



Storm Water Commission
6801 Delmar Boulevard, University City, Missouri 63130,
Phone: (314) 505-8560, Fax: (314) 862-0694

**MINUTES OF THE STORMWATER COMMISSION – AD-HOC SUB-COMMITTEE
TO REVIEW UNIVERSITY CITY MUNICIPAL CODE REVISIONS PROPOSED BY THE UNIVERSITY
HEIGHTS FLOOD TASK FORCE
October 17, 2023**

Call to Order. The subcommittee listed above was called to order at 4:31 PM by Eric Karch.

- 1. Attendance-Roll Call.** The following Commission members were present at the Community Center: Mark Holly, Susan Armstrong, Garry Aronberg, Eric Karch. Also, in attendance were; Darin Girdler, Director of Public Works; Mirela Celaj, Assistant Director of Public Works; and John Mulligan, City Attorney.

Visitors present included: University Heights Association (a.k.a U. Heights) Flood Task Force - (Don Fitz with Max Pernick of the Washington University Environmental Law Clinic), Hope Horn (U Heights Neighborhood Associate, Barbara Chicherio (U Heights resident), and Carolyn Pufalt (University City resident on Delmar Blvd and Sierra Club member), Tom Sullivan

- 2. Agenda.** Published agenda was approved: (Messrs. Aronberg, Armstrong):
Ad-hoc subcommittee to review University City Municipal Code revisions proposed by the University Heights Association Flood Task Force

3. Business

- Stormwater Commission provided U Heights with comments on their proposed code revisions in advance of the meeting. Not every point made in those comments was discussed tonight.
- Section 420 – referred to as "Pervious Surface Code"
 - A general comment was that a preferable way forward to meeting the same goals listed in the U Heights proposed code revisions would be to simply lower the threshold at which St. Louis Metropolitan St. Louis Sewer District (MSD) regulations would apply. MSD regulations are defined in their "Rules and Regulations and Engineering Design Requirements for Sanitary Sewer and Stormwater Drainage Facilities" (a.k.a. Rules and Regs), the latest version of which is dated 2/1/2018. This would address the need for design requirements, enforcement, perpetuity, and operations and maintenance.
 - Design requirements are addressed by listing specific calculations and plans that are required for the permit.
 - Operations and maintenance (O&M) is addressed by requiring the developer to provide an O&M manual.
 - Enforcement is addressed by requiring annual inspection.
 - Perpetuity is addressed by requiring establishment of a Best Management Practice (BMP) Reserve Area that is tied to property records and transfers to the next owner.
 - MSD land disturbance permit regulations begin at 1 acre of disturbance, but it's Rules and Regs section 4.060.01 allows that "If another local jurisdiction requires more stringent design standards, then they shall govern in that locale". U City code currently echoes and defers to MSD at 1 acre.
 - What is an appropriate threshold for lowering the standard? Discussed that Town &



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Country, Olivette, and Ladue have all lowered the threshold. Discussed that 400 square feet might be too high and that 100 square feet might be too low. Both would be significantly stricter/greener than the current code.

- Suggested that the 1 acre threshold could be lowered by modifying Code Sections 405.490.C.6 and 405.51.A.4.A,B.
- A wide-ranging discussion was held on ancillary issues related to Section 420, but the following are some key points.
 - Issues with enforcement were discussed that mainly came down to the fact that proper enforcement would likely require additional City staff/time which would cost money.
 - Issues with perpetuity were discussed. Adding a BMP reserve area to the property plat is required by MSD for a large commercial development, for example, but could be considered onerous for a residential property. A possible solution is to tie the BMP to the Occupancy Permit and Property Maintenance Code. City staff could verify that the new owner acknowledges the BMP that was installed by the previous property owner and will not remove the BMP.
 - Question – Does permitting fall under the City's Department of Public Works (DPW)? DPW handles Floodplain Development permitting and Land Disturbance permits. The Department of Planning/Community Development handles Building permits.
 - Question – How would cumulative impacts be covered to avoid subterfuge of a reduced threshold? For example, let's say the threshold is 100 square feet. What if someone installs a series of 10 square foot projects to avoid the regulations? Discussed that the code could be revised to require a permit for any and all flatwork (e.g. roof, patio, sidewalk, etc). City staff could then track and verify that 100 square feet is not cumulatively exceeded for a given property.
 - Question – What about rainfall that exceeds the design storm? Code revisions should address high flows and prevent nuisance flows onto an adjoining private property.
 - Webster Groves code (Section 82.100d) requires that "no stormwater shall be discharged to an adjoining public or private property in a manner that negatively impacts the adjoining property. Existing conditions shall be the basis for determining negative impact." The group discussed that the word "public" should not be included. Rainwater must be discharged eventually, and the City streets and MSD storm sewers are a logical discharge point. Both are effectively part of the public stormwater drainage system.
 - DPW pointed out that some of this topic is already covered by code section 405.510 Site grading erosion control and site design. An example was discussed where someone installed a new driveway that directed flow onto the neighbor. If there were a flatwork permit, this would have given the City a means to enforce this code section.
- **Section 410 – Non-Development / Floodplain Zone**
 - U Heights Flood Task Force discussed changes they've made since the bill was presented 2 weeks ago.
 - Revision instead of replace
 - Question – What is the purpose of this section? Our code already restricts development within the floodplain and floodway, and substantially re-writing the code section could bring the City out of compliance with the National Flood Insurance



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Program requirements?

- Question – Is a 50 foot-buffer appropriate. Discussed that the proposed revision's use of 50-feet was somewhat arbitrary. U Heights asked if the Commission's suggestion was to widen the buffer to match the floodplain? Commission indicated that no, the suggestion was to NOT use the term Non-Development Zone at all, since City code already defines floodplain and floodway well.
- Question – The 10/2/2023 raised a point on solid blue vs dashed blue lines on the USGS map, but U Heights was unclear on the implication. Discussed that the river goes to a dashed line where the river crosses Olive Blvd. Commission recommended looking at FEMA FIRM Map and discussed the regulatory definition of floodplain and floodway.
- Vegetation – Commission acknowledged the benefits of prohibiting exotic invasive vegetation, but had the following suggestions:
 - Consider that this issue is separate and distinct from Section 410 that deals with floodplains.
 - Consider instead revising the Land Use Zoning Code Supplementary Regulations Division 6 Landscaping and Screening Requirements.
 - Consider bringing this issue before the Green Practices Commission.
- **Path forward**
 - Discussed that U Heights will revise their proposed code revisions and submit to those present via email. The Commission's Ad-hoc subcommittee will review and circulate comments amongst themselves. If changes are still suggested, these changes will be sent via email to Don Fitz and Max Pernick. This process will repeat until the Ad-hoc subcommittee is satisfied by consensus, at which point they will report back to the Commission. The Commission will then have the information needed to make a recommendation to council.
 - Discussed that the City Council will also likely want the City's legal team, DPW, and P&Z to review.

4. Adjournment. Motion to adjourn passed at 6:21 PM (Messrs. Karch, Aronberg).

Minutes Preparation. The minutes were prepared by Eric Karch.

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Impervious Surfaces Draft Bill

10/26/23

While the purpose of this bill remains intact, the method of achieving that purpose has been almost completely altered. Sections 410.260 and 500.300(A)(1) were amended to expand the definition of land disturbance activities to include all projects that would increase the amount of impervious surface in University City. Sections 500.300(3) and 500.300(6) were amended to ensure that these land disturbance activities could be covered by ordinary land disturbance permits and eliminate any potential loopholes. Section 405.510(4) was amended to lower the threshold for meeting MSD Stormwater Consideration Site Criteria to 100 square feet and tie that requirement to occupancy permitting. The changes to the code have been highlighted.

Section 410.260 of the Municipal Code of the City of University City, relating to Definitions for Floodplain Management, is hereby amended to include the following:

410.260 Definitions.

IMPERVIOUS SURFACE

Any man-made paved, hardened, or structural surface, regardless of material. Impervious cover includes but is not limited to rooftops, buildings, streets, roads, decks, swimming pools, and any concrete or asphalt.

Section 500.300 of the Municipal Code of the City of University City, relating to the Land Disturbance Code of St. Louis County, is hereby amended to include the following:

500.300 Land Disturbance Code of St. Louis County.

A. 1114.100 — Chapter 1 — Administration.

1. SECTION 101.0 SCOPE.

Land disturbance activities: Clearing, grading or any related work which results in the direct or indirect removal of the natural site vegetation or destruction of the root zone or otherwise results in leaving the ground surface exposed to soil erosion through the action of wind or water. ~~Indirect activities~~ are any man-made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, levees, levee systems, mining, dredging, filling, grading, paving, excavation or drilling operations, wood or manufactured lumber decks, concrete or other flatwork projects, installation of Impervious Surface, or storage of equipment or materials.

3. SECTION 103.0 ENFORCEMENT.

No major land disturbance permit or ordinary land disturbance permit shall be issued where the Department of Highways and Traffic and/or the Department of Public Works finds that the proposed land disturbance activity would result in ~~a material change in the amount or pattern of surface water run-off to the substantial injury of neighboring public or private property or right-of-way.~~ the discharge of stormwater to an adjoining private property in a manner that negatively impacts the adjoining property. Existing conditions shall be the basis for determining the negative impact. All land disturbance activities shall be carried out in such a manner as to minimize inconvenience and harm to adjacent properties and property owners.

6. SECTION 106.0 LAND DISTURBANCE PERMITS REQUIRED.

106.3 Exceptions

- ~~4. Land disturbance activities associated with additions to and accessory structures for one and two family dwellings.~~

Commented [PM1]: This definition was adapted from the definition of "Development" in Section 410.260 and expanded upon to include "wood or manufactured lumber decks, concrete or other flatwork projects, installation of impervious surface". The definition of "Development" was not directly altered to avoid any unintended consequences.

Commented [PM2]: This was adapted from Webster Groves Code Section 82.100(d). We suggested the deletion of the code's previous condition for clarity purposes.

Commented [PM3]: This was the only exception we found that seemed to negate the effect of the bill. The code lists additional exceptions that did not seem relevant to our understanding of the bill's purpose, but I encourage you to double check our work to ensure that you agree: <https://ecode360.com/33788326#33788326>

Section 405.510 of the Municipal Code of the City of University City, relating to Site Grading, Erosion Control, and Stormwater Consideration in Site Design, is hereby amended to include the following:

405.510 Site Grading, Erosion Control, and Stormwater Consideration in Site Design.

4. Stormwater Consideration in Site Design.
 - a. Applicability. The standards referenced and adopted in this Section shall apply to site design for any project which includes alteration of site drainage or floodplain areas, connection to storm sewer systems or open storm water channels, and all land disturbance projects encompassing more than ~~one (1) acre~~ 100 square feet, or any combination of the previously listed projects that encompass more than 100 square feet in sum.
 - d. Whenever applicable, the following table of standards shall be implemented in site design and shall supersede any standards established in the principles published by MSD referenced in Section 405.510(A)(4)(c).
 - i.

| # | Green Infrastructure | Offset Guidelines for Ratio of New Impervious surface area: to green Infrastructure Improvement | References |
|---|---|--|--|
| 1 | Plant Native Plants, such as grassy and herbaceous vegetation | 5:1 | https://grownative.org/learn/manage-stormwater/ |
| 2 | Direct new Impervious Surface runoff to permeable areas on the property | 5:1 Example: new 100 sf patio : 20 sf permeable area offset | https://www.missouribotanic.org/sustainability/sustainability/sustainable-living/at-home/rainscaping-guide/design-and-build-a-rain-garden |
| 3 | Install tree cover | See Arbor Day Foundation calculations for Stormwater offset | https://www.arborday.org/calculator/ |
| 4 | Install permeable pavement (PP) | 2:1 Example: new 100 sf PP patio: 50 sf stormwater offset | https://www.epa.gov/system/files/documents/2021-11/bmp-permeable-pavements.pdf |
| 5 | Build green roofs | 5:1 Allow for 10% evaporation in green roof capacity for stormwater offset | https://www.epa.gov/sites/default/files/2018-09/documents/greenroofs_ca_sesudy_kansascity.pdf https://sustainability-innovation.asu.edu/urban-climate/green-roof-calculator/ |
| 6 | Install rain barrels to capture and slow runoff | 1:1 Example: 1 gallon of increased run-off: 1 gallon of rain barrel capacity | 1 sf of Impervious Surface causes an increase of 0.6 gal of Stormwater Flow on the property |
| 7 | Install infiltration basins such as rain gardens and bioswales | 5:1 | https://www.missouribotanic.org/sustainability/sustainability/sustainable-living/at-home/rainscaping-guide/design-and-build-a-rain-garden |
| 8 | Direct water into stormwater detention basins, such as ponds | As low as 100:1 (1%) Ex: If you paved 1 acre (43,560 sf) property, the area of the green infrastructure base would be around 435 sf with a 1 ft depth and 3:1 side slopes. | Design variables include ponding depth, side slopes, pond bottom area, length & width of pond top, runoff coefficient, drainage area, % impervious, coefficient of permeability of filter media, land use & zoning http://chesapeakestormwater.net |

e. All storm water site management activities that are subject to Section 405.510(A)(4)(a) for any lot shall be fully established before an occupancy permit can be issued, except that a temporary occupancy permit may be issued in cases of undue hardship because of unfavorable ground conditions. In the latter case, temporary storm water control measures shall remain in place until such time as approved by the Director of Public Works and Parks.

Sustainable Landscaping Draft Bill
10/26/23

Originally titled the "Floodplain Non-Development Bill", this has now taken on a very different identity and has been renamed accordingly. The changes to the code have been highlighted.

Section 410.170 of the Municipal Code of the City of University City, relating to Floodways, is hereby amended to include the following:

410.170 Floodway.

A.

5. The following landscaping activities are permitted so long as they are conducted in accordance with Missouri Botanical Gardens Native Landscaping Manual:
 - i. Planting of native vegetation as defined by Sections 400.1180(B)(6) and 400.1230(E)
 - ii. Removal of invasive vegetation as defined by Sections 400.1180(B)(7) and 400.1230(E)

Commented [PM1]: The bill currently states that these activities could be conducted without permitting. Although don't think it was explicitly stated in the notes, I believe this was the original intention of the bill. Please let me know if this was not the original intention.

Commented [PM2]: In this section, and others included in the bill, I refer to the MO Botanical Gardens Native Landscaping Manual, instead of the MO Invasive Plant Council's list. Both lists include the same plants, but the Botanical Garden's guide also includes detailed instructions for removal of invasive species. Additionally, it lists BMPs for planting native species. Please let me know if you think that the MO Invasive Plant Council's list would be better suited for the bill.

Section 400.1180 of the Municipal Code of the City of University City, relating to Planting Specifications for Landscaping and Screening Requirements, is hereby amended to include the following:

400.1180 Planting Specifications.

B. *Planting Types.*

6. *Native Vegetation:* Vegetation that has evolved and occurs naturally in the land where University City now sits and is suited to the soil, topography, hydrology, and wildfire risk of this land. Native Vegetation includes but is not limited to those listed in the Missouri Botanical Garden's Native Landscaping Manual.
7. *Invasive Vegetation:* Vegetation that is both non-native and able to establish on many sites, grow quickly, and spread to the point of disrupting plant communities or ecosystems. Invasive Vegetation includes but is not limited to those listed in the Missouri Botanical Garden's Native Landscaping Manual.

Section 400.1230 of the Municipal Code of the City of University City, relating Installation and Maintenance of Landscaping, is hereby amended to include the following:

400.1230 Installation and Maintenance of Landscaping.

- E. The planting of Native Vegetation and the removal of Invasive Vegetation are both heavily encouraged in all landscaping activities. These activities must be conducted according to the Missouri Botanical Garden's Native Landscaping Manual.

Commented [PM3]: Other municipalities state that a percentage of landscaping must use native vegetation. Since we haven't discussed this yet, I figured I would start with the lowest possible requirement. We can also add requirements that prevent the planting of invasive species.

Commented [PM4]: Schaumburg, IL: <https://perma.cc/2SQZ-6CXH>
Sanibel, FL: <https://perma.cc/TX7J-G5D2>