## Hat and Black Creek Stakeholder Meeting

### March 1, 2023

### Nelson Memorial Library

### Participants

George Miller (Nelson Co. Service Authority)

Bryon Mowyer (Nelson Co. Service Authority)

Robert McSwain (Nelson Co. Service Authority)

Christian Giles

Luke Longanecker (Thomas Jefferson SWCD)

Tamara Tomlin

Justin and Heidi Crandall

Katie Shoemaker (Wetland Studies and Solutions Inc)

Dick Whitehead

Michelle Clark

Yvette Stafford

Isabella O’Brien (Thomas Jefferson PCC)

Trygve and Hal Loken

Emily Hjulstrom (Nelson Co)

Heather Coiner

Coty Painter

Robert Saunders

Rob Campbell (James River Assoc)

Mark Campbell (VA Farm Bureau)

Anne Witt (VA Dept of Energy)

Nesha McRae (VA Dept of Environmental Quality)

Tara Wyrick (VA Department of Environmental Quality)

### Meeting Summary

Nesha McRae (DEQ) began the meeting by welcoming participants and providing a re-cap of the impairments in Hat and Black Creeks, the TMDL process, and the benthic stressor analysis, which identified sediment as the primary stressor in both streams and phosphorus as an additional stressor in Black Creek.

*Source Assessment Discussion*

The group moved on to discuss land cover acreage estimates for the two watersheds. Nesha asked whether there had been any recent changes in land use in the area, or if future changes are expected. This includes shifts in agricultural land (converting cropland to pasture, pasture to hay etc) as well as urban and residential development. Participants agreed that there has been little to no development in the area in the past 30 years. Constraints such as availability of water and sewer along with topography have considerably limited opportunities for development. One participant asked why the maps on the handout weren’t broken out by pasture/hay but tabular data is. Katie Shoemaker (WSSI) explained that she used land use data from the VA Department of Conservation and Recreation (DCR) to further breakdown agricultural land cover estimates into pasture and hay, but that the scale of the DCR data does not allow her to map this breakdown. One participant noted that there has not been a lot of change in agricultural land in the area. There has been some decrease in farming, with some of this land shifting to open fields. Some of the smaller pastures have been converted to hay while some of these areas are being reforested. A participant asked why hay and pasture land are the predominant source of sediment and phosphorus in the watersheds but forest is the majority of land use. Katie and Nesha explained that each land use category is assigned a loading rate for sediment and phosphorus. These loading rates are determined based on specific characteristics of the watershed (e.g soil type, slope) along with characteristics of the land cover type. These loading rates are applied to estimated acreage to come up with a total load, and based on the loading rate and the prevalence of a given land cover type, the majority of the load may not come from the most abundant land cover type if that land cover (e.g. forest) has a very low loading rate compared to other land cover types. A participant asked if there are standard loading rates used in these estimates that could be shared for other land cover types (e.g. barren land). Katie explained that these estimates are going to be unique for each watershed due to differences in slope, soil properties, and rainfall patterns. The group reviewed the loading rates assigned to each land cover type in the watersheds along with acreages and total estimated loads of sediment and phosphorus.

Several participants noted that a significant load of sediment is coming from a large number of gravel roads in the area. They suggested trying to account for this runoff in the study. It was suggested that Katie and Nesha reach out to VDOT since the county doesn’t maintain any of the roads. These gravel roads are typically on steep slopes and a considerable amount of material washes away. VDOT might be able to provide some figures on the amount of material that is placed on these roads annually, which might provide us with an idea of how much runoff is occurring. A participant noted that there are a lot of gravel roads around Tyro, Montebello, and Massies Mill, and that they are often located close to streams and springs.

A participant asked how orchards are classified in the land use data. Katie explained that depending on the size of the orchard, they would either be captured under the forest or tree category. Participants noted that there have been more grapes planted in the area in the last 10-20 years, but that the number of orchards has decreased in the last 20 years. Participants weren’t aware of any orchards in the Black Creek watershed. It was noted that Bryant Orchard, located in Hat Creek, has increased recently, but that’s about it. Participants noted that a large area of cropland shown on the map in Hat Creek is probably an orchard. Participants agreed that the extent of cropland in Hat Creek shown on the handout is likely overestimated. It was also noted that cropland in this area is typically not conventionally tilled. A participant explained that all of the cropland shown on the map on the handout from Jonesboro north along Route 151 is inaccurate, it is all hayland or open fields.

The group discussed how to account for future permitted land disturbance in the watersheds. Nesha explained that typically, an annual average acreage of land under a VPDES Construction General Permit is used to create a set aside wasteload allocation for permitted construction. However, in this project area, there have been not permits for construction in the past 10 years. Nesha asked the group if they thought this would change in the future and whether the county comprehensive plan reflects any plans for growth in the area. Participants explained that the availability of water and other utilities is limiting capacity for development in some areas since the infrastructure is not there to support development. There is no public water or sewer in project area accept maybe in the Colleen area. We also need to consider extent of land in the floodplain when looking at opportunities for future development, as that is another limiting factor. Lovingston and Colleen are earmarked as targeted development areas for the county in the Comprehensive Plan, though these areas currently lack the infrastructure to support it. Participants thought that eventually there would probably be some development in the Colleen area, so we may need to consider this in the study. This area typically experiences much smaller scale development (e.g. 10 houses constructed on 50 acres). A participant suggested considering the potential for solar farms, though there are none planned and there is currently little interest. Tara Wyrick (DEQ) explained that DEQ has been working to develop regulations that use a Permit by Rule (PBR) for permitting small renewable energy projects. We could take a look at these regulations to get an idea of how solar farms might be accounted for in the project area.

*Target Loading Rate Development Discussion*

Nesha moved on to discuss how target sediment and phosphorus loads will be developed for the watersheds. The group reviewed the AllForX method that has been used to establish pollutant endpoints in Virginia since 2014. A participant asked how these endpoints were previously established before the AllForX model was introduced. Nesha explained that previously, we would compare the impaired watershed with a non impaired reference watershed (sometimes a couple of reference watershed). The AllForX model allows us to consider a larger number of watersheds across a greater range of stream health. Nesha reviewed the example shown on the handout for sediment in Black Creek. She explained that a similar process was used to establish an endpoint for Hat Creek; however, it showed that no reductions in sediment were needed in the Hat Creek watershed. It is possible that some of the unique characteristics of the watershed, most notably the impacts of Hurricane Camille, might not be accounted for through the AllForX process. Nesha explained that an ongoing study by the VA Department of Energy includes mapping of historic landslides in Nelson and Albemarle Counties. Anne Witt (DOE) noted that preliminary draft data shows comparatively few landslides in Black Creek compared to Hat Creek. Mapping of the western portion of the counties has been completed and includes a portion of the Hat Creek watershed. The study has shown that Hat Creek experienced a large number of landslides during Hurricane Camille. As a result of these landslides, a large amount of unconsolidated material, including sediment, was deposited in Hat Creek’s floodplain. As the stream meanders through its floodplain, this material is susceptible to erosion, adding sediment to the stream. While we must consider the current potential for erosion resulting from these historic sediment deposits, we must also consider the possibility of future landslides in the area and additional movement of material into the floodplain. Consequently, Nesha suggested that a more conservative approach to setting sediment reduction goals in Hat Creek should be used and provided an example in which the 33rd percentile of stream condition index scores was used. This resulted in a -2.5% reduction being needed, however, once a margin of safety is added in, this would likely result in a small reduction being called for (somewhere in the range of 8%). A participant asked Katie whether she could consider weighted variables in the AllForX regression approach, for example, if a watershed has a high degree of pasture or very steep slopes, or if you could incorporate characteristics of particular areas within the watershed. Katie and Nesha explained that the model that is used to simulate pollutant transport in the watershed is a lumped model, meaning that it does not differentiate between different parcels of land within the watersheds. It groups acres by land use types and treats them the same. Nesha explained that part of this is by design in that the TMDL process is not intended to call out landowners, which is supported by the modeling process that is used. Katie added that specific sites and project ideas can be identified during the implementation phase if landowners are interested.

*Additional Discussion*

Further discussion on the ongoing impacts of Hurricane Camille brought up many additional insights. The extensive straightening of the stream channels in the immediate recovery efforts were noted as likely contributing to additional streambank erosion as the channels continue to re-establish natural meander patterns. Further, the estimated feet of deposited material from the landslides that was spread in the floodplains shifted the particle size distribution from typical stratification to a more uniform, smaller sized particle. Note was made that many of the boulders transported in the landslides were repurposed into stabilizing riprap while the channels were being straightened and bridges being repaired, much of which got washed out in later storms (notably Hurricane Agnes(?)). It was suggested that stabilization of historic landslide areas be incorporated into either the TMDL recommendations or the later Implementation Plan process.

A participant noted the they are still observing debris on their property that had washed out during Hurricane Camille. Participants agreed that streambank erosion is an issue in Hat Creek. The group discussed the need for bank restoration work. Nesha explained that a more targeted approach may be necessary in the watershed, particularly given the cost. A participant asked whether some of the existing bridges in the watershed could be constructed differently to address streambank erosion. Nesha explained that this may be cost prohibitive and is not typically something that DEQ’s water quality improvement funding can be used to support. Rob Campbell (JRA) noted that the James River Buffer program is available for livestock stream exclusion and riparian buffer planting work and that there is no property size cutoff for this program. It was noted that there is a maintenance aspect to this program, and that JRA provides some support for maintenance, however property owners should also expect to spend some time on maintenance as well. A participant requested that this information on this program be distributed with the meeting summary. Another participant asked what types of practices can be used in a stream to deflect flow away from banks, particularly check dams. Nesha and Katie explained that check dams are not typically placed in streams and discussed some of the ways that banks can be stabilized including vegetative plantings and laying back stream banks so that the stream can assess its flood plain during high flow conditions. A participant asked that information be shared on suitable plantings for streambanks. Another participant asked whether you model the reduction associated with vegetating the streambanks as opposed to doing something more extensive that includes engineering and construction. Katie explained that this would be challenging to do.

*Planning Next Steps*

A participant asked if Katie could provide a breakdown of the pasture and cropland land use types and associated acreages in the watershed. Katie said that would not be a problem. The group moved on to discuss next steps. Nesha explained that she and Katie would work to develop a series of different pollutant reduction scenarios to share with the group. At the next meeting, the group will review these scenarios and decide on the option that seems to most fair, practical and equitable to the local community. Nesha noted that she will be sending out a poll regarding timing for the next meeting (day or evening) to be sure that we can accommodate the greatest number of participants. Nesha thanked participants for attending and the meeting was adjourned.