APPENDIX III – Correspondence

Letters submitted to the Flood Advisory Committee (FAC) by organizations, municipalities, or county government between May and October 2009.

- Brandywine Conservancy, October 21, 2009
- Sierra Club Pennsylvania Chapter, October 20, 2009
- Environmental Commission of Delaware Township, PA, October 19, 2009
- Delaware Riverkeeper Network, October 18, 2009
- Delaware County, NY Board of Supervisors, October 16, 2009
- Tinicum Township, PA, October 13, 2009
- Association of State Floodplain Managers (ASFPM), October 9, 2009
- New Jersey Association for Floodplain Management (NJAFM), October 7, 2009
- Brandywine Conservancy, August 28, 2009
- Borough of Amber, PA, August 24, 2009
- Lower Macungie Township, PA, August 23, 2009
- Association of State Floodplain Managers (ASFPM), August 21, 2009
- New Jersey Association for Floodplain Management (NJAFM), August 13, 2009
- Stroud Water Research Center, August 5, 2009
- Pennsylvania Department of Transportation (PennDOT), July 24, 2009
- Delaware County, NY Planning Department, July 17, 2009
- New York State Department of Transportation (NYSDOT), June 30, 2009
Ladies and Gentlemen:

We write to urge that the final report of the Floodplain Regulations Evaluation Subcommittee (FRES) recommending strengthening of floodplain regulations be sent to the Commission itself for their review and action. It is important that the FRES recommendations, including an explicit and mandatory 100-foot forested riparian buffer requirement, move forward to the Commissioners. A 100-foot forested riparian buffer will help mitigate peak flood flows, reduce the volume of flow imposed upon downstream communities, and ensure that there exists an absolute, reasonable, and scientifically defensible setback within which no new structures will be subjected to flood damage and harm. Setting an explicit buffer minimum, while allowing for local planning to accommodate appropriate variation, will ensure that all communities benefit from an appropriate level of protection and avoid harm from inappropriate development by upstream neighbors.

Additionally, mandating forested buffers not only contributes to the reduction of flood damages but also provides other benefits, including the filtering of pollutants, providing fish and other aquatic habitat, improving waterway oxygen levels for fish, enhancing recreation and ecotourism, increasing the market value and marketability of nearby homes, and protecting public and private lands from erosion.

In addition to riparian forested buffers, we also strongly support other FRES recommendations:

Recommendation: The regulatory floodplain for waterways in the Delaware River Basin should be greater than the 1% annual chance floodplain. The Subcommittee recommended that this be done either by defining the regulatory floodplain as the 1% annual chance peak flow plus 25% (as they have already done in New Jersey) or by defining it as the 0.2% annual chance floodplain (also known as the 500 year floodplain). Brandywine supports both approaches - using the 500 year event may be more easily implemented as FEMA maps already include the 500 year floodplain. Given seeming worsening of flooding in local watersheds (from changing precipitation events? from altered watershed hydrology?), we are going beyond the 100-year floodplain elevation in our municipal ordinances.

Recommendation: The floodway in the Delaware River Basin should be defined by a 0.2 foot rise standard for the mainstem Delaware River and all other streams and rivers within the Basin.
Recommendation: Protect the flood fringe in a naturally vegetated state and limit
development, including but not limited to, structures, infrastructure, impervious surfaces,
fill, grading, and removal of vegetation.

Recommendation: New development in floodways should be prohibited. Because the
floodway is the portion of the floodplain closest to the water where depth and velocity of
flood flow is greatest, development in the floodway is subject to greater flood damage
potential from depth and velocity of flow. According to the Subcommittee report, people
living within floodways are subject to devastating flood events that impact public health,
safety, and welfare, often resulting in loss of life and severe property damage. Therefore,
development should be prohibited.

We appreciate this opportunity to comment. It is so important that DRBC move forward
and set standards higher, as critical guidance for local municipalities.

Yours truly,

Wesley R. Horner, AICP
Senior Advisor for Water Resources
Environmental Management Center
Brandywine Conservancy
PO Box 141
Chadds Ford PA 19317
610-388-8124
whorner@brandywine.org

cc:
Sherri Evans-Stanton
John Theilacker
Jack Hines
The members of the Pennsylvania Chapter of the Sierra Club urge you to adopt and pursue the Floodplain Regulations Evaluation Subcommittee report you are considering on October 22nd. In those areas within the report where there are options provided, we urge you to adopt the strongest choice, and the one that provides the greatest level of clarity and detail.

And we urge you to pass a resolution that includes direct action and regulation by the Delaware River Basin Commission to protect our floodplains from future vegetation removal and development, to restore floodplains that have already been compromised by past action, and to ensure a minimum 100 foot forested buffer requirement (with limited but appropriate exceptions) for the main stem River and all watershed streams.

Current floodplain regulations are not providing the level of protection the communities of the Delaware River Basin need. It is critical that the Delaware River Basin Commission take strong and immediate steps to protect our floodplains from new and future development. It is also critical that the Delaware River Basin Commission exercise its full authority to create and implement programs that will restore to healthy function the floodplains that have already been compromised. While we agree it is important to recognize needed exceptions, such as for historic structures or other social and cultural goods, it is equally important that we stop the cycle of harm that ongoing, and past, development is inflicting on our communities.

It is especially important that the DRBC pass some of its own regulations and create and implement its own programs to accomplish the goals of floodplain protection and restoration, to ensure that downstream communities are not left to the mercy and/or wisdom of those that live upstream.

We particularly urge the DRBC to craft and carry out an explicit, and mandatory, 100 foot forested buffer requirement for floodplains along all rivers and streams. There is ample science and real world experience to justify this width and this approach for purposes of flood damage reduction. A 100 foot forested buffer will help to mitigate peak flows, reduce the volume of flow imposed upon downstream communities, and ensure that there exists an absolute, reasonable and defensible setback within which there are no structures that could be subjected to flood damage and harm.

Recommendations that the regulated floodplain and floodway be expanded are vital. Experience has demonstrated that merely regulating development within the 100 year floodplain is simply not protective enough. New Jersey has already set and defended a strong precedent for expanding the definition of the regulated floodplain.

It is critical that floodplain and floodway regulations be restructured so that their focus is on prevention of development in the floodplain, rather than the current approach which actually supports floodplain development but merely mandates the parameters by which that development will take place.

The Delaware River Basin Commission has an opportunity to lead the way towards wise and meaningful change. The members of the Pennsylvania Chapter, Sierra Club, urge you to take it.

Sincerely,

Barbara Benson, Water Issues Co-Chair

cc Dennis Winters, Chair
Thomas Au, Conservation Chair
Delaware Riverkeeper Network
October 19, 2009

Re: Floodplain Regulations

I am a member of the Environmental Commission in Delaware Township and serve as an advisor to the Planning Board. As head of the Stormwater Committee, I am astonished by the numbers of complaints about erosion and flooding we receive in this rural township. The long-awaited Stormwater Act has proved a disappointment because the use of TR 55 at its basis consistently overestimates current runoff and underestimates runoff from lawns and other modified landscapes. Our problems get nothing but worse with almost no funding available to us for retrofit as all the 319 monies for our area are directed to agencies, not our township. Our only hope is better management of floodplains and finally stopping the development of floodplains.

Please give your approval to the strongest recommendations of the Floodplain Regulations Evaluation Subcommittee report at your meeting on 22 October. Its recommendations, if implemented, will greatly aid in reducing damages to streams, forests and properties at a time when such damages are far too high. And please keep in mind that there is every indication that flooding problems will worsen substantially in our area in the future.

A group of experts assembled by the Union of Concerned Scientists have forecast an increase of total rainfall as well as an increase of the amount of rainfall coming from intener storms for the near future in the northeast of the U.S. In addition, a detailed and lengthy report from the National Research Council has sharply critiqued and suggested revision of numerous methods that have become standard in attempting to deal with stormwater problems which also are of increasing incidence as more and more of the landscape is altered by development.

So it is time to think of improving protections of stream and river corridors which provide many useful and highly valuable services besides flood protection.

Respectfully yours,

Leslie Sauer
Box 45
Sergeantsville, NJ 08557

P.S. The two reports mentioned above are these:
Northeast Climate Impact Team. Confronting climate change in the Northeast: Science, impacts and Solutions, July 2007. This can be accessed on the Union of Concerned Scientists website.

October 18, 2009

Commissioners
Delaware River Basin Commission
P.O. Box 7360
25 State Policy Drive
West Trenton, NJ 08628-0360

Submitted via: Paula.schmitt@drbc.state.nj.us

Subject: Floodplain Regulations Evaluation Subcommittee

Dear Commissioners,

The Delaware Riverkeeper Network was an active member of the Floodplain Regulations Evaluation Subcommittee. The process was very involved and intensive. The report submitted for your consideration is based on solid information, discussion and consideration.

What is happening along our River and based on the informed and experienced experts that participated in the Subcommittee, it is clear that the regulations we have in place regarding floodplain development is not effectively protecting our communities from flood damages:
- Not those being allowed to build and expand anew in the floodplain,
- Not those who live downstream and in adjacent communities, and
- Not those that have to invest their tax dollars and limited community resources in responding to a catastrophic flood and flood damages.

The catastrophic floods that have taken place in recent years were the result of extreme weather events. And things are only predicted to get worse with global climate change. The reality remains that there will always be changing storm scenarios that will cause new, different and catastrophic harm in the future. As global climate change continues, we will not just continue to have catastrophic events, but it is expected that we will have more of them, and that they will be more extreme.

Continuing to support existing development patterns focused on new construction in the floodplain – whether it be construction of entirely new buildings or expansion of those already present – is unwise, unsafe, unfair, and frankly unconscionable.
Floods are a natural, normal and needed part of a river’s life cycle – not only will future floods not be prevented, but a healthy Delaware River for us all demands that periodic floods be allowed to continue. It is time to start embracing that reality and to make decisions that recognize and honor this important and needed fact.

The best protection, the only true protection, we can provide for reducing flood damages is to prevent new development in the floodplain, to remove existing development where it has already occurred, and to protect and, where appropriate, restore the floodplain to the greatest extent possible.

By implementing a program of floodplain protection and restoration, including removing structures and reforesting, we

✓ provide the greatest level of flood protection and flood damage reduction to our region,
✓ provide drought protection,
✓ filter pollution from our river, fish and drinking water supply,
✓ maintain and improve existing water quality of particular import to the Wild and Scenic and Special Protection Waters designations of the upper, middle and lower sections of the River.
✓ and we provide food and habitat that support the fisheries, ecosystems, ecotourism, economies and quality of life so important to our watershed community as a whole.

A program of floodplain protection and restoration can still acknowledge and make exceptions for those communities and structures where there are other unique cultural, historic or community values it is agreed should be preserved.

The Delaware Riverkeeper Network urges you to take strong steps to improve protection of our floodplain from future development and to identify and invest in programs that will help restore those areas of the floodplain that have already been compromised.

In terms of floodplain restoration, the FRES report identifies and discusses identification of options that assist and support those individuals and families who want to move out of the floodplain, not forcing them out, but assisting them to move out and preventing the dangers of living in the floodplain from being continually and knowingly transferred from present homeowners to future homeowners.

The Delaware Riverkeeper Network urges you to move this process of strengthening protection of our floodplains to the next level. We request that the DRBC commence a rulemaking process that will realize the recommendations placed before you so they can be adopted by, and implemented by, the Delaware River Basin Commission on an equitable, uniform and watershed-wide basis. It must be clear that this process will activate the recommendations in the FRES report, not reargue whether those recommendations should have been made. And there needs to be a defined timeline by which regulatory language for adoption by the DRBC and the watershed states will be put forth for consideration and comment.

Respectfully submitted,

Maya K. van Rossum
the Delaware Riverkeeper
October 16, 2009

Ms. Carol Collier, Executive Director  
Delaware River Basin Commission  
25 State Police Drive  
P.O. Box 7360  
West Trenton, NJ 08628-0360

Dear Ms. Collier:

I am writing to you with concerns regarding the Recommendations of the Floodplain Regulation Evaluation Subcommittee (FRES) of the DRBC Flood Advisory Committee (FAC). While I support improved flood protection, it is not clear to me that these recommendations will achieve that goal.

Broad Concerns:

- State and local floodplain regulations already exist. How would an additional layer of DRBC regulations ensure any further risk reduction?
- The vast differences in the geography and topography of the basin dictate that any regulations should be site specific, science-based and flexible enough to address different circumstances.
- There is no commitment of funding to assist communities with the adoption or implementation of the regulations.
- There may be a conflict of interest in the FRES recommendation in that members on the FRES also serve on the FAC.
- Clarification is needed on what authority and the due process and safeguards required by that authority for the Commission to adopt rules which will have the force of law.
- For these regulations to be implemented by local towns and villages, the towns and villages will have to comply with SEQRA and conduct a thorough analyses of their impact on the environment including community character and sustainability.
- For these regulations to be adopted by DEC, a state agency, in addition to SEQRA, the state agency must conduct the following analyses: (i) impact on small business; (ii) impact on rural communities; (iii) regulatory flexibility; (iv) cost impact analyses and (v) approval of the NYS Environmental Board. Will DRBC conduct the same analyses and/or seek similar approvals?
Specific Concerns:

- A socio-economic impact analysis was not conducted. Both the new floodplain and floodway definitions pose significant socio-economic concerns left unanswered.
- An inventory and risk analysis to locate high priority areas was not conducted.
- To what extent do the proposed regulations conflict with existing local floodplain regulations?
- Delaware County is in the process of reviewing and adopting Preliminary digital Flood Insurance Rate Maps. The increased accuracy of these maps, their ease of use, and the attention they are drawing to floodplain management issues present a great opportunity educate the public and discuss with communities the importance of controlling activities in the floodplain and floodways to improve enforcement of floodplain regulations already in place.
- Given the amount of effort being put into the review and adoption of Preliminary DFRMs by federal, state, county, and municipal agencies and officials, it is unrealistic to expect to be able to repeat this process based on new regulations from the DRBC any time in the near future.
- The FREC recommends a riparian buffer of uniform width throughout the basin. This contradicts the variable nature of floodplains and stream flow regimes within the basin. A variable-width buffer based on the greater need to protect hydrologically sensitive areas would allow more realistic, flexible and effective implementation.

It is incumbent upon the DRBC to address these concerns given the significant ramifications they present. The DRBC should address these issues and provide a response. A Delaware County Board of Supervisor’s resolution pertaining to these concerns is enclosed.

Sincerely,

[Signature]

James E. Eisel, Sr., Chairman
Delaware County Board of Supervisors

Enclosure

CC: Governor Paterson
    Senator Bonacic
    Assemblyman Crouch
    Commissioner Grannis
    Section Chief Nechamen
RESOLUTION NO. 167

TITLE: POSITION ON THE FINDINGS OF THE FLOODPLAIN REGULATIONS EVALUATION SUB-COMMITTEE OF THE DELAWARE RIVER BASIN COMMISSION'S FLOOD ADVISORY COMMISSION PLANNING DEPARTMENT

WHEREAS, the Delaware County Board of Supervisors participated in the Interstate Flood Mitigation Task Force of the Delaware River Basin Commission (DRBC) convened as a result of the 2006 flood event; and

WHEREAS, the DRBC established the Floodplain Regulation Evaluation Subcommittee (FRES) to review and evaluate the similarities, differences and effectiveness of floodplain regulations throughout the Delaware River Basin and to develop and present recommendations on the potential for more effective floodplain management throughout the Basin to the Flood Advisory Committee (FAC); and

WHEREAS, Delaware County as a member of the FRES disagreed with several of its findings and recommendations and therefore issued its own set of recommendations to the FAC that reflect the needs of New York State and more specifically Delaware County; and

WHEREAS, the FRES found that flood damage risks and therefore floodplain management solutions in Delaware County are different than those lower in the Delaware River watershed, given the unique topographic, climatic, and hydrologic characteristics of the county, as well as current and future patterns of development but ignored this finding when making their recommendations; and

WHEREAS, Delaware County's analysis concluded the current framework for regulating floodplain development has not been used to its fullest potential, and this problem is best addressed by improving local capacity to effectively administer the regulations already in place, not by creating another layer of regulation; and

WHEREAS, the Delaware County Board of Supervisors recognizes that regulations of the breadth and scope of those proposed by the FRES require a detailed evaluation of the environmental, economic, and social impacts of their implementation under New York State law as established by the State Administrative Procedures Act and the State Environmental Quality Review Act; and

NOW THEREFORE BE IT RESOLVED, the Delaware County Board of Supervisors urge the Delaware River Basin Commissioners to refer any consideration of the FRES recommendations back to their respective state agencies to ensure that a socioeconomic and environmental analysis will be performed to determine the full impact of any floodplain management recommendation; and

BE IT FURTHER RESOLVED, that the Delaware County Board of Supervisors firmly oppose the adoption of additional floodplain regulations by the Delaware River Basin Commission.

State of New York
County of Delaware

I, Christa M. Schafer, Clerk of the Board of Supervisors of Delaware County, do hereby certify that the above is a true and correct copy of a resolution adopted by said Board on the 14th day of October 2009 and the whole thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Board at Delhi, New York, this 14th day of October 2009.

[Signature]
Clerk, Delaware County Board of Supervisors
October 7, 2009

Carol Collier, Executive Director
Delaware River Basin Commission
25 State Police Drive
P.O. Box 7360
West Trenton, NJ 08628-0360

Dear Carol,

The Tinicum Township Board of Supervisors enacted the attached Resolution during their public meeting last night. They are very supportive of DRBC’s efforts to strengthen floodplain and buffer regulations on a regional basis.

We understand that there will be a meeting with the Flood Task Force on October 20th and hope that Tinicum’s support will be helpful.

If there is anything else we can do to assist your efforts, please let me know.

Sincerely,

Linda McNeill
Township Manager
RESOLUTION NO. 10.04.09.1

A RESOLUTION OF TINICUM TOWNSHIP, BUCKS COUNTY PENNSYLVANIA
SUPPORTING FLOODPLAIN AND RIPARIAN BUFFER PROTECTION
FOR THE DELAWARE RIVER

WHEREAS, Tincum Township recognizes that hurricanes, severe thunderstorms, heavy rains, and snowstorms affect the Delaware River watershed and its residents. In areas lacking proper floodplain protection and riparian buffers, the increased water levels can create dangerous situations that are devastating emotionally, physically and financially, and result in damage to residents, communities, our environment, the River and all who rely upon it.; and

Whereas, Tincum Township supports and encourages efforts by the Delaware River Basin Commission to strengthen protection of the floodplains of the mainstem Delaware River as well as tributary streams. Ensuring no new development occurs in the floodplain is critical for ensuring that no new families, businesses and structures are put in the path of future floods; and for ensuring that communities do not continue to develop in a way that exacerbates future flooding for downstream communities who will be the recipients of the increased runoff that will result from both the development and the reduced ability of the floodplain to help absorb and cleans stormwater and floodwaters; and

WHEREAS, Tincum Township supports action by the Delaware River Basin Commission to pass regional regulations which must be carried forth by each of the watershed states and communities; and

WHEREAS, Tincum Township believes it is important to set an explicit minimum buffer requirement in order to ensure a minimum level of protection for downstream communities from flooding, pollution, and ecological harm.

NOW THEREFORE, be it and it is hereby RESOLVED by the Board of Supervisors of Tincum Township, Bucks County, Pennsylvania as follows:

1. Tincum Township supports DRBC recommendations and actions that include requirement for an explicit, and mandatory, 100 foot forested buffer requirement on the mainstream River and tributary streams. There is ample science and real world experience to justify a mandatory 100 foot forested buffer width for purposes of flood damage reduction. A 100 foot forested buffer will help to mitigate peak flows, reduce the volume of flow imposed upon downstream communities, and ensure that there exists an absolute, reasonable and defensible setback within which there are no structures that could be subjected to flood damage and harm.

2. Tincum Township supports mandating that the buffer minimum be “forested” as compared to “vegetated” to the greatest extent appropriate and possible. Forested buffers not only contribute to the reduction of flood damages but also provides a wealth of other benefits that support its adoption — including (but not limited to) filtering pollution, providing fish and other aquatic habitat, improving waterway oxygen levels for fish, enhancing recreation and ecotourism, increasing the market value and marketability of nearby homes, and protecting public and private lands from erosion.

3. Tincum recognizes that removing vegetation from the floodplain and replacing it with impervious surfaces and structures increases the volume of floodwaters that enter the neighboring river or stream and thereby exacerbating their flood damages and recognizes that elevating a structure does not prevent this
continuing contribution of additional floodwaters and harm. Tinton recognizes the need to restructure floodplain and floodway regulations so that their focus is on prevention of development in the floodplain, rather than the current approach which actually supports floodplain development but merely mandates the parameters by which that development will take place.

4. Tinton supports expansion of the definition of the regulatory floodplain, and the New Jersey definition of the regulatory floodplain where it is defined as the 1% annual chance peak flow plus 25% or as the 0.2% annual chance floodplain (also known as the 500 year floodplain).

5. Tinton supports expanding the definition of the “floodway” so it is defined by a 0.2 foot rise standard for the main stem Delaware River and all other streams and rivers within the Basin. Tinton also supports a prohibition on new development in floodways.

6. Tinton supports protecting the flood fringe in a naturally vegetated state and limiting development, including but not limited to, structures, infrastructure, impervious surfaces, fill, grading and removal of vegetation.

7. Tinton urges the Delaware River Basin Commission to take steps to ensure restoration of portions of the floodplain that have already been compromised by removal of vegetation and/or development. Voluntary buyout programs and floodplain restoration programs are an important part of an overall strategy for reducing flood damages.

8. Tinton Township supports regulatory improvements that ensure substantial damage calculations include cumulative costs. It is important that homes which have been substantially damaged not be encouraged to continually rebuild in hazard areas as this is contrary to sound public and/or safety policy.

9. Tinton supports and encourages efforts by the Delaware River Basin Commission to create, support and implement strengthened stormwater regulations that mimic pre-development hydrology.

RESOLVED this ___ day of October, 2009.

ATTEST:

Linda McNeill, Township Manager

TINICUM TOWNSHIP BOARD OF SUPERVISORS

Boyce Budd, Chairperson

Nicholas C. Forte, Vice Chairperson

Gary Pearson, Member
October 9, 2009

Honorable Commissioners
Delaware River Basin Commission
25 State Police Drive
P.O. Box 7360
West Trenton, NJ 08628-0360

Re: Comments on the Recommendations of the Floodplain Regulations Evaluation Subcommittee

Dear Commissioners:

With much interest, the Association of State Floodplain Managers has reviewed the report from the Floodplain Regulations Evaluation Subcommittee of the Delaware River Basin Commission - Flood Advisory Committee. This letter provides our broad endorsement of the May 19, 2009 Recommendations of the Floodplain Regulations Evaluation Subcommittee based on this Association’s collective experience with floodplain regulations throughout the United States over the past decades.

The Association of State Floodplain Managers (Association) has 14,000 members and 28 State Chapters throughout the nation. Our Association is focused on helping the 21,000 flood-prone communities in the nation reduce their flood losses and enhance the floodplain resources that reduce flood losses naturally. The Association’s website (www.floods.org) is newly updated and provides links to publications, papers and practical guides to educate communities how to be more resilient to flooding. These references provide greater detail and case studies on a variety of measures being implemented in many states.

It is important to note that regions, states, counties and municipalities in the nation have progressed with local regulations that exceed Federal Emergency Management Agency (FEMA) minimum National Flood Insurance Program (NFIP) standards. As Commissioners, you should feel comfortable with adopting regulations that better protect the health and safety of the public. The proposed recommendations are in line with those used by progressive states and communities elsewhere in the nation.

ASFPM has developed a management principal called No Adverse Impact that simply states that the action of one party shall not adversely impact the property and rights of another party.
A review of case law demonstrates that courts have upheld additional local regulations, especially when based on the principle of protecting the property rights of everyone in the community or watershed. In addition, the National Flood Insurance Program regulations encourage higher standards, whereby “…community officials may have access to information or knowledge of conditions that require, particularly for human safety, higher standards than the minimum criteria set forth in...this part. Therefore, any floodplain management regulations adopted by a State or a community, which are more restrictive than the criteria set forth in this part are encouraged and shall take precedence.”

ASFPM supports the Floodplain Regulations Evaluation Subcommittee’s recommendations on incorporating future conditions in both floodplain mapping and by requiring structures to have freeboard above the base flood elevation, an approach used by half of the communities in the nation. In our publications we cite where states have incorporated regulations designed to reduce flood losses and protect floodplain resources. Half of the nation’s states have incorporated buffers and setbacks from floodprone areas. Consistent with our recognition of states and communities that mandate such, the Association favorably views the adoption of a minimum 100’ vegetated buffer along the waterways of the basin.

The Association is very pleased to observe the high percentage of Certified Floodplain Managers as representatives on the Floodplain Regulations Evaluation Subcommittee. We applaud the Subcommittee’s work and we would be pleased to help you and your staff with case studies and examples of regulations adopted throughout the nation. The Association understands that the proposal of regulations can be politically difficult. We believe that incorporating the recommendations of the Subcommittee is acting in the best interest of the watershed’s population, its communities and taxpayers and provides additional protection to this nationally significant river basin. We will expectantly watch how the recommendations proceed through the Delaware River Basin Commission rulemaking process.

Sincerely,

Greg Main, CFM
ASFPM Chair
Indiana DNR

Larry A. Larson, P.E., CFM
ASFPM Executive Director

1 See: http://floods.org/PDF/Mitigation/ASFPM_Thomas&Medlock_FINAL.pdf
2 From 44 CFR 60.1(d)
October 7, 2009

Honorable Commissioners
Delaware River Basin Commission
25 State Police Drive
P.O. Box 7360
West Trenton, NJ 08628-0360

Re: Support of the May 19, 2009 Recommendations of the
Floodplain Regulations Evaluation Subcommittee
Of the Delaware River Basin Commission
Flood Advisory Committee

Dear Commissioners:

The New Jersey Association for Floodplain Management (NJAFM) is dedicated to reducing loss of life and property damage resulting from floods and promoting sound floodplain management at all levels of government. To that end, we greatly support the work of the Delaware River Basin Commission (DRBC) Flood Advisory Committee (FAC) and its Floodplain Regulations Evaluation Subcommittee (FRES). This letter provides our comments on the May 19, 2009 Recommendations of the Floodplain Regulations Evaluation Subcommittee\(^1\). The comments provided in this letter have been approved by the majority of the Association’s Board comprised of elected representatives and committee chairs.

We note that nine (9) of the twenty (20) members of the FRES are Certified Floodplain Managers (CFM) as administered by the Association of State Floodplain Managers (ASFPM). NJAFM is one of twenty-eight (28) chapters of ASFPM that comprises a total of 14,000 Association and chapter members. The CFM program recognizes continuing education and professional development that enhances the knowledge and performance of local, state, federal, and private-sector floodplain managers. Our Board acknowledges the established experience and training of the FRES members that makes the recommendations even stronger.

As with our support letter to the FAC in August, we dedicate this letter to our late colleague, Mr. Joseph Zagone, P.E., PLS, CFM who was employed by the Federal Emergency Management Agency and served most recently on the FRES. Joe was among a handful of early Certified Floodplain Managers in the State of New Jersey. Joe was a stalwart member of the DRBC-FAC and a champion of stronger floodplain management through his work on the FRES.

Respectively, the New Jersey Association for Floodplain Management’s Board, formally submits the following support and comments:

A. Regulatory Floodplain Definition – NJAFM recognizes that floodplain limits are dynamic with regard to depth and aerial extents. In contrast, mapping of the floodplain along the Delaware River is derived from current conditions and past flood events. Development in the watershed increases the volume of runoff leading to greater flooding. We believe that future

\(^1\) Report found at: http://www.state.nj.us/drbc/Flood_Website/FRES/Report_051909rev060209.pdf

P.O. Box 1326 Trenton New Jersey 08607
A Federally Tax Exempt Non-Profit 501(c)3 Organization, Taxpayer ID # 20-3549247
conditions should be considered in the definition of the regulatory floodplain and concur with Option 1 to add a residual risk factor of 25% to the 1% annual chance flood flow;

B. Floodway Definition – NJAFM members have witnessed the scour and damage related to flood flow velocities outside of the regulatory floodway (typically defined from bank to bank of the Delaware River). We concur with the recommendation to lower the FEMA standard 1-foot rise in water surface elevation to a 0.2-foot rise. This would help inhibit development in the most destructive area of the floodplain;

C. Development/Fill in the Flood Fringe – NJAFM agrees that any development in the floodplain is risky, costly and presents dangers to the occupants and first responders. Therefore, we concur that keeping the floodplain in a natural state is of a high priority and that limiting new development in this sensitive areas should be incorporated into basin-wide policy;

D. Development/Fill in the Floodway – NJAFM wholeheartedly agrees with the FRES that new development activities in the floodway should be disallowed;

E. Stream/riparian Corridors and Vegetation Disturbance – the NJAFM supports the implementation of a floodplain buffer to protect the natural and beneficial functions of the floodplain. In chorus with the Association of State Floodplain Managers we recognize the importance of the floodplain for recreation, wildlife habitat and protection of the water resources we depend on for drinking water, bathing, fishing and the aesthetics that bring value to our riverside communities. We recognize the extensive costs to restore the floodplain once it has been spoiled, and believe that avoidance of its occupation is the best policy to protect floodprone land;

F. Adopted Building Code – NJAFM is in favor of greater freeboard and locating structures outside of the floodplain, with specific restrictions for areas that experience flash flooding, high velocity flows and have highly erodible soils;

G. Standards for the Lowest Floor of Structures (Freeboard) – We agree that a two-foot freeboard requirement would provide additional protection for people, building and contents. Freeboard in part accounts for the uncertainty of the floodplain delineation and the changes in the watershed and climate. Freeboard also reduces future flood insurance premiums for subsequent owners of buildings;

H. Enclosed Areas below Flood Elevation – NJAFM concurs with the FRES recommendation of requiring a deed restriction to alert future owners and zoning officers of the limits to occupation of a structure below the regulatory flood elevation. We agree that the height of the enclosed area should be restricted to six-feet to thwart conversion of the restricted area to a living space;

I. Substantial Damage/Improvement to Structures – NJAFM believes that further education of local officials is needed for substantial damage and substantial improvement requirements;

J. Dams and Flood Damage Risk – We acknowledge the additional hazard that dams impose downstream in the floodplain. NJAFM concurs with the FRES recommendations to strengthen dam safety;

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K. Bridge/Culvert Construction or Reconstruction and Flood Damage Risk – NJAFM agrees that crossing of bodies of water should not increase the risk of flooding both downstream and upstream of the proposed infrastructure. We agree that if change in the floodplain cannot be avoided, the modification of risk must be exhibited on the Federal Emergency Management Agency Flood Insurance Rate Maps;

L. Stormwater Regulations – New and Redevelopment – NJAFM agrees that more aggressive stormwater management in the Delaware River basin is needed. We commend the FRES for identifying measures that would make great strides in minimizing additional flooding and protect water quality.

The New Jersey Association for Floodplain Management appreciates the opportunity to submit these comments to the DRBC Commissioners. The FRES performed a vital service in its appraisal of the existing regulations and through its support of increased measures to protect the Delaware River, its communities, enhancing the safety of the population and reducing the expenditure of public monies with sound policy.

Sincerely,

John A. Miller, P.E., CFM
Legislative Committee
Certified Floodplain Manager

Adam Slusky, P.E., CFM
Chair
Certified Floodplain Manager

cc: Mr. Larry Larson, P.E., CFM, Executive Director, ASFPM
Mr. George Riedel, CFM, Deputy Executive Director, ASFPM
Ms. Diane Brown, Communications and Events Manager, ASFPM
Ms. Anita Larson, Certification Coordinator, ASFPM
Ms. Kait Laufenberg, CFM, Chapter & Training Coordinator, ASFPM
NJAFM Board by email
Mr. Edward Pagan, Esq., CFM, NJAFM Legislative Committee Chair
NJAFM archives
July 28, 2009

Flood Advisory Committee
c/o Delaware River Basin Commission
25 State Police Drive
West Trenton, NJ 08628

Ladies and Gentlemen:

We write to urge that the final report of the Floodplain Regulations Evaluation Subcommittee (FRES) recommending strengthening of floodplain regulations be sent by the Flood Advisory Committee to the Commission itself for review and action. It is important that the FRES recommendations, including an explicit and mandatory 100-foot forested riparian buffer requirement, move forward to the Commissioners. A 100-foot forested riparian buffer will help mitigate peak flood flows, reduce the volume of flow imposed upon downstream communities, and ensure that there exists an absolute, reasonable, and scientifically defensible setback within which no new structures will be subjected to flood damage and harm. Setting an explicit buffer minimum, while allowing for local planning to accommodate appropriate variation, will ensure that all communities benefit from an appropriate level of protection and avoid harm from inappropriate development by upstream neighbors.

Additionally, mandating forested buffers not only contributes to the reduction of flood damages but also provides other benefits, including the filtering of pollutants, providing fish and other aquatic habitat, improving waterway oxygen levels for fish, enhancing recreation and ecotourism, increasing the market value and marketability of nearby homes, and protecting public and private lands from erosion.

In addition to riparian forested buffers, we also strongly support other FRES recommendations:

Recommendation: The regulatory floodplain for waterways in the Delaware River Basin should be greater than the 1% annual chance floodplain. The Subcommittee recommended that this be done either by defining the regulatory floodplain as the 1% annual chance peak flow plus 25% (as they have already done in New Jersey) or by defining it as the 0.2% annual chance floodplain (also known as the 500 year floodplain). Brandywine supports both approaches - using the 500 year event may be more easily implemented as FEMA maps already include the 500 year floodplain. Given seeming worsening of flooding in local watersheds (from changing precipitation events? from...
altered watershed hydrology?), we are going beyond the 100-year floodplain elevation in our municipal ordinances.

**Recommendation:** The floodway in the Delaware River Basin should be defined by a 0.2 foot rise standard for the mainstem Delaware River and all other streams and rivers within the Basin.

**Recommendation:** Protect the flood fringe in a naturally vegetated state and limit development, including but not limited to, structures, infrastructure, impervious surfaces, fill, grading, and removal of vegetation.

**Recommendation:** New development in floodways should be prohibited. Because the floodway is the portion of the floodplain closest to the water where depth and velocity of flood flow is greatest, development in the floodway is subject to greater flood damage potential from depth and velocity of flow. According to the Subcommittee report, people living within floodways are subject to devastating flood events that impact public health, safety, and welfare, often resulting in loss of life and severe property damage. Therefore, development should be prohibited.

We appreciate this opportunity to comment. It is so important that DRBC move forward and set standards higher, as critical guidance for local municipalities.

Yours truly,

Wesley R. Horner, AICP
Senior Advisor for Water Resources

cc:
Sherri Evans-Stanton
John Theilacker
Jack Hines
August 24, 2009

Flood Advisory Committee
c/o DRBC
25 State Police Dr
West Trenton, NJ 08628

RE: Floodplain Regulations Recommendations

To Whom It May Concern:

It is important that the Floodplain Regulation recommendations that move forward to the Commissioners include an explicit and mandatory 100 foot forested buffer requirement. It is essential that we seize present moments to prevent and disallow development that would only make flooding worse for the future.

The five other members of the Ambler Borough Environmental Advisory Council authorized me to express our clear, strong position on this. As a Professional Planner specializing in environmental and community land planning, this is a subject that is very important to me personally and professionally.

There is plenty of science and real world experience to justify this width and this approach for purposes of flood damage reduction. A 100 foot forested buffer will help to mitigate peak flows, reduce the volume of flow imposed upon downstream communities, and ensure that there exists an absolute, reasonable and defensible setback within which there are no structures that could be subjected to flood damage and harm.

Setting an explicit buffer minimum, allowing for local planning to accommodate appropriate, thoughtful and defensible variation is a reasonable approach forward that ensures all communities are provided an appropriate level of protection including from inappropriate development by upstream neighbors.

Mandating forested buffers not only contributes to the reduction of flood damages but also provides a wealth of other benefits that support its adoption — including (but not limited to) filtering pollution, providing fish and other aquatic habitat, improving waterway oxygen levels for fish, enhancing recreation and ecotourism, increasing the market value and marketability of nearby homes, and protecting public and private lands from erosion.

The recommendation that the regulated floodplain be expanded is vital. Experience has demonstrated that merely regulating development within the 100 year floodplain is simply not protective enough. New Jersey has already set and defended a strong precedent for expanding the definition of the regulated floodplain.
It is critical that floodplain and floodway regulations be restructured so that their focus is on prevention of development in the floodplain, rather than the current approach which actually supports floodplain development but merely mandates the parameters by which that development will take place.

Removing vegetation from the floodplain and replacing it with impervious surface and structures increases the volume of floodwaters that enter the neighboring river or stream and ensures that water is imposed upon downstream communities, thereby exacerbating their flood damages. Placing a structure on stilts, for example, does not prevent this continuing contribution of additional floodwaters and harm.

All members of the Ambler Environmental Advisory Council sincerely hope that you will see sufficient reason to adopt an expanded regulated floodplain. We understand there is federal stimulus funds dedicated to tree planting. We hope DRBC also helps to orchestrate reforestation efforts in the 100’ floodplain buffer zones.

Sincerely,  

Candace Kanaplué, AICP, PP  
Ambler EAC

Susan Curry,  
Chair, Ambler EAC

cc: Maya K. van Rossum, the Delaware Riverkeeper
August 23, 2009

Flood Advisory Committee
c/o Delaware River Basin Commission
25 State Police Drive
West Trenton, NJ 08628

Dear Flood Advisory Committee,

My name is Deana Zosky. I am one of five appointed Commissioners in Lower Macungie Township, which is located in the Lehigh Valley. My township, which presently has approximately 30,000 residents, has been one of the fastest growing townships in the state of Pennsylvania. Our township is also blessed with wonderful natural resources, including the Toad, Swabia, and Little Lehigh Creeks, all considered High Quality Cold Water fisheries in need of special protection. These streams traverse the length of our township and drain into the Lehigh, and ultimately, the Delaware River.

Our township has many miles of sensitive floodplain habitat as a result. Development in our township has taken a toll on these streams through the compounded effects of storm water quantity and quality impacts such as siltation and pollutant runoff, sewer surcharging, and the impacts of storm events resulting in flooding.

Never more than now in our townships history have we grappled with the seemingly increasing occurrences of flash and other flooding events on our streams and its impacts on our residents.

Our township ranks near the top of the Lehigh Valley Hazard Mitigation Report for areas with the highest flooding risk. Ironically, but not surprisingly, the hardest hit are our beautiful historic structures, many dating back over 250 years old, that are located along the banks of our streams. It has been a relatively recent event that these historic treasures are under persistent flooding pressure, and no coincidence that the level of development during this same period has been explosive.

Thankfully, the governing bodies before me had the foresight decades ago to implement what might arguably be the most stringent floodplain protection measures in the state. Our township prohibits any development in the 100 year floodplain and strictly regulates development in the 500 year floodplain. I cannot imagine how severe our already worrisome flooding problem would be had they not been visionary all those decades ago. It is now my responsibility as an appointed official to ensure these stringent protections remain and are enhanced with the addition of a comprehensive riparian buffer zone component.
Our region's Planning Commission, the Lehigh Valley Planning Commission, of which I am a member, recommends a minimum 75 foot riparian buffer. Our township is considering this model ordinance for implementation but I am also in favor of implementing a mandatory 100 foot buffer, when practical, to ensure that flooding impacts are mitigated and to protect the health of the stream for generations to come.

I urge you to follow in the footsteps of my visionary predecessors and implement the stringent floodplain regulations that prohibit any development in the 100 foot floodplain and severely regulate development in the 500 year floodplain, in addition to enacting 100 foot mandatory riparian buffer regulations, when practical.

There is plenty of science and real world experience to justify this width and this approach for purposes of flood damage reduction. A 100 foot forested buffer will help to mitigate peak flows, reduce the volume of flow imposed upon downstream communities, and ensure that there exists an absolute, reasonable and defensible setback within which there are no structures that could be subjected to flood damage and harm.

Setting an explicit buffer minimum, allowing for local planning to accommodate appropriate, thoughtful, and defensible variations is a reasonable approach forward that ensures all communities are provided an appropriate level of protection including from inappropriate development by upstream neighbors.

Mandating forested buffers not only contributes to the reduction of flood damages but also provides a wealth of other benefits that support its adoption – including (but not limited to) filtering pollution, providing fish and other aquatic habitat, improving waterway oxygen levels for fish, enhancing recreation and ecotourism, increasing the market value and marketability of nearby homes, and protecting public and private lands from erosion.

The recommendation that the regulated floodplain be expanded is vital. Experience has demonstrated that merely regulating development within the 100 year floodplain is simply not protective enough. New Jersey has already set and defended a strong precedent for expanding the definition of the regulated floodplain.

It is critical that floodplain and floodway regulations be restructured so that their focus is on prevention of development in the floodplain, rather than the current approach which actually supports floodplain development but merely mandates the parameters by which that development will take place.
Removing vegetation from the floodplain and replacing it with impervious surfaces and structures increases the volume of floodwaters that enter the neighboring river or stream and ensures that water is imposed upon downstream communities, thereby exacerbating their flood volumes.

I look forward to your leadership on these critically important topics. Should you wish to review our floodplain ordinances as a point of reference, they can be accessed at www.lowermac.org or by calling our Township Zoning Officer, at 610-966-4343. If you have any questions, I would be happy to speak with you at dzosky@lowermac.com or at 484-951-1289.

Sincerely,

[Signature]

Deana M. Zosky
Vice President, Lower Macungie Township Commissioners
3400 Brookside Road
Macungie PA 18062
August 21, 2009

Flood Advisory Committee
Delaware River Basin Commission
25 State Police Drive
West Trenton, NJ 08628

Re: Comments on the Recommendations of the Floodplain Regulations Evaluation Subcommittee

Dear Members of the Flood Advisory Committee:

With much interest, the Association of State Floodplain Managers has reviewed the report from the Floodplain Regulations Evaluation Subcommittee of the Delaware River Basin Commission - Flood Advisory Committee. This letter provides our broad endorsement of the May 19, 2009 Recommendations of the Floodplain Regulations Evaluation Subcommittee based on this Association’s collective experience with floodplain regulations throughout the United States over the past decades.

The Association of State Floodplain Managers (Association) has 14,000 members and 28 State Chapters throughout the nation. Our Association is focused on helping the 21,000 flood-prone communities in the nation reduce their flood losses and enhance the floodplain resources that reduce flood losses naturally. The Association’s website (www.floods.org) is newly updated and provides links to publications, papers and practical guides to educate communities how to be more resilient to flooding. These references provide greater detail and case studies on a variety of measures being implemented in many states.

It is important to note that regions, states, counties and municipalities in the nation have progressed with local regulations that exceed Federal Emergency Management Agency (FEMA) minimum National Flood Insurance Program (NFIP) standards. The Flood Advisory Committee should feel comfortable in recommending to the Delaware River Basin Commission the adoption of regulations that better protect the health and safety of the public. The proposed recommendations are in line with those used by progressive states and communities elsewhere in the nation.

ASFPM has developed a management principal called No Adverse Impact that simply states that the action of one party shall not adversely impact the property and rights of another party. A review of case law demonstrates that courts have upheld additional local regulations1, especially when based on the principle of protecting the property rights of everyone in the community or watershed. In addition, the National

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Chair
Gregory Main, CFM
State Floodplain Manager
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State Floodplain Manager
New York State DEC
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Flood Insurance Program regulations\(^2\) encourage higher standards, whereby “…community officials may have access to information or knowledge of conditions that require, particularly for human safety, higher standards than the minimum criteria set forth in...this part. Therefore, any floodplain management regulations adopted by a State or a community, which are more restrictive than the criteria set forth in this part are encouraged and shall take precedence.”

ASFPM supports the Floodplain Regulations Evaluation Subcommittee’s recommendations on incorporating future conditions in both floodplain mapping and by requiring structures to have freeboard above the base flood elevation\(^3\), an approach used by half the communities in the nation. In our publications we cite where states have incorporated regulations designed to reduce flood losses and protect floodplain resources. Half of the nation’s states have incorporated buffers and setbacks from floodprone areas\(^4\). Consistent with our recognition of states and communities that mandate such, the Association favorably views the adoption of a minimum 100’ vegetated buffer along the waterways of the basin.

The Association is very pleased to observe the high percentage of Certified Floodplain Managers as representatives on the Floodplain Regulations Evaluation Subcommittee. We applaud the Subcommittee’s work and we would be pleased to help the DRBC Commissioners and staff with case studies and examples of regulations adopted throughout the nation. The Association understands that the proposal of regulations can be politically difficult. We believe that incorporating the recommendations of the Subcommittee is acting in the best interest of the watershed’s population, its communities and taxpayers, and provides additional protection to this nationally significant river basin. We will expectantly watch how the recommendations proceed through the Delaware River Basin Commission rulemaking process.

Sincerely,

Greg Main, CFM
ASFPMA Chair
Indiana DNR

Larry A. Larson, P.E., CFM
ASFPM Executive Director

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\(^1\) See: http://floods.org/PDF/Mitigation/ASFPM_Thomas&Medlock_FINAL.pdf
\(^2\) From 44 CFR 60.1(d)
August 13, 2009

Flood Advisory Committee
Delaware River Basin Commission
25 State Police Drive
West Trenton, NJ 08628

Re: Support of the May 19, 2009 Recommendations of the
Floodplain Regulations Evaluation Subcommittee
Of the Delaware River Basin Commission
Flood Advisory Committee

Dear Members of the Flood Advisory Committee:

The New Jersey Association for Floodplain Management (NJAFM) is dedicated to reducing loss of life and property damage resulting from floods and promoting sound floodplain management at all levels of government. To that end, we greatly support the work of the Delaware River Basin Commission (DRBC) Flood Advisory Committee (FAC) and its Floodplain Regulations Evaluation Subcommittee (FRES). This letter provides our comments on the May 19, 2009 Recommendations of the Floodplain Regulations Evaluation Subcommittee. The comments provided in this letter have been approved by the majority of the Association’s Board comprised of elected representatives and committee chairs.

We note that nine (9) of the twenty (20) members of the FRES are Certified Floodplain Managers (CFM) as administered by the Association of State Floodplain Managers (ASFPM). NJAFM is one of twenty-eight (28) chapters of ASFPM that comprises a total of 14,000 Association and chapter members. The CFM program recognizes continuing education and professional development that enhances the knowledge and performance of local, state, federal, and private-sector floodplain managers. Our Board acknowledges the established experience and training of the FRES members that makes the recommendations even stronger of merit.

We dedicate this letter to our late colleague, Mr. Joseph Zagone, P.E., PLS, CFM who was employed by the Federal Emergency Management Agency and served most recently on the FRES. Joe was among a handful of early Certified Floodplain Managers in the State of New Jersey. Joe was stalwart member of the DRBC-FAC and a champion of stronger floodplain management through his work on the FRES.

Respectively, the New Jersey Association for Floodplain Management’s Board, formally submits the following support and comments:

A. Regulatory Floodplain Definition – NJAFM recognizes that floodplain limits are dynamic with regard to depth and aerial extents. In contrast, mapping of the floodplain along the Delaware River is derived from current conditions and past flood events. Development in the watershed increases the volume of runoff leading to greater flooding. We believe that future

1 Report found at: http://www.state.nj.us/drbc/Flood_Website/FRES/Report_051909rev060209.pdf
conditions should be considered in the definition of the regulatory floodplain and concur with Option 1 to add a residual risk factor of 25% to the 1% annual chance flood flow;

B. Floodway Definition – NJAFM members have witnessed the scour and damage related to flood flow velocities outside of the regulatory floodway (typically defined from bank to bank of the Delaware River). We concur with the recommendation to lower the FEMA standard 1-foot rise in water surface elevation to a 0.2-foot rise. This would help inhibit development in the most destructive area of the floodplain;

C. Development/Fill in the Flood Fringe – NJAFM agrees that any development in the floodplain is risky, costly and presents dangers to the occupants and first responders. Therefore, we concur that keeping the floodplain in a natural state is of a high priority and that limiting new development in this sensitive areas should be incorporated into basin-wide policy;

D. Development/Fill in the Floodway – NJAFM wholeheartedly agrees with the FRES that new development activities in the floodway should be disallowed;

E. Stream/riparian Corridors and Vegetation Disturbance – the NJAFM supports the implementation of a floodplain buffer to protect the natural and beneficial functions of the floodplain. In chorus with the Association of State Floodplain Managers we recognize the importance of the floodplain for recreation, wildlife habitat and protection of the water resources we depend on for drinking water, bathing, fishing and the aesthetics that bring value to our riverside communities. We recognize the extensive costs to restore the floodplain once it has been spoiled, and believe that avoidance of its occupation is the best policy to protect flood prone land;

F. Adopted Building Code – NJAFM is in favor of greater freeboard and locating structures outside of the floodplain, with specific restrictions for areas that experience flash flooding, high velocity flows and have highly erodible soils;

G. Standards for the Lowest Floor of Structures (Freeboard) – We agree that a two-foot freeboard requirement would provide additional protection for people, building and contents. Freeboard in part accounts for the uncertainty of the floodplain delineation and the changes in the watershed and climate. Freeboard also reduces future flood insurance premiums for subsequent owners of buildings;

H. Enclosed Areas below Flood Elevation – NJAFM concurs with the FRES recommendation of requiring a deed restriction to alert future owners and zoning officers of the limits to occupation of a structure below the regulatory flood elevation. We agree that the height of the enclosed area should be restricted to six-feet to thwart conversion of the restricted area to a living space;

I. Substantial Damage/Improvement to Structures – NJAFM believes that further education of local officials is needed for substantial damage and substantial improvement requirements;

J. Dams and Flood Damage Risk – We acknowledge the additional hazard that dams impose downstream in the floodplain. NJAFM concurs with the FRES recommendations to strengthen dam safety;


K. Bridge/Culvert Construction or Reconstruction and Flood Damage Risk – NJAFM agrees that crossing of bodies of water should not increase the risk of flooding both downstream and upstream of the proposed infrastructure. We agree that if change in the floodplain cannot be avoided, the modification of risk must be exhibited on the Federal Emergency Management Agency Flood Insurance Rate Maps;

L. Stormwater Regulations –New and Redevelopment – NJAFM agrees that more aggressive stormwater management in the Delaware River basin is needed. We commend the FRES for identifying measures that would make great strides in minimizing additional flooding and protect water quality.

The New Jersey Association for Floodplain Management appreciates the opportunity to submit these comments to the FAC. The FRES performed a vital service in its appraisal of the existing regulations and through its support of increased measures to protect the Delaware River, its communities, enhancing the safety of the population and reducing the expenditure of public monies with sound policy.

Sincerely,

John A. Miller, P.E., CFM
Certified Floodplain Manager

Adam Slusky, P.E., CFM
Chair
Certified Floodplain Manager

cc: Mr. Dave Fowler, CFM, Region 5 Director, ASFPM
Mr. Larry Larson, P.E., CFM, Executive Director, ASFPM
Mr. George Riedel, CFM, Deputy Executive Director, ASFPM
Ms. Diane Brown, Communications and Events Manager, ASFPM
Ms. Anita Larson, Certification Coordinator, ASFPM
Ms. Kait Laufenberg, CFM, Chapter & Training Coordinator, ASFPM
NJAFM Board by email
Mr. Edward Pagan, Esq., CFM, NJAFM Legislative Committee Chair
NJAFM archives
August 5, 2009

Flood Advisory Committee
C/O Laura Tessier
Delaware River Basin Commission
25 State Police Drive
P.O. Box 7360
West Trenton, NJ 08628-0360

Dear Ms. Tessier:

This letter is in support of your subcommittee’s inclusion of the concept of 100 foot wide buffers in the Delaware River basin. We have had active research programs regarding buffers for the past 30 years. In fact, the Newbold et al. (1980) publication was one of the earliest scientific studies showing that a buffer wider than 100 feet was needed to prevent significant impact on stream biota when a watershed is logged. In the early 1990’s, two publications (Sweeney 1992, 1993) concluded that the presence or absence of trees adjacent to stream channels may be the single most important factor altered by humans that affects the structure and function of stream communities. In 2004, we published a landmark paper (Sweeney et al. 2004) based on 16 streams in PA and MD showing that stream reaches with forested riparian areas had more macroinvertebrates, ecosystem processing of organic matter, and nitrogen uptake per unit channel length than contiguous deforested reaches. Recently, we reminded the general public and decision makers like yourself that forest buffers are critical to both keeping unwanted contaminants out of streams as well as improving the health of stream ecosystem itself so that it can further process and degrade materials that do get into it (Sweeney and Blaine 2007). This year, we have a publication in press (Newbold et al. 2009) which reports on an 18 year study regarding a 100-115 foot wide forest buffer established in 1990. The paper shows that, once established, the buffer intercepts and removes on average ~26% of the nitrogen and ~43% of the sediments moving toward the stream from adjacent actively farmed land.

We are currently finishing up a literature review of past scientific studies that will be submitted soon for publication with the following tentative title: Streamside Forests for Protecting and Enhancing Water Quality and Stream Ecosystem Health and Services: How Wide Should They Be? We are evaluating the answer to that question with regard to the role that forest buffers play in protecting in-stream biota (macroinvertebrates and fish), maintaining natural in-stream habitat (water temperature, channel width, channel meandering and back stability, woody debris), and intercepting nutrients (phosphorous, nitrogen) and sediments before they get into a stream. We are close to finishing the review. We can tell you that, at this point, we will conclude that forest buffer widths of at least 100 feet are needed to adequately protect the in-stream biota and maximize the interception of nutrients and sediments before they get to the stream.
So, in conclusion, we view the decision by your subcommittee to include the concept of 100 foot wide buffers in the Delaware River basin as being both forward thinking and consistent with strongly supported by the current scientific literature.

Please do not hesitate to contact either one of us if you have any questions on any of the above.

Sincerely,

[Signature]

Bernard W. Sweeney
Director, President, Senior Research Scientist

[Signature]

J. Denis Newbold
Research Scientist

References:


The Pennsylvania Department of Transportation offers the following comments on the above referenced Report.

- Provide for inclusion of the State Transportation agencies to be represented on those committees whose proposals will have a substantial impact on transportation facilities. The purpose of the state DOTs is to protect the health, safety and welfare of the traveling public. Every project satisfies a community transportation need and directly or indirectly serves the local economy. State transportation systems are a significant feature in floodplains in order to connect communities and as such state transportation agencies are a major stakeholder in any proposed floodplain regulations.

- Throughout the document, there is reference to structures in the floodplain or floodway. If the primary concern is damage to commercial or private buildings that should be clarified. Transportation facilities that are necessary for providing connectivity to the traveling public should have a reduced or specific set of requirements more applicable to their impacts.

- There are inconsistencies in the document related to the reduction of flood peaks from vegetated buffers. It is agreed that vegetated buffers will slow floodwaters and increase the storage capacity of the floodplain which may attenuate downstream peaks. But with slower floodwaters comes increased depth of water (flooding) in the riparian area and potentially upstream. Areas that have low vegetation have more effective conveyance than areas with trees, shrubs, higher vegetation etc, which retard the flow and provide less conveyance and increased water surface elevations. The action of vegetated buffers in flood reduction is in slowing the rate at which runoff from adjacent areas enters the stream. Once the area is flooded, they increase the depth of flooding locally.

- **Section A. Regulatory Floodplain Definition:** FRES recommends increasing the regulatory floodplain by either 25% over 1% annual chance or use of the 500-year storm event instead of the use of the 100-year storm event. Since our projects are linear by nature and cannot avoid crossing floodplains, this recommendation would have increased impacts to floodplains for transportation projects. This blanket recommendation across the Delaware does not account for the different concerns for small tributary streams versus the larger rivers within the watershed.

- **Section B. Floodway Definition:** FRES recommends that the floodway in the Delaware River Basin be defined by a 0.2-foot rise standard instead of the 1-foot rise standard used in Pennsylvania and New York currently. This would result in substantially increased structure costs for new or replacement structures spanning the floodway right-of-way due to an increased need to purchase floodway easements or would result in increased cost to avoid a rise over 0.2-foot rise. The primary concern here does not seem to be with
transportation facilities but rather that developers can move floodway locations to allow development of residential or commercial structures within close proximity to the waterways. Therefore, tighter regulations on amendments to the existing floodways by non-state agencies, etc. would have more value in limiting the development of new residential or commercial structures in the close proximity to waterways.

- **Section C. Development/Fill in the Flood Fringe:** FRES recommends limiting development in the flood fringe and includes infrastructure. Specifically, FRES wants to require critical facilities including transportation facilities to be kept outside of the 500-year floodplain to protect life, health and the local economy. This is impossible because roadways are linear projects that enable the public to travel from point “a” to point “b”. This cannot be accomplished without crossing the 100-year or 500-year floodplains. FRES has failed to consider the purpose of state DOTs – to protect the health, safety and welfare of the traveling public. Every project satisfies a community transportation need and directly or indirectly serves the local economy. Therefore, the reference to transportation facilities should be eliminated and an exception should be provided instead for transportation facilities. Additionally, allowing only passive use in the floodplain would prohibit new highways and raising profiles on existing highways. In many cases this is in conflict with the DOT’s mission to protect the travelling public which may include increased highway profiles to limit flooding on roadways.

- **Section D. Development/Fill in the Floodway:** FRES recommends that new development should be prohibited in floodways and includes infrastructure within its definition of development. As discussed in Section C, an exception must be provided for transportation facilities.

- **Section E. Stream/riparian Corridors and Vegetation Disturbance:** See comment above related to buffers and decreased flooding. Additionally, a blanket buffer width of 100 feet is not appropriate. A buffer to provide any downstream flood attenuation benefit to the Delaware River is a significantly larger buffer than would be required on a small tributary stream, especially for tributaries where the entire floodplain may be less than 100 feet wide. Additionally an exception is needed for transportation projects as discussed above.

- **Section H. Enclosed Areas below Flood Elevation:** FRES recommends deed restrictions on enclosed areas below flood elevation. An exception would be needed for transportation facilities. No restrictions should be in place that would restrict a needed improvement to a transportation facility especially given the fact that the right-of-way is owned by the state and purchased with taxpayer money.

- **Section J. Dams and Flood Damage Risk:** Recommendation 6 says: “This evaluation must verify that flooding conditions downstream of the dam will not be increased during the 10-, 50-, and 100-year events.” This recommendation would likely be in conflict with dam safety requirements that may require increased capacity of spillways for high hazard dams. Additionally, this may also limit some environmental mitigation measures to remove some low-level dams, etc.
• **Section K. Bridge/Culvert Construction:** Recommendation 1 indicates use of USGS stream gage data for all hydrology. As there are limited gages, this is not feasible and alternate methods should be allowed. Does Recommendation 2 apply to only “new” (new alignment structures) or replacement structures? *Change* in base flood elevation should be replaced with *increase* in base flood elevation.

• **Sections B, C and K:** FRES recommends that new bridges and crossings be designed to ensure that flooding to existing buildings or facilities is not exacerbated upstream or downstream. PennDOT does this for certain storm events and if an increase in flooding occurs for that storm even will purchase a flooding easement if there is a risk to buildings or facilities.

• **Section L Stormwater Regulations:** FRES recommends requiring 100% infiltration of additional stormwater volume. First, this is not possible in all soil types and considering certain geography, e.g., karst areas which are present in the Delaware River Basin. Second, this is not practical for linear type projects which do not involve the same types of stormwater impacts as residential and commercial developments.
Jason F. Miller, P.E., Chair
DRBC Flood Advisory Committee
Chief, Flood Plain Management Services Branch, Philadelphia District
Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390

Sent via email

Dear Jason,

Delaware County would like to take this opportunity to reiterate their concerns with the document submitted to the FAC by the FRES. We would like to highlight several important issues: 1) The existing regulatory framework has not been utilized to its fullest potential; training and enforcement of existing regulations is lacking in the Delaware River Basin (DRB) and any strategy for improving floodplain management needs to address this issue. Simply creating more regulations does not fix this problem. 2) The DRB is too large and diverse to be adequately covered by one set of regulations. 3) Any regulatory change should be adopted on a state by state basis not by the DRBC to ensure that a socioeconomic and environmental analysis will be performed to determine the full impact of any floodplain management recommendation.

Our comments that were attached to the FRES findings clearly state our case for the recognition of the diversity of different reaches of the Delaware and its tributaries, but it is worth saying again: regulations that do not take local conditions into account are not necessarily going to make people safer everywhere. The character of flood events, human population and land use, and watersheds throughout the DRB require different strategies for minimizing flood damage. To not do the work to tailor any new regulation to specific areas shows laziness on the part of regulators and indicates that while it is easy to talk about alleviating flood hazards to people in the basin, there is an
unwillingness to back that talk up with the resources necessary to do the job effectively.

Ramped-up efforts to enhance enforcement of the regulations already in place are critical. Recent developments have created an ideal environment for this work in Upper Delaware River Basin. In areas of Delaware County, new flood hazard data is being released. Under the Hazard Mitigation Technical Assistance Program (HMTAP), detailed studies of the mainstem from the Village of Delhi downstream to the Village of Hancock were conducted in response to the 2006 flood. Advisory maps of this new data show expanded flood hazard areas along many stretches of the river. This data will be incorporated into the new DFIRMs that communities will be required to adopt as local law. The release of these new DFIRMs is an excellent opportunity to amplify and expand the dialog on flood damage prevention, and work towards adequate enforcement of existing regulations.

In Delaware County, plans are in the works to dovetail outreach efforts from federal, state, and local agencies surrounding the new maps, with the goal of having local elected officials, floodplain administrators, and citizenry more aware of flood danger and the regulations that are meant to protect them from it. Given that the new DFIRMs will contain expanded flood hazard areas in most areas, and the review and adoption process presents such a great opportunity to enhance enforcement of existing flood damage prevention regulations, it seems like an inopportune time to complicate the process with new regulations from yet another entity (communities on the upper Delaware in New York are already regulated by FEMA, the NYSDEC, NYCDEP, and local regulations). Where the DRBC could be extremely helpful is in assisting local communities with understanding the new maps, how to use them to guide development, and how they relate to their flood damage prevention regulations.

New York recognizes that effective floodplain regulations often need to balance community sustainability, implementation strategies, economic development, property rights, environmental quality, and health/safety issues. New York requires a comprehensive State Environmental Quality Review Act (SEQRA) review and the State Administrative Procedures Act (SAPA) process be followed that involves the public, solicits comments and balances all the factors. The SAPA process also allows for a specific ‘Rural Flexibility Analysis’ that considers the impact of potential regulations on rural communities. This process should not be circumvented by the adoption of any of these recommendations at the
The recommendations should be considered and adopted state by state using these processes.

It is going to require more time, money, and effort on the part of everybody involved in flood damage prevention to do the job of protecting people in the DRB from flood damage properly. This includes federal, regional, state, and local agencies. These entities will need to facilitate the creation of flood damage prevention strategies that are tailored to local conditions. In most cases, this requires empowering communities to better enforce their existing flood damage prevention laws. In some cases, new regulations may be required, but creating simplified basin-wide regulations is not going to adequately protect all of the citizens of the basin, particularly if existing problems with enforcement are not addressed.

We welcome the attention that DRBC is paying to local flood damage prevention in Delaware County, and thank you for the opportunity to serve on the FRES during this process. We look forward to continuing to work with the agency to create strategies that make people safer from flood damage.

Sincerely,

Nicole Franzese, Director
Michael Jastremski, Planner

Cc: William Nechamen, NYSDEC
Laura Tessier, DRBC
June 2009  NYSDOT Comments on
“Recommendations of the Floodplain Regulations Evaluation Subcommittee (FRES)
of the DRBC Flood Advisory Committee (FAC)”
May 19, 2009

We were given the opportunity to review and comment on these subcommittee recommendations, and believe that there are serious shortcomings on the proposal as written. Our comments are in two sections: first, recommendations and general comments for the Commission and its committees as they move forward, and second, our concerns with specific sections and recommendations in the draft.

1. NYSDOT GENERAL RECOMMENDATIONS:

• Before making sweeping regulatory changes, the Commission may want to consider other options. Would better enforcement of existing regulations adequately address the perceived problems? Would we be better off simply raising insurance rates, or increasing the subsidy of flood insurance? Floodplain mapping and floodway designation, using current standards, could be expanded to include more streams within the watershed. Would this approach better meet the Commission’s goals than changing the standards on those streams already regulated?

• A complete study of social and economic as well as environmental impacts must be done before any such far-reaching changes in regulatory policy are made. This should include an annualized cost/benefit analysis – how much will this cost States, Municipalities, Businesses and Residents, and what will the annual reduction in damage claims be? Of particular interest to us will be the fiscal impact to Transportation agencies of the greatly expanded floodways, where construction is prohibited. The distribution of costs and benefits (e.g. between headwater and main stem communities) should also be investigated, as should environmental justice considerations.

• Provide for inclusion of Transportation agencies to be represented on those committees (especially the Flood Advisory Committee) whose proposals will have a substantial impact on transportation facilities. With transportation facilities and stream crossing structures being dominant features in many floodplain encroachments, it would seem that State and local transportation agencies would be major stakeholders whose points of view should be considered in any proposed regulatory actions.

• Carefully investigate the out-of-floodplain losses used to justify these regulatory changes. Will expansion of floodplain and floodway definitions actually address the problem?

• Make all of the requirements consistent and risk-based. If the DRBC believes that the present 1% annual risk is unacceptably high, pick a lesser one (e.g. 0.5%) and tie all the requirements to that.

• Where the subcommittee is primarily concerned with one or more specific classes of structures (residential, mobile homes, industrial facilities, etc.) let the proposed regulation
so specify, rather than placing additional burden on structures that are of little or no concern.

• Define critical terms of interest – “waterway,” “new,” “stream,” etc.

• Consider a reduced level of regulation for transportation and other infrastructure works. Remember, in general your population centers are in and immediately adjacent to floodplains and river valleys. They still require transport, power and other utilities.

2. COMMENTS ON SPECIFIC ITEMS AND RECOMMENDATIONS

PREAMBLE

p 3 repeatedly (pp 4, pp6) emphasizes the need to tailor management approaches to specific reaches of streams and their location in the basin. Regulators are warned against over-generalization. Yet nowhere in the Recommendations is this observed. Recommendations refer instead to “all other streams and rivers within the basin,” (p 9, 10) or “all waterways of the basin,” (p 13), etc.

It is inaccurate to say that current regulations have not successfully reduced flood damages. Flood damage has not been eliminated, and further reduction is of course possible, but current regulations have been very successful at reducing losses as compared to a state of unregulated development.

It should also be noted that the frequently referenced reduction of flood peaks and areal extent of flooding due to restored vegetated floodplains applies only to downstream flooding. On site and upstream, both of these flood measures will increase. Downstream effects will in general be small and distributed over a wide area; upstream effects will be more localized but of more dramatic scale.

A. Regulatory Floodplain Definition.

Recommendations. What is the justification for adopting a risk standard of less than 1% annually? It is implied that this will reduce losses to properties outside the existing regulatory floodplains, but no evidence for such a reduction is ever referred to. In the New York portion of the watershed, many flood losses occur along flashy tributary streams that are not included in current FIS mapping or studies. In such cases, mapping to more uniformly apply the existing 1% risk floodplain regulations would be more effective in reducing out-of-floodplain claims than would widening the regulatory area of existing coverage and still leaving the tributaries off of the system.
Option 1. An arbitrary 25% increase in the 1% annual exceedence flow applies an inconsistent risk criterion to different locations. A survey of 25 to 30 USGS gages in the New York portion of the watershed indicates that 125% of the $Q_{100}$ ranges from approximately a $Q_{160}$ (0.6% annual exceedence probability) to a $Q_{320}$, (0.3% annual exceedence probability). A consistent level of risk, for instance a 0.5% annual basic risk, would seem to be fairer to affected property owners.

B. Floodway Definition

Much of this section seems to be confused and oversimplified. Statements like “The floodway...is the most dangerous area that carries deeper flows and higher velocities during a flood” are extremely misleading. That statement more accurately describes the channel, which should be part of a regulatory floodway but in general is not all of the floodway. The floodway is a theoretical concept, a fiction, legally adopted to guide development. Its dimensions and adequacy are purely a function of development management policy; please don’t blame them on nature, as this section strongly implies.

The proposed management policy change, requiring the adoption of significantly wider floodways, will have a potentially large effect on the size and cost of stream crossing structures. Coupled with the proposed limits on activities within floodplains and floodways, these redefinitions will have enormous impacts on transportation budgets in affected States and local jurisdictions.

As part of the social, economic and environmental analysis for these proposed regulations, there should be a thorough analysis of the existing New Jersey 0.2 ft. standard for floodways, to determine actual benefits and costs attributed to this standard as opposed to the existing 1.0 ft FEMA standard used by Pennsylvania, New York and Delaware.

It is inaccurate to say that “Any regulation tied to the floodway could be avoided entirely if the floodway is amended...” The floodway restrictions must still exist, they merely apply to some other nearby portion of the floodplain, which can then not be developed.

The real issue is stated just before the recommendation. It is that development can be “improperly permitted in close proximity to streams and rivers simply because they are not currently demarcated as floodways.” Merely widening currently demarcated floodways will not address the problem.

C. Development/Fill in the Flood Fringe

Again, there is a lack of clarity regarding distinctions between natural and regulatory floodplains. It should be made clear that this document proposes to set development policies within regulatory, administratively defined areas, which may be larger or smaller than the actual natural floodplain. The proposed regulatory floodplains will, as a matter of historical patterns of
development, include many of the areas of greatest population density. Absent any massive forced relocations, these towns and cities will continue to need infrastructure, often larger than the existing, and the more its development is restricted, the more expensive it will be.

**Recommendations:**

Permitting only passive uses (i.e. not requiring grading) in the floodplain would prohibit new highways or raising profiles of existing ones. In many cases, this would prevent transportation agencies from improving situations that now contribute to flooding, as well as others that pose safety risks to travelers.

“The goal... shall be to prohibit ... new development in the flood fringe.” It should be remembered that infrastructure elements like bridges, power transmission towers, water and sewer lines are structures. If the intent is to prohibit new residential, business or industrial buildings, the regulation should say so.

No net rise in flood heights, within the precision of predictive techniques, will be largely pointless for the great majority of small individual projects, which cumulatively could have a large impact. Only the largest projects are apt to raise water levels noticeably by themselves.

Compensatory storage sounds good in theory, but needs to be weighed carefully. What it amounts to is digging out a volume equal to the volume occupied by fill, up to the predicted flood level. This must be above the water table, or it will simply become a pond, already filled and providing no additional storage. This may result in environmental impacts that outweigh the value of the storage gained, in vegetation removal, habitat loss and disturbance, etc.

Critical infrastructure to be kept outside of the 500-year floodplain. Be careful of unintended consequences. In the case of Binghamton, in the Susquehanna basin, this would bar construction of police or fire stations in roughly 30% of the city. Some cities in the lower Delaware basin may be in similar circumstances.

“New bridges and crossings shall be designed to ensure that flooding...is not exacerbated upstream or downstream.” NYSDOT already does this in regard to upstream flooding. Practical limitations on current analysis techniques do not permit precise prediction of downstream effects. Every effort is made to eliminate downstream impacts, but it can’t be pinned down to 0.00

**D. Development/Fill in the floodway.**

This section shows the same confusion between reality and administrative fiction noted earlier. Flow depths and velocities are not necessarily much greater in the floodway than those in the flood fringe. They may be the same. In parts, they may be greater. Under current management fiat, depths in the floodway portion outside the channel can never be more than 1' deeper than in the adjacent flood fringe. There is no necessary difference between flow inside the edge of a floodway and that immediately outside — nature does not recognize a floodway. It’s a theoretical device created as a planning and management tool, nothing more.
Recommendations:

“Prohibit the placement of fill or new structures within floodways”. In New York State, this is already the case as the floodway is currently defined. For the greatly expanded floodways generated by using a 200- or 500-year base flood while reducing the allowable rise to 0.2', this has the potential to tremendously increase the cost of new bridges and their approach highway embankments.

This section also contains an internal inconsistency. Pp3 states: “Whereas the flood fringe temporarily stores floodwaters, the floodway quickly conveys floodwaters.” Yet the recommendation would prohibit removal of vegetation. Vegetation obstructs flow as surely as man-made features. That’s why floodways defined by flood-control levees are required to be kept mowed and free of shrubs and trees.

E. Stream/riparian Corridors and Vegetation Disturbance

Vegetated buffers do slow floodwaters, increase the storage capacity of the floodplain, and attenuate downstream peaks. Please note that they do this by increasing the depth and severity of flooding upstream and in the area of the vegetated floodplain. (When overbank floodway areas between flood control levees are kept mowed and free of trees and shrubs, it increases conveyance and helps keep the levees from being overtopped.) Generally, the upstream communities will take a hit to protect the downstream folks. The action of vegetated buffers in flood reduction is in slowing the rate at which runoff from adjacent areas enters the stream. Once the area is flooded, they retard flow and increase the depth of flooding locally.

G. Standards for Lowest Floor of Structures (Freeboard)

Recommendations:

The proposed regulation refers to the 1% exceedence probability base flood. This is inconsistent with the more restrictive proposed definition of “floodplain.” It is inconsistent to say “permit only passive uses in the flood fringe” (p 11), which has a flood risk of 0.5% (or 0.2%) annually, and then say “all new or substantially improved...structures within the Delaware River Basin” (whether in the regulatory floodplain or not) must be elevated to a level 2' above the 1% annual risk. The DRBC has no way of knowing whether the latter standard constitutes a 0.2% basic risk or a 0.0002%.

What is the purpose of the phrase “within the flood fringe” at the end of the recommendation? The previous Section C has virtually banned development within the (expanded) regulatory floodplain. For structures outside of this floodplain, it may not be clear what flood fringe is being referenced. The proposed regulation could be requiring someone, building outside the expanded floodplain, to elevate their house to “protect” it against a vanishingly small risk. Is it the intent to require meteorite shields for all new construction as well?

I. Substantial Damage/Improvement to Structures
The second paragraph of Recommendation 1 appears to be missing part of the text, and needs clarification.

K. Bridge/Culvert Construction or Reconstruction and Flood damage Risk

Recommendations:

Recommendation 1: Design to ensure that flood risk to existing development is not increased is already required by FEMA regulations, and is the policy of every transportation agency of which this reviewer is aware. So too is the use of the latest hydrologic models available.

It would be worthwhile for the DRBC to reach out to transportation agencies to determine their design policies. Likewise, the US Geological Survey should be contacted for their opinion on the various hydrologic models used throughout the region. In New York State, for example, the statistical regression equations were recently updated by USGS in 2006.

Design of bridges and culverts is based on safe conveyance of extreme events, typically of 2% or less annual probability. Statistical bases sufficient to define these events require years of data collection. New data are included in analyses as they become available, but the use of only “new” data to achieve a valid statistical analysis is impossible.

Recommendation #2: This would require floodplain maps to be updated for new crossings, including submission of LOMRs as part of the application process. Does this apply only to “new” structures, as defined by NYSDOT, or to replacement structures as well? Does “any change” in base flood elevation include a lowering? If so, it will place significant cost and administrative burdens on our agency, as well as introducing delays in the design process which may prove to be completely unworkable. Such mapping revisions are also not required for any other class of development – what is the justification for singling out the transportation sector?

L. Stormwater Regulations - New and Redevelopment

Recommendations:

The second bullet point would mandate “no net increase in the volume of runoff.” Is the intent to limit the actual volume, or the volume rate? (The former might be measured in gallons, the latter in gallons per minute.) In the latter case, detention ponds can hold excess runoff up to a design event and release it gradually, serving the purpose of reducing flood levels. The storage volume of the pond is then available for the next rain event. If the volume is to be limited, ponds must be large enough to contain all excess runoff until it is lost to infiltration or evaporation. Rainfall intensities and total annual precipitation in the Delaware Basin portion of New York State are the highest in the state; in fact the highest in the 4-state area and all adjacent states. Storage facilities to so dispose of all excess volume would likely prove prohibitive.