

ORDINANCE NO. 2012-03

AN ORDINANCE ADOPTING AMENDMENTS TO CHAPTER 9 OF THE STORMWATER MANAGEMENT DESIGN MANUAL TO COMPLY WITH THE RAINWATER HARVESTING REQUIREMENTS AND ADOPTING A NEW CHAPTER 6 OF THE CITY OF FLAGSTAFF LOW IMPACT DEVELOPMENT (LID) GUIDANCE MANUAL.

WHEREAS, the City of Flagstaff (the "City") desires to adopt Rainwater Harvesting ("RWH") requirements as part of the Stormwater Management Design Manual; and

WHEREAS, due to the real and continuing problem of drought in the Southwest, the City must secure additional water supplies over the long term that will become more costly over time; and

WHEREAS, the City and its citizens must acknowledge, and successfully manage and coexist with the resource limitations of the arid Colorado Plateau environment; and

WHEREAS, water conservation constitutes a legitimate and critical public health, safety, welfare, economic, and sanitation concern; and

WHEREAS, a citizen Stakeholder Group was formed to develop RWH recommendations for the City; and

WHEREAS, amendments to Chapter 9 of the City of Flagstaff Stormwater Design Manual, a new City of Flagstaff Residential Rainwater Harvesting Guide to Water-wise Planning and Design, and a new Chapter 6 of the City of Flagstaff Low Impact Development ("LID") Guidance Manual were developed based on the Stakeholder Group recommendations; and

WHEREAS, the City of Flagstaff Sustainability Commission has reviewed the RWH amendments and has recommended that the City Council adopt the new requirements; and

WHEREAS, the City Council finds that the adoption of this ordinance will adhere to Council goals related to water conservation and sustainability;

NOW THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF FLAGSTAFF AS FOLLOWS:

SECTION 1. That the City of Flagstaff Stormwater Management Design Manual, Chapter 9 is hereby amended as follows:

**CHAPTER 9
LOW IMPACT DEVELOPMENT REQUIREMENTS
FOR INFILTRATION AND REUSE OF STORMWATER AND RAINWATER HARVESTING**

Volumetric increases to the city stormwater conveyance system, as the result of increased

impervious surface have resulted in the need to upsize stormdrain systems in the City. While detention is effective in controlling peak discharges, the volumetric increase is not abated. Low Impact Development (LID) is an accepted standard in which stormwater is infiltrated and/or reused, resulting in the mitigation of these volume increases.

Low Impact Development will address water quality concerns that can arise when impervious area is added to previously undeveloped sites. Runoff from impervious areas often times contains suspended solids and heavy metals along with other contaminants. Many of the Low Impact Development measure will remove some of these pollutants.

Water conservation is also a consideration when designing for the Low Impact Development requirements. Water can in many cases be reused or directed towards landscape areas in an effort to reduce water consumption.

The use of LID will help control volume increases and hence reducing the cost of upsizing downstream infrastructure as well as promote water conservation.

Active rainwater harvesting provides benefits in addition to volume reduction, including meeting plant water needs during periods of no rain and reducing usage of potable and reclaimed water for irrigation purposes.

9.1. POLICIES

- a. Stormwater LID is required for all new subdivisions, commercial and industrial developments, re-development of non-conforming sites (i.e., existing developed sites that do not have detention that have been razed and vacant for greater than six months), and other developments greater than 1/4 acre in size. LID shall be implemented according to the following schedule as measured from the effective date of Ordinance No. 2009-07:
 1. The first year the program will be voluntary.
 2. The second year developments will be required to retain/infiltrate one half (1/2) inch of runoff from all additional impervious surfaces.
 3. The second year developments will be required to retain/infiltrate one (1) inch of runoff from all additional impervious surfaces. The requirement to detain for the 2-year storm will no longer be required once the 1-inch threshold is implemented.
- b. LID requirements may be waived by the Stormwater Manager for the following:
 1. Single-family residential structure or lot (i.e., not associated with a new subdivision).
 2. Residential subdivisions with lot areas \geq 1 acre in area, if it can be shown that such a waiver will not result in any adverse downstream effects, nor create any disturbance to the existing drainage patterns both within and adjacent to the subdivision.
 3. Developments less than 1/4 acre or increases in impervious area of \leq 5,000 square feet. It must be demonstrated to the satisfaction of the Stormwater Manager that there will be no increase in the potential for damages to adjacent properties and adequate

off-site or downstream drainage capacity is available.

- c. For developments requiring LID, all new impervious surfaces shall be infiltrated or reused in accordance with the current applicable standard.
- d. Single family residential shall utilize passive rainwater harvesting techniques for all new single family dwellings. Roof downspouts, if utilized, shall be directed to landscape and/or natural areas and no direct connection of downspouts to the street, right-of-way or any property line shall be allowed. For driveways that slope to the street, right-of-way or property line, efforts shall be made, insofar as practical, to direct driveway flows into natural or landscape areas. The "Residential Rainwater Harvesting: A Guide to Water-wise Planning and Design" publication provided by the City of Flagstaff shall be utilized to meet this requirement.
- e. The methodology for determining the required volume of stormwater to be infiltrated or reused is as follows:

Impervious Surface (square feet) X current requirement (ft.) (e.g. ½ inch or 1 inch) = volume requirement
- f. In order to provide specific guidance for the design of these LID facilities, the City has developed the City of Flagstaff Low Impact Development (LID) Guidance Manual. The Manual is hereby adopted as part of these Requirements.
- g. The City established a maximum ponding depth of (.3) three-tenths of (1) one foot without an engineered infiltration system.
- h. The minimum lowest floor elevation of any structure adjacent to an LID facility shall be one (1) foot above the 100-year water surface elevation in the facility or the emergency overflow level, whichever is higher.
- i. Developments which are phased shall prepare a master stormwater LID plan for the entire development. The master stormwater LID plan must either be implemented with the first phase, if possible, or LID measures must stand alone for each phase. Interim temporary LID facilities may be required for phasing.
- . The City of Flagstaff shall only accept large-scale LID facilities for operation and maintenance. The City shall not accept small-scale, local on-site LIDs for operation, maintenance, or liability.
- k. Maintenance of local on-site LID facilities shall be the responsibility of the property owner or homeowner's association. The City shall reserve the right to periodically inspect any LID facilities to verify that regular maintenance activities are being performed. Final Plats; Covenants, Conditions, and Restrictions (CC&R's); and/or Development Plans shall include a special note stating that (1) the owner(s) shall be solely responsible for the operation, maintenance, and liability for all LID facilities; and, (2) the City of Flagstaff may periodically inspect said LID facilities to verify that regular maintenance activities are being performed adequately.

- I. The City of Flagstaff Parks and Recreation Division must review and approve proposed stormwater LID facilities designed within designated public areas or parks. Review and approval from the Parks and Recreation Commission may also be required.
- m. No part of a private LID shall be constructed in a public right-of-way or public utility easement.

9.2. ACTIVE RAINWATER HARVESTING REQUIREMENTS

Active rainwater harvesting systems are mandatory, with a storage tank sized to capture a minimum of 1" of rainfall from the roof, or to provide anticipated annual landscaping water demand, whichever is less, for new developments other than single family residential (including those less than ¼ acre), EXCEPT:

- a. In cases in which the developer uses exclusively native/drought-tolerant plants in compliance with Landscaping Standards and utilizes passive rainwater harvesting; or
- b. Where landscaping water demand can be met through other sources of non-potable water; or
- c. In areas of food production, such as community gardens

9.3. SUBDIVISION REQUIREMENTS

All new subdivisions are required to provide LID for the entire subdivision, including the respective one-half of all abutting streets to the subdivision. Two or more subdivisions may join together to provide a common LID facility.

Preliminary Plat submittals shall be accompanied by a preliminary drainage report that identifies LID locations, types and sizes and a preliminary calculation of the required volume.

All Final Plat submittals require a final drainage report, in accordance with Chapter 2 of this manual, which technically demonstrates compliance with City of Flagstaff Floodplain Management Regulations, Stormwater Management requirements, and the drainage policies and design criteria set forth in this manual. This report must be submitted with the subdivision improvement plans and must be accepted prior to recording the final plat.

9.4 RESTRICTIONS ON INSTALLATION OF RAINWATER HARVESTING SYSTEM INVALID

- a. Any Covenant, Condition, or Restriction contained in a deed, contract, security agreement, or other instrument which affects the transfer or sale of real property, which is entered into after May 20, 2012 and which effectively prohibits the installation or use of a rainwater harvesting system, is void and unenforceable.

SECTION 2: That these Rainwater Harvesting amendments to the City of Flagstaff Stormwater Management Design Manual be incorporated as a new Chapter 6 in the City of Flagstaff Low Impact Development Guidance Manual and be adopted by this reference.

SECTION 3: That the City Clerk be authorized to make housekeeping changes to the City of Flagstaff Stormwater Management Design Manual to comply with the Rainwater Harvesting Requirements; to correct typographical and grammatical errors, as well as errors of wording and punctuation, as necessary; and to make formatting changes needed for purposes of clarity and form, if required.

PASSED AND ADOPTED by the City Council and approved by the Mayor of the City of Flagstaff this _____ day of _____, 2012.

MAYOR

ATTEST:

CITY CLERK

APPROVED AS TO FORM:

CITY ATTORNEY