

FINDING OF NO SIGNIFICANT IMPACT
CHEASAPEAKE AND DELAWARE (C&D) CANAL TRAIL PROJECT
NEW CASTLE COUNTY, DELAWARE AND CECIL COUNTY, MARYLAND

OVERVIEW

The United States Army Corps of Engineers has evaluated the construction of Phase 1 of the Chesapeake & Delaware (C&D) Canal Trail Project. The C&D Canal runs 17 miles through Delaware and Maryland, connecting the Delaware River with the Chesapeake Bay. The C&D Canal is a working waterway and one of the busiest in the world, with over 25,000 vessels a year passing through it.

PURPOSE AND SPECIFICATIONS

The immediate goal of the C&D Canal Trail Project is to implement Phase 1 (approximately 16 miles of trail and 6 trailheads) of the C&D Trail Conceptual Plan. Phase 1 of this plan involves constructing a multi-use trail on the north side of the canal from Delaware City, DE to Chesapeake City, MD. The area immediately around Chesapeake City on the south side of the canal is also included in Phase 1 of this plan.

STUDY/PROJECT DESCRIPTION

The States of Delaware and Maryland reviewed their comprehensive recreation plans and identified the need for planning assistance from the U.S. Army Corps of Engineers (Corps) to complete a C&D Canal Recreation Study for the C&D Canal area. To complete this study, a Working Group was established in 2005 that included: the Corps; Delaware Congressman Michael N. Castle's office; Maryland Congressman Wayne Gilchrest's office; Delaware's Department of Natural Resources and Environmental Control and Department of Transportation; Maryland's Department of Natural Resources; New Castle County, DE.; Cecil County, MD; Delaware City, Delaware; St. Georges community, Delaware; Chesapeake City, Maryland; Delaware Bicycle Council, and Delaware Greenways, Inc. The State of Delaware (the non-federal sponsor) through the support of the three partners (Delaware Department of Natural Resources and Environmental Control, Delaware Department of Transportation, and New Castle County) contributed one-half the cost of developing the C&D Trail Conceptual Plan. Additional financial partners include Maryland Department of Natural Resources and Cecil County, Maryland.

Public workshops were held in 2005 to gather input and opinions on the recreational facilities that should be considered for the conceptual design of the trail. The Working Group completed the C&D Trail Concept Plan in March 2006. Additional public workshops were held in 2006 to relay this plan to the public and answer associated questions. The immediate goal of the C&D Canal Recreation Study is to implement Phase 1 of the C&D Trail Conceptual Plan. Phase 1 of this plan involves constructing a multi-use trail on the north side of the canal, on Corps-owned property, from Delaware City, DE to Chesapeake City, MD.

Future phases of the trail will include Phase 2 (approximately 9 miles) and will be on the south side of the canal from Chesapeake City to Scott Run. Phase 3 of the trail will be the Reedy Point, DE area on both the north and south side of the canal. Due to the expected long time duration between the three phases of the trail construction, this Environmental Assessment (EA) is focusing only on Phase 1 of the trail construction. Additional EAs will be completed in the future for Phase 2 and Phase 3 of the trail construction as those projects become approved and funded.

COORDINATION

The project was developed by cooperating agencies and municipalities including: the Corps; Delaware Department of Natural Resources and Environmental Control (DNREC); Delaware Department of

Transportation (DelDOT); New Castle County, Delaware; Maryland Department of Natural Resources (MD DNR); and Cecil County County, Maryland.

The draft Environmental Assessment (EA) for the project has been forwarded to the U.S. Environmental Protection Agency Region III, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, DNREC, MD DNR, and all other known interested parties.

ENDANGERED SPECIES IMPACT

The Environmental Assessment has determined that the selected plan, if implemented, would not jeopardize the continued existence of any species or the critical habitat of any fish, wildlife or plant, which is designated as endangered or threatened pursuant to the Endangered Species Act of 1973 as amended by P.L. 96-159.

WATER QUALITY COMPLIANCE

Pursuant to Section 401 of the Clean Water Act, a 401 Water Quality Certificate will be obtained for this project from the DNREC, Wetlands and Subaqueous Lands Section.

COASTAL ZONE

Based on the information gathered during the preparation of the Environmental Assessment, and the application of appropriate measures to minimize project impacts, it was determined in accordance with Section 307(C) of the Coastal Zone Management Act of 1972 that the plan complies with and can be conducted in a manner that is consistent with the approved Coastal Zone Management Programs of Delaware and Maryland. A consistency determination from DNREC, Coastal Management Program and MD DNR, Coastal Zone Management Program will be received prior to project construction.

WETLANDS

Approximately 1.5 acres of Common reed (*Phragmites australis*) dominated wetlands will be impacted by the Delaware City Branch Canal section of the proposed trail.

CULTURAL IMPACTS

The project is being coordinated with DNREC - Division of Historical and Cultural Affairs and Maryland Historical Trust under Section 106 of the National Historic Preservation Act to insure that the project will have no adverse effect upon cultural resources in the area.

RECOMMENDATION

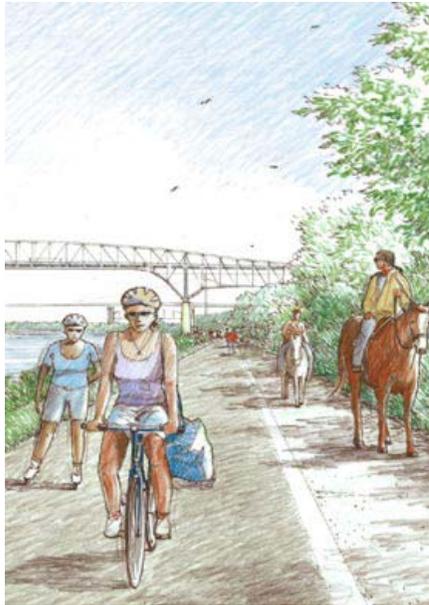
Because the Environmental Assessment concludes that the work described is not a major Federal action significantly affecting the human environment, I have determined that an Environmental Impact Statement is not required.

Date

Gwen E. Baker
Lieutenant Colonel, Corps of Engineers
District Commander

**DRAFT
ENVIRONMENTAL ASSESSMENT**

**CHEASAPEAKE AND DELAWARE (C&D) CANAL TRAIL PROJECT
NEW CASTLE COUNTY, DELAWARE AND CECIL COUNTY, MARYLAND**



**PREPARED BY:
PHILADELPHIA DISTRICT
U.S. ARMY CORPS OF ENGINEERS
PHILADELPHIA, PENNSYLVANIA 19107**

January 2008

Draft
Environmental Assessment
C&D Canal Trail Project
New Castle County, Delaware and Cecil County, Maryland

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1.0 Project Location

The Chesapeake & Delaware (C&D) Canal runs 17 miles through Delaware and Maryland, connecting the Delaware River with the Chesapeake Bay. The C&D Canal is a working waterway and one of the busiest in the world, with over 25,000 vessels a year passing through it. Surrounded by over 7,500 acres of public land, the canal is an extraordinary engineering and natural resource feature on the Delmarva Peninsula. The C&D Canal has a long history and is one of only two commercially viable sea-level canals in the United States. On a regional context, Philadelphia, Pennsylvania is approximately 45 miles to the north and Baltimore, Maryland is approximately 55 miles to the south (Figure 1). Phase 1 of the C&D Trail Project encompasses approximately 16 miles of the canal and connects Delaware City, Delaware to the east and Chesapeake City, Maryland to the west (Figure 2).

2.0 Study Authority

The U.S. Army Corps of Engineer's (Corps) study authority for the C&D Canal Trail Project is Section 22 of the Water Resources Development Act ("WRDA") of 1974 (Public Law 93-251), as amended. This authority authorizes the Secretary of the Army, acting through the Chief of Engineers, to assist the States in the preparation of comprehensive plans for the development, utilization and conservation of water and related resources of drainage basins, watersheds or ecosystems located within the boundaries of such State.

3.0 Purpose and Need for Action

The States of Delaware and Maryland reviewed their comprehensive recreation plans and identified the need for planning assistance from the U.S. Army Corps of Engineers (Corps) to complete a C&D Canal Recreation Study for the C&D Canal area. To complete this study, a Working Group was established in 2005 that included: the Corps; Delaware Congressman Michael N. Castle's office; Maryland Congressman Wayne Gilchrest's office; Delaware's Department of Natural Resources and Environmental Control and Department of Transportation; Maryland's Department of Natural Resources; New Castle County, DE.; Cecil County, MD; Delaware City, Delaware; St. Georges community, Delaware; Chesapeake City, Maryland; Delaware Bicycle Council, and Delaware Greenways, Inc. The State of Delaware (the non-federal sponsor) through the support of the three partners (Delaware Department of Natural Resources and Environmental Control, Delaware Department of Transportation, and New Castle County) contributed one-half the cost of developing the C&D Trail Concept Plan. Additional financial partners include Maryland Department of Natural Resources and Cecil County, Maryland. The project is located within New Castle County, Delaware and Cecil County, Maryland, of which, both counties are areas of projected high growth. In these rapidly developing areas, recreational opportunities are limited and the public lands along the canal are valuable resources for recreation.

Public workshops were held in 2005 to gather input and opinions on the recreational facilities that should be considered for the conceptual design of the trail. The Working Group completed the C&D Trail Concept Plan in March 2006. Additional public workshops were held in 2006 to relay this plan to the public and answer associated questions.

The immediate goal of the C&D Canal Recreation Study is to implement Phase 1 of the C&D Trail Conceptual Plan. Phase 1 of this plan involves constructing a multi-use trail on the north side of the canal, on Corps-owned property, from Delaware City, DE to Chesapeake City, MD. The area immediately around Chesapeake City on the south side of the canal is also included in Phase 1 of this plan.



Figure 1. Regional area map showing the project site.

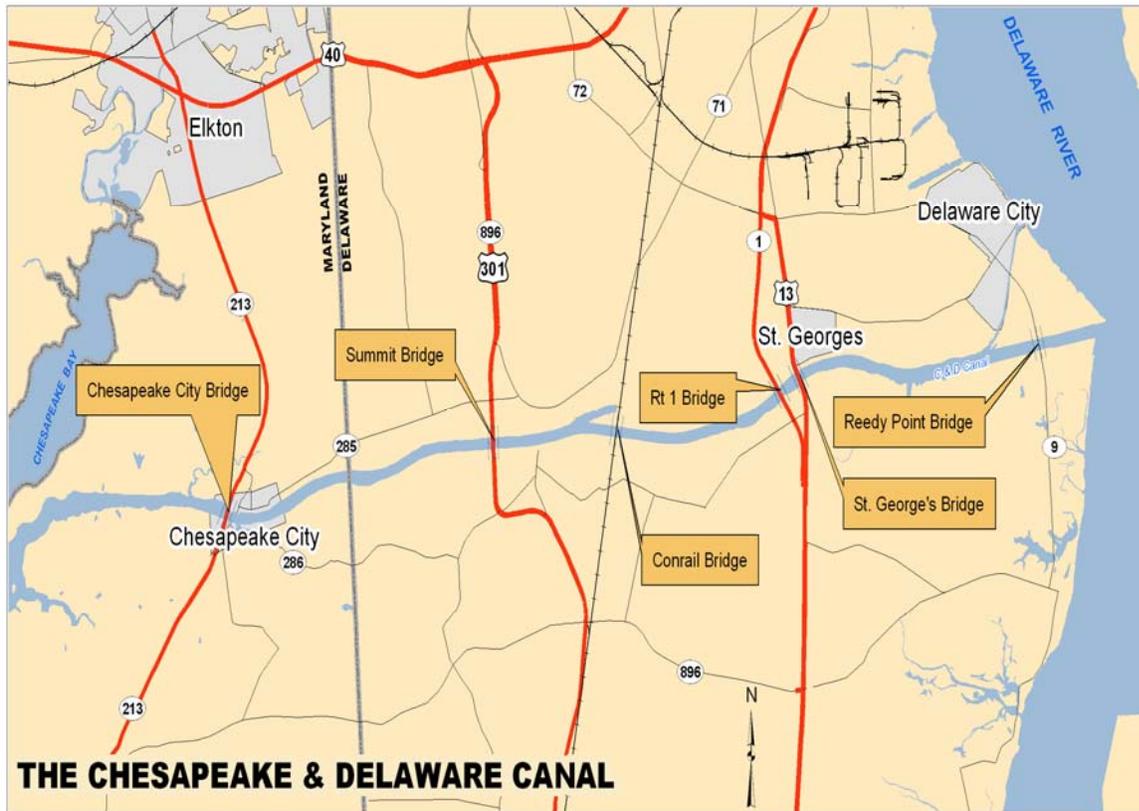


Figure 2. Local map of the C&D Canal.

4.0 Alternatives

Due to the nature of this project, a limited number of alternatives are available to achieve the goals of the C&D Trail Concept Plan. The Corps and its project partners have considered various alternatives in regard to the multi-use path. The alternatives include no-action, implement Phase 1, implement Phase 1, 2, and 3, and complete a Master Plan. There were four alternatives considered for the project:

4.1 No-action

The no action alternative would allow existing minimal recreation conditions (Photo 1) to remain and severely limit the recreation potential for the project area. Over time, the population increase in the surrounding area and the need for recreation will be even greater. This option would not accomplish the goals of the C&D Trail Concept Plan.



Photo 1. Existing maintenance road that runs along the north side of the canal.

4.2 Implement Phase 1 of the C&D Trail Concept Plan

Phase 1 of this plan involves constructing a multi-use trail on the north side of the canal from Delaware City, DE to Chesapeake City, MD. The area immediately around Chesapeake City on the south side of the canal is also included in Phase 1 of this plan. A rendering of what the proposed multi-use trail will look like can be seen in Figure 3. The length of Phase 1 is approximately 16 miles and also includes six trailheads. The trailheads will be located at Biddles Point, St. Georges, Summit Marina, Guthrie Run, Chesapeake City North, and Chesapeake City South. Phase 1 of the project would achieve a major goal of the C&D Trail Concept Plan. This would immediately increase recreation opportunities for citizens in Delaware and Maryland. This is the selected plan. Selected designs (30% completion level) for Phase 1 of the trail and proposed trailheads can be found in Appendix B.



Figure 3. Artist's rendering of proposed trail (C&D Trail Concept Plan, 2006).

4.3 Implement Phase 1, 2, and 3 of the C&D Trail Concept Plan

Phase 1 of this plan involves constructing a multi-use trail on the north side of the canal from Delaware City, DE to Chesapeake City, MD. The area immediately around Chesapeake City on the south side of the canal is also included in Phase 1 of this plan. Phase 2 is approximately 9 miles and will be on the south side of the canal from Chesapeake City, MD to Scott Run in Delaware. Phase 3 of the trail will be the Reedy Point area on both the north and south side of the canal. This alternative would complete all the goals of the C&D Trail Concept Plan; however, the lack of available funds at the State and federal levels do not make this a viable alternative at this time.

4.4 Complete Master Plan

One of the original goals of the C&D Recreation Study was to complete a Master Plan of the entire 7,700 acres of federal property owned along the C&D Canal. This Master Plan would discuss various recreational opportunities in areas outside the currently proposed multi-use trail. However, due to lack of available funds at the State and federal levels, this Master Plan was tabled and the focus was put on planning a multi-use trail, which would be part of any future Master Plan for the C&D Canal. If funding allows it, a Master Plan will be revisited in the future.

4.5 Trail Surface Considerations

Three alternatives were considered for the trail surface. Alternative one was an all asphalt trail surface. The potential advantages of this would be ease of long term maintenance, while the negatives were the

cost of maintenance and some recreational activities (i.e., equestrian) are not compatible with this surface. Alternative two was an all stone dust trail surface. The potential advantages of this would be the cost of installation and long term maintenance would be low; however, some recreational activities (i.e., rollerblading) are not compatible with this surface. Alternative three was a split trail, part asphalt and part stone dust. This is the preferred alternative since it accommodates the most types of recreational users and has modest maintenance costs. Depending on the width of the current Corps maintenance road, the proposed trail width will vary from 8-10' asphalt and 5' stone dust. Due to wetland concerns, one section of trail (Delaware City Branch Canal area) will only be 13' wide and asphalt.

5.0 Environmental Analysis

5.1 Land Use

There are three distinct municipalities along the C&D Canal, dating back to its creation as an instrumental waterway for commerce and trade. In Delaware, St. Georges is adjacent to Route 13 on the north side and also, encompasses areas on the south side of the Canal. Delaware City occupies the north side of the Canal, along the old Branch Canal to the Delaware River. St. Georges and Delaware City are located in New Castle County, DE. In Maryland, Chesapeake City is located on the north and south sides of the Canal in Cecil County, MD (Figure 2).

Both counties in Delaware and Maryland are areas of projected high growth. Much of the Canal lies in New Castle County, DE and this was ranked first in the State for population growth during the 1990s. The estimated population in 2004 was 519,396. The County is expected to have a 19% increase in population by 2030. A population increase is also expected for Cecil County, MD that had an estimated 2004 population of 95,526 and is expected to increase by 13% by 2030.

The C&D Canal Trail project should have a positive benefit to the land use of the regional area. As the populations of New Castle and Cecil Counties increase, new locations for recreation will become a welcome addition of open space in the quickly developing area.

5.2 Wetlands

There is one area along the proposed trail where wetlands will be impacted by the project. This area is located at the eastern terminus of the trail along the Branch Canal near Delaware City. Due to the need to have a connective trail open year round as well as public safety, 2.1 (1.3 permanent, 0.8 temporary) acres of wetlands will be impacted by trail construction.

5.2.1 Wetland Delineation for the Branch Canal Area

A wetland delineation was conducted along the Delaware City Branch Canal in May 2007. The limits of existing wetlands were delineated along an approximately 50-foot wide and 4,000-foot long corridor to determine, in part, the potential wetland impacts, if any, associated with the proposed construction of a recreational trail through the area.

The site is located less than one mile south of Delaware City and east of Route 9 in New Castle County, Delaware. The area under investigation is bounded on the south by the Chesapeake and Delaware (C&D) Canal, and on the west by a man-made impoundment or confined disposal facility (CDF) known as the Delaware City Disposal Area which was constructed prior to 1940 for the purpose of containing dredged material removed from the C&D Canal during construction and subsequent maintenance (USACE, 2007). The dikes were raised in the 1960's and this CDF was last utilized by the Corps in the late 1980's; however,

the dikes and sluice are still actively maintained (USACE, 2007). The site is also bordered on the east by the Delaware City Branch Canal and by residential development of Delaware City to the north. The area that was investigated under this delineation included the area immediately to the east of the CDF beginning at the Branch Canal's confluence with the C&D Canal continuing north approximately 4,000 feet to the point where the dike turns 90 degrees to the west leading away from the Branch Canal (Figure 4).

Wetlands were identified, delineated, and documented using the Routine Onsite Determination Method as described in the 1987 U.S Army Corps of Engineers Wetlands Delineation Manual. The wetland boundary was then surveyed via a differential global positioning system (DGPS). All wetland boundary data was downloaded directly into an Arcview GIS system for data manipulation and map plotting. These points were layered onto an aerial photo of the area. Boundaries of the wetland and plant communities were determined by extrapolation between consecutive points from the data taken in the field and using the aerial photo as a reference.

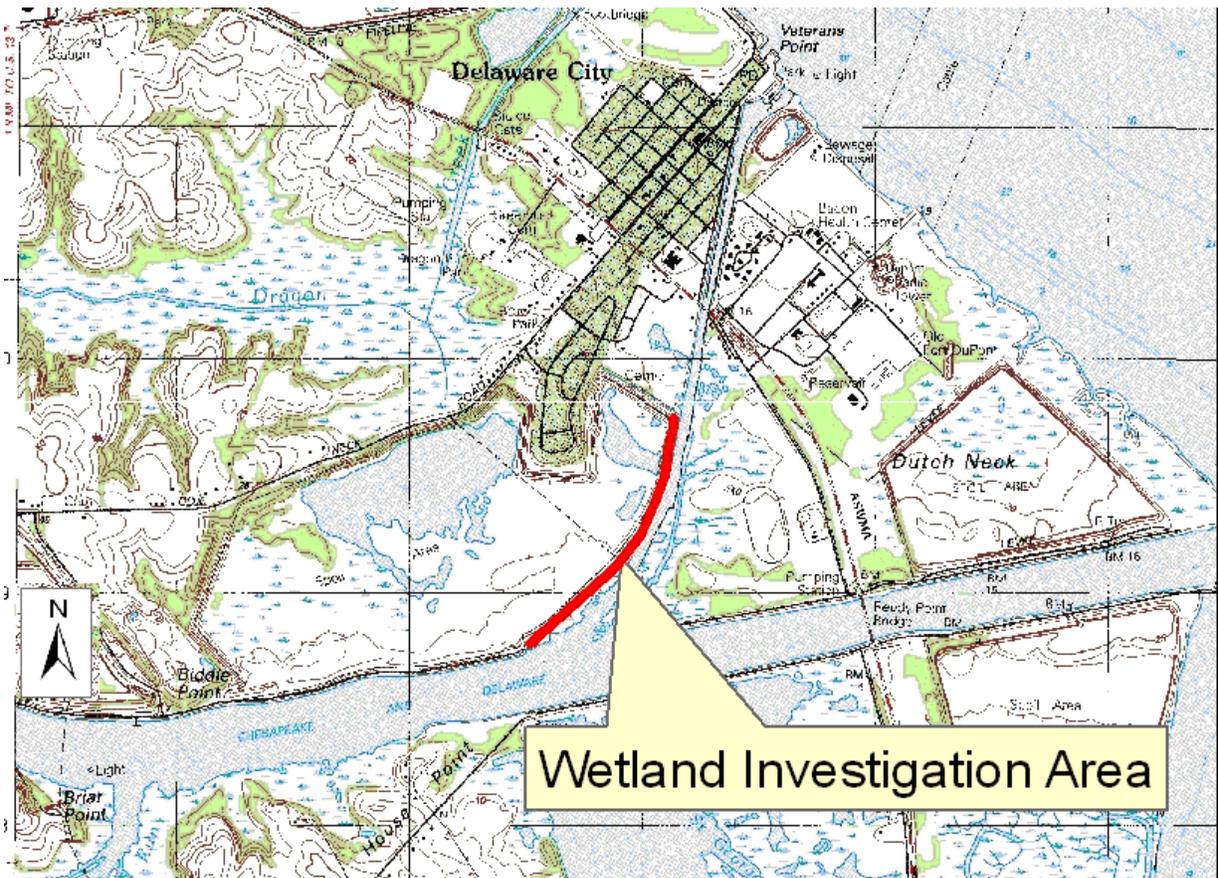


Figure 4. The Branch Canal wetland delineation area.

As shown in Figure 5, Plant Community #1 (PC1) reflects those areas dominated by the invasive Common Reed (*Phragmites australis*). A mowed path was observed paralleling the CDF dike and extended through the tidal marsh and paralleled the CDF dike throughout the project area. The opening created by the mowing has allowed some additional herbaceous plant diversity in the area that would have most likely otherwise been suppressed by the *Phragmites*. These herbaceous plants included Sphagnum Moss (*Sphagnum sp.*), Jewelweed (*Impatiens pallida*), Sensitive Fern (*Onoclea sensibilis*), Swamp Rose (*Rosa palustris*), and Winged Loosestrife (*Lythrum alatum*).

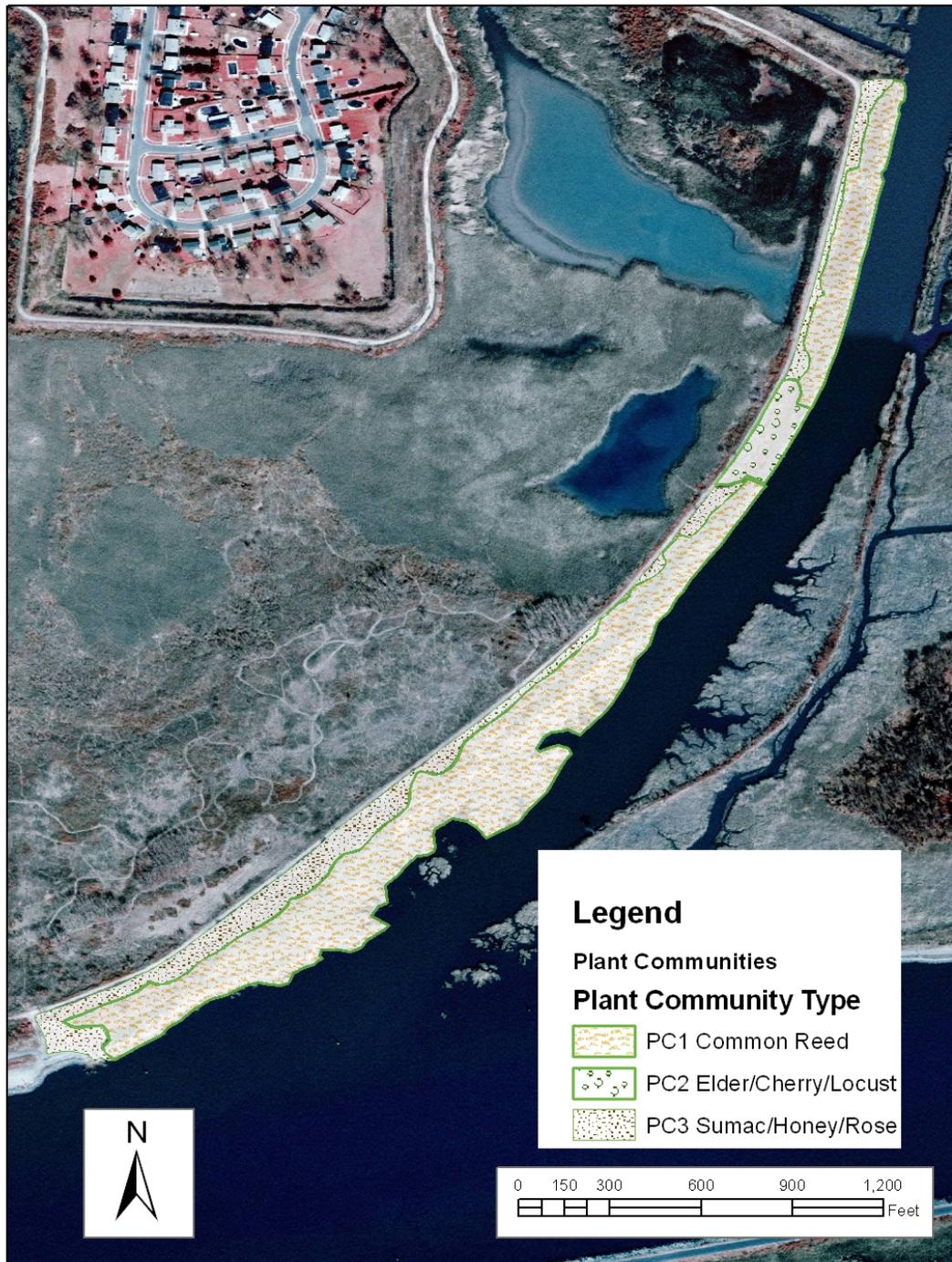


Figure 5. Plant communities found in the Branch Canal area.

Plant Community #2 (PC2) located near the middle of the study reach, reflects a woody vegetative community approximately one acre in size (Photo 2). This community transitioned from the slope of the dike down into the lower marsh area and consisted of Box elder (*Acer negundo*), Black cherry (*Prunus serotina*), Black locust (*Robinia pseudacacia*), and Black willow (*Salix nigra*). A few specimens of Red Osier dogwood (*Cornus sericea*) were also observed in the far north end of the study area.



Photo 2. Woody Vegetation Plant Community (PC2) located near the Branch Canal.

Plant Community #3 (PC3) reflects the vegetated upland areas associated with a change in topography resulting in a higher elevation bench (Photo 3) which supported a variety of shrub, vine and other species including Smooth Sumac (*Rhus glabra*), Tatarian Honeysuckle (*Lonicera tartarica*), Multiflora Rose (*Rosa multiflora*), Wild Grape (*Vitis aestivalis*), Poison Ivy (*Toxicodendron radicans*), Climbing Bittersweet (*Celastrus scandens*), Virginia Creeper (*Parthenocissus quinquefolia*), Blackberry (*Rubus sp.*), Dandelion (*Taraxacum officinale*), Hairy Bittercress (*Cardamine hirsute*), Purple Dead-Nettle (*Lamium purpureum*), and Golden Rod (*Salidago sp.*).



Photo 3. Upland Bench Community (PC3) located near the Branch Canal.

A complete list of plant species and their northeast wetland indicator status observed during the delineation

is provided in Table 1. No State or Federally listed threatened or endangered plant species were observed within the area during the two site visits. While an extensive search was not conducted in the area for these species, the potential for the occurrence of suitable habitat in an area dominated by *Phragmites* and experiencing regular disturbance through controlled burned and human activity seems unlikely.

Table 1. Delaware City Branch Canal Plant List.

Scientific Name	Common Name	Regional Wetland Indicator Status *	Occurrence on site
<i>Acer negundo</i>	Box elder	FAC+	Common
<i>Allium canadense</i>	Wild onion	FACU	Uncommon
<i>Cardamine hirsuta</i>	Hairy Bittercress	FACU	Common
<i>Celastrus scandens</i>	Climbing bittersweet	FACU-	Common
<i>Cornus sericea</i>	Red Osier dogwood	FACW+	Uncommon
<i>Impatiens pallida</i>	Jewelweed	FACW	Common
<i>Lamium purpureum</i>	Purple Dead-Nettle	NI	Common
<i>Lonicera tatarica</i>	Tatarian Honeysuckle	FACU	Common
<i>Lythrum alatum</i>	Winged Loosetrife	FACW+	Uncommon
<i>Onoclea sensibilis</i>	Sensitive fern	FACW	Uncommon
<i>Parthenocissus quinquefolia</i>	Virginia creeper	FACU	Uncommon
<i>Phragmites australis</i>	Common Reed	FACW	Common
<i>Prunus serotina</i>	Black cherry	FACU	Uncommon
<i>Rhus glabra</i>	Smooth sumac	UPL	Common
<i>Robinia pseudacacia</i>	Black locust	FACU-	Common
<i>Rosa multiflora</i>	Multiflora rose	FACU	Common
<i>Rosa palustris</i>	Swamp Rose	OBL	Uncommon
<i>Rubus sp.</i>	Blackberry sp.	NI	Common
<i>Salidago sp.</i>	Golden Rod sp.	NI	Common
<i>Salix nigra</i>	Black willow	FACW	Uncommon
<i>Smilax rotundifolia</i>	Roundleaf greenbriar	FAC	Common
<i>Sphagnum sp.</i>	Sphagnum moss sp.	NI	Common
<i>Taraxacum officinale</i>	Dandelion	FACU-	Uncommon
<i>Toxicodendron radicans</i>	Poison ivy	FAC	Common
<i>Vitis aestivalis</i>	Wild grape	FACU	Common

* U.S. Fish and Wildlife Service, 1988. National list of vascular plant species that occur in wetlands. USFWS Biological Report 88 (26.9).

Indicator Code	Wetland Type	Comment
OBL	Obligate Wetland	Occurs almost always (estimated probability 99%) under natural conditions in wetlands.
FACW	Facultative Wetland	Usually occurs in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.
FAC	Facultative	Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).
FACU	Facultative Upland	Usually occurs in non-wetlands (estimated probability 67%-99%), but occasionally found on wetlands (estimated probability 1%-33%).
UPL	Obligate Upland	Occurs in wetlands in another region, but occurs almost always (estimated probability 99%) under natural conditions in non-wetlands in the regions specified. If a species does not occur in wetlands in any region, it is not on the National List.
NA	No agreement	The regional panel was not able to reach a unanimous decision on this species.
NI	No indicator	Insufficient information was available to determine an indicator status.
NO	No occurrence	The species does not occur in that region.

For the majority of the site investigated, the wetland boundary was established at or near the toe of the CDF dike slope. As seen in the photo below (Photo 4) taken from the top of the CDF dike at high tide, surface hydrology is evident up to the toe of the CDF dike under these conditions. A slightly elevated bench area (Photo 3) paralleling the CDF dike for approximately 700 feet of the southern portion of the site was determined to be non-wetlands. This area exhibited the necessary hydrology to support wetland vegetation; however the soils did not exhibit signs of reducing conditions, nor was the dominant vegetation indicative of hydric conditions. Therefore, this area did not meet the required criteria for wetland designation. Based on the results of this investigation, approximately 3,300 linear feet of the 4,000 linear foot assessment area was designated wetlands with the remainder designated as uplands.



Photo 4. View at high tide from CDF, looking east.

The approximately 700 linear foot upland bench would provide enough area for installation of a 20 foot trail through most of that area without directly impacting wetlands. The remainder of the distance along the dike would require some form of direct impact on wetlands. Impact to those wetlands can be minimized by using an elevated platform trail along the toe of the dike and in some instances on the dike itself. Assuming a maximum trail width of 13 feet and a distance of 3,300 feet, potential exists for impacts of wetlands within the study area.

Alternatives considered for the trail in the Branch Canal area are summarized in Table 2. The selected alternative for this section of the trail is Alternative #2.

Table 2. Alternatives considered for the Delaware City Branch Canal Area of the C&D Trail.

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
	Trail on berm	Trail on fill	Trail on fill with retaining wall	Boardwalk	Pedestrian Bridge
Trail length	4,000 feet	4,000 feet	4,000 feet	4,000 feet	9,300 feet
Trail width	20 feet	13 feet	13 feet	15 feet	20 feet
Benefits	<ul style="list-style-type: none"> • Construction cost is much lower than other alternatives. • No wetland impacts. 	<ul style="list-style-type: none"> • Year round open trail. • Lower cost than other year round trail alternatives. 	<ul style="list-style-type: none"> • Year round open trail. • Save costs of boardwalk or pedestrian bridge. 	<ul style="list-style-type: none"> • Year round open trail. • Avoids most impacts to wetlands. 	<ul style="list-style-type: none"> • Creates connectivity for the trail and connects the Reedy Point area with the remaining trail area. • Creates a destination for this section of the trail.
Potential issues	<ul style="list-style-type: none"> • Would result in a two to three month seasonal closure of trail due to hunting in adjacent lands. Potential conflict between hunters and trail users. • Does not achieve project goal of year round, safe trail for the public. 	<ul style="list-style-type: none"> • Wetland impacts – This alternative would not qualify for NWP#42 (Recreational Facilities) because impacts are greater than 0.5 acres. 	<ul style="list-style-type: none"> • Retaining wall adds higher cost than Alternative 2. • Wetland impacts – This alternative would qualify for NWP#42 (Recreational Facilities) because impacts are less than 0.5 acres 	<ul style="list-style-type: none"> • Wetland impacts (shading) – This alternative would not qualify for NWP#42 (Recreational Facilities) because impacts are greater than 0.5 acres • High construction and maintenance costs. 	<ul style="list-style-type: none"> • High construction and maintenance costs. • Wetland impacts – This alternative would qualify for NWP#42 (Recreational Facilities) because impacts are less than 0.5 acres
Maintenance costs	low	low	medium	high	high
Wetland impacts	0	0.8 acres (temporary) 1.3 acres (permanent)	0.8 acres (temporary) 0.5 acres (permanent)	0.8 acres (temporary) 1.1 acres (permanent)	0.3 acres (temporary) 0.5 acres (permanent)
Construction Cost	\$350,000	\$ 725,000	\$1,200,000	\$10,000,000	\$12,000,000

Based on items presented in Table 2; and balancing environmental impacts, public safety, cost, and other issues; Alternative #2 is the selected alternative for trail construction in the Delaware City Branch Canal area.

Mitigation

Approximately 2.1 acres (1.3 permanent and 0.8 temporary) of wetlands will be impacted by the C&D Trail project. The permanent impacts will occur in the berm area as a result of placing the proposed trail on fill through wetlands. The temporary impacts will occur as construction related impacts of building the trail. The impacted wetland would be classified as low-value for wildlife species and is predominately *Phragmites*. To mitigate for this impact we propose to restore approximately 13 acres of *Phragmites* wetlands that are located adjacent to the proposed trail and the C&D Branch Canal. These 13 acres will satisfy DNREC's Wetland Section requested 10:1 mitigation ratio for the project.

The improvement plan will be implemented over a 3-year period and will include a combination of spraying herbicide (glyphosate) and burning the *Phragmites*. Year one will involve spraying the 13 acre area in the fall, followed by a burn in the winter. Year two will again involve spraying the 13 acre area in the fall months, followed by a burn in the winter. Year three and subsequent years will involve spot spraying of any remaining *Phragmites* patches. "Volunteer" plant species will be allowed to colonize the sprayed mitigation area. The anticipated restored plant community for the mitigation area will be a functioning freshwater tidal wetland that should include: wild rice (*Zizania aquatica*), broadleaf cattail (*Typha latifolia*), saltmarsh cordgrass (*Spartina alterniflora*), and big cordgrass (*Spartina cynosuroides*).

5.3 Wildlife Resources

Various strategies have been developed over time to address the problems of revegetating large areas of dredged material. In partnership with fish and wildlife agencies in both Delaware and Maryland, soil conditions and vegetation restoration have occurred resulting in a diversity of wildlife found on the Canal lands. Much of the Canal lands are managed by DNREC Fish and Wildlife Section and MDDNR Wildlife Section to benefit wildlife.

The natural environs of the C & D Canal Wildlife Area lie within a fragmented landscape, consisting of a mosaic of early successional habitat types, which are an artifact of the creation of the canal. Early successional upland habitats include: thickets, grass-lands, shrub-lands, hedgerows, and woodlots. In the broad sense, the vegetation of these habitats includes a variety of both native and non-native broad-leaf herbs, grasses, sedges, vines, and deciduous and evergreen trees and shrubs. In addition, narrow wooded ravines also exist, which typically support young, deciduous tree species on moderate slopes. In the bottom of these ravines, small freshwater streams flow towards the canal. Occasionally, these streams lack a wooded canopy and as a result, emergent and scrub/shrub wetlands develop along the streams narrow floodplains. Artificial types of habitat, such as ponds and impoundments also occur in the Canal Wildlife Area. These human-created habitats do provide some values to wildlife, particularly when native vegetation has become established within, or on their perimeters. Game species found throughout the Canal lands include: white-tailed deer, mourning dove, cottontail rabbit, squirrel, waterfowl, and bobwhite quail. In addition, the Canal lands offer habitat to a diverse group of wading and migratory birds (including herons and geese). Other species found include: raccoon, muskrat, beaver, opossum, woodchuck, and striped skunk as well as numerous small mammals, birds, fish, amphibians, and reptiles.

There will be temporary disturbances to wildlife resources during construction of the trail, but since most of the trail and trailheads will be constructed on previously disturbed areas, the overall affect on wildlife using C&D Canal lands, should be minimal.

5.4 Threatened and Endangered Species

According to the U.S. Fish and Wildlife Service correspondence, their records indicate that the federally listed threatened species bog turtle (*Clemmys muhlenbergii*) may be found in the project area in Delaware. Since there is no bog turtle habitat located in the proposed project area, there will be no effect on federally listed species (see Project Correspondence - Appendix A). In addition, consultation with the National Marine Fisheries Service concluded that since there will be no in-water work in the C&D Canal associated with the project, there will be no endangered or threatened species under their jurisdiction in the project area. Coordination with the Delaware Natural Heritage and Endangered Species Program has also concluded that there will be no impact to Delaware State-listed Species. In addition, the proposed project will not have an adverse impact on Maryland State-listed species.

5.5 Air and Water Quality

The air quality within the project area is reflective of a developed area. New Castle County (NCC), Delaware is designated as a nonattainment area for ozone (Environmental Protection Agency Web Site, 2007) and particulates (<2.5 micrometers). Areas of the country where air pollution levels persistently exceed (failed to meet) the national ambient air quality standards may be designated "nonattainment." Air quality within New Castle County, Delaware has met (been below) the U.S. Environmental Protection Agency's (EPA) air quality standards for the past six years (Environmental Protection Agency, 2007), except for ozone, which has exceeded EPA standards every year based on the 8-hour average, and particulates (<2.5 micrometers). In addition, according to EPA's Air Quality Index, NCC had 144 good, 93 moderate, and 7 unhealthy air quality days in 2007.

The air quality within Cecil County (CC), Maryland has met (been below) the U.S. Environmental Protection Agency's (EPA) air quality standards for the past six years (Environmental Protection Agency, 2007), except for ozone, which has exceeded (failed to meet) EPA standards every year based on the 8-hour average. In addition, according to EPA's Air Quality Index, CC had 87 good, 29 moderate, and 5 unhealthy air quality days in 2007.

Construction of the proposed trail would cause temporary reduction of local ambient air quality due to fugitive dust and emissions generated by construction equipment and barge traffic. These temporary reductions in air quality would not have a significant impact on the air quality of the surrounding area.

Temporary impacts to the aesthetics of the project area will occur during improvement operations. Air quality impacts resulting from the release of carbon monoxide and particulate emissions will occur at the site during project related activities and may be considered offensive, but are generally not considered far-reaching. Exhaust from the construction equipment will have an effect on the immediate air quality around the construction operation but should not impact areas away from the immediate construction area. These emissions will subside upon cessation of operation of heavy equipment.

General Conformity Review and Emission Inventory

C&D Canal Trail

Federal Clean Air Act regulations require a General Conformity analysis of Federal actions proposed for a location that is within a non attainment area with respect to air quality criteria. These regulations ensure that Federal Actions conform to a nonattainment area's State Implementation Plan (SIP) thus not adversely impacting the area's progress toward attaining the National Ambient Air Quality Standards (NAAQS). In the case of the C&D Trail Phase 1 project, the Federal Action is to complete an approximately 16 mile multi-use trail. The U.S. Army Corps of Engineers, Philadelphia District would

be responsible for construction. New Castle County, Delaware within which the Federal Action will take place is classified as moderate nonattainment for ozone (oxides of nitrogen [NO_x] and volatile organic compounds [VOCs]) as well as, particulates (<2.5 micrometers). Cecil County, Maryland is also classified as moderate nonattainment for ozone. The C&D Trail project site is within the Philadelphia-Wilmington-Trenton and Baltimore Nonattainment Areas (PA-NJ-DE-MD).

There are two types of Federal Conformity: Transportation Conformity and General Conformity (GC). Transportation Conformity does not apply to this project because the project would not be funded with Federal Highway Administration money and it does not impact the on-road transportation system. GC however is applicable. Therefore, the total direct and indirect emissions associated with the C&D Canal Trail project must be compared to the GC trigger levels presented below.

Pollutant	General Conformity Trigger Levels (tons per year)
NO _x	100
VOCs	50

To conduct a general conformity review and emission inventory for the C&D Canal Trail project, a list of equipment necessary for construction was identified. Pertinent pieces of equipment include: three boats, cranes (various), pile hammer, and welders. Table 1 (Appendix C) lists these pieces of equipment along with the number of engines, engine size (hp), and duration of operation. A Load Factor (LF) was also selected for each engine, which represents the average percentage of rated horsepower used during a source's operational profile. Load factors were taken from other General Conformity Reviews and Emission Inventories.

Table 1 (see Appendix C) shows the estimated hp-hr required for each equipment/engine category. Hp-hr was calculated using the following equation:

$$\text{hp-hr} = \# \text{ of engines} * \text{hp} * \text{LF} * \text{hrs/day} * \text{days of operation}$$

The second calculation is to derive the total amount of emissions generated from each equipment/engine category by multiplying the power demand (hp-hr) by an emission factor (g/hp-hr). The following equations were used:

$$\text{emissions (g)} = \text{power demand (hp-hr)} * \text{emission factor (g/hp-hr)}$$

$$\text{emissions (tons)} = \text{emissions (g)} * (1 \text{ ton}/907200 \text{ g})$$

Table 2 (see Appendix C) provides the NO_x and VOC emission factors selected for each equipment/engine category. These factors were also taken from other General Conformity Reviews and Emission Inventories. Tables 3 and 4 (see Appendix C) present the emission estimates for NO_x and VOCs, respectively. The tables present the emissions from each individual equipment/engine category and the combined total.

The total estimated emissions that would result from construction of the C&D Canal Trail Project are 13.6 tons of NO_x and 2.1 tons of VOCs. Construction of the project is expected to be completed in 10

months. These emissions are below the General Conformity trigger levels of 100 tons of NO_x and 50 tons of VOCs per year. General Conformity under the Clean Air Act, Section 176 has been evaluated for the project according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this project because the total direct and indirect emissions from the project are below the conformity threshold values established at 40 CFR 93.153 (b) for ozone (NO_x and VOCs) in a Moderate Nonattainment Area (100 tons and 50 tons of each pollutant per year). The project is not considered regionally significant under 40 CFR 93.153 (i).

According to 40 CFR Parts 51 and 52 (November 2005), it is anticipated that PM_{2.5} non-attainment areas would have de minimis emission levels for General Conformity purposes of 100 tons per year for all PM_{2.5} pollutants. These levels are similar to those that currently exist for NO_x and VOCs for General Conformity. Since the proposed C&D Canal Trail Project emissions for General Conformity of NO_x and VOCs are below trigger levels of 50 and 100 tons, it is anticipated that PM_{2.5} emissions resulting from this project would also be below the trigger level of 100 tons per year.

Water Quality

In the 1920's the Canal was deepened and widened which allowed the fresh water from the Delaware River to mix with the brackish tidal flow of the Elk River in Maryland. The tide of the Canal is a result of the tides of the water bodies at its ends (the Delaware River on the east end and Chesapeake Bay on the west end). The mean range of the tide ranges from 5.5 feet near the east end to 2.6 feet at Chesapeake City, Maryland. The water of the Canal is similar to calm open bay conditions. Large ships can produce waves 1' to 2' high. The proposed trail should have a minimal impact on the water quality of the Canal. The project will utilize appropriate stormwater systems (swales, plantings, etc.) and best management practices during construction to reduce run-off from the trail from entering the Canal.

Water quality is not expected to be significantly impacted during the construction of this project. All necessary soil erosion and sediment controls will be used during the construction of the trail. In addition, the contractor will be required to complete a plan that describes measures to prevent hazardous construction materials (e.g., oils) from entering the wetlands and possibly traveling downstream. Furthermore, all construction debris will be disposed of in an appropriate manner.

5.6 Historic and Cultural Resources

The extensive modifications necessary to transform the canal into a major seaway have had an extremely deleterious effect on cultural resources within the project corridor. Remnants of the original canal are few and far between, the Eastern Lock at Delaware City (DE 106) and the Pump House at South Chesapeake City (MD 39) being the most important examples. Significant portions of a few towns have been completely removed. Having said this, many resources remain within the wider study area (Hunter Research 2007).

At this stage in the development of the project the resolution is only enough to give general recommendations of potential effect on these resources. Several types of features will be built within the project corridor that may have a physical impact: kiosks, overlooks, trails, a single new bridge and trail head/comfort stations. The minimal subsurface or visible footprint for kiosks and overlook points compared to the substantial disturbance present within the corridor suggests that these installations will have little potential to effect cultural resources. The trails are almost all within areas of existing trails or service roads and also have little potential to effect cultural resources. The only new section of trail proposed runs along a steep bank created during the last expansion of the canal and will connect to existing service roads and has no potential to effect cultural resources. The proposed bridge over Guthrie Run will connect to modern, existing service roads in an area excavated in the 1960s. This has no potential to affect any cultural resources (Hunter

Research 2007).

The trailhead/comfort stations will likely have a much more extensive footprint. These stations may include parking lots, picnic areas, restrooms, and information centers, all of which will be handicap accessible. However, all of the trailheads included in Phase 1 of the project (Chesapeake South, Chesapeake North, Guthrie East, Summit Marina, St. Georges, and Biddle Point) are located in areas previously disturbed by the construction/excavation of the canal or by the stockpiling of dredged material (Hunter Research 2007).

Although the identified resources largely lie away from the proposed trails and trailhead/comfort stations, there is still a great opportunity to incorporate these resources into the overall experience with historic interpretive development. Of particular note are the four listed historic districts adjacent to the canal (South Chesapeake City, St. Georges, Delaware City and Fort DuPont). Some of the surveyed buildings in North Chesapeake City are also of interest, having been historically associated with the canal. Also notable is the Samuel Davies House (DE 31) in the southern portion of Lum's Pond State Park (Hunter Research 2007).

The most important historic resource related to the canal is undoubtedly the old Lock Pump House at South Chesapeake City. This site and the existing museum are vital to explaining the Chesapeake and Delaware Canal in a broader context and illustrating the way the canal corridor has changed over the last 200 years. Bringing trailheads to these resources would have little impact beyond educating the public, increasing the public interest and possibly providing economic stimulus to the towns. Finally, soon the mid-20th-century features of the canal will be of historical interest to many visitors. The bridges and embankments represent impressive feats of engineering that for the most part have not yet been considered for their historical significance. This may change in the future as these resources begin meeting the National Register's 50-year age criterion, particularly the Chesapeake City Bridge and Railroad Bridge (Hunter Research 2007).

A Phase 1A Cultural resource investigation has been completed for the project and coordinated with DNREC - Division of Historical and Cultural Affairs and Maryland Historical Trust under Section 106 of the National Historic Preservation Act (NHPA) to insure that the project will have no adverse effect upon cultural resources in the area. Further coordination under Section 106 of the NHPA will be completed with these two State agencies on this project prior to the commencement of construction.

5.7 Socioeconomics

There are three distinct municipalities along the C&D Canal (St. Georges, Delaware; and Delaware City, Delaware; and Chesapeake City, Maryland). The municipalities lie within New Castle County, Delaware and Cecil County, Maryland. Both counties are areas of projected high growth. New Castle County is considered part of the Philadelphia-Camden metropolitan area and is ranked first in the State for population growth during the 1990s. The county is expected to have a 19% increase in population by 2030. Cecil County's population is also expected to increase at a high rate of 13% by 2030.

The C&D Trail Project should provide an important recreation area for the increasing residential populations of these two counties. In addition, the project will potentially provide an economic benefit to the canal towns (Chesapeake City, St. Georges, and Delaware City) through an increase in visitors to the area to enjoy the trail and associated amenities. Community trails and open space have been shown to benefit the local economy and increase tourism. Outdoor recreation represents one of the most vigorous growth areas in the U.S. economy (The Trust for Public Land, 1999)

5.8 Environmental Justice

All of the alternatives, including the selected plan, identified in this Environmental Assessment are expected to comply with Executive Order 12989-Environmental Justice in Minority Populations and Low-Income Populations, dated February 11, 1994. No portion of the selected plan is located in close proximity to a minority or low-income community; and no negative impacts are expected to occur to any minority or low-income communities in the project area, as a result of this project.

6.0 Relationship of Selected Plan to Environmental Requirements, Protection Statutes, and Other Requirements

Compliance with environmental quality protection statutes and other environmental review requirements is ongoing. Table 8 provides a listing of compliance with environmental statutes. The Corps will apply for the necessary state permits, including but not limited to, a Coastal Zone Management Plan consistency determination from the DNREC, Coastal Management Program and MD DNR, Coastal Zone Management Program. In addition, through the EA process, the Corps will obtain a State water quality certificate from the State of Delaware. A Section 404(b)(1) analysis of the Clean Water Act was completed for the project (see Section 8).

TABLE 3. Compliance with Appropriate Environmental Quality Protection Statutes and other Environmental Review Requirements.

STATUTE	COMPLIANCE STATUS
Clean Water Act	Partial*
Coastal Zone Management Act	Partial*
Endangered Species Act	Partial*
Fish and Wildlife Coordination Act	Full
National Historic Preservation Act	Partial*
National Environmental Policy Act	Partial*
Clean Air Act	Partial*

NOTE:

Full Compliance: Having met all requirements of the statute, E.O., or other environmental requirements for the current stage of planning.

Partial Compliance: Some requirements of the statute, E.O., or other policy and related regulations remain to be met.

*All applicable laws and regulations will be fully complied with upon completion of the environmental review, obtaining state water quality certification, coastal zone consistency determination, and concurrence with our determination on cultural resources.

Noncompliance: None of the requirements of the statute, E.O., or other policy and related regulations remain to be met.

7.0 Public Coordination

During preparation of the draft Environmental Assessment, several agencies were contacted and provided information. This draft Environmental Assessment is being circulated to various state and federal agencies for comments. Coordination has been conducted with the U.S. Fish and Wildlife Service, Delaware Department of Natural Resources and Environmental Control, Maryland Department of Natural Resources, National Marine Fisheries Services, as well as other agencies, local communities,

and individuals with interests in the project. See Appendix A for more detailed information on the coordination for this project.

8.0 Section 404(b)(1) Analysis

A review of the impacts associated with discharges to waters of the United States for the C&D Trail Project in New Castle County, Delaware and Cecil County, Maryland is required by Section 404(b)(1) of the Clean Water Act, as amended (Public Law 92-500).

I. Project Description

A. Location. The project area is located in New Castle County, Delaware and Cecil County, Maryland. (Figure 1).

B. General Description. The construction of Phase 1 of the C&D Trail Project which is basically the north side of the C&D Canal from Delaware City in the east to Chesapeake City in the west.

C. Purpose. The immediate goal of the C&D Canal Recreation Study is to implement Phase 1 of the C&D Trail Conceptual Plan. Phase 1 of this plan involves constructing a multi-use trail on the north side of the canal from Delaware City, DE to Chesapeake City, MD. The area immediately around Chesapeake City on the south side of the canal is also included in Phase 1 of this plan.

D. General Description of Dredged or Fill Material.

1. General Characteristics of Material: sand/soil
2. Quantity of Discharge: 2.1 acres (1.3 permanent, 0.8 temporary)
3. Source of Material: local fill

E. Description of Discharge Sites.

1. Location: The site is located immediately to the east of the berm for the Corps Confined Disposal Facility (CDF) that is known as the “everglades” and immediately west of the Delaware City Branch Canal.
2. Size (acres): 2.1 (1.3 permanent, 0.8 temporary).
3. Type of Sites: *Phragmites* dominated marsh (see description in EA)
4. Type of Habitat: freshwater marsh
5. Timing and Duration of Discharge: 3 months for temporary impact, permanent for permanent impact

F. Description of Discharge Method. Construction of a multi-use recreation trail at the base of the CDF berm.

II. FACTUAL DETERMINATIONS

A. Physical Substrate Determinations.

1. Substrate Elevation and Slope: varies
2. Sediment Type: sand/soil
3. Fill Material Movement: moderate, fill material will be brought into the site to construct a multi-use trail.
4. Physical Effects on Benthos: N/A
5. Actions taken to Minimize Impacts: Reduced the proposed size of the trail from 20-ft in width to 13-ft in width.

B. Water Circulation, Fluctuation and Salinity Determinations.

1. Water:
 - a. Salinity – N/A
 - b. Water Chemistry – N/A
 - c. Clarity – N/A
 - d. Color - N/A
 - e. Odor – N/A
 - f. Taste - N/A
 - g. Dissolved Gas Levels – N/A
 - h. Nutrients – N/A
 - I. Eutrophication - N/A
 - j. Temperature- N/A.
2. Current Patterns and Circulation:
 - a. Current Patterns and Flow – N/A
 - b. Velocity - N/A
 - c. Stratification - N/A

3. Normal Water Level Fluctuations – N/A
4. Salinity Gradients – N/A
5. Actions That Will Be Taken To Minimize Impacts: Best management practices will be used to minimize any disturbance to only the area necessary to construct the new trail.

C. Suspended Particulate/Turbidity Determinations.

1. Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Fill Site: N/A
2. Effects on Chemical and Physical Properties of the Water Column:
 - a. Light Penetration: N/A.
 - b. Dissolved Oxygen: N/A
 - c. Toxic Metals and Organics: N/A
 - d. Pathogens: N/A.
 - e. Aesthetics: N/A
 - f. Temperature: N/A
3. Effects on Biota:
 - a. Primary Production, Photosynthesis: N/A
 - b. Suspension/Filter Feeders: N/A
 - c. Sight feeders: N/A
4. Actions Taken to Minimize Impacts: Best management practices will be used to minimize any disturbance to only the area necessary to construct the new trail.

D. Contaminant Determinations.

N/A

E. Aquatic Ecosystem and Organism Determinations.

1. Effects on Plankton: N/A
2. Effects on Benthos: N/A
3. Effects on Nekton: N/A

4. Effects on Aquatic Food Web: N/A
5. Effects on Special Aquatic Sites:
 - (a) Sanctuaries and Refuges: None.
 - (b) Wetlands: Moderate Impacts (2.1 acres) - loss will result from the construction of new trail. Low quality *Phragmites* dominated marsh would be impacted.
 - (c) Tidal flats: None.
 - (d) Vegetated Shallows: None.
6. Threatened and Endangered Species: N/A
7. Other Wildlife: Temporary, minor effect during construction.
8. Actions to Minimize Impacts: Best management practices will be used to minimize any disturbance to only the area necessary to construct the new trail.

F. Proposed Disposal Site Determinations. N/A

1. Mixing Zone Determinations:
 - a. Depth of water:
 - b. Current velocity:
 - c. Degree of turbulence:
 - d. Stratification:
 - e. Discharge vessel speed and direction:
 - f. Rate of discharge:
 - g. Dredged material characteristics:
2. Determination of Compliance with Applicable Water Quality Standards:
A section 401 Water Quality Certificate will be obtained from DNREC prior to construction of the project.
3. Potential Effects on Human Use Characteristics:
 - a. Municipal and Private Water Supply: N/A
 - b. Recreational and Commercial Fisheries: N/A
 - c. Water Related Recreation: N/A.
 - d. Aesthetics: Temporary, minor effect.
 - e. Parks, National and Historical Monuments, National Seashore, Wilderness Areas, Research Sites, and Similar Preserves: N/A

G. Determination of Cumulative Effects on the Aquatic Ecosystem.
No significant adverse effects are anticipated.

H. Determination of Secondary Effects on the Aquatic Ecosystem.
No significant secondary effects are anticipated.

III. FINDINGS OF COMPLIANCE OR NON-COMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE

A. Adaptation of the Section 404(b)(1) Guidelines to this evaluation - No significant adaptation of the guidelines were made relative to this evaluation.

B. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge Site Which Would Have Less Adverse Impact on the Aquatic Ecosystem - The selected plan was determined from a detailed evaluation of alternatives to have minor environmental impacts.

C. Compliance With Applicable State Water Quality Standards - The selected plan is not expected to violate any applicable state water quality standards in Delaware.

D. Compliance With Applicable Toxic Effluent Standards or Prohibition Under Section 307 of the Clean Water Act - The proposed discharge is not anticipated to violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

E. Compliance With Endangered Species Act of 1973 -The selected plan will comply with the Endangered Species Act of 1973. Informal Section 7 consultation will be completed with the U.S. Fish and Wildlife Service on this project.

F. Compliance With Specified Protection Measures for Marine Sanctuaries Designated by the Marine Protection, Research, and Sanctuaries Act of 1972 - No Marine Sanctuaries, as designated in the Marine Protection, Research, and Sanctuaries Act of 1972, are located within the project area.

G. Evaluation of Extent of Degradation of Waters of the United States - The proposed project will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, and recreational and commercial fishing, plankton, fish and shellfish, wildlife, and special aquatic sites. The life stages of aquatic life and wildlife will not be adversely affected. Significant adverse impacts on aquatic ecosystem diversity, productivity and stability, and recreation, aesthetics and economic values will not occur as a result of the project.

H. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem - Appropriate steps (as described above) will be taken to minimize potential adverse impacts of discharging material in the aquatic ecosystem.

9.0 References

- Environmental Protection Agency. 2007. AirData: Nonattainment Areas Map. Web Site:
http://www.epa.gov/cgibin/broker?_service=airdata&_program=progs.webprogs.nonat.scl&_debug=2&geotype=st&geocode=MD&geoname=Maryland&apol=O3_8&nulmap=0&geofeat=&mapsize=zsc&reqtype=viewmap
- Hunter Research. 2007. Phase 1A Cultural Resource Investigation Chesapeake and Delaware Canal Trail. Cecil County, Maryland and New Castle County, Delaware. Hunter Research Inc., Jim Lee, Trenton, NJ.
- The Trust for Public Land. 1999. The Economic Benefits of Parks and Open Space. The Trust for Public Land, Steve Lerner and William Poole, San Francisco, CA.
- U.S. Army Corps of Engineers (USACE). 2007. Delaware City Branch Canal Wetland Delineation. Philadelphia District. Philadelphia, PA.

10.0 CLEAN AIR ACT STATEMENT OF CONFORMITY

**CLEAN AIR ACT STATEMENT OF CONFORMITY
CHEASAPEAKE AND DELAWARE (C&D) CANAL TRAIL PHASE 1 PROJECT
NEW CASTLE COUNTY, DELAWARE AND CECIL COUNTY, MARYLAND**

I have determined that the selected plan conforms to the applicable State Implementation Plan (SIP). The Environmental Protection Agency had no adverse comments under their Clean Air Act authority. No negative comments from the air quality management district were received during coordination of the draft environmental assessment. The selected plan would comply with Section 176 (c)(1) of the Clean Air Act Amendments of 1990.

Date

Gwen E. Baker
Lieutenant Colonel, Corps of Engineers
District Commander

Appendix A

Relevant Project Correspondence



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
410/573-4575



August 7, 2007

LTC. Gwen E. Baker
District Engineer
U.S. Army Corps of Engineers
100 Penn Square East
Philadelphia, PA 19107-3390

Attn: Mark Eberle

RE: C&D Canal Trail Project

Dear LTC. Baker:

This responds to the letter of Mr. Arabatzis, originally dated May 14, 2007, requesting information on environmental issues that should be considered during the preparation of the environmental assessment for Phase 1 of the C&D Canal Trail. Please excuse the delay in our response as we apparently did not receive the original letter, and only recently received a copy from Mark Eberle. Our records indicate that the bog turtle (*Clemmys muhlenbergii*), which is federally listed as a threatened species, may be present within the Delaware portion of the general project area. Bog turtles primarily inhabit palustrine wetlands comprised of a muddy bottom or shallow water, and tussocks of vegetation. A survey for bog turtle habitat and bog turtles may be appropriate. We recommend that you contact Ms. Holly Niederriter of the Delaware Natural Heritage and Endangered Species Program for more specific information on survey requirements. She can be reached at (302) 653-2880 ext. 121.

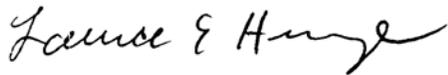
Except for occasional transient individuals, no other federally proposed or listed threatened or endangered species under our jurisdiction is known to exist within the project area. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered. For information on the presence of other rare species, you should contact Edna Stetzar of the Delaware Natural Heritage and Endangered Species Program at (302) 653-2883 ext.126. You may also obtain information on how to make such a request by visiting the Program website at www.dnrec.state.de.us/nhp.

For this project we encourage the use of stormwater management measures such as rain gardens, bioretention cells, and bioswales that promote infiltration, pollutant capture, and transpiration of water running off impervious surfaces such as parking lots, roofs, and roads. Landscape

enhancement measures such as the planting of native plant communities along the edges of the trail and removal of invasive exotic species would also be desirable.

Thank you for the opportunity to participate in the environmental assessment scoping process. If there are any questions, please contact George Ruddy at (410) 573-4528.

Sincerely,



John P. Wolflin
Supervisor





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
One Blackburn Drive
Gloucester, MA 01930-2298

JUL 10 2007

Minas M. Arabatzis
Chief, Planning Division
Philadelphia District, Corps of Engineers
Wanamaker Building, 100 Penn Square East
Philadelphia, Pennsylvania 19107-3390

Attn: Environmental Resources Branch

Dear Mr. Arabatzis,

This is in response to your letter dated May 14, 2007 regarding the preparation of an Environmental Assessment (EA) for Phase I of the Chesapeake & Delaware (C&D) Canal Trail. The project is located along the C&D Canal in New Castle, Delaware and Cecil County, Maryland. The proposed multi-use trail and associated amenities (trailheads and restrooms) will be located entirely on Army Corps of Engineers' (ACOE) property.

As you know, federally endangered shortnose sturgeon (*Acipenser brevirostrum*) occur in the Delaware River and in the Chesapeake Bay. Individuals have been documented to use the C&D Canal, likely as a migratory pathway between these two systems. In-water work in the C&D canal may impact individuals of these species; however, based on your letter there does not appear to be any in-water work proposed for the Canal Trail. As such, no further coordination with NMFS Protected Resources Division (PRD) is necessary and PRD does not anticipate offering further comments on the project during the NEPA process. Should in-water work be proposed, NMFS recommends that the ACOE pursue further coordination with NMFS on the effects of this work on shortnose sturgeon. Should you have any questions regarding these comments, please contact Julie Crocker at (978)281-9328 ext. 6530.

Sincerely,

Mary A. Colligan
Assistant Regional Administrator
for Protected Resources

Cc: Greene, F/NER4

File Code: Sec 7 ACOE Philly District no species





STATE OF DELAWARE
**DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL**

OFFICE OF THE
SECRETARY

89 KINGS HIGHWAY
DOVER, DELAWARE 19901

PHONE: (302) 739-9000
FAX: (302) 739-6242

June 20, 2007

Mark Eberle
U.S. Army Corps of Engineers, Philadelphia District
Planning Division, CENAP-PL-E
100 Penn Square East, Wanamaker Building
Philadelphia, PA 19107

Dear Mr. Eberle:

Thank you for notifying our Department that the Corps of Engineers has initiated an Environmental Assessment of the Phase 1 of the Chesapeake and Delaware Canal Trail. As you know, our Department has been actively involved in the developing the trail concept plan and have made a commitment to partnering in the funding of a plans and specifications for trail construction. The Corps letter requesting guidance for the assessment was circulated to all of our Divisions. Our comments and guidance from various Sections and Department Programs are outlined below.

Division of Water Resources
Ground Water Discharges Section

Should the proposed restrooms need and an on-site treatment and disposal system (septic system) a permit is required in accordance with The Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems. The first step in the process is to submit a site evaluation from a Licensed Class D Soil Scientist. (A list of Licensed Class D Soil Scientist is enclosed for your convenience.) If you have any questions regarding the process of obtaining a septic permit, contact Dave Schepens from the Ground Water Discharges Section at (302) 739-9948.

Water Supply Section

There could be some concern with permitting on-site wells due to the proximity of the Canal and the potential for salt water intrusion, or poor water quality from the spoils. However, the Corps has numerous monitoring wells with long term data along the length of the canal and that information could be used to determine safe citing locations and depths for any wells in advance of any permit applications. That said, the Corps model of the C&D Canal

Delaware's Good Nature depends on you!

Mark Eberle
June 20, 2007
Page 2 of 5

showed the extent of salinity intrusion into the surrounding formations is relegated to immediately adjacent to and beneath the canal. An alternative would be a connection to Artisan's system which is in the vicinity on both sides of the canal at the western end. Therefore, no significant limitation for obtaining water is foreseen. If you have any questions regarding water supply, contact John Barndt, Water Supply, at (302) 739-9945.

Wetlands Sections

There was not enough information provided to complete a detailed review, however, we support the concept of this recreational amenity. With regard to regulatory issues, there are State regulated wetlands in some areas, but only in the portion of the project east of the St. Georges Bridge. As more detailed planning moves forward, care should be taken to locate and demarcate all State-regulated wetlands near the project site by contacting the Wetlands Section. While it does not appear that the proposed trail has any direct wetland impacts, not enough detailed information was provided to determine whether temporary construction access routes, construction material stockpiling areas, trailhead parking areas or spur trails might involve temporary or permanent impacts to these wetlands.

In addition, the proposed refurbishment of any fishing piers or boat launching facilities within the Canal will require a Subaqueous Lands Permit from our office. Certain bridges proposed to cross small tributaries entering the Canal may also require permits depending upon whether the bridge design completely spans the waterway or requires the installation of piling or culverts in the stream itself. If you have any questions regarding wetlands, contact Laura M. Herr, Section Manager, Wetlands and Subaqueous Lands Section, (302) 739-9943.

Watershed Assessment Section

The Watershed Assessment Section does not anticipate any negative surface water quality impacts as a result of this project. In fact, any efforts to stabilize soils and manage stormwater will result in water quality improvements. It is recommended that species native to Delaware be utilized wherever plantings are anticipated for erosion control, stormwater management, esthetics, or other uses. If you have any questions, contact John Schneider, Administrator, Watershed Assessment Section (302)739-9939.

Division of Soil and Water

Coastal Management Program

The applicant is advised that they will have to submit for a federal consistency determination and receive a concurrence prior to work beginning. Information on submitting information for a federal consistency determination can be found in the DCMP's Comprehensive Update and Routine Program Implementation document which is located at <http://www.dnrec.state.de.us/dnrec2000/Divisions/Soil/dcmp/fedcon.htm>.

The following comments pertain to the enforceable policies related to a federal consistency determination for this project that will need to be addressed in the Environmental Assessment.

Policies pertaining to Wetlands Protection/Preservation

1) Activities in and around wetlands must be conducted to minimize the impact and preserve the natural and beneficial values of the wetlands.

Policies pertaining to Coastal Waters Management

1) Water resources of the State shall be protected from any pollution that may threaten the safety and health of the general public and for the conservation of aquatic life and wildlife.

- Control/reduction of nonpoint source pollution resulting from the multi-use activities or resulting from the construction of the trail, through the proper on-site construction management practices and control of stormwater runoff.

-The use of asphalt for the multi-use trail does not appear to be a necessity. It was stated that cyclist, those persons bound to wheel chairs, joggers, and the other "users" of the trail would all be able to carry out their activity unimpeded on a stone fines trail as indicated.

- The use of bioretention and other alterations of the landscape, such as rain gardens or vegetative swales, to promote ground water discharge and reduce stormwater runoff are encouraged.

Policies pertaining to Subaqueous Lands Management

1) Subaqueous lands within the boundaries of Delaware constitute important resources of the State and require protection against uses or changes which may impair the public interest in the use of tidal or non-tidal waters.

- The reconstruction of the eight fishing piers should be done in a manner that does not impair the underlying subaqueous lands. Special consideration should be taken to maintain or increase the amount of light allowed to penetrate through to the structure (e.g. certain dock 'flooring' materials, such as honeycomb structures, can be used to allow more light penetration).

2) DNREC shall consider public interest in any proposed activity which might affect subaqueous lands including its impact on commerce, navigation, recreation, public resources, etc.; the extent to which the public at large would benefit from the activity; and the extent the activity is water dependant.

- Regarding the reconstruction of the eight fishing piers, the piers must have a water dependent need for reconstruction to be allowed, such as fishing. A dock for sitting or wildlife observation that does not require water access may not be allowed.

Policies pertaining to Fish and Wildlife/ Non-game and Endangered Species

1) All forms of protected wildlife of this State, shall be protected, managed and conserved.

2) Federal actions which may interfere with or adversely affect fish or other wildlife in Delaware shall be implemented only after careful consultation with DNREC and exploration of alternatives less damaging to such fish or wildlife.

3) It is in the best interest of the State to preserve and enhance the diversity and abundance of non-game fish and wildlife (including, but not limited to, rare and endangered species) and to protect their habitat and natural areas harboring those animals.

- Particular care should be taken if certain species are present or if a habitat known to support a protected species will be affected.

- Specifically those habitats which have been identified in the Concept Plan to be wildlife areas, the two dredge material areas that have high habitat value, and those tributaries referred to which support migratory ducks and geese.

General comments to also consider:

1) The use of alternate energy sources (solar, wind) as described by the Concept Plan is highly encouraged.

2) The use of native species for landscaping and the minimization of disturbance to healthy natural areas is encouraged.

3) As stated above, the use of asphalt when a suitable alternative, stones fines/stone dust, had already been identified is discouraged.

For questions and further assistance, contact Sarah Cooksey, Coastal Programs Administrator, (302) 739-9283.

Division of Fish & Wildlife

Comments were sent directly from this Division to the USACE.

Division of Parks & Recreation

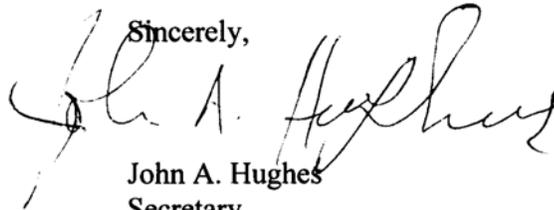
Delaware Outdoors 2003-2008 (SCORP), the State's policy plan for outdoor recreation facility development, was assessed public trends in outdoor recreation examines gaps, and proposes facility investments that will meet activity needs. The Corps provided a copy of the SCORP document during Phase 1 of the Concept Trail Plan. Research and findings in the SCORP found that the following of households both statewide and in Region 2. (Region 2 encompasses the C&D Canal.)

	% of Households Participating Statewide	% of Households Participating in Region 2
Walking or Jogging	87.7	89.9
Hiking	47.6	53.4
Bicycling	64.6	73.5
Mountain Biking	18.4	24.3
Horseback Riding	20.4	27
Fishing	55.3	56.6

Construction of the trail and improvement/enhancement of the fishing piers in the C&D Canal Area will fill identified outdoor recreation facility gaps. Trails/pathways and fishing access are among the priorities outdoor recreation facility needs identified. (See SCORP, Table 5.3, Region 2 Facility Needs.) If you have questions, contact Bob Ehemann at (302)-739-9235.

As Corps progresses with the C&D Canal Trail Environmental Assessment, please do not hesitate to contact the individuals identified in this correspondence.

Sincerely,



John A. Hughes
Secretary

Enclosure

CC: Patrick Emory, Director, Division of Fish & Wildlife
Kevin Donnelly, Director, Division of Water Resources
Robert Baldwin, Director, Division of Soil & Water
Charles Salkin, Director, Division of Parks & Recreation



Martin O'Malley, Governor
Anthony G. Brown, Lt. Governor
John R. Griffin, Secretary
Eric Schwaab, Deputy Secretary

July 2, 2007

Mr. Minas M. Arabatzis
Chief, Planning Division
U.S. Army Corps of Engineers, Philadelphia District
Wanamaker Building
100 Penn Square East
Philadelphia, Pennsylvania 19107-3390

Attn: Mark Eberle

RE: U.S. Army Corps of Engineers Request for Information; Proposed Environmental Assessment for Phase 1 of the Chesapeake & Delaware Canal Trail; C&D Canal, Elk River Area; Cecil County

Dear Mr. Arabatzis:

The above referenced project has been reviewed by the Department of Natural Resources for associated ecological impacts. The proposed project would establish a multi-use trail along the C&D Canal in New Castle County, Delaware and Cecil County, Maryland. The proposed trail and associated amenities (trailheads and restrooms) would be located entirely on Corps property. Current existing conditions for most of the proposed trail length are a dirt maintenance road.

Based on an intra-Departmental review of the submitted materials the Department has the following comments regarding the proposed project:

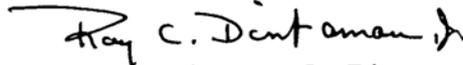
1. Opportunities to minimize future or retrofit existing direct and indirect negative impacts to water resources through increases in stormwater runoff and reductions in groundwater recharge exist. The Department recommends that the proposed trail and associated amenities utilize low impact design management practices to increase infiltration and reduce overland flow during storm events. Features such as the use of pervious surfaces, rain gardens and bioretention ponds could be considered. More information on environmentally sensitive building and site-design techniques that should be considered for the planning and design phase of this project can be found on-line at <http://www.dnr.state.md.us/ed/>.
2. Federal activities on federal lands which propose to take place within the Critical Area must be reviewed for consistency under the Maryland Coastal Zone Management Program (CZMP). Therefore, notification of proposed activities

regarding the C&D Canal Trail in the form of a federal consistency determination should be forwarded to the Maryland Department of the Environment, Wetland and Waterways Program and to the Critical Area Commission for the Chesapeake and Atlantic Coastal Bays. The Critical Area Commission will review the project and provide comments, and if consistent with the Critical Area Law and Criteria, will issue a consistency determination.

3. It appears the proposed project will construct miles of trail over existing roadways and potentially create new trailways alongside the C&D Canal. Natural Resources Article Section 8-1801 establishes a 100-foot Buffer from mean high line of tidal waters, tributary streams and tidal wetlands. Typically, new development activities are prohibited within the Buffer unless those activities can be determined to be water-dependent. Any non-water-dependent development activities in the Buffer may not be considered consistent with the Critical Area Law and Criteria. Therefore, the Critical Area Commission will strongly recommend any new trails be located outside of the 100-foot Buffer to the maximum extent possible. Additionally, any proposed trail amenities such as parking areas and restroom or visitor facilities must also be located outside of the 100-foot Buffer. The Critical Area Commission will also recommend mitigation in the form of plantings be provided to the maximum extent possible within the 100-foot Buffer. For any unavoidable Buffer disturbance, additional mitigation may be required. Other potential Critical Area requirements that may apply to this project include mitigation for any forest clearing and compliance with the 10% pollutant reduction rule for areas of intense development. These details will need to be determined once additional site plan information is provided to the Critical Area Commission. For additional information regarding the Critical Area criteria please contact Kate Schmidt at 410- 260-3475.
4. The State's Forest Conservation Act requires that before the issuance of a grading or sediment control permit, the applicant shall have an approved Forest Conservation Plan and Forest Stand Delineation (Nat. Res. Art. 5-1601 thru 5-16122, Annotated Code of Maryland). The Department's Forest Service recommends that a forest conservation plan be submitted to the state or local jurisdiction with planning and zoning authority when the applicant's preliminary site plan is submitted for review to the local jurisdiction. The Act provides for the retention of forest areas in sensitive areas on the subject property as one method of mitigation. For additional information please contact David Black of the Cecil County Office of Planning & Zoning, 410-996-5220.
5. Any tree that originates within a public road right-of-way is considered a roadside tree under the Maryland Roadside Tree Care Law (Nat. Res. Art. 5-406) and Regulations (COMAR 08.07.02) and any plans to remove, trim, or plant trees within the public right-of-way are required to obtain a permit from the Department's Forest Service. Further information regarding this permit may be obtained from Tod Ericson of the Department's Forest Service at 410-836-4568.

Thank you for the opportunity to provide comments and information on this project regarding resources of concern to the Department. If you have any questions concerning these comments you may contact Roland Limpert of my staff at 410-260-8333

Sincerely,

A handwritten signature in black ink that reads "Ray C. Dintaman, Jr." with a stylized flourish at the end.

Ray C. Dintaman, Jr., Director
Environmental Review Unit

cc: Christine Conn, DNR-WS
Kate Schmidt, DNR-CAC
Marian Honeczy, DNR-FS
Butch Norden, DNR-PLPP
Lisa Gutierrez, DNR-WS



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

NATIONAL MARINE FISHERIES SERVICE
Habitat Conservation Division

James J Howard Marine
Sciences Laboratory
74 Magruder Road
Highlands, NJ 07732

June 26, 2007

Minas M. Arabatzis, Chief,
Planning Division
Philadelphia District
Army Corps of Engineers
Wanamaker Building
190 Penn Square East
Philadelphia, PA 19107-3390

ATTN: Mark Eberle, Project biologist
RE: Phase 1 of the Chesapeake and Delaware (C&D) Canal Trail

Dear Mr. Arabatzis:

The National Marine Fisheries Service's Northeast Region Habitat Conservation Division has received your letter requesting comments regarding the potential impacts of the proposed multi-use trail along the C&D canal and associated amenities. According to your letter, the Army Corps of Engineers (ACOE) will be preparing an environmental assessment for the proposed project in accordance with the National Environmental Policy Act (NEPA) regulations. From the information contained in the trail concept plan, it appears that all work will be done within the uplands of the existing ACOE right-of-way. It does not appear that there will be any in-water work within the canal. If that is the case, impacts to resources of concern to NMFS are unlikely. If in-water work is proposed as part of the project, the NEPA document should consider its effects on the aquatic resources of the canal.

The C&D canal provides habitat for a variety of resources under the jurisdiction of the NMFS including spot, hogchoker, croaker, weakfish, menhaden and American eel. Forage species such as Atlantic silversides, bay anchovy and mummichog can also be found in the waterway. Anadromous fishes including striped bass, alewife, blue back herring, white perch are known to spawn within the C&D canal. These and other anadromous species such as yellow perch and American shad use the waterway as nursery habitat and adult foraging area. Because landing statistics and the number of fish observed on annual spawning runs indicate a drastic decline in alewife and blueback herring populations throughout much of their range since the mid-1960's, they have been designated as species of concern by NMFS in a Federal Register Notice dated October 17, 2006 (71 FRN 61022). "Species of concern" are those species about which NMFS has some concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the ESA.

The mixing zone of the Delaware Estuary and its tributaries including the C&D canal has been designated as essential fish habitat (EFH) for a number of federally managed species including winter flounder, windowpane, bluefish, summer flounder, scup and black sea bass. The existing salinities, water depths and temperatures within the C&D canal will determine if the project area is consistent with those designated by the federal fisheries management councils as EFH for a particular species. For additional information on EFH, please go to our website at www.nco.nmfs.gov/hcd.



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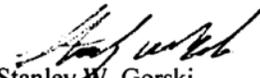
Shortnose sturgeon also occur within the Delaware River. Any discretionary federal action, such as the approval or funding of a project by a Federal agency, that may affect a listed species must undergo consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, as amended. As project plans are finalized, the ACOE should submit its determination of effects, along with justification for the determination and a request for concurrence, to the attention of the Endangered Species Coordinator, NMFS, Northeast Regional Office, Protected Resources Division, One Blackburn Drive, Gloucester, MA 01930. For additional information on the Section 7 consultation process or shortnose sturgeon, please contact Julie Crocker at 978 921-9300, ext 6530.

Atlantic sturgeon are also present in the Delaware River. Atlantic sturgeon have been listed as a candidate species by NMFS in the Federal Register on published on October 16, 2006 (71 FRN 61002). The term "candidate species" refers to species that are the subject of a petition to list as threatened or endangered and for which NMFS has determined that listing pursuant to section 4 (b) (3) (A) of the ESA, and those species are not the subject of a petition but for which NMFS has announced the initiation of a status review in the Federal Register. The notice of availability of the status review for the Atlantic sturgeon was published in the Federal Register on April 3, 2007 (72 FRN 15865). A copy of the report can be downloaded from the following website: www.nero.noaa.gov/prot_res/candidatespeciesprogram/csr.htm.

The Atlantic sturgeon Status Review Team (SRT) has determined that the Hudson River and Delaware River Atlantic sturgeon stock constitute a distinct population segment (DPS) called the New York Bight DPS. The SRT has also concluded that the New York Bight DPS was likely (>50 % chance) to become endangered within the next twenty years. NMFS is now reviewing the findings of the SRT to determine if listing as threatened or endangered under the ESA is warranted. If it is determined that listing is warranted, a final rule listing the species could be published within a year from the date of publication of the listing determination or proposed rule. As a candidate species, Atlantic sturgeon receive no substantive protection under the ESA; however, NMFS recommends that the ACOE consider the potential impacts of project on this species in the NEPA for this project. More information on the Atlantic sturgeon status review process can be found at www.nero.noaa.gov/nero/hotnews/atlsturgen/ or by contacting Kim Damon-Randall at 978-281-9300 x6535.

Thank you for the opportunity to comment on this important public recreation project. If you have any questions regarding our comments, please contact Karen Greene at 732 872-3023.

Sincerely,


Stanley W. Gorski
Field Offices Supervisor

cf: PRD - Crocker
HCD - Nichols

State of Delaware
Historical and Cultural Affairs

21 The Green
Dover, DE 19901-3611

Phone: (302) 736.7400

Fax: (302) 739.5660

Review Code: 2007.04.05.01

May 29, 2007

Mr. Minas M. Arabatzis
Chief, Planning Division
US Army Corps of Engineers
Philadelphia District
100 Penn Square East
Philadelphia, PA 19107-3390

Project: Chesapeake and Delaware Canal Trail

Dear Mr. Arabatzis:

Our Office has received the Phase IA report entitled: *Phase Ia Cultural Resource Inventory Chesapeake and Delaware Canal Trail, Cecil County, Maryland and New Castle County, Delaware*. Although the above document was not intended to serve as a complete Phase I archaeological survey, there are several elements that need to be added to the report to complete the background research goals of a standard Phase IA document. A historic context is required in an identification survey. While the above report paraphrases one source on the C&D Canal, no information is presented about the prehistoric archaeological contexts. As there are twelve recorded prehistoric sites within the Area of Potential Effect, and other unknown sites could be impacted, a prehistoric context is needed.

The historic context should include the non-canal resources as well. A trail-head facility may affect the historic district of Delaware City. It is possible the southern Saint Georges community and Jesterville are potential historic districts, and may be impacted by additional trail-head facilities. The historical context of these communities should be included in the above report. As the U.S.A.C.E. has previous funded research in the community of Saint Georges, much of that information could be employed in this report as well. Another historical source for the canal can be found in the Grass Dale facility, which is operated by DNREC. A circa 1824 topographical survey for the proposed route of the canal is framed on the wall, opposite of the front entrance. Consultation of this resource is highly recommended, as it documents the landscape of this period.

Our Office is looking forward to working with you on this impressive project. If you have any questions, I can be reached at: craig.lukezic@state.de.us.

Sincerely,

Craig Lukezic
Archaeologist, Division of Historical and Cultural Affairs
cc: Stephen Marz, Deputy Director, Division of Historical and Cultural Affairs
Cara Blume, DNREC





Maryland Department of Planning
Maryland Historical Trust

Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

Richard Eberhart Hall
Secretary

Matthew J. Power
Deputy Secretary

June 6, 2007

Mr. Minas M. Arabatzis
Chief, Planning Division
Philadelphia District
Corps of Engineers
Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390

Re: Chesapeake and Delaware Canal Trail
Cecil County, Maryland

Dear Mr. Arabatzis:

Thank you for your recent letter, dated 3 April 2007, which provided the Maryland Historical Trust (Trust) with a copy of the draft cultural resource inventory and C&D Trail Concept Plan, for review. We appreciate early notification of this project and initiation of consultation under Section 106 of the National Historic Preservation Act of 1966, as amended. We offer the following preliminary comments.

Trust staff reviewed the Maryland sections of the following document submitted with your letter: *Phase IA Cultural Resource Inventory, Chesapeake and Delaware Canal Trail, Cecil County, Maryland and New Castle County, Delaware* (Lee 2007). The document presents a useful summary of the known cultural resources and potential resources based on historic map data within a half mile on either side of the center line of the Canal. The report's detailed mapping and accompanying tables present helpful and essential data that will facilitate cultural resources management decisions as project planning proceeds. We also examined the proposed *Chesapeake & Delaware Canal Trail Concept Plan* (March 2006) which provides useful background information regarding the project's preliminary concepts. While development of the trail is not likely to adversely affect cultural resources, additional detail is needed in order to fully assess the project's potential effects on historic and archeological properties.

We look forward to further consultation with the Corps to complete the Section 106 consultation for this undertaking. Once more detailed plans are available, we will be able to make informed comments and recommendations regarding whether or not cultural resources investigations will be warranted for this project. We await the Corps' assessment of effects for the undertaking.

If you have questions or require further assistance, please contact me at 410-514-7631 or bcole@mdp.state.md.us. Thank you for providing us this opportunity to comment.

Sincerely,

Elizabeth J. Cole
Administrator, Project Review and Compliance

cc: Mark Eberle (COE - Philadelphia District)
100 Community Place Crownsville, Maryland 21032-2023
Telephone: 410.514.7600 Fax: 410.987.4071 Toll Free: 1.800.756.0119 TTY Users: Maryland Relay
Internet: www.marylandhistoricaltrust.net



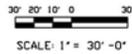
Appendix B

Selected Project Designs (30% completion level)

MATCHLINE SEE SHEET TRAIL-27

MATCHLINE SEE SHEET TRAIL-29

1. INLET 1 INDICATES INLET LOCATION THAT REQUIRES INLET COVER TO BE INSTALLED.
2. ALL INLET LOCATIONS SHOULD BE VISUALLY INSPECTED FOR CLOGGING DUE TO DEBRIS AND STONES. ALL INLETS THAT ARE CLOGGED SHOULD BE CLEARED.
3. PIPE 1 INDICATES PIPES THAT HAVE BEEN COMPLETELY OR PARTIALLY CLOGGED DUE TO DEBRIS, STONES, ETC. AND SHOULD BE CLEARED.
4. PIPE 2 INDICATES PIPES THAT SHOULD BE REPLACED WITH HDPE PIPES OF EQUIVALENT SIZE.
5. THE DRY SWALE AND DIVERSION SWALE ALIGNMENT AS CHESAPEAKE NORTH (FROM STA. 2032+50 TO STA. 2046+50) IS CONCEPTUAL AND WILL BE FINALIZED FOLLOWING A DETAIL SURVEY OF THE AREA.



LEGEND

- | | | | |
|-----------|--------------------------------|---|---------------------------|
| — 20' — / | MAJOR CONTOUR / MINOR CONTOUR |  | PROPOSED STONE AGGREGATE |
| — R/W — | RIGHT OF WAY / EASEMENTS |  | PROPOSED ASPHALT PAVEMENT |
| — — — — — | DRAINAGE DITCH LINE |  | PROPOSED GRAVEL PAVEMENT |
| — — — — — | PROPOSED STORMWATER PIPELINE | | |
| — — — — — | PROPOSED SUBSURFACE DRAIN LINE | | |
| — — — — — | PROPOSED WATER LINE | | |
| — — — — — | PROPOSED SANITARY SEWER LINE | | |

PEDESTRIAN BRIDGE OVER GUTHRIE RUN
DETAILS SEE SHEETS 128 AND 129

UTILITY POLE AND CANAL NIGHT LIGHT TO BE RELOCATED BY USACE CONTRACTOR TO CONTACT AND COORDINATE WITH D&D CANAL CHESAPEAKE CITY PROJECT OFFICE.

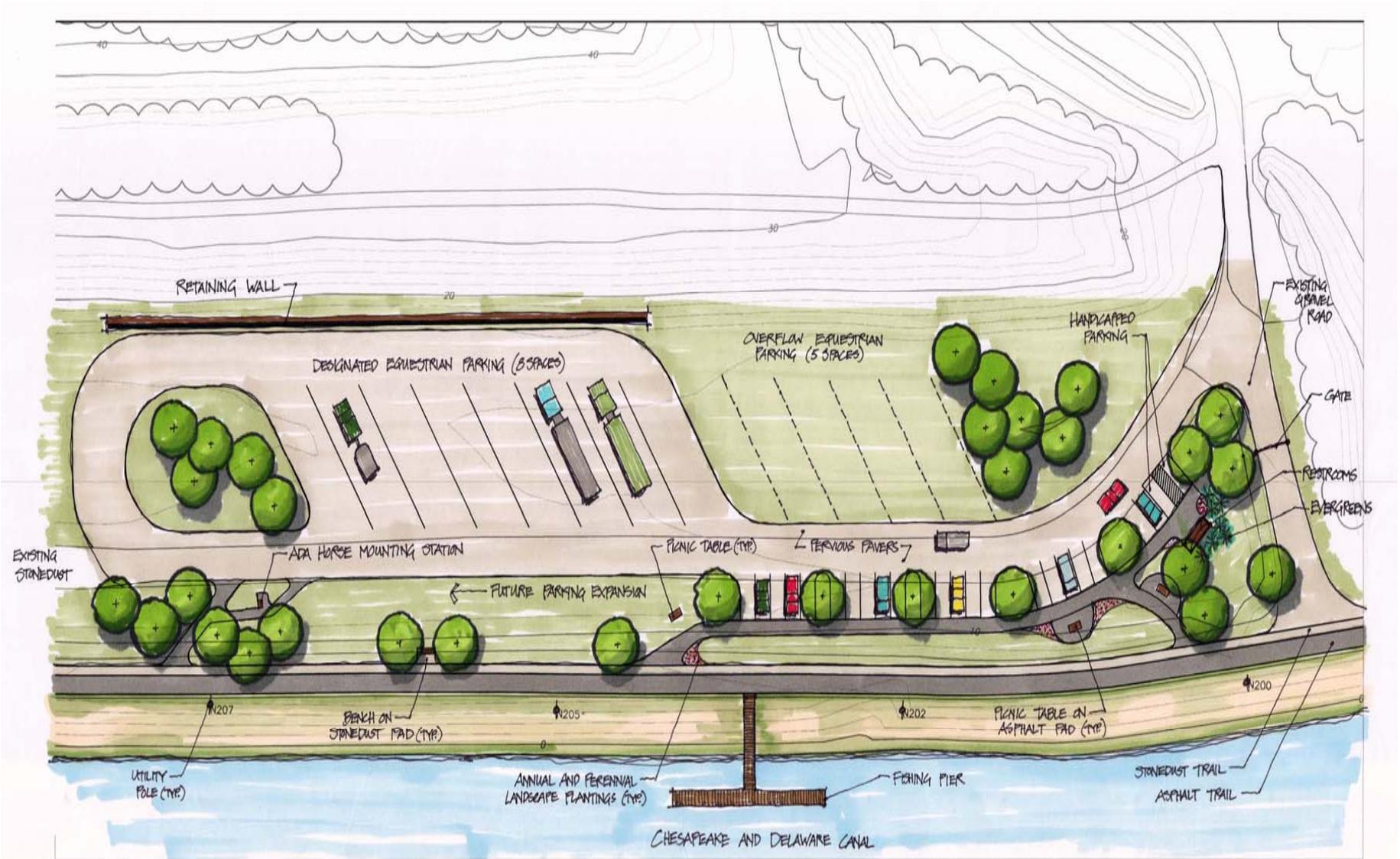


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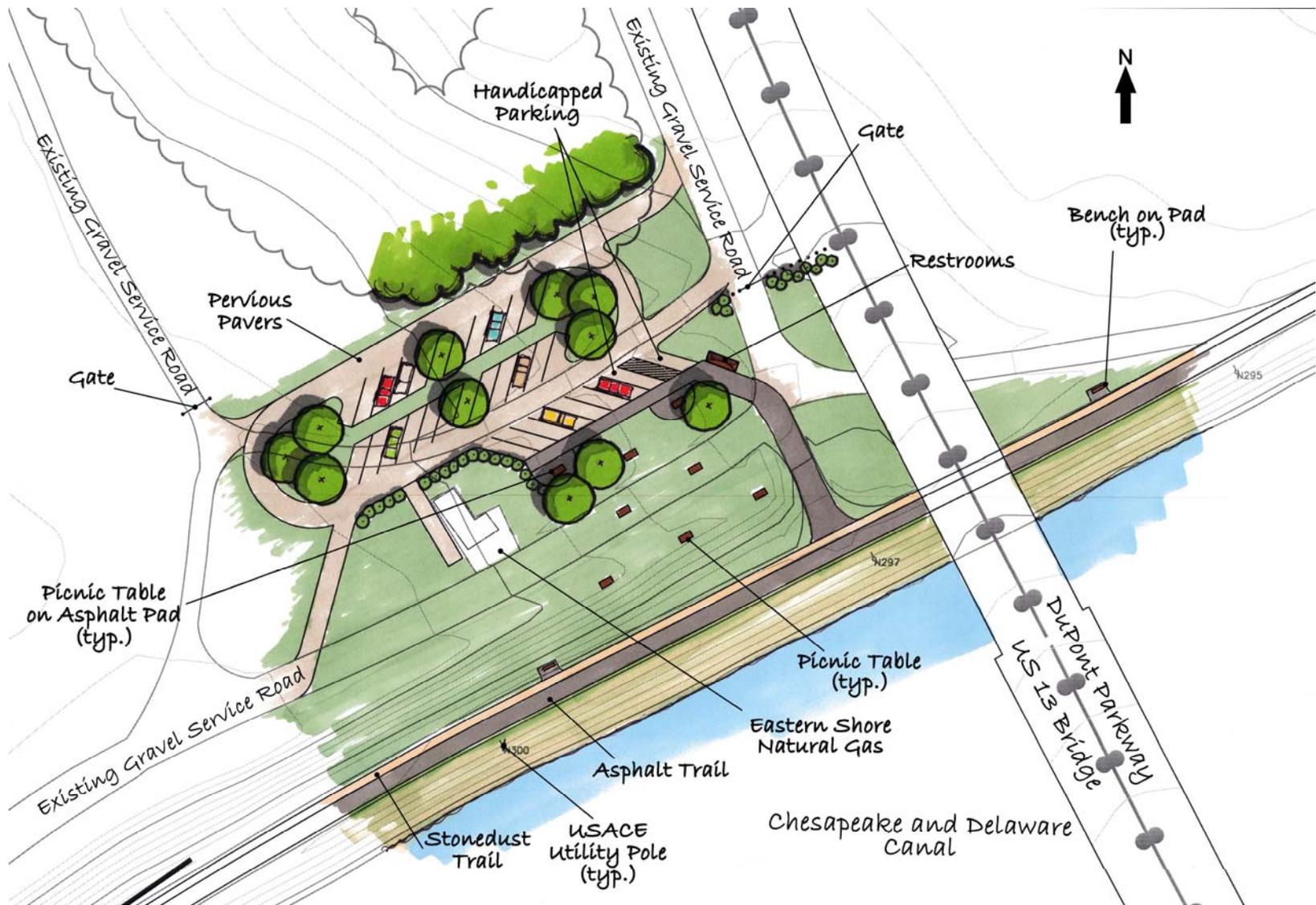
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CHESAPEAKE & DELAWARE CANAL
RECREATIONAL TRAIL - PHASE I
PROJECT NO. 000-0000-000
TRAIL PLAN SHEET NO. 28

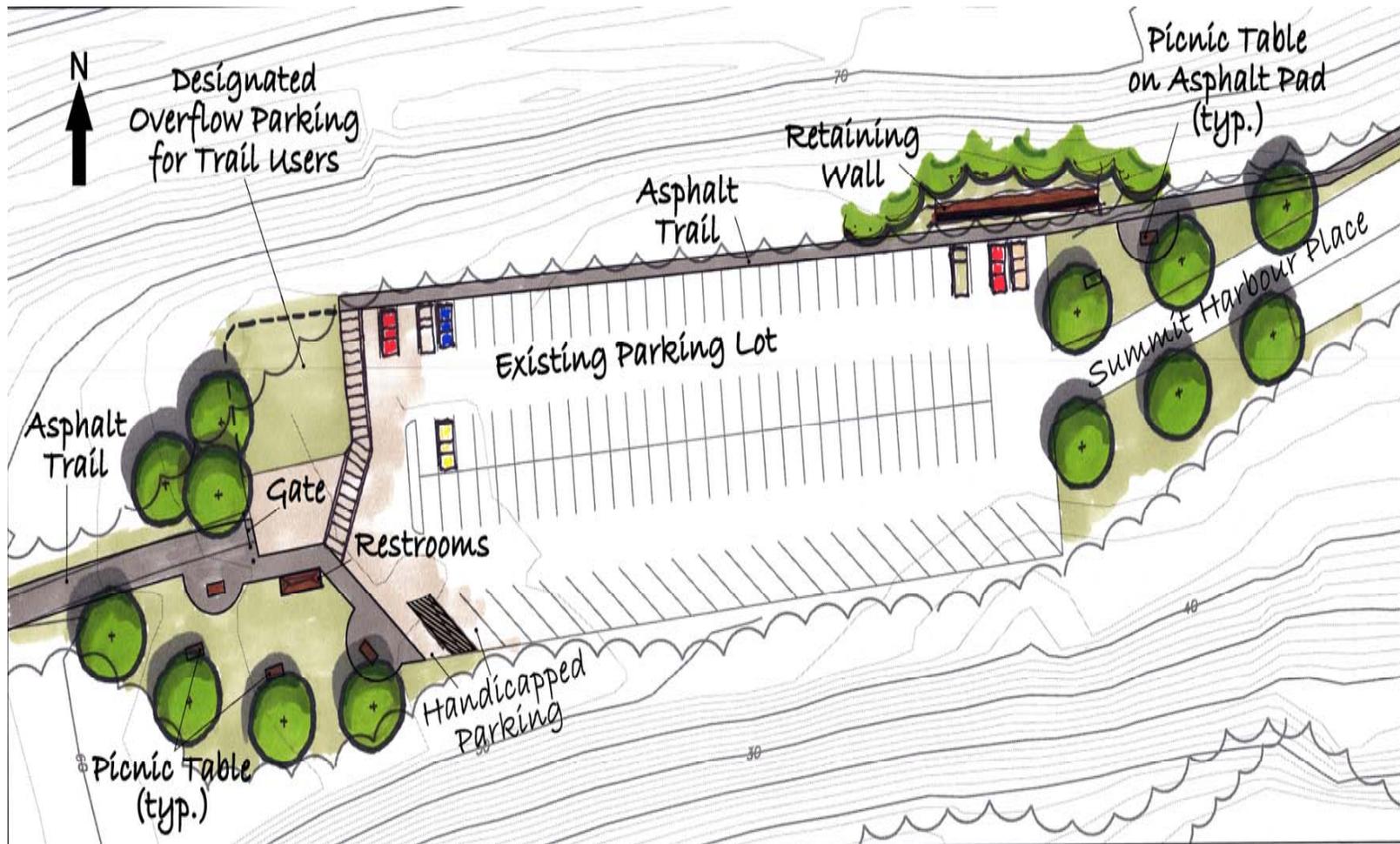
Sheet reference number:
Sheet 28 of 130



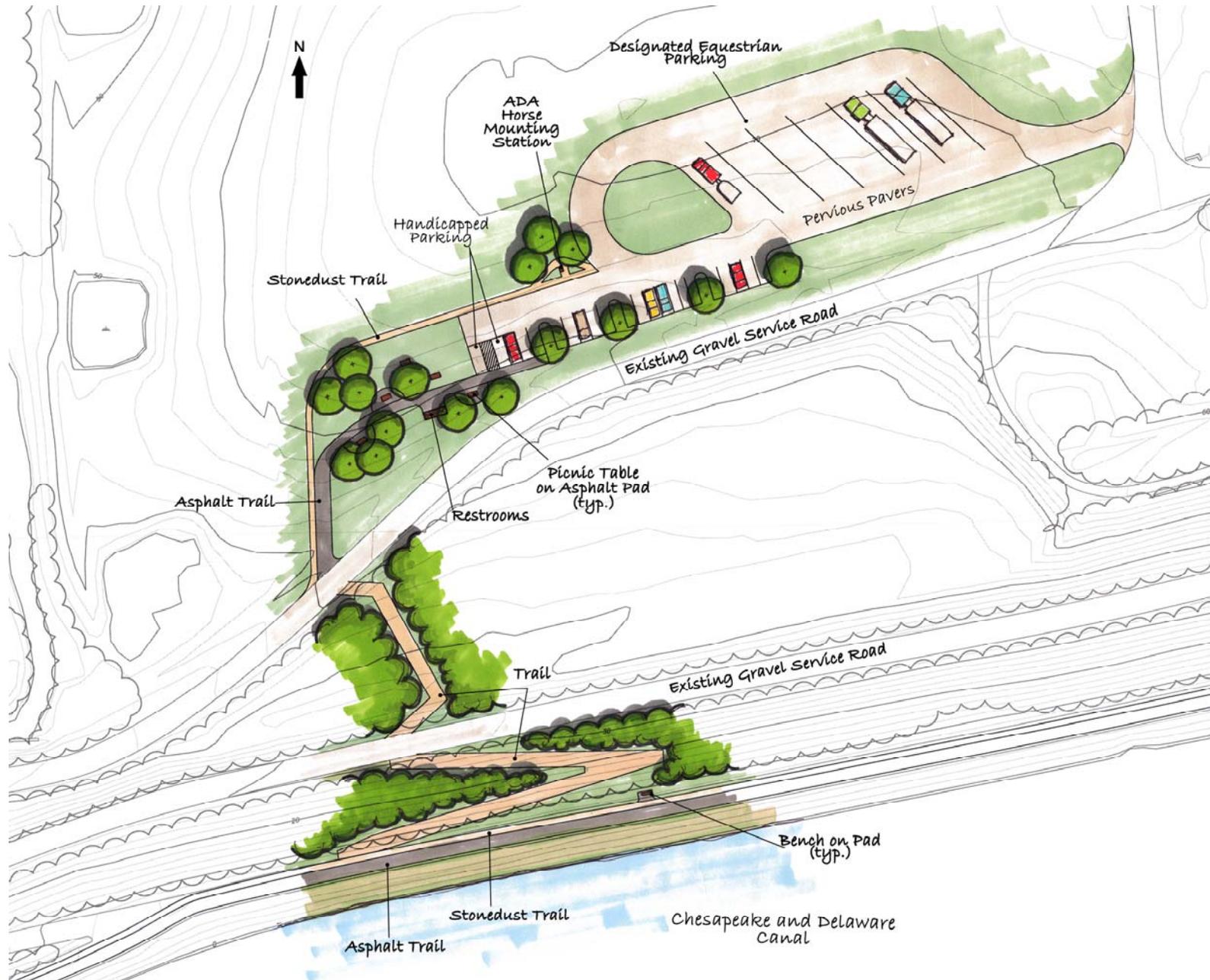
Proposed Biddles Point trailhead in Delaware.



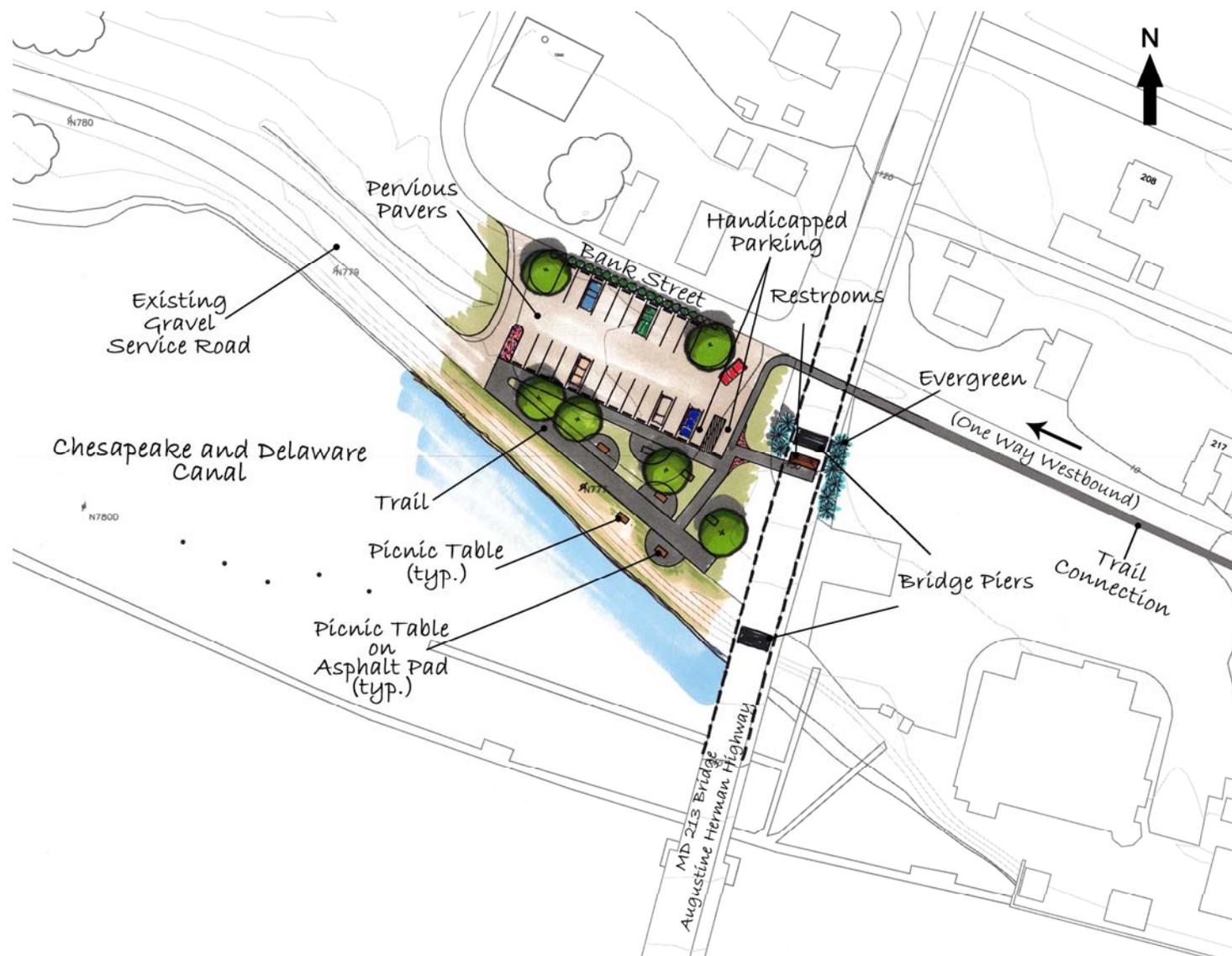
Proposed St. Georges trailhead in Delaware.



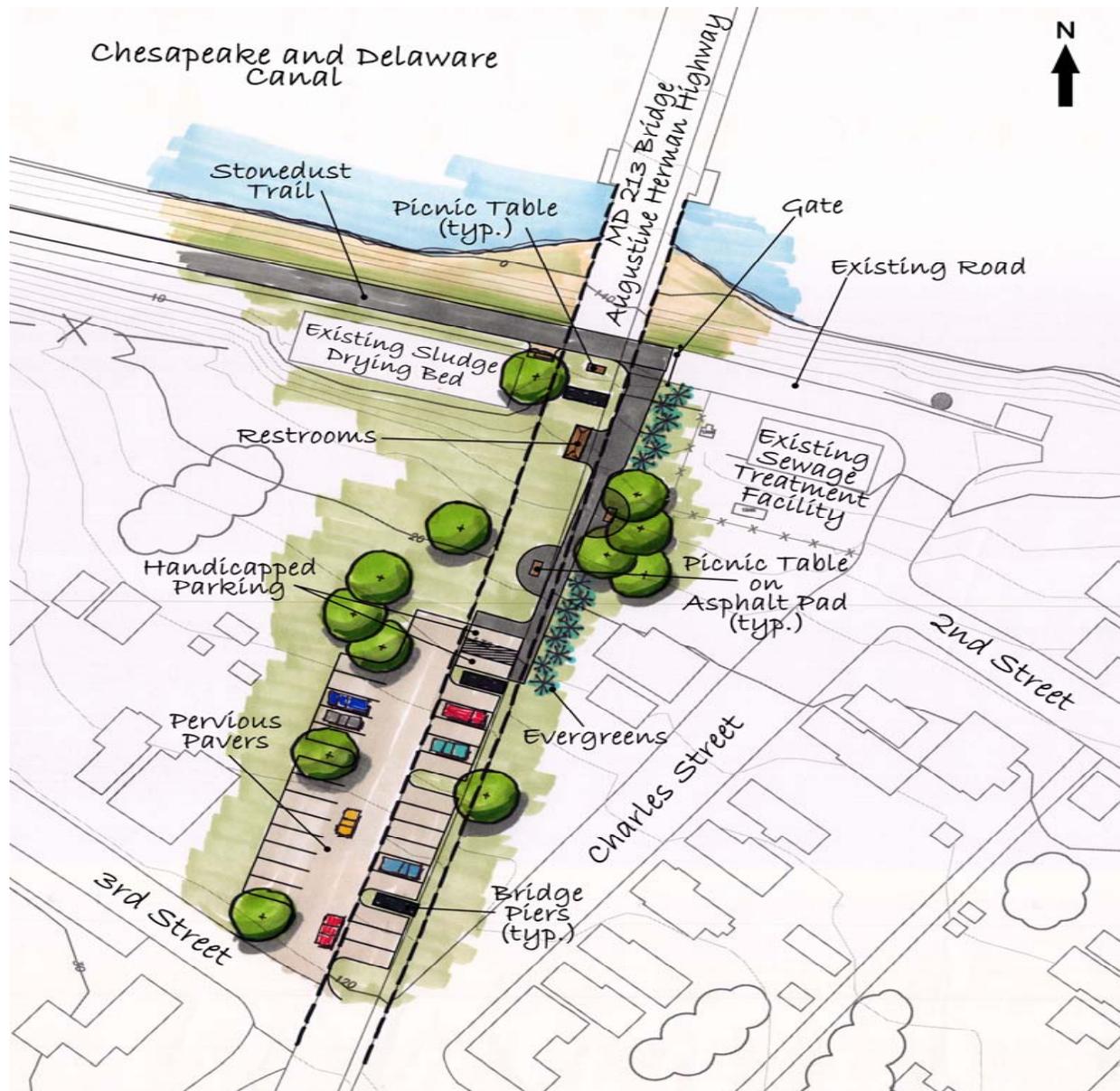
Proposed Summit Marina trailhead in Delaware.



Proposed Guthrie's Run trailhead in Delaware.



Proposed Chesapeake City North trailhead in Maryland.



Proposed Chesapeake City South trailhead in Maryland.

Appendix C

Clean Air Assessment

General Conformity Analysis

Table 1. Project Emission Sources and Estimated Power

Table 2. Emission Estimates (NO_x)

Table 3. Emission Estimates (VOCs)

Table 4. Pollutant Emissions from Employee Vehicles

Table 1. Project Emission Sources and Estimated Power

$$\text{hp-hr} = \# \text{ of engines} * \text{hp} * \text{LF} * \text{hrs of operation}$$

Load Factor (LF) represents the average percentage of rated horsepower used during a source's operational profile.

Equipment/Engine Category	# of engines	hp	LF	hrs of operation	hp-hr
Hyd. Excav, Crawler, 55,000 lb, 1.50 CY Bucket	1	238	0.70	1194	198920
Spreader, 85 CF	1	55	0.64	1194	42029
Line Striper, 3-4 Guns, Self-Propelled	1	23	0.64	1194	17576
Loader/Backhoe, 1.25 CY Bucket	1	92	0.55	1194	60416
Loader/Backhoe, 0.8 CY Bucket	1	67	0.55	1194	43999
Loader/Backhoe, 1.25 CY Bucket	1	92	0.55	1194	60416
Loader/Backhoe, 0.8 CY Bucket	1	67	0.55	1194	43999
Dozer Crawler, D-4	1	80	0.64	1194	61133
Dozer Crawler, D-8	1	240	0.64	1194	183398
Trk, HWY 8,600GVW	1	130	0.57	1194	88475
Trk, HWY 25,000GVW	1	210	0.57	1194	142922
Trk, HWY 35,000GVW	1	265	0.57	1194	180354
Asphalt Paver	1	35	0.57	1194	23820
1 Ton Stake Body	1	275	0.70	38	7315
Trk, HWY 45,000GVW	1	330	0.57	24	4514
3/4 Ton pick-up	1	165	0.57	60	5643
Portable Generator, 5.5 KW	1	11	0.80	30	264
All Terrain Forklift	1	63	0.70	30	1323
Fuel Truck, 1.5 ton	1	185	0.57	80	8436
1/2 ton pick-up 4x4	1	117	0.57	400	26676
Trk, HWY 45,000GVW	1	330	0.57	319	60004
Trk, Off-HWY, R-Dump, 22-30 CY, 35T	1	450	0.57	8	2052
Trk, HWY 45,000GVW	1	330	0.57	319	60004
Trk, Off-HWY, R-Dump, 22-30 CY, 35T	1	450	0.57	8	2052
Concrete Truck	1	275	0.57	8	1254

Load Factors taken from the General Conformity Review and Emission Inventory for the Delaware River

Main Channel Deepening Project. (May 2003). Prepared for the U.S. Army Corps of Engineers, Philadelphia District by Moffatt & Nichol Engineers.

General Conformity Review and Emission Inventory for C&D Canal Trail

Table 2. Emission Estimates (NOx)

Emissions (g) = Power Demand (hp-hr) * Emission Factor (g/hp-hr)

Emissions (tons) = Emissions (g) * (1 ton/907200

g)

NOx Emissions Factor for Off-Road Construction Equipment is 9.20 g/hp-hr

Equipment/Engine Category	hp-hr	EF (g/hp- hr)	Emissions (tons)
Hyd. Excav, Crawler, 55,000 lb, 1.50 CY Bucket	198920	9.20	2.02
Spreader, 85 CF	42029	9.20	0.43
Line Striper, 3-4 Guns, Self-Propelled	17576	9.20	0.18
Loader/Backhoe, 1.25 CY Bucket	60416	9.20	0.61
Loader/Backhoe, 0.8 CY Bucket	43999	9.20	0.45
Loader/Backhoe, 1.25 CY Bucket	60416	9.20	0.61
Loader/Backhoe, 0.8 CY Bucket	43999	9.20	0.45
Dozer Crawler, D-4	61133	9.20	0.62
Dozer Crawler, D-8	183398	9.20	1.86
Trk, HWY 8,600GVW	88475	9.20	0.90
Trk, HWY 25,000GVW	142922	9.20	1.45
Trk, HWY 35,000GVW	180354	9.20	1.83
Asphalt Paver	23820	9.20	0.24
1 Ton Stake Body	7315	9.20	0.07
Trk, HWY 45,000GVW	4514	9.20	0.05
3/4 Ton pick-up	5643	9.20	0.06
Portable Generator, 5.5 KW	264	9.20	0.00
All Terrain Forklift	1323	9.20	0.01
Fuel Truck, 1.5 ton	8436	9.20	0.09
1/2 ton pick-up 4x4	26676	9.20	0.27
Trk, HWY 45,000GVW	60004	9.20	0.61
Trk, Off-HWY, R-Dump, 22-30 CY, 35T	2052	9.20	0.02
Trk, HWY 45,000GVW	60004	9.20	0.61
Trk, Off-HWY, R-Dump, 22-30 CY, 35T	2052	9.20	0.02
Concrete Truck	1254	9.20	0.01

Total NOx Project Emissions (tons) =

13.44

General Conformity Review and Emission Inventory for C&D Canal Trail

Table 3. Emission Estimates (VOCs)

Emissions (g) = Power Demand (hp-hr) * Emission Factor (g/hp-hr)

Emissions (tons) = Emissions (g) * (1 ton/907200 g)

VOC Emissions Factor for Off-Road Construction Equipment is 1.30 g/hp-hr

Equipment/Engine Category	hp-hr	EF (g/hp-hr)	Emissions (tons)
Hyd. Excav, Crawler, 55,000 lb, 1.50 CY Bucket	198920	1.30	0.29
Spreader, 85 CF	42029	1.30	0.06
Line Striper, 3-4 Guns, Self-Propelled	17576	1.30	0.03
Loader/Backhoe, 1.25 CY Bucket	60416	1.30	0.09
Loader/Backhoe, 0.8 CY Bucket	43999	1.30	0.06
Loader/Backhoe, 1.25 CY Bucket	60416	1.30	0.09
Loader/Backhoe, 0.8 CY Bucket	43999	1.30	0.06
Dozer Crawler, D-4	61133	1.30	0.09
Dozer Crawler, D-8	183398	1.30	0.26
Trk, HWY 8,600GVW	88475	1.30	0.13
Trk, HWY 25,000GVW	142922	1.30	0.20
Trk, HWY 35,000GVW	180354	1.30	0.26
Asphalt Paver	23820	1.30	0.03
1 Ton Stake Body	7315	1.30	0.01
Trk, HWY 45,000GVW	4514	1.30	0.01
3/4 Ton pick-up	5643	1.30	0.01
Portable Generator, 5.5 KW	264	1.30	0.00
All Terrain Forklift	1323	1.30	0.00
Fuel Truck, 1.5 ton	8436	1.30	0.01
1/2 ton pick-up 4x4	26676	1.30	0.04
Trk, HWY 45,000GVW	60004	1.30	0.09
Trk, Off-HWY, R-Dump, 22-30 CY, 35T	2052	1.30	0.00
Trk, HWY 45,000GVW	60004	1.30	0.09
Trk, Off-HWY, R-Dump, 22-30 CY, 35T	2052	1.30	0.00
Concrete Truck	1254	1.30	0.00

Total VOCs Project Emissions (tons) = 1.90

General Conformity Review and Emission Inventory for C&D Canal Trail

Table 4. Pollutant Emissions from Employee Vehicles

Assumptions:

- Average trip distance (1 way) is 25 miles.
- Average NOx vehicle emission factor is 0.96 g/mile.
- Average VOC vehicle emission factor is 0.84 g/mile.
- Work crew comprised of 18 people
- Every member of the work crew drives their own vehicle.
- Project construction period is 10 months.
- Project construction occurs 5 days per week.
- There are 8 holidays (no work).
- There are 10 weather days (no work) off.

Actual work days = 304 days - 87 weekend days off - 8 holidays off - 10 weather days off.

Actual work days = 199 days

NOx Calculation: $18 \text{ workers} * 2 \text{ trips/work day} * 199 \text{ work days} * 25 \text{ miles/trip} * 0.96 \text{ g of NOx/mile} * (1 \text{ ton}/907200 \text{ g})$

Total NOx resulting from employee vehicles = 0.19 tons.

VOC Calculation: $18 \text{ workers} * 2 \text{ trips/work day} * 199 \text{ work days} * 25 \text{ miles/trip} * 0.84 \text{ g of VOC/mile} * (1 \text{ ton}/907200 \text{ g})$

Total VOCs resulting from employee vehicles = 0.17 tons.

Pollutant emissions associated with employee vehicles derived from data found in: Marine and Land-Based Mobile Source Emission Estimates for 50-Foot Deepening Project. January 2002. Prepared for The Port Authority of New York and New Jersey by Killam Associates and Starcrest Consulting Group, LLC.

Total (construction and employees) NOx Project Emissions (tons) = 13.6

Total (construction and employees) VOCs Project Emissions (tons) = 2.1