

EXHIBIT 3 – (JANUARY 6, 2015 REVISION: ADDITION OF ALTERNATIVE 6)

Summary of Return Flow Management Plan Alternatives

(Disadvantages in bold are primary reasons for not being the proposed alternative.)

| Alternative | Advantages | Disadvantages | Withdrawn Water Returned to Lake Michigan ^a | Return Flow that is Out-of-Basin Water ^b |
|--|---|---|--|---|
| 1. Return all flow from WWTP to Lake Michigan. | <p>Greatest volume of water returned to the lake because all WWTP flow would be returned.</p> <p>More water returned to the lake than withdrawn, even in drought years, because of I/I of stormwater and groundwater into the sanitary sewer system.</p> <p>Single discharge location makes permitting, monitoring, reporting, and operation straightforward.</p> <p>Provides greatest base flow increase for flow-limited Lake Michigan tributaries when return flow is to a tributary.</p> <p>Incentivizes I/I reduction to reduce pumping costs.</p> | <p>Greatest excess of return flow volume compared to water supply volume, even during drought years.</p> <p>Fails to minimize out-of-basin water.</p> <p>Requires high capacity return flow infrastructure for peak flows at WWTP from I/I.</p> <p>Higher capital cost and energy demands.</p> <p>Eliminates long-standing WWTP base flow to the Fox River.</p> | 112–169% | 18–45% |
| 2. Return flow from WWTP to Lake Michigan up to 115% of average day water demand (10.1 mgd × 1.15 = 13.0 mgd). Divert all WWTP to the Fox River when Lake Michigan receiving tributary exceeds 2-year return period flow. ^c | <p>Provides water balance to Lake Michigan during most years, even in drought years, because of I/I of stormwater and groundwater into the sanitary sewer system.</p> <p>Prevents flow increases to Lake Michigan tributary during high flows when return flow is to a tributary.</p> <p>Limits infrastructure to 13.0 mgd return flow.</p> <p>Provides base flow increase for flow-limited Lake Michigan tributaries when return flow is to a tributary.</p> <p>Helps minimize out-of-basin water in return flow.</p> | <p>Pausing return flow, even for only a few hours per year and even when an annual water balance is achieved, may not be preferred.</p> <p>More water is returned to Lake Michigan than is withdrawn during wet years, because of I/I.</p> <p>Reduces long-standing WWTP base flow to the Fox River.</p> | 102–120% | 10–23% |
| 3. Return flow from WWTP up to maximum day water demand (16.7 mgd). Reduce maximum return flow to average day water demand (10.1 mgd) when Lake Michigan receiving tributary exceeds 2-year return period flow. | <p>More water is returned to the lake than is withdrawn, even during drought years (also a disadvantage), due to I/I of stormwater and groundwater into the sanitary sewer system.</p> <p>Reduces flow increase during high flows on a Lake Michigan tributary when return flow is to a tributary.</p> <p>Limits infrastructure to 16.7 mgd return flow.</p> <p>Provides base flow increase for flow-limited Lake Michigan tributaries when return flow is to a tributary.</p> <p>Helps minimize out-of-basin water in return flow.</p> | <p>More water is returned to Lake Michigan than is withdrawn, even during drought years due to I/I.</p> <p>Limiting return flow, even for only a few hours per year and even when an annual water balance is achieved, may not be preferred.</p> <p>Reduces long-standing WWTP base flow to the Fox River.</p> | 112–150% | 18–39% |

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|---|---|--|--|---|
| 4. Return flow from WWTP equal to previous day water demand (up to 100 percent of WWTP flow). | <p>Most consistent with water demand on a <i>daily</i> basis.</p> <p>Provides water balance between water supply and return flow to Lake Michigan when considering an allowance for consumptive use.</p> <p>Limits infrastructure for 16.7 mgd return flow.</p> <p>Incentivizes I/I reduction to reduce pumping costs.</p> <p>Provides base flow increase for flow-limited Lake Michigan tributaries when return flow is to a tributary.</p> <p>Minimizes out-of-basin water as return flow.</p> | <p>Does not return 100 percent volume withdrawn and would result in a relatively small net loss of volume from Lake Michigan.</p> <p>Requires highest degree of return flow control.</p> <p>Reduces long-standing WWTP base flow to the Fox River.</p> | 94–99.9% | 2–8% |
| 5. Return flow from WWTP up to the maximum day water demand (16.7 mgd). | <p>Simplest pump station and pipeline operation and controls.</p> <p>Return flow is consistent with water demand on a <i>continuous</i> basis, because the maximum return flow would be the same as the maximum water demand.</p> <p>Balances requirements to maximize the return of Great Lakes water and minimize the return of out-of-basin water.</p> <p>Returns 100 percent of the withdrawn water volume, even in drought years (also a disadvantage), because of I/I of stormwater and groundwater into sanitary sewer system.</p> <p>Limits infrastructure for 16.7 mgd return flow.</p> <p>Incentivizes I/I reduction to reduce pumping costs.</p> <p>Provides base flow increase for flow-limited Lake Michigan tributaries when return flow is to a tributary.</p> <p>Simple strategy for permitting and system operation.</p> | <p>More water volume returned to Lake Michigan than withdrawn, even during drought year due to I/I.</p> <p>Reduces long-standing WWTP base flow to the Fox River.</p> <p>Other alternatives result in less out-of-basin water in return flow.</p> <p>Other alternatives provide an annual water return volume closer to the annual water withdrawal.</p> | 112–152% | 18–39% |

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|---|--|--|--|---|
| 6. Return flow from the WWTP up to the previous year average annual water demand. | <p>Relatively simple pump station and pipeline operation and controls.</p> <p>Balances requirements to maximize the return of Great Lakes water and minimize the return of out-of-basin water.</p> <p>Provides water balance between water supply and return flow to Lake Michigan when considering an allowance for consumptive use.</p> <p>Limits infrastructure for 10.1 mgd return flow.</p> <p>Incentivizes I/I reduction to reduce pumping costs.</p> <p>Provides continuous return flow to Lake Michigan tributary and maintains some WWTP flow to the Fox River (Mississippi basin) during most times.</p> <p>Provides base flow increase for flow-limited Lake Michigan tributaries when return flow is to a tributary.</p> | <p>Reduces long-standing WWTP base flow to the Fox River.</p> <p>Requires higher degree of return flow control than some other alternatives.</p> | 99.6–100% ^{d,e} | 3–15% ^{e,f} |

^a Average and maximum day water demands based on historic values between 2005-2012.

^b Includes an assumed 8 percent water consumption. (See Page 5-3, Section 5.4 in Volume 2 of the Application).

^c Return flow management plan proposed in the draft May 2010 Application.

^d Based on previous year water demand returned in current year, as defined by Alternative 6.

^e Maximum return flow rounded to nearest one-tenth mgd consistent with DNR evaluation of Alternative 6.

^f Calculation uses current year water withdrawal and return flow volumes to estimate out-of-basin water volume. (The average over the 2005-2012 time period is 8 percent.)