# Meeting Minutes

Advisory Technical Panel – Updating Infiltration and Inflow Control Program

Location: MWRD LASMA Visitor Center

Date: May 16, 2012 1:00pm to 4:30pm

Attendees: See attached

A. Ms. Maureen Durkin, Supervising Civil Engineer, MWRD, welcomed the ATP Members, introduced today's Distinguished Speakers, and commented on the following items:

    1. Following discussions at the ATP meetings, the MWRD sent out mass mailing letter dated May 9, 2012. It advised the non-ATP member sewer system owners of the discussions at the ATP, and creation of a webpage dedicated to I/I Control Programs.

    2. The MWRD has been giving presentations about the goal of the ATP at Watershed Planning Council meetings.

(All presentations referred to below are posted on the MWRD webpage and must be viewed in conjunction with these minutes)

B. Mr. Alan Hollenbeck, President/CEO, RJN Group, Inc., gave a very detailed presentation focusing on Private Sector Infiltration/Inflow Identification and Rehabilitation.

    1. Mr. Dale Schepers (Tinley Park) asked what the percentage of I/I reduction is in the examples. Mr. Hollenbeck answered that the City of Wheaton reduced I/I by about 35% and the City of Elmhurst's I/I reduction ranged between 30%-40% as a result of primarily public sector rehabilitation including manhole rehabilitation and main sewer CIPP Lining.

    2. Mr. Chris Breakey (South Lyons Township Sanitary District) asked if the T-Liner for the service connection to the main sewer can still be done if the main sewer has been previously lined. Mr. Hollenbeck stated that it can still be used, with a nominal effect on the main sewer hydraulics.

    3. Mr. Breakey asked if there are legal issues prohibiting the Municipalities from using public funds on private lateral rehabilitation. Mr. Hollenbeck stated that in every case he has been involved with, the attorneys have justified use of public funds for such work by saying that there is a public benefit in preventing entry of clear water into a sanitary sewer system.

4. Mr. Sergio Serafino (MWRD) requested clarification of the amount of I/I flow reduction that was achieved in the Elmhurst and Wheaton. Mr. Hollenbeck stated that I/I was reduced between 30%-40% as a result of primarily public sector rehabilitation including manhole rehabilitation and main sewer CIPP Lining. In Wheaton they still experience an 8:1 ratio of peak to dry weather flow rate, which includes that reduction.

5. Mr. Sean Dorsey (Mount Prospect) stated that cost-effectiveness played a role in ICAP; however, considering the NPDES Permit requirements, cost effectiveness may not apply. He expressed his concern with addressing the private sector I/I sources even though it may not be cost-effective to repair the service laterals and disconnect foundation drains. He asked if any Municipalities have rehabilitated their public system and then addressed the service laterals and disconnected the foundations drains because he believes that is an unachievable goal. Mr. Hollenbeck stated that he is not aware of a test case of a Municipality rehabilitating the system to that extent, but progress can be made if there is funding. He stated that in Wheaton's case, they were not able to install additional relief sewers to transport the flow to the treatment plant beyond what is already allowed under the current NPDES Permit. He explained that the general trend with the IEPA is not to increase allowable peak discharge flow rates on the NPDES Permits for existing wet weather treatment facilities. Since transport and treatment is no longer an option, the only way to prevent SSO's and basement backups is to remove clear water from the system or in certain limited cases to provide in-system storage .

6. Mr. Hollenbeck stated that he believes that service lateral rehabilitation and sump pump disconnection programs are the way to achieve I/I reduction within the private sector. It is not realistic to expect wet weather flow reduction without addressing the private sector I/I sources. He stated that addressing the private sector I/I sources will have funding and political challenges compared to the public sector work which has little effect on the individual homeowner. He envisions a program that addresses both the public sewer and the private sewer on an annual basis. He acknowledged that there will be disruptions to the public but stated that an annual program will allow the cost to be reduced.

7. Mr. Chris King (Robinson Engineering) stated that he believes the fear in the technical community is that if private sector rehabilitation work is done, I/I flow reduction benefit may not be seen. He expressed his concerns that after funds are spent for private sector rehabilitation, the clear water will migrate to the next set of repairs to make. Mr. Hollenbeck responded that the main line sewer has been lined. The service connection, service lateral, and sump pumps will be addressed with the private sector rehabilitation programs. The last item left to be addressed are the foundation drains. He further stated that Municipalities undertaking projects addressing the public and private sector have achieved extremely reduced peak flow rates. He believes that widespread foundation drain disconnection may not be done, which will contribute a certain level of flow.

8. Mr. Mark Emory (West Central Municipal Conference/Christopher Burke) asked if there is an estimated percent of homes that are seriously contributing to excessive I/I. Mr. Hollenbeck stated that Elmhurst was built as a combined sewer system and for years they were connecting the foundation drains to the combined sewer because those were the design guidelines at the time. They went through a sewer separation program in the 1970's, and stated that about 40% of the homes had directly connected foundation drains. Of these homes 15%-20% have illegally connected sump pumps. The problem is finding the illegal connections. There are patterns of illegal connections associated with age and builder, but they still have to be found. He believes that ultimately 50% of the homes are contributing to I/I.

9. Mr. Craig Brunner (Donohue & Associates) asked if utilizing in-line storage to attenuate peak flow rates to reduce basement flooding, acknowledging that it does not reduce I/I, was considered in Wheaton since they do not allow relief sewers. Mr. Hollenbeck stated that considering the size of Wheaton, in-line storage is probably not cost-effective. However, considering the scale of the District, where there are several Municipalities, in-line storage can be a component of a long term solution. He further explained that it is unlikely for the IEPA to permit a new wet weather treatment facility at a higher flow rate than that of an existing facility at a treatment plant. He stated that several combined sewer areas have had deep tunnels built, which is the classic example of in-line storage.

10. Mr. Al Berkner (Sewer System Evaluations) asked if there are any case studies regarding rehydration of acrylamide grout to regain its original structural ability. Mr. Hollenbeck stated that the projects he has been involved with, a mixed grout was used because the urethane was very expensive. He used urethane on the walls and the cone section of the manholes where it was likely to dry out and would use the acrylamide grout at the bottom of the manhole where it would stay hydrated. In Elmhurst, recent inspections showed that the acrylamide held up very well. Recently he has seen epoxy coatings for manhole rehabilitation because it is cheaper and it can actually be wrapped over the frame and onto the top section of the manhole.

11. Mr. Serafino stated that he believes Naperville had a program involving public and private sector rehabilitation on an annual basis and funded or used cost sharing for the lining of the service laterals that were connected to the main line sewers they were rehabilitating. Mr. Hollenbeck stated Naperville had a localized problem and chose to address it with full municipal funding. He believes the market has to evolve to the point where a program can be developed where a contractor can bid on an annual basis for main sewer and service lateral lining.

12. Mr. King asked if Naperville was successful in their project goals. Mr. Hollenbeck stated that they achieved significant flow reduction. He doesn't think that Naperville had a significant number of directly connected foundation drains. He further stated that the Illinois WEA

Collection System Committee has a conference every year, where Naperville has given presentations on their service lateral rehabilitation program.

13. A question was asked if combined sewer area communities are doing I/I reduction programs. Mr. Hollenbeck stated that he is not aware of any.

14. Mr. Emory asked if the prolonged life of a sewer that has been lined is included in the cost-effectiveness analysis. Mr. Hollenbeck stated eventually all sewers will fail structurally. One of the political challenges that Wheaton is currently dealing with is that funds are going to the service lateral that is leaking the most or causing the most problems. Since it is publically funded, the neighbor is asking why their service lateral isn't being addressed. Eventually the service laterals will have to be replaced, but by doing a service lateral program design life is being built back into the service lateral just as it is done with the main sewer lining programs.

15. Mr. Emory asked if there is a specific number that can be used to estimate the prolonged life of a lined sewer. Mr. Hollenbeck stated that he does not have a specific number. Mr. Breakey stated that he recently inspected a sewer that was lined 20-years ago and it still looks like the day it was lined. Mr. Hollenbeck stated that there is currently 40-50 years of experience from the lined sewer mains. That same sample size and time duration is not available for the service lateral lining, however, it is similar technology. He stated that currently it is difficult to get a clean seal on the service lateral, compared to the main sewer, which results in more de-laminating problems and a higher percentage of service lateral failures. He believes that over time lining service laterals will get better and be as reliable as the main sewer lining.

16. Mr. Adam Gronski (MWRD) asked if there is regulatory pressure on communities like Naperville and Wheaton which resulted in them starting service lateral rehabilitation programs. Mr. Hollenbeck stated that the July 2010 storm that came through DuPage County was one pressure due to the number of sanitary sewer basement backups but there is no regulatory action in Wheaton . Elmhurst is under an IEPA consent order and there can always be regulatory action when overflows are generated.

17. Mr. Gronski asked if NPDES Permits for other treatment plants have similar language to that contained in the MWRD NPDES Permits. Mr. Hollenbeck stated he believes that the specific language pertaining to the 150 GPCPD is unique to the MWRD and thinks that it is counterproductive. He hasn't seen an equivalent GPCPD in any other Illinois NPDES permits. Ms. Durkin stated that the 150 GPCPD is a trigger for action.

18. Ms. Durkin asked if there are any studies of communities that have done extensive public sector and private sector lining rehabilitation along with sump pump disconnections but without foundation drain

disconnections that still have significant flow rate reductions. Mr. Hollenbeck stated that there are communities like this and they have achieved 75% or more flow reduction. He noted that the concentration of foundation drains within the MWRD's service area will vary dramatically because that connection is a function of when the home was built, what the building ordinance was at the time, and who the developer was.

19. Ms. Durkin asked if an effective long term solution of disconnecting foundation drains is to require it, within the Municipal ordinance, if there is major rehabilitation work being done on the house. Mr. Hollenbeck stated that the only time he has seen the requirement of disconnecting foundation drains is when it is coupled with the significant homeowner benefit of an overhead sewer program. He continued to state that an overhead sewer program without disconnecting the foundations drains is counterproductive. In most cases the overhead sewer programs have some level of funding so there is an opportunity to control the outcome which results with the foundation drain disconnection being done at the same time. The property transfer ordinances that he has seen do not require foundation drain disconnection.

20. Ms. Janet Pellegrini (USEPA) stated that in the March ATP Meeting, Mr. Jerome Flogel stated that there is little benefit with foundation drain disconnection. Mr. Hollenbeck believes that the market will eventually figure out a way to do foundation drain disconnection at a lower cost and with less disruption. He further gave an example of the homeowners' lack of confidence in Commonwealth Edison, having spent $5,000 to $10,000 on backup power generators. To combine that with the homeowner that has a directly connected foundation drain needing a new sump pump which will run on that power supply, even with backup power, is hard to sell. The reliability on power is a bigger issue now in the communities than the intense storm events. The basement backups are sometimes just as likely because of a power outage than it is the sewer backing up into the home.

21. Mr. John Wiemhoff (USEPA) stated that it appears that if flow removal at a cost per gallon is calculated, the foundation drain disconnection is the same cost or even cheaper when comparing to the other rehabilitation methods and it seems like the real issue is the large individual cost to the homeowner. Mr. Hollenbeck stated that the individual cost is part of the issue; the other part is that it is almost impossible to determine the peak flow rate on an individual home basis. Disconnection of foundation drains, which never activate, because the local groundwater table is low, may happen. Another issue is that many homeowners insist on installing new sump pumps with greater capacity and deeper sumps.

C. Mr. Paul Kendzior, Village of Northbrook, gave a slide presentation regarding Northbrook's Private Property Drainage and Overhead Sanitary Conversion Reimbursement Programs.

1. Mr. Jim Goumas (West Central Municipal Conference) asked if the concept plans can be used for permitting. Mr. Kendzior indicated that they do allow the concept plans for permitting and they may add detailed notes to it. He noted that all standard materials are used with respect to sewer material, joints and trench backfills.

2. Mr. Goumas asked if a homeowner would be required to hire a surveyor. Mr. Kendzior indicated that a surveyor is not generally needed. If there is a situation where the overflow swale or the overland height is questionable, the Village may require it, but it is not covered by the reimbursement program.

3. Ms. Aruna Serbanescu (MWRD) asked if easements are required for the improvements. Mr. Kendzior indicated that easements are not needed because the improvements are done on private property and it is up to the homeowner to maintain the new facilities.

4. Ms. Serbanescu asked what would happen if the next homeowner does not want the improvement and removes it. Mr. Kendzior indicated that there is not a requirement for the improvement to stay in place. He stated that there were discussions about adding that requirement but it resulted in a more convoluted and complex program, therefore it was not included. He stated that even though it is the homeowner's responsibility to maintain, the Village will receive calls requesting them to clean the yard drains. The Village will clean the system once as a courtesy, but the homeowner is informed that it is their responsibility to maintain.

5. Mr. Breakey asked if Northbrook charges permit and inspection fees. Mr. Kendzior indicated that all permit fees are waived. A plumbing permit is required for the overhead sewer conversions, and a site plan permit is required for the private property drainage improvements.

6. Mr. Serafino asked how much the overhead sewer conversion costs. Mr. Kendzior stated that typically it costs about $10,000, which includes disconnection of the foundation drains, installing the storm sump pit and running the storm sewer to the street or backyard. Remodeling or cosmetics such as carpeting and drywall are not included.

7. Mr. Serafino asked if there are typically two pits, one for the ejector pump to the sewer and the other for the stormwater. Mr. Kendzior stated that typically is the case.

8. Mr. King asked how many projects Northbrook does per year. Mr. Kendzior stated that they do 10 projects a year and because it is a popular program they have a waiting list. Mr. King asked how many people are on the waiting list. Mr. Kendzior indicated that there were three (3) from the previous year.

9. Mr. King asked if Northbrook has an estimate on the number of homes that do not have an overhead sewer. Mr. Kendzior indicated there are about 12,000 households in the Village, and estimate about 2,500

homes do not have overhead sewers. Of those, about 10% experience basement backups.

10. Mr. David Weakley (Palos Hills) asked if any of the 2,500 homes have sump pumps or if they drain by gravity. Mr. Kendzior stated that he doesn't know because they haven't been in the homes.

11. Mr. Weakley asked if a sump pump was installed when the conversions were done. Mr. Kendzior stated that all of them did.

12. Mr. Hollenbeck asked how the rain gardens are funded. Mr. Kendzior stated that rain gardens are part of the private property improvement program. The homeowner submits an invoice for the rain garden which details what was supplied and installed. There have been about six (6) done but do not have long term performance data.

13. Mr. Hollenbeck asked what the cost of a rain garden is. Mr. Kendzior indicated that cost is $2,500 to $3,500 and are about 250-sqft to 300-sqft in size.

14. Mr. Steve Saunders (Winnetka) asked what is considered the public benefit of protecting private homes when the Village Board approved the private property drainage improvement program. Mr. Kendzior indicated that when the program first started in the 1990's the public benefit was not discussed. The public benefit of the overhead sewer conversion program is the requirement to disconnect the foundation drains.

15. Mr. Saunders asked if a homeowner can participate in the overhead sewer conversion if the house does not have foundation drains that are connected. Mr. Kendzior stated that to qualify for the program the house must have foundation drains that are connected.

16. Mr. Mark Toll (Elk Grove Township/Daniel Creaney Co.) asked if Northbrook has any resistance with sump pump installations since they require electrical power. Mr. Kendzior stated that there has not been resistance. The Village encourages auxiliary power for the sump pumps, but do not require it.

17. Ms. Durkin asked if there have been backyard flooding problems in conjunction with the foundation drain disconnection. Mr. Kendzior stated that there have not been any flooding problems. Sump pump discharge lines are adequately splashed on grade in the backyard or side yard and that all require a plumbing inspection. The sump pump float location can be an issue and the Village will inspect it to ensure that it is set properly. Sometimes homeowners call and state that their pump is constantly running, so the Village will go inspect and if the float is set too low, it is set up higher.

18. Ms Durkin asked if flooding has not occurred because of the large lot sizes. Mr. Kendzior stated that there are a variety of lot sizes in the Village ranging from 1/3-acre to 1-acre lots. However, most of the

conversions have been done on the smaller lots and there have not been any flooding problems.

19. Mr. Weakley asked what the depth of the basements are that undergoing overhead sewer conversions. Mr. Kendzior stated that all the homes have full basements ranging between 7-ft and 9-ft.

20. Mr. Goumas asked if part of Northbrook drains to Northfield Woods Sanitary District. Mr. Kendzior stated that areas incorporated into Village are served by the Village sanitary sewer system. Areas that are not served by the Village sanitary sewer system are not eligible for the program. There were a few areas that were tributary to the Mission Brook Sanitary District before the program started but now those areas have been incorporated.

D. Ms. Maureen Durkin gave a slide presentation detailing significance of removing I/I from the private sector and opened the floor for discussion:

1. Ms. Durkin asked the ATP members if there are other private sector challenges that have not been presented or specific items that should receive the most attention under a new program.

2. Mr. Saunders stated that one major challenge is educating homeowners and explaining why I/I is a problem. People may live in an area that does not experience basement flooding so it is not an issue to them; however, it is an issue for the MWRD, an issue that affects the quality of the waterways and an issue to other areas within the town. Education should be provided to the people so they understand why I/I matters to them and help them understand how they may also be contributing to I/I. Ms. Durkin asked if the MWRD were to attend municipal or neighborhood meetings and produce literature that the Villages would distribute be effective. Mr. Saunders stated that he believes having the MWRD as a partner, with their resources, and the fact that they communicate with all of the communities, the MWRD may be able to come up with things that are cost-effective and are wide spread.

3. Mr. Breakey stated that he believes that educating the public is important, but educating Village officials is also needed because they are the ones that will be spending funds on individual properties. The Village officials need to understand why it is important to address private sector I/I sources and the regulation the MWRD is required to comply with. He believes that it would be effective if the MWRD attended municipal meetings to explain regulations they need to comply with.

4. Ms. Durkin asked if the MWRD were to spent funds to develop an educational video illustrating the impacts of I/I, similar to the one that the MMSD developed be useful. Mr. Breakey stated that an educational video would be more helpful than another mailing.

5. Mr. Fred Vogt (Rolling Meadows) stated that operators of water systems are required to do an annual consumer confidence report in

which homeowners are educated about the water system, water quality and related issues. That education requirement may be something that should be included and modeled off of in a new I/I reduction program. Mr. Vogt also expressed his concern regarding cost-effectiveness determination and implementation. He stated that it is difficult to explain to the elected officials or homeowners that rehabilitation of the private sector sewer system should be done and it is cost-effective to do. If everyone involved understands then funds can be secured to address it.

6. Mr. Dorsey asked if a system has to be rehabilitated if it is experiencing SSO's or basement backups and is above the 150 GPCPD flow rate indicated in the NPDES Permit regardless of cost effectiveness. Ms. Durkin stated that if the system is experiencing SSO's or basement backups, the language contained within the NPDES Permit states that action must be taken to rehabilitate the system, over and above what is required under the Sewer Summit Agreement, to stop them from occurring.
7. Mr. Vogt stated that he believes that there will be a lot of feedback regarding cost-effective rehabilitation work because spending funds on areas that do not reduce I/I will be counter-productive.

8. Mr. Goumas gave an example of repairing a broken water system is cost-effective because if it is not fixed, funds are being spent on the lost water. He then asked where the cost savings is if the sewer system is repaired to remove I/I. Ms. Durkin stated that SSO's and basement backups will be prevented by removing I/I from the sewer system and conveyance and treatment costs will also be saved.

9. Mr. Emory stated his concern regarding the Village Boards and Village Attorneys agreeing to fund private sewer rehabilitation. He asked if there are any court cases that can be referenced to support public funds being used for private sewer rehabilitation. Ms. Durkin cited a case where the court affirmed that private property home inspections performed by the Municipality are legal. Mr. Hollenbeck stated that he has seen written legal opinions of attorneys' which support using public funds on private sewer rehabilitation, but he has not seen a case that went to court which affirmed that opinion.

10. Mr. Emory stated that using public funds on private sewer rehabilitation is similar to that of the IEPA not allowing SRF loans on private sewer rehabilitation. Ms. Durkin concurred and stated SRF loans cannot be used on private sewers because the IEPA requires knowledge of who will own and maintain the improvement that is receiving the loan money and who is going to repay the loan. Ms. Durkin stated that she is trying to arrange a conference call with IEPA officials during the next ATP meeting.

11. Ms. Durkin stated the future possibility of a Village receiving the SRF Loan to use on private sewer rehabilitation if there is assurance that the private sewer will be maintained in some way. Mr. Hollenbeck stated that there is precedence set for using SRF Loans for private

improvements. Other states (not including Illinois) have done septic system conversion programs which were funded by SFR Loans.

E. The next meeting of the ATP is scheduled at 1:00 pm on Wednesday July 18th, 2012 at the LASMA Visitor Center. Mr. Al Berkner, Sewer System Evaluation, Inc., will make a presentation on Lessons from ICAP. Mr. Nicholas Menninga, Downers Grove Sanitary District, will make a presentation on their I/I Control Program. Mr. Michael Danecki, Village of Palatine, will give a presentation regarding the Village's Basement Protection Program. There will be a conference call with IEPA officials regarding funding source(s).