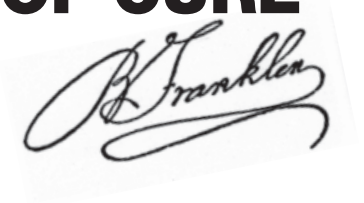
# "AN OUNCE OF PREVENTION IS WORTH A POUND OF CURE"



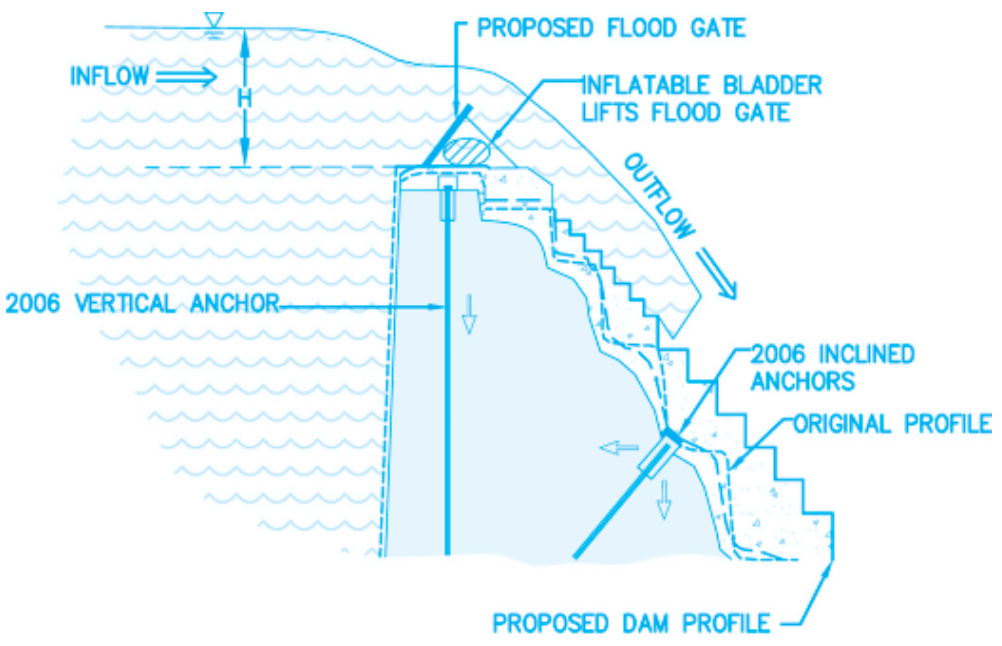
## TOP PRIORITIES OF DCC

### *1. Real Flood Control on Schoharie Creek, using NYC owned Gilboa Dam as promised by Deputy Mayor Dan Doctoroff at Gilboa, NY, March 2006.*

Floods have occurred on the Schoharie Creek since the end of the last Ice Age. There is nothing humans can possibly do to eliminate (control) flooding. However, there are things that can be done to lessen (mitigate) the impact and frequency of floods. Where structures like the Gilboa Dam are put in place to harness the benefits of potable water, it must be recognized that the owners of the facility are also obligated to provide for safe operation of the dam over the dynamic lifespan of the structure. There are practices and facility designs that can be implemented to mitigate the impact of flooding; this, however, requires proactive ownership. Flood mitigation is achieved by moderating the height of the flood waters such that the magnitude and frequency of the flood height that exceeds the Schoharie Creek channel and a flood plain elevation is reduced. Very simply, the higher the maximum flood water (i.e., peak) the further flooding extends across the flood plain and more property is damaged or destroyed. Mitigate the peak and reduce costs due to flooding.

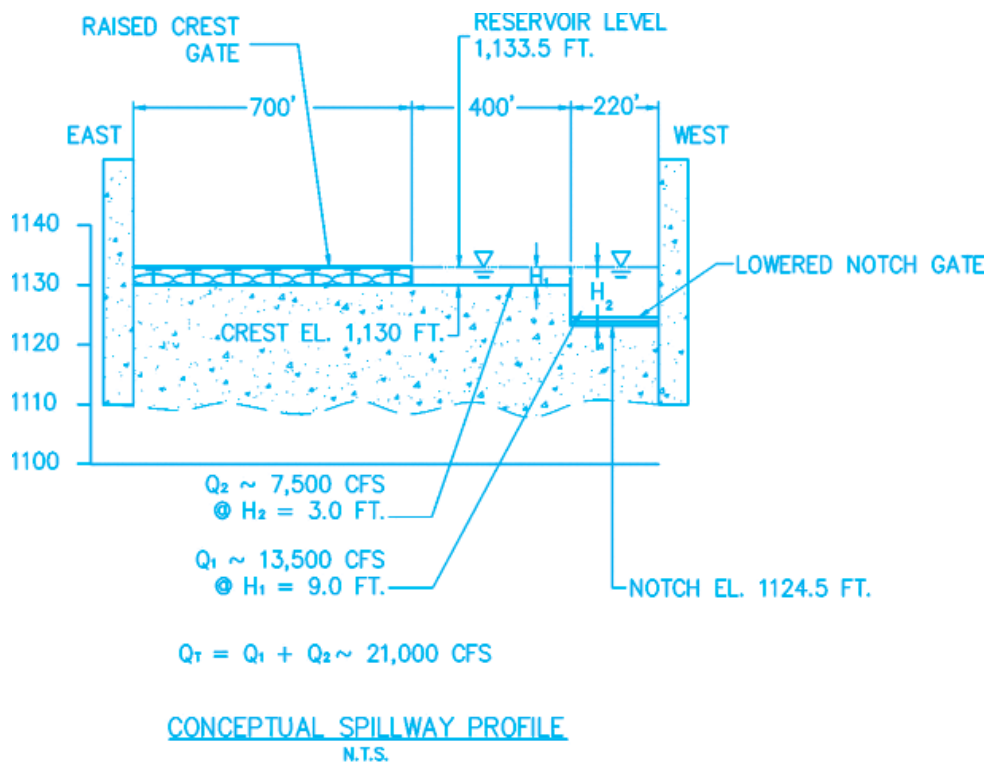
There has been a disturbing trend in the frequency and severity of flooding during the past 20 years. Precipitation amounts have increased 18 percent since 1970; annual amounts have increased from 36 to 42 inches. The total precipitation for 2006 was actually 46.56 inches. Four of the top 10 floods in Schoharie County have occurred in the last 2 years. For whatever the reason, total precipitation amounts and intensity are increasing (a dynamic change) in the Northeast. This dynamic change in conditions demands the creation of a meaningful program and construction of a better dam spillway system to mitigate the more severe weather events of the 21st century.

Flood mitigation is achieved routinely by dam structures through available storage behind the dam and controlled release through the dam spillway and outlet works (e.g., Loch Raven Dam owned by the City of Baltimore). At Gilboa there has historically been minimal flood mitigation, since the broad spillway (1,324 feet wide) and inoperable low level outlet do not provide effective storage behind the dam or controlled release during flood events. The numbers illustrate this point. With the old system, the peak inflow behind the dam for a ten year flood is 40,000 cubic feet per second (cfs) and peak outflow over the dam spillway is 36,000 cfs. This represents a mitigation of the ten year flood by only 10 percent. More recently, with the construction of the 220 feet wide notch, the New York City Department of Environmental Protection (NYCDEP) reported peak inflows of 20,000 cfs and 24,000 cfs (smaller storm, less than 5 year return frequency) being reduced to 9,000 cfs and 18,000 cfs (June 28, 2006 storm) which is a mitigation percentage of 55 and 25 percent. The significant improvement in flood mitigation can be attributed to the notch providing 5.5 feet of storage behind the dam and controlled release up to approximately 8,000 cfs.




NYCDEP PROPOSED
FLOOD GATE SYSTEM

**What is needed?** The NYCDEP, as owner of the Gilboa Dam, needs to evaluate the spillway and provide a gate system design that enhances the benefits that the existing notch has already demonstrated. A two notch or two gate system configured to provide a controlled release of approximately 20,000 cfs and storage of 5.5 to 9 feet will provide significantly improved flood mitigation over the single notch proposed and vastly improved flood mitigation when compared to the old neglected system that has been in place for decades. The figure below illustrates one potential gate system that should be evaluated.




CONCEPTUAL SPILLWAY PROFILE
N.T.S.

This system is a two gate system where the reservoir level is dropped to the notch elevation of 1,124.5 ft. prior to a storm event. Then, with the onset of the storm, inflow into the reservoir is allowed to discharge through the existing notch (gate "open" lowered) as available storage is filled again behind the dam. Depending on the storm, the peak inflow may pass before the available storage is filled resulting in a peak outflow that never exceeds the total capacity of the notch or approximately 8,000 cfs. For larger storms a second tier begins to discharge as additional storage is filled from elevation 1,130 ft. to 1,133.5 ft. and outflow from the reservoir approaches 21,000 cfs. Above 21,000 cfs the entire 1,324 ft. spillway would begin to contribute to outflow from the reservoir. Through the process of storage and release even large storms will be mitigated by the two flood gate or alternately a two notch system.

Improved and more effective spillway design at the Gilboa Dam is not, in our opinion, an option that can be dismissed for reasons of cost or operational concerns, rather, it is a necessity to keep pace with changing meteorological trends apparent today and which could worsen in the future. As citizens of the Schoharie Valley with dam concerns, we ask that you take the time to contact your Town Supervisor, State Assemblyman and Senator, Federal Congressman and Senators, the New York State Department of Environmental Conservation Dam Safety Division and demand the best possible flood mitigation at the Gilboa Dam. Contacts are provided in the list below.

### *2. Continuous release of 75 cfs from base of Gilboa Dam.*

Much of the year the Gilboa Dam cuts off all downstream flow of the Schoharie Creek. The river basin is dry below the dam and the creek has to renew itself 29 miles from its source, while up to 500 million gallons a day are diverted through the Shandaken Tunnel to the Esopus Creek. This addition of 75 cfs, (48.5 million gallons per day) would make more water available downstream for recreation, agricultural irrigation, provide groundwater recharge improving well output in the Schoharie Valley, and prevent the invasion of brush, trees, and shrubs in a dry stream bed during the growing season when dam spillage at Gilboa is infrequent.

### *3. Keep the 4 siphons in operating condition until low level outlet works below dam are operable.*

At present, there is no way of releasing water out of the Schoharie Reservoir when the water levels are below crest elevations, 1,124.5 ft. at the notch and 1, 130 ft. at the spillway crest; other than via the Shandaken Tunnel. In order to create an adequate void or storage space behind the dam to accommodate snowmelt water, the existing 4 siphons are needed. The siphons are designed to lower reservoir water levels to elevation 1,110 ft. Their combined outflow rate at peak efficiency is approximately 900 cfs. This outflow rate decreases as the reservoir water level is lowered. To create a void for snow melt, the siphons have to be started well in advance of the snowmelt and spring runoff. Last year when the siphons were needed, they were frozen and 2 weeks of valuable draw down time was lost while the NYCDEP worked furiously to unthaw them. ***Therefore, DCC recommends the installation of compressed air bubbling units in the 4 siphons so that they don't "Freeze Up" this winter.*** **On October 19, 2007, New York City flatly refused to do so!!!** This contradicts the city's pledge, made in February 2007, to lower water levels to accommodate snowmelt. There is no real way to achieve reservoir draw down without the use of the siphons unless excess water is discharged through the Shandaken Tunnel, thus causing flooding problems in Ulster County. Ultimately the siphons will be removed as the NYCDEP's planned low level outlet system is completed and put into operation. The proposed 14 feet diameter low level outlet is applauded by DCC since this system's outflow release ranging from 1,800 to 2,500 cfs, provides more than double the existing siphon release capacity. More importantly, the system will be able to lower the reservoir during normal inflow conditions (i.e., not storm flow) by 1 to 2 feet per day. This system will be capable of void or storage space creation for snowmelt management and potentially in advance of severe storms. The proposed system will be a tunnel through bedrock and not subject to freezing.

***Flood mitigation will work, if practiced!*** The Gilboa Dam is 80 years old. It is about to undergo a major overhaul. No one can foretell how much weather patterns will change in the coming decades. It is imperative that the capacity to practice real flood mitigation be built into the renovated dam and that NYCDEP exercise such flood mitigation in a responsible manner. For further information or to contact us go to our website.

This information was provided & paid for by
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| Assemblyman Peter Lopez | (518) 295-7250 |
| Senator Hillary Clinton | (518) 431-0120 |
| Senator James L. Seward | (607) 432-5524 |
| Senator Charles E. Schumer | (518) 431-4076 |
| Congressman Michael McNulty | (518) 374-4547 |
| NYSDEC Dam Safety Division | (518) 402-8151 |