DRAFT Recommendations of the Flooding Study Task Force- May 13, 2011

Ald. Bohl

The city should continue to engage in a policy of targeted separation of the combined sewers on areas of the periphery of combined sewer area when and where it is practical.

Full separation of the system is not economically feasible and neither is it practical. Besides the billions of dollars in cost and the disruption it would bring, full separation would have an adverse environmental impact (non-point pollution issues) and would not remedy basement flooding issues that result largely from infiltration and inflow into leaking pipes and homes with connected drain tile systems . In fact, spending moneys on full separation would divert needed funds away from programmatic efforts to remedy basement floodings.

The city should mandate a policy of required downspout disconnection for homeowners who resident in the combined sewer area. This policy should establish reasonable standards for exemption, 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.

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.

There is much misunderstanding of the sources of basement flooding, the use of the deep tunnel system, combined vs. separated sewers, non-point pollution, infiltration and inflow, etc. A much better job must be done to educate the public as to the causes and prospective solutions for diversions of waste during heavy storms, as well as overland and basement flooding

concerns. Additionally, the city must endeavor to utilize in-house talent as much as possible and avoid the debacle of using expensive outside marketing firms such as was the case for the 2006 down-spout disconnection pilot where $80,000 was spent in outside public relations ineffectively.

Education/public relations efforts should encourage public use of rain-barrels and construction of private property rain gardens.

The Mayor and Common Council will need to consider a sizable increase in funding to establish an effective flooding prevention program. This would come most logically in the form of increased fees supporting the city's Sewer Maintenance Fund.

The amount of funding to establish an effective I&I prevention program is unknown but significant. While much of the work entails changes on private property, the ability of city property owners to pay sums that may routinely run into the thousands of dollars is dubious. MMSD had proposed a 10-year $151 million seed funding effort to district member communities to assist in local I&I remediation efforts but due to state imposed and other financial constraints has since proposed reducing funding to approximately $50 million over 10 years. The city's Oct. 2010 Sewer Maintenance Fund report proposed 4.7% annual increases to the sewer fund over the next several years. This proposed level of increase was directed substantially to stabilization of cash proceeds into the fund, and did not envision significant increases in city I&I related work. In fact, the 2011 budget was approved without any increase to the 2011 sewer maintenance fee, contrary to what the just released report was recommending. Given the scope of the problem, the amount of work needed to be accomplished and the need find a reasonable subsidy to address private homeowners costs, increased revenues will need to be generated.

Given the scope of work necessary on private I&I remediation, the City should primarily focus efforts on neighborhoods identified by the DNR or MMSD as poor performing sewer-shed areas, and expand efforts outward as funding allows.

Given the dearth of funds and the practical reality that many problematic flooded areas will not otherwise be addressed in a reasonable time frame, the city may wish to re-examine the policy of addressing both foundation drain capping and sewer lateral leaks

comprehensively and instead target the most cost-effective of these two solutions for work to be done in the targeted poor performing sewer-shed areas. Addressing one of the two issues may affectively reduce clear waters entering the sanitary sewer system sufficiently to elevate sewer shed status and mitigate the chances of basement backups in the area. It also would enable that the scope of areas seeing some form of relief are significantly increased. If it is determined that addressing only one of the two targeted solutions does not elevate sufficiently the sewer shed status of that area, the city may wish to ensure both measures are adopted.

This approach is akin to giving everyone a cup of soup instead of giving some a bowl and some nothing.

The city should provide 100% cost recovery for any mandated work that involves capping foundation drains, and installing 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. Given the lower cost of this approach when compared to sewer lateral inspection and replacement, the city may wish to target this solution as its initial primary response to I&I issues.

The rationale for city cost reimbursement is that this is a change in city policy undoing former legalities in our plumbing code for houses built prior to 1955. As it has been described before the task force, foundation drain work in most instances is expected to cost less than the typical sewer lateral replacement job or sewer lateral lining job. The rationale for considering either partial or non-compensation on electrical work is individuals who require an electrical upgrade in their home are currently out of compliance with city code.

The city should consider a reasonable cost recovery subsidy for any sanitary sewer lateral work that is indentified in need of lining or replacement. An example would be a 80/20 or 70/30 split on cost where the city would pick up the higher percentage of the cost-share subsidy on jobs costing up to $5000. Residents would be given an option to utilize an assessment payment plan for their portion of work costs similar to that established with assessments on local road projects. Any other costs in excess of $5000 would be born entirely by property

owners. This cost subsidy should entail work for lining or sanitary sewer later replacement identified as leaking and in need of mandated repair but not catastrophically broken.

The city should not make any recommendations or endorsements on outside lateral insurance plans unless a plan is devised that would cover the scope of work required to remedy identified I&I leakage problems.

Most plans identified would cover only catastrophic work on laterals that are broken and not work to rectify pipes that are not broken but are substantially leaking at joints to render improvement work necessary via city orders. Since it is expected that many more residents will have the later than the former, city endorsement of an outside insurance plan that would serve the purposes of few should be questioned.

The city should not fund or subsidize sewer back-up prevention devices.

The city has limited funds and must utilize them to comply with DNR/MMSD mandates as well as address the issue at hand which is I&I. Sewer back-up prevention devises do not resolve/remedy the problem of I&I in various watershed areas, but where used, may actually push the problem onto neighbors or neighboring areas. The city should not make any changes to current policies allowing owners from legally purchasing and installing such devises at their own cost.

The city should move to implement piloted green strategies impacting development into ordinances. These may include but not be limited to storm drain restrictors for flat roof buildings in the combined sewer area, inlet restrictors, and porous paving surfaces in driveways.

In areas where overland flooding is excessive, the City should employ i utilization of vacant lots in low lying points for bio-swale development to promote water retention. Similar efforts should be re-explored with Milwaukee County government for the development of water retention ponds in select parks near areas where overland flooding has been problematic.

Gerry Novotny

The information provided to the Task Force 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 and recent extreme rainfall events.

The basic challenge is to 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.

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.

1. As has been found in other cities throughout the US, more attention needs to be focused on the private property sources of clear water entering the sanitary sewer system. The City should develop ordinances requiring the disconnection of foundation drains and the rehabilitation or replacement of leaky building sewers. Both time-of- sale inspections as well as targeted efforts to reduce clear water in particular areas should be considered.

2. The City should initiate a study of the "major" storm water management system (as defined by SEWRPC in its Feb 124, 2011 power point presentation) to determine what can be done to improve major storm water flow paths and reduce flooding during extreme rainfall events.

3. The City should develop policies to incorporate, where appropriate, "Green" infrastructure techniques into paving and re-development efforts. These techniques can reduce the potential for flooding and improve the quality of storm water runoff.

4. The City should prioritize the implementation of these recommendations to target areas identified by the MMSD as "poorly performing sewer sheds"

and those areas that have experienced significant numbers of flooded basements.

5. As part of the implementation of the above recommendations the City should develop a public information program to explain the interrelationships between the public and private sanitary sewer systems, storm water systems and basement flooding.

Kevin Shafer

Private Development

New Construction

Require all new development to meet a stormwater retention standard of 1.2 inches (actual value might be modified by future runoff modeling). The requirement will also prioritize green infrastructure technologies as the first choice. Green infrastructure technologies to be used include rain barrels, cisterns, rain gardens, green roofs, bioswales, porous pavement, increased tree canopy, and downspout disconnection.
Require hung plumbing for all new properties with basements.

Redevelopment
Require all redevelopment to meet a stormwater retention standard of 1.0 inches (actual value might be modified by future runoff modeling). The requirement will also prioritize green infrastructure technologies as the first choice. Green infrastructure technologies to be used include rain barrels, cisterns, rain gardens, green roofs, bioswales, porous pavement, increased tree canopy, and downspout disconnection.

Time of Sale
Require downspouts to be disconnected from the combined sewer system.
Require laterals to be televised and repaired if needed.
Require foundation drains to be disconnected and sump pumps installed.

City of Milwaukee Construction/Development/Redevelopment

For all street construction require green infrastructure to manage the first 0.75 inches (actual value might be modified by future runoff modeling) of stormwater runoff from the site. Green infrastructure technologies to be

implemented include catch basin retrofits in road and street rights-of-way, curb extension swales, bioswales, street trees, permeable pavement, green roofs and stormwater planters.

For all City properties, utilize green infrastructure to manage the first 1.0 inches (actual value might be modified by future runoff modeling) of stormwater runoff. Green infrastructure technologies to be used include rain barrels, cisterns, rain gardens, green roofs, bioswales, porous pavement, increased tree canopy, and downspout disconnection.

For the City's private property I&I program, prioritize foundation drain disconnection as the highest priority.

The City will collaborate with Milwaukee County to determine if existing parkland can be improved to provide additional stormwater benefits. This might include "reshaping" portions of the parkland to create wetland parks.

The state should assist local communities by expanding its financial assistance programs for flood management projects.

Ken Yunker

Background Information to be Considered for Inclusion in the Task Force Report

It is suggested that the report:

- Include a summary of the status of implementation of the recommendations of the October 2004 Mayor's Independent Audit Committee Report, based on the January 20, 2011presentation to the Flooding Study Task Force by Kevin Shafer of MMSD,
- Summarize MMSD flood mitigation efforts and implemented projects under its watercourse program,
- Summarize the City's efforts to address sanitary sewer infiltration and inflow (I/I), and
- Summarize the City's efforts to address stormwater management issues and relate those efforts to direct stormwater flooding of buildings and to reduction in I/I.

Recommendations to be Considered for Inclusion in the Task Force Report

- That the City identify specific locations where the major stormwater management system is inadequate to handle runoff from storms with annual probabilities of one percent or greater, and prepare stormwater management plans to address those deficiencies,

- That, for stormwater management purposes, the City adopt the new rainfall frequency information that is anticipated to be released in 2012 as National Oceanic and Atmospheric Administration Atlas 14 for the Upper Midwest. (The funding for the Wisconsin portion of that study being provided by the Wisconsin Department of Natural Resources, the Wisconsin Department of Transportation, and SEWRPC.)

- That the City staff coordinate with the SEWRPC staff and the Milwaukee Working Group of the Wisconsin Initiative on Climate Change Impacts to keep abreast of new developments related to possible climate change influences on sanitary sewerage and stormwater management systems.

- That the City staff 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.

- It is suggested that consideration be given to including recommendations which would address:

    - private property I/I, including whether implementation should be targeted at poorly-performing sewersheds or pursued City-wide,

    - establishing priorities for fixing the main sources of private property I/I (i.e., downspout and foundation drain connections and leaky laterals),

    - the timing aspects of, and mechanisms for, implementing private property I/I remediation measures (e.g., by ordinance throughout the City within a specified time frame or at time of sale, or a combination), and

    - what mix of private and public funds should be applied to solving I/I problems.

    The development of these recommendations should be guided by the findings of the City's private property I/I pilot programs.