

directed into a series of four stormwater treatment ponds, referred to in the EIS as the “Picnic Pond System”. The “Picnic Pond System” includes “Pond A”, “Pond B”, “Pond C” and “Picnic Pond”, all as shown on the Stormwater Plan. These ponds are, for the most part, located southerly off the Subdivision property and on a section of the former BNAS land currently owned by the United States of America. Runoff from the undeveloped areas is directed into the Picnic Pond System mainly by overland surface flow. The collected stormwater exits Picnic Pond and discharges to a tributary of Mere Brook, which eventually discharges into Harpswell Cove.

As stated above, no changes or modifications to the existing stormwater collection system, including the stormwater treatment ponds, are proposed.

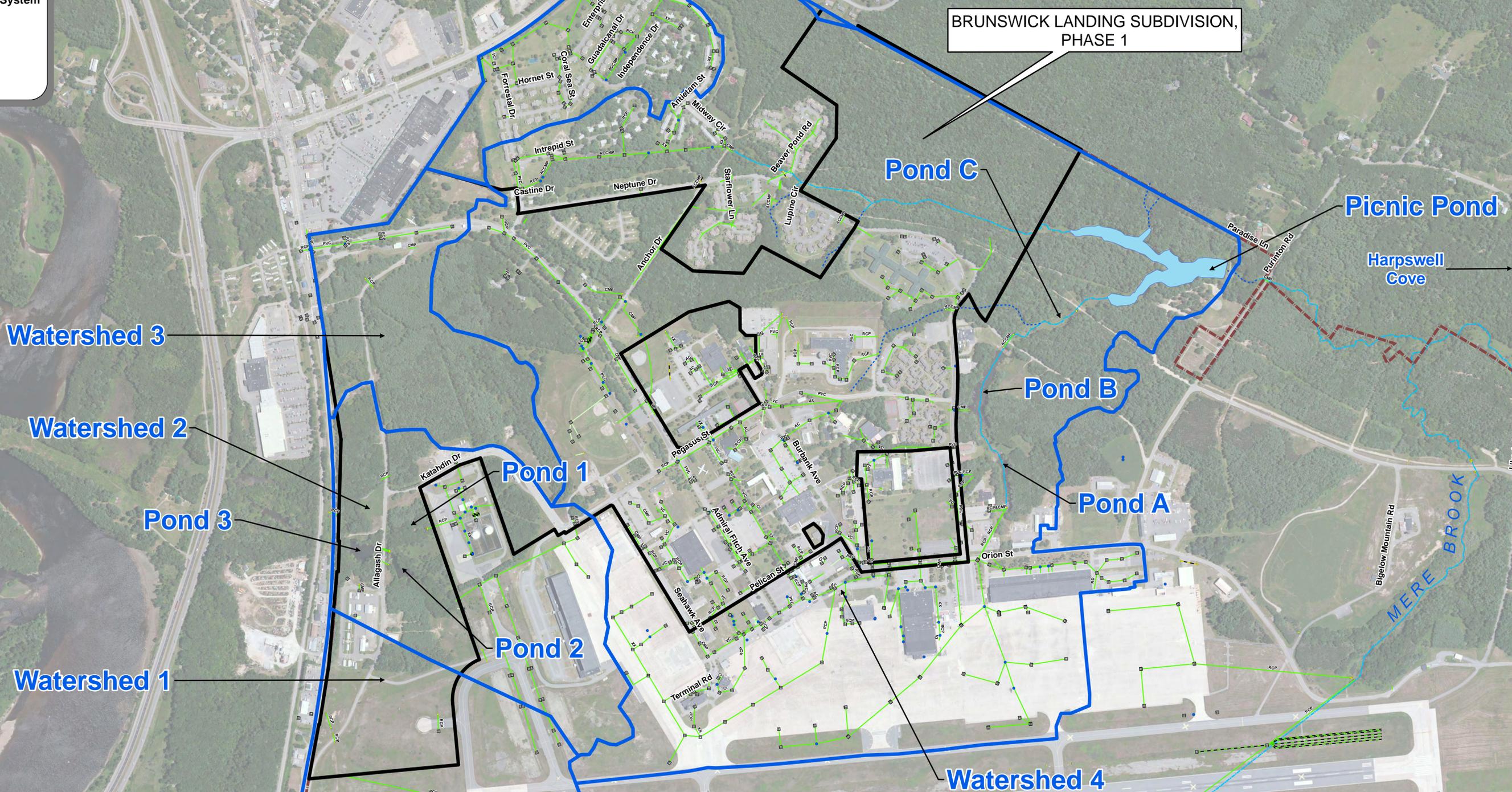
The unnamed stream that receives runoff from Watershed 1 and Mere Brook which receives runoff from Watershed 4, are both considered Urban Impaired Streams by the MDEP. Development activities on lots located within either of these two watersheds will need to meet the Urban Impaired Stream Standard in addition to the applicable Basic Standards and General Standards of the Stormwater Management Rules, Chapter 500.

Development activities on lots in the Subdivision will be subject to review and approval by the Town of Brunswick as well as MDEP as amendments to the existing Site Location of Development Law Permit originally issued for activities taking place on the BNAS. Certain development activities may also be subject to review and approval by other regulatory agencies or by the MDEP under other permitting processes.

It is proposed that the developer of a lot within the Subdivision will be responsible for obtaining all the appropriate permits prior to commencing any construction activities. With regards to stormwater-related activities, the developer of any lot will be required to compose a site-specific stormwater management plan and an erosion and sediment control plan in accordance with Town of Brunswick and State of Maine regulations. The elements of a typical stormwater management plan most likely will include BMPs to treat both runoff water quality and quantity, provisions for meeting the urban impaired stream standard, and a plan for the short-term and long-term maintenance of the BMPs.

Legend

- Watershed Boundary
- Subdivision Boundary
- Catch Basin
- Stormwater Manhole
- Stormwater Valve
- Stormwater Collection System**
 - Abandoned
 - Storm Drain Pipe
 - Culvert
 - PVC Underdrain



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Source:
Aerial image obtained from the town of Brunswick
Road data obtained from the Maine Office of GIS
Utility data obtained from the Navy
Figure developed by Wright-Pierce GIS Dept

Existing Stormwater Collection System
Brunswick Landing Subdivision - Phase 1
Brunswick, Maine

PROJ NO: 12218A DATE: Dec 2012 **FIGURE: 1**

Section 7

SECTION 7

UTILITIES

The utility systems on the Brunswick Landing campus are primarily owned and operated by MRRA and are connected to utility district infrastructure at the perimeter of the site. The systems on the campus are distribution and collection systems and do not involve treatment or generation of the utilities. The natural gas service at Brunswick Landing is owned and operated by Maine Natural Gas.

Sewer:

The sewer system at the site is a collection system with existing sewer lines, manholes and pump stations. The collection system is generally capable of accommodating significant flows based upon past usage when the base was fully operational. The sewer system connects to the Brunswick Sewer District line on Bath Road just outside the main entrance for the site. A flow meter at the connection point records the flow leaving the site. A sewer system map is included in this section as Figure #2.

Water:

The water system on the site distributes water throughout the base cantonment area through distribution pipes. The system also includes fire hydrants for fire protection. The system connects to the Brunswick Topsham Water District water system at two locations along Bath Road and water usage is metered at the connection points. Current usage is well below the usage during the full operation of the former naval air station and can accommodate growth with the current infrastructure. A water system map is included in this section as Figure # 3.

Electrical:

The existing electrical system on the site serves the cantonment area through four circuits which are connected to the CMP distribution system from a feed from Gurnet Road. A second feed from Route 123 serves uses in the southwest portion of the site. An electric system map is included in this section as Figure #4.

Natural Gas:

The natural gas distribution system is owned and operated by Maine Natural Gas.



BRUNSWICK & TOPSHAM
WATER DISTRICT

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Alan J. Frasier, PE
General Manager

Craig W. Douglas, PE
District Engineer

Daniel O. Knowles, CPA
Director of Finance and
Data Management Systems

William G. Alexander, Jr.
Operations Manager

December 17, 2012

Jan B.S. Wiegman PE
Wright-Pierce
99 Main Street
Topsham, ME 04086
Via email: jan.wiegman@wright-pierce.com

RE: Proposed Brunswick Landing Phase 1 Subdivision Project, Brunswick

Dear Mr. Wiegman:

This letter is to inform you that the District has the ability to serve the referenced project, and will provide service in accordance with Maine Public Utilities Commission and Brunswick & Topsham Water District Rules and Regulations.

Your previous correspondence acknowledge that the flow requirements of the proposed project are not known at this time, but generally anticipate that the requirements would be of a scale similar to the former naval air station. Given this, the District is capable of taking on this additional use. Also, it is not clear if this project obtains service from a private main. Please be advised we cannot ensure the reliability of the infrastructure beyond the connections made directly to our system. We will gladly discuss the options for service and main extensions when the project is ready to proceed.

Please keep us informed as this project progresses. If you have any questions, please call.

Yours truly,

Craig Douglas PE
District Engineer

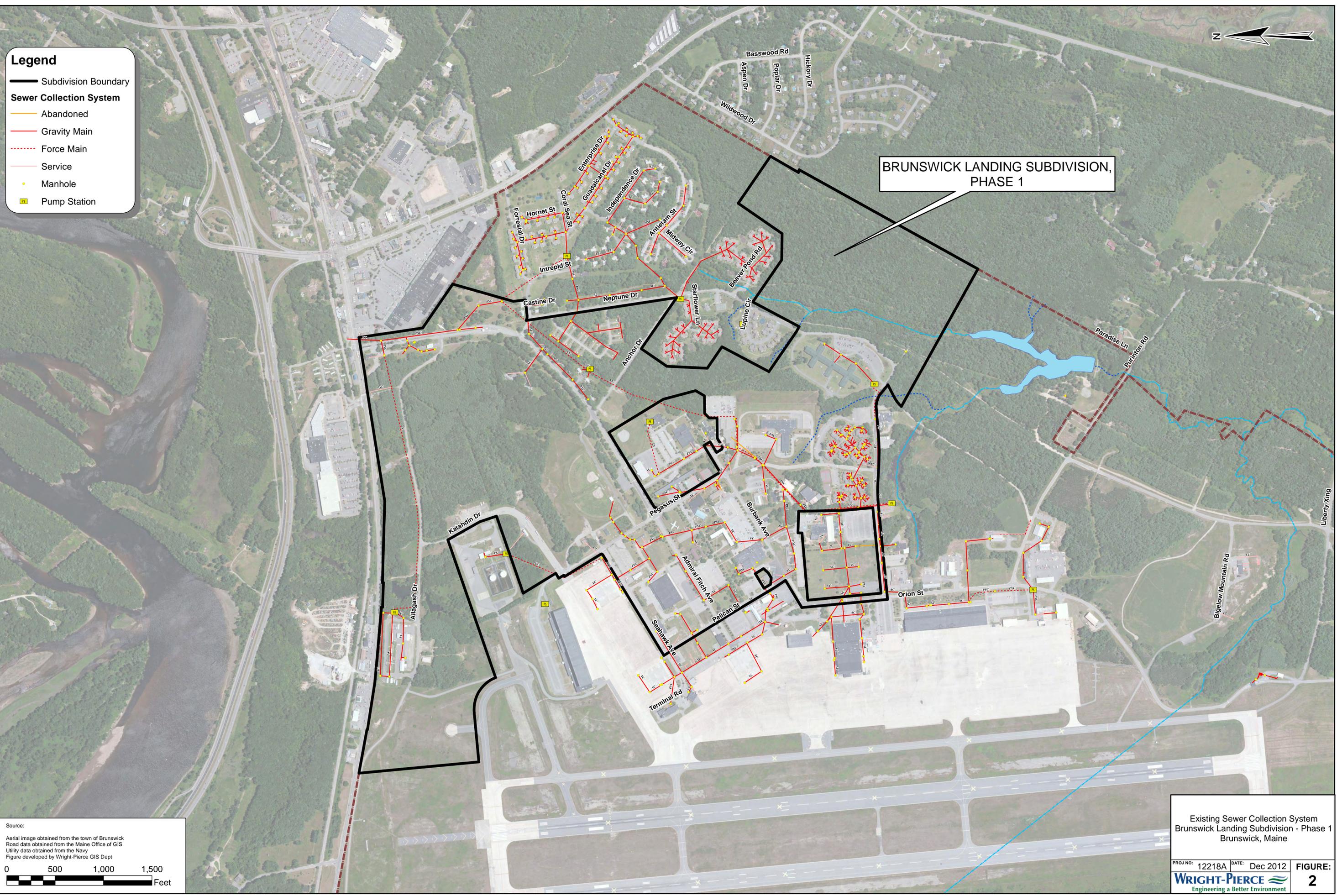
Cc: Eric Gagnon



Legend

- Subdivision Boundary
- Sewer Collection System**
- Abandoned
- Gravity Main
- Force Main
- Service
- Manhole
- Pump Station

BRUNSWICK LANDING SUBDIVISION,
PHASE 1



Source:
 Aerial image obtained from the town of Brunswick
 Road data obtained from the Maine Office of GIS
 Utility data obtained from the Navy
 Figure developed by Wright-Pierce GIS Dept

0 500 1,000 1,500
 Feet

Existing Sewer Collection System
 Brunswick Landing Subdivision - Phase 1
 Brunswick, Maine

PROJ NO: 12218A DATE: Dec 2012 **FIGURE:**
2

WRIGHT-PIERCE
 Engineering a Better Environment

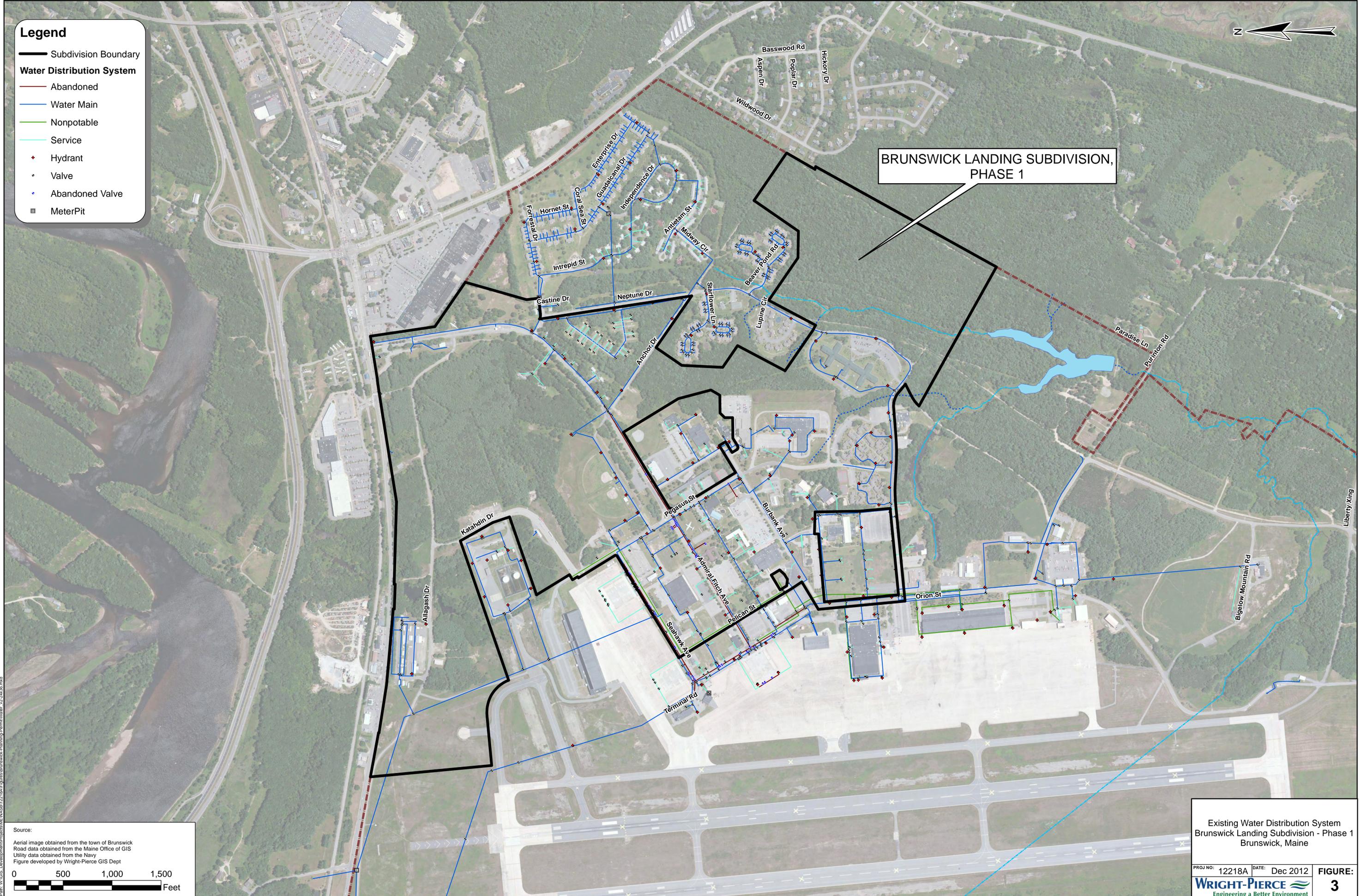
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Legend

- Subdivision Boundary
- Water Distribution System**
- Abandoned
- Water Main
- Nonpotable
- Service
- + Hydrant
- Valve
- Abandoned Valve
- MeterPit



BRUNSWICK LANDING SUBDIVISION,
PHASE 1



Source:
 Aerial image obtained from the town of Brunswick
 Road data obtained from the Maine Office of GIS
 Utility data obtained from the Navy
 Figure developed by Wright-Pierce GIS Dept

0 500 1,000 1,500
 Feet

Existing Water Distribution System
 Brunswick Landing Subdivision - Phase 1
 Brunswick, Maine

PROJ NO: 12218A DATE: Dec 2012 **FIGURE: 3**

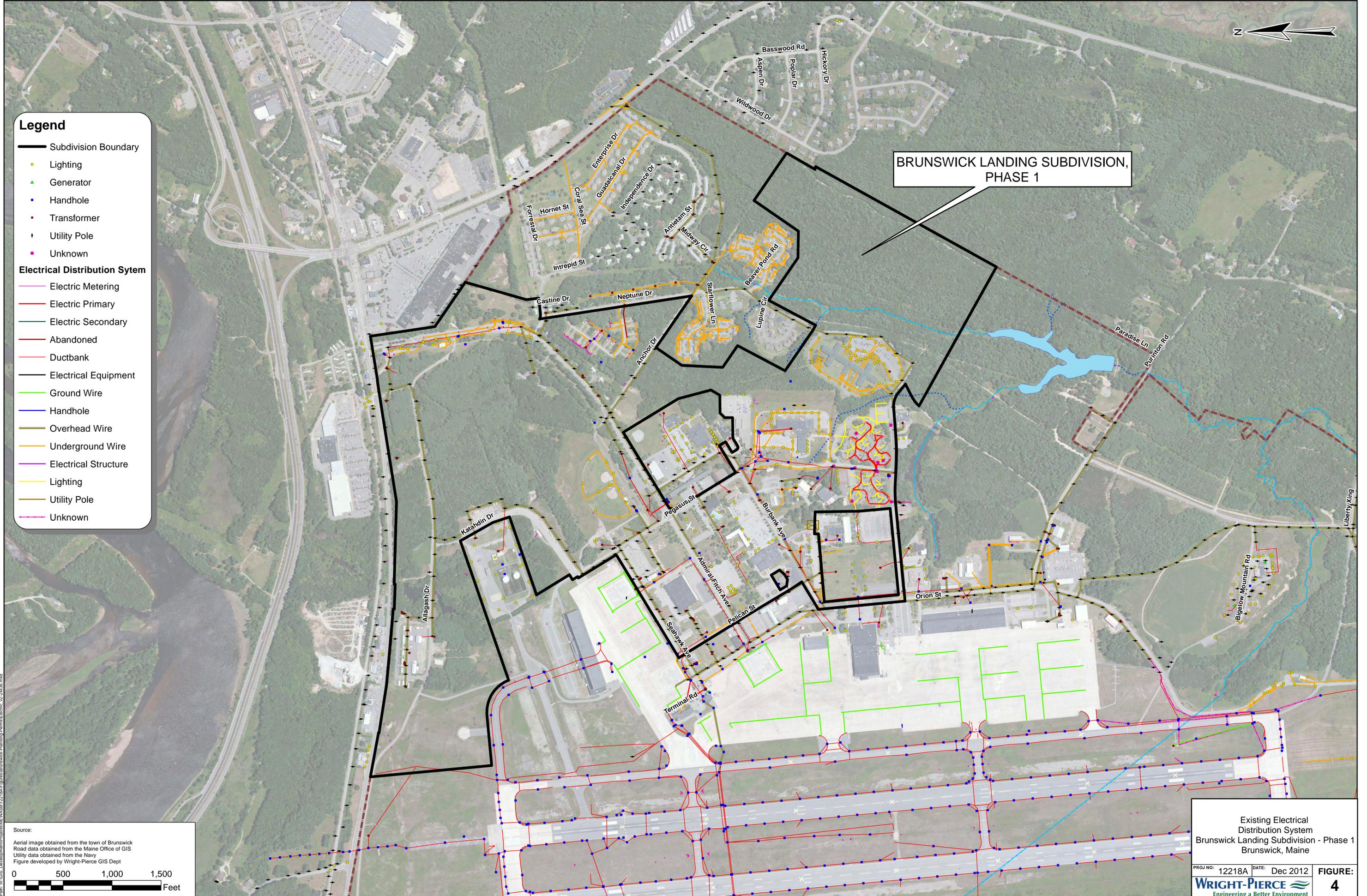
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 Engineering a Better Environment

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- Legend**
- Subdivision Boundary
 - Lighting
 - ▲ Generator
 - Handhole
 - Transformer
 - † Utility Pole
 - Unknown
- Electrical Distribution System**
- Electric Metering
 - Electric Primary
 - Electric Secondary
 - Abandoned
 - Ductbank
 - Electrical Equipment
 - Ground Wire
 - Handhole
 - Overhead Wire
 - Underground Wire
 - Electrical Structure
 - Lighting
 - Utility Pole
 - Unknown

BRUNSWICK LANDING SUBDIVISION,
PHASE 1



Source:
Aerial image obtained from the town of Brunswick
Road data obtained from the Maine Office of GIS
Utility data obtained from the Navy
Figure developed by Wright-Pierce GIS Dept

0 500 1,000 1,500
Feet

Existing Electrical Distribution System
Brunswick Landing Subdivision - Phase 1
Brunswick, Maine

PROJ NO: 12218A DATE: Dec 2012 **FIGURE: 4**

WRIGHT-PIERCE
Engineering a Better Environment

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Brunswick Sewer District

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FAX (207) 729-0149

December 17, 2012

Jan B.S. Wiegman, PE
Project Manager
Wright-Pierce
99 Main Street
Topsham, ME 04086

Re: Brunswick Landing Phase 1 Subdivision
Brunswick, Maine

Dear Jan:

This letter is to acknowledge receipt of your request of December 17, 2012 for confirmation of the District's willingness and capacity to serve the above referenced project.

It is my understanding that the Midcoast Regional Redevelopment Authority (MRRA) proposes to subdivide approximately 400 acres of the Brunswick Landing Property. The project's average daily flow is not known at this time. I have reviewed annual flows over the past seven years to ensure the capacity exists in our system. The average daily flow (ADF) for 2011 was 154,033 gpd. The Brunswick Sewer District treatment plant can handle flows originating from Brunswick Landing of up to 300,000 gpd.

As you are aware, the former owner of Brunswick Landing was the U.S. Navy. In agreements set forth with the U.S. Navy and in accordance with District policies, there is a capacity benchmark for flow originating from the Brunswick Landing property of 288,428 GPD. District policies state that flows and credits related to our entrance charge program stay with the property, not the individual owners. As such, MRRA will not incur entrance charges for flows exiting the property until they exceed 288,428 GPD. When and if flows exceed the benchmark, the developer may be subject to entrance charges.

I have reviewed the material provided and conclude that the project as proposed will not adversely affect facilities of the District. **The willingness and capacity to serve the project exists throughout all affected components of the District's system.** Please note that individual projects and developments will require approval from the District. The District will need to review each project to ensure that capacity exists and that flows are of concentration our treatment plant can handle. Additionally, the District will need to ensure that no additional toxics are being added to the sanitary sewer system.

Additional requirements:

1. Project sanitary sewer service line will be privately owned and maintained in accordance with provisions of District Rules & Regulations.
2. All sanitary sewer construction will comply with provisions of the Maine State

Plumbing Code.

3. Design and construction of project sanitary sewers will exclude all non-sanitary ground, surface, foundation drain, floor drain, and roof drain waters. Sump pump discharges are not allowed.
4. Horizontal clearance between utility infrastructures will be sufficient to allow future utility maintenance operations without disturbance to adjacent utility infrastructure.

If you have any questions or need additional information, please do not hesitate to contact me.

Sincerely,

BRUNSWICK SEWER DISTRICT

A handwritten signature in black ink, appearing to read "Rob Pontau". The signature is fluid and cursive, written over a light gray rectangular background.

Robert A. Pontau Jr., PE
Assistant General Manager

CC: Darcy Dutton, Brunswick Sewer District
Wesley Wharff, Brunswick Sewer District
Leonard Blanchette, Brunswick Sewer District

Section 8

SECTION 8

INTERNAL STREET AND ROAD NETWORK

The existing internal street and road network (Network) of Brunswick Landing will be used to provide access from Bath Road to the individual lots within the Subdivision. In conjunction with defining the lots of the Subdivision, right-of-way lines have been established at the existing internal streets. Based on the expected level of usage and function, each street within the Network has been assigned a right-of-way width which vary for the different streets – from a width of 149 feet for the main entrance to the Subdivision at the intersection of Admiral Fitch Avenue with Bath Road, to a width of 50 feet for the southerly portion of Pegasus Street at Neptune Drive that will handle a lower volume of traffic.

A right-of-way has been reserved to relocate the entrance to Bath Road at such time as the traffic levels increase and warrant the relocation.

A circulation plan showing the street and sidewalk network within the subdivision is attached as Figure #5. The following is a list of the streets within the Subdivision with their respective right-of-way widths and their approximate existing pavement widths:

Street name	Right-of-Way Width	Existing Pavement Width
Admiral Fitch Avenue at Bath Road	149 feet	59 feet (divided)
Admiral Fitch Avenue	80 feet	28 feet to 42 feet
Allagash Drive	60 feet	21 feet to 23 feet
Anchor Drive	60 feet	19 feet
Bath Road Entrance – future	75 feet	59 feet (divided)
Burbank Avenue	75 feet	29 feet
Forrestal Drive	60 feet	35 feet
Katahdin Drive-North	60 feet	21 feet
Katahdin Drive -South	60 feet	72 feet
Neptune Drive	60 feet	22 feet to 32 feet
Orion Street	80 feet	24 feet to 26 feet
Pegasus Street	75 feet	23 feet to 30 feet
Pegasus Street at Neptune Drive	50 feet	24 feet
Pelican Street	60 feet	24 feet
Seahawk Avenue	75 feet	33 feet to 34 feet
Venture Avenue	60 feet	18 feet to 38 feet

The Network will be maintained privately and any necessary maintenance, repair and/or reconstruction of the streets within the Network will be managed by a Common Area Maintenance (CAM) agreement to be entered into by and between the applicant and owners of the lots within the Subdivision. The CAM is currently under development and we have attached

a letter from MRRA explaining the development of the agreement and how maintenance is currently funded.

A traffic study was undertaken in 2010 as part of the base FEIS and excerpts are included in this section. The study contemplates three future development options, a no redevelopment option, Alternative 1 (Reuse Master Plan) and Alternative 2 (eliminate the airport and utilize the area for redevelopment). The proposed subdivision is based upon Alternative 1, which is based upon the Reuse Master Plan that was developed for the facility. The study took 5 year intervals starting from when the base was to close in 2011 and projected traffic out based upon a growth model in the reuse master plan.

At the first five year interval the study projected that the peak hour traffic at the facility would be 1,813 trip ends which were reduced to 883 trip ends based upon shared trips bus, bike and pedestrian deductions. At the Bath Road entrance the study projected a total of 680 trips during the PM peak hour without the Route 1 connector. The study recommended that the entrance be relocated in 2016. According to MRRA’s 2012 annual report there are currently 150 jobs at Brunswick Landing. In addition there are 97 housing units that are owned by Midcoast Affordable Housing and gain access via the Admiral Fitch Drive.

Using the 2007 ITE Trip Generation Manual the expected peak hour trips for the existing uses at the Bath Road entrance can be summarized as follows:

Use Code	Description	Units	PM Peak Hour Rate	Peak Hour Trips
224	Rental Townhouse	97 Units	0.51/Unit	77
110	General light Industrial	150 Employees	0.73/Employee	71
			Total	148

This total does not account for reduction in trips due to consolidation etc. as was taken in the 2010 traffic study. The current traffic levels are well below the anticipated 2016 levels.

Executive Summary

The following Executive Summary is prepared for the reader's convenience, but is not intended to be a substitute for reading the full report.

The Naval Air Station in Brunswick is situated on approximately 3,220 acres in the town of Brunswick, Maine. The site is on the southerly side of Route 24 with the main access gate located on that route. In 2005, the BNAS was identified and approved for closure as part of the Base Closure and Realignment Act of 1990. The base currently includes an air strip, housing units, offices, and supporting uses for a Navy base.

As a result of the mandate for closure, a study is required for the facility. Part of this study is a review of transportation issues, and an evaluation of the potential redevelopment of the site. There are two Alternatives being considered associated with the reuse of the site. Alternative 1 (Reuse) is consistent with the *Brunswick Naval Air Station Master Reuse Plan*, and includes a mix of land uses. Alternative 1 is also expected to retain the existing air strip.

Alternative 2 (High Density) includes similar uses but increases the square footage and number of residential units. To accommodate the increase in square footage and number of units, the air strip is not proposed to be retained in Alternative 2. The purpose of this Traffic Impact Study is to evaluate the existing adjacent roadway network and to identify what mitigation may be necessary to accommodate the traffic associated with Alternatives 1 or 2.

As part of this report, the potential impacts for several phases were examined, in addition to the Alternatives. The Navy desires to quantify off-site mitigation for several phases, which include the development anticipated for 2016, 2021, and 2026, as well as 2031. As such, information and phased mitigation strategies are discussed in this report.

Based on the completion of the impact study, the following conclusions have been reached regarding the Naval Air Station and its potential impacts to local transportation infrastructure following redevelopment:

1. The study area requested to be reviewed by the client for this redevelopment included sixteen intersections in the immediate area. Should this redevelopment move forward, a review from the Town and MaineDOT will be required, which may result in an expanded study area and potential additional mitigation.
2. The phases are anticipated to generate the following peak hour trip ends, based on the *ITE Trip Generation Manual* during the PM peak hour of adjacent street traffic:

2016, Alternative 1: 883 PM peak hour trip ends
2016, Alternative 2: 1,503 PM peak hour trip ends
2021, Alternative 1: 2,120 PM peak hour trip ends
2021, Alternative 2: 3,467 PM peak hour trip ends
2026, Alternative 1: 3,933 PM peak hour trip ends

2026, Alternative 2: 6,516 PM peak hour trip ends

2031, Alternative 1: 6,473 PM peak hour trip ends

2031, Alternative 2: 10,589 PM peak hour trip ends

(Note: A trip end is either a trip in or out of the site. Therefore a single vehicle making a round trip would equal two trip ends). These volumes are after consideration was taken for 35% and 50% shared trips between the on-site uses during Alternative 1 and 2 respectively. In addition to the internal shared trips, a two percent reduction was taken for bus use and a one half percent reduction was taken for pedestrian / bicycle use.

3. The trips were assigned to the adjacent roadway network based on a 25-mile radius gravity model. The area was extended up to 30 miles where drivers had easy access to an Interstate highway. It is anticipated that over 90 percent of the traffic will enter / exit the site via a proposed Route 1 connector, which could significantly affect the capacity of Route 1.
4. Prior to performing the capacity analysis, local projects that have either just been completed or are in the design process were identified and are listed as follows:

Other Projects:

- Maine Street / Bath Road Project – Redesign of “rotary” area around the church; it is our understanding that as of the time of this report that a final concept and design have yet to take place
 - Route 24 (Bath Road Project) – Extending westbound receiving lanes to the west of the Merry Meeting Plaza intersection
 - Bath Road Project from Cook’s Corner to Old Bath Road – widen and drainage work to provide two travel lanes in each direction
 - Route 24 restriping – Restripe Gurnet Road between Cook’s Corner and just south of Forrestal Drive to provide for one northbound and two southbound travel lanes with a center-two-way-left turn lane between them which transitions into formal left turn lanes at the Cook’s Corner Mall / Cinema signalized intersection.
5. In addition to “other projects”, some anticipated access changes to / from the site were either provided by the applicant or assumed in performing the review and analysis. Those access changes are identified as follows:

Assumed Site Access Modifications:

- A full movement connector would be constructed directly from the site to Route 1. The need for this connection was confirmed in doing the capacity analysis. The five year projection (2016) shows that this connection will either be needed or significant redesign of Bath Road between Merry Meeting Plaza and Cooks Corner will be needed and the area may still operate at very low levels of service. Beyond the 2016 projection, the adjacent roadway network cannot feasibly handle the forecast traffic, even with significant improvements, and analysis without the connection yields meaningless results. This connector is critical to this project since over 90% of the site generated traffic is forecast to use this connector and Route 1. This connector is grade separated from Bath Road and the parallel train tracks along Bath Road.
- Relocate the Naval Air Station main gate access from the existing signalized location to the existing signalized intersection with Merry Meeting Plaza. This would also include the removal of the existing signal at the existing main gate access. For the purpose of this report, the following mitigation was utilized:
 - The exit from the site would include separate left/through and right exit lanes
 - A formal 175 foot long left turn lane on Bath Road
 - A formal 100 foot long right turn lane on Bath Road

This modification was assumed to be in place from the beginning, i.e. starting in 2016.

- Provide a new access drive from the site onto Bath Road approximately 1,300 feet east of the Bath Road / Jordan Avenue intersection. It is recommended that if possible, the site drive be located across from Jordan Avenue rather than 1,300 feet to the east. The driveway was presumably located at the proposed location to avoid impacting the air strip in Alternative 1, but it appears that it could be located across from Jordan Avenue in Alternative 2 since the air strip is proposed to be removed. For the purpose of this report, the following mitigation was utilized:
 - The exit from the site would include separate left and right exit lanes
 - A formal 100 foot long left turn lane on Bath Road
 - A formal 200 foot long right turn lane on Bath Road
 - The intersection is signalized, although consideration should also be given to a roundabout at this location

This modification was assumed to be in place beginning in 2026, but could be constructed anytime prior to then. It is recommend that it not be constructed after that time because the intersection at Merry Meeting Plaza would then start to experience low levels of service and queuing issues.

- The access to Forrestal Drive onto Route 24 would become one of the primary accesses to the site. Although a formal signal warrant analysis will be required before a signal can be installed, it appears from the volumes at this intersection

beginning in 2016 for both Alternatives 1 and 2 that signalization would not only be warranted, but necessary for the intersection to function, especially if the Route 1 connector is not constructed. If the Route 1 connector is constructed, signalization may be delayed until 2021. Capacity analysis of this intersection without signalization would yield unrealistic results. Therefore, signalization of the intersection was assumed beginning in 2016. Two modifications for this intersection that were not included in the capacity analysis, but are still recommended, are; 1) the construction of a southbound right turn lane on Route 24 for vehicles turning onto Forrestal Drive and 2) separate left/thru and right lanes exiting Forrestal Drive. Although these modifications do not appear to be needed from a level of service (LOS) perspective, they do appear to be needed to maintain operations of the intersection and to help reduce queue lengths on each of those approaches.

For the "No Action" scenario, 342 housing units near the intersection of Forrestal Drive and Route 24 were assumed to be fully occupied. Because Forrestal Drive is anticipated to be the primary access, it will operate at low levels of service due to the increased trip generation. A formal signal warrant would be required before a signal could be installed; however, it appears that the intersection would be approaching the criteria for considering signalization in this scenario.

- The existing signalized intersections of Bath Road at: Merry Meeting Plaza, Naval Air Station Main Gate, and the Cook's Corner Mall currently operate off of one controller. In relocating the main gate access to across from Merry Meeting Plaza and removing the main gate signal, each intersection would operate off its own controller.

6. A number of scenarios were considered for review as listed and described as follows:

- *No Build* – This includes the same trip generation to/from the site as was counted on August 28, 2008. The adjacent roadway traffic was seasonally adjusted to reflect the 30th highest hour of the year, which is typically used as the design hour volume.
- *No Action* – This scenario assumes that the base is closed and not re-occupied; however, the residential units located on the easterly side of the base, near the intersection with Forrestal Drive and Route 24, are fully occupied. This includes approximately 342 residential units.
- *2016 Alternative 1* – This is the year 2016 with the combination of uses identified in Section V and is forecast to generate 883 trip ends on the adjacent roadway network.
- *2016 Alternative 2* – This is the year 2016 with the combination of uses identified in Section V and is forecast to generate 1,503 trip ends on the adjacent roadway network.
- *2021 Alternative 1* – This is the year 2021 with the combination of uses identified in Section V and is forecast to generate 2,120 trip ends on the adjacent roadway network.

-
- *2021 Alternative 2* – This is the year 2021 with the combination of uses identified in Section V and is forecast to generate 3,467 trip ends on the adjacent roadway network.
 - *2026 Alternative 1* – This is the year 2026 with the combination of uses identified in Section V and is forecast to generate 3,933 trip ends on the adjacent roadway network.
 - *2026 Alternative 2* – This is the year 2026 with the combination of uses identified in Section V and is forecast to generate 6,516 trip ends on the adjacent roadway network.
 - *2031 Alternative 1* – This is the year 2031 with the combination of uses identified in Section V and is forecast to generate 6,473 trip ends on the adjacent roadway network.
 - *2031 Alternative 2* – This is the year 2031 with the combination of uses identified in Section V and is forecast to generate 10,589 trip ends on the adjacent roadway network.

Anticipated Mitigation in Addition to the “Other Projects” and “Assumed Site Access Modifications”:

2008 No Build

It is important to note that the mitigation identified in this scenario is due to existing design deficiencies, and that this mitigation could be needed regardless of if the Naval Air Station proceeds with Alternative 1 or 2. For instance, the roadway segment between Cook’s Corner and Merry Meeting Plaza currently does not operate well and is expected to operate very poorly in the future, regardless of the Naval Air Station moving forward with Alternative 1 or 2. This scenario does include the same trip generation to/from the site as was counted on August 28, 2008, with adjacent roadway traffic seasonally adjusted to the 30th highest hour.

- *All projects identified previously under “Other Roadway Projects” and “Assumed Site Access Modifications”*
- *Bath Road at Route 24 (Cook’s Corner)*

Extend the northbound dual left turn lanes from approximately 150 feet to approximately 250 feet. This will include the removal of some raised median.

- *Bath Road from Naval Air Station main gate to west of Merry Meeting Plaza*

Provide two eastbound and two westbound through lanes from the main gate to approx. 1,000 feet west of the Merry Meeting Plaza intersection. Some of this for the eastbound direction was accomplished recently as part of the other projects identified previously in this section.

-
- *Bath Road at Sills Drive (Route 123) / Federal Street*

Install a queue detector on Bath Road for the eastbound approach so that the queue of the eastbound traffic does not interfere with the functioning of the anticipated “rotary” area to the west of the intersection.

No Action

The difference between this scenario and the previous “2008 No Build” is the subtraction of the BNAS traffic from the adjacent roadway system and the addition of traffic from the residential units near the intersection of Forrestal Drive / Route 24. Because the base traffic has been removed, the “Assumed Site Access Modifications” no longer apply; however, the other modifications would still be relevant.

Five Year Projection (2016)

- *All previous mitigation identified in the “No Build” condition as well as those identified under “Other Roadway Projects” and “Assumed Site Access Modifications”.*
- *Bath Road at Sills Drive (Route 123) / Federal Street*

Extend the northbound left turn lane from approximately 150 feet to 350 feet

- *Route 24 at Forrestal Drive*

Signalize intersection

Provide for a southbound right turn lane on Route 24 for right turning vehicles into the site

Provide separate left/thru and right lanes on Forrestal Drive

Ten Year Projection (2021)

- *All previous mitigation identified – No additional mitigation identified*

Fifteen Year Projection (2026)

- *All previous mitigation identified – No additional mitigation identified*

Twenty Year Projection (2031)

- *All previous mitigation identified with the addition of:*

- *Bath Road / Route 24 (Cooks Corner)*

Extend the eastbound dual left turn lanes from approximately 300 feet to 375 feet.
(High Density Only)

- *Route 24 at Forrestal Drive*

Conversion of center two-way left turn lane on Route 24 to formal left turn lane and construction of raised median for access management

Additional Regional Mitigation for Alternatives 1 and 2

This study included the primary intersections in the immediate area of the Naval Air Station. The MaineDOT is currently pursuing a larger regional study to identify roadway impacts outside the immediate area which are expected to occur given the significant volume of traffic that the site is forecast to generate.

7. Based on a review of the latest available MaineDOT crash history of the previous three years, there are eight locations identified as high crash locations. Those locations are:
 - Gurnet Road at Entrance to Cooks Corner Mall / Cinema
 - Bath Road at Old Bath Road at Lowes Driveway
 - Bath Road at Tibbetts Drive
 - Cleaveland St. at Maine St. at Noble St.
 - Bath Road East at Maine St. at Upper Park Row
 - Gurnet Road from Bath Road to Cook Corner Mall
 - Bath Road from Tibbetts Drive to Thomas Point Road
 - Bath Road from Thomas Point Road to Gurnet Road
8. When the traffic generated by the redevelopment of the site exceeds that generated today, then a MaineDOT Traffic Movement Permit will be required. This document is not intended for that purpose.

2016 Trip Generation Summary – PM Peak Hour of Adjacent Street Traffic

District	Use	Alt. 1 - Reuse PM Peak Hr. of Adj. St.		Alt. 2 - High Density PM Peak Hr. of Adj. St.	
		Size (SF or Units)	Trip Ends	Size (SF or Units)	Trip Ends
Professional Office	Office	NA		NA	
	Civic and Cultural	NA		NA	
	Retail and Commercial	NA		NA	
Subtotal					
Business and Technology	Industry Warehouse and Storage	234,576	202	443,191	381
	Office	67,105	87	101,523	131
	Retail and Commercial	15,625	42	19,482	53
Subtotal			331 (161)		565 (274)
Community Mixed Use (Non-Residential)	Office	114,802	148	502,930	649
	Civic and Cultural	26,925	44	75,301	123
	Education Facility	19,149	49	49,741	126
	Retail and Commercial	129,353	351	250,439	679
Subtotal			592 (289)		1,577 (768)
Community Mixed Use (Residential)	Residential	364 Units	201	814 Units	435
Subtotal			201 (97)		435 (212)
Residential	Residential	144 Units	124	230 Units	204
Subtotal			124 (61)		204 (99)
Education	Office	12,500	35	33,750	76
	Education Facility	39,618	101	72,662	185
	Residential	65 Units	40	72 Units	45
Subtotal			176 (86)		306 (149)
Aviation	Airport	22,500 OPS	21	NA	
	Industry Warehouse and Storage	422,426	368	NA	
Subtotal			389 (189)		
Total			1,813 (883)		3,087 (1,502)

NA = Not Applicable

(XX) = Trip Generation after shared trips, bus, and pedestrian / bicycle deductions

2021 Trip Generation Summary – PM Peak Hour of Adjacent Street Traffic

District	Use	Alt. 1 - Reuse PM Peak Hr. of Adj. St.		Alt. 2 - High Density PM Peak Hr. of Adj. St.	
		Size (SF or Units)	Trip Ends	Size (SF or Units)	Trip Ends
Professional Office	Office	305,106	394	NA	
	Civic and Cultural	25,046	41	NA	
	Retail and Commercial	30,790	83	NA	
Subtotal			518 (252)		
Business and Technology	Industry Warehouse and Storage	559,007	481	1,059,495	911
	Office	159,260	205	251,308	324
	Retail and Commercial	36,305	98	48,704	132
Subtotal			784 (381)		1367 (667)
Community Mixed Use (Non-Residential)	Office	261,415	337	1,110,227	1432
	Civic and Cultural	63,909	105	183,605	301
	Education Facility	45,004	114	121,484	309
	Retail and Commercial	282,179	765	577,887	1566
Subtotal			1321 (643)		3608 (1757)
Community Mixed Use (Residential)	Residential	826 Units	455	1,954 Units	1039
Subtotal			455 (221)		1039 (506)
Residential	Residential	289 Units	248	504 Units	448
Subtotal			248 (121)		448 (219)
Education	Office	25,000	60	78,125	148
	Education Facility	79,235	201	161,847	411
	Residential	129 Units	80	148 Units	92
Subtotal			341 (165)		651 (318)
Aviation	Airport	30,000 OPS	25	NA	
	Office	14,592	38		
	Industry Warehouse and Storage	814,467	628	NA	
Subtotal			691 (337)		
Total			4,358 (2,120)		7,113 (3,467)

NA = Not Applicable

(XX) = Trip Generation after shared trips, bus, and pedestrian / bicycle deductions

2026 Trip Generation Summary – PM Peak Hour of Adjacent Street Traffic

District	Use	Alt. 1 - Reuse PM Peak Hr. of Adj. St.		Alt. 2 - High Density PM Peak Hr. of Adj. St.	
		Size (SF or Units)	Trip Ends	Size (SF or Units)	Trip Ends
Professional Office	Office	610,211	787	NA	
	Civic and Cultural	50,092	82	NA	
	Retail and Commercial	61,581	167	NA	
Subtotal			1036 (504)		
Business and Technology	Industry Warehouse and Storage	1,008,283	867	1,925,055	1656
	Office	284,513	367	492,615	635
	Retail and Commercial	61,586	167	97,409	264
Subtotal			1401 (681)		2555 (1244)
Community Mixed Use (Non-Residential)	Office	420,472	542	1,632,060	2105
	Civic and Cultural	114,208	187	348,625	572
	Education Facility	78,536	200	231,498	588
	Retail and Commercial	399,543	1083	962,933	2610
Subtotal			2012 (980)		5875 (2864)
Community Mixed Use (Residential)	Residential	1798 Units	1007	4958 Units	2736
Subtotal			1007 (490)		2736 (1334)
Residential	Residential	430 Units	369	1648 Units	1258
Subtotal			369 (179)		1258 (613)
Education	Office	25,000	60	131,251	224
	Education Facility	79,235	201	244,460	621
	Residential	129 Units	80	166 Units	103
Subtotal			341 (165)		948 (461)
Aviation	Airport	37,800 OPS	31	NA	
	Office	72,959	140	NA	
	Industry Warehouse and Storage	1,819,402	1747	NA	
Subtotal			1918 (936)		
Total			8,084 (3,933)		13,372 (6,516)

NA = Not Applicable

(XX) = Trip Generation after shared trips, bus, and pedestrian / bicycle deductions

2031 Trip Generation Summary – PM Peak Hour of Adjacent Street Traffic

District	Use	Alt. 1 - Reuse PM Peak Hr. of Adj. St.		Alt. 2 - High Density PM Peak Hr. of Adj. St.	
		Size (SF or Units)	Trip Ends	Size (SF or Units)	Trip Ends
Professional Office	Office	1,220,422	1574	NA	
	Civic and Cultural	100,184	164	NA	
	Retail and Commercial	123,162	334	NA	
Subtotal			2072 (1010)		NA
Business and Technology	Industry Warehouse and Storage	1,906,837	1640	3,656,175	3144
	Office	535,019	690	975,230	1258
	Retail and Commercial	112,147	304	194,817	528
Subtotal			2634 (1284)		4930 (2404)
Community Mixed Use (Non-Residential)	Office	738,586	953	2,675,727	3452
	Civic and Cultural	214,805	352	678,665	1113
	Education Facility	145,601	370	451,524	1147
	Retail and Commercial	634,270	1719	1,733,027	4697
Subtotal			3394 (1653)		10409 (5072)
Community Mixed Use (Residential)	Residential	2456 Units	1310	6827 Units	3563
Subtotal			1310 (639)		3563 (1736)
Residential	Residential	573 Units	491	1439 Units	1298
Subtotal			491 (239)		1298 (633)
Education	Office	25,000	60	237,501	360
	Education Facility	79,235	201	409,684	1040
	Residential	129 Units	80	203 Units	126
Subtotal			341 (165)		1526 (744)
Aviation	Airport	45,500 OPS	37	NA	
	Office	145,918	188	NA	
	Industry Warehouse and Storage	2,693,584	2817	NA	
Subtotal			3042 (1483)		
Total			13,284 (6,473)		21,726 (10,589)

NA = Not Applicable

(XX) = Trip Generation after shared trips, bus, and pedestrian / bicycle deductions

For the “No Action” scenario, the trips were assigned to the local roadway network based on existing traffic patterns rather than a gravity model. This was done because the residential trips would be expected to be more similar to existing local traffic patterns than following a regional demand pattern. All of the “No Action” trips were considered to enter and exit via the Forrestal Drive / Route 24 intersection.

A summary of the trip assignment to each of the access roads is summarized as follows:

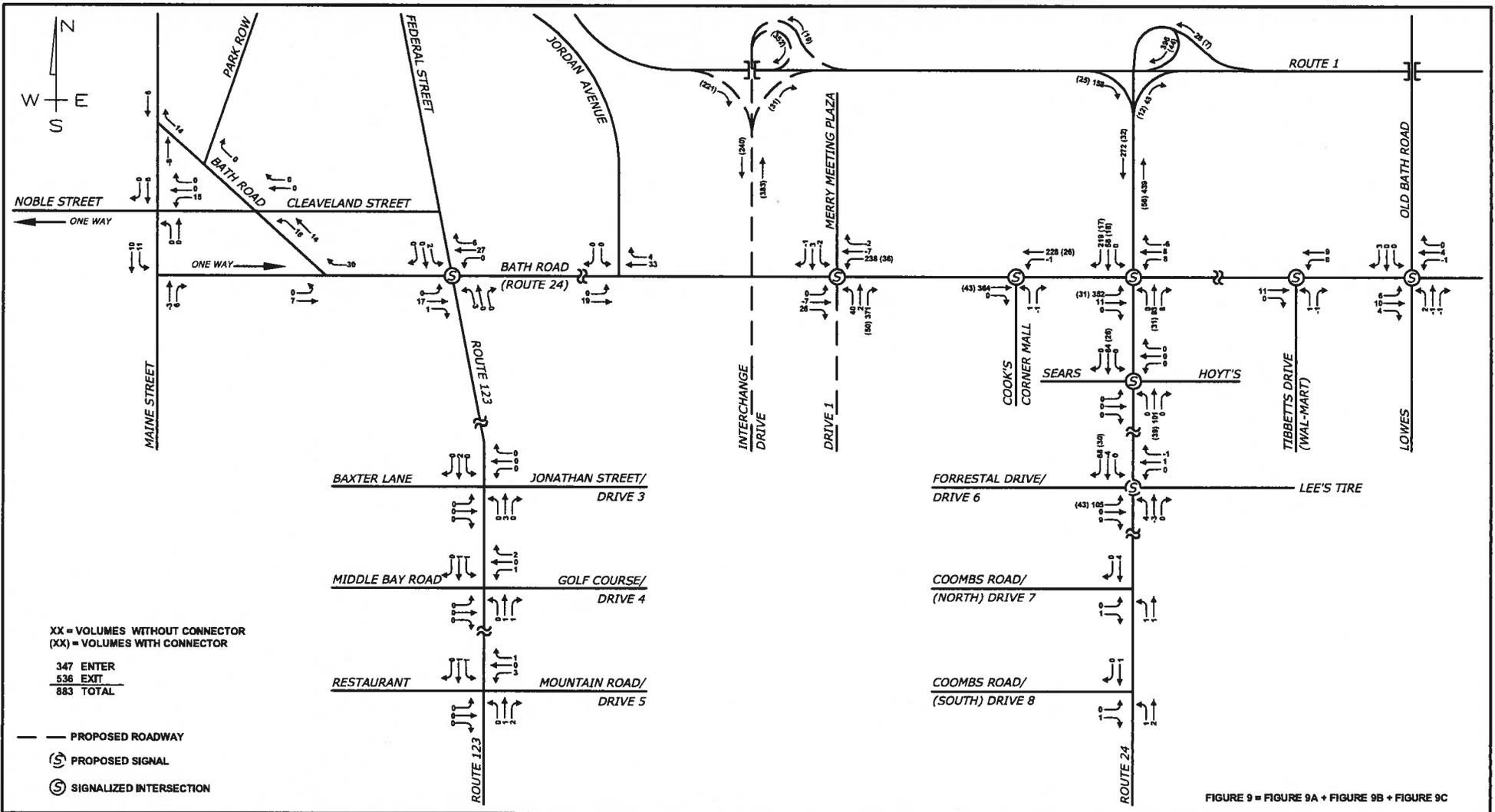
Directional Volumes at Select Portals – PM Peak Hour

Portal	No Build		No Action		2016*				2021				2026				2031			
	Enter	Exit	Enter	Exit	Alt 1		Alt 2		Alt 1		Alt 2		Alt 1		Alt 2		Alt 1		Alt 2	
					Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit	Enter	Exit
Route 123	224	203	-	-	5	7	8	5	14	20	23	31	23	35	26	57	38	56	79	99
Bath Road	109	588	-	-	65 (267)	92 (413)	117 (382)	159 (538)	143	209	257	341	234	370	474	551	384	614	743	969
Route 24	79	54	183	99	33 (75)	54 (116)	53 (234)	91 (330)	86	124	151	205	143	231	260	303	223	401	411	538
Route 1 Connector	NA	NA	-	-	240	383	432	618	567	957	1040	1442	1018	1880	2127	2711	1577	3181	3222	4532
Total	412	845	183	99	343	536	610	873	810	1310	1471	2019	1418	2516	2887	3622	2222	4252	4455	6138

* (XX) = Without Route 1 Connector
 XX = With Route 1 Connector
 Alternative 1 = Reuse
 Alternative 2 = High Density

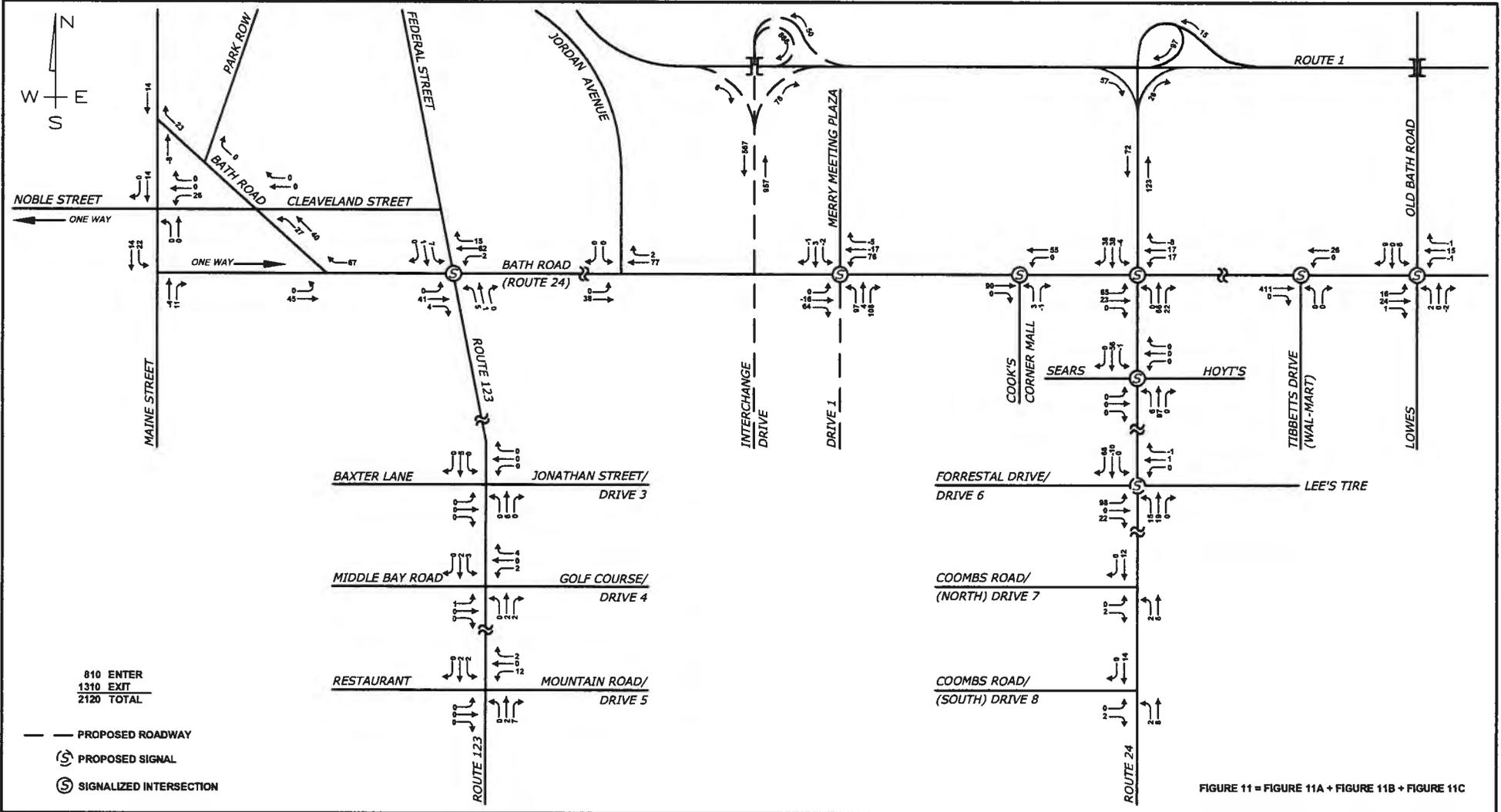
Most of the proposed development is anticipated in the northeast quadrant of the site. For that reason, although there are numerous accesses to the site, most of the traffic entering and leaving the site is expected to use the accesses nearest their respective quadrant. In addition, most of the existing off-site development is also concentrated near the northeast quadrant, further supporting the assumption that most of the site traffic will use the accesses nearest that quadrant.

Total Trip Assignment: 5-Year Reuse Scenario



REDEVELOPMENT FOR NAVAL AIR STATION, BRUNSWICK, MAINE
JUNE 2009

Total Trip Assignment: 10-Year Reuse Scenario



REDEVELOPMENT FOR NAVAL AIR STATION, BRUNSWICK, MAINE
 JUNE 2009

Total Trip Assignment: 15-Year Reuse Scenario

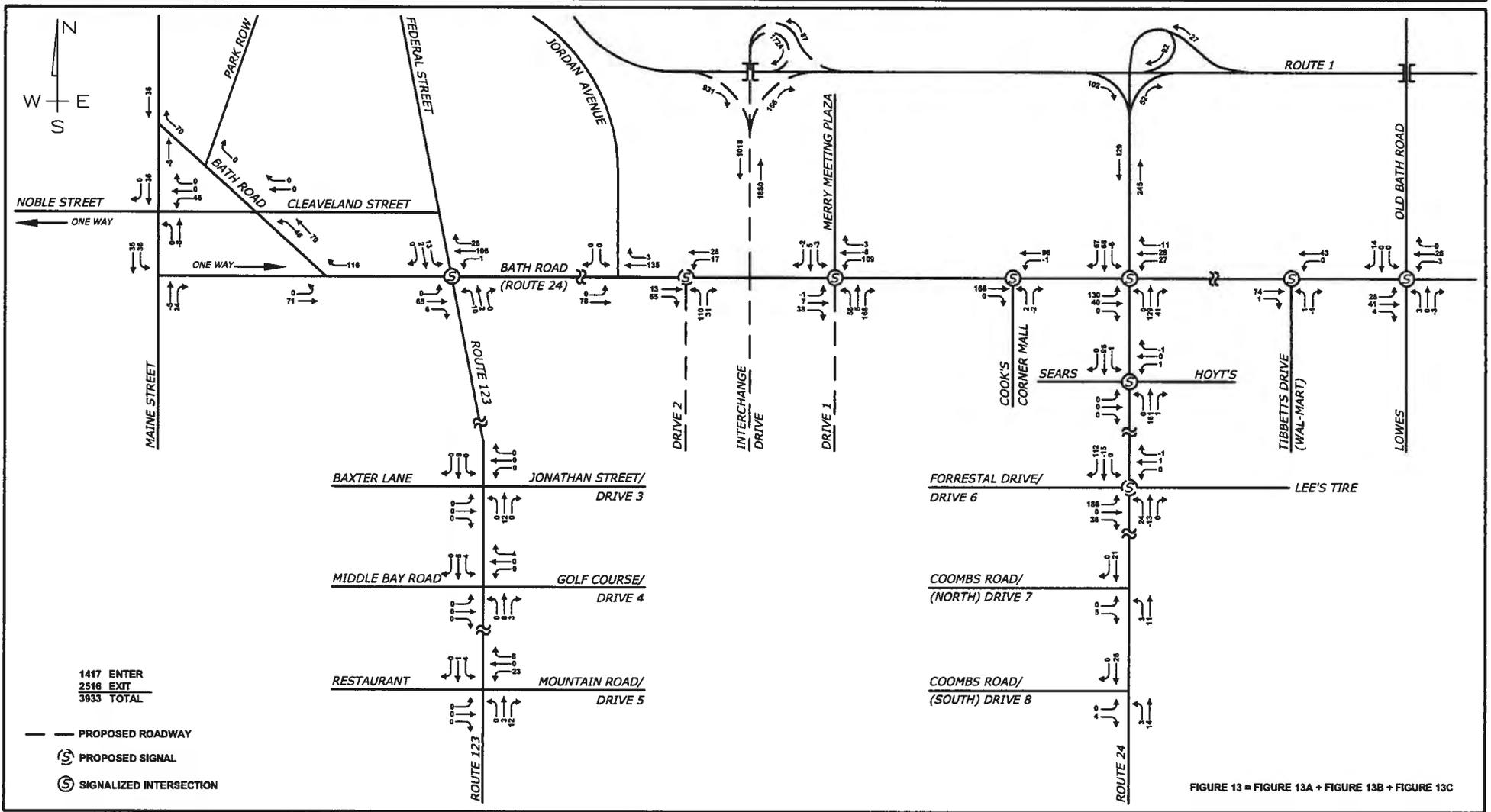


FIGURE 13 = FIGURE 13A + FIGURE 13B + FIGURE 13C

REDEVELOPMENT FOR NAVAL AIR STATION, BRUNSWICK, MAINE JUNE 2009

Total Trip Assignment: 20-Year Reuse Scenario

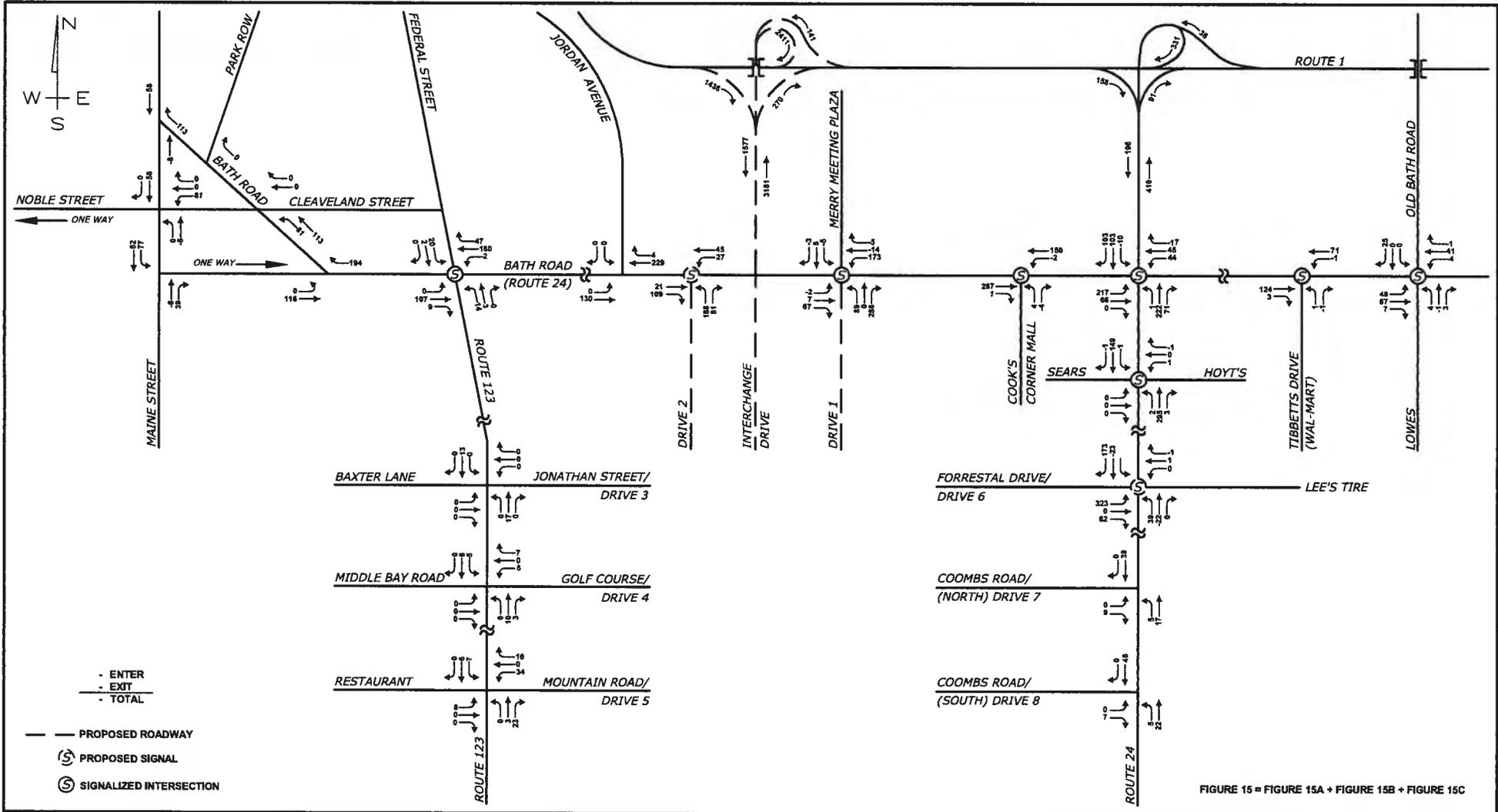
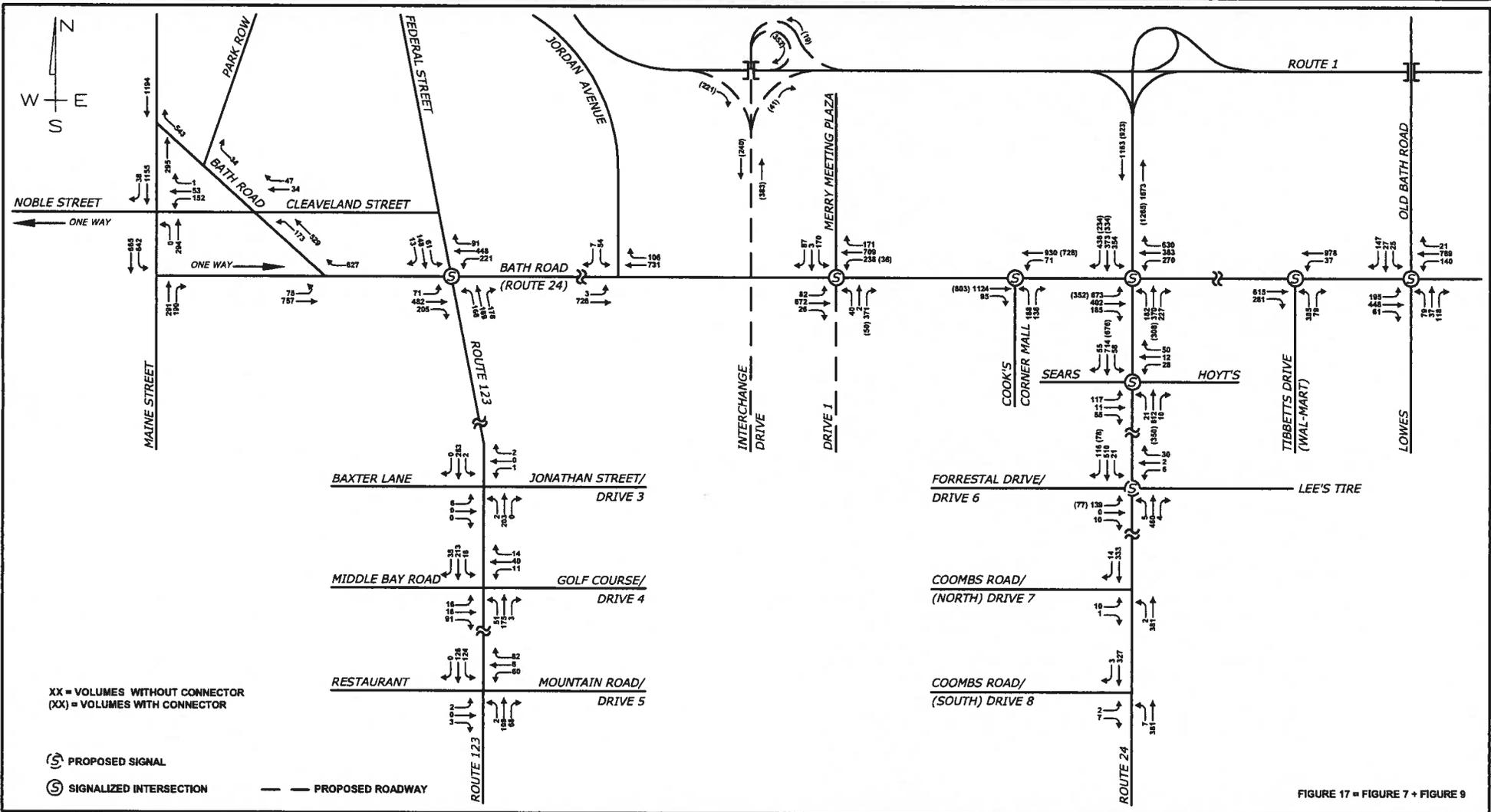


FIGURE 15 = FIGURE 15A + FIGURE 15B + FIGURE 15C

REDEVELOPMENT FOR NAVAL AIR STATION, BRUNSWICK, MAINE JUNE 2009

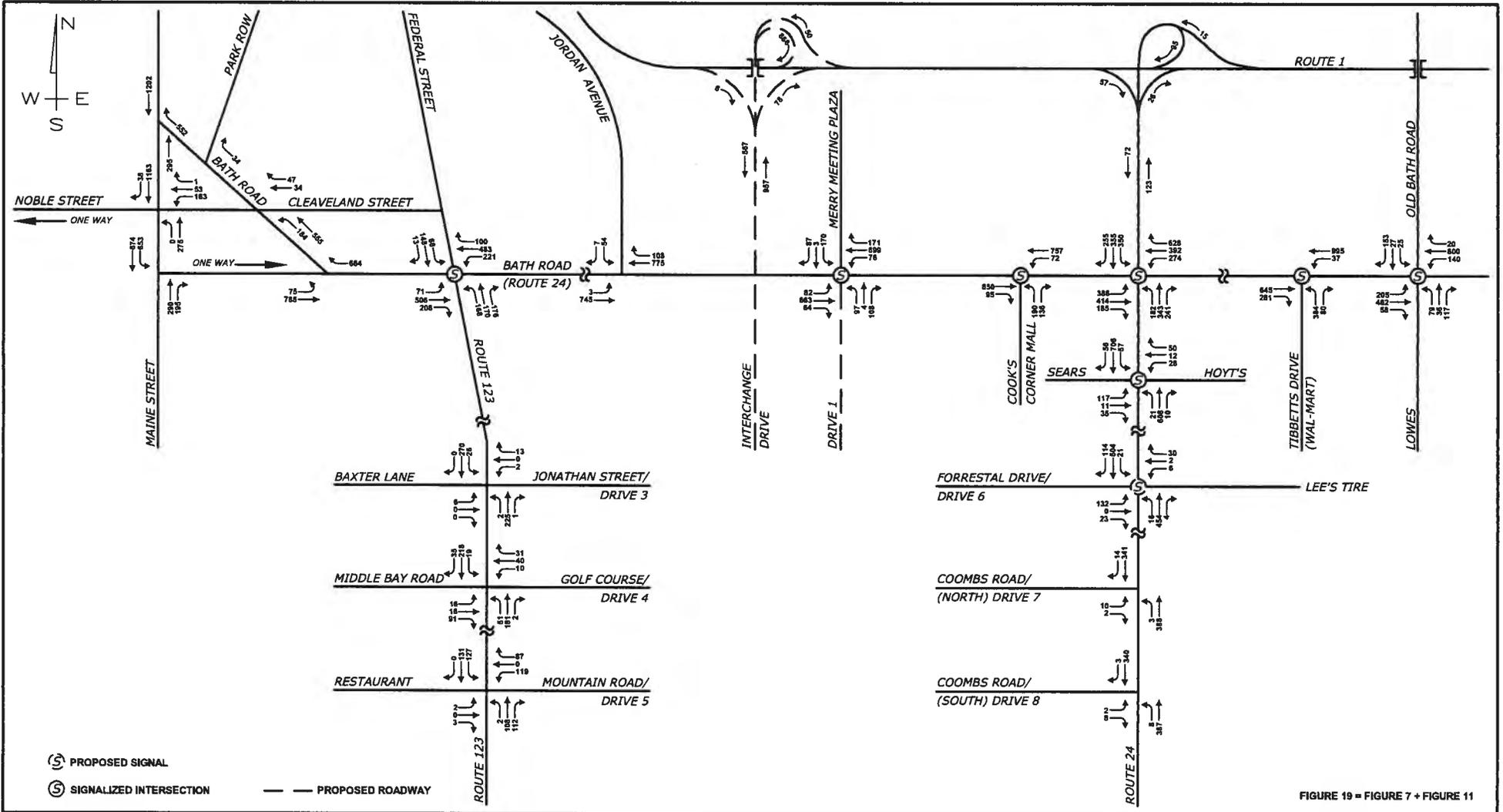
Design Hour Volumes - 5-Year (2016) Reuse Scenario - PM Peak Hour



REDEVELOPMENT FOR NAVAL AIR STATION, BRUNSWICK, MAINE
JUNE 2009

Design Hour Volumes - 10-Year (2021) Reuse Scenario - PM Peak Hour

Figure No. 19



REDEVELOPMENT FOR NAVAL AIR STATION, BRUNSWICK, MAINE
JUNE 2009

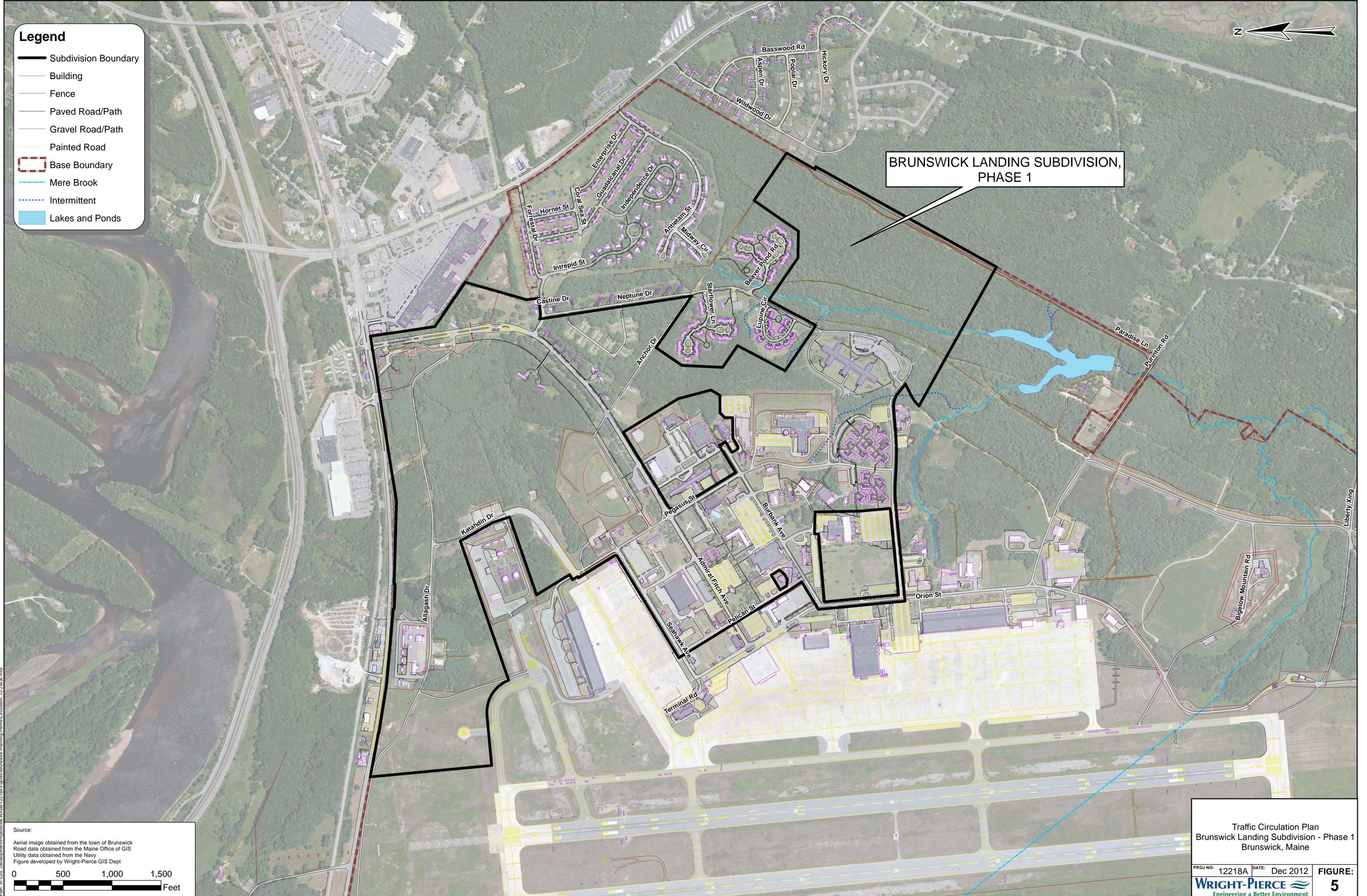
FIGURE 19 = FIGURE 7 + FIGURE 11

Legend

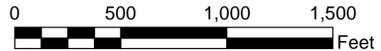
-  Subdivision Boundary
-  Building
-  Fence
-  Paved Road/Path
-  Gravel Road/Path
-  Painted Road
-  Base Boundary
-  Mere Brook
-  Intermittent
-  Lakes and Ponds



**BRUNSWICK LANDING SUBDIVISION,
PHASE 1**



Source:
 Aerial image obtained from the town of Brunswick
 Road data obtained from the Maine Office of GIS
 Utility data obtained from the Navy
 Figure developed by Wright-Pierce GIS Dept



Traffic Circulation Plan
 Brunswick Landing Subdivision - Phase 1
 Brunswick, Maine

PROJ NO: 12218A DATE: Dec 2012 **FIGURE: 5**



Path: \\GIS\Development\Projects\12218A\Figures\Brunswick-Planning-Permits\Circulation_V2_240306.mxd

January 3, 2013

Ms. Anna Breinich, Director
Planning and Development
Town of Brunswick
28 Federal Street
Brunswick, ME 04011

Subject: Road Maintenance at Brunswick Landing

Dear Anna:

At the Staff Review Committee meeting of January 3, 2013 regarding the Midcoast Regional Redevelopment Authority's (MRRA) proposed Subdivision Plan for Brunswick Landing, you requested information regarding MRRA's financial capacity to maintain the roads within the proposed subdivision. As you are aware, the proposed subdivision plan encompasses the majority of the historical cantonment area of the former base. Accordingly, the plan essentially memorializes the existing pattern of development and roadways on the property. MRRA currently maintains this roadway system using revenues provided by tenant leases.

As the various base properties within and outside the subdivision are eventually sold and/or conveyed to other ownership entities, MRRA will need to assess a Common Area Maintenance (CAM) fee for road maintenance to these owners to ensure that they pay their fair share of these costs. The instrument that is proposed to be used for this purpose is called a Road Maintenance Agreement that will be executed upon the transfer of the subject properties.

Please contact me with any questions.

Sincerely,


Steven H. Levesque
Executive Director

cc: Jan Wiegman, Wright-Pierce

Section 9

SECTION 9

CONSERVATION AND RECREATION AREAS

The former Brunswick Naval Air Station in Brunswick consists of approximately 3,200 acres of land that will be transferred from Federal government to private, state and local government control. Of the overall land area, over 1,570 acres (49%) will be designated for conservation/recreation land. The remaining land will be used for an airport (730 acres, 23%) and for redevelopment (900 acres, 28%). The proposed Phase 1 Brunswick Landing Subdivision lays out the development lots for a 400-acre portion of the former base cantonment area.

With the transfer of the base, approximately 49% of the overall base area will be designated as conservation/recreation land. The remaining areas will be used for redevelopment opportunities without additional dedicated conservation areas. There are natural resources within the development that will require buffers and are not currently proposed for development. There are nine vernal pools, one significant vernal pool and 8 non-significant vernal pools, that have been identified within the Phase 1 area and will require limited development within either 250 or 500 feet of the resource depending upon the classification of the vernal pool. There will also be portions of lots that will not be developed because of wetlands and other restrictions leaving open space within some of the lots.

APPENDIX A
Wetlands Report

Wetland Functional Assessment Report

**A Technical Report in Support of the
Environmental Impact Statement for the
Disposal and Reuse of
Naval Air Station Brunswick
Brunswick, Maine**

June 2009

Prepared for:

**U.S. DEPARTMENT OF NAVY
BRAC Project Management Office, Northeast
Philadelphia, Pennsylvania**

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List of Abbreviations and Acronyms

AMSL	above mean sea level
E & E	Ecology and Environment, Inc.
EIS	Environmental Impact Statement
FHWA	Federal Highway
GPS	Global Positioning System
NAS	Naval Air Station
USACE	U.S. Army Corps of Engineers

1

Introduction

This report has been prepared to support the Environmental Impact Statement (EIS) for the disposal and reuse of Naval Air Station (NAS) Brunswick in Brunswick, Maine. The Navy contracted with Ecology and Environment, Inc. (E & E) to conduct a functional assessment of the wetlands at NAS Brunswick and its outlying properties in the spring of 2009. The United States Army Corps of Engineers (USACE) recommends the use of the Federal Highway Methodology (FHWA method) as a descriptive approach to evaluating wetland functions and values for the Clean Water Act Section 404 Permit Program (USACE 1993). This approach incorporates a qualitative description of the wetland and the identification of wetland functions and values in order to come to conclusions based on wetland science and “best professional judgment.”

The following report provides a brief overview of NAS Brunswick and the outlying properties (Section 2). Section 3 describes the methods used to evaluate the functions and values of the wetlands found at NAS Brunswick. Section 4 describes the locations of wetlands assessed on NAS Brunswick and its outlying properties during a reconnaissance field visit and includes a discussion of the wetland types found on the property. Section 5 describes the functions and values of the wetlands assessed on the property during the reconnaissance field visit.

2

Site Description

NAS Brunswick is located on approximately 3,117 acres in the town of Brunswick, Cumberland County, Maine (see Figure 2-1). NAS Brunswick lies between the Androscoggin River and U.S. Route 1, with Maine Route 24 to the north and Casco Bay to the south. Three outlying properties (the McKeen Street Housing Annex, East Brunswick Radio Transmitter Site, and Sabino Hill Rake Station) that are being reviewed in the EIS were initially included as part of this study; however, these properties do not support wetland habitat. The East Brunswick Radio Transmitter Site and Sabino Hill Rake Station are characterized entirely as upland communities and do not contain wetland habitat. The McKeen Street Housing Annex does support the headwaters of Mere Brook on the southern end of the property; however, no wetland habitat was identified during the site survey conducted by E & E biologists in April 2009. Therefore, these three properties are not discussed further in this report.

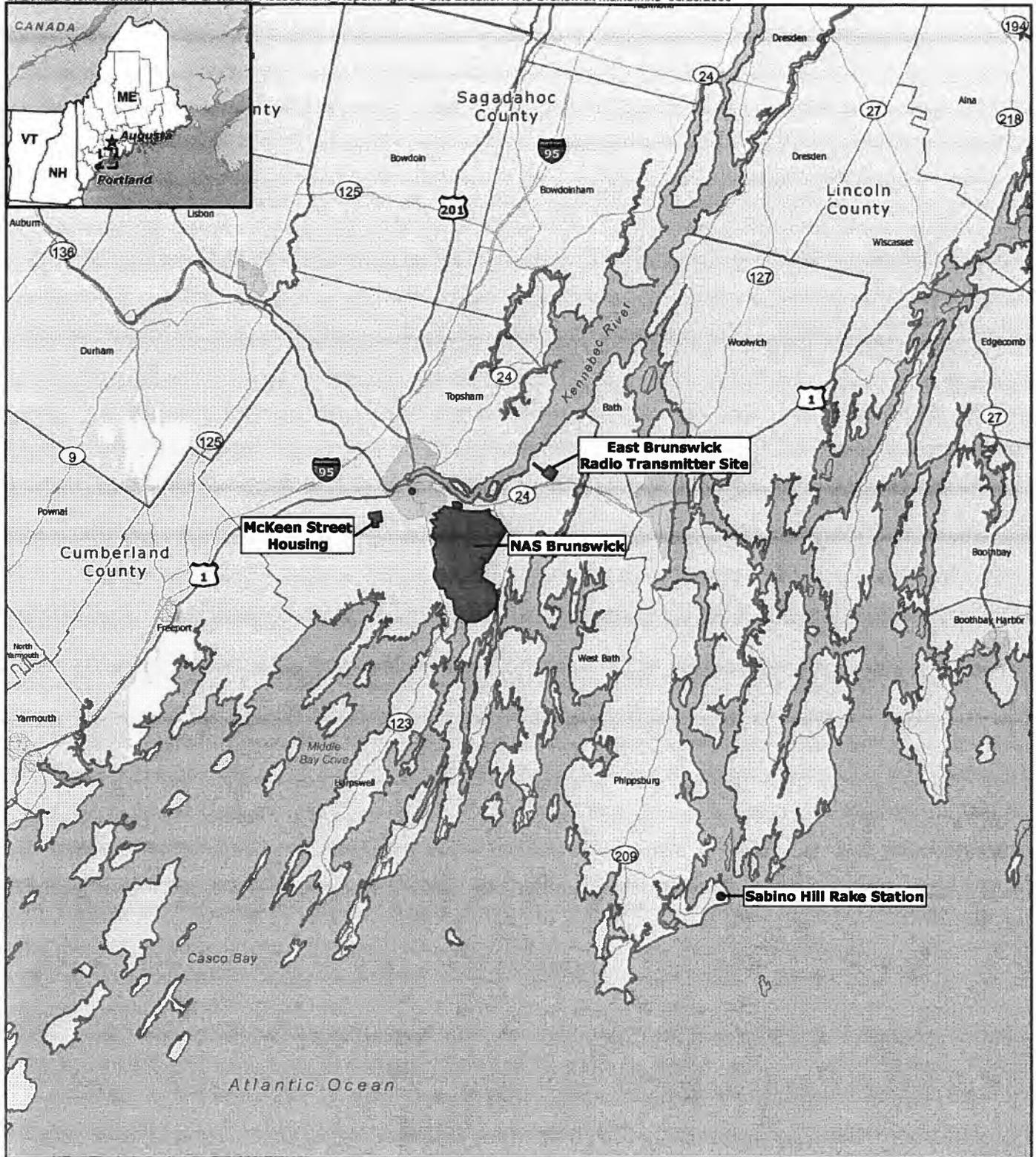
NAS Brunswick is located within the Central Maine Coastal and Interior Ecoregion. This area is comprised of glacially scoured and dissected peneplain, which slopes toward the coast and exhibits glacial features such as kames, eskers, and terraces. The topography is relatively flat to gently rolling, with elevations ranging from sea level to 1,000 feet above mean sea level (AMSL). Forests are the dominant vegetation type and consist of northern hardwood, northern hardwood-spruce, northern coastal spruce-fir, and spruce-fir-northern hardwood communities. Coastal pitch pine communities are known to occur in this ecoregion but are now uncommon. Open communities such as grasslands and tidal marshes also occur, but they do not comprise a large percentage of the overall land cover of this ecoregion (McNab and Avers 1994).

The land surrounding NAS Brunswick is predominately residential with areas of undeveloped forests and wetlands. Upland forests are the dominant vegetation community on the installation, covering approximately 1,336 acres (41%) of the total land area (E & E 2008). Large forested communities are located on the western, southern, and eastern portions of the base. These forested communities are interspersed with wetlands, ponds, and streams. Other vegetation communities at NAS Brunswick include a variety of grasslands, wetlands, and maintained lands. Developed areas occupy the central and north-central portions of the installation. Much of the eastern and western portions of the installation are forested and interspersed with wetlands, streams, and ponds. The southern and sou-

Final Environmental Impact Statement
Disposal and Reuse of NAS Brunswick, Maine

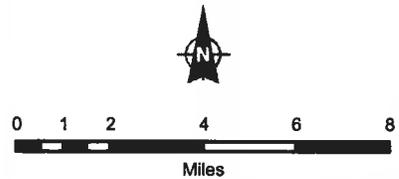
theastern portions of the base are characterized by forest and tidal wetlands associated with Harpswell Cove and Buttermilk Cove. The ecological communities mapped at NAS Brunswick are depicted on Figure 2-2.

NAS Brunswick is located within four watersheds: the Mere Brook/Harpswell Cove watershed, Buttermilk Cove watershed, Middle Bay watershed, and the Androscoggin River watershed. The installation is located within 0.5 mile of the Androscoggin River and Casco Bay. The installation is bisected by Mere Brook, which eventually drains into Harpswell Cove. Numerous streams, wetlands, and permanent freshwater ponds are scattered throughout the installation. Approximately 389 acres of wetlands are present on NAS Brunswick, of which 72% are freshwater and 28% are tidal (E & E 2008). A more detailed discussion of wetland types at NAS Brunswick is provided in Section 4 of this report.



-  NAS Brunswick
-  Municipal Boundary
-  County Boundary

Figure 2-1
 NAS Brunswick and
 Outlying Properties
 Brunswick, Maine



3

Methodology

Field surveys of the wetlands at NAS Brunswick were conducted by E & E wetland biologists in May 2009. The objective of the field surveys was to conduct an assessment of the functions and values of wetlands previously identified on the base.

3.1 Review of Previous Wetland Surveys

Prior to conducting the field surveys, existing NAS Brunswick studies, plans, and environmental documents were reviewed to obtain information on wetlands at NAS Brunswick.

The Navy conducted a wetland inventory of NAS Brunswick in 1998 for planning-level purposes (Normandeu Associates 1998). The inventory was produced through aerial photo-interpretation and review of existing soils and wetlands data. Brief on-site reconnaissance was conducted to confirm the approximate locations of wetland boundaries. Wetland communities were described according to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). The Cowardin wetland community classification system is used widely throughout the United States for the purpose of inventory, evaluation, and management of wetlands. Under this system, wetlands are classified based on hydrology, soils, and plant communities. The inventory resulted in the mapping of approximately 443 acres of wetlands at NAS Brunswick. Of the 443 acres, approximately 116 acres of estuarine wetland were mapped, most of which are located around Harpswell Cove and Buttermilk Cove. The remaining 327 acres of wetland were classified as palustrine or freshwater wetlands. Under the Cowardin (1979) classification, the palustrine wetlands present at NAS Brunswick are emergent (PEM), scrub-shrub (PSS) and forested (PFO). Freshwater ponds are also included and are classified as PUB.

In addition to the planning-level wetland survey, maps of formally delineated wetland were also reviewed. Formal wetland delineation surveys were conducted at NAS Brunswick in the recent past using the *Corps of Engineers Wetland Delineation Manual* (1987). These field wetland surveys were conducted in support of planning and permitting for a variety of projects; however, formal wetland delineations have not been completed for the entire NAS Brunswick property or its outlying properties. Based on review of wetland delineation reports and associ-

ated mapping, approximately 80 acres of wetlands have been delineated at NAS Brunswick.

In 2008, E & E biologists conducted a reconnaissance survey of wetlands at NAS Brunswick and the outlying properties (E & E 2008). The objective of the survey was to field-verify the location of wetlands identified in the planning-level survey and the previously delineated wetland boundaries. As a result, E & E biologists confirmed the presence of approximately 389 acres of wetlands at NAS Brunswick (see Figure 3-1).

3.2 Field Methodology

Using the methodology outlined in the *Highway Methodology Workbook Supplement* (USACE 1999) and the Modified Functions and Values Assessment for Significant Nexus datasheet (USACE 2007), a functional assessment of previously identified wetlands was completed at NAS Brunswick in May 2009. These wetlands were grouped into clusters based on their geographic proximity and hydrologic connections (see Table 3-1 and Attachment 3). A walkover of each cluster was conducted to assess the function and values of each wetland community type. Previously identified wetlands were located using a Global Positioning System (GPS) unit. Each wetland location was recorded with a single GPS point, and a photograph was taken to document the existing conditions of the site (see Attachment A). For each wetland, a standardized datasheet was completed (see Attachment B), and the dominant vegetation within the wetland and upland border was recorded.

Table 3-1 Wetlands Summary, NAS Brunswick

Wetland ID	Primary Functions and Values	Wetland Community Type ¹	Hydrologic Connection	Additional Comments
Cluster 1				
FA 5	GWR, S&S	PFO	Possible hydrologic connection to Androscoggin River	Red maple (<i>Acer rubrum</i>) wetland adjacent to a stream and ponded area originating from a storm water outflow; connected to FA 6 via a culvert under Perimeter Road.
FA 6	GWR	PFO	Possible hydrologic connection to Androscoggin River	Red maple wetland adjacent to ponded area. Originating from FA 5 via culvert under Perimeter Road and connected to FA 7 via culvert before culverted under Bath Road.
FA 7	GWR/D, FFA	PFO	Possible hydrologic connection to Androscoggin River	Small, linear wetland within a forested area along an ephemeral stream; vegetation dominated by red maple. Originating from a stormwater culvert under Perimeter Rd and connected to FA 6 via culvert before culverted under Bath Road.
FA 11	S&TR, NR&R	PSS	Possible hydrologic connection to Androscoggin River	Scrub-shrub wetland formed at the convergence of two man-made ditches through a white pine (<i>Pinus strobus</i>) plantation. A ditch flows east from the wetland into a storm water culvert under Perimeter Road.
FA 13	GWR/D, FFA, S&TR, NR&R	PFO	Possible hydrologic connection to Androscoggin River	Small red maple swamp bordered by white pine plantation. Southern portion drains into a ditched area that flows east and likely into the storm water system along Fitch Avenue.
FA 15	GWD, FFA, S&TR, NR&R, PE, WLH	PEM	Possible hydrologic connection to Androscoggin River	Linear wetland within white pine plantation. Adjacent to FA 16 and FA 17; drains west into FA 17.
FA 16	GWD, FFA, S&TR, NR&R	PSS	Possible hydrologic connection to Androscoggin River	Linear wetland within white pine plantation. Drains west to FA 15 and FA 17.
FA 17	GWR, S&TR, NR&R	PFO	Possible hydrologic connection to Androscoggin River	Linear wetland within mixed forest dominated by red maple, white pine, and red oak (<i>Quercus rubra</i>). Adjacent to FA 15. Likely drains FA 15 and FA 16 into storm water system at the intersections of Sixth Avenue and Fuel Farm Road with Pegasus Avenue.
FA 18	GWR	PFO	Possible hydrologic connection to Androscoggin River	Forested wetland dominated by red maple, white pine, and red oak, with a drainage ditch running along roadside. Likely drains into storm water system along Pegasus Avenue.
FA 19	GWR	PFO	Possible hydrologic connection to Androscoggin River	Forested wetland dominated by red maple, white pine, and red oak, with a drainage ditch running along roadside. Likely drains into storm water system along Pegasus Avenue and Fuel Farm Road.

Table 3-1 Wetlands Summary, NAS Brunswick

Wetland ID	Primary Functions and Values	Wetland Community Type ¹	Hydrologic Connection	Additional Comments
FA 78	GWD, PE	PFO	Possible hydrologic connection to Androscoggin River	Seepage wetland adjacent to a well-defined perennial stream. Dominated by red maple, skunk cabbage (<i>Symplocarpus foetidus</i>), and jewelweed (<i>Impatiens capensis</i>).
Cluster 2				
FA 8	GWR, WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Isolated wet depression in mixed forested area dominated by red maple, white pine, and red oak.
FA 9	GWR, S&TR, NR&R WLH	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Isolated wet depression in mixed forested area dominated by red maple, white pine, and red oak.
FA 10	FFA, S&TR, NR&R	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Isolated wet depression in mixed forested area dominated by red maple, white pine, and red oak.
FA 12	S&TR	PFO	No Apparent Surface Water Connection to Waters of the U.S.	Isolated wet depression in white pine plantation bordered by white birch.
Cluster 3				
FA 14	GWR, FFA	PFO	Possible hydrologic connection to an unnamed tributary of Mere Brook	Forested wetland dominated by red maple that drains into a ditch flowing south into the storm water system at the intersection between Avenue B and First Street.
FA 25	GWR, REC, WLH	PFO	Possible hydrologic connection to an unnamed tributary of Mere Brook	Convergence of two small ephemeral streams from culverts originating off the property. Drains into FA 23.
FA 26	FFA, PE, WLH	PEM	Possible hydrologic connection to an unnamed tributary of Mere Brook	Emergent wetland bordering tributary to Mere Brook. Flows south into ponded area – FA 23. Vegetation dominated by grasses, sphagnum moss (<i>sphagnum</i> spp.), and steplebush (<i>Spiraea tomentosa</i>).
FA 27	GWR/D, FFA, PE, WLH	PFO	Possible hydrologic connection to an unnamed tributary of Mere Brook	Forested wetland bordering a large stream (a tributary of Mere Brook) and dominated by red maple and sphagnum moss. Drains south into FA 26.