



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  
January 18, 2024**

**Call to Order.** The subcommittee listed above was called to order at 3:35 PM by Eric Karch.

- 1. Attendance-Roll Call.** The following Commission members were present at City Hall (2<sup>nd</sup> Floor conference room): Susan Armstrong, Garry Aronberg, and Eric Karch. City representative Mirela Celaj attended as well. This was a non-quorum meeting, as allowed by our bylaws.

**Agenda.** To discuss revisions to the proposed code language, and specifically the matrix of eight (8) proposed mitigation practices presented by the University Heights Association Flood Task Force (version dated 11/10/2023 Impervious Surfaces Draft Bill). This meeting is being held in response to an action item from the 11/14 Ad-Hoc Subcommittee meeting and is a continuation of topics discussed on 11/14/2023 and 11/30/2023.

**2. Old Business**

- Mirela provided (in advance of the meeting) the City of Kirkwood “Stormwater Management Guidance” (January 2022).  
<https://www.kirkwoodmo.org/home/showpublisheddocument/7847/637854587558070000>
- What is impervious? Kirkwood does not consider decks to be impervious. What if the slats abut with no gaps versus most decks with slats that have gaps? Discussion that there may be value to be consistent with neighbors.
- Design Rainfall / storm event
  - How does Kirkwood handle first flush? Using a volume generated from 1.14 inches of rain.
  - MSD uses 1.14 inches for water quality BMPs
  - U City - Mirela expressed that current U City Code defers to MSD, so using 1.14 inch design storm is appropriate for U City ordinance as well.
  - Our matrix will be for a new addition of impervious area on top of what was formerly grass. In other words, we are targeting the differential. If replacing 100 SF of patio with 100 SF of new shed, there would be no new mitigation offset required.
- **Item #1 - plant native plants, such as grass and herbaceous vegetation**
  - 0.31 new impervious area : 1 new planting site
  - 100 SF of new impervious : 330 SF of new native planting
- **Item #2 – amended soil**
  - Amended Soil
    - Garry presented calcs showing that the offset for a 6-inch deep amended soil area would need to be 53 SF to address 100 SF of new impervious area. Offset is 2:1.
  - 100 SF of new impervious area requires
    - 53 SF of 6-inch deep amended soil
    - 27 SF of 12-inch deep amended soil



- **Item #3 – install tree cover**
  - Mature oak tree canopy covers 314 SF.
  - 100 SF of new impervious area produces 73 gallons of runoff
  - Therefore, 1 mature oak would offset 100 SF, because the average runoff coefficient would be revised.
  - Effectively, the offset is similar to the offset required by native vegetation.
  - Discussed that different trees have a different mature tree canopy. Listing different canopies for different species would be difficult.
- **Item #4 – Install permeable pavement**
  - Susan suggesting deferring to Kirkwood manual (page 31)
  - 100 SF of new impervious requires 40 SF of 6-inch deep permeable pavement, for example.
- **Item #5 – Aerate lawns**
  - Killed this due to maintenance difficulties
- **Item #6 – Green roof**
  - Discussed that offset should be same as item #1 since it is essentially creating a native planting area. This is appropriate for a sloped roof.
  - Should there be a different offset for a flat roof ?
  - Discussed re-visit the offset to go from a runoff coefficient of 0.95 (impervious area) to a runoff coefficient of 0.1 (natives).
  - Evapotranspiration - this benefit is real, but should not be used as a design parameter since evapotranspiration benefit is on the year, but the ordinance is attempting to deal with a single storm event.
- **Item #7 – rain barrel**
  - Consider adding rain cisterns
  - 100 SF of new impervious area requires (1) 55-gallon rain barrel. This is because the differential runoff for converting 100 SF of grass to impervious is 49 gallons.
  - Ordinance should state that these features must be emptied between rain events to be functional.
  - MO Botanical Gardens shows that the rain barrel needs to be 73 gallons for 100 SF. However, this does not account for the fact that grass has runoff. Once that grass was removed to build the impervious area, the change is just the differential. That's why our calcs show only 49 gallons rain barrel for 100 SF.
- **Item 8 – Install Infiltration basins such as rain gardens and bioswales and dry wells**
  - Dry wells are not currently an option on the matrix.
  - Susan asked if dry wells are included in the USGBC LEED manual. They are.
    - <https://www.usgbc.org/credits/homes/v2008/ssc4>
  - Mirela says that a dry well was one of the most popular BMPs used in Crestwood to mitigate new impervious area.
  - Discussed adding this to item #8. Susan noted that U Heights would want us to require that the surface is grass, which is consistent with what Kirkwood requires.



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- **Item 9 - Detention basin**
  - Garry presented calcs showing that a detention basin needs to contain 6.7 CF to contain the runoff from a 1-year storm.
- **Status of Matrix Review**
  - The group feels comfortable with decisions made to clarify Items 1 thru 7. Items 8 and 9 need additional work to clarify. At that point, a revised draft of the matrix can be presented for discussion.
- **Communities whose guidelines and/or ordinances that were reviewed:** Dubuque, Iowa's Bee Branch, all the communities in the HR Green report (Town & Country/Olivette/etc"), Kirkwood, Missouri, and Tulsa, Oklahoma
- 3. **New Business**
  - **Mirela presented some examples of plans she has been reviewing to illustrate issues she feels should be addressed by changes to City ordinances.**
    - Mirela will send the group some example plans and MSD's comments so that the group may review the items in preparation for a future discussion. The following were a couple of the examples briefly discussed.
    - New house (development is < 1 acre)
      - Though the development is < 1 acre, the plans show amended soils being incorporated.
      - It is assumed that MSD will have no comment on the water quantity or water quality impacts of this development because the land disturbance is <1 acre. However, MSD can and will comment on other aspects. Mirela directed us to a summary on page 2 of the Kirkwood stormwater guidance document for a list.
      - U City ordinance says don't issue any new permit until MSD approves the plans. U City is likely to approve the plans.
      - A question seems to be to what extent should U City comment on the amended soils?
    - House with burned garage.
      - The garage was originally built at the property line.
      - Homeowner wanted to rebuild garage in same location. There was a challenge for the property owner to collect the stormwater runoff to their property, due to the location, roof pitch, small size of the lot and amount of the impervious surface(including the deck being 4 feet from the garage).
      - Current Code would not allow a new garage to be built at the property line.
      - Current Code does not address the fact that replacement structures must be built to current code. Therefore, the homeowner wants to be grandfathered. This location would continue to allow runoff to flow directly onto the neighboring property, which violates other portions of the City Code.
      - One option was to use a rain barrel to collect the water. Ultimately, the homeowner ended up collecting the water at the previous system (collecting the gutters to the front of the garage to the existing drain). U City approved the plan.
    - Before the next meeting, Mirela will provide the group with the development plans and MSD's comments on these plans. Mirela will also provide a brief summary of the questions she would like the group to consider so that we can be prepared to discuss.



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4. **Next meeting** – Business was not completed. The group agreed to meet again 1/24/2024 at 3:30 at City Hall 2<sup>nd</sup> Floor. Mirela will reserve the room.
5. **Adjournment.** Adjourned at 5:15 PM.

Minutes Preparation. The minutes were prepared by Eric Karch.

University City\20240118\_StrmWtrComm\_AdHOC\_Approved Minutes