



MEMORANDUM

DATE: October 15, 2015
TO: Dan Duchniak
FROM: Donna Scholl
RE: Irrigation Ordinance

As you know, in 2006 Waukesha Water Utility was the first Utility in the area to initiate a Sprinkling Ordinance. To further support the City's conservation goals I recommend that the Utility introduce an ordinance requiring the installation of water efficient irrigation systems.

In short, the ordinance would exist to ensure that all Landscape Irrigation Systems in the City of Waukesha are designed, installed, maintained, altered, and operated in a manner that prevents the waste of water, promotes the most efficient usage of water, controls erosion, and applies the minimum amount of water required to maintain healthy individual plants.

With the assistance of DJ's Lawn Sprinklers, Milwaukee Lawn Sprinklers, the City Building Inspector and the City Attorney, the Utility drafted the attached ordinance and permitting documents. The Wisconsin Public Service Commission was unaware of other utilities in the state that had ordinances, so Waukesha analyzed aspects of the ordinances from Dallas and Denver.

In addition to conservation minded landscape design, the ordinance mandates the use of a WaterSense labeled controller. Waukesha Water Utility is a WaterSense partner and as such relied on the research WaterSense had already done. They found that a Water Sense controller can save a home between 30-50% on their summer water bills, and reduces landscape run off by as much as 71%. Costs for the sensors start at approximately \$200, but could cost more than \$1,000. The less expensive sensors are essentially a timer with a rain and snow sensor. The more expensive line includes smart controllers that have a built in receptors that interpret weather data available from services and water your landscape accordingly. These controllers can be monitored from anywhere with a smart phone.

The administrative duties will be performed by the City Building Inspector's Office and, to a much lesser degree, the Water Utility. The Inspector's Office will perform the plan review, issue the permit, and retain the records surrounding the installation of the systems. The Utility will educate the public about the new ordinance and supply the Inspector's Office with the permitting forms.

Recommended Motion: Move to approve the Irrigation System Ordinance for consideration by the City of Waukesha's Ordinance and Licensing Committee.

C: Eric Huckstorf, DJ's Sprinklers, Paul Todd, Milwaukee Lawn Sprinkler, Corp., Brian Running, City Attorney, Mike Mazmanian, City Building Inspector

19.175 Landscape Irrigation Systems

(1) Scope and Purpose.

- (a) This Section applies to the installation of new Landscape Irrigation Systems, and any material alteration or complete replacement of existing Landscape Irrigation Systems, occurring on or after January 1, 2016. Any irrigation system that is not installed, completely replaced, or materially altered on or after January 1, 2016, shall continue to be regulated by the ordinances in effect as of December 31, 2015.
- (b) This Section applies to Landscape Irrigation Systems on any real estate within the City of Waukesha, regardless of whether the real estate is used for residential, commercial, industrial, manufacturing, institutional, government, or any other purpose.
- (c) The purpose of this Section is to ensure that all Landscape Irrigation Systems in the City of Waukesha are designed, installed, maintained, altered, and operated in a manner that prevents the waste of water, promotes the most efficient usage of water, controls erosion, and applies the minimum amount of water required to maintain healthy individual plants, consistent with the City's water-conservation goals.

(2) Definitions. In this Section, capitalized terms have the following meanings:

- (a) **Contractor.** The installer of the System.
- (b) **DSPS.** The State of Wisconsin Department of Safety and Professional Services.
- (c) **Emission Device.** The final element of a System through which water passes before it is applied to plants or ground immediately adjacent to plants, including, but not limited to, spray nozzles, sprinkler heads, bubblers, drips, micro-sprays or misters.
- (d) **Impervious Surface.** Any surface, whether horizontal or vertical, which is made of a material impervious to the penetration of water, including, but not limited to, concrete, asphalt, tile, brick, block, wood, or paving stone set in mortar. Surfaces of brick, block or paving stones, not set in mortar, not set on an impervious base, and having sufficient permeable material between the surface elements may be determined not to be an Impervious Surface in the sole discretion of the Utility.
- (e) **Landscape Irrigation System, System.** Any system which distributes water for the purpose of providing water to outdoor plants; except systems which provide water to plants being raised for sale, in areas in which agriculture is a permitted use.
- (f) **Material Alteration.** A System is materially altered when the number of Emission Devices in the System is increased by 25% or more, when 25% or more of existing Emission Device locations are changed by a distance greater than the effective range of the Emission Device, or when 50% or more of the System, determined by linear measurement of System components, is relocated or replaced.
- (g) **Owner.** The owner of the property on which the System is installed.
- (h) **Department.** The City of Waukesha Department of Community Development.

(3) Permit and Fees Required. A permit, issued to the Owner by the City, shall be required in advance for the installation, material alteration, or complete replacement of any Landscape Irrigation System within the City on or after January 1, 2016. An application fee, plan-inspection fee, and all other applicable fees as shown on the Fee Schedule maintained by the Department of Community Development, shall be paid by the Owner before the permit is issued. All fees are non-refundable.

- (4) **Permit Application.** The Owner shall submit an application to the Department for a permit to install, alter, replace, repair or maintain a Landscape Irrigation System, on forms published and amended from time to time by the Department, and including all attachments and supplemental materials required by the Department. The permit application must provide all information required by the Department, and at a minimum must contain satisfactory proof that the proposed System will meet all of the system standards required by this Section and all other applicable ordinances, codes, and statutes. The application may be rejected if it is not complete, and if rejected, the Department shall inform the Owner of the reasons for the rejection. Applications may be corrected and re-filed by the Owner as many times as are necessary to comply with this Section.
- (5) **Irrigation Plan.** In addition to all other materials and information required to be submitted to the Department with the permit application, for all new installations or replacements of a System, the Owner shall submit two complete paper sets of an Irrigation Plan, and a digital copy in PDF or JPG format, that meets all of the following requirements:
- (a) Be drawn to scale and indicate the scale used.
 - (b) Include the name and dated signature of the designer.
 - (c) Show the location of the parcel.
 - (d) Show both the areas to be irrigated and not to be irrigated within the parcel.
 - (e) Show all major physical features and the boundaries of the area to be watered.
 - (f) Show zone flow measurements for each zone, and the design pressure.
 - (g) Show the location and type of each controller, moisture sensor, rain sensor, and electrical splice.
 - (h) Show the location, type, and size of each water source, backflow prevention device, Emission Device, couplers, valves, (including, but not limited to, zone valves, station solenoid valves, automatic master valves and isolation valves), pressure-regulation components, mainlines and laterals.
- (6) **System Standards.** Owners are responsible for ensuring that new Systems, and Systems undergoing material alterations or complete replacements, on or after January 1, 2016, comply with all of the following standards:
- (a) **Compliance with Water-Conservation Ordinance.** All Systems shall be operated so as to comply strictly with City Municipal Code §13.11.
 - (b) **Controllers.**
 - (i) All Systems shall incorporate a controller that will, at a minimum, cease operation of the System when soil moisture content is adequate to support life of the plants in the landscape area, when rain is falling, and on dates when irrigation is prohibited by City ordinance, rule or regulation.
 - (ii) All controllers installed in Systems shall be EPA WaterSense approved and labeled, and shall be installed strictly according to the manufacturer's specifications.
 - (iii) Electrical power supplies to all controllers installed in Systems shall be surge-protected.
 - (c) **Irrigation Zones.** All Systems shall have separate zones as necessary to differentiate areas having different irrigation needs, according to plant types, topographic features, or soil conditions. The System shall apply into each zone only the minimum amount of water necessary to maintain the plants there. The System shall be designed so that the application rate of water is uniform within zones.

- (d) **Water Pressure.** Emission Devices shall be installed and maintained to operate at no greater than the manufacturer's recommended water pressure. Provisions must be made for pressure control, including, but not limited to, flow-control valves, pressure regulators, or pressure-compensating spray heads.
 - (e) **Backflow Protection.** Backflow-prevention devices must be installed at all points at which Systems connect to a public or private potable water system. Backflow-prevention devices shall be approved by the DSPS, and installed in compliance with manufacturer instructions and all applicable codes. Backflow-prevention devices shall not be installed in public rights-of-way.
 - (f) **Valves.**
 - (i) Systems with more than one zone must include a master valve installed on the discharge side of the backflow-prevention device for each zone.
 - (ii) Systems must include an isolation valve between the water meter and the backflow-prevention device.
 - (iii) Zone valves, station solenoid valves, automatic master valves, and isolation valves must be installed in approved valve boxes for accessibility, repair and service.
 - (g) **Irrigation System Wiring.**
 - (i) All controllers installed in Systems shall be listed by Underwriters Laboratories as acceptable for direct underground burial and must be sized according to the manufacturer's recommendation. Electrical splice locations must be noted on the irrigation plan.
 - (ii) All supply wiring, low-voltage control wiring, and all electrical fixtures shall be installed in compliance with the National Electrical Code as adopted by the State of Wisconsin.
 - (h) **Irrigation of Impervious Surfaces Prohibited.** Application of water by Systems onto Impervious Surfaces is prohibited. Emission Devices must direct water flow away from Impervious Surfaces, and shall not be installed nearer to Impervious Surfaces than 4 inches.
 - (i) **Spacing.** The spacing between Emission Devices shall not be less than (i) twice the Emission Device manufacturer's specified radius or (ii) the manufacturers' recommended spacing of the Emission Devices.
 - (j) **Small Landscape Areas.** Systems shall not use aboveground-spray Emission Devices in landscaped areas that are less than 60 inches in any horizontal dimension; except that such landscaped areas may be exempted, in the Department's sole discretion, if they are adjacent to impervious surfaces of no greater than 60 inches in any horizontal dimension and the runoff from which drains into a landscaped area.
 - (k) **No Irrigation across Property Boundaries.** Systems shall not apply water across property boundaries, unless the parcels adjacent to the boundary both belong to the Owner.
 - (l) **Misting to Be Minimized.** The use of misting Emission Devices shall be kept to a minimum.
 - (m) **Septic Systems.** Systems shall not apply water to the drain fields, drain beds or mounds of private onsite wastewater treatment systems.
- (7) **Contractor Certificate.** Within 30 days of completion of the installation of the System, the Contractor shall complete and deliver to the Owner a signed and dated Contractor Certificate, on a form supplied by the Department of Community Development, certifying that the Contractor has:

- (a) Installed the System in accordance with all applicable ordinances, statutes, codes, rules and regulations; confirmed the correct operation of the entire System; and confirmed that the System has been installed substantially according to the Irrigation Plan and all terms and conditions of the permit.
 - (b) Provided the Owner with a copy of the Irrigation Plan indicating the actual System installation, and performed a final walk-through with the Owner to explain the operation of the System.
 - (c) Supplied the Owner with the manufacturers' manuals for the controller and other components of the System.
 - (d) Supplied the Owner with a list of System components that require maintenance, and the recommended frequency for maintenance.
 - (e) Informed the Owner of Owner's responsibility to drain the System before November 1st of each year.
 - (f) The certificate shall be signed by the Owner to acknowledge receipt, and a copy of the fully-signed certificate shall be delivered to the Department.
- (8) Use of Private Wells. Water from private wells may be used in Landscape Irrigation Systems. A System using well water shall not be directly connected to a potable water supply.
- (9) Irrigation Water Is Non-Potable. All water contained within a System is deemed non-potable.



PERMIT NO: _____

APPLICATION FOR IRRIGATION SYSTEM PERMIT

Owner _____ Phone _____

Address _____

Job Address (if different) _____

Contractor _____ License (if applicable) _____

Address _____ Phone _____

SYSTEM DESCRIPTION

Single Family 2 Family 3 Family Multi Family Commercial Industrial Public

Fixtures	Type	Quantity
Backflow Preventer	Annual Inspection Required Y N	
Irrigation Controller	WaterSense Labeled Y N Provide Cut Sheet	

Estimated System Cost _____

Signature of Applicant

Date

The nonrefundable permit fee of \$50.00 and the applicable plan review fee per approved fee schedule was collected, and the permit is hereby approved.

Signature

Title

Date

White Copy – Contractor Yellow Copy – Owner Pink Copy – City of Waukesha, Building Inspector

INSTRUCTIONS FOR IRRIGATION SYSTEM PERMIT

City of Waukesha Ordinance 19.175 requires that a permit be issued before an irrigation system may be installed, materially altered, or completely replaced. The purpose of this ordinance is to require all irrigation systems to be installed, materially altered, or completely replaced in a manner that is consistent with the City's water conservation goals. Systems shall prevent the waste of water, control erosion, promote the most efficient use of water, and apply the least amount of water that is required to maintain healthy individual plant material.

The Ordinance, available at <http://www.ci.waukesha.wi.us/web/guest/chapter19> , outlines the features required of irrigation systems, and the procedures required when the system is turned over to the owner.

A permit must be issued before the work commences.

The contractor shall prepare an irrigation plan to scale for each site where a new irrigation system will be installed or altered. Plans shall:

1. Be drawn to scale and indicate the scale used.
2. Include the name and dated signature of the designer.
2. Designate the location of the parcel.
3. Depict both areas to be and not to be irrigated within the parcel.
4. Reveal the major physical features and boundaries of the areas to be watered.
5. Indicate the location and type of each:
 - water source, backflow prevention device, controller, sensor, and electrical splice.
 - water emission device, including, but not limited to, spray heads, rotary sprinklers, quick couplers, bubblers, drip, or micro sprays.
 - valve, including but not limited to, zone valves, station solenoid valves, automatic master valve, and isolation valve.

Back flow preventers are required to be installed by licensed plumbers.

All systems subject to the ordinance must include a WaterSense labeled Irrigation Controller. A list of controllers is available at http://www.epa.gov/watersense/product_search.html?Category=5. A cut sheet of the controller must be submitted with the application.

The permit fee is due at the time of application and is nonrefundable.

The application must be submitted to Building Inspection. The review may take as many as 10 business days before a permit can be issued.

Upon completion of the system, the Contractor must review the Contractor Certificate specified in the ordinance and secure the owner's signature. A copy of the signed Contractor Certificate shall be sent to the Department.

Failure to follow these instructions subjects the violator to the fines specified in the ordinance.

PERMIT NO: _____

IRRIGATION SYSTEM CONTRACTOR CERTIFICATE

Within 30 days of completion of the installation of the System, the Contractor shall:

- complete and deliver this signed and dated Certificate to the Owner
- deliver a fully signed copy to the Department

I, _____, installed an Irrigation System installed at
Name of Contractor

_____, and certify that I have:
Installation Address

✓ (Check those that apply)

- Installed the System in accordance with all applicable ordinances, statutes, codes, rules and regulations; confirmed the correct operation of the entire System; and confirmed that the System has been installed substantially according to the Irrigation Plan and all terms and conditions of the permit.
- Provided the Owner with a copy of the Irrigation Plan indicating the System, as built.
- Performed a final walk-through with the Owner to explain the operation of the System.
- Supplied the Owner with the manufacturers' manuals for the controller and other components of the System.
- Supplied the Owner with a list of System components that require maintenance, and the recommended frequency for maintenance.
- Informed the Owner of their responsibility to drain the System before November 1st of each year.

Contractor's Signature

Date

Owner's Signature

Date

White Copy – Contractor Yellow Copy – Owner Pink Copy – City of Waukesha, Building Inspector

This form is also available online at <http://www.ci.waukesha.wi.us/dept/building/FORMS.htm>