Flooding Study Task Force Recommendations

The City of Milwaukee Flooding Study Task Force (FSTF) was created by immediate adoption of Common Council file #100418 on July 27, 2010. The charge of the task force was to recommend remedies for storm water and sewage backup flooding of city residential and commercial properties, and flooding of streets and alleyways. The FSTF met on 9 occasions between January 6, 2011 and June 10, 2011.

The information provided to the FSTF demonstrates that multiple factors contribute to the problem of basement flooding. There is no single action that can be taken that will correct the problem. The issues of street flooding, basement flooding and sanitary sewer overflows are all different aspects of the effect of urbanization on the hydrology of the region. The problem has been aggravated by deteriorated infrastructure, deficient city building code regulations prior to 1955 and recent extreme rainfall events.

The city has placed a high priority on upgrading city maintained storm and sanitary sewer related infrastructure. Notwithstanding this, the basic challenge the city and region faces is to continuously improve the infrastructure and urban landscape in order to keep clear water out of the sanitary sewers, manage storm water to reduce the rate of peak storm water runoff and provide adequate outlets for storm water during extreme precipitation events. Given that private property sources account for up to 85% of the clear water that is entering and inundating sanitary sewer systems, any attempted solution to basement flooding will need to substantially address those private property sources.

The problems that the Task Force was asked to address are not new and have developed over decades. The solutions will likewise require a long-term effort, significant public investment and the political will of policy makers to make difficult decisions for the collective good of the community.

- For stormwater management purposes, the City should adopt the new rainfall frequency information anticipated to be released in 2012 as National Oceanic and Atmospheric Administration Atlas 14 for the Upper Midwest.

- The City should work with the MMSD, SEWRPC and Wisconsin Initiative on Climate Change Impacts to keep abreast of possible climate change trends and incorporate emerging climate models and rainfall frequency into sewer design criteria to better meet expected weather conditions.

- The City of Milwaukee DPW should complete the Private Property I&I Demonstration Project and evaluate the results by using flow monitoring data to assess effectiveness of techniques used. The demonstration project and other I&I improvements made in the DNR stipulated sewersheds should be comprehensively assessed and used to evaluate improvements based upon their cost-effectiveness and ability to reduce future basement back-ups. Private

property work should be prioritized to target sewersheds previously identified by MMSD as poorly performing. Funding limitations should dictate whether the city explores foundation drain capping and sewer lateral work comprehensively or targets the more cost-effective of these two procedures.

- The City should evaluate areas that have a history of surface flooding to identify measures that will improve appropriate storm water flow paths and identify management measures that will address deficiencies. The Department of Public Works (DPW) should work to increase green infrastructure elements that help control storm water in identified problem areas. Examples of these elements include median and roadside bio-retention projects, alleys utilizing pervious pavement, catch basin retrofits, green roofs, stormwater planters and the utilization of vacant lots in low lying areas for bio-retention greenspace.

- The City should collaborate with Milwaukee County to determine where existing parkland can be improved to provide stormwater benefit to areas with significant surface flooding. This might include "reshaping" portions of the parkland to create wetland parks.

- City staff should work with MMSD to identify locations where the MMSD Metropolitan Interceptor Sewer (MIS) could surcharge into a municipal sanitary sewer during a large storm, to establish critical elevations at connections to the MIS, and to pursue possible MIS and/or local system upgrades to minimize basement backups in such situations.

- The city should require that all new development and major redevelopment meet a stormwater retention standard of 1.2 inches and 1.0 inches respectively.

- The city should develop policies to incorporate green infrastructure into development, re-development and street construction efforts. Examples of green technologies include rain barrels, cisterns, rain gardens, green roofs, storm drain restrictors, porous pavement, median and roadside bio-retention projects, catch basin retrofits, storm water planters, vacant lot bio-retention, increased tree canopy, downspout disconnection and a requirement for hung plumbing for properties with basements.

- The City of Milwaukee should continue to engage in targeted separation of the combined sewers in areas where timing and volume generate a high risk of inflow-induced backups and where limited utility connections and an accessible outlet allow for separation to be cost-effective.

- The city should weigh future changes to the city's ordinances requiring the mandatory disconnection of foundation drains and the rehabilitation or replacement of faulty sewer laterals. These however should be only considered by the city as part of a uniform policy requirement within the entire MMSD area so as not to create a negative tax/assessment island in the city. If such policies

are enacted, time-of- sale inspections as well as targeted inspections should be employed.

- The city should lobby for increased State assistance in flood mitigation projects. This may including financial assistance through programming and grant opportunities, and the restoration of funding resources to the Clean Water Fund.

- The city should evaluate the combined sewer area to establish targeted zones where mandatory downspout disconnection can be implemented. This policy should establish reasonable standards for exempting properties, such as unreasonably small lot sizes or minimal front or side setbacks. Consideration should be given to providing some form of subsidy to property owners for materials or work performed (if need is established) during an initial phase in period. Inspection and enforcement can be made at point of sale.

- The city should work with the Metropolitan Milwaukee Sewerage District (MMSD) and other partners to better educate the public on the causes and effects of sewer and flooding issues and the remedies at hand. Efforts can be made to utilize the public relations office of the Common Council-City Clerk to put together education pamphlets, articles for Aldermanic newsletters and the city's web site, as well having city/MMSD representatives who can make presentations at Aldermanic town hall and neighborhood meetings. Early education should focus on the interrelationships between the public and private portions of the sanitary sewer system and low cost improvements like properly grading properties, use of rain-barrels and construction of private property rain gardens.

- A sizable public investment will be needed to fund an effective flooding prevention program. Funding should be pursued from federal, state and MMSD sources but will likely require increased funding via the city's Sewer Maintenance Fund.

- The city should consider 100% cost recovery for any work that involves the capping foundation drains and installation of a sump pump system. Consideration may be given for requiring property owners to pay for some or all of an electrical upgrade to the property if that work is required for the installation of a sump pump.

- The city should consider a reasonable cost recovery subsidy for any sanitary sewer lateral work that is indentified in need of lining or replacement.

- The city should not consider recommending or endorsing any outside lateral insurance plan unless the plan is devised to cover the scope of work required to remedy identified I&I issues and not just catastrophic breaks.

- While the city should allow the continued private installation of back-up prevention devices, the city should not fund or subsidize any cost associated with the devices.