includes efficient fixtures and fixture fittings, rainwater harvesting, HVAC systems, hot water, heating and cooling practices, recycled water, and more. IAPMO also published a Uniform Solar Energy Code.

Ordinances examples

San Antonio, Texas: http://www.saws.org/conservation/Ordinance/Ch34_Ordinance_2009.pdf
Las Vegas, New Mexico: http://www.lasvegasnm.gov/Water%20Conservation%20Ordinance%2001-14.pdf
Metropolitan Water District of Southern California, Model Water Conservation Ordinance:
http://www.centralbasin.org/brochures/ordinance_MWDSC-Model-Water-Conservation.pdf
Los Angeles, California: http://clkrep.lacity.org/onlinedocs/2009/09-0510_rpt_atty_4-30-09.pdf
Marin Municipal Water District, CA: http://www.marinwater.org/documents/O385.pdf

Appendix B

WaterSense Program Details as of February 2010.

Fixture/Fixture fittings	Product Specification Status	Searchable Product Directory on WaterSense Website
Toilet	Complete	Available
Bathroom Faucet/accessories	Complete	Available
Urinals	Complete	Not available
Showerhead	Complete	Early 2010
Pre-rinse Spray Valve	Under development	Not available
Landscape Irrigation controllers	Draft released	Not available

Information may be found for all fixture and fixture fittings regardless on status on the WaterSense website. http://www.epa.gov/watersense/

Appendix C

ADDENDUM TO REAL ESTATE TRANSFER DISCLOSURE STATEMENT

LOCAL DISCLOSURE REGARDING INSTALLATION OF WATER CONSERVATION DEVICES

This form is to be used when the Seller's property, whether residential, commercial, or industrial, is situated within:

- **unincorporated Santa Cruz County outside of the Santa Cruz City water service area.**

Summary of Ordinance

Authority: Santa Cruz County Code Chapter 7.69

Prior to the recording of any deed transferring title to the property to implement a sale of the property or prior to the recording of a contract of sale, all sellers of residential, commercial, or industrial property shall install water conservation devices that restrict maximum water flow from showerheads to 2.5 gallons per minute and reduce the amount of water used in toilets to 1.6 gallons per flush.

Exemptions

A. The requirement for the installation of water conservation retrofit devices on showers shall not apply to any of the following:

1. All structures that include plumbing fixtures on the property changing ownership with evidence documenting they were constructed or renovated in 1994 or later;
2. Any shower that is fitted with a low-flow showerhead with a maximum flow rate that does not exceed 2.5 gallons per minute;
3. Any emergency shower installed for health or safety purposes that cannot safely operate with a maximum flow rate that does not exceed 2.5 gallons per minute;
4. When the retrofit of a shower fixture to comply with this chapter would require a significant expense;
5. Any shower that will not function properly after being retrofitted in accordance with this chapter (Ord. 4698 § 2 (part), 1/07/03.

B. The requirement for the installation of ultra low flush toilets shall not apply to any of the following:

1. Any toilet that already uses less than 1.6 gallons per flush;
2. When the retrofit of a toilet fixture to comply with this chapter would require a significant expense (Ord. 4781 § 1 (part), 4/05/05;
3. Any toilet that will not function properly after being retrofitted in accordance with this chapter (Ord. 4698 § 2 (part), 1/07/03.

Certification

Seller must provide Buyer with a written certification of compliance with the requirements of this ordinance stating that the water conservation devices have been installed or that the installation of devices is not required because of the specific exemption(s) allowed under this law.

Failure to Comply

If the Seller fails to comply with the retrofit requirements, the Buyer shall install the low consumption plumbing fixtures within 90 days from the date of sale. Any seller who fails to comply with the requirements of this chapter may be liable to the buyer in the amount of two hundred and fifty dollars ($250) for each fixture that does not comply with this chapter at the time of sale, or the actual costs of the buyer to comply with this chapter, whichever amounts are greater. Violation of these requirements is also deemed an infraction.

The undersigned hereby acknowledges receipt of a copy of this Addendum

Date _____ Date _____

Buyer _____ Seller _____

Buyer _____ Seller _____

SANTA CRUZ COUNTY WATER CONSERVATION PROGRAM

WATER CONSERVATION CERTIFICATION

1. Assessor's Parcel Number (APN) _____

2. Property Address _____ City _____ Zip _____
(number and street name) (unit #)

3. Daytime phone (_____) _____

4. I, _____ am the seller of the property located at the
(print name)
above address. I hereby certify that the above property is in compliance with Water Conservation Law as ordained in Chapter 7.69, Installing Water Conservation Devices, of the Santa Cruz County Code.

This certification is verified by the following:

a. Seller Certification

____ Total number of showers per property address ____ Number of low-flow showerheads retrofitted
____ Total number of toilets per property address ____ Number of ultra-low-flush toilets retrofitted

b. Exemption(s) Claimed (check all that apply):

___ structure(s) constructed or remodeled with permits in 1994 or later
___ existing showerhead(s) use 2.5 gal./min. or less
___ emergency shower cannot safely operate with a maximum flow rate of 2.5 gal./min.
___ showerhead fixture retrofit to comply with this ordinance would require a significant expense
___ showerhead fixture retrofit will not function properly in accordance with the ordinance
___ existing toilet(s) use 1.6 gal./flush or less
___ toilet fixture retrofit to comply with this ordinance would require a significant expense (Ord. 4781 § 1 (part), 4/05/05
___ any toilet that will not function properly after being retrofitted in accordance with this ordinance.

I declare under penalty of perjury that the information stated above is true and complete, to the best of my knowledge.

_____ _____
Seller Signature Date

SEND A COPY TO THE BUYER and MAIL ORIGINAL CERTIFICATION FORM TO:
Santa Cruz County Water Conservation Program, 701 Ocean Street, Room 312, Santa Cruz, CA 95060

Source: http://sccounty01.co.santa-cruz.ca.us/eh/Water_Resources/water_conservation.htm

Appendix D

City of Santa Cruz
Transfer of Responsibility To Retrofit Form

All residential, commercial and industrial buildings within the City of Santa Cruz water service area are required to be retrofitted with low consumption plumbing fixtures when a property is sold. Under the law, the **seller of the property** is responsible for retrofitting. The responsibility for retrofitting may to be transferred from the seller to the buyer, if both parties mutually agree to do so. This form is used when the buyer agrees to perform the required plumbing fixture retrofit.

Important: The seller must file this completed form with the Water Conservation Office before the property is sold.

Please refer to the back of this form for instructions and information. For assistance, call the Water Conservation Office at (831) 420-5230.

1. Property Location

_____ Street Address

_____ City

__ __ __ - __ __ __ - __ __ Assessor's Parcel No.

__ __ __ - __ __ __ __ - __ __ Water Account No.

2. Plumbing Fixtures

	Toilets	Showerheads	Urinals
Total number at this property:			
Number of fixtures not meeting low water consumption standards that the buyer agrees to retrofit:			

3. Seller's Signature:

By signing below, I, the seller, declare that the buyer has agreed to assume the responsibility for plumbing fixture retrofit at the above-referenced property.

Seller's name (please print) *Seller's signature* *Date* *Telephone*

Estimated Escrow Closing Date: _____

4. Buyer's Signature

By signing below, I, the buyer of the above-referenced property, agree to accept the responsibility of retrofitting the property with low consumption plumbing fixtures as required in Santa Cruz Municipal Code Chapter 16.03, Capitola Municipal Code Chapter 13.02, or County Code Chapter 7.74. I understand that I will be required to retrofit the property and to obtain a water conservation certificate within ninety (90) calendar days following the date of change in ownership, in accordance with the procedures outlined on the back of this form.

Buyer's name (please print) *Buyer's signature* *Date* *Telephone*

THIS FORM MUST BE SIGNED BY THE WATER DEPARTMENT TO BE VALID.

City Approved Signature _____ Filing Date _____

Rev 6/11/04

Clear Form Print Form

Source: http://www.ci.santa-cruz.ca.us/Modules/ShowDocument.aspx?documentid=3891

Appendix E

EPA, Green Landscaping, Green Acres, Plant List, Midwest.

FULL SUN	
Grasses:	
Big Bluestem	*Andropogon gerardii*
Little Bluestem	*Andropogon scoparius*
Sideoats Grama	*Bouteloua curtipendula*
Switch Grass	*Panicum virgatum*
Indian Grass	*Sorghastrum nutans*
Prairie Dropseed	*Sporobolus heterolepis*
Prairie Cord Grass	*Spartina pectinata*
Porcupine Grass	*Stipa spartea*
Forbs (flowers):	
Lead Plant	*Amorpha canescens*
Pasque Flower	*Anemone patens*
Heath Aster	*Aster ericoides*
Silky Aster	*Aster sericeus*
Cream Wild Indigo	*Baptisia leucophaea*
Sand Coreopsis	*Coreopsis lanceolata*
Prairie Coreopsis	*Coreopsis palmata*
Pale Purple Coneflower	*Echinacea pallida*
Rattlesnake Master	*Eryngium yuccifolium*
Prairie Smoke	*Geum triflorum*
Western (or Naked) Sunflower	*Helianthus occidentalis*
False Boneset	*Kuhnia eupatorioides*
Round Headed Bush Clover	*Lespedeza capitata*
Rough Blazing Star	*Liatris aspera*
Cylindrical Blazing Star	*Liatris cylindracea*
Pale Spiked Lobelia	*Lobelia spicata*
Wild Quinine	*Parthenium integrifolium*
Prairie Cinquefoil	*Potentilla arguta*
Gray Goldenrod	*Solidago nemoralis*
Riddell's Goldenrod	*Solidago reddellii*
Golden Alexanders	*Zizia aurea*
FULL SUN-PART SHADE	
Forbs:	
Nodding Wild Onion	*Allium cernuum*

Prairie Thimbleweed Butterfly Weed Smooth Blue Aster Sky Blue Aster New England Aster White Wild Indigo Showy Tick Trefoil Shooting Star Purple Coneflower Wild Bergamot (Beebalm) Foxglove Beard Tongue Obedient Plant Black-Eyed Susan Ohio Goldenrod Spiderwort Heart-Leaved Meadow Parsnip	*Anemone cylindrica* *Asclepias tuberosa* *Aster azureaus* *Aster laevis* *Aster novae-angliae* *Baptisia leucantha* *Desmodium canadense* *Dodecatheon meadia* *Echinacea purpurea* *Monarda fistulosa* *Penstamon digitalis* *Physostegia virginiana* *Rudbeckia hirta* *Solidago ohiensis* *Tradescantia ohioensis* *Zizia aptera*
Grasses:	
Common Wood Reed Canada Wild Rye Virginia Wild Rye Fowl Meadow (Manna) Grass Bottlebrush Grass	*Cinna arundinacea* *Elymus canadensis* *Elymus virginicus* *Glyceria striata* *Hystrix patula*
SHADE	
Woodland:	
Wild Columbine Jack-in-the-Pulpit Wild Ginger Dutchman's Breeches Yellow Trout Lily Wild Geranium Virginia Waterleaf Virginia Bluebells Mayapple Solomon's Seal Bloodroot Trillium	*Aquilegia canadensis* *Arisaema triphyllum* *Asarum canadense* *Dicentra cucullaria* *Erythroniuim americanum* *Geranium maculatum* *Hydrophyllum virginianum* *Mertensia virginica* *Podophyllum peltatum* *Polygonatum canaliculatum* *Sanguinaria canadensis* *Trillium spp.*
Oak Savanna:	

Big Bluestem Grass	*Andropogon gerardii*
Little Bluestem Grass	*Andropogon scoparius*
Shagbark Hickory	*Carya ovata*
New Jersey Tea	*Ceanothus americanus*
American Hazelnut	*Corylus americana*
Purple Love Grass	*Eragrostis spectabilis*
June Grass	*Koehleria cristata*
Rough Blazing Star	*Liatris aspera*
White Oak	*Quercus alba*
Bur Oak	*Quercus macrocarpa*
Black Oak	*Quercus velutina*
Indian Grass	*Sorghastrum nutans*
GENERALLY WET CONDITIONS	
Marsh:	
Swamp Milkweed	*Asclepias incarnata*
Blue Joint Grass	*Calamagrostis canadensis*
Sedges	*Carex sp.*
Spotted Joe-Pye Weed	*Eupatorium maculatum*
Common Boneset	*Eupatorium perfoliatum*
Rice Cut Grass	*Leersia oryzoides*
Common Water Horehound	*Lycopus americanus*
Dark Green Rush	*Scirpus atrovirens*
Great Bulrush	*Scirpus validus*
Prairie Cordgrass	*Spartina pectinata*
Common Cattail	*Typha latifolia*
Lake and Pond:	
Hornwort	*Ceratophyllum demersum*
Common Rush	*Juncus effusus*
Rice Cut Grass	*Leersia oryzoides*
Small Duckweed	*Lemna minor*
Pickerel Weed	*Pontederia cordata*
Common Arrowhead	*Sagittaria latifolia*

Source: http://www.epa.gov/greenacres/nativeplants/plants.html#plant lists

Appendix F

CITY OF SEATTLE

Seattle Public Utilities Bill

Questions? Call 206-684-3000 or 1-800-862-1181 (out of area calls only)
Write us? 700 5th Avenue, Suite 2777, PO Box 34027, Seattle, WA 98124-4027

Account number:
2-1183488-204717

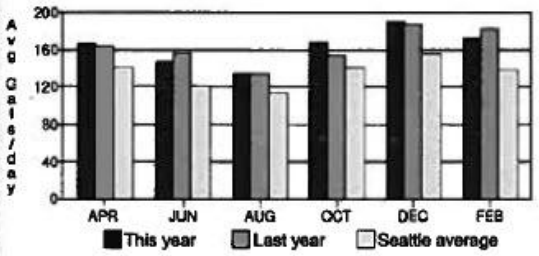
MATT LERNER
4011 ASHWORTH AVE N
SEATTLE, WA 98103-8145

Summary of charges as of February 22, 2007
Payments received after February 23, 2007 are not reflected.

Previous balance:	177.52
Payments applied - **THANK YOU:**	177.52 CR
Balance:	0.00
Total adjustments:	0.00
Current billing:	155.82
TOTAL AMOUNT DUE ON March 15, 2007	**$155.82**

Property owner:
MATT LERNER
Service address:
4011 ASHWORTH AVE N

Compare Your Water Usage



	Total gallons used	Avg gallons/day
This Period:	10,175	172.45
Same Period Last Year:	10,064	170.57
Seattle Average:	9,447	160.12

Your water use this period is 728 gallons higher than the Seattle average of 9,447 gallons. 67% of Seattle homes used less water.

No. of days this period: 59 No. of days in same period last year: 58

Save Water, Help the Environment:

- **Aerate your faucets.** Save 3,300 gallons of water a year by installing aerators in your faucets.
- **Set the water level in the washing machine** to suit the size of the load. You'll save both water and energy.
- View 30 simple things you can do to save the earth at: www.seattle.gov/30/

Notices:

NEW WATER, SEWER, AND SOLID WASTE RATES ARE IN EFFECT BEGINNING JANUARY 1, 2007. SOLID WASTE SERVICE ADJUSTMENT APPLIED FOR 12/01/06-2/01/07 SERVICE DATES.

Moving? *Call us on the day you move if you are reading your own meter. To have us read your meter for a fee, call us at least 3 days in advance of your move.*

Remember: *Account openings and account closings cannot be backdated to a day before you contact us.*

Please tear off remittance stub below and mail it with your payment in the enclosed return envelope.

Please do not write messages on the bill stub, which is machine processed - instead, write to us on a separate sheet and include your account number.

Seattle Public Utilities Bill
Service address: 4011 ASHWORTH AVE N
Property owner: MATT LERNER
Account number: 2-1183488-204717

DUE DATE: March 15, 2007
TOTAL AMOUNT DUE: $155.82

Make check payable and mail to:

Enter Amount Paid: $_____
Write account number on check. Please do not send cash.

MATT LERNER
4011 ASHWORTH AVE N
SEATTLE, WA 98103-8145

CITY OF SEATTLE
DEPARTMENT OF FINANCE
P.O. BOX 34016
SEATTLE, WA 98124-1016

00000003150702001183488020471780000000000015582003

Source: www.betterbills.org

Chicago Metropolitan
Agency for Planning

233 S. Wacker Drive, Suite 800
Chicago, IL 60606

www.cmap.illinois.gov

voice 312-454-0400
fax 312-454-0411

FY10-0088