Washington Biologists' Field Club

October 8, 2021

Dear Mr. Archer,

We are writing you on behalf of the Washington Biologists' Field Club with regard to Plummers Island[1] and its associated channel and wetlands in response to the MDOT-SHA Section 106 letter of September 8, 2021 and including the email message from Mr. Archer entitled "1-495 and I-270 MLS Section 106 Materials, Comments Requested by October 8" and associated linked documents and attachments.

We frame our comments within the historical context of impacts to the long-term value of scientific research on Plummers Island and the biodiversity we have discovered there, and the quality of experience of the island, which are implicitly protected by recommendations for historical preservation of the place for future generations.

We remain highly concerned about the proposed I-495/I-270 and American Legion Bridge toll lane widening project and the significant, probable threats from bridge construction, operation, and maintenance to Plummers Island and its historic character, including its biota, and the century of intensive research activities that have taken place on the island. Since last writing and in line with our requests from April 2021, the Washington Biologists' Field Club (WBFC) has been added as a Section 106 consulting party, been recognized as a site of historic significance with National Register of Historic Places (NRHP) eligibility independent of the C & O Canal National Historical Park. Some of the project's adverse effects on the WBFC have also been recognized. These steps are important but do not go nearly far enough to protect Plummers Island, which the Federal Government agreed in 1959 to protect in perpetuity as a site for long-term scientific research so long as the WBFC still exists as an incorporated entity. In order to ensure that the proposed project's impacts on Plummers Island receive adequate attention and consideration, we have several concerns and requests which will be detailed in the remainder of this comment letter.

As a reminder, Plummers Island is a small federally-owned island immediately downriver of the American Legion Bridge with unique historical, biological, and research value. Plummers Island is NRHP eligible "under Criterion A for its association with contributions to science and conservation as the site of long-term scientific studies conducted by the club and as the meeting place for the club's collective membership of influential and accomplished scientists." The long-term, ongoing research value of Plummers Island is part of its NRHP eligibility. The I-495/I-270 project, which aims to nearly double the size of the American Legion Bridge, would have many adverse effects to the island's historic features and significance as a research site including:

[1] Montgomery County, Maryland, Potomac River, adjacent to the American Legion Bridge

1. Damage to waterways
2. Destruction of rare plants (Simmons et al. 2020) and rare plant communities (Simmons et al. 2016) from the far west end of the island within the Zone of Destruction
3. Destruction of WBFC research plots
4. Destruction of past collection sites
5. Habitat destruction and disturbance lead to more invasive organisms
6. Potential for catastrophic destruction from major floods if water barriers and/or construction platforms emplaced for construction blow out
7. Sound from bridge construction and closer proximity of traffic in 2 new bridge lanes after they open on the bridge
8. Impacts on biota from salt, oil and other toxic runoff from the new bridge
9. Violation of long-term continuity of 120 years of research.

Plummers Island must be fully protected from the MDOT plan to expand the American Legion Bridge. The taking of Plummers Island lands by this project as well as the destructive proximity impacts are a violation of the agreement with the Federal Government signed in 1959 to protect the Island in perpetuity so long as the WBFC still existed as an incorporated entity. The damage proposed for the Island violates the very principal upon which the Federal Government signed the agreement with WBFC, that the value of the property was the historic nature of the long-term research on the biodiversity of the Island, which at that time exceeded 58 years with long-term goals. Now that research has extended to 120 years.

Yet, it appears that the most damaging project alternative has been selected and the necessary mitigations we discussed earlier in the year were ignored.[2] Plummers Island, far from being protected, will have most of the new bridge overhang, casting its rare, endangered, and threatened biota in shadow and increasing impacts of noise, runoff, and more. There is clearly a disconnect that the very process affirming that major historical and scientific research significance of the island. The plan seems to ignore the results of its own process, and the revised plan egregiously violates the historic and research integrity of the very property it is responsible for protecting.

1) Regarding the NRHP eligibility, we have the following requests:

- **The NRHP determination narrative should better contextualize Plummers Island in its unique location as highlighted below**. Plummers Island is located within the Potomac Gorge, which itself has unique and important features. This publication offers a suitable kind of description: “The 9,700-acre (3925.5 ha) Potomac Gorge project area (see map on inside front cover) is the 15-mile (21.4 km) river corridor from Great Falls to the Key Bridge, including parts of Maryland, Virginia, and the District of Columbia. It is in the midst of a major metropolitan region inhabited by over 4.5 million people (see Cohen, 2005). The Potomac Gorge is widely recognized as one of the most biologically rich areas in the eastern United States, with more than 400 known occurrences of 200 state or globally rare plant

[2] See Appendix B for more on our interactions with the MDOT Strike Team. (M: 12-46-2):

and animal species, and ten globally rare plant communities. The Gorge's unusual concentration of species diversity and rarity is the direct result of its unique hydrology, geology, and geomorphology. This wild and free-flowing section of the Potomac River is one of the most intact eastern Fall Zone river systems with an abundance of parkland not subject to the environmental pressures of residential or commercial development."

- **The NRHP determination narrative should recognize that the research sites within the WBFC are important contributing features.** Specifically, Plummers Island has had national and international significance and species not only rare but new to science continue to be found and studied there, as recently as 2014 (Szlávecz et al, 2014). It is worth recalling that the 1959 agreement between WBFC and the Federal Government states:
  - The said Plummers Island has become among systematic biologists one of the world's most famous collecting spots and type localities, and
  - The discoveries have indicated the probability of new knowledge in the field of biology and natural history, and
  - The fame of this island is world-wide and many scientific organizations are interested in its preservation as a source of discovery, and
  - The Washington Biologists' Field Club, Inc. and the United States Government desire to preserve this natural wild area as a sanctuary and scientific research preserve.

- **Correct inaccurate and misleading use of language related to Rock Run.** The Dovetail CRG report on the Maryland Historical Trust Determination of Eligibility Form continues the unprofessional practice of calling the channel separating Plummers Island from the mainland "Rock Run Culvert" (p. 1). This is an inaccurate and misleading name, mentioned in the DEIS, as the channel is neither a culvert nor is it any part of Rock Run (a nearby drainage with an outlet into the Potomac River about 1,000 ft. downstream from Plummers Island, and with its own real culvert passing under the C&O towpath just below Lock 11). The channel is a historical natural side stream of the Potomac River that prehistorically was more of a major river channel. When WBFC members reported this inaccurate name to the USGS and Board of Geographical Names, they fully agreed, and the name was removed from their listings (on or before 23 April 2021).The channel head has been displaced downstream about 40 feet (Soreng's estimate from a detailed 1950s topographical survey map and other observations), by ALB pier emplacements of 1960 and early 1990s, but the rest of the channel remains in its historical position from about 15 to 30 feet below the current channel head.

2) **We request that the understanding of the historic boundaries of Plummers Island be updated in all documentation pertaining to the project in light of the NRHP eligibility designation.** It is incorrect to say, "the majority of the historic features of the WBFC are outside the LOD." The entire island is NRHP eligible. Impacts to the

Western part of the island would be highly significant. The entire island is being used for research. Its associated channel and wetlands are, too. Encroaching on and over the island and placing piers on it is a direct adverse impact to one of the WBFC's most important and salient historic features: the long-term and ongoing use of the Island for research on the biodiversity of the Island.

3) **We request that those involved with this project make greater efforts to understand and recognize the scale and irreversibility of the adverse impacts the proposed plan would have and prioritize avoidance and mitigation of impacts.** Appendix C contains some examples of impacts to promote better understanding. Additional impact concerns are detailed in Appendices D and E. It is WBFC's view that Plummers Island was not part (or sufficiently part of) of the American Legion Bridge alignment decision making, and WBFC was not weighted properly in making this decision. At that time, no one was even talking about Plummers Island as it had barely been mentioned in the DEIS and had not been recognized as a significant historic site at that time. Avoiding Plummers Island is possible, it has just not been prioritized in MDOT's process. See SDEIS, at pp. 4-14- and 4-15. **The adverse impacts to Plummers Island affect the research value of the island. That is to say, the adverse impacts impact the qualities and attributes of the site that make it historically significant.** By destroying the value of the island for research of rare plant, insect, and other life forms, the project would be destroying decades of research. A complete and accurate identification of the project's effects on these sites and attributes is needed.

4) **More must be done to mitigate impacts. Moving the piers is not adequate mitigation**. Documentation sent as part of the Section 106 process on September 8, 2021 shows some of the adverse impacts to Plummers Island and yet they are still underestimated. **Moving the piers, as proposed by MDOT (below) is not sufficient mitigation to address the full spectrum of mitigation**. Additional minimum mitigations measures that are needed are listed in Appendix F, including shifting the ALB's 4 new lanes to the upstream side, rather than dividing those between the up and downstream sides.

> "The LOD adjoining Plummers Island along the American Legion Bridge will impact approximately 0.2 acre of the WBFC. This area is required for the bridge substructure, including permanent pier placement and construction activities. **Construction activities within the LOD at the WBFC may include excavation; demolition of the existing bridge foundation and piers; installation of proposed foundations, piers, or abutments; and slope protection.** Access to the existing and proposed piers is required for these activities. Impacts were minimized by strategically locating the new piers near the existing piers such that a single access method could be used for demolition of the existing and construction of the proposed structures. However, some impact is unavoidable based on construction requirements and the structural requirements for pier locations.

Although the majority of the historic features of the WBFC are outside the LOD, the proposed construction activities at the western edge of Plummers Island will alter the natural landscape of the island, a character-defining feature of the WBFC, resulting in diminishment of the property's integrity of setting. MDOT State Highway Administration has determined the project will adversely affect the WBFC." (Sept 8, 2021 letter to Elizabeth Hughes and Julie Langan from Steve Archer for Julie M. Schablitsky, pages 7-8)

5) **We have major concerns about damage from construction to the channel that separates Plummers Island from the mainland. More information needs to be provided to us about impacts to the channel as soon as possible. Some of the measures discussed for this sensitive area would exacerbate adverse effects.** We noted that on maps the LOD is marked on the land of the Island, while the channel itself is not identified as part of the WBFC are even with the area of potential effects. This channel is integral to the sustainability of the adjoining Plummers Island wetlands and floodplain. The channel and the Island's wetlands are Waters of the U.S. (WOTUS), thus requiring rigorous, protective oversight by the U.S. Army Corps of Engineers, Baltimore District. Yet, there is no discussion in the current plan of what MDOT plans to do with the channel, or with the wetlands along the Island's western perimeter. WBFC - and the National Park Service - consider the Island's emergent wetland perimeter to be part of the biodiverse whole, and since 1901 we have studied the biota of the wetlands and channel as an extension of the land above the official property waterline.

   The MDOT Strike team indicated the original DEIS plan to fill in the "culvert" (channel) with spall for a construction platform has been modified. Now as we understand it MDOT intends to put planking of heavy timbers across the channel for a construction platform. This will have a serious adverse effect on the channel. With all the planned land-clearing and earth moving, and burming for construction ramps and the building of two new lanes on the downstream side of the ALB, there is no way MDOT can effectively protect the channel from excess accumulation of mud, rock, and other debris. This will adversely impact the water quality and wildlife of the channel and perimeter emergent wetlands of the Island in the short and long run. We have commented several times to MDOT that during the construction phase the elevated vulnerability of the Island and channel to damage from catastrophic flooding should be enhanced in construction plans. We have had no assurances on this front that adequate precautions will be taken to avoid damage in this time period. Catastrophic flooding could destroy much of the long-term, ongoing research value of Plummers Island, a part of the Island's NRHP eligibility. Further explanation of these concerns can be found in Appendix C.

6) **WBFC has had and continues to have a significant and primary responsibility to maintain this island as a long-term research site high in biodiversity with minimal disturbance. It must be protected.** Under the Section 106 process, requests can be

made for mitigation measures. There is a direct use of the island for purposes of Section 4(f) and a significant adverse effect under Section 106. Avoidance and mitigation measures cannot be deferred until later, after the Final Environmental Impact Statement, after the Record of Decision, or after predevelopment. That is already too late. We require assurances at an administrative level that Plummers Island will be avoided and that the needed mitigation measures will be put in place after all avoidance options are exhausted.

Our mission is to protect the biodiversity of Plummers Island including its perimeter wetlands, our long-term research efforts, and the quality of the place as a whole for future generations. We need your attention, your understanding of the Island's value and sensitive ecology, and your support in this effort.

Respectfully,

Robert Soreng, President

Carla Dove, Vice President

Lowell Adams, Secretary

On behalf of the 88 members of the Washington Biologists' Field Club

Appendix A: Documentation of Experience with Strike Team

Two of the staff that have communicated with us have been professional and communicative with WBFC and led us to believe they have our best interests at heart. A MDOT-Strike Team asked WBFC to join them in a virtual video discussion in January of 2021. That hour long discussion considered our concerns documented by us as “Threats to Plummers Island” (see https://wbfc.science/plummers-island-threatened/) and discussed alternatives to the DEIS plans that might mitigate some damage to Plummers Island. The initial minutes of that meeting produced by the Strike Team provided a cursory account that basically said the meeting had taken place. We protested those minutes, and a fuller account was submitted by the Strike Team, but to our knowledge our further suggestions for modifications to the minutes were not added.

In the following week after the MDOT Strike Team meeting of January of 2021, WBFC was invited to join the Section 106 process as a consulting party. We did not recognize that invite until March of that year because the initial offer made by MDOT was sent through a clogged email box of a secondary contact rather than through the WBFC leader of the discussions, and once unearthed was then misunderstood. While we were heartened to be acknowledged as a consulting party, this delay caused us serious consternation that could have been avoided. However, most of the deliberations and communications of the section 106 process have been in meetings between Agencies that we were not privy to attend or review.

At our request, the Section 106 process has led to Plummers Island being recommended as a special historical place within the C & O Canal National Historical Park. We appreciate that MDOT hired a competent research company to study WBFC on Plummers Island and to file the Maryland Historical Trust Determination of Eligibility Form (DOE). That Form and report were submitted to MDOT in June of 2021, and the Section 106 supervisory team accepted that company’s report (whether modified or not we do not know). The final report was sent to WBFC on 8 September 2021 and to the Maryland Historical Trust State Historic Trust Officer. The MDOT-SHA, Cultural Resources Team Leader, Mr. Archer, has answered multiple of our email questions in a prompt, professional and friendly manner, clarifying various aspects of the process and results. We believe that report represents a fair and unbiased, but brief, assessment of the history of the WBFC and some its most prominent members.

The report notes that WBFC contributions to science are many and details a few, but does not go into depth. To investigate the deeper impacts of the WBFC, its membership on society, and its science on biodiversity of the Potomac Gorge, on local and national scales DoveTail would have to access the full WBFC archives, and do further research stemming from those files. The DoveTail report notes WBFC archives were accessed in June of 2021. While it is true that most scientific publications and many photographs have been digitized, and many are available on-line, we note that the actual archives are stored in the Department of Botany, at the Smithsonian Institution, and could not have been accessed at that time due to Covid-19, nor could they have been accessed without knowledge or permission of the WBFC Archivist. Our Archivist has indicated that there are many more documents and photographs in the Archives that have not been digitized.

MDOT “Strike Team” representatives misled us in the meeting of January 2021, when they said they could potentially limit construction access under the ALB to from the upstream side (west side). This is confusing as on p. 5 paragraph 2 (MLS_106_Sept_8_Letter_sig) they write that that construction access will only be from the west side, while the map of 1 September and other communications suggest that the access will be from the “north side,” which is both upstream and downstream through National Park land (i.e., nothing changed there). All this is disingenuous as in the building of the two east side lanes under Alternative 9, there is no way for them to not work on the east side of the bridge. The proposed solution of building the extra lanes only on the upstream side and other options presented to avoid damage to Plummers Island were rejected by the “stakeholders.”

We request the evidence that these options were seriously considered and the full accounting of the reasons for their rejection. The public, their representatives, consulting parties, agencies, and contractors are all stakeholders. And all stakeholders are equal but some stakeholders are more equal than others, it appears. The Supplemental Draft Environmental Impact Statement (pp. 4-14- and 4-15) gives the description of the decision-making about the bridge construction, but it still doesn’t explain how and to what extent Plummers Island was actually considered as a unique NRHP-eligible historical and important scientific research site within a national historical park.

In fact, WBFC was the prior owner of the NPS land on the downstream side of the ALB, now MDOT plans to turn that into a huge ramp to build the downstream lanes, if not to access the underside of the bridge and then to build it up and pave it over for new lanes.

MDOT, in the same January meeting, also said they could cantilever the bridge piers such that no piers would need to be placed on the island. That is not evident in the current MDOT plan. Moreover, they still plan to place a pier on the island.

The DEIS LOD on Plummers Island was crudely drawn, just a line across the head of the Island, with an additional 250-foot APE, extending to about 2/5ths of the Island. MDOT-SHA had Plummers Island LOD and APE zones surveyed in detail in the spring and summer of 2020 without consulting WBFC. Moreover, the survey team callously hacked down seven of the old age fringe trees on the island. The DEIS did not mention WBFC or consider the worth of 120 years of accounting and long-term research on the biota of Plummers Island by WBFC. Post the DEIS publication and comments period which ended in November of 2020, MDOT representatives keep saying in public comments, documents, and email messages to WBFC, that they had reduced the LOD on the Island significantly. Yet all they seem to have done in the current document (MLS_106_Sept_8_Att_1A_APE_Corridor_R, map 3) is draw a more precise but still-ragged LOD line of delineation. Map 3 also fails to capture lands in the NW corner of Plummers Island in Eligible / Listed, or Eligible – Pending SHPO Concurrence), and also fails in the same way to include the river front of Carderock section of the C & O National Historical Park upstream from the ALB. At one point this summer MDOT even publicized a map with no LOD line on the Island. We do not have faith that the LOD as currently mapped is more than a hollow public relations scheme to ward off complaints, or that it will even be adhered to if construction proceeds.

Appendix B: Views on the Project

From our (WBFC's) perspective, MDOT's selection of Alternative 9: Phase I South is the among the worst of the DEIS alternatives for it ignores and exacerbates climate change, puts the future of transit in the region in the reigns of a foreign conglomerate with a vested interest in opposing mass-transit options. Recent findings, detailed in *WTOP*, the *Washington Post*, and other media outlets, confirm what critics have been saying: that the whole freeway system is so backed up that adding capacity to a segment of I-495 is unlikely to result in long-term improvement to traffic flow. This undesirable alternative also has the most damaging impact on the Plummers Island scientific and historical site of the DEIS alternatives proposed.

From our perspective, the whole project was predicated on a need to rebuild the bridge in 10-15 years, when in fact the bridge is structurally sound and only requires redecking in 10 to 15 years.

From our perspective, reversing climate change requires doing things differently to reduce CO_2 output from personal vehicles, by adding mass transit alternatives and increasing people's reliance on telework, not to expand the current commuting status quo indefinitely.

From our perspective, adding 4 toll lanes to the ALB, is adding Luxury Lanes to keep those with deep pockets moving faster, while everyone else sits in congestion. And, as noted above, current studies using MWCOG traffic models confirm what critics have been saying: that the whole freeway system is so backed up that adding capacity to a segment of I-495 is unlikely to result in long-term improvement to traffic flow.

From our perspective, none of this achieves the goals of traffic improvement in the long-run. Recently published future congestion predictions tell us that within a decade after the project is completed (and noting there would be 10 years of miserable traffic during the construction project), in many places along the route and in the evening rush congestion would be no better that it is today. So, you get a 10-year window of viability of the project to reduce traffic … and lots of damage to historical properties and more CO_2. There absolutely needs to be smarter thinking of how people and goods are moved.

The project has been falsely pushed as something that must be urgently approved and driven by a private company as part of a public-private partnership, because it is too costly to be done using state funds. Therefore, it is argued, it must be designed to be extensive enough to be lucrative for the private sector. Yet, this very day, Maryland is sitting on a $5 billion dollar surplus of funds that could be used for transportation system improvements. *The Daily Record* reports on this in these articles: Maryland's flush finances have some officials pushing for more borrowing (Oct 4, 2021) and Hogan takes combative stance over use of state's revenue windfall (Oct 7, 2021).

Appendix C: Impact Concerns

On project maps, the limits of disturbance (LOD) is marked on the land of the Island, while the channel itself is not considered as integral to the sustainability of the adjoining Plummers Island wetlands and floodplain. The channel and the Island's wetlands are Waters of the U.S. (WOTUS), thus requiring rigorous, protective oversight by the U.S. Army Corps of Engineers, Baltimore District. Yet, there is no discussion in the current plan of what MDOT plans to do with the channel, or with the wetlands along the Island's western perimeter. WBFC - and the National Park Service - consider the Island's emergent wetland perimeter to be part of the biodiverse whole, and since 1901 we have studied the biota of the wetlands and channel as an extension of the land above the official property waterline. The MDOT Strike team indicated the original DEIS plan to fill in the "culvert" (channel) with spall for a construction platform has been modified. Now as we understand it MDOT intends to put planking of heavy timbers across the channel for a construction platform. Where is NEPA in this?

With all the planned land-clearing and earth moving, and burming for construction ramps and the building of two new lanes on the downstream side of the ALB, there is no way MDOT can effectively protect the channel from excess accumulation of mud, rock, and other debris. This will adversely impact the water quality and wildlife of the channel and perimeter emergent wetlands of the Island in the short and long run. We have commented several times to MDOT that during the construction phase the elevated vulnerability of the Island and channel to damage from catastrophic flooding should be enhanced in construction plans. We have had no assurances on this front that adequate precautions will be taken to avoid damage in this time period. Due to Climate Change, the NOAA Atlas 14 used in preparation of the DEIS, is well out-of-date for frequency and intensity of massive floods. So-called hundred-year floods in Atlas 14 Volume 2, Revision 3 (2006) are now 5-10-year events, and two such events occurred in the last 12 years.

Moreover, the DEIS planned their construction activities around flood levels recorded at Little Falls Gauging station 3 miles downstream from the ALB and in a wide section of the Potomac River. The flood levels at the ALB, situated in the narrows of Mather Gorge, are 7 feet higher than posted at Little Falls (Soreng observation, January 2021, photo documented). From our perspective what they need to do in in the construction period, is build a flood protection wall on upstream side of the ALB that will withstand extreme floods. If this is not done all the heavy timber planking used to cover the channel for a construction platform could blow out in a high flood, and then wash across the Island along with other construction mud and debris, with catastrophic consequences.

Additionally, the LOD boundaries exclude the rocks at the head of the island situated in the Potomac River, which are connected to the Island except in flood stages and which harbor the highly rare Natural Community: Potomac Gorge Riverside Outcrop Barren (Potomac Gorge Type): (*Hypericum prolificum, Eubotrys racemosus*) / *Schizachyrium scoparium - Solidago racemosa - Ionactis linariifolia* Herbaceous Vegetation (USNVC: CEGL006491).

Global/State Ranks: G2/S1. (Simmons et al., 2016, 2020). These rocks bear the only significant and sustainable population of this community on Plummers Island.

These rocks also protect and produce the rare Piedmont / Central Appalachian Sand Bar / River Shore (Low Herbs Type): *Eragrostis hypnoides - Lindernia dubia - Ludwigia palustris - Cyperus squarrosus* Herbaceous Vegetation (USNVC: CEGL006483). Non-tidal mudflats. Global/State Ranks: G3/SNR. These communities occur downstream along the perimeter of Plummers Island and along the channel, and again are of small actual area on the Island such that any loss is a big loss to Plummers Island biodiversity.

MDOT representatives indicated that they considered our suggestion that the addition of 4 new lanes to the ALB could be made to the upstream side, rather than dividing those between the up and downstream sides. However, nothing changed their Alternative 9: Phase 1 South plan for two toll lanes on each side (in fact the bridge will have three lane widths added per direction!). These three additional lane widths on the downstream side would overshadow the Island by at least 20 ft. On top of this, MDOT's engineers ungraciously amended the Alternative 9 plans by placing a bike and foot traffic lane (requested by various consulting parties and DEIS comments) to the downstream side to further overshadow the Island.

Much of what we have discussed above relates to construction effects. However, there are myriad negative future effects to be concerned about.

Several rare plant species exist on the head of the Island adjacent to emergent perimeter wetlands. Their habitats will be utterly destroyed by the extended ALB lane overhang and emplacement of a pier on the Island. **This unnecessary "taking" of public lands and rare species cannot be mitigated with surveys, plant rescues/relocations, or other such measures. It will simply be forever lost. Moreover, there is no comparable occurrence of these rare species and habitats on the northwest side of the ALB.**

The noise in Plummers Island from the ALB, already injurious and distracting, will be exacerbated by the displacement of heavy vehicle traffic to the outermost lanes overhanging the Island, causing persistent and significant injury to the communications of native animals, human communications, and seriously impacting the quality of experience of the natural wild lands. We have discussed sound barriers and decking surfacing to reduce noise with MDOT representatives. However, we see nothing in the current document to address this.

WBFC has not found any MDOT plans to alter drainage to the channel or Plummers Island from the ALB in stormwater management (SWM) plans (Attachment 4 MLS Compensatory Stormwater Management Sites, September 2021). The low point on the ALB is just above the dogleg in the channel, and bridge scuppers drain the toxic runoff from there into the channel, further impacting and endangering the biota of the emergent wetlands and aquatic species. WBFC noted this problem in our DEIS comments and our Threats to Plummers Island document sent to MDOT and other organizations and agencies in early 2021.

Appendix D: Endangered, Threatened, and Rare Species on Plummers Island

The species on Plummers Island, including endangered, threatened, and rare species, have been studied since 1901. They are part of the island's historic and ongoing research value. Current awareness of and attention to their protection in the state's DEIS process has been inadequate.

Plummers Island has numerous state endangered, threatened, and rare species. Plummers Island has three extant endangered plants that have been considered endangered in Maryland for many years and were mentioned as endangered in the I-495/I-270 Managed Lanes DEIS, Appendix R of Appendix L, page 1. These state endangered plants are:

1. Coville's Phacelia *(Phacelia covellei)*
2. Horse-tail Paspalum *(Paspalum fluitans)*
3. Pale Dock *(Rumex altissimus)*

Curiously in March 2021, Maryland DNR downgraded two of those species (Coville's Phacelia and Horse-tail Paspalum) from endangered to threatened although their status, if anything, is more imperiled by the planned widening of the ALB. On what basis could these species have been downgraded? The WBFC cannot agree with this change without compelling evidence.

The above list of three state RTE plant species is not complete or exhaustive (see Simmons et al. 2020); there are additional Maryland RTE plants on the island, such as Smooth Rose Mallow *(Hibiscus laevis*) which is a rare plant of concern; Pink Valerian *(Valeriana pauciflora)* which is endangered; Leatherwood *(Dirca palustris)* which is threatened; and Sticky Goldenrod *(Solidago racemosa)* which is threatened and part of a rare natural community. There are also several grass and sedge species including Flat-spiked Sedge (*Carex planispicata*) and Open-flower Panic Grass (*Dichanthelium laxiflorum*). Other rare species include Ostrich Fern *(Matteuccia struthiopteris)* and Smooth Wild-petunia *(Ruellia strepens).*

RTE animals that live on or utilize the island include Eastern Small-footed Myotis (state endangered) and Northern Long Eared Bat (state threatened/US threatened). We can provide recent inventories of species on Plummers Island upon request.

The Endangered Species Act protects both federally listed endangered species and those species deemed endangered, threatened, or in need of conservation within the state, based on habitat and conservation factors. At the state level, threatened and endangered species are regulated under the Maryland Non-game and Endangered Species Act (Annotated Code of Maryland 10-2A-01).

Excerpts from a December 2020 *Washington Post* article by Katherine Shaver tell more of the story:

Tucked below the American Legion Bridge on the Maryland side of the Potomac River … Plummers Island, … "the most thoroughly studied island in North America."

For nearly 120 years, the 12-acre patch of rock and woods has been home to the Washington Biologists' Field Club. Its 85 botanists, entomologists, ornithologists and other scientists have spent decades scrutinizing the island's thousands of species of plants, insects and wildlife.

Robert Soreng, the club's vice president and a botanist at the Smithsonian National Museum of Natural History, said Plummers Island provides a critical research site because of its remarkable biodiversity and protected status under the National Park Service. Studying the same wilderness since 1901, he said, has revealed how nature responds to human development, climate change, invasive species and other changes.

"This is incredibly valuable for studying long-term trends," Soreng said. "We know more about what's there than in any other place."

But Soreng and other scientists say the island's research value is in danger of being lost to a new, wider American Legion Bridge. Under a plan by Maryland Gov. Larry Hogan (R) to relieve traffic congestion on the Capital Beltway, an expanded bridge between Virginia and Maryland could require piers on the island's western edge. Trees would also have to be cut in that area to build a road for construction vehicles to access the bridge site over four to five years.

Plummers Island is in the Potomac Gorge, between Great Falls and Georgetown. The gorge is home to hundreds of rare species, including the highest concentration of rare plants in Maryland, according to the National Park Service.

Moreover, the biologists say, its protection from development has provided a rare chance to do fieldwork nine miles from downtown Washington.

"When you think about the Washington area, there aren't many places that haven't been disturbed by humans," said Matthew Perry, a club member and emeritus scientist with the Patuxent Wildlife Research Center in Laurel.

Soreng said more than 400 scientific papers have emerged from Plummers Island research. The most well-known study showed that many of the island's lichen species had died off and others had soaked up significantly more lead after the bridge was built, because of emissions from leaded gasoline used at the time.

… Club members have included legendary ornithologist Roger Tory Peterson; Gifford Pinchot, the first chief of the U.S. Forest Service; and Frederick Coville, who helped establish the National Arboretum.

"There's an extraordinary concentration of world-class biologists," said Bruce Stein, a club member and chief scientist for the National Wildlife Federation.

"Everything that's in there," Soreng said, "someone is recording."

Ralph Eckerlin, the club's president and a Northern Virginia Community College biology professor, said he worries about the birds, crickets, katydids and other species that rely on calling out to one another.

Pamela Goddard, a Mid-Atlantic specialist for the National Parks Conservation Association, said Plummers Island must be spared as precious urban green space.

"The promise for national parks is that they'll be protected," Goddard said. "They're not here as land to be developed for a highway."

APPENDIX E: April 2021 WBFC Comments on American Legion Bridge Construction and Expansion Impacts to Plummers Island

Threats to Plummers Island from American Legion Bridge Construction and Expansion (Submitted to the MDOT-SHA Strike Team, February 28, 2021 for the March 1 joint meeting with WBFC)

1. **Damage to waterways:**
    a. Potomac River shore: mud flats and sandbars are wetland features in the MDOT recalibrated (post the DEIS comments) Zone of Destruction.
    b. We don't know what the new and reconstructed bridge piers will do to flow along the river or channel, particularly if the point of rocks and Rock of Gibraltar (at the upper tip of the island) are destroyed or significantly altered. Sand bars and mud flat habitats could be substantially reduced for plants and animals that depend on these.
    c. The Island Channel (AKA "Rock Run Culvert"). The head of the channel down to the dog leg would not see daylight for years of construction. After which this part of the channel would be overshadowed by the 2 added lanes on the island side of the bridge. What are the consequences to waterways there and downstream?
    d. With the Channel covered by planking for the construction platform, high and mid-level floods will be redirected over those onto the island flood plain, potentially adversely affecting much of that flood plain.
    e. If sub-point d happens, all research plots in the flood plain could be substantially altered, (including vegetation plots 1, 3, 9, 10, 11, 12, and habitats for plants and animals)
    f. The "frog water" pools at the head of the island noted in the DEIS and circumscribed in subsequent documents are highly vulnerable to disturbance (vegetation plot 3 is in this zone).
    g. Zone of potential effects/disturbance uncertain, but estimated by DEIS to be 2/5 of the island. What is the MDOT plan for protecting this zone?
    h. Amphibians are in global and local decline due to pollution, diseases, ozone, and habitat destruction. Eleven species of amphibians are known from Plummers Island (Manville 1968 and https://collections.nmnh.si.edu/search/herps/): *Acris crepitans*, northern cricket frog; *Hyla versicolor*, eastern gray treefrog; *Lithobates clamitans*, green tree frog; *Lithobates palustris*, pickerel frog; *Lithobates sylvaticus*, wood frog; *Pseudacris crucifer*, spring peeper; *Pseudacris feriarum*, upland chorus frog; *Ambystoma maculatum*, spotted salamander; *Eurycea longicauda longicauda*, long-tailed salamander; *Hemidactylium scutatum*, four-toed salamander; *Notophthalmus viridescens viridescens*, eastern newt; *Pseudotriton ruber*, northern red salamander.

2. **Destruction of rare plants (Simmons et al. 2020) and rare plant communities (Simmons et al. 2016) from the far west end of Plummers Island within the Zone of Destruction:**

a. *Hibiscus laevis* (mud flats just below and above point of rocks)
b. *Solidago racemosa* (point of rocks, below Rock of Gibraltar)
c. *Hypericum prolificum* (point of rocks, below Rock of Gibraltar)
d. *Paspalum fluitans* (mud flats just below and above point of rocks)
e. other native plants rare on the island occurring only on west end in Zone of Destruction: e.g., *Sedum ternatum*. (on Rock of Gibraltar)
f. Piedmont / Central Appalachian Sand Bar / River Shore (Low Herbs Type): *Eragrostis hypnoides - Lindernia dubia - Ludwigia palustris - Cyperus squarrosus* Herbaceous Vegetation (USNVC: CEGL006483). Non-tidal mudflats. Global/State Ranks: G3/SNR (Simmons et al. 2016)
g. Potomac Gorge Riverside Outcrop Barren (Potomac Gorge Type): (*Hypericum prolificum, Eubotrys racemosa) / Schizachyrium scoparium - Solidago racemosa - Ionactis linariifolia* Herbaceous Vegetation (USNVC: CEGL006491). Global/State Ranks: G2/S1.

3. **Destruction of WBFC research plots:**
    a. Vegetation research plots from 1997 and 2013-2015 will be destroyed (plots 4, 5, on the sandbar at the head of the island will be totally destroyed [see also sub-point 1e]), A historic National Park Service vegetation plot on the Potomac River sandbar could be destroyed.

4. **Destruction of past collection sites:**
    a. many plants and animals were vouchered or recorded from the west end of the island, some are only known on the island from there.

5. **Habitat destruction and disturbance lead to more invasive organisms:**
    a. the west end of the island is covered in a tangle of oriental bittersweet (first recorded from the island in 1982), and shrubs of amur honeysuckle (first recorded from the island in 1997), among many other invasive plants recorded there. Invasive species establishment and expansion will be sorely exacerbated by disturbance involved the construction process.

6. **Potential for catastrophic destruction from major floods if water barriers and/or construction platforms emplaced for construction blow out. Construction timbers potentially could rip out acres of trees and other vegetation in the island flood plain. Note 1**: 51 out of the 100 recorded historic Potomac River floods (over 9.4 ft at Little Falls Gauge, NOAA data) were recorded since the first bridge was built in 1962, 33 since the midsection of the bridge was filled in 1992, 1996 included 2 of the top 7 floods, and 2018 included 4 historic floods. In 2019 the island flood plain was inundated on and off for much of winter and spring. **Note 2**: Mather Gorge (Cohn 2004) is much narrower at the American Legion Bridge and Plummers Island than at Little Falls Gauge, so the high-water marks listed below substantially underestimate the peak flows at the

bridge and head of Island by as much as 7 ft (verified at the bridge side of the channel bend, March 25, 2021).

rank	height	ft	date	47	11.68	ft	4/18/2011
5	19.29	ft	1/21/1996	50	11.56	ft	12/17/2018
7	17.84	ft	9/8/1996	54	11.44	ft	9/21/2003
31	12.82	ft	3/15/2010	58	11.3	ft	5/20/2011
36	12.38	ft	6/5/2018	61	11.17	ft	1/27/2010
37	12.35	ft	3/6/1993	65	11.01	ft	9/29/2018
46	11.7	ft	5/18/2014	66	10.88	ft	3/12/2011
67	10.87	ft	12/12/2003	90	10.16	ft	3/25/1993
68	10.85	ft	9/11/2018	92	10.13	ft	1/29/1993
70	10.79	ft	3/22/1998	95	10.09	ft	11/29/1993
77	10.55	ft	4/18/1993	96	10.04	ft	5/13/2008
81	10.43	ft	1/10/1998	97	9.97	ft	9/23/2003
82	10.37	ft	3/30/1994	98	9.78	ft	9/9/2011
86	10.33	ft	10/31/2012	99	9.67	ft	5/6/2009
87	10.28	ft	3/30/2005	100	9.43	ft	4/17/2007

7. **Sound from bridge construction and closer proximity of traffic in 2 new bridge lanes after they open on the bridge:**
    a. The noise factor cannot be ignored by humans or wildlife. Already the sound of traffic is disturbing to human conversation at our meeting place the WBFC Cabin grounds.

8. **Salt and oil runoff impacts on biota from the bridge:**
    a. This depends on where the outflow is drained from the bridge drainage scuppers (particularly at the bridge's low-point)
    b. The unintended consequences of that volume of road salts on freshwater ecosystems can be severe. A colleague is working on this very subject on area highways, and the impacts he found were surprisingly devastating. One of the worst impacts was mobilizing (and making bioavailable) toxic metals in waterways.

9. **Violation of long-term continuity of 120 years of research (Perry 2007; Shetler et al. 2006):**
    a. Lichen study on Plummers Island validated essentiality of long-term research contributing to national and global removal of Lead from gasoline: A drop from 70 species to 20 species due to sensitivity to Lead pollution on the island (Lawrey & Hale 1979).
    b. The decline of forest breeding birds on Plummers Island is related to the American Legion Bridge (Johnston & Winings 1987).

c. Insects, like other organisms, are experiencing major declines globally (Borenstein 2018; Hallman et al. 2017; Jarvis 2018; Vogel 2017). Giant silk moths (Saturniidae) include Imperial, Cercropia, Luna, Polyphemus, Royal Walnut, Rosy maple etc. In New England, most of these are state endangered species because they have been hammered by an introduced biocontrol agent -- a non-native tachinid fly, *Compsilura concinna*, which was introduced to try and control gypsy moths in Massachusetts. That fly has wreaked havoc in New England because it is a generalist and the Saturniids have been heavily impacted. This pest has arrived in DC and vicinity but impacts here are not yet known (John Lil pers. comm. 2020). Thanks to the long history of research on insects of Plummers Island (***more than 3000*** species documented there; Brown & Bahr 2008a,b), the island is a key place to further document this aspect of "insect apocalypse" (Jarvis 2018) assuming the island remains intact. Erwin (1981) and Brown (2001) have documented long-term trends in beetles and moths, respectively, with shifts in species composition related mainly to vegetation succession. The AL Bridge project puts WBFC Plummers Island research on trends in biodiversity in jeopardy.
d. Bellwether issues of plagues, invasions and expansion of exotic species are expected to be exacerbated due to disturbance from construction – some examples of timing of introductions spread, and manifestations of infestations of plants animals, and diseases from around the region are recorded from Plummers Island (plant records from Shetler et al. 2006, WBFC Invasive Biota Committee reports 2015-2020), and https://collections.nmnh.si.edu/search/botany/)
    i. arrival and expansion of garlic mustard (1915), now rampant
    ii. arrival and expansion of tree of heaven (or hell) (1933), now 50+ trees
    iii. arrival and expansion of Japanese honeysuckle (1949), now dominant
    iv. arrival and expansion of Japanese stilt grass (1979), now locally dominant
    v. arrival and expansion of oriental bittersweet (1982), now all over and covering trees
    vi. arrival and expansion of amur honeysuckle (1997), now dominant on west end
    vii. arrival and expansion of winter creeper (1997), now patchily established but potentially widespread.
    viii. arrival and expansion of ivy (ca 2015), now patchily established but potentially widespread
    ix. Emerald Ash Borer (EAB) arrival and expansion in 2015 and death of ash trees (2016), mass die off of ash trees, a major shift in forest climax community (Simmons et al. 2016)
    x. fig buttercup arrival and expansion and expansion (3 plants 2017, 50 plants in 2019, 160 plants 2020), expanding exponentially

xi. arrival and expansion of European and Asian earthworms, which rapidly consume forest detritus and restructure soils, upending soil ecological processes and networks of indigenous species adapted to them, favoring colonization and replacement by invasive species, https://en.wikipedia.org/wiki/Invasive_earthworms_of_North_America

xii. arrival and expansion of Asian clams (*Corbicula fluminea*), shells now abundant in sandy soils across the island (arrived in Ohio River Valley ca 1959, established in the Potomac River by 1982)

xiii. Chestnut blight, was discovered in the USA in New York in 1904, arrived in Maryland by 1906, Chestnuts were historically on Plummers Island adjacent mainland, last documented in 1934, but considered extinct there by 1935. This once dominant species of the eastern deciduous forest was mostly wiped out within 50 years.

xiv. Beech blight is coming. Popkin (2019) documents a deadly beech disease is spreading in the northeast USA. There is a mature beech forest on the mainland side of Plummers Island, near Lock 12. We will be watching for the blight here, unless the forest is cut down for the bridge construction.

e. Research following climate change impacts to the ecosystems and organisms on Plummers Island will be conflated with issues involved with disturbance from bridge construction and emplacements.

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Appendix F: Minimum Avoidance and Mitigation Measures Needed

Below are the minimum avoidance measures, design considerations, and mitigations to avoid or reduce impacts that should be made to avoid, minimize, and mitigate adverse effects to Plummers Island and the ongoing research there. These provisions should have been considered from the beginning of the MDOT-SHA project development and in the DEIS. This content comes from WBFC's April 9, 2021 Section 106 comments.

No bridge alternatives were discussed in the Draft Environmental Impact Statement (DEIS), which is a major omission, and should have been presented there so that the public could have the same information to comment on. We would have certainly made DEIS comments on the bridge alternatives if any relevant information on bridge alternatives had been discussed in the DEIS. That information was lacking and clearly should have been included in the DEIS. A Supplemental DEIS has now been issued (October 1, 2021), and still no bridge alternatives are clearly delineated.

Clearly there needs to be a specific focus on design changes that will reduce and avoid impacts to Plummers Island. The first obvious choice for reducing and avoiding impacts is the "no build" option. Second is the upriver bridge alternative, which should have been evaluated in the DEIS and certainly must be now before the project is advanced.

Although WBFC is opposed to the American Legion Bridge (ALB) expansion, particularly with toll lanes and lack of mass transit in the design (vans and buses from a few points are not an acceptable replacement for dedicated mass transit), the following types of mitigations are necessary and non-negotiable.

To protect Plummers Island and its significant historic features and attributes, the minimum mitigations follow:

- Plan for major (not minor) flooding during the construction period.
- Avoid obstructing natural water flow into the Plummers Island channel.
- Build all the new lanes for the ALB on the upriver side of the bridge.
- Build the access to and the construction platforms themselves only on the upriver side of the bridge and under the bridge.
- In any case, add sound barriers to the downstream side of the bridge.
- Use lane surfacing that is as quiet as possible.
- Place the outflow from bridge scuppers somewhere the runoff will not enter into Plummers Island waters.
- Avoid fugitive dust blowing onto the island by use of dust minimization measures including spraying.
- A waste and hazardous material disposal plan must ensure off-site disposal so as not to flow to or near Plummers Island.
- Provide prior notification informing WBFC of work schedules so notice can be given to researchers.
- Piping of road runoff (that contains oil and salt) is a major issue; currently the main scupper drainage flows into the channel separating the island from the mainland; future drainage should avoid the wetlands including the channel.

- For the duration of construction, any construction infrastructure should be designed to withstand major floods (over 14 feet) not minor (10-12 feet) floods; there have been 3 moderate (12-14 feet) and 2 major floods (17-19 feet) in the past 25 years. However, even minor floods recorded at Little Falls produce major flooding in the Plummers Island channel adjacent to the bridge (see Appendix D, point 6).
- Monitor during construction to ensure that construction work is not impacting the island and no construction workers or project personnel visit the island unless oriented and approved by the Washington Biologists' Field Club. These requirements should be included in bidding document and contractor's work plan as part of the environmental specifications that will be followed.
- Chance find or inadvertent discovery procedures should be followed and incorporated into bidding documents and contracts. Please provide a copy for our review to ensure they meet the requirements for protection of Plummers Island.