



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, March 5, 2024
3:30 PM**

- 1. MEETING CALLED TO ORDER**
- 2. ATTENDANCE-ROLL CALL**
- 3. APPROVAL OF AGENDA**
- 4. APPROVAL OF MINUTES**
 - ❖ February 6, 2024
- 5. CITIZEN COMMENTS**
- 6. ANNOUNCEMENTS BY COMMISSIONERS**
- 7. SUBCOMMITTEE REPORTS**
 - ❖ February 20, 2024
 - ❖ February 29, 2024
 - ❖ Monitoring Committee: Lidar Survey presentation
- 8. NEW BUSINESS**
- 9. OLD BUSINESS**
- 10. COUNCIL LIAISON COMMENTS**
- 11. ADJOURNMENT**



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

MINUTES OF THE STORMWATER COMMISSION

February 6, 2024

1. **Call to Order.** The forty-first 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 Darin Girdler, Director of Public Works; Mirela Celaj, Assistant Director of Public Works.
3. **Visitor:** Many visitors were present.
4. **Agenda.** Publish agenda was approved but with New Business to precede Committee reports (Aronberg, Armstrong): Attendance-Roll Call; Approval of Agenda; Approval of Minutes; Citizen Comments; Announcements by Commissioners; New Business; Committee Reports; Old Business; Council Liaison Comments; Adjournment.
5. **Minutes.** The minutes of the January 9, 2024, meeting were approved by voice vote (Armstrong, Aronberg).
6. **Citizen Comments:**
Craig Todd of 7050 Amhurst discussed on-going flooding of the six or seven basement garages on the 7000 block of Amhurst. He has spoken with MSD several times and seems to get no help. Part of the problem may be the excessive amount of gutter flow bypassing from Midland. Mr. Todd encouraged University City to help.
7. **Announcement By Commissioners.**
Mr. Holly continues to work with students from Washington University on monitoring the water surface elevation at the mouth of the River Des Peres (RdP) tubes. Various gages and monitoring systems are being evaluated that could read water level from above (echo sensors) possibly in lieu of the HOBO gages (pressure transducers). Also to be evaluated are solar power for the system. Anticipating updates will be 3rd calendar quarter.
8. **New Business.**
MSD Bond Issue. Bert Berthel, MSD Director of Operations, and Bess McCoy, MSD Public Relations, spoke to the Commission about two bond issues propositions on the ballot in April. One proposition address wastewater funding while the other addresses stormwater funding. Both positions would authorize bonding in lieu or rate increases. Bonding spreads the \$1,600,000,000 cost of Operation Clear over many years and allows for lower sewer billing rates: if bonding is authorized, rates will increase 7% to 6.6%. If not, rates will increase 35.4%. The other proposition would allow bonding to help pay \$700,000,000 for stormwater improvements.

A vote authorizing stormwater bonds would provide approximately \$34 Million per year for MSD projects, City projects, grants, and environmental justice projects. City would get a share of collected money to spend meet the City's priorities. A no vote would prevent funding.



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

Public's Questions and Comments. Some of the public in attendance complained of MSD's slow action to inspect and clean RdP tubes before storms and flooding.

Some complained about unnecessary destruction of mature landscaping along the planned channel repair project behind 6900 blocks of Vernon and Dartmouth. Mr. Berthel added that that project has now been delayed.

9. Old Business.

Impervious Area Code Changes for Stormwater Reduction. The Ad hoc committee on Code Changes to offset the impact of impervious area additions reported on continuing work. Most of the work recently has been to clearly define offsets for the impervious area, establish interface with MSD and resolve overlapping and conflicting requirements between U City and MSD, U City permitting procedure for impervious reduction offsets, clarify work that will be covered by impervious changes – definition of impervious surface that will be regulated, resolve area and volume requirements for offsets, determine how to handle offsets that may have been added previously – can credit be given for previous offset installation.

RdP Tubes. Mr. Girdler reported that 240 CY of debris has been removed from the RdP Tubes already and MSD's contractor is continuing to clean the tubes. Cleaning of the tubes is expected to be completed in May or June.

Channel Cleaning. MSD has begun cleaning the RdP channel near Pennsylvania and Vernon Avenues.

Buyouts. Mr. Girdler reported that buyouts along Wilson and Hafner Court are continuing.

Deep Tunnel. Mr. Girdler reported that another deep tunnel project is planned for the Pennsylvania and Vernon area. As part of the planning for the deep tunnel, MSD has delayed the planned repair of the RdP banks behind 6900 blocks of Vernon and Dartmouth.

Meters. Dr. Criss and Mr. Karch retrieved RdP water level data from our HOB0 gauges recently. They are difficult to reach. Remote sensors such as gages the Washinton University students are evaluating as reported by Mr. Holly may have application to replace the HOB0 gages.

10. Council Liaison Comments (Dennis Fuller).

Council Fuller had other business and was not present.

11. Adjournment. Motion to adjourn passed at 5:12 PM (Karch, Armstrong).

The minutes were prepared by Garry Aronberg.

c:\users\garon\dropbox\ucity stormwater taskforce\commissionminutesdrafts\20240206_strmwtrcommmin_draft.docx



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
February 20, 2024**

Call to Order. The subcommittee listed above was called to order at 5:13 PM by Eric Karch.

1. **Attendance-Roll Call.** The following Commission members were present at 7360 Princeton: Susan Armstrong, Garry Aronberg, and Eric Karch. City representative Mirela Celaj was unable to attend. 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 Green Infrastructure Stormwater Volume Reduction Techniques (**GISVRTs**) 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 11/14/2022, 11/30/2023, 1/18/2024, and 1/24/2024.

2. **Old Business**

- 2.1 **Flatwork permit**

- 2.1.1 Mirela provided a DRAFT 1-page permit application. This is not code language but simply a sheet to collect basic information about the proposed project (address, name, total proposal impervious area). The group still need to develop ordinance language that will call for a flatwork permit.
 - 2.1.2 Suggestion to the City is to add on the back of the permit the definitions/examples of Impervious Surfaces (paved driveway, pool, etc); and Green Infrastructure for Stormwater Management (tree, rain garden, french drain, etc).

- 2.2 **Definition of Impervious Area**

- 2.2.1 Suggest that the ordinance just use the term impervious. U City permits and guidelines is the best place to define impervious area.
 - 2.2.2 One possible definition is in the Kirkwood Guidelines for Stormwater Management. Page 1 (Background and Purpose), 1st paragraph, second sentence "Impervious cover or areas are man-made areas that cannot absorb water from rain or snow. Driveways, rooftops, patios, sport courts, tennis courts, and pools, for example, are considered impervious; surfaces such as decks, lawn, or gardens, where the rainwater is allowed to soak into the ground, are not considered impervious. Impervious area increases the amount of rainwater runoff and can cause flooding."
 - 2.2.3 Question to U Heights Flood Task Force. Should a wood deck be considered impervious? Kirkwood does not. It stands to reason that a wood deck with planks butted tightly together (<1/8 inch gap) could act similarly to concrete pavement and would be considered impervious

- 2.3 **Avoiding potential conflict between MSD permit requirements and U City matrix**

- 2.3.1 Ordinance should state that the matrix applies when a MSD permit is not required.
 - 2.3.2 This helps address the fact that:
 - 2.3.2.1 MSD occasionally does regulate new land disturbance and impervious area < 1 acre in size
 - 2.3.2.2 Techniques being considered in the matrix are not all acceptable to MSD (e.g. dry wells)



2.4 Kirkwood Guidelines for Stormwater Management.

- 2.4.1 Address water quantity (e.g. flooding) as well as water quality (e.g. pollutants). The purview of the stormwater commission is stormwater quantity NOT quality.

2.5 How to make sure a GISVRT item remains in place in subsequent years?

- 2.5.1 Options:

2.5.1.1 Tie to occupancy permit

2.5.1.2 Easement area recorded on the legal plat document

2.5.1.3 Annual self-inspection, where property owner submits signed document that the matrix item is still in place and provides a photo as proof.

- 2.5.2 Our recommendation is that City staff develop procedure for this, with preference for annual self-inspection since this has a lower cost burden on City staff. This procedure could also allow for the potential to adjust/change GISVRTs.

2.6 Matrix Item #3 – install tree cover

(BELOW IS ACCUMULATED FROM PREVIOUS MEETINGS)

- 2.6.1 We should account for two different tree sizes: overstory (biggest trees) and understory (smaller trees). 1 mature overstory tree (e.g. oak) can be used to offset 500 SF of new impervious area. 1 mature understory tree (e.g. dogwood or eastern redbud) can be used to offset 100 SF of new impervious area. Require using only trees native to Missouri. Yield to City Forester to provide further guidance to City staff for administering the matrix.
- 2.6.2 Discussed how to implement item #3:
- 2.6.2.1 Forest Activity Permit - Residents can apply for a permit to plant a tree within the road right of way. City Forester (Jacob Kaiser) would need to approve the permit and the species to be planted. More information can be found in the tree ordinance (Article II Trees and Shrubs, 505.160 C) <https://ecode360.com/28296103#28296103>.
- 2.6.2.2 Mirela suggested involving the U City Arborist to approve of the developer's tree planting plan. This would help address the following possible complications. Planting trees too close together would compromise the tree's health. Planting trees too close to a house or utility (e.g. power line or sanitary lateral) should be avoided.
- 2.6.2.3 Consensus that requiring approval from the City's arborist should be required.
- 2.6.3 What if the existing tree is old and soon dies and is removed? Item 2.5 would address this concern.
- 2.6.4 Credit for existing trees?
- 2.6.4.1 Kirkwood Guidelines for Stormwater Management (pg. 4) indicate that there may be credit for existing trees.

2.7 Matrix Item 8 – Install Infiltration basins such as rain gardens and bioswales and dry wells

(BELOW IS ACCUMULATED FROM PREVIOUS MEETINGS)

- 2.7.1 50 SF impervious requires 7.48 gallons of volume control; that's a cube 1ft x 1ft x 1 ft.
- 2.7.2 Discussed that the MO Botanical Garden rule of thumb (5:1) respects that calculation with some accommodation of sloped ground and berm. We support requiring 5 impervious area : 1 rain garden ponding area for a 6 inch deep rain garden. Applicant



must demonstrate adequate ponding area for depths that vary from 6 inches.

- 2.7.3 Dry Well – discussed defaulting to Kirkwood guidelines for the design of the dry well. Garry offered to look at how these guidelines relate to the volume calculations we've been discussing for item 8. The sizing utilized by U City should essentially use the same total volume as discussed in the rain garden, but would be divided by 30% to account for the void space within the gravel. This void ratio depends on the gravel size and gradation, and could be adjusted. Garry offered to provide a suggestion.

**2.8 Matrix Item 9 - Detention basin
(BELOW IS ACCUMULATED FROM PREVIOUS MEETINGS)**

- 2.8.1 Discussed that at scale of a residential lot, the area and volume sizing of the detention basin is the same as the rain garden sizing.

2.9 Method of determining rainfall runoff volume used to determine the offsets for all matrix items:

- 2.9.1 The goal clarified by the U Heights Flood Task Force at the 11/14/2023 meeting was:
2.9.1.1 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.
- 2.9.2 Differential rainfall runoff – The offsets discussed to date (on 11/30/2023, 1/18/2024, and 1/25/2024) have been based on using a differential rainfall runoff increase. The understanding is that turfgrass itself creates a certain amount of rainfall runoff. A development to change turfgrass to impervious would generate more rainfall runoff. The matrix items would then be sized to handle these differential runoff increases. In doing so, the U Heights goal for no increase would be met.
- 2.9.3 Mirela presented an alternative. She presented an example calculation for a dry well, which was based on total runoff volume. This approach would create an enhanced treatment of not only the new impervious area from the development, but also additional pre-existing runoff. Mirela pointed out that asking developers to understand the differential runoff might be asking too much. There was agreement on that point, but this was countered by the fact that although the matrix would be based on the differential runoff, the matrix could be presented in a way that the developer would not need to perform the calculations themselves. This would be in keeping with the goal clarified by the U Heights Flood Task Force on 11/14/2023 to:
2.9.3.1 Include a table of acceptable stormwater offsets to new impervious area that can be understood and installed by a homeowner or craftsman.
- 2.9.4 The group did not reach agreement on whether the alternative rainfall runoff method should be used. If it is, the group would need to revise the offsets determined on 1/18/2024.

2.10 Status of Matrix Review

- 2.10.1 The group was unable to conclude remaining questions on matrix items 3, 8, and 9.
2.10.2 Presentation – Discussed that once the ad-hoc committee finalizes suggested revisions to the University Heights proposed ordinance, they should make a summary



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

presentation to the Stormwater Commission and request a motion to accept. Susan offered to make the presentation.

2.11 Subjects raised, but not yet fully addressed

- 2.11.1 Flatwork permit – Need ordinance language.
- 2.11.2 Definition of rainfall runoff volume – Determine whether to use differential rainfall runoff or full rainfall runoff.
- 2.11.3 Matrix Item 3 - Should credit be given to a pre-existing tree?
- 2.11.4 Matrix Item 8 and 9 sizing
 - 2.11.4.1 Should the basin be sized for the actual drainage area that it receives? In other words, consider an example where the basin receives not only 100 SF of new impervious area, but also 50 SF of grass. The basin should be sized to accommodate all of this drainage or the basin will become overwhelmed, which could lead to increased maintenance or even premature failure of the basin.
 - 2.11.4.2 Should there be a requirement that the developer demonstrate the watershed area draining to the selected location for the basin, and that the required area and depth can be achieved at this location?

3 **Next meeting** – Business was not completed. The group agreed to further this discussion via email.

4 **Adjournment.** Adjourned at 6:40 PM.

Minutes Preparation. The minutes were prepared by Eric Karch.

U:\UniversityCity\Minutes\20240220_StrmWtrCommMin_AdHOC_DRAFT.docx



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
 February 29, 2024**


Call to Order. The subcommittee listed above was called to order at 5:05 PM by Eric Karch.

1. **Attendance-Roll Call.** The following Commission members were present either at 7360 Princeton or virtually via zoom: 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 Green Infrastructure for Stormwater (GISW) techniques** 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 11/14/2022, 11/30/2023, 1/18/2024, 1/24/2024, and 2/20/2024.

2. **Old Business**

2.1 **Flatwork permit**

- 2.1.1 Mirela provided:
 - 2.1.1.1 DRAFT 1-page permit application
 - 2.1.1.2 DRAFT memo to commission explaining the need for flatwork permit
 - 2.1.1.3
- 2.1.2 Suggestion to the City is to add on the back of the permit the definitions/examples of Impervious Surfaces (paved driveway, pool, etc); and Green Infrastructure for Stormwater Management (tree, rain garden, french drain, etc).
- 2.1.3 Required for outside of City right of way. This is different than a GISW permit since rooftops would be impervious but not flatwork, for example. However, a GISW permit should apply to flatwork permit as well.
- 2.1.4 Good location in ordinance is under <https://ecode360.com/28293615#28293615>

- 2.1.5 City website section on all city permits (as reference)
https://app.mygov.us/pi/citizen/download_forms.php?limit=0&&citiesID=362

2.2 **Definition of Impervious Area**

- 2.2.1 Suggest that the ordinance just use the term impervious. U City permits and guidelines is the best place to define impervious area.
- 2.2.2 One possible definition is in the Kirkwood Guidelines for Stormwater Management. Page 1 (Background and Purpose), 1st paragraph, second sentence “Impervious cover or areas are man-made areas that cannot absorb water from rain or snow. Driveways, rooftops, patios, sport courts, tennis courts, and pools, for example, are considered impervious; surfaces such as decks, lawn, or gardens, where the rainwater is allowed to soak into the ground, are not considered impervious. Impervious area increases the amount of rainwater runoff and can cause flooding.”



- 2.2.3 Question to U Heights Flood Task Force. Should a wood deck be considered impervious? Kirkwood does not. It stands to reason that a wood deck with planks butted tightly together (<1/8 inch gap) could act similarly to concrete pavement and would be considered impervious

2.3 Avoiding potential conflict between MSD permit requirements and U City matrix

- 2.3.1 Ordinance should state that the matrix applies when a MSD permit is not required.
- 2.3.2 This helps address the fact that:
 - 2.3.2.1 MSD occasionally does regulate new land disturbance and impervious area < 1 acre in size
 - 2.3.2.2 Techniques being considered in the matrix are not all acceptable to MSD (e.g. dry wells)

2.4 How to make sure a GISW item remains in place in subsequent years? Options include:

- 2.4.1 Tie to occupancy permit
- 2.4.2 Easement area recorded on the legal plat document
- 2.4.3 Annual self-inspection, where property owner submits signed document that the matrix item is still in place and provides a photo as proof.
- 2.4.4 We recommend that City staff develop procedure for this, with preference for annual self-inspection since this has a lower cost burden on City staff. This procedure could also allow for the potential to adjust/change GISWs.

2.5 Storm/Volume on which matrix items will be based

- 2.5.1 Base this on 1.14 inches (1-yr 40 min storm or 2-year 30 min storm). This is consistent with MSD and Missouri Botanical Garden.
- 2.5.2 The goal clarified by the U Heights Flood Task Force at the 11/14/2023 meeting was:
 - 2.5.2.1 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.
- 2.5.3 Differential rainfall runoff – The offsets discussed to date (on 11/30/2023, 1/18/2024, and 1/25/2024) have been based on using a differential rainfall runoff increase. The understanding is that turfgrass itself creates a certain amount of rainfall runoff. A development to change turfgrass to impervious would generate more rainfall runoff. The matrix items would then be sized to handle these differential runoff increases. In doing so, the U Heights goal for no increase would be met.

2.6 Matrix Item #1 – Plant native plants, such as grass and herbaceous vegetation

- 2.6.1 Decided to base this on 1.14 inches (1-yr 40 min storm or 2-year 30 min storm).

2.1 Matrix Item #2 – Amended soil ~~Direct new impervious surface runoff to permeable areas on the property~~

- 2.1.1 Decided to base this on Kirkwood’s design guidance, which correlates well to Garry’s calculations. This is a 1:1 ratio assuming a 12-inch deep amended soil.

2.2 Matrix Item #3 – install tree cover

(BELOW IS ACCUMULATED FROM PREVIOUS MEETINGS)

- 2.2.1 Decided to account for two different tree sizes: overstory (biggest trees) and understory (smaller trees). 1 mature overstory tree (e.g. oak) can be used to offset 500 SF of new impervious area. 1 mature understory tree (e.g. dogwood or eastern redbud) can be used to



offset 100 SF of new impervious area. Require using only trees native to Missouri. Yield to City Forester to provide further guidance to City staff for administering the matrix.

2.2.2 Decided how to implement item #3:

2.2.2.1 Require U City Arborist approval of the developer's tree planting plan. This would help address the following possible complications. Planting trees too close together would compromise the tree's health. Planting trees too close to a house or utility (e.g. power line or sanitary lateral) should be avoided.

2.3 Matrix Item 4 – Install permeable pavement

2.3.1 Decided to defer to Kirkwood manual on permeable pavers (page 31)

2.3.2 100 SF of new impervious requires 40 SF of 6-inch deep permeable pavement, for example.

2.4 Matrix Item 5 – Aerate lawns

2.4.1 Deleted this due to maintenance difficulties.

2.5 Matrix Item 6 – Green roof

2.5.1 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

2.5.2 Should there be a different offset for a flat roof ?

2.5.3 Discussed re-visit the offset to go from a runoff coefficient of 0.95 (impervious area) to a runoff coefficient of 0.1 (natives)

2.5.4 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.

2.6 Matrix Item 7 – Rain barrel / rain cisterns

2.6.1 100 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.

2.6.2 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

2.6.3 State that these features must be emptied between rain events to be functional

2.7 Matrix Item 8 – Install Infiltration basins such as rain gardens and bioswales

2.7.1 Decided to defer to the MO Botanical Garden rule of thumb (5:1), which respects Garry's calculations based on differential runoff, with some accommodation of sloped ground and berm. This ratio of 5 impervious area : 1 rain garden ponding area is based on a 6 inch deep rain garden. Require applicant to demonstrate adequate ponding area for depths that vary from 6 inches.

<https://www.missouribotanicalgarden.org/sustainability/sustainability/sustainability/sustainable-solutions-for-you/rainscaping-guide/design-and-build-a-rain-garden/determine-rain-garden-size-and-depth>

2.8 Matrix Item 9 – Dry Well ~~Detention basin~~

2.8.1 Discussed that for the size of development that is being targeted by the ordinance/matrix, a detention basin is effectively the same as a rain garden.

2.8.2 Decided to replace item 9 with dry wells



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

- 2.8.2.1 They are listed in Kirkwood's design guidance (page 15)
- 2.8.2.2 They are included in the USGBC LEED manual
<https://www.usgbc.org/credits/homes/v2008/ssc4>
- 2.8.2.3 City (Mirela) says that a dry well was one of the most popular BMPs used in Crestwood to mitigate new impervious area
- 2.8.3 Design basis – decided to use the same volume as rain garden, but divide by 0.4 (accounts for void spaces between gravel).
- 2.8.4 Require that the surface is grass - consistent with Kirkwood, and U Heights will likely prefer it

2.9 Ordinance location for GISW matrix is Chapter 405 Subdivision and Land Development Regulations

- 2.9.1 City (Mirela) suggests the best location is to add it to Code Chapter 405.510.
 - 2.9.1.1 City (Mirela) provided "Section 405.510 Revised Ucity code 2-29-2024.docx"
 - 2.9.1.2 Suggested item c (in red) is a good location to call for the new ordinance. The group discussed that the wording suggested by Mirela is different than what we've been discussed. Agreed that it needs to be reworded and needs work to call for threshold limit of impervious and new matrix.
- 2.9.2 Discussion about trigger threshold for new impervious. Previous discussions have been based on 100 SF. City (Mirela) suggested that this might be too low and maybe 200 SF would be more appropriate. Group decided to list 100 SF for initial draft.

2.10 Status of Matrix Review

- 2.10.1 See item 2.11 for remaining work.
- 2.10.2 Presentation
 - 2.10.2.1 Discussed that once the ad-hoc committee finalizes suggested revisions to the University Heights proposed ordinance, they should make a summary presentation to the Stormwater Commission and request a motion to accept.
 - 2.10.2.2 Susan offered to make the presentation and provided an early draft.

2.11 Subjects raised, but not yet fully addressed

- 2.11.1 Need to develop ordinance language for Flatwork permit and GISW permit
- 2.11.2 Need to incorporate decisions into a revised matrix
- 2.11.3 Matrix Item 3 - Should credit be given to a pre-existing tree?
- 2.11.4 Matrix Item 6 – finalize sizing determination
- 2.11.5 Matrix Item 8
 - 2.11.5.1 Should the basin be sized for the actual drainage area that it receives? In other words, consider an example where the basin receives not only 100 SF of new impervious area, but also 50 SF of grass. The basin should be sized to accommodate all of this drainage or the basin will become overwhelmed, which could lead to increased maintenance or even premature failure of the basin.
 - 2.11.5.2 Should there be a requirement that the developer demonstrate the watershed area draining to the selected location for the basin, and that the required area and depth can be achieved at this location?

2.12 References

The following are a list of references reviewed.

- 2.12.1 Cityof Kirkwood, MO – Stormwater Management Guidance; Green Infrastructure Techniques for Stormwater Management (January 2022)
<https://www.kirkwoodmo.org/home/showpublisheddocument/7847/637854587558070000>



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

- 2.12.2 Local communities listed in the HR Green report to City (Feb 8, 2023): Town & Country/Olivette/etc
- 2.12.3 Dubuque, IA - Bee Branch Watershed Flood Mitigation Project
- 2.12.4 Tulsa, OK – From Harm’s Way; Flood Mitigation in Tulsa, OK (1993)
- 2.12.5 Springfield MO on Fassnight Creek Stormwater Improvement Project
 - 2.12.5.1

3 **Next meeting** – Business was not completed.

4 **Adjournment.** Adjourned at 7:15 PM.

Minutes Preparation. The minutes were prepared by Eric Karch.

U:\UniversityCity\Minutes\20240229_StrmWtrCommMin_AdHOC_DRAFT.docx

DRAFT