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

Approved MINUTES OF THE STORMWATER COMMISSION
March 2, 2021

1. **Call to Order.** The seventh meeting of the Stormwater Commission (Commission) was called to order at 6:33 PM by Chair Todd Thompson.

2. **Attendance-Roll Call.** The following Commission members were present via virtual meeting (Zoom): Garry Aronberg, Bob Criss, Mark Holly, Eric Karch, Andrea Lubershane, Eric Stein, Todd Thompson. Also in attendance were Tim Cusick, Councilman, Sinan Alpaslan, Director of Public Works.

3. **Agenda.** The following agenda was accepted without objection: *Roll Call; Approval of Agenda; Approval of Minutes; Citizen Participation; New Business; Old Business; Subcommittee Reports; Miscellaneous Business; Council Liaison Comments; Adjournment.*

4. **Minutes.** The February 2021 minutes were approved with a correction: Gmail is in Mr. Karch's name not Mr. Stein's name. Approval was moved and seconded by Messrs. Holly and Karch, respectively.

5. **Citizen Comments.** There were no citizen comments.

6. **New Business.**
   - US Army Corps of Engineers (USACE) updated the Commission on the progress of the Upper River Des Peres Flood Risk Management Study.
     - Joel Asunskis, Mathew Jones, Janet Buchanan of all of USACE summarize discussed the Study.
     - Modeling
       - The June 2017 PCSWMM model was obtained from FEMA's contractor Wood. Hydrology was calibrated with peak flows and shape of hydrographs at USGS gauge in Heman Park at Purdue Avenue. USACE obtained the HEC-RAS model prepared for FEMA by Wood.
       - The Corps converted Wood's model from steady to unsteady state to enable evaluation of storage and two-dimensional (2D) flood response. The unsteady state model presents stability problems at bridges and culverts especially at the downstream end of the model at the transition from open channel to underground closed box and pipe – the tube – near Pennsylvania and Vernon Avenues.
       - HEC-RAS and PCSWMM models were calibrated iteratively against the USGS gage in Heman Park using both peak flows and shape of hydrographs. Low flow calibration less well matched. Corps examined model responses at Groby, Wilson, and Mona. The models examined the September 2008 and August 2020 – two very different storms with different responses. Mr. Asunskis thought the modeled responses matched well the observed flooding.
       - Mr. Asunskis will send models to Mr. Alpaslan. Mr. Alpaslan can distribute the model.
       - Alternatives to be examined:
         - Detention.
         - Levees.
         - Channel & bridge conveyance modifications.
         - Raising the elevation of structures.
         - Acquisitions (buyouts)
       - Not to be considered: Preliminary analysis indicated that some alternatives should not be considered: Diversion from the River des Peres, Modification of the underground conveyance system (tube). Relocation of structures – removing structures from the floodplain.
       - Question and answers:

- Mr. Holly requested inundation GIS shape files. The Corps is unable to prepare and provide those. However, Mr. Karch can prepare them after the HEC-RAS files are transferred to the City.
- Dr. Criss sought information on the maximum capacity of tubes – the downstream conveyance system. Mr. Asunskis responded that the capacity may be approximately 8,000 CFS which occurs during a 5- to 10 year storm. But Mr. Asunskis will examine the model data more closely and report back to Dr. Criss.

- Contact: Joel Asunskis, PE, Joel.p.asunskis@usace.army.mil 314-331-8338

7. Old Business

- Early Warning System Progress:
  - Wilson Avenue rain gage is installed. During Saturday's rainfall, the Wilson gage readings matched closely with MSD's rain gauge that is located near Pennsylvania and Vernon Avenues. Mr. Stein will install the Fogarty Park rain gage during the week of March 8. Mr. Alpaslan is pursuing installation of a gage in Olivette's Indian Medow Park mounted on a 14-ft pole – it will be the most western and upwind rain gage
  - The software is flexible and easy to use:
    - Wide variety of reports and graphs,
    - Flexible alarm set points,
    - Web portal capability for viewing data - Eric S will end us a link
  - Messrs. Stein and Criss are in testing and calibrating the gages and then discussion waring protocols with Police and Fire command
    - Alarm trigger point – what rain and radar combination?
    - Who is notified – first responders, public? Likely a staged roll-out over months.
  - Messrs. Stein and Criss will present a progress report to the council during a study session after initial set-up and testing is completed.
  - Messrs. Stein and Criss will set up a field trip to the gaging stations for the Commission.
  - Desoto is the closest community with an early warning system.
- Messrs. Stein and Criss have learned that the 12-acre Lake Sherwood in Overland flows to the Fogarty Park-Hafner Court Branch of the River Des Peres. The lake is owned by the Lake Sherwood Subdivision Homeowners Association. A thirty-year old study prepared by USACE indicates that the dam may be unsafe. The report indicates that the lake normal pool volume is about 80 acre-feet and the height of the dam is about 20 feet. Public Works Director Alpaslan will investigate whether the unsafe conditions have been corrected.
- TrashTrap has been installed downstream of Heman Park low-water bridge near the tennis courts. The project, to collect floatables in the River des Peres, is funded for one year by USEPA.
- RFQ for Stormwater Master Plan Consultant
  - In a wide-ranging discussion, the value of including social policy issues in addition to engineering should be considered in the master planning effort – a multi-discipline approach:
    - Education and public awareness,
    - Cleanup projects such as long-term maintenance of the TrashTrap,
    - Policy development – learn the public's concern and the public's priorities.
    - Differentiation of public and private problems,
    - Continue to coordinate with the Green Practices Commission,
    - Continue to look for shared projects with the coordinator for the Municipal Separate Storm Sewer System (MS4 Coordinator),
    - Use of the QGIS models and exhibits to educate and solicit ideas about stormwater problems.
  - The RFQ has been announced on the City's web site and MODOT's LPA professional services solicitation web site.
  - A three-person panel will review of statements of qualifications to identify a short list and interview the short-listed consultants. The panel will be Mr. Alpaslan, a public works project manager, and a plan reviewer. The panel's recommendation will be presented to the Commission – probably at the April Commission meeting.

- OMCI funded projects:
  - One of the planned stormwater projects, the Old Bonhomme site, is in the Deer Creek Watershed. Only $30,000 per year of OMCI tax is collected. Mr. Alpaslan will re-evaluate that project for a less expensive alternatives and submit in May for MSD OMCI funding.
- Topology: Mr. Holly reported on a stormwater visualization tool:
  - A GIS model and exhibits that show the topography, watersheds, major drainage features;
  - A 3D printer model of the GIS data for display in a public place to encourage public involvement;
  - Based on QGIS, USGS 2017 LiDAR data, FEMA Flood Zone shape files, Microsoft Building Footprints.
- Messrs. Holly and Criss are proceeding with efforts to determine the elevation of key points in the floodplain:
  - Surveyor benchmarks using a phone application: Mobile Topographer requires some validation and calibration,
  - Renting GPS equipment from Seiler Instruments – to aid calibration for early warning system and evaluate flooding potential – cost is $300 through the city credit card.

8. Miscellaneous Business

- None

9. Subcommittee Reports.

- Mr. Stein submitted a written report on the Early Warning Subcommittee, attached.
- Mr. Stein submitted a written report on the Communication Subcommittee, attached.
- Mr. Criss is assembling public input on flood marks sent in response to recent article in *Roars*,
- The Communication Subcommittee will solicit additional historical flooding and high water mark data through the use of an email list that was prepared by Mr. Holly from the Task Force questionnaire responses.

10. Council Liaison. Mr. Cusick, Councilman and liaison, reported that the two projects are proceeding well: I-170 at Olive and I-170 at Delmar.

11. Adjournment: 8:35 by moved and second by Mr. Karch and Mr. Aronberg, respectively, and passed.

Minutes Preparation. Minutes were prepared by Garry Aronberg.

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FWS Subcommittee Report

March 2 meeting

Rain Gauges:

- Rain gauge #1 (Wilson and Drexel) has been configured, tested and installed. It was necessary to design and fabricate adapters for mounting gauges to the streetlight poles. Kudos to Josh at Public works for assisting with the fabrication and installation and to Mr. Alpaslan for making him and the bucket truck available.
- Gauge # 2 has been assembled, configured and tested. It currently resides in Mr. Stein's spare bedroom, where it indicates we have had no rain. It will be installed at Fogerty Park this week.
- Gauge #1 was in place for the weekend rain. The Sat/Sun rain total agreed exactly with the MSD gauge located at Vernon and Pennsylvania 0.8 miles to the SE.
- Gauges are configured to log data at 5 minute intervals and to start transmitting data at onset of any rainfall greater that 0.1" in an interval, and continue to do so until there are 30 minutes of no rainfall.
- The software provides for setting alarms based on exceeding a rainfall threshold and delivering them by either text and/or email to specified recipients. Before the #1 gauge was mounted, a rain event was simulated by exercising the tipping bucket to exceed an alarm threshold that had been set. Alarm notification were received within a minute of the end of the reporting interval in which the threshold was exceeded.
- The software also provides for establishing a portal where information about the project and data from the gauges may be viewed by the public or collaborators on a "read only" basis. Once the #2 gauge is up, we will send the link to the portal to commissioners and city staff.
- For the time being, we will simply monitor the gauges. The next priority is to get permission from Olivette to install the 3rd gauge in Indian Meadows Park. The ball is in Messrs. Alpaslan's and Dunkle's court on this.
- Once the 3rd gauge is close, we will brief police and fire command on the system and initiate discussions on response protocols when an alarm is received, as well as dissemination of alarms to the public.

Issue of Concern:

Lake Sherwood, a spring-fed, 12 acre lake located near Lackland Rd and I170 and just inside our watershed, was formed in the late 1800s by damming the NE tributary of the RDP. A historical marker identifies it as the headwaters of the RDP. As part of our "wandering around the channel" initiative, we have traced the NE tributary northward from where it empties into the main channel at Hafner Apartments. The open channel ends in what appears to be a sewer drop at Page near Warson Rd. An inspection of an MSD map shows a drainage pipe (size not indicated) running from the lake's dam outlet on the other side of I170 to the terminus of the open channel at Page as described above, approximately 3500 ft. downslope. An online search found a 1980 USACE report on an inspection of

the dam. The report concluded that the dam was hazardous, both because of possible overtopping as well as failure. The report stated that a failure could be life-threatening to those downstream and specifically mentioned University City. We can find no follow-up documents. Although this was 41 years ago, should the city make inquiries to insure that the dam is not now unsafe, or at least that a failure would not have serious consequences for the city? It should be noted that this tributary passes through the Hafner Ct. Apartment complex on the east, which is arguably the most problematic flood-prone spot in the city.

Rental of GPS-based elevation instrument:

As stated at the last meeting, we plan to rent this instrument this month and use it to determine elevation of points of interest around the city. We may place discrete elevation markers on some structures in flood-prone neighborhoods to use as reference in determining water elevations for future floods. At last meeting, we discussed with Mr. Alpaslan the mechanism by which the city would pay for such smaller commission purchases. We hope that will be in place soon so there is no delay when we decide on a rental date.

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Communication Subcommittee Report

March 2 Meeting

Status of our goals – Following are the goals we stated in our report last October and the status of each.

Goals

1) Consolidate flood related information on the University City website. Items should include links and/or PDFs of FEMA documents, flood insurance maps, home floodproofing information, historical flood photographs, and other important references.
2) Recommend that the University City Public Library establish a reference shelf with copies of important flood related documents.
3) Install simple signage depicting historical flood water levels along city sidewalks and bridges, including on the Groby Road and Hafner Place bridges, and also at Heman Park and the Wilson Ave. buyout area.
4) Issue a call for flood marks, photos and video information on prior and future floods in *Roars* and on the City web site.
5) Encourage the Public Works Department to compile photographs and flood level information on future floods, and of relevant engineering diagrams of bridges, sewers, and other relevant infrastructure.
6) Consider installing a staff gauge at the corner of Wilson and Drexel, and another on the vertical concrete channel wall near the Hafner Place bridge, possibly with a telemetered video camera.
7) The Storm Water Commission should author a series of brief, focused pieces on different, flood-related topics for *Roars*.
8) University City should implement a system for residents to report stormwater problems.

Status

1) There are too many issues involved in trying to use the city's website, as discussed in previous meetings. We will examine the feasibility of starting a commission website, using a friendly platform such as GoDaddy.
2) The library indicates they are not staffed or equipped to do this at present.
3) We have not started this yet.
4-5) Well underway. Solicitation was in last ROARS and Dr. Criss is receiving submissions at his wustl.edu site. Ones that are useful will eventually be transferred to the commission's G-Drive. Public works has collected some of this information, including bridge information. Still missing from that is information on the Groby and Pennsylvania bridges, which are the two of most concern to the FWS subcommittee. Mr. Alpaslan is working to obtain these.
6) For now, we will make discrete marks on structures instead. We are concerned that the appearance of staff gauges might spark controversy because of possible effect on property values of those having homes on the market, which could become political. The counter-argument is that potential buyers have a right to know the area is flood-prone, and that it would help raise flood awareness. This needs to be discussed…..for now, we will use more stealthy marks.

7) Easily done by spinning these off of our October report. Start with next ROARS. Topics identified so far are, in no particular order, as follows:

- Recognizing the flood plain one lives in, including the fact that most of those in the 100 yr floodplain are also in the 10 yr. This could include a discussion of the various risk assessment tools such as RiskMAP and Floodfactor, as well as what our own data over the last 20 years suggests. The 3-D LIDAR topographical maps would fit in with this also. If this topic is too extensive for one article, it could be split into parts.
- Flood disclosure requirements in real estate transactions.
- Development of the flood warning system.
- Flood mitigation steps homeowners can take

8) Easily done using the same mechanism as used in soliciting photos. Start with next ROARS.