

## **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. The results from the demonstration project and other I&I improvements made within 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. These results should be used to consider the feasibility of a City Wide Private Property I&I Reduction Program and to determine an implementation and financing strategy for such a program.

- The City should continue to evaluate areas that have a history of surface flooding and identify measures that will improve appropriate storm water flow paths and identify management measures that will address deficiencies.
- 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 (In Progress).
- MMSD should work with communities within its service area to develop a new regional stormwater retention standard for all new development and major redevelopment projects.
- The city should evaluate its experiences with existing green infrastructure improvements and develop policies to incorporate further future green infrastructure into development, re-development and street construction efforts. The green infrastructure policies should give priority to areas with flooding problems. 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.
- MMSD and the City of Milwaukee should work together to develop an official policy regarding 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 currently budgets for a sizable public investment in its sewage system each year. Depending on the improvement program and the implementation strategy, substantial additional finances may be needed to fund an effective flood prevention program. The City should lobby for increased State and Federal assistance in flood mitigation projects. This may include financial assistance through programming and grant opportunities, and the restoration of funding resources to the Clean Water Fund.
- MMSD and the city should evaluate the combined sewer area to determine whether or not a downspout disconnection program could be applied at a level that would provide a system wide benefit without creating other surface stormwater problems.

- The City and the Metropolitan Milwaukee Sewerage District (MMSD) should continue their efforts to better educate the public on the causes and effects of sewer and flooding issues and the remedies at hand. Other partnerships, such as, with the public relations office of the Common Council-City Clerk could be established to put together education pamphlets, articles for Aldermanic newsletters and the city's web site, as well as, creating opportunities for city/MMSD representatives to 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.
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- 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.