

6. PROPOSED MITIGATION

The Maryland Tidal Wetlands Act and the Federal Clean Water Act Section 404 regulate the filling of tidal open water, which requires the submittal of a mitigation plan in the form of a mitigation package. Mitigation packages are evaluated by the Joint Evaluation Committee, which is made up of representatives from State and Federal regulatory agencies. The scope of the proposed project requires an exhaustive investigation by the Maryland Port Administration (MPA) into potential mitigation projects that would provide environmental benefits in the Masonville area.

In their search for potential mitigation projects, the MPA initiated efforts to include community representatives. Through the Harbor Team and discussions with the Brooklyn and Curtis Bay Coalition, Baltimore City’s Department of Planning, and the Baltimore Development Corporation, the community voiced their opinion on mitigation projects that would be beneficial to the community as well as to the local environment.

The proposed Masonville dredged material containment facility (DMCF) would require mitigation to offset the loss of 129 acres of tidal open water, 1 acre of vegetated wetlands and 10 acres of upland in the Chesapeake Bay Critical Area. The proposed mitigation package includes community enhancements as well as mitigation. These additional enhancements would benefit the residential areas in the vicinity of the proposed Masonville DMCF. This chapter outlines the process used to select the proposed mitigation sites that were considered and describes the recommended mitigation sites, other mitigation sites considered, and proposed community enhancement projects.

6.1 DEVELOPMENT OF THE MITIGATION PLAN

6.1.1 Harbor Team – Initial Suggestions

The *Final Report of the Harbor Team* submitted in October 2003 (Harbor Team 2003) provided policy recommendations and standards that should be applied to all projects developed as State Dredged Material Management Program (DMMP) options. Among the recommendations were the following, which pertain to mitigation and community enhancement projects:

- 1) Options must add value to the nearby communities.
- 2) Public access to the water must be provided, where possible.
- 3) Where placement options are combined with community enhancement options, the projects are to be considered comprehensively, not separately.
- 4) Community enhancement projects should be designed to improve water quality and aquatic habitat, where possible.
- 5) Community oversight committees are to be established to work with MPA and other stakeholders in implementing any project.

In addition to these policy recommendations, the Harbor Team also specifically recommended the further study of a placement site and cove enhancement project at Masonville. This Masonville Cove enhancement project “could restore wetlands, provide public access and enhance beach habitat in addition to improving views of the cove” (Harbor Team 2003).

46 **6.1.2 Continuing Outreach**
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48 The MPA contacted the surrounding community and Port stakeholders for guidance on selecting
49 mitigation projects and community enhancements. Representatives of the MPA worked with the
50 Harbor Team and the Brooklyn-Curtis Bay Coalition (BCBC) and offered the following
51 suggestions for improving Masonville Cove, which is one of the few remaining undeveloped
52 shoreline areas in the Baltimore Harbor:

- 53 • Allow limited public access
- 54 • Cleanup and restore shoreline
- 55 • Create shoreline trails
- 56 • Create observation towers
- 57 • Enhance habitat
- 58 • Create a bird sanctuary
- 59 • Add passive recreation opportunities
- 60 • Create an education center
- 61 • Build a canoe and kayak launch
- 62 • Enhance and create wetlands
- 63 • Provide opportunities for community stewardship

64
65 **6.2 CONCEPTUAL MITIGATION PLAN**
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67 The community's input led to the development of a mitigation package centering on the
68 improvement of habitat and the public's interaction with nature in the Masonville Cove. The
69 mitigation projects within the Cove do not provide sufficient mitigation due to the size and scope
70 of the proposed Masonville DMCF and, therefore, supplemental projects outside the area are
71 included in the mitigation plan as well. Currently, the mitigation package is still under
72 development. The Masonville Cove mitigation package and the additional mitigation projects
73 and benefits from the DMCF beyond those in the Cove are described in the following section.
74 The MPA would pay for all compensatory mitigation. The total estimated cost for this
75 conceptual plan is approximately \$12.5 million. Appendix M contains fact sheets for each of the
76 proposed mitigation projects and an estimated cost for each mitigation project in the conceptual
77 package. The following sections provide information on specific mitigation projects.

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79 **6.2.1 Sites**
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81 The overall mitigation package includes both projects in Masonville Cove and projects outside of
82 the Masonville Cove, but within the Patapsco watershed, which were added to supplement the
83 Cove mitigation. In addition to these supplemental projects, the DMCF project also provides
84 environmental benefits (Section 4.9). The following describes the additional projects and
85 benefits.

86 **6.2.1.1 Masonville Cove**

87
88 ***Site Description***

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90 Masonville Cove is located along the southern shoreline of the Middle Branch of the Patapsco
91 River. The Cove lies immediately west of the existing Masonville Marine Terminal (MMT) and
92 the future MMT Phase 2, which would be developed on a previously completed dredged material
93 placement site. Other adjoining properties and facilities include The Arundel Corporation,
94 Frankfurst Avenue, and undeveloped land owned by MPA. There is also a 10-acre dredged
95 material fill area currently being developed for auto processing and storage operations adjacent
96 to the southeastern shoreline of the Cove.

97 The proposed mitigation/community enhancement project site encompasses approximately 70
98 acres of water and is surrounded by approximately 54 acres of undeveloped land.

99 The shoreline of the Cove is littered with heavy industrial debris including large timber piles
100 from abandoned docks and rusting metallic structures. Additionally, trash can be found
101 throughout the area.

102 The site has a history of being used by bird species typical of the Chesapeake Bay region. Based
103 on field observations by experienced birders and ornithologists, large numbers of birds and
104 waterfowl can be seen in the Cove annually. Section 2.1.7.1 contains additional information on
105 observed bird usage of Masonville Cove.

106
107 Masonville Cove is designated as a Resource Conservation Area (RCA) in accordance with
108 COMAR 27.01.02.05.05. Masonville Cove is also a Designated Habitat Protection Area
109 (DHPA), as determined by the City of Baltimore (City of Baltimore 2002). The DHPA has been
110 designated based on historical use of the open water area of the Cove adjacent to the existing
111 MMT by wintering and migrating waterfowl.

112
113 ***Proposed Mitigation and Community Enhancements at Masonville Cove***

114
115 The mitigation package for the Masonville Cove offers on-ground environmental enhancement
116 projects and a restricted access natural park providing educational and recreational opportunities
117 for the public (Appendix M). Figure 6-1 displays the major components of the mitigation
118 package in the Cove. The proposed enhancements to Masonville Cove include tidal wetland
119 creation and enhancement, non-tidal wetland creation, reef and fish habitat creation, shallow
120 water habitat (SWH) improvement, beach creation, water quality monitoring and habitat
121 assessment, terrestrial habitat enhancement and diversification, and a landside and water Phase I
122 cleanup. Additional proposed community enhancements that are included in the mitigation plan
123 are a restricted access nature park with an education center and trails, funding for education and
124 research programs at the nature park, and a conservation easement for the Masonville Cove site.
125 These items are discussed in greater detail in the following sections. Fact sheets for each project
126 are included in Appendix M.

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Figure 6-1. Masonville Cove Mitigation and Enhancement Projects

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Tidal Wetland Creation and Enhancement – The proposed vegetated tidal wetland creation and enhancement sites are shown in Figure 6-2. There would be 3.1 acres of tidal wetlands created and another 2 acres of tidal wetlands enhanced by placing sand to an appropriate elevation, constructing channels and inlets for hydrodynamic function, and planting of native wetland vegetation. As part of the tidal wetland enhancement, common reed grass (*Phragmites australis*) would be removed. The creation and enhancement of tidal wetlands in Masonville cove would improve substrate conditions and wetland habitat, increase fish forage and refuge opportunities, and enhance wading bird and waterfowl foraging opportunities. The total cost for this portion of the proposed mitigation is estimated to be \$781,000.

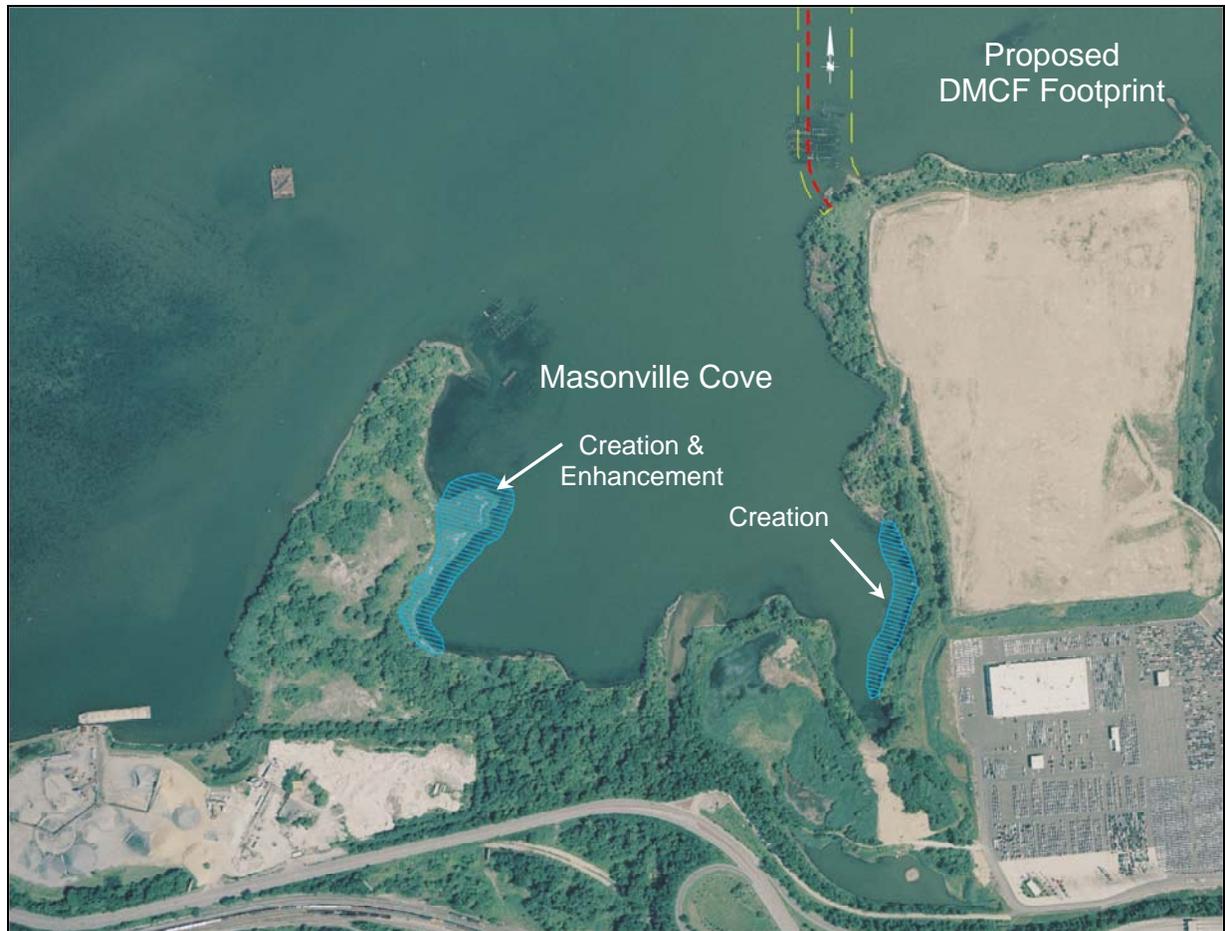


Figure 6-2. Tidal Wetland Creation and Enhancement Sites in Masonville Cove.

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Non-Tidal Wetland Creation – The proposed non-tidal wetland creation site is shown in Figure 6-3. The 10 acre non-tidal wetland would be created by excavating existing material to achieve appropriate grades, constructing water level maintenance structures, and planting native wetland vegetation consistent with species recommended by the U.S. Fish and Wildlife Service (USFWS) for wet and moist areas of the Maryland Coastal Plain. The creation of a non-tidal wetland would diversify vegetation and floodplain habitat, provide refuge and forage opportunities for freshwater fish, provide forage areas for wading and shore birds, provide nesting opportunities for waterfowl species, and provide a freshwater source for birds and terrestrial wildlife. The total cost for this portion of the proposed mitigation is estimated to be \$1,000,000.

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Figure 6-3. Non-tidal Wetland Creation Site in Masonville Cove

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Reef and Fish Habitat Creation – The proposed reef and fish habitat creation area is shown in Figure 6-4. The proposed habitat creation area includes 30 acres in inner Masonville Cove and 42 acres in outer Masonville Cove. Improvement of substrate would occur through the spreading and creating of underwater mounds of sand and gravel and placement of reefballs and rock piles. This would improve substrate conditions, in-stream habitat, and vertical structure, which would then improve benthic conditions and forage opportunities for fish. An increase of in-stream three-dimensional structure would provide additional habitat for epibenthic colonization, cover for aquatic organisms, and substrate for encrusting bivalves. The total cost for the proposed reef and fish habitat creation is estimated to be \$2,231,000.

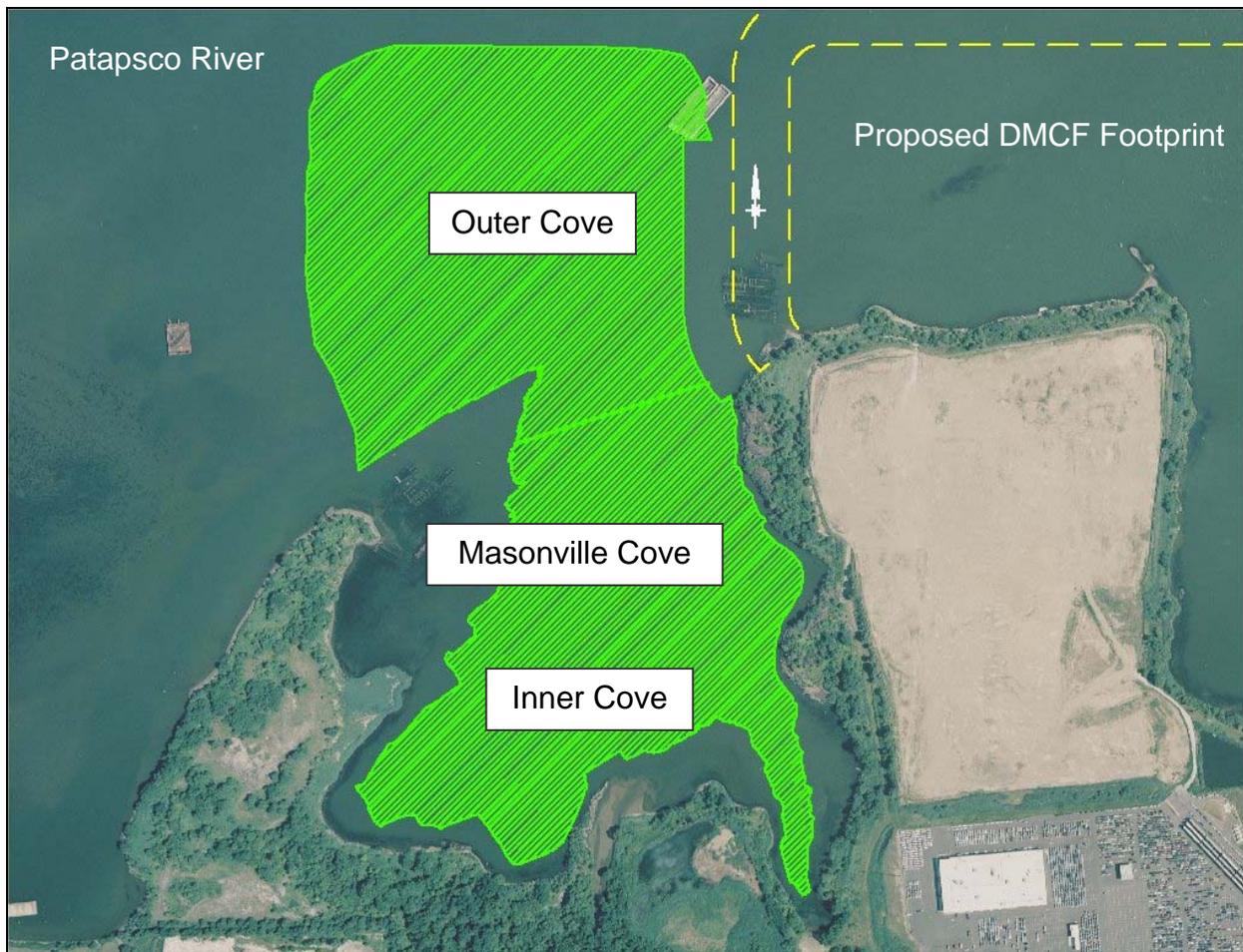


Figure 6-4. Reef and Fish Habitat Creation in Masonville Cove.

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SWH Improvement – The proposed SWH improvement areas are located in areas less than two meters deep in and adjacent to Masonville Cove, outside of the inner and outer Masonville Cove areas discussed above. These areas are shown in Figure 6-5. Debris removal would occur in the proposed enhancement areas and then seven to eight inches of sand would be spread across the area, totaling 20 acres. The improved substrate should allow aquatic vegetation to spread naturally in the area.



Figure 6-5. SWH Improvement Areas in Masonville Cove.

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Beach Creation – The proposed beach creation locations are shown in Figure 6-6. There would be 5.8 acres of beach created along the dike of the proposed Masonville DMCF and the shoreline of Masonville Cove. The beach areas would be 20 ft wide with a slope into the water of 10:1. The proposed beach creation substrate enhancements would improve benthic conditions and fish foraging opportunities. Improving shore conditions would also provide better habitat for SAV expansion and would provide foraging opportunities for wading birds and shorebirds. The total cost for the proposed beach creation is estimated to be \$312,000.



Figure 6-6. Beach Creation in Masonville Cove.

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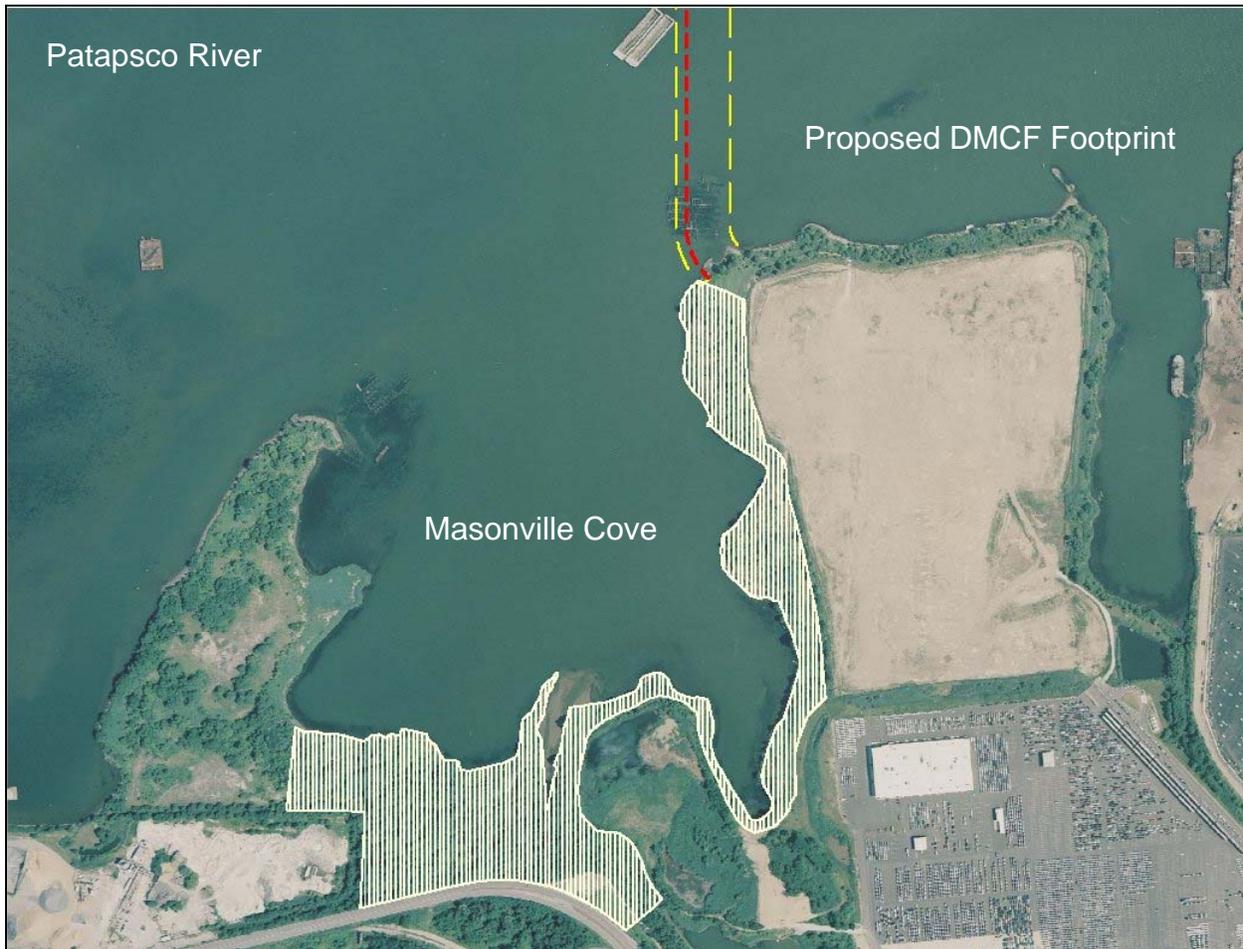
189 **Terrestrial Habitat Enhancement and Diversification** – The specific location(s) for the
190 proposed terrestrial enhancements has(have) not yet been determined. The enhancements would
191 occur in an area adjacent to Masonville Cove that is not being included in any of the other
192 mitigation options, with the exception of the Phase I Cleanup. Native plants with good habitat
193 value would be retained and non-native species would be removed. These plantings would be
194 augmented with trees, shrubs, and herbaceous plants recommended by the USFWS for the
195 Maryland Coastal Plain area within the Chesapeake Bay. The proposed enhancement would
196 cover 10 acres adjacent to the Cove. Within these 10 acres, the density and diversity of plants
197 would be improved. This enhancement may provide nesting sites for eagles and also have
198 indirect benefits to in-stream habitat by providing shading and improved bank conditions.

199

200 **Water Quality Monitoring and Habitat Assessment** – A continuous monitoring site would be
201 created in Masonville Cove and would monitor six key habitat components within the Cove
202 every 15 minutes from April to October. Results would be available to the public on-line at
203 www.eyesonthebay.net and at a kiosk in the proposed Masonville Education Center.
204 Additionally, the Maryland Department of Natural Resources (DNR) would install SAV test
205 plots and monitor them for two years. The results from the SAV test plots and the continuous
206 monitoring site would be used to assess specific locations and the feasibility of a large-scale
207 restoration. This would aid in tracking the progress of restoration projects and assessing the

208 attainment of the new Chesapeake Bay water quality criteria. This data would also serve as an
209 education and outreach tool for the public. The total cost of this option is estimated to be
210 \$194,000.

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212 **Landside and Water – Phase I Cleanup** – The landside area proposed for a Phase I Cleanup is
213 shown in the shaded area in Figure 6-7; the water cleanup area could include any portion of
214 Masonville Cove. Large debris would be removed from the site and remediation would be
215 completed, if necessary, so that the site meets residential standards. The enhancements would
216 prepare the area for use as a recreational park, and would provide the community with a safe and
217 aesthetically pleasing natural area. The cost for this clean up has been capped at \$2,500,000.
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220 *Note: The shaded area is the area that will undergo a Phase I cleanup*

Figure 6-7. Landside Phase I Cleanup Area adjacent to Masonville Cove

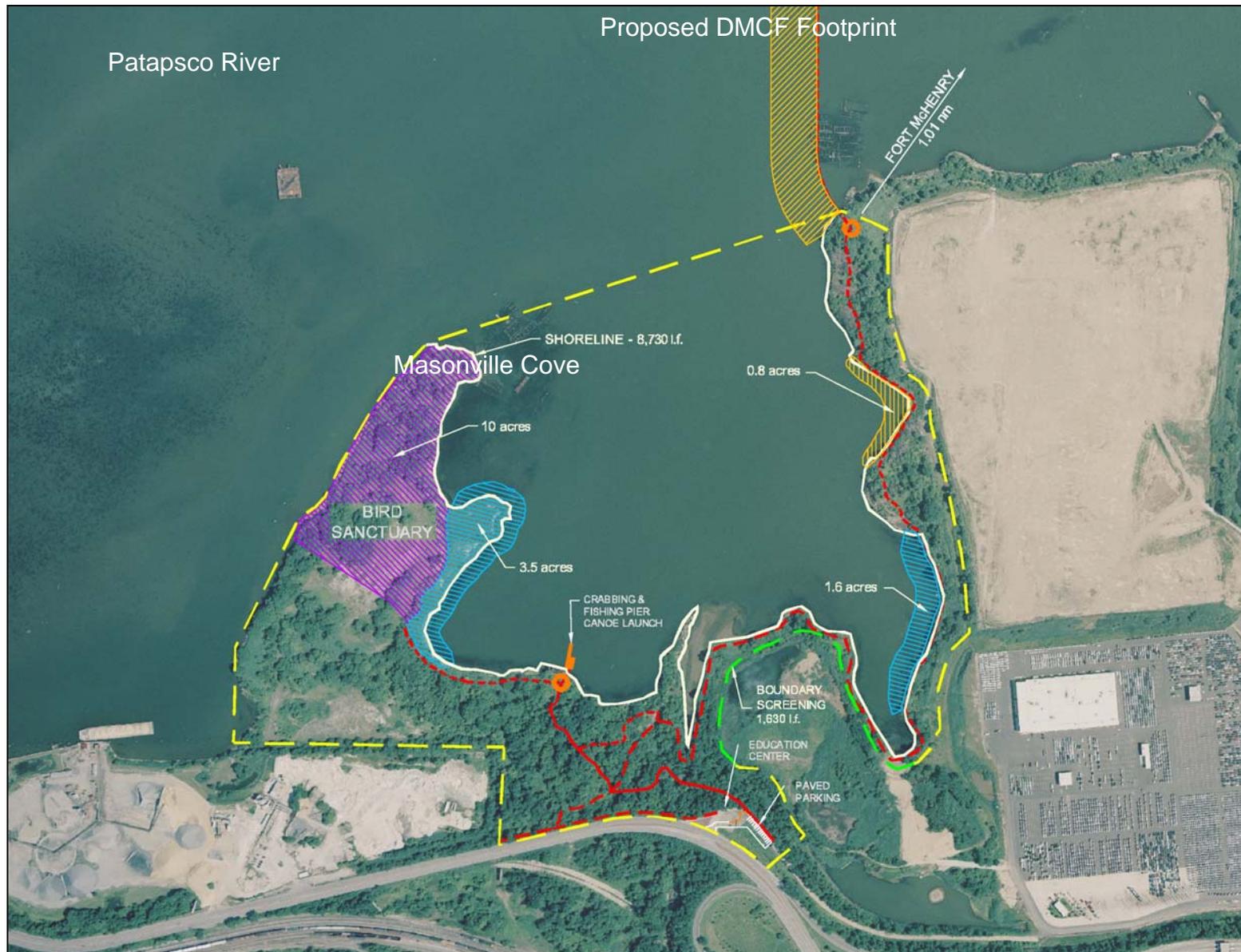
223 **Conservation Easement** – The proposed conservation easement would cover approximately 50
224 acres of land surrounding Masonville Cove (Figure 6-8). The conservation easement would
225 prevent the land from being used for any purposes except for environmental education and
226 related activities. Preservation of the shoreline and terrestrial habitat areas would continue to
227 support the fish and wildlife species known to occur there as well as protect any future habitat
228 improvements and fish and wildlife utilization. The estimated value of the land to be covered by
229 the conservation easement is \$3,100,000.



Figure 6-8. Location of the Proposed Conservation Easement.

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Masonville Environmental Education and Nature Center and Hiking and Biking Trails Allocation – There would be a 30 ft by 40 ft, two-story facility with 700 ft² of deck, 1,500 ft of handicapped trail access to the water’s edge, and possibly an additional 8,300 ft of trails (Figure 6-9). The construction of an environmental education and nature center would provide the Brooklyn and Curtis Bay communities with their closest access to the water. There would be environmental education programs for school children and adult residents. A kayak and canoe pier would connect the Cove to the Chesapeake Waterways program. The proposed hiking trails would have environmental signage. The MPA would fully fund this portion of the mitigation package.



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Figure 6-9. Proposed Masonville Environmental Education and Nature Center with Hiking and Biking Trails

244 ***Masonville Cove Education and Research Allocation*** – The proposed education and research
245 would be conducted from the proposed Masonville Environmental Education and Nature Center
246 (Figure 6-9). The education center at Masonville Cove provides an opportunity to combine
247 citizen involvement, public awareness, education and research while providing valuable
248 information on water quality and mitigation success. The project would use trained volunteers to
249 collect scientifically valid data, which would increase the monitoring effort by including more
250 sites for a longer period of time. The goal of this program is to improve design and
251 understanding of how created tidal wetlands function so that future mitigation sites, particularly
252 those in urban areas, achieve a higher degree of success. A total of \$500,000 would be allocated
253 for this effort.

254 **6.2.1.2 Off-site Mitigation Projects**

255
256 ***American Eel Passages*** – This mitigation project was recommended by Maryland DNR. The
257 locations of the proposed eel passages are shown in Figure 6-10. The proposed enhancement
258 would construct specialized passages designed to accommodate eels at each of the dam locations.
259 These would allow eels to continue their upstream migration and it would reopen a significant
260 amount of habitat. Maryland DNR would be completing the project, but it would be funded by
261 MPA. Maryland DNR would be responsible for maintaining this project into perpetuity. The
262 total cost is estimated to be \$400,000.

263
264 Eels ascend freshwater environments as juveniles. These fish reside in riverine habitats until
265 reaching maturity, at which time they migrate to the Sargasso Sea, where they spawn once and
266 die. Larval eels are transported by ocean currents to rivers along the eastern seaboard of the
267 continent. Historically, American eels were very abundant in East Coast streams, comprising
268 more than 25 percent of the total fish biomass in many locations. This abundance had declined
269 from historic levels but remained relatively stable until the 1970s. Eel densities in surveyed
270 tributaries have decreased since the 1980's and continue to decline. On July 6, 2005, the
271 USFWS decided to review the American eel for possible listing on the endangered species list.
272 Bloede dam is the first blockage on the Patapsco River that prevents American eel from
273 accessing the nearly 300 square miles of watershed above the dam. Data collected by the
274 Maryland Biological Stream Survey (MBSS) reveal that Bloede dam is a significant barrier to eel
275 migration (Figure 6-10). Fish passage was constructed at the dam in 1991 but was designed for
276 shad and herring and is ineffective for eel passage. Simkins Dam and Daniels Dam located 0.5
277 and 7 miles upstream of Bloede Dam also prevent American eel from reaching upstream habitat.

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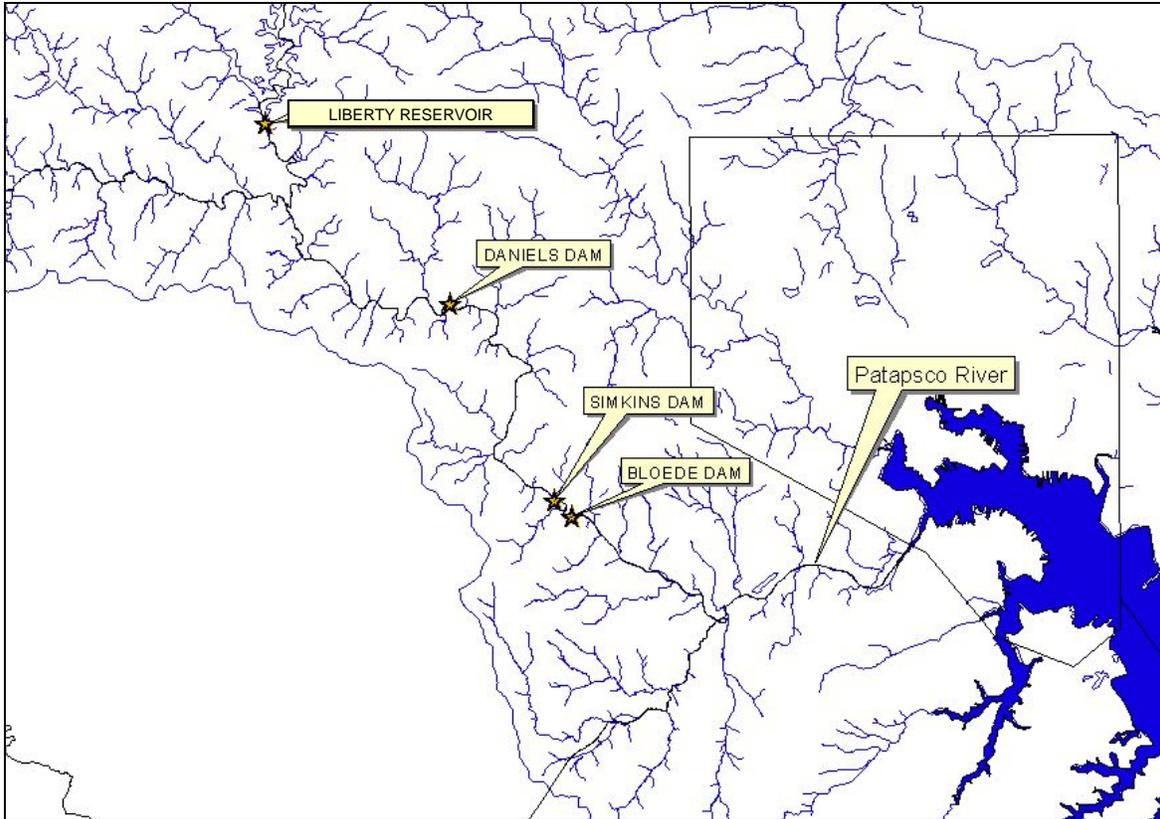


Figure 6-10. Proposed Locations for Eel Passages on the Patapsco River.

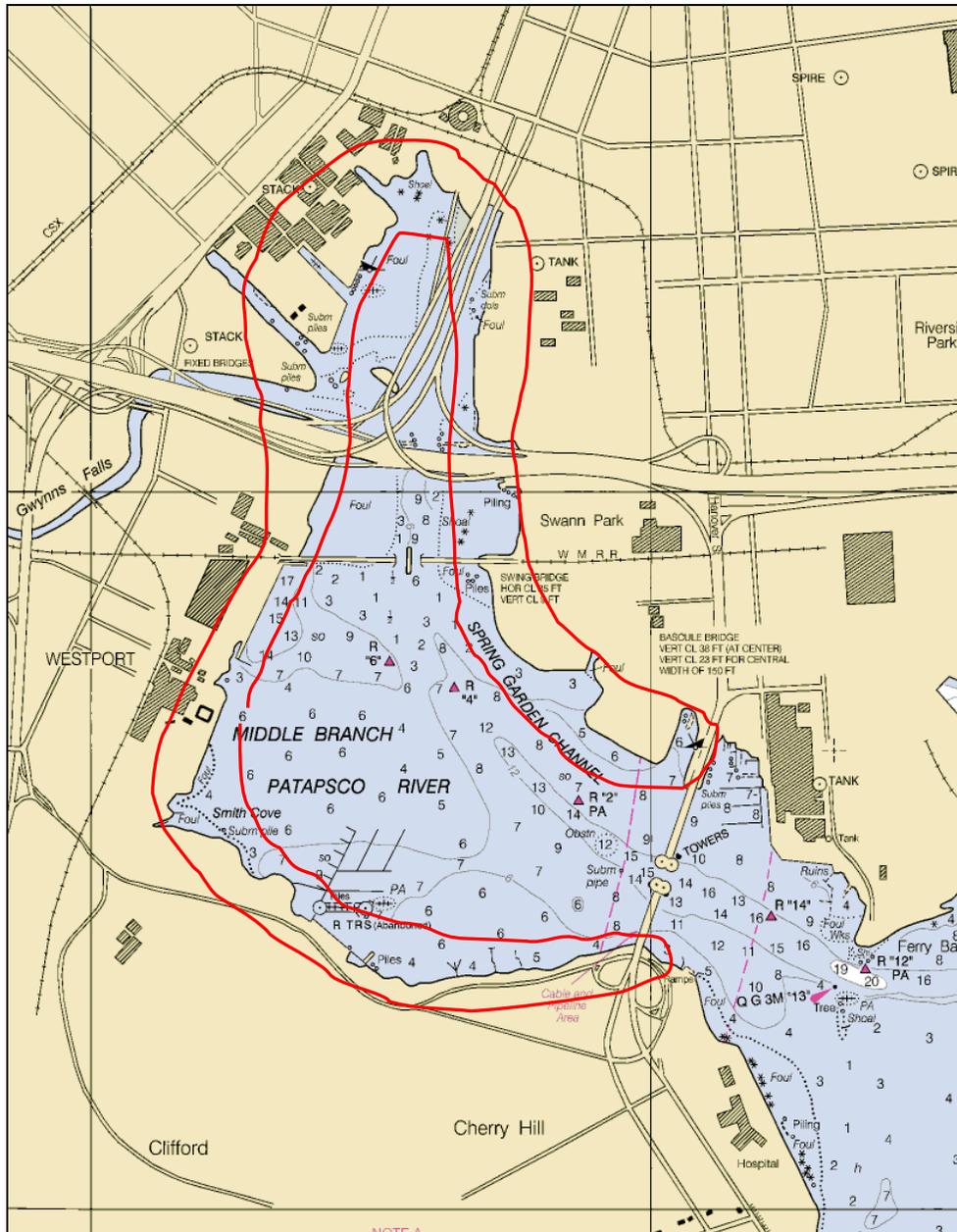
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283 **Shad and Herring Restoration** – The proposed anadromous species restoration would be
284 conducted in the mainstem of the Patapsco River from Ellicott City, approximately two miles
285 above the Simkins Dam down to the mouth of the River (Figure 6-10). American shad (*Alosa*
286 *sapidissima*), hickory shad (*Alosa mediocris*), blueback herring (*Alosa aestivalis*), and alewife
287 (*Alosa pseudoharengus*) would be produced, marked and stocked in the Patapsco River.
288 Blueback herring and alewife would be stocked as larvae and juveniles. The abundance and
289 mortality of larval and juvenile shad and herring would be monitored using marked hatchery-
290 produced fish. The contribution of hatchery fish to the adult spawning population would be
291 estimated and the recovery of naturally produced stocks would be monitored. Stocking and
292 monitoring would be completed by the Maryland DNR, and funding would be provided by the
293 MPA. The hatchery inputs would provide adult spawners that would produce self-sustaining
294 populations in the Patapsco River. Restoration of these species would fill an important niche in
295 the Chesapeake Bay ecosystem. The total cost of this project for three years is estimated to be
296 \$750,000.

297

298 **Trash Interceptors** – The area in which the proposed trash interceptors could be placed is shown
299 in Figure 6-11. The exact locations of the trash interceptors would be determined based on the
300 input of the Joint Evaluation (JE) Committee if this portion of the mitigation package is
301 approved. The project would include construction of a trash interceptor at one or more outfalls in
302 the Middle Branch of the Patapsco River. The trash interceptors would consist of a netting
303 system to catch trash and debris prior to it entering the Middle Branch. The interceptors would
304 be emptied regularly and the trash material would be disposed of as municipal waste. Removal

305 of debris and trash increases the survivability of wetlands in the watershed, reduces future
306 buildup of debris along shorelines, and provides aesthetic benefits to the community. The total
307 cost for this project is estimated to be \$1,750,000.
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Note: The area that will potentially contain trash interceptors is outlined in red.

Figure 6-11. Area Where Proposed Trash Interceptors may be Installed

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313 **6.2.2 Impacts**

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315 **6.2.2.1 Proposed Masonville DMCF**

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317 The Masonville Cove cleanup and improvements are expected to benefit both the ecological
318 system as well as the adjacent community. Cleanup of the terrestrial areas around the Cove
319 would remove a substantial amount of debris and trash and would improve the aesthetics, health,
320 and safety of the area. The soils adjacent to Masonville Cove would require remediation to meet
321 residential soil standards, because the enhancements to the area include the creation of an
322 environmental education and nature center and an educational trail system. This may result in a
323 net improvement in soil quality in some areas. The current vegetated buffer consists of
324 opportunistic plants of marginal ecological value. Mitigation and improvement plans include
325 planting of native species to improve habitat quality. Indirectly, this would provide better habitat
326 for terrestrial resources including pheasants, deer, raptors, and songbirds. Current enhancement
327 plans include a 10-acre non-tidal wetland creation project. Very few non-tidal wetlands of
328 substantial size exist within Baltimore City or along this reach of the Patapsco River and this
329 would constitute a significant improvement to the watershed. Table 6-1 summarizes the
330 mitigation impacts.

331

Table 6-1. Mitigation Acreages for Proposed Masonville DMCF

Type of Habitat Created, Enhanced, or Improved	Total Acres
Vegetated Tidal Wetlands Created	3.1 acres (1.5 + 1.6 acres)
Vegetated Tidal Wetlands Enhanced	2.0 acres
Vegetated Nontidal Wetlands Created	10 acres
<i>Total Wetlands Created or Enhanced</i>	<i>15.1 acres</i>
Shallow Water Habitat Improved/Enhanced	20 acres
Terrestrial Habitat Enhancement	10 acres
Landside and Water Phase I Cleanup (shoreline of Masonville Cove)	25 acres
Underwater Reef and Fish Habitat Improved/Cleaned Up (inner and outer Masonville Cove)	30 acres
Beach Creation/Enhancement (along dike and in Masonville Cove)	5.8 acres (5.0 + 0.8 acres)

332

333 ***Water and Sediment Quality***

334

335 Native vegetation would be planted along the shoreline of Masonville Cove which would anchor
336 soil in place, minimizing erosion. Tidal wetlands would be created and enhanced along the
337 shoreline and would slow runoff, absorb pollutants, and minimize the addition of contaminated
338 sediment, nutrients, and pollutants into Masonville Cove.

339

340 *Aquatic Species and Habitat*

341
342 Aquatic improvements to Masonville Cove include cleanup of large in-water debris, tidal
343 wetlands creation and enhancements, substrate improvements to protect/enhance SAV and
344 benthic conditions, softening of shorelines and installation of beach habitat, and fish reef
345 installation (reef balls, rock and sand mounds). Directly, this would improve the benthic
346 condition and fish habitat in the immediate area. The south shore of the Patapsco River is known
347 to be an important nursery area for anadromous fish. Therefore, the reefs are being designed to
348 improve in-stream refugia for the species known to utilize the area. Indirectly, this is expected to
349 stimulate fish stocks within the Patapsco estuary as well as improve recreational fishing
350 opportunities in this part of the Harbor. Any improvement in fish abundance would have
351 secondary benefits to predatory birds such as raptors, herons/egrets, and some diving ducks. The
352 beach areas and adjacent tidal flats would provide forage areas for wading birds and shorebirds
353 and would provide shallow refugia for smaller fish species.

354
355 The substrate enhancement of 72 acres within inner and outer Masonville Cove would allow for
356 a healthier and more diverse benthic community and improve habitat for filter feeding
357 organisms, such as mussels. The hard substrates that would be installed in the Cove would
358 provide attachment areas for encrusting fauna such as platform mussel, barnacles, and possibly
359 oysters. Bivalves (mussels and oysters) are filter feeders and would help to improve water
360 clarity within Masonville Cove. Water clarity improvements would have a secondary benefit to
361 SAV in the immediate area. These substrate enhancements would also benefit smaller forage
362 species that prefer oyster reef or gravel substrates, which are currently limited in the Baltimore
363 Harbor, and young of commercially harvested finfish and blue crabs, which would have long-
364 term beneficial impacts on commercial fisheries in the area. Substrate improvements may also
365 promote SAV expansion within Masonville Cove, which would improve fish foraging areas.

366
367 The substrate enhancements include the installation of reef balls and mounding of sand, which
368 would increase the amount of in-stream refugia and ultimately benefit predatory species, such as
369 white perch and striped bass, which are known to utilize the area. These substrate and habitat
370 improvements also include the enhancement of 20 acres of SWH. The enhancement of the SWH
371 would include the removal of embedded debris and placement of sand,. There may be increased
372 turbidity or other adverse affects to SAV while in-water work associated with the mitigation
373 projects is completed. Despite increased sedimentation and a potential increase in turbidity
374 from the operation of the proposed Masonville DMCF, the proposed enhancements to
375 Masonville Cove are expected to have a long-term beneficial impact on SAV, the benthic
376 community, and fish species. As previously noted, SAV expansion would provide additional
377 forage and refuge opportunities for aquatic species.

378
379 The positive impacts associated with fisheries and commercial fisheries are described in more
380 detail in the recreation section of this chapter.

381

382 ***Wetland Habitat***

383
384 The mitigation projects would result in the creation of approximately 3 acres of tidal wetlands,
385 the enhancement of 2 acres of tidal wetlands, and the creation of a 10-acre non-tidal wetland.
386 Additionally, 1.5 additional acres of tidal wetlands would be enhanced. Wetland areas provide
387 both habitat and food sources for avian and mammal species, as well as nesting areas for avian
388 species. The creation of tidal wetland habitat within Masonville Cove is likely to include the
389 creation of some intertidal benthic habitat, although these tidal wetlands would probably not
390 support the same benthos as a tidal open water substrate habitat. However, it is assumed that the
391 creation of wetland habitat would not be comparable to the amount of permanently lost habitat
392 due to the proposed alignment because the created wetland would be higher in elevation, and
393 therefore not adequate for the species that currently inhabit the benthic area within the proposed
394 alignment.

395
396 Wetland areas within Masonville Cove have the potential to improve water quality within the
397 Cove by trapping sediments and slowing runoff before it enters the water. The enhancement and
398 creation of tidal wetlands along the shoreline of Masonville Cove would also act as a buffer to
399 prevent nutrients and pollutants from entering the water in runoff. Buffering against nutrient
400 loading would minimize the possibility of phytoplankton blooms in Masonville Cove. This
401 improved water quality could have a secondary positive impact on the benthic community within
402 the Cove.

403
404 ***Avian Species***

405
406 The Cove improvements include extensive debris removal and native plantings, which should
407 encourage use of the area by bald eagles and other species of concern, such as hooded
408 mergansers. Improvements to water quality and fish habitat would improve forage opportunities
409 for many avian species, especially raptors (like the bald eagle) and waterfowl. The mitigation
410 projects also include the creation of a 10-acre bird sanctuary, which would provide food sources,
411 nesting sites, and shelter for avian species.

412
413 ***Terrestrial Species and Habitat***

414
415 All of the proposed compensatory mitigation for the Masonville DMCF slated to occur adjacent
416 to Masonville Cove would occur within the State-designated critical area. This portion of the
417 mitigation package includes a Phase I cleanup, which would remove debris and pollutants from
418 the area. Due to the requirement for management and removal of the waste materials,
419 destruction of much of the existing, but degraded habitat, may occur. There would be debris
420 removal (approximately 25 acres) and backfill with clean fill to support terrestrial vegetation.
421 Ten acres of terrestrial habitat, including the surface soil, would be enhanced, which is expected
422 to have a long-term, beneficial impact to the soils in the area and habitat diversity in the area.
423 The MPA would be responsible for all costs associated with the remediation of soils. It is
424 expected that terrestrial improvements would have a long-term beneficial impact to wildlife
425 living in Masonville Cove.

426

427 ***Child Health and Safety***

428
429 Currently, conditions in Masonville Cove are unsafe for children. Large amounts of debris along
430 the shoreline and in the water make this area treacherous. Additionally, environmental
431 contaminants may be present, but their levels are currently unknown and testing is ongoing. The
432 intent of the enhancement projects is to improve these conditions for the health and safety of the
433 community. Precautions would be taken at Masonville Cove to minimize the risk of potential
434 hazardous conditions presented by the water or beaches to users. At a minimum, the same safety
435 measures would be implemented at Masonville Cove that are taken at State supervised parks and
436 reservoirs where swimming is prohibited.

437
438 At the State Parks, the Department of Natural Resources follows the guidelines of the U.S.
439 Lifesaving Association (USLA 2005). Specifically, Maryland DNR prepares a "beach
440 management plan" for designated locations, including water bodies where swimming might
441 appear attractive but is prohibited for health or safety reasons (attractive nuisances). The
442 standard management practices to safeguard the public are signage, education, and surveillance
443 conducted either by personnel or by remote cameras. At the Cove, it would be important to
444 convey the reasons why swimming is prohibited through signage and other means.

445
446 Currently, environmental education programs by the National Aquarium in Baltimore and the
447 Living Classrooms Foundation are planned for the Cove. Each of these organizations has
448 standard operating procedures to ensure the safety of participants. It is intended that these
449 operating procedures would be implemented for the activities and programs at Masonville Cove.

450
451 In the event that standards are not met Cove-wide, access would be allowed only in those areas
452 deemed safe. Therefore, no additional health and safety risks to children are anticipated.

453
454 ***Recreation***

455
456 With the proposed project and the integrated compensatory mitigation project in Masonville
457 Cove, the Cove and surrounding waters could become a draw for non-motorized boat users.
458 Even with an increase in the number of non-motorized boat users, the previously mentioned
459 decrease in distance between the shoreline and the shipping channel is not anticipated to have a
460 significant affect on recreational boaters. Non-motorized boats, such as canoes and kayaks,
461 should be able to safely navigate within 400 ft of the shoreline. Among the enhancements
462 currently being considered that may attract paddlers are a canoe/kayak launch, nearby parking,
463 and debris cleanup. Such enhancement would provide enhanced recreational access to city
464 residents and visitors.

465
466 The proposed environmental enhancements in Masonville Cove may improve recreational
467 fishing in the area by improving water quality and fish habitat on a local scale. The Cove
468 enhancements also include a small pier that would be suitable for angling and would be an
469 additional enhancement to recreational fishing in the area.

470
471 Implementation of the proposed integrated, compensatory mitigation in Masonville Cove could
472 significantly improve habitat and public access, thereby enhancing wildlife viewing

473 opportunities. Current use of Masonville Cove by wintering waterfowl and recreational birders
474 was discussed in the Existing Conditions chapter (Section 2.4.2). Wintering waterfowl are found
475 inside the Cove until it ices over (Ringler 2005); therefore construction of the proposed DMCF is
476 not expected to spatially overlap with the area used by the overwintering birds. Environmental
477 enhancement in the Cove may increase birding opportunities by improving habitat conditions,
478 thereby increasing the likelihood that species of interest would use the site. In addition, the
479 enhancements would improve public access to the site through parking facilities, nature trails and
480 observation towers, allowing greater numbers of recreational users to enjoy birdwatching at this
481 location.

482
483 Mitigation in Masonville Cove would provide new recreational opportunities to residents. In
484 addition to the enhancements mentioned under boating and wildlife viewing, the potential Cove
485 enhancements include an environmental education and nature center and numerous proposed
486 restoration and cleanup activities. These projects have the potential to provide additional
487 beneficial recreational opportunities for residents of nearby areas such as walking, picnicking,
488 and other activities.

489
490 The educational trails and environmental education and nature center proposals were conceived
491 with community input and are being designed specifically to improve community access to
492 Masonville Cove and to improve ecological recreation and educational opportunities in the
493 Brooklyn-Curtis Bay area. The local residents of this area could directly benefit from these
494 opportunities. Indirectly, the project may stimulate community involvement and environmental
495 stewardship in the Masonville area.

496
497 **6.2.2.2 No Action Alternative**
498
499 The no action alternative would cause no new impacts to Masonville Cove. None of the
500 proposed mitigation projects or community enhancements would be completed. Some
501 contaminated materials would remain onsite.

502
503 **6.3 MITIGATION MONITORING**
504

505 It is expected that monitoring would be required to assess the success of most of the proposed
506 mitigation projects. The monitoring plans would be developed as part of the mitigation package
507 as part of the approval process by the JE Committee. The following sections describe potential
508 goals and requirements of the long-term monitoring and maintenance of the mitigation sites.

- 509
510 • **Tidal Wetland and Enhancement:**
511 ○ To ensure successful establishment of target vegetative species, including
512 development of subsurface root-rhizome systems
513 ○ To eradicate exotic and/or invasive plant species
514 ○ To ensure proper hydrologic functioning of established wetlands
515 ○ To document wetland use of fish and benthic invertebrates
516

- 517 • **Non-Tidal Wetland Creation:**
- 518 ○ To ensure successful establishment of targeted vegetative species
- 519 ○ To eradicate exotic and/or invasive plant species
- 520 ○ To ensure proper hydrology has been established
- 521
- 522 • **Reef and Fish Habitat Creation:**
- 523 ○ To determine fate of placed sandy material
- 524 ○ To evaluate fish use and fouling community colonization of reef structures
- 525
- 526 • **Beach Creation:**
- 527 ○ To determine fate of placed sandy material
- 528 ○ To evaluate fish and invertebrate use
- 529
- 530 • **Water Quality Monitoring:**
- 531 ○ To maintain monitoring equipment and facilitate availability and use of
- 532 data
- 533
- 534 • **Eel Passages:**
- 535 ○ To maintain eel ladders, correct malfunctions, and appraise their use by
- 536 target species
- 537
- 538 • **Shad and Herring Restoration:**
- 539 ○ To monitor return of stocked progeny to Patapsco River
- 540 ○ To evaluate use of existing fish ladders by stocked progeny
- 541
- 542 • **Trash Interceptors:**
- 543 ○ To determine effectiveness of trash interceptors
- 544 ○ To develop a long term maintenance plan

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