

4.5 WATERS OF THE U.S.

4.5.1 Methods and Impact Definitions

In this section, all jurisdictional waters, including Traditionally Navigable Waters (TNWs) and wetlands, are referred to collectively as waters of the U.S. Using GIS, the Corps evaluated waters of the U.S. to determine comprehensive impact estimates to the location, extent, and character of jurisdictional resources. As described in Section 3.5 and Appendix D, outside of Alternative 1 (Proposed Project) the boundaries of waters of the U.S. were estimated within the waters of the U.S. study area. Regardless of the source of the waters of the U.S. data, impacts were then quantified using GIS by overlaying limits of construction that were developed for each alternative (Appendix L) against the waters of the U.S. resources within the waters of the U.S. study area. Impacts are reported using linear feet for freshwater creeks (tributaries) and acreages for all other waters of the U.S.

Tributaries and wetlands within the waters of the U.S. study area would be affected in varying amounts by all the potential Project alternatives. These impacts would result from placement of fill, installation of pilings, temporary construction, or other methods of degradation (such as clearing and/or shading) to jurisdictional areas. The regulatory threshold for placement of fill in non-tidal waters of the U.S., tidal waters of the U.S., and creek beds (permanent or temporary) is based on the maximum impacts allowed under the Corps' Nationwide Permits. If impacts to waters of the U.S. exceed the impact limits for the available Nationwide Permits, an Individual Permit would be required in order to construct Alternative 1 (Proposed Project). Impact definitions for waters of the U.S. are presented in Table 4.5-1. Any loss of waters of the U.S. would require compensatory mitigation, which is further discussed in Chapter 6. The Corps anticipates that there will be temporary impacts (such as temporary clearing and temporary construction areas), but sufficient detail to evaluate these impacts is not available. Therefore, all impacts to waters of the U.S. within the limits of construction for each alternative have been evaluated as permanent impacts.

Table 4.5-1
Impact Definitions, Waters of the U.S.

Negligible	Minor	Major
No direct or indirect impact to waters of the U.S.	Permanent impact to waters of the U.S. (under 0.5 acre of non-tidal waters of the U.S.; under 0.33 acre of tidal waters of the U.S.)	Permanent impact to waters of the U.S. (greater than 0.5 acre of non-tidal waters of the U.S.; greater than 0.33 acre of tidal waters of the U.S.)

4.5.2 No-Action Alternative

Under the No-Action Alternative, the Corps would not issue a DA permit⁷⁰, and construction and operation of the Navy Base ICTF would not occur. For the purposes of this EIS, the Corps assumes that the Project site and the River Center project site would continue to include mixed use (residential and commercial) and industrial land uses. In light of Palmetto Railways' ownership of the properties, there would be the potential for redevelopment of these areas to include rail-served warehousing and distribution. Future construction and/or other human activities that may occur within the waters of the U.S. study area could adversely impact to waters of the U.S.; however, any permanent or temporary impacts would require a permit from the Corps. Since there would be no single, specific project associated with the No-Action Alternative, it would be speculative to quantify the extent of potential permanent or temporary impacts to waters of the U.S. Therefore, potential future adverse impacts cannot be classified as either minor or major.

4.5.3 Alternative 1: Applicant's Proposed Project (South via Milford / North via Hospital District)

Under Alternative 1 (Proposed Project), approximately 15.84 acres of waters of the U.S. would be directly impacted by placement of fill and/or shading activities (Table 4.5-2). Figure 4.5-1 depicts the location of impacts to waters of the U.S. from implementation of Alternative 1 (Proposed Project). Avoidance and minimization measures incorporated into Project site design to reduce impacts to waters of the U.S. include bridging tidelands and reducing side slopes to a 2:1 ratio where practicable. While the construction of the ICTF would be the largest land disturbance associated with Alternative 1 (Proposed Project), the roadway and rail improvements have the largest overall impact to waters of the U.S. Improvements that would result in direct impacts include the drayage road, the Hobson/Bainbridge realignment, the ICTF, the northern rail connection, the bridge over Noisette Creek, and the southern rail connection.

Construction of Alternative 1 (Proposed Project) would impact 8.01 acres of freshwater wetlands followed by 6.65 acres of tidal salt marsh, 1.14 acres of tidal open waters, and 0.04 acre of Other Open Water. The majority of impacts to tidal salt marsh are associated with construction of the bridges for the drayage road. The largest impact to freshwater wetlands is associated with the southern rail connection. Tidal open waters would be directly impacted in six impact locations, with the largest impact occurring to tidally influenced ditches near the Hobson/Bainbridge Road realignment. Direct permanent impacts to Other Open Water (e.g., freshwater ditches) would total 0.04 acre, and occur at the drayage road and ICTF.

⁷⁰ 33 C.F.R. Parts 321.1(b) prescribe the statutory authorities, and general and special policies and procedures applicable to the review of applications for Department of the Army (DA) permits for controlling certain activities in waters of the United States or the oceans. 33 C.F.R. Parts 321.1(c) describes the various forms of authorization. 33 C.F.R. Parts 320.2 describes the authorities to issue permits.

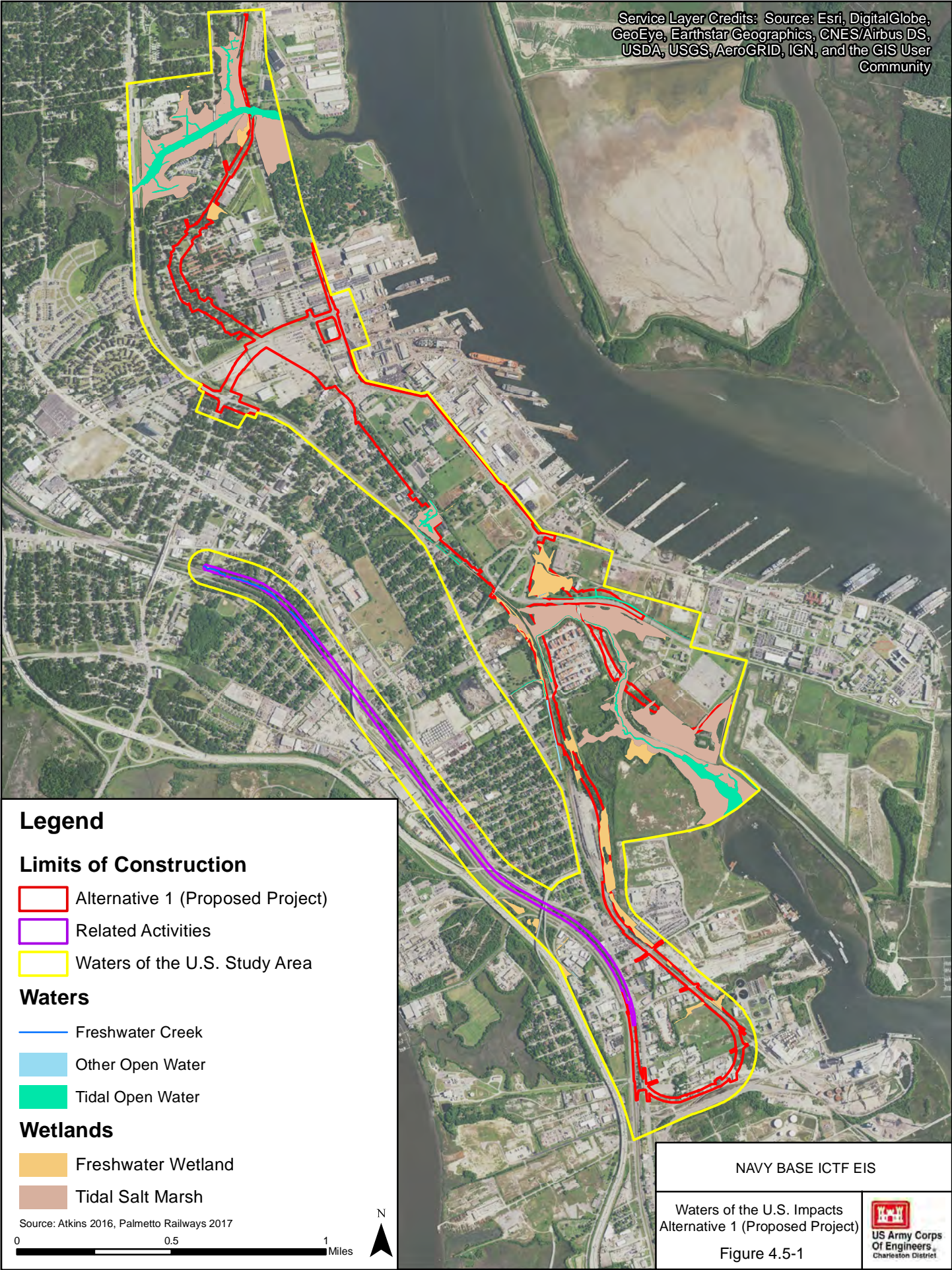
Potential mitigation measures incorporated into Project site design to reduce impacts to waters of the U.S., including wetlands, include measures such as bridging tidal salt marsh where possible and reducing side slopes to a 2:1 ratio where practicable. Temporary impacts would be minimized with the removal of dredge/fill material deposited during construction and the restoration of natural grades. Pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), Sections 401 and 404 of the Clean Water Act (33 U.S.C. 1344), and the South Carolina Coastal Zone Management Act (48-39-10 et seq.), a joint permit application was submitted to the Department of the Army (DA) and the S.C. Department of Health and Environmental Control (SCDHEC) in October 2016. The Applicant's permit application included a Wetland Mitigation Plan. This plan proposes for the Applicant to purchase 86.3 wetland mitigation credits from Pigeon Pond Mitigation Bank to compensate for freshwater impacts, as well as a permittee responsible mitigation plan to restore and protect approximately 40.6 acres of tidal marsh at the former Kings Grant Country Club and Golf Course in North Charleston, Dorchester County, SC. Final calculation of the required wetland mitigation credits will be based on approved and final plans. A complete list of mitigation measures is included in the Applicant's Community Mitigation Plan in Appendix N.

4.5.4 Alternative 2: Proposed Project Site (South via Milford / North via S-line)

Impacts to waters of the U.S. under Alternative 2 would be similar to those under Alternative 1 (Proposed Project), with roadway and rail improvements having the largest overall impact to waters of the U.S. Construction of Alternative 2 would directly impact approximately 17.92 acres of waters of the U.S., including 8.86 acres of tidal salt marsh, 7.64 acres of freshwater wetlands, 1.35 acres of tidal open waters, and 0.07 acre of Other Open Waters (Table 4.5-3). Figure 4.5-2 depicts the location of impacts to waters of the U.S. from implementation of Alternative 2. Improvements that would result in direct impacts include the drayage road, the Hobson/Bainbridge realignment, the ICTF, the northern rail connection, the bridge over Noisette Creek, and the southern rail connection.

The impacts to waters of the U.S. would occur at seven different impact locations (Table 4.5-3). The largest impact to freshwater wetlands is associated with the southern rail connection. Tidal open waters would be directly impacted in six impact locations, with the largest impact occurring to tidally influenced ditches near the Hobson/Bainbridge Road realignment. Direct permanent impacts to Other Open Water (e.g., freshwater ditches) would total 0.07 acre, and occur at the southern rail connection, drayage road, and ICTF.

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Legend

Limits of Construction

- Alternative 1 (Proposed Project)
- Related Activities
- Waters of the U.S. Study Area

Waters

- Freshwater Creek
- Other Open Water
- Tidal Open Water

Wetlands

- Freshwater Wetland
- Tidal Salt Marsh

Source: Atkins 2016, Palmetto Railways 2017

0 0.5 1 Miles



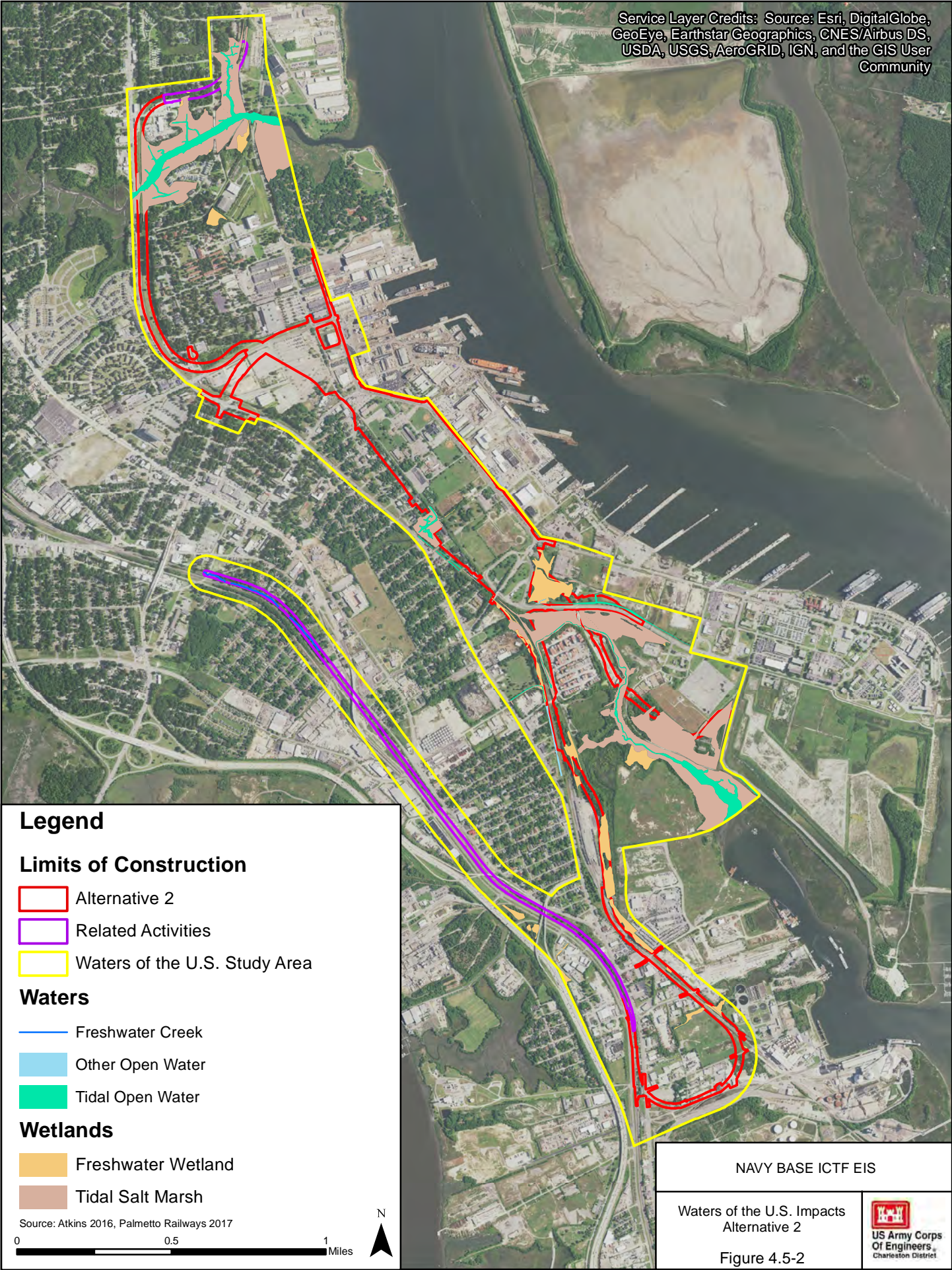
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Waters of the U.S. Impacts
Alternative 1 (Proposed Project)

Figure 4.5-1



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Legend

Limits of Construction

- Alternative 2
- Related Activities
- Waters of the U.S. Study Area

Waters

- Freshwater Creek
- Other Open Water
- Tidal Open Water

Wetlands

- Freshwater Wetland
- Tidal Salt Marsh

Source: Atkins 2016, Palmetto Railways 2017



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Waters of the U.S. Impacts
Alternative 2

Figure 4.5-2



Table 4.5-2
Waters of the U.S. Impacts for Alternative 1 (Proposed Project)

Impact Location	Impacts to Waters of the U.S.						
	Impact Type	Tidal Salt Marsh	Tidal Open Waters	Freshwater Wetlands	Open Water	Total	% of Total
Drayage Road	Fill	0.14	–	0.02	0.02	0.18	1.14
Drayage Road Bridges	Shading	3.23	0.06	–	–	3.29	20.77
Hobson/Bainbridge Realignment	Fill	0.01	0.61	1.87	–	2.49	15.72
ICTF	Fill	1.97	0.13	0.98	0.02	3.10	19.57
Northern Rail Connection	Fill	–	0.02	0.35	–	0.37	2.34
Noisette Bridge	Shading	–	0.09	–	–	0.09	0.57
Southern Rail Connection	Fill	1.30	0.23	4.79	–	6.32	39.90
Total		6.65	1.14	8.01	0.07	15.84	100.00

*The sum of individual items may not equal totals due to rounding.

Source: Atkins 2018.

Table 4.5-3
Waters of the U.S. Impacts for Alternative 2

Impact Location	Impacts to Waters of the U.S.						
	Impact Type	Tidal Salt Marsh	Tidal Open Waters	Freshwater Wetlands	Open Water	Total	% of Total
Drayage Road	Fill	0.14	–	0.02	0.02	0.18	1.00
Drayage Road Bridges	Shading	3.24	0.06	–	–	3.30	18.42
Hobson/Bainbridge Realignment	Fill	0.01	0.61	1.87	–	2.49	13.90
ICTF	Fill	1.97	0.13	0.98	0.02	3.10	17.30
Northern Rail Connection	Fill	1.93	0.01	–	–	1.94	10.83
Noisette Bridge	Shading	0.27	0.31	–	–	0.58	3.24
Southern Rail Connection	Fill	1.30	0.23	4.77	0.03	6.33	35.53
Total		8.86	1.35	7.64	0.07	17.92	100.00

*The sum of individual items may not equal totals due to rounding.

Source: Atkins 2018.

4.5.5 Alternative 3: Proposed Project Site (South via Kingsworth / North via Hospital District)

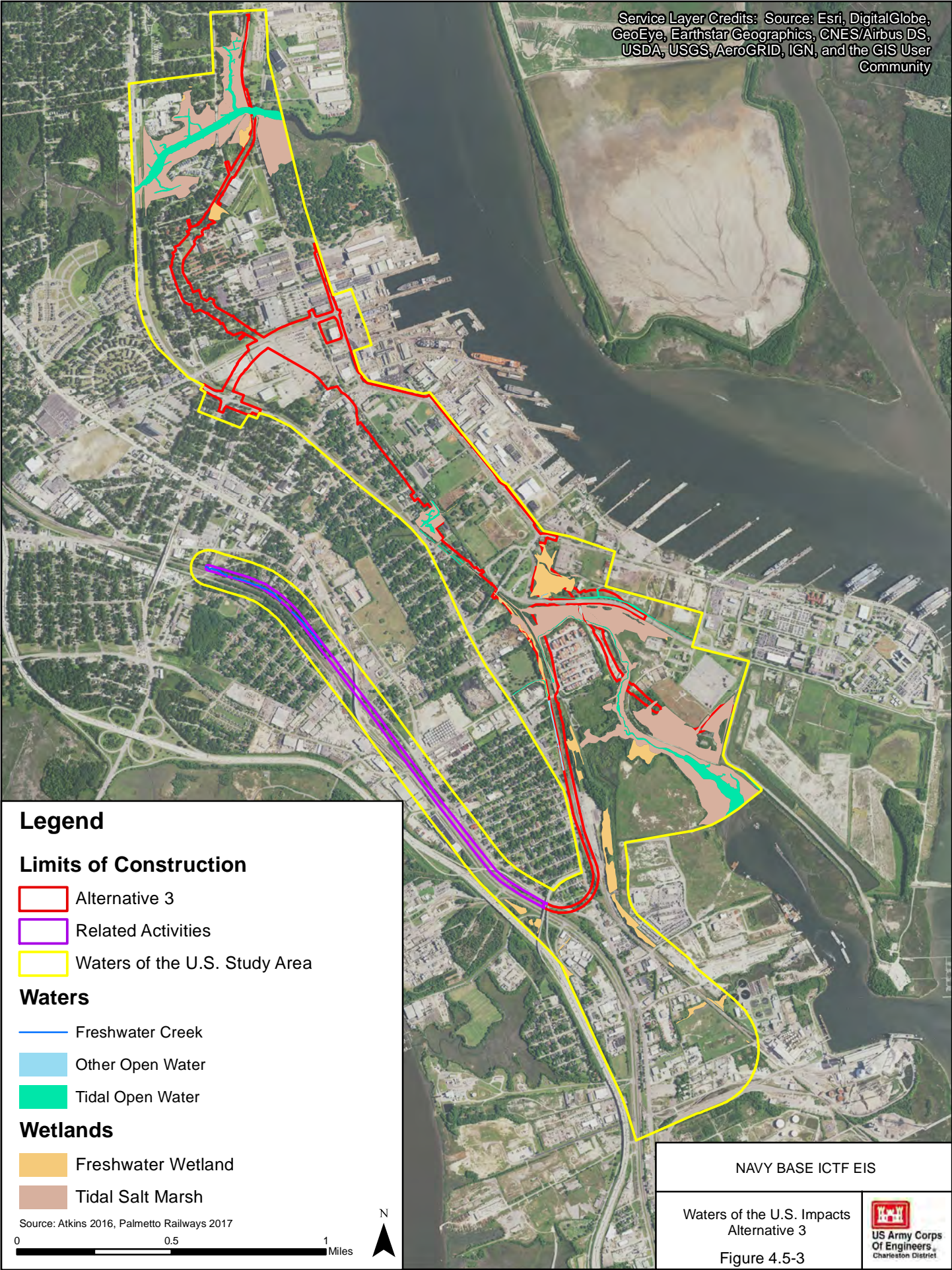
Impacts to waters of the U.S. under Alternative 3 would be similar to those under Alternative 1 (Proposed Project), with roadway and rail improvements having the largest overall impact to waters of the U.S. Construction of Alternative 3 would directly impact approximately 11.81 acres of waters of the U.S., including 6.66 acres of tidal salt marsh, 3.86 acres of freshwater wetlands, 1.14 acres of tidal open waters, and 0.15 acre of Other Open Waters (Table 4.5-4). Figure 4.5-3 depicts the location of impacts to waters of the U.S. from implementation of Alternative 3. Improvements that would result in direct impacts to waters of the U.S. include the drayage road and bridges, the Hobson/Bainbridge realignment, the ICTF, the northern rail connection, the bridge over Noisette Creek, and the southern rail connection.

The impacts to waters of the U.S. would occur at seven different impact locations (Table 4.5-4). The largest impact to freshwater wetlands is associated with construction of the Hobson/Bainbridge realignment. Tidal open waters would be directly impacted in six impact locations, with the largest impact occurring to tidally influenced ditches near the Hobson/Bainbridge Road realignment. Direct permanent impacts to Other Open Water (e.g., freshwater ditches) would total 0.15 acre, and occur at the southern rail connection, drayage road, and ICTF.

4.5.6 Alternative 4: Proposed Project Site (South via Milford)

Impacts to waters of the U.S. under Alternative 4 would be similar to those discussed under Alternative 1 (Proposed Project), with roadway and rail improvements having the largest overall impact to waters of the U.S. Construction of Alternative 4 would directly impact approximately 15.98 acres of waters of the U.S., including 6.66 acres of tidal salt marsh, 8.22 acres of freshwater wetlands, 1.03 acres of tidal open waters, and 0.07 acre of Other Open Waters (Table 4.5-5). Figure 4.5-4 depicts the location of impacts to waters of the U.S. from implementation of Alternative 4. Improvements that would result in direct impacts include the drayage road and associated bridges, the Hobson/Bainbridge realignment, the ICTF, the northern rail connection, and the southern rail connection.

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Legend

Limits of Construction

- Alternative 3
- Related Activities
- Waters of the U.S. Study Area

Waters

- Freshwater Creek
- Other Open Water
- Tidal Open Water

Wetlands

- Freshwater Wetland
- Tidal Salt Marsh

Source: Atkins 2016, Palmetto Railways 2017

0 0.5 1 Miles



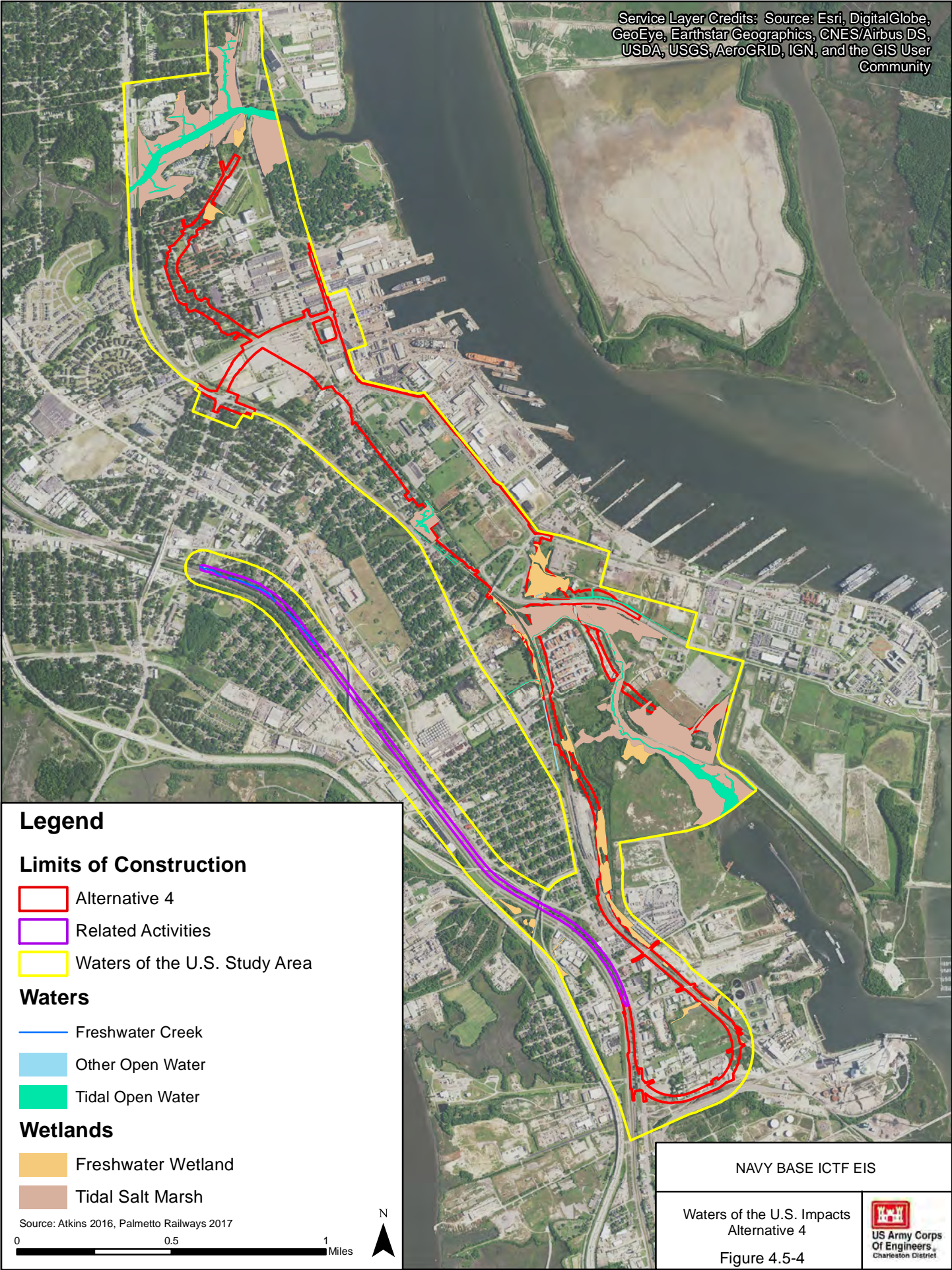
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Waters of the U.S. Impacts
Alternative 3

Figure 4.5-3






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


Legend



Limits of Construction

-  Alternative 4
-  Related Activities
-  Waters of the U.S. Study Area

Waters

-  Freshwater Creek
-  Other Open Water
-  Tidal Open Water

Wetlands

-  Freshwater Wetland
-  Tidal Salt Marsh

Source: Atkins 2016, Palmetto Railways 2017

0 0.5 1 Miles



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Waters of the U.S. Impacts
Alternative 4
Figure 4.5-4



Table 4.5-4
Waters of the U.S. Impacts for Alternative 3

Impact Location	Impacts to Waters of the U.S.						
	Impact Type	Tidal Salt Marsh	Tidal Open Waters	Freshwater Wetlands	Open Water	Total	% of Total
Drayage Road	Fill	0.14	–	0.02	0.02	0.18	1.52
Drayage Road Bridges	Shading	3.24	0.06	–	–	3.30	27.94
Hobson/Bainbridge Realignment	Fill	0.01	0.61	1.87	–	2.49	21.08
ICTF	Fill	1.97	0.13	0.98	0.02	3.10	26.25
Northern Rail Connection	Fill	–	0.02	0.35	–	0.37	3.13
Noisette Bridge	Shading	–	0.09	–	–	0.09	0.76
Southern Rail Connection	Fill	1.30	0.23	0.64	0.11	2.28	19.31
Total		6.66	1.14	3.86	0.15	11.81	100.00

*The sum of individual items may not equal totals due to rounding.

Source: Atkins 2018.

Table 4.5-5
Waters of the U.S. Impacts for Alternative 4

Impact Location	Impacts to Waters of the U.S.						
	Impact Type	Tidal Salt Marsh	Tidal Open Waters	Freshwater Wetlands	Open Water	Total	% of Total
Drayage Road	Fill	0.14	–	0.02	0.02	0.18	1.13
Drayage Road Bridges	Shading	3.24	0.06	–	–	3.30	20.65
Hobson/Bainbridge Realignment	Fill	0.01	0.61	1.87	–	2.49	15.58
ICTF	Fill	1.97	0.13	0.98	0.02	3.10	19.40
Northern Rail Connection	Fill	–	–	0.29	–	0.29	1.81
Southern Rail Connection	Fill	1.30	0.23	5.06	0.03	6.62	41.43
Total		6.66	1.03	8.22	0.07	15.98	100.00

*The sum of individual items may not equal totals due to rounding.

Source: Atkins 2018.

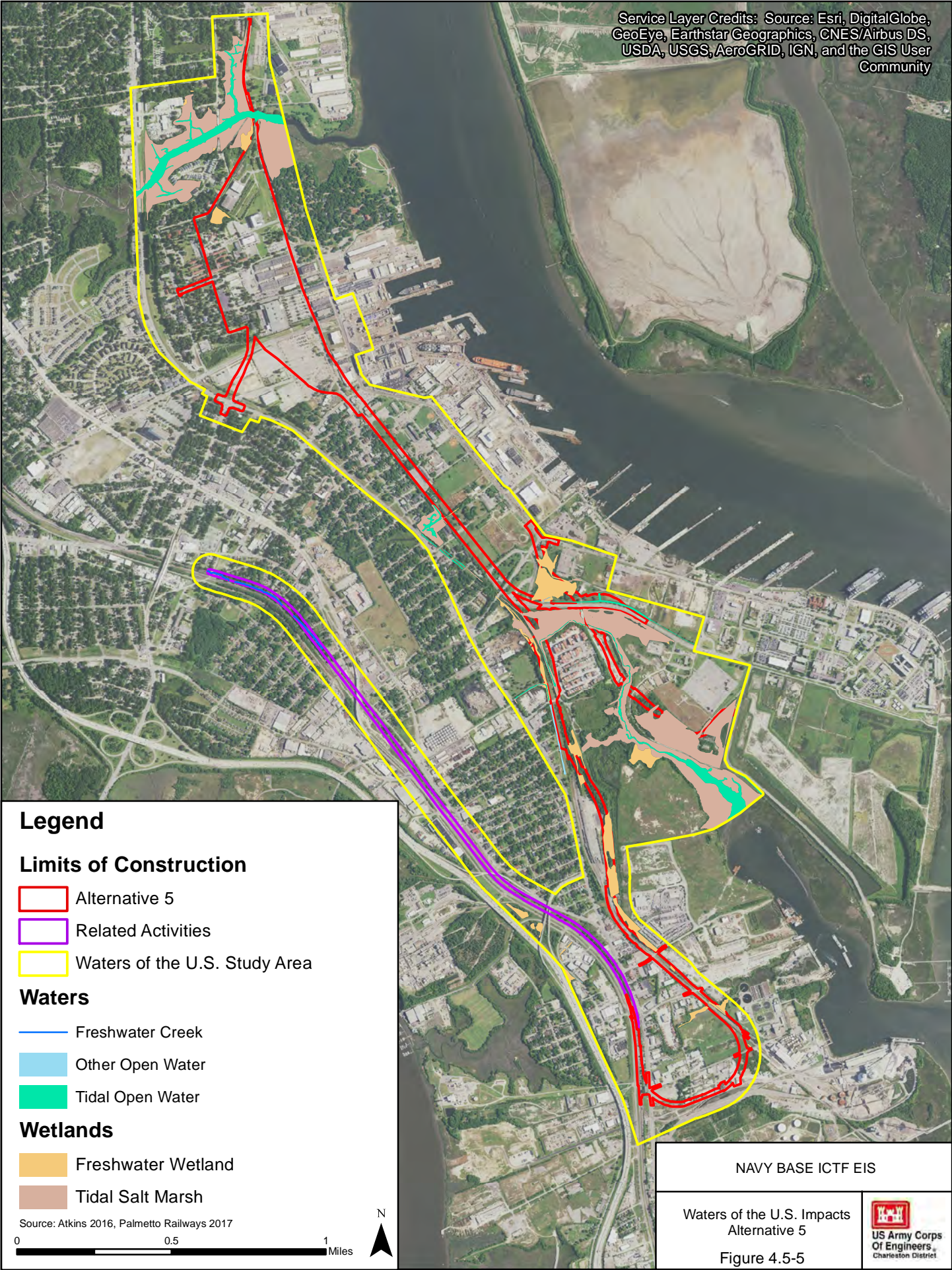
The impacts to waters of the U.S. would occur at six different impact locations (Table 4.5-5). The largest impact to freshwater wetlands is associated with construction of the southern rail connection. Tidal open waters would be directly impacted in four impact locations, with the largest impact occurring to tidally influenced ditches near the Hobson/Bainbridge Road realignment. Direct permanent impacts to Other Open Water (e.g., freshwater ditches) would total 0.07 acre, and occur at the southern rail connection, drayage road, and ICTF.

4.5.7 Alternative 5: River Center Project Site (South via Milford / North via Hospital District)

Impacts to waters of the U.S. under Alternative 5 would be similar to those discussed under Alternative 1 (Proposed Project), with roadway and rail improvements having the largest overall impact to waters of the U.S. Construction of Alternative 5 would directly impact approximately 14.75 acres of waters of the U.S., including 5.29 acres of tidal salt marsh, 8.36 acres of freshwater wetlands, 1.01 acres of tidal open waters, and 0.09 acre of Other Open Waters (Table 4.5-6). Figure 4.5-5 depicts the location of impacts to waters of the U.S. from implementation of Alternative 5. Improvements that would result in direct impacts include the drayage road and associated bridges, the Hobson/Bainbridge realignment, the ICTF, the northern rail connection, the bridge over Noisette Creek, and the southern rail connection.

The impacts to waters of the U.S. would occur at seven different impact locations (Table 4.5-6). The largest impact to freshwater wetlands is associated with the southern rail connection. Tidal open waters would be directly impacted in six locations, with the largest impact occurring to tidally influenced ditches near the Hobson/Bainbridge Road realignment. Direct permanent impacts to Other Open Water (e.g., freshwater ditches) would total 0.09 acre, and occur at the southern rail connection and the drayage road.

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Legend

Limits of Construction

- Alternative 5
- Related Activities
- Waters of the U.S. Study Area

Waters

- Freshwater Creek
- Other Open Water
- Tidal Open Water

Wetlands

- Freshwater Wetland
- Tidal Salt Marsh

Source: Atkins 2016, Palmetto Railways 2017



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Waters of the U.S. Impacts
Alternative 5

Figure 4.5-5



Table 4.5-6
Waters of the U.S. Impacts for Alternative 5

Impact Location	Impacts to Waters of the U.S.						
	Impact Type	Tidal Salt Marsh	Tidal Open Waters	Freshwater Wetlands	Open Water	Total	% of Total
Drayage Road	Fill	0.14	0.004	0.23	0.06	0.43	2.92
Drayage Road Bridges	Shading	3.24	0.06	–	–	3.30	22.37
Hobson/Bainbridge Realignment	Fill	0.01	0.61	1.87	–	2.49	16.88
ICTF	Fill	0.04	–	1.49	–	1.53	10.37
Noisette Bridge	Shading		0.09	–	–	0.09	0.61
Northern Rail Connection	Fill	–	0.02	0.004	–	0.02	0.14
Southern Rail Connection	Fill	1.86	0.23	4.77	0.03	6.89	46.71
Total		5.29	1.01	8.36	.09	14.75	100.00

*The sum of individual items may not equal totals due to rounding.

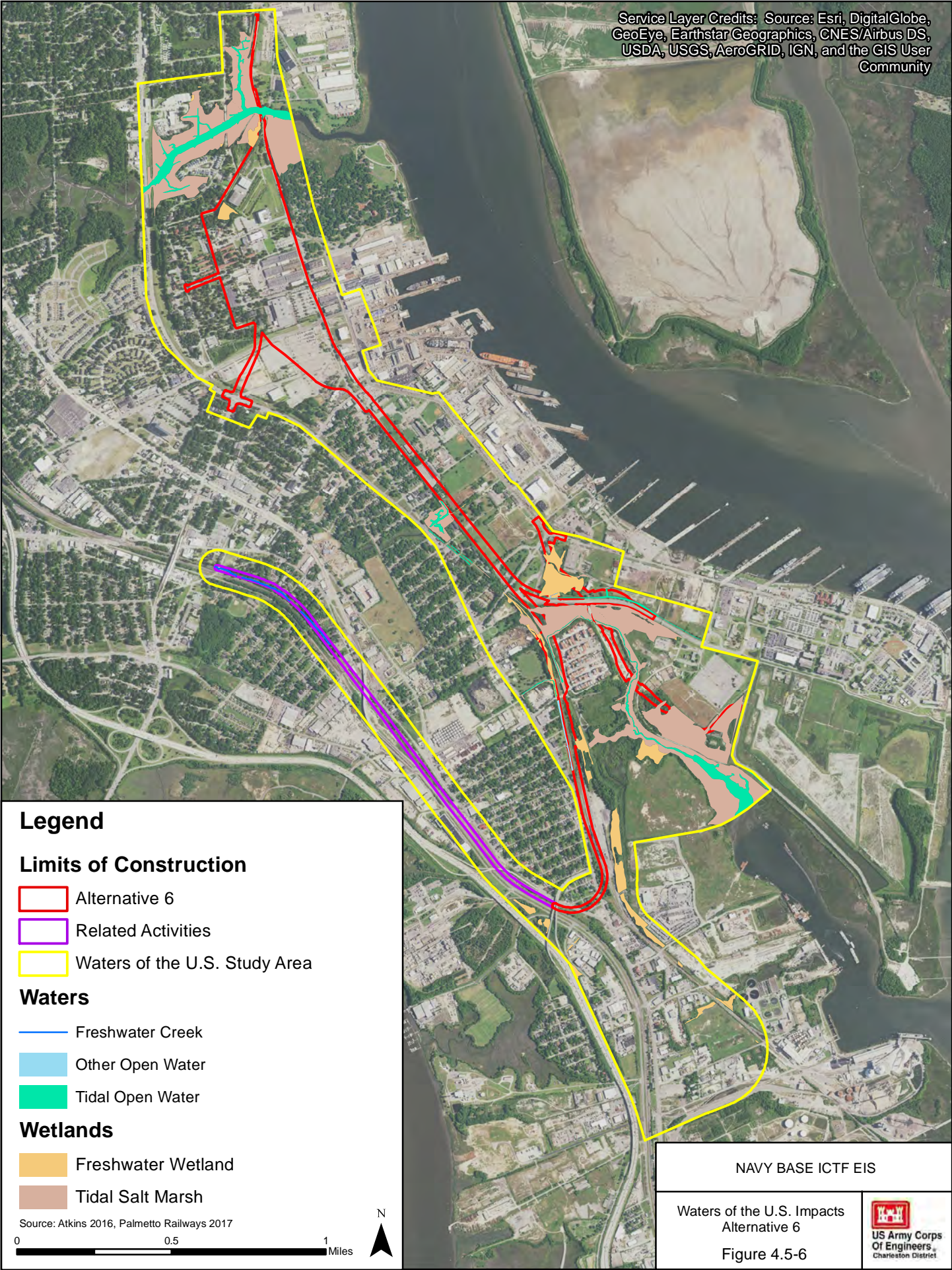
Source: Atkins 2018.

4.5.8 Alternative 6: River Center Project Site (South via Kingsworth / North via Hospital District)

Impacts to waters of the U.S. under Alternative 6 would be similar to those discussed under Alternative 1 (Proposed Project), with roadway and rail improvements having the largest overall impact to waters of the U.S. Construction of Alternative 6 would directly impact approximately 10.82 acres of waters of the U.S., including 5.29 acres of tidal salt marsh, 4.35 acres of freshwater wetlands, 1.01 acres of tidal open waters, and 0.17 acre of other open waters (Table 4.5-7). Figure 4.5-6 depicts the location of impacts to waters of the U.S. from implementation of Alternative 6. Improvements that would result in direct impacts include the drayage road, the Hobson/Bainbridge realignment, the ICTF, the northern rail connection, the bridge over Noisette Creek, and the southern rail connection.




The impacts to waters of the U.S. would occur at seven different impact locations, see Table 4.5-7. The largest impact to freshwater wetlands is associated with construction of the Hobson/Bainbridge Road realignment. Tidal open waters would be directly impacted in six impact locations, with the largest impact occurring to tidally influenced ditches near the Hobson/Bainbridge Road realignment. Direct permanent impacts to Other Open Water (e.g., freshwater ditches) would total 0.17 acre, and occur at the southern rail connection and the drayage road.

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


Legend



Limits of Construction

-  Alternative 6
-  Related Activities
-  Waters of the U.S. Study Area

Waters

-  Freshwater Creek
-  Other Open Water
-  Tidal Open Water

Wetlands

-  Freshwater Wetland
-  Tidal Salt Marsh

Source: Atkins 2016, Palmetto Railways 2017



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Waters of the U.S. Impacts
Alternative 6
Figure 4.5-6



Table 4.5-7
Waters of the U.S. Impacts for Alternative 6

Impact Location	Impacts to Waters of the U.S.						
	Impact Type	Tidal Salt Marsh	Tidal Open Waters	Freshwater Wetlands	Open Water	Total	% of Total
Drayage Road	Fill	0.14	0.004	0.23	0.06	0.43	3.97
Drayage Road Bridges	Shading	3.24	0.06	–	–	3.30	30.50
Hobson/Bainbridge Realignment	Fill	0.01	0.61	1.87	–	2.49	23.01
ICTF	Fill	0.04	–	1.49	–	1.53	14.14
Noisette Bridge	Shading	–	0.09	–	–	0.09	0.83
Northern Rail Connection	Fill	–	0.02	0.004	–	0.02	0.18
Southern Rail Connection	Fill	1.86	0.23	0.76	0.11	2.96	27.36
Total		5.29	1.01	4.35	0.17	10.82	100.00

*The sum of individual items may not equal totals due to rounding.

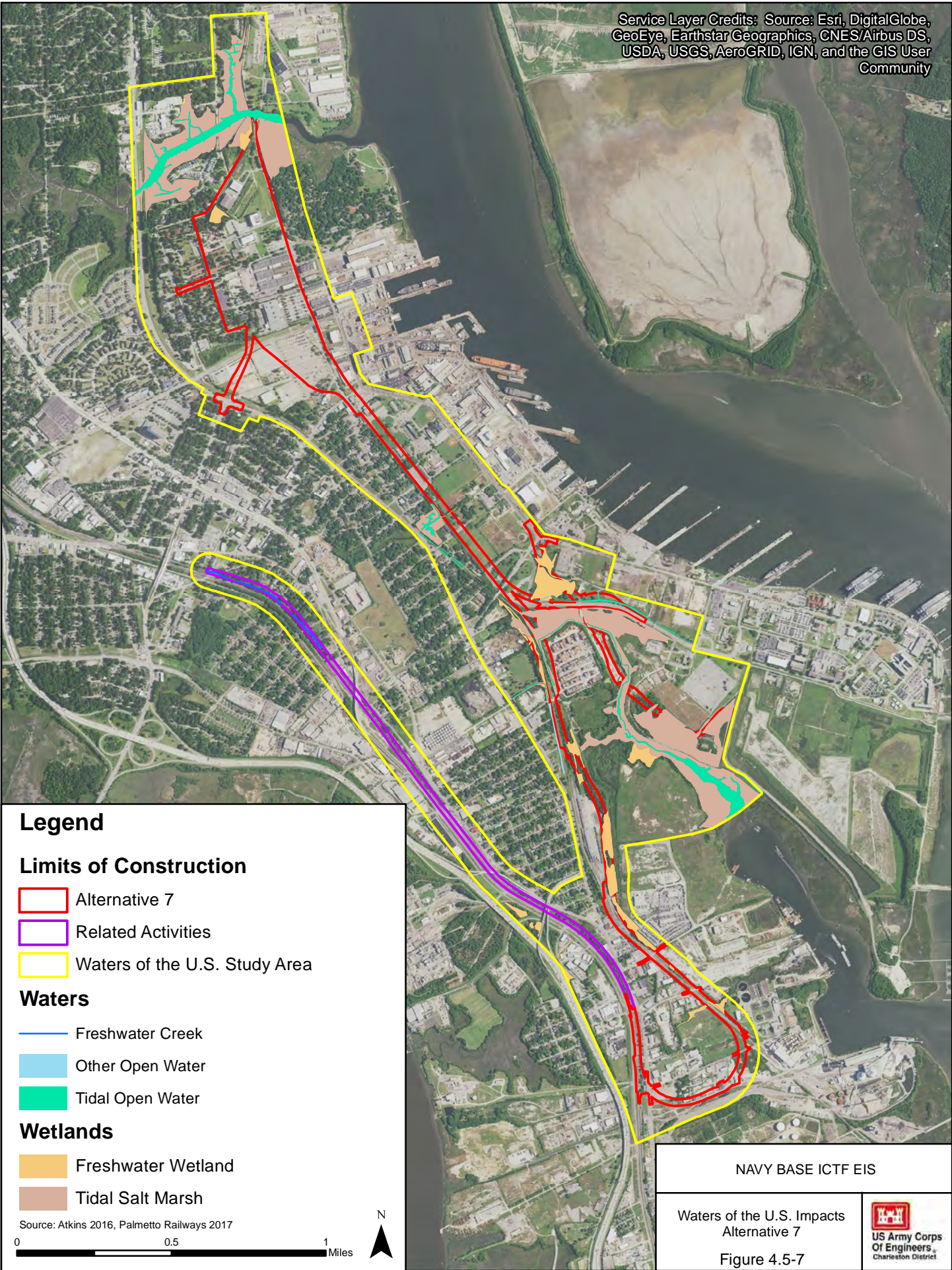
Source: Atkins 2018.

4.5.9 Alternative 7: River Center Project Site (South via Milford)

Impacts to waters of the U.S. under Alternative 7 would be similar to those discussed under Alternative 1 (Proposed Project), with roadway and rail improvements having the largest overall impact to waters of the U.S. Construction of Alternative 7 would directly impact approximately 15.01 acres of waters of the U.S., including 5.32 acres of tidal salt marsh, 8.68 acres of freshwater wetlands, 0.92 acre of tidal open waters, and 0.09 acre of Other Open Waters (Table 4.5-8). Figure 4.5-7 depicts the location of impacts to waters of the U.S. from implementation of Alternative 7. Improvements that would result in direct impacts include the drayage road, the Hobson/Bainbridge realignment, the ICTF, the northern rail connection, and the southern rail connection.

The impacts to waters of the U.S. would occur at five different impact locations (Table 4.5-8). The largest impact to freshwater wetlands is associated with the southern rail connection. Tidal open waters would be directly impacted in five impact locations, with the largest impact occurring to tidally influenced ditches near the Hobson/Bainbridge Road realignment. Direct permanent impacts to Other Open Water (e.g., freshwater ditches) would total 0.09 acre, and occur at the southern rail connection and the drayage road.

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Legend

Limits of Construction

- Alternative 7
- Related Activities
- Waters of the U.S. Study Area

Waters

- Freshwater Creek
- Other Open Water
- Tidal Open Water

Wetlands

- Freshwater Wetland
- Tidal Salt Marsh

Source: Atkins 2016, Palmetto Railways 2017



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Waters of the U.S. Impacts
Alternative 7
Figure 4.5-7



Table 4.5-8
Waters of the U.S. Impacts for Alternative 7

Impact Location	Impacts to Waters of the U.S.						
	Impact Type	Tidal Salt Marsh	Tidal Open Waters	Freshwater Wetlands	Open Water	Total	% of Total
Drayage Road	Fill	0.14	0.004	0.23	0.06	0.43	2.86
Drayage Road Bridges	Shading	3.24	0.06	–	–	3.30	21.99
Hobson/Bainbridge Realignment	Fill	0.01	0.61	1.87	–	2.49	16.59
ICTF	Fill	0.07	0.02	1.52	–	1.61	10.73
Northern Rail Connection	Fill	–	–	–	–	0.00	0.00
Southern Rail Connection	Fill	1.86	0.23	5.06	0.03	7.18	47.83
Total		5.32	0.92	8.68	0.09	15.01	100.00

*The sum of individual items may not equal totals due to rounding.

Source: Atkins 2018.

4.5.10 Related Activities

The Related Activities include two components, the southern rail connection, which occurs for all alternatives, but has unique alignments for Alternatives 3 and 6, and the northern rail connection which is only proposed for Alternative 2. For all seven alternatives, Related Activities associated with the southern rail connection would result in fill impacts to approximately 2,190 linear feet of freshwater creeks. Related Activities of the northern rail connection associated with Alternative 2 would require an additional 1.99 acres of impacts to waters of the U.S. associated with Noisette Creek (Table 4.5-9).

Impacts to waters of the U.S. associated with Related Activities for all of the alternatives would require a separate 404/401 permit, since ownership of the rail track for these related activities is different than the components of Alternative 1 (Proposed Project). Cumulative impacts to waters of the U.S. would be greater for Alternative 2 due to the crossing of Noisette Creek to tie into the NCTC tracks as part of the Related Activity.

Table 4.5-9. Summary of Impacts on Waters of the U.S. Impacts for Related Activities

Impact Location	Impacts to Waters of the U.S.						
	Impact Type	Tidal Salt Marsh	Tidal Open Waters	Freshwater Wetlands	Open Water	Total	% of Total
Alternative 2 Related Activity (Northern Connection)	Fill	1.77	0.20	0.02	--	1.99	--

Source: Atkins 2018.

4.5.11 Summary of Impacts Table

Table 4.5-10 summarizes the environmental consequences to waters of the U.S. from Alternative 1 (Proposed Project) and all the alternatives.

Table 4.5-10
Summary of Impacts, Waters of the United States

Alternative	Impacts to Waters of the U.S.
No-Action	Future construction and/or other human activities could adversely impact waters of the U.S. within the waters of the U.S. study area; any permanent or temporary impacts would require a permit from the Corps.
1: Proposed Project: South via Milford / North via Hospital District	Major adverse. Direct impacts from fill/shading activities during construction would result in the permanent impact to approximately 15.84 acres of waters of the U.S., including 6.65 acres of tidal salt marsh, 8.01 acres of freshwater wetlands, and 1.14 acres of tidal open waters. Non-tidal open-water impacts total 0.04 acre.
2: South via Milford / North via S-line	Major adverse. Similar to Alternative 1 (Proposed Project) but would result in the permanent impact to approximately 17.92 acres of waters of the U.S., including 8.86 acres of tidal salt marsh, 7.64 acres of freshwater wetlands, and 1.35 acres of tidal open waters. Non-tidal open-water impacts total 0.07 acre.
3: South via Kingsworth / North via Hospital	Major adverse. Similar to Alternative 1 (Proposed Project) but would result in the permanent impact to approximately 11.81 acres of waters of the U.S., including 6.66 acres of tidal salt marsh, 3.86 acres of freshwater wetlands, and 1.14 acres of tidal open waters. Non-tidal open-water impacts total 0.15 acre.
4: South via Milford	Major adverse. Similar to Alternative 1 (Proposed Project) but would result in the permanent impact to approximately 15.98 acres of waters of the U.S., including 6.66 acres of tidal salt marsh, 8.22 acres of freshwater wetlands, and 1.03 acres of tidal open waters. Non-tidal open-water impacts total 0.07 acre.
5: River Center Project Site: South via Milford / North via Hospital District	Major adverse. Would result in the permanent impact to approximately 14.75 acres of waters of the U.S., including 5.29 acres of tidal salt marsh, 8.36 acres of freshwater wetlands, and 1.01 acres of tidal open waters. Non-tidal open-water impacts total 0.09 acre.
6: River Center Project Site: South via Kingsworth / North via Hospital District	Major adverse. Similar to Alternative 5 but would result in the permanent impact to approximately 10.82 acres of waters of the U.S., including 5.29 acres of tidal salt marsh, 4.35 acres of freshwater wetlands, and 1.01 acres of tidal open waters. Non-tidal open-water impacts total 0.17 acre.

Alternative	Impacts to Waters of the U.S.
7: River Center Project Site: South via Milford	Major adverse. Similar to Alternative 5 but would result in the permanent impact to approximately 15.01 acres of waters of the U.S., including 5.32 acres of tidal salt marsh, 8.68 acres of freshwater wetlands, and 0.92 acre of tidal open waters. Non-tidal open-water impacts total 0.09 acre.

Waters of the U.S. Impact Definitions

Negligible = No direct or indirect impact to waters of the U.S.

Minor = Permanent impact to waters of the U.S. (under 0.5 acre of non-tidal waters of the U.S.; under 0.33 acre of tidal waters of the U.S.).

Major = Permanent impact to waters of the U.S. (greater than 0.5 acre of non-tidal waters of the U.S.; greater than 0.33 acre of tidal waters of the U.S.)

Source: Atkins 2018.

4.5.12 Mitigation

4.5.12.1 Applicant's Proposed Avoidance and Minimization Measures

Each alternative would require review by the Corps under an Individual Section 404 permit, as well as Section 10 of the RHA and Section 401 of the CWA in consideration for water quality and impacts to Noisette and Shipyard creeks. After avoidance and minimization efforts are complete, all waters of the U.S. impacts can be mitigated, which would be a consideration during permit review and evaluation of the compensatory mitigation alternatives consistent with 33 C.F.R. 332.

The Applicant has committed to several measures that avoid and/or minimize potential impacts of Alternative 1 (Proposed Project). These measures are taken from Palmetto Railways Mitigation Plan provided in Appendix N. Some of these measures are required under federal, state, and local permits; others are measures that Palmetto Railways has incorporated into the design and operations of Alternative 1 (Proposed Project). Each mitigation measure is also designated as one that either helps to avoid an impact or one that minimizes an impact.

- Site the ICTF on previously disturbed land (with industrial uses) that is mostly comprised of uplands, thereby minimizing impacts to waters of the U.S. in the Cooper River watershed. (Minimization, Avoidance)
- Design the ICTF and roadway and rail improvements to minimize impacts to waters of the U.S., such as the drayage road placement that reduces impacts to waters of the U.S. associated with Shipyard Creek. (Minimization, Avoidance)
- Where possible, limit the placement of pilings for bridges within waterways. (Minimization)
- Use 2:1 side slopes in areas that are not bridged to minimize the amount of fill material. (Minimization)
- Rehabilitate existing bridge over Noisette Creek to reduce impacts. (Minimization)
- Design culverts and bridges to maintain existing flow/exchange and hydrology for wetland areas and marshes. (Minimization)

- Replacement of earthen berm with a sound attenuation and security wall, where appropriate, in areas adjacent to waters of the U.S. to avoid filling of wetlands. (Avoidance and Minimization)
- Submit application for Section 404 Permit as promulgated by Clean Water Act (CWA) and comply with any requirements as determined by the Corps. (Avoidance, Minimization, and Compensatory Mitigation)
- Removal of dredge/fill and restoration natural grades to minimize temporary impacts during construction. (Minimization)
- Develop and execute wetland mitigation plan (Appendix N) to ensure any wetland impacts have been minimized and that compensation (restoration and purchase of mitigation credits) will be provided for all remaining unavoidable impacts. Final calculation of the required wetland mitigation credits will be based on approved and final plans. (Minimization and Compensatory Mitigation).

These avoidance and minimization measures, except the items noted with an asterisk (*), have been considered in the preceding impact analysis. The complete list of Applicant-proposed avoidance and minimization measures for Alternative 1 (Proposed Project) is also provided in Chapter 6, Table 6-1.

4.5.12.2 Additional Potential Mitigation Measures

No additional mitigation measures for Waters of the U.S. have been identified by the Corps. Additional avoidance, minimization, and mitigation may be considered by the Corps in its decision-making process. Final mitigation measures may be adopted as conditions of the DA permit and documented in the Record of Decision (ROD).