Bill H.676/Floodplain and River Corridor Mapping Testimony
Rob Evans, ANR/DEC River Corridor & Floodplain Manager
House Fish Wildlife & Water Resources Committee
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1) Winooski River Map

The area in Red depicts the Special Flood Hazard Area as mapped by the FEMA. This Zone is synonymous with the term Flood Hazard Area as defined in Vermont Statute.

The Flood Hazard Area depicts the area that would be inundated by the 1% annual chance flood (aka the 100yr flood)

The cross-hatched area is the regulatory floodway which is essentially a no build zone;

Federal minimum standards allow development outside of the floodway to occur so long as development meets elevation or floodproofing requirements;

Where rivers have access to their floodplains or are influenced by dams, the FEMA mapped Flood Hazard Areas can be fairly wide.

2) Browns River Map

Unfortunately, due to the physical condition of the river, the FEMA flood hazard area not adequately portray flood risk nor provide an adequate level of protection for the river resource.

This image of the Browns River shows an all-too-typical situation. Due to channelization (usually some combination of dredging, berming, armoring, or straightening), the river has cut down and become incised.

The down-cut, or incised river cross-section results in larger portion of flood flows being contained within the channel instead of spilling out onto the floodplain. Based detailed field assessments, approximately 75% of Vermont's rivers do not have adequate floodplain access.

The result is a highly energized and erosive river that will remain so unless given the time and space to adjust back to a stable meander pattern and slope (i.e. dynamic equilibrium).

When large flows are contained in the channel due to incision, the result is a narrow flood hazard area on the FEMA inundation maps.

Federal minimums would allow development right up to the river's edge in cases like this putting the new investment at risk as well as increasing the erosion hazard due to the need further channelize an unstable river to protect the new investment.

3) Cross-section Handout

This handout depicts the relationship between channel incision and mapped inundation hazards.

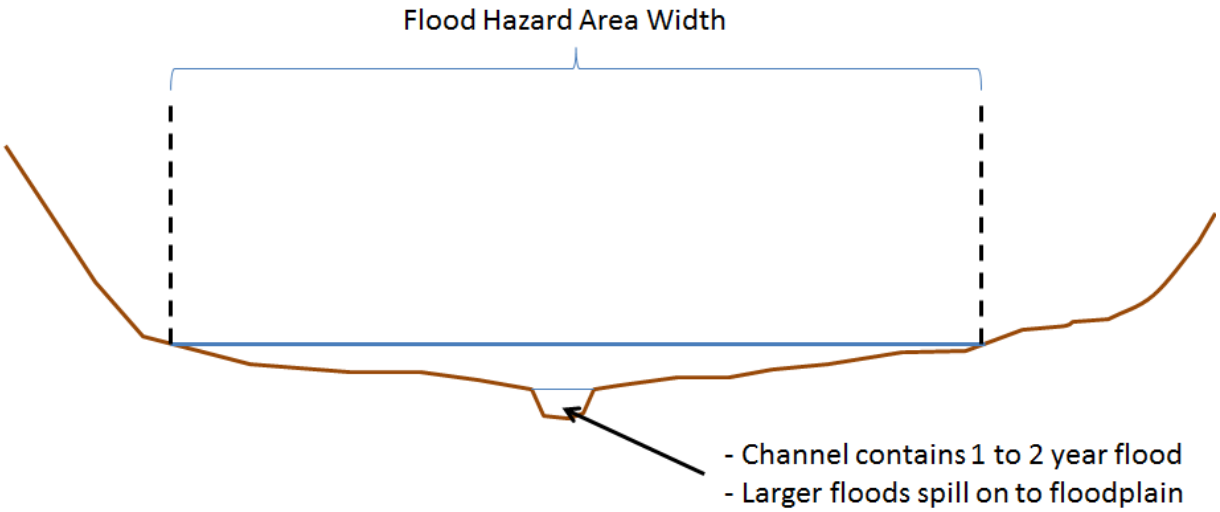
The cross-sectional geometry of a stable river means that a river begins accessing it' floodplain for flood in excess of the 1 to 2 year flood. (floodwater storage, energy dissipation, sediment deposition due to a slowing of velocity)

The cross-sectional geometry of an unstable river means that large floods are contained within the deepened/widened channel resulting in vertical and lateral instability. Fire hose analogy.

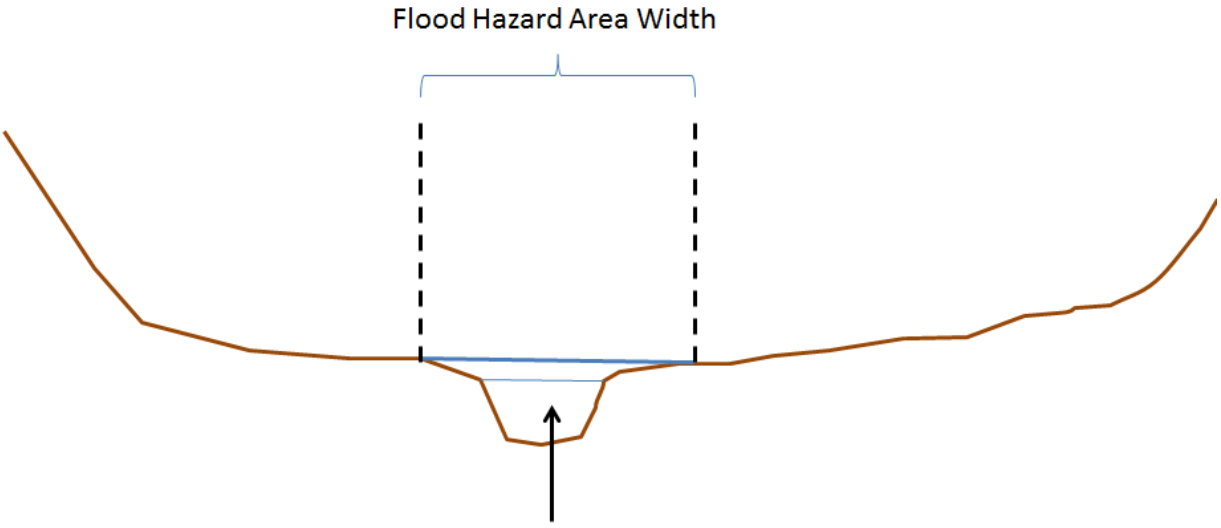
4) Bar graph Handout:

Relative few stream miles in Vermont have designated Flood Hazard Areas.

Stable Cross-section



Unstable Cross-section



- Channel contains floods much larger than the 2 year flood due to incision and widening
- Less floodwater on the floodplain; "disconnected floodplain"