



Department of Public Works and Parks

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

**AGENDA
COMMISSION ON STORM WATER ISSUES
HEMAN PARK COMMUNITY CENTER
975 PENNSYLVANIA
Tuesday, January 9, 2024
3:30 PM**

- 1. MEETING CALLED TO ORDER**
- 2. ATTENDANCE-ROLL CALL**
- 3. APPROVAL OF AGENDA**
- 4. APPROVAL OF MINUTES**
 - ❖ November 7, 2023
- 5. CITIZEN COMMENTS**
- 6. ANNOUNCEMENTS BY COMMISSIONERS**
- 7. SUBCOMMITTEE REPORTS**
 - ❖ November 14, 2023
 - ❖ November 30, 2023
- 8. NEW BUSINESS**
- 9. OLD BUSINESS**
- 10 COUNCIL LIAISON COMMENTS**
- 11 ADJOURNMENT**



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MINUTES OF THE STORMWATER COMMISSION November 7, 2023

1. **Call to Order.** The thirty-ninth meeting of the Stormwater Commission (Commission) was called to order at 3:32 PM by Chair Todd Thompson.
2. **Attendance-Roll Call.** The following Commission members were present at the Community Center: Susan Armstrong, Garry Aronberg, Robert Criss, Mark Holly, Eric Karch, Todd Thompson. Also, in attendance were Councilman Dennis Fuller, Darin Girdler, Director of Public Works; Mirela Celaj, Assistant Director of Public Works; and John Mulligan, City Attorney.
3. **Visitor:** Many visitors were present.
4. **Agenda.** Publish agenda was approved:
Attendance-Roll Call; Approval of Agenda; Approval of Minutes; Citizen Comments; Announcements by Commissioners; Committee Reports; New Business; Old Business; Council Liaison Comments; Adjournment.
5. **Minutes.** The minutes of the October 3, 2023, meeting were amended to attach list of attendees and a USEPA brochure about Permeable Pavements. The amended minutes were approved by voice vote (Aronberg, Holly).
6. **Citizen Comments:**
 - 6.1. The City should remove the debris on top of the Tunnel entrance (Barbara Chicherio).
7. **Announcement By Commissioners.** None
8. **Committee Reports.**
 - 8.1. PW Director Girdler reported that tunnel cleaning has started. The City will remove the debris that has accumulated on top of the tunnel
 - 8.2. Commissioner Criss reported: that he has obtained a LiDAR scan of the about 1000 ft of the upstream end of the Tunnel.
 - 8.2.1. The Commission's velocity-depth sensor at the Tunnel has been washed away and lost by the high turbulence at that location. It did not read data accurately at that location. A new sensor is needed at nearby but hydraulically better site and structurally safer site.
 - 8.2.2. We should expand data collection at the Tunnel entrance and a few other locations with video.
9. **New Business**
 - 9.1. University of Health Sciences' (formerly St. Louis College of Pharmacy) Ms. Jasmine Bures and Dr. Sylvester Orimaye made a presentation that University of Health Science Students interested in supporting the commission. Students are undergraduates (junior and senior) seeking computer science and data science degrees about aiding communities with collecting and evaluating storm data such as surveys, comments, complaints, terrain, and flooding data. Ready to assist University City also.
 - 9.2. Commissioner Armstrong recommended that a subcommittee explore ways of using the offered services.



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10. Old Business. New Code provisions to reduce imperviousness:

10.1. Max Pernick and Don Fitts presenting University Heights presented changes to the following sections of the Code Discussion:

10.1.1. Section 410.260 definitions – we should consider moving definition to Section 405.510

10.1.2. Section 500.300 Land Disturbance Code of St. Louis County is a coordination with St. Louis County for erosion control – stormwater impervious changes probably do not belong in that section as it would interfere with City's coordination with County review and enforcement of erosion control.

10.1.3. Section 405.510, Site Grading, Erosion Control, And Stormwater Consideration in Site Design

10.1.3.1. one acre threshold reduction to 100 SF okay;

10.1.3.2. We should not preclude MSD site design guidance from use;

10.1.3.3. Significant misunderstanding arose among discussion participants about the applicability and impact of types of ground cover and rain garden-like depressions. Participants decided to continue discussion is a smaller group – Motion to return recent suggested Code changes to the Subcommittee on Code Change (Armstrong, Thompson) passed by voice vote. Mtg set at 3:30 Nov 14.

10.1.3.4. Ms.Celaj suggested consideration of Crestwood's Code for similar goal.

10.1.3.5. Ms.Celaj pointed out that the Code changes need to incorporate permitting requirements for all pavement-like flat work and decks.

11. Council Liaison Comments (Dennis Fuller).

11.1. Tunnel Cleaning has started.

11.2. There had been a demonstration in U City Contrary to rumors and social media reports, no injuries, and no business were damaged.

12. Adjournment. Motion to adjourn passed at 5:00 PM (Aronberg, Thompson).

Minutes Preparation. The minutes were prepared by Garry Aronberg.

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**MINUTES OF THE STORMWATER COMMISSION – AD-HOC SUB-COMMITTEE
TO REVIEW UNIVERSITY CITY MUNICIPAL CODE REVISIONS PROPOSED BY THE UNIVERSITY
HEIGHTS FLOOD TASK FORCE
November 14, 2023**

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 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), Carolyn Pufalt (University City resident on Delmar Blvd and Sierra Club member), Stephanie Todd (7359 Amherst), Jerold Tiers (7345 Chamberlain)

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

- 3. Business**

- U Heights provided the latest iteration of proposed code revisions in advance of the meeting.
- Commission thanked U Heights for addressing some previous comments.
- U Heights was asked to clarify their goals. Goals discussed included:
 - Improve U City code which does not currently regulate new impervious area less than 1 acre. Improvement should be as close as you can get to zero increase in stormwater runoff.
 - Include a table of acceptable stormwater offsets to new impervious area that can be understood and installed by a homeowner or craftsman. The table currently includes 8 offset methods and was developed by Susan Armstrong.
 - Recognition that in some cases a property may already be so developed that it does not have enough space for both proposed new impervious cover and the associated stormwater offsets. This creates the potential to prevent some proposed impervious cover projects.
- Section 415.510 – Site Grading, Erosion Control, and Stormwater Consideration in Site Design
 - Discussion - A wide-ranging discussion was held. The following are some key points.
 - Volume-based offsets are suggested for some of the 8 offset methods. For example, rain gardens and detention basins with different depths require different areas to provide the same level of runoff control. Differential runoff should be considered, which is an assessment of the change in runoff due to development between existing conditions and proposed conditions.
 - 405.510 (4)(d) – This statement could create a conflict as to whether the MSD guidance is required or the proposed offsets table. May need to revise 405.510(A)(4)(b) to state that there are two sets of rules: MSD Rules and Regulations apply to development exceeding 1 acre, and the proposed 8 methods apply to new impervious area less than 1 acre.



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- Reviewed example site for home on Chamberlain to discuss how the offset table would work.
- A flat-work permit is recommended. A flatwork permit would allow the City to request submitting plans for review and the opportunity to enforce City code already in place that could prevent nuisance stormwater from new flatwork onto neighboring properties. A minimum area threshold at which a flatwork permit applies could be established to minimize City time spent on trivial development.
- Celaj clarified that a flatwork permit covers new pavement, but not new building additions, for example. A separate permit could address the broader definition of new impervious cover.
- Celaj summarized previous experience with the City of Crestwood.
 - Key was Crestwood code Chapter 26-44(N)(4) Development Code.
 - Refers to MO Botanical Gardens
 - Does not check for differential runoff
- Costs of the proposed code changes are a very important consideration to final analysis. The proposed code revisions are likely to increase costs to the City to review the additional permits, and to increase costs to property owners to design, install, and maintain the stormwater offset practices. Cost analyses are considered beyond the scope of the Commission.
- 500.300 Land Disturbance Code of St. Louis County
 - Code revisions to this section were not part of the latest iteration of the proposed revisions. The Commission agrees that this section of code should not be modified as it could create conflict with the St Louis County land disturbance permitting process.
- 410.170 Floodway
 - The Commission maintains that this code should not be modified as it could create conflict with the City's participation in the National flood Insurance Program.
- 400.1180 Planting Specifications and 4100.1230 Installation and Maintenance of Landscaping
 - The Commission agrees that may be the right codes to modify for clarifications to native and invasive vegetation. However, these issues are beyond the purview of the Stormwater Commission and would be better addressed through the Green Practices Commission.
- **Action Item**
 - A small group (2 or 3 Commissioners) to meet to discuss possible changes to the offsets table to incorporate a volume-basis, while attempting to keep the matrix simple. The date and location of this meeting will be determined offline and will not include a quorum of Commissioners. The group will report back at a future regular meeting of the full Commission.

4. Adjournment. Motion to adjourn passed at 5:31 PM (Messrs. Karch, Aronberg).

Minutes Preparation. The minutes were prepared by Eric Karch.

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**MINUTES OF THE STORMWATER COMMISSION – AD-HOC SUB-COMMITTEE
TO REVIEW UNIVERSITY CITY MUNICIPAL CODE REVISIONS PROPOSED BY THE UNIVERSITY
HEIGHTS FLOOD TASK FORCE
November 30, 2023**

Call to Order. The subcommittee listed above was called to order at 5:40 PM by Eric Karch.

1. **Attendance-Roll Call.** The following Commission members were present at Blueberry Hill: Susan Armstrong, Garry Aronberg, Eric Karch. 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.

2. **Business**

- Checked back in on the U Heights goals. Goals discussed included:
 - Improve U City code which does not currently regulate new impervious area less than 1 acre. Improvement should be as close as you can get to zero increase in stormwater runoff. Try to catch all raindrops from new impervious area, but not at the expense of perfection. Improvement is more important.
 - Include a table of acceptable stormwater offsets to new impervious area that can be understood and installed by a homeowner or craftsman (no engineer required). The table currently includes 8 offset methods and was developed by Susan Armstrong.
 - Recognition that in some cases a property may already be so developed that it does not have enough space for both proposed new impervious cover and the associated stormwater offsets. This creates the potential to prevent some proposed impervious cover projects.
- Section 415.510 – Site Grading, Erosion Control, and Stormwater Consideration in Site Design
 - Matrix was discussed.
 - Threshold at which the proposed ordinance would apply.
 - Agree that this is for projects < 1 acre, since projects > 1 acre fall under MSD.
 - Currently discussing 100 SF as lower threshold.
 - City (M. Celaj) indicated that 200 SF might be better since it would address reasonably-sized projects while minimizing burden on City staff.
 - Consensus was that we will continue to work on the matrix assuming an interval of 100 SF, since it can be easily scaled to a threshold of 200 SF (or higher) at a later date, if needed.
 - Discussed that developer could be given the option to use MSD guidelines for projects < 1 acre.
 - Item #1 – plant native plants, such as grass and herbaceous vegetation
 - Discussed that an offset of 5:1 would not meet the goal of fully mitigating the impervious area. Aronberg will work on an improved offset that accounts for the change in runoff coefficient between native plants and impervious area.
 - Item #2 – Direct new impervious surface runoff to permeable areas on the property
 - Discussed scratching this item and replacing it with Amended Soil. For example, a new 15-foot wide sidewalk requires a new 15-foot wide area of soil



that is amended with compost. Discussed that this concept is typically applied by adding new amended soil parallel to the new impervious area and that the improvements are typically designed to shed water perpendicularly to the new sidewalk. For example, a new 50-foot long sidewalk would need to discharge rainwater runoff evenly along its entire length and not concentrate flow onto a smaller section of amended soil. Otherwise, a small area of amended soil would become overwhelmed and could fail. In addition, it may not be reasonable to successfully design a 100-foot wide amended soil area for a 100-foot wide area of new impervious area. Karch will work to provide a definition of Amended Soil and suggested limits.

- Item 3 – Install tree cover
 - Discussed that the Arbor Day calculations are for a full year of rainfall. However, the U Heights goals require looking at an individual storm event. Aronberg will work on an improved offset that accounts for the change in runoff coefficient between trees and impervious area.
- Item 4 – Install permeable pavement
 - Armstrong clarified that the offset, as presented, is that if the developer is adding 100 SF of new permeable pavement, there remains a deficit of 50 SF of offset remaining. Armstrong will work to update the offset to clarify this.
- Item 5 – Build green roofs
 - Armstrong clarified that the offset, as presented, is that 100 SF of new impervious area requires 20 SF of new green roof.
 - Discussed that the evaporation information is good information, and is true. However, similar to the tree cover discussion, evaporation does not meet the U Heights goal to address runoff from an individual storm event. Therefore, it is best to eliminate language about evaporation from the matrix.
- Item 6 – Rain Barrel
 - Discussed that the rain barrels must be emptied between rain events for the U Heights goals to be met. Armstrong will work to update the offset to clarify this.
- Items 7 & 8
 - Discussed that volume-based offsets are really the pertinent measure. Also, because the ground on which a basin will be installed is often sloped, slope must be accounted for in determining the effective area of the basin. However, to keep the offset simple and area-based, the best path forward is to provide two different offset areas in the matrix. For example:
 - If new basin will be 6-inches deep, basin area must be at least # SF
 - If new basin will be 18-inches deep, basin area must be at least # SF
 - The only area eligible for measurement is at or below the basin's control elevation.
 - Discussed that the basin must be able to dry up between rain events, and that the proposed design must include a means to self-drain. For example, a perforated underdrain would be acceptable.
- Swap – discussed that the concept of a swap should be included in the ordinance. For example, the project involves widening a driveway. Rainwater runoff from the widened driveway would drain right out to the street, and there is no reasonable way to redirect



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the runoff to a new rain garden because the yard along the widened driveway is also too steep for a rain garden. However, there is room for a new rain garden on the other side of the house and the developer could redirect the gutters from the roof into the rain garden. The roof area draining to the new rain garden is larger than the proposed driveway widening project. Since the rooftop does not currently drain into a rain garden, this area could serve as a swap to still meet the goals.

- Pre-existing matrix items
 - Discussed the idea that a progressive homeowner took it upon themselves to install a pervious driveway. After the ordinance is implemented, that homeowner decided to install a new sidewalk. It would be reasonable for that homeowner to get credit for the pervious driveway that they already installed to help offset the new sidewalk.
 - Discussed that the ordinance could include language that the City will consider allowing credit for pre-existing matrix items on a case-by-case basis.

3. Adjournment. Adjourned at 7:00 PM.

Minutes Preparation. The minutes were prepared by Eric Karch.

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