Frequently Asked Questions about River Corridors and Protective Bylaws

1. What are river corridors and why are they important?

River Corridors encompass the area of land surrounding a river that provides for the natural "meandering" area of the river, the mapped floodplain, and the river functions necessary to maintain the least amount of erosion, thereby minimizing erosion hazards. River corridors are mapped using calculations that rely on field and map based measurements. Lands within and immediately abutting a river corridor are at higher risk of erosion from the river. Giving rivers room to move is critical to avoid the need for stream armoring and berming that so often leads to increases in erosion upstream and downstream and adversely affects public safety, landowners, and river ecosystems.

2. How does the State manage river corridors?

The Vermont General Assembly has directed the Agency of Natural resources (ANR) to delineate river corridors and provide them as advisory to all Towns. The river corridor map will serve to inform ANR regulatory, planning, and conservation programs.

3. Are river corridors new?

The term "river corridor" came into use in 2007 when the ANR began evaluating assessment data to identify restoration and protection projects in river corridor plans. In 2012, the terminology became more complex when the Legislature added the term: "river corridor protection area."

4. Why do we need to define river corridors?

Post-flood damage surveys have shown that erosion, not inundation, is the most common natural hazard type in Vermont. Vermont decided to develop river corridor maps because they represent a zone for the management of erosion hazards.

River corridors account for the fact that rivers change vertically and horizontally and within river corridors, floodplains may be formed and maintained over time. This means that corridors may consistently help mitigate both erosion and inundation hazards.

5. Why publish a statewide map?

Previously, if a developer, landowner, or municipal official wanted to begin planning a new development or land improvement project that would require a state flood hazard or Act 250 permit, they had no consistent way of knowing where the ANR river corridor would be located (prior to the statewide map) without making a special request or applying for their land use permits. The process of ad hoc river corridor delineations had become increasingly inefficient. Now ANR river corridor data is available on the ANR Natural Resource Atlas and can be viewed at a much earlier point in the project planning process. The base map also gives towns a better tool for town planning, designating centers of growth, and implementing bylaws that may include river corridor protections in a consistent town-wide manner.

6. How are river corridors determined?

The ANR has published documents that detail the complete process for delineating river corridors, including the Flood Hazard Area and River Corridor Protection Procedure (2017) and the River Corridor Planning Guide (2010). River corridors are comprised of meander belt and riparian buffer components for

the purpose of achieving and maintaining stream equilibrium or minimal work and least erosive conditions. The width of the meander belt will vary depending on the amount of land draining to a given point on a stream, so the River Corridor width varies in part based on stream size. The riparian buffer component is designed as an extension of the meander belt to provide additional development setback space so that when meanders move to the edge of the meander belt there is still room to maintain a naturally vegetated buffer that would function as resistance to further lateral streambank erosion. If this extension were not included and structures were planned at the very edge of the meander belt, a prospective home or business owner would need to armor the river bank to protect the structure. With the additional setback provided by the Riparian Buffer Component, structures may be placed just outside the River Corridor and, as the river meander evolves in the direction of the structure, a space will be available to establish a woody buffer that will provide resistance to the lateral erosion on the channel, potentially avoiding the expense and dangers that arise from hard-armoring.

7. Why is the small stream setback fifty feet?

River corridors have not been mapped along streams with a watershed of 2 square miles or less. Rather, these streams are managed and protected from an erosion minimization standpoint (i.e., considering meander belt and buffer functions) with a simple 50-foot setback measured from the top of the stream bank. This distance provides a setback for the bank stability function of natural vegetation while also providing space for a meander belt which, for small streams, will typically range between one and four bank-full channel widths. Small streams may be found in any type of valley setting in Vermont, but the majority flow in steep narrow valleys and have meanders far less than those in wider alluvial settings with more gentle gradients. The standard 50-foot setback will meet the river corridor objectives in most cases and is intended to simplify the mapping and administration of corridor protections. In site-specific applications, the Agency may delineate, or project proponents may provide the field data to define, a corridor for a small stream that may expand the setback from the 50-foot mark.

8. Will these maps affect what I can do with my land?

Regulations that reference river corridors include the following:

- Town Regulation of land use where the Town has protected river corridors as part of its bylaws. If your community has adopted a river corridor or river corridor protection area bylaw, the ANR will provide technical reviews and recommendations for municipally regulated projects, when requested, based on the town bylaws and the town adopted maps.

These regulations are not retroactive, that is they do not affect land uses and development permitted when the regulations took effect. These exceptions are described in detail in the Flood Hazard Area and River Corridor Protection Procedure. The Procedure also outlines a set of best management practices to help landowners and towns cost effectively manage stream channels, riparian buffers, and floodplains toward stable equilibrium conditions.

9. Are towns required to adopt corridor maps?

No. State legislation has been passed in recent years requiring ANR to develop advisory river corridor maps for all municipalities, adopt State River Corridor Protection Procedures to include best management practices, and make model bylaws and other incentives to assist towns, but have not required action on the part of municipalities to adopt corridor maps at this time.

10. Can a map be updated or revised?

Yes. The Flood Hazard Area and River Corridor Protection Procedures include a section on how the Agency or other parties may pursue major and minor map updates. “Major updates” involve the collection of data and analysis to reevaluate stream sensitivity or derive specific meander belt or buffer widths. “Minor updates” include correcting remnants or quirks of the mapping process and single adjustments to factor in features documented with data (e.g., unmapped bedrock outcrop) unavailable when the base map was developed. The Agency shall publish the updated maps on the ANR Natural Resource Atlas and notify the affected towns, the Regional Planning Commission(s), and the Act 250 District Commissions. It should be noted that amending the flood hazard area maps and updating river corridor maps are different and separate processes. For instance, going through the process of certifying the elevation of your property and getting a Letter of Map Amendment approved by FEMA with respect to an inundation zone does not change the State river corridor delineation.

11. Will maps be updated on a regular basis?

Yes. The Agency may conduct updates on all or portions of the Statewide River Corridor Layer as needed (e.g., following major floods), as requested by a Town, and on a published schedule of watershed-scale updates to incorporate administrative revisions requested by Towns, Phase 2 stream geomorphic data, and new meander centerline, valley wall, and local field data that are collected and provided to the Agency. Such updates shall be noticed on the DEC and ANR web pages for public review and comment for a 30-day period. The Agency shall provide maps to and solicit comments from municipalities, the Regional Planning Commissions, the Act 250 District Commissions, and other interested parties and notify these jurisdictions when the State adopts an updated Statewide River Corridor Layer.

12. Rivers change during floods (like Irene), do the corridor maps take this into account?

A fundamental concept in establishing the river corridor as a management zone is that the river corridor should accommodate the dynamic processes of a stream, including the changes that may be observed after a flood. Streams can change vertically and horizontally during a flood and the location of the management zone should remain valid. If changes are incremental and the bank lines approach the outside of the meander belt, the lateral movement of the channel may be arrested with bank revetments (green or otherwise) at a given location to keep the stream within the corridor. In this situation, property outside the designated corridor can be protected from fluvial erosion with less concern for transferring risks to properties downstream. However, map updates may become important as a result of flooding, including those instances where 1) long-term changes in watershed hydrology
significantly impact channel geometry and the width of the meander belt, or 2) during a flood event, lateral erosion of the channel happens so suddenly and severely, that the channel is completely outside a previously drawn corridor.

13. The stream in my neighborhood has never moved and the stream banks are lined with rip rap stone. Why is the River Corridor so wide?

River corridors are based on the amplitude of meanders that will evolve in different valley types as a river adjusts toward an equilibrium (i.e., vertically stable—least erosive) condition. When streams attain their naturally stable condition it is easy to see, taking a bird’s eye view, that the meander belt lines are drawn along the outside bends of successive meanders. Setting aside those lands in between fully expressed meanders is easier to make sense of. In contrast, it is harder to imagine a stream that has been

straightened and armored as needing the amount of corridor space that has been set aside. While a stream may not move for decades, there comes a time when a large enough flood occurs or a chink in the bank armor sets in motion a process of rapid stream bed and bank erosion and a full occupation of the river corridor. These events have been documented time and time again in Vermont stream geomorphic assessments, as streams work to re-establish their most natural meander patterns. River corridors are designed to provide space for this process to happen. It should be noted that the Flood Hazard Area and River Corridor Protection Procedures create opportunities for changing river corridor delineations, including situations where the degree of existing encroachment and the active channel management used to protect those investments preclude the attainment of natural equilibrium conditions (e.g., in a village setting).

14. Will flood insurance be required now if my house is in the River Corridor?

No. State and federal laws do not require you to purchase flood insurance because your house is located in a river corridor. The federal requirement for flood insurance applies when your property is located in a FEMA Special Flood Hazard Area and you have a federally backed loan or mortgage on the property. However, if you do find yourself in a mapped flood hazard area or river corridor, and you do not have flood insurance, you should strongly consider purchasing a NFIP flood insurance policy. If your house is not in a FEMA Special Flood Hazard Area but is within the state-delineated river corridor, you can buy a policy for a much lower cost (i.e., rated as though your house were in any location outside the flood hazard area). Flood insurance does cover fluvial erosion damage.

15. Why should communities protect river corridors?

The state Flood Ready webpage is packed with information to help a community access maps and other tools to begin the important work of protecting river corridors. In summary, the naturally stable, least erosive form of a stream or river is a tremendous community asset. When we encroach on a river in one location and then armor the river to protect our investment, we very often ensure that the next flood of equal flow will cause even more destructive erosion downstream. Breaking the vicious cycle between increasing costs and increasing risk, can be achieved and is sustainable where we allow floodplains to flood and rivers to meander in those corridors that still remain open. These riparian features are a part of our green infrastructure, that when squandered results in millions spent during disaster recovery to fortify channelization practices and rebuild—with little or no reduction in the vulnerability of our communities.

16. Why is my town considering updating the flood hazard bylaw to regulate River Corridors?

Towns have become more aware of just how hazardous fluvial erosion is, and many are taking steps to protect future development by regulating the River Corridor in addition to the FEMA Special Flood Hazard Area. The state is encouraging towns to do so by offering an enhanced state funding match through the Emergency Relief Assistance Fund which assists towns after federally declared disaster events. This financial incentive, along with the community-wide benefits of reduced vulnerability that regulated River Corridors provide, is the reason why towns are choosing to adopt updated flood hazard bylaw