

Good Morning Madame Chair Sheldon & Committee Members,

Thank you for the opportunity to speak with you today. I'm Rob Evans, and I manage the State Rivers Program within the DEC Watershed Management Division. General flow of my testimony is as follows:

1. Provide a quick overview of River Corridors. What are they and why do we care?
2. Discuss current river corridor jurisdiction and regulation, with an emphasis on Act 250
3. Provide a quick overview of River Corridor mapping
4. Thoughts on H.120

### **River Corridors**

To understand the need for river corridor protection is to first understand the inadequacy of inundation-based regulations. Federally mapped flood hazard areas depict areas that will be inundated during a large flood – the flood having a 1% chance of occurring in any given year (often referred to as the 100-year flood). This is the basis of the National Flood Insurance Program - 90% of Vermont communities are enrolled in the program. The flood hazard area depicts where towns must issue permits for development and where mandatory flood insurance purchase requirements for federally backed loans. For many areas of the state these maps do good enough job depicting inundation hazards.

After the devastating floods of the 1990s the General Assembly asked why we were experiencing damaging recurring floods if so many communities were enrolled in the federal flood insurance program and regulating develop. The post-mortem report – known as the Act 137 report of 1999 – essentially said “it’s the river dynamics stupid.”

Most of our flood damages in Vermont are due to flood related erosion. The National Flood Insurance Program maps and floodplain management regulations do not consider this type of hazard.

Rivers are not static in the landscape. Meander migration via erosion and deposition in alluvial river valleys is a normal process.

In Vermont many of our rivers and streams are particularly unstable due to a legacy of channelization. Straightening, dredging, berming, and armoring our rivers energizes our river systems making them more erosive during flood events. Channelized rivers erode vertically, or downward, and the stream channel becomes disconnected from its floodplain. Instead of floodwaters spreading out and slowing down on the floodplain larger and larger flows are contained within the deepened and widened channel. When Rivers are mapped in this condition the result is a narrowly flood hazard area that can greatly under-represent the risk.

This is the Brown’s River in Underhill, restudied and remapped by FEMA about 10 years ago. The river as already migrated outside of the mapped flood hazard area. Regulating land uses to inundation based standards would allow someone to build to edge of the mapped floodplain and if give the false sense that there is no flood risk. We needed better tools to inform planning and land use decisions....

Thanks to General Assembly, and much of the work of this committee, the tool we added was the river corridor via changes to CH49 of Title 10 in 2010 and 2012.

This that same reach of the Browns river zoomed out.

Since the river is disconnected from its floodplain, the River Corridor is much wider in this location. The river corridor depicts the minimum valley space the river needs over-time to re-establish a stable slope and floodplain connection, expressed through meandering.

A way to think of the river corridor is really the minimum space on the valley floor the river needs for beneficial floodplain function (floodwater storage, sediment deposition, and energy dissipation)

The goal is to avoid placing new investments in these dynamic river environments. Inundation based regulations do little to protect you if that's not the nature of your hazard.

And so much of our damage year-in/year out is to our transportation infrastructure.

And as this committee is keenly aware, unstable rivers and streams are key source of water quality impairment.

**River Corridor Regulation:**

River Corridor regulation is done through a patchwork of jurisdictions.

Currently most land uses are still regulated at the local level. At last count 50 towns have adopted river corridor regulations for some or all of their perennial streams. This is done voluntarily and interest by towns has largely been driven the Emergency Relief and Assistance Fund incentive created with 2012 rule amendments. The jury is out on the effectiveness of local river corridor regulation. We know from experience that many towns are challenged to administer and enforce their base flood hazard regulations for a multitude of reasons.

The DEC Flood Hazard Area and River Corridor Rule, required by Act 138 in 2012, regulates development exempt from municipal regulation. Regulates a narrow set of activities that include State-owned buildings and facilities, Required Agricultural and Silvicultural Practices, and power generation/transmission facilities subject to the PUC Section 248 Process.

And lastly river corridor regulation is done via Act 250 under the floodways criterion in accordance with the DEC Flood Hazard Area & River Corridor Protection Procedure.

We essentially make regulatory recommendations to District Commission through our ANR office of Planning. Since we do not have explicit authority thru our state rule, we do not enjoy rebuttable presumption like other permit programs, the process is quite messy and time consuming, as project proponents often want to debate and litigate the merits of our regulatory recommendations. The current framework leads uneven outcomes not in the best interest of the river resource or project proponents, in our experience.

### **River Corridor Mapping:**

In 2015, completed the statewide river corridor map layer which publicly available on the ANR Natural Resources Atlas. There is a variable width river corridor polygon mapped for rivers and streams draining more than two square miles of watershed (approximately 5600 miles of river and stream). For smaller streams draining less than 2 square miles, the river corridor is a fixed 50' from top of bank (or 100' + the channel width). The small streams river corridor totals approximately 8600 miles of stream).

The DEC Flood Hazard Area & River Corridor Protection Procedure includes map amendment and revision procedures, which are in process of being updated based on partner input.

### **Existing Settlements**

Recognizing the context matters we have made every effort structure both our rule and A250 guidance to acknowledge existing settlements. The river corridor is really about protecting river reaches that are largely undeveloped maintaining the space so the river can passively restore to a more stable slope and reconnect to its floodplain. As such, our rule and procedure accommodate infill and redevelopment in existing settlements, recognizing that these are areas where we will continue to manage the river given the significant level of human investment.

Expansion of River Corridor regulation should be focused primarily protecting undeveloped reaches of River such as this reach of the Lamoille River. Avoidance of new encroachments is key in this context.

On the other end of the continuum are places like Barre. River Corridor regulation in densely developed areas would amount to permitting with not much impact. Given the level of investment, we are committed to manage the river in static condition. Said another way, new development is not going increase the need for new channel management. Mitigating and hardening investments in light of flood inundation hazards is more impactful in areas like this.

And there is a lot in between – and the challenge is piecemeal development not captured by town regulation or sub-jurisdictional under existing state authorities.

I really appreciate the comments by Elizabeth Courtney. When it comes to river corridors, the concern is the cumulative impacts. Death by a 1000 cuts metaphor.

### **Closing thoughts on H.120**

Broadly speaking, there is a need to increase river corridor protection, as there is - objectively - a fairly large gap in regulatory protection.

Act 250 may not be the best permitting mechanism for expanded river corridor protection, given the lack of clear authority and inefficient process. Modifying the authority of the Flood Hazard Area & River Corridor rule and decoupling flood hazard areas and river corridor regulation from A250 might be a better approach, as you think about the future state of A250 and river corridor protection.

I am very concerned that H.120 as written would make 14000 miles of river corridor jurisdictional under Act 250, which is significant. For scale, its worth appreciating that 14000 miles of river corridor is 10 times more than what is regulated by the Shoreland Encroachment Program. More thought and

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deliberation is warranted to make sure that expansion of river corridor regulation, regardless of the jurisdiction is effective and targets the right areas.

The Vermont Climate Council is evaluating the inventory of existing state programs that support resilience and adaptation and is charged with providing a suite of recommendations as part of the Climate Action Plan, with the session coming to a close, it may prove to be good timing to watch the Climate Councils work play out over the course of the remaining calendar year - as it could be instructive with respect to the committee's work as it relates to river corridor protection.

Thanks so much for having me and happy to take questions.