



## Comments on the USACE Draft Integrated Feasibility Report/Environmental Impact Statement for the Rahway River Flood Risk Management Study, 2017

### Introduction

In November, 2013, a group of concerned residents, the Rahway Alternative Flood Solutions Alliance (RAFSA), issued a position statement, the Rahway River Flood Abatement Initiatives and Concerns. The comments presented below are based upon work done by that group, updated following the USACE presentations, which we attended, in Cranford, Rahway and Orange in January, 2017. The Temporary Selected Plan (TSP) presented at these meetings involves modifications to the Orange Reservoir to facilitate pre-storm draining and to detain excess storm water, channel modifications in Cranford to allow faster drainage, and raising and razing buildings in the Robinson's Branch flood plain. The presentations showed that the risk of flooding will be nearly unchanged for 100 year storms, and will still be high at the 25 year events, but the expected damage is not sufficiently costly to justify other large engineering solutions, such as raising the Lenape dam. With this in mind, we review the general approach suggested by RAFSA, along with some suggested starting points for a more complete solution to flood abatement in this densely-settled Rahway River basin.

RAFSA recommends a balanced approach that would request the Corps to further consider seriously the many distributed abatement solutions possible along the length of the Rahway and its tributaries. The idea would be to modify the waterway channel all along, but especially at choke points, and to establish multiple, distributed water detention flood plains. This program would call for substantial local action by the municipalities themselves in flood-prone areas.

As stated on the project site, the USACE intends to include additional non-structural changes to further minimize flooding risk in Cranford. We hope this process will include evaluating the engineering efficacy and legal feasibility of the suggestions mentioned below. The idea is to further solve the flood problems with a long-term, holistic design that restores the flood plain



and addresses grandfathered bottleneck features. These measures complement the large-scale engineering projects proposed in the USACE plans. Specific examples are given below.

RAFSA 's specific solution principles and premises are:

1. **Distributed Responsibility.** Every township in the watershed should be involved in planning for and contributing to overall flood abatement. Townships need to determine and implement local changes to manage and improve river flow by reducing runoff, eliminating choke points, widening channels, and restoring the flood plain. As major thoroughfares at times channel large volumes of water into the river, various transportation authorities also need to be involved.
2. **Historical Development Causes.** Many, or even most, of the Rahway's flooding problems are due to reduction, by unwise development, of the river channel and flood plain to a ditch. The FEMA flood profile graphs clearly identify these choke points behind which flood levels rise.
3. **City of Orange Water Needs.** Any abatement plan must take into consideration emerging water quality and capacity problems of the City of Orange that might involve means for the greater retention and percolation of rainfall into the soil to raise groundwater levels.
4. **Integrated Planning.** Planning for abatement should be carried out in an overall watershed approach and in concert with municipal redevelopment and Greenway completion along a restored flood plain, from the Arthur Kill to the Watchungs.

Specific comments on the USACE TSP

By stretching out and thus lowering the expected crest, the Reservoir project can be of some help to Millburn, Springfield, Kenilworth, and even Cranford, provided the control system works and erosion downstream from the new dam during quick empties can be avoided.

Cranford: planned work to achieve a trapezoidal section seems to be a largely cosmetic endeavor. How channeling can help Cranford is not clear; from Nomahegan Creek to the old red mill near the GS Parkway, the Rahway has very little gradient, several huge curves, and bridges in town that act as choke points.



The Water Surface Elevation Level Reductions table, shown below from the project's website, to be truly informative, should have a column displaying the expected water surface elevation rise at the calculated event (25 and 100 year flood) in order to show the level of improvement due to the proposed project.

Town	Location	Alt 4a Flood Risk Reduction (ft)	
		4% (25-yr)	1% (100-yr)
Millburn	Millburn Ave.	2.0	2.2
Millburn	West/East Brach confluence	1.6	0.6
Springfield/Union	Morris Ave. Bridge	2.0	0.4
Springfield/Union	Upstream of Route 22	1.9	1.3
Kenilworth	Kenilworth Area	0.5	0.4
Cranford	Riverside Dr. (Footbridge)	1.5	0.5
Cranford	McConnell Park	1.1	0.6
Cranford	Hansel Dam Park - Casino Brook Area	0.9	0.4
Cranford	From Union Ave. to North Ave. Bridge	0.6	0.2
Cranford	Just downstream of Licoln Ave. Bridge	0.3	0.3

But even without that, the table shows that the highest flood level reduction in Cranford is 1.5 feet at a 25 year storm event. That is not a major reduction, compared to what is seen on photos of the Cranford flooding, with vehicles shown being four to six feet under water. And in the case of a 100 year event the reduction of 0.2 - 0.3 feet is a negligible change.

Robinson's Branch demo work is a small step in the desirable direction of flood plain extension, but raising houses there is protectionism that looks like help but avoids the difficult issues.

### East Branch

- Between Vauxhall and I-78 the East Branch is confined by development to a deep narrow gully, which easily fills during major rains and overflows to flood parts of Union and of Millburn's South Mountain. residential area; there is some room here for flood plain extension.



- There are also opportunities for retention from I-280 south to the Reservoir, and in the area of the confluence of the East and West Branches under I-78 and 124.
- Shortly beyond the confluence, the hole in the berm protecting Springfield near the 124 runoff pump should be plugged.

#### West Branch:

- USACE and Millburn should cooperate on a redevelopment effort for the whole portion of the West Branch from the railroad to Ridgewood Ave. not just to eliminate the fluvial threat but to clear the riverbank of the backs of businesses and return it to its intended pedestrian use.
- The self-inflicted flooding of downtown Millburn is caused by the choke point at "Futter's bridge", where the West Branch runs in a deep channel and is suddenly forced into a 30' x 7' rectangular hole under a building that spans the river. During Floyd and Irene the water backed up and overflowed onto Essex St., thence into the cellars downtown, causing major losses. A rough calculation shows that widening the channel by 5 feet on both sides would reduce Irene's crest by 3 feet.
- A similar scenario plays out just downstream in Taylor Park where the foot bridge offers the East Branch a 6' x 16' hole to go through; in flood time the water goes around on both sides onto Main St. and into St. Stephen's Church, built 1851.

These are important topics about which USACE has never said anything, perhaps following a policy of ignoring problems that necessarily get tied up in issues of municipal redevelopment. We invite the Corps of Engineers, the Mayor's Council, and interested members of the public to address the Rahway's flood abatement problems as a multi-levelled matter of watershed-wide responsibility.

We agree that no solution can eliminate all flooding, but here the top contender is a "solution" that will reduce the yearly damage by \$3 million, yet will allow a \$6 million yearly damage to continue to occur. The other top contenders are in the same ballpark. While some improvement is better than no improvement, more complete solutions are possible as outlined above. The three projects chosen as TSP are a start, but in this high-density basin, further local, small "fixes" are perhaps the only way to accomplish significant flood abatement.



We would like USACE to have greater engagement with the communities in the Rahway basin, with an aim:

- to strategically open up the river at places throughout its length,
- to create adequate volume of local temporary rainwater storage space everywhere in the watershed to catch a good percentage of the storm water before it hits the river or one of the tributaries,
- to restructure the most vulnerable flow restricting nodes,
- to recommend appropriate changes to the DEP for Land Use requirements of the storm water management rules that would efficiently curtail the direct channeling of rainfall into storm water drainage pipes and from there into the river,
- to recommend to the DEP to more strictly apply its existing rules disallowing building in flood prone, wet areas.

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