Transportation Feasibility Study
Redevelopment of the Naval Air Station Brunswick (NASB)

Prepared for
The Maine Department of Transportation

In partnership with
Office of the Governor
Maine Office of Redevelopment and Re-Employment
Town of Brunswick
Town of Topsham
Midcoast Regional Redevelopment Authority

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Introduction/Background

This Transportation Feasibility Study for the Redevelopment of the Naval Air Station Brunswick (NASB) was prepared for the Maine Department of Transportation (MaineDOT) in partnership with the Office of the Governor, the Maine Office of Redevelopment and Re-Employment, the Towns of Brunswick and Topsham, and the Midcoast Regional Redevelopment Authority (MRRA). The purpose of this Feasibility Study is to determine the nature and extent of transportation enhancements aimed at improving mobility and access in support of the redevelopment of the NASB.

The closure of the NASB - at one time Maine’s second largest employer - is expected to have a significant adverse impact on the economy of the Midcoast Region. However, the base closure also presents an opportunity for redevelopment that could substantially mitigate this economic loss if some of the issues identified in the 2007 NASB Reuse Master Plan are addressed.

A critical issue identified in the Reuse Master Plan is that access to the NASB must be improved for the redevelopment to reach full potential. Improving access to the NASB must consider a wide range of multimodal transportation factors, including the adequacy and safety of the existing roadway system, feasibility of additional public transportation options, freight and passenger rail access, and adequate accommodations for pedestrians and bicyclists.

Study Needs

For this Feasibility Study, five specific needs or strategies were previously identified for evaluation. These needs were provided to the MaineDOT by the Governor’s Advisory Council and formulated through the previous NASB Reuse Master Plan study efforts conducted by the MRRA. The five needs are as follows:

- Provide direct access to US Route 1 from the NASB.
- Improve mobility along State Route 196 (Coastal Connector) from Interstate-295 (I-295) (Exit 31) to US Route 1, including the State Route 196/US Route 201 intersection and US Route 201 north to Old Augusta Road.
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- Improve mobility between I-295 (Exit 28) along Pleasant Street and Maine Street in Brunswick to State Route 123.
- Improve mobility along Mill Street in Brunswick from Pleasant Street to State Route 196.
- Extend the existing rail spur into the NASB.

To be successful, the proposed transportation solutions also must dovetail with the near- and long-term goals of the communities of Brunswick and Topsham, which include minimizing NASB-related trips through downtown Brunswick and residential districts and maintaining and enhancing livable communities.

Public Input

To ensure that the Feasibility Study considered the needs and desires of both communities, it was driven by an open and active public-participation process. The public was given several opportunities to share comments and ideas at public informational meetings and informal workshops, as well as through a Study website, which provided a feature that allowed the public to ask questions and submit comments online. Additionally, a Study Advisory Committee consisting of public officials, business leaders, and residents of Brunswick and Topsham met on a regular basis (approximately monthly) to review Study progress. The Committee provided invaluable insight about the needs and desires of the two communities and also served as a sounding board in the development of alternative-transportation solutions.

Throughout the Study, the public identified the need to address existing traffic congestion and safety deficiencies, and many people expressed a strong desire to look at multimodal transportation solutions rather than solely relying on new or wider roadways to accommodate future growth. In particular, there was a strong desire to provide accommodations for safe bicyclist and pedestrian mobility and to develop and encourage the use of public transportation.

With regard to the roadway system, although there is recognition of the need to increase capacity on some roadways, the focus is on improving the safe and efficient movement of motor vehicles, pedestrians, and bicyclists through access management, introduction of traffic calming, preservation of the existing character of the downtown areas, and most important - bringing the various elements together into a well-connected multimodal transportation system.

Recognizing that the continued construction of new and wider roadways is neither desired nor without substantial cost, the communities must commit to the long-term implementation of Transportation Demand Management (TDM) actions. An aggressive TDM program can reduce, delay, and sometimes eliminate the need to increase roadway capacity. This commitment to TDM needs to be real and long term, and it involves both the private and public sectors. Additionally, convincing communities to establish or expand public-transportation systems, single-occupant
motorists to get out of their vehicle and use public transportation or carpools, and employers to implement flexible work hours requires a certain level of traffic congestion on the roadway system. The MaineDOT, the Towns of Brunswick and Topsham, and the users of the area’s transportation system must understand and accept this premise.

Options

After providing the five specific needs and engaging in an open public-participation process that enabled the Study Team to understand the needs and desires of the communities of Brunswick and Topsham, the next step was to develop a series of options to be evaluated.

The range of multimodal transportation options considered in this Feasibility Study includes highway, rail, bicycle, and pedestrian options in Brunswick and Topsham. In addition, the Study examines the potential effect of travel demand on Study Area roadways associated with the implementation of various levels of TDM measures.

Given the expressed commitment of the local communities to a multimodal approach to addressing transportation needs in favor of solely relying on the continued construction of new and wider roadways, TDM actions are presented in this Study not as an either/or alternative but rather as actions that should be implemented as aggressively as possible – regardless of the implementation of other physical modifications to the roadway system.

The No Action Option is essentially the continuation and perpetuation of the existing conditions and the shortcomings inherent in the current Study Area roadways, interchanges, intersections, and transportation system. The No Action Option serves as a baseline condition for comparison to other options.

Transportation Demand Management

TDM encompasses a wide range of strategies that are designed to change personal travel behavior, resulting in the reduction of demand for automobile use and the need to construct additional roadway capacity. This is accomplished through measures that (1) reduce the number or length of drive-alone trips, and (2) move trips out of peak times of roadway congestion. TDM measures provide incentives (or disincentives) to those who drive alone by encouraging them to change their travel behavior and use ride-share programs or other modes of travel.

To be successful, TDM needs to be a collaborative partnership among the MaineDOT, the Towns of Brunswick and Topsham, and the local business community. The public sector can (1) provide supportive multimodal infrastructure such as bicycle lanes, sidewalks, pedestrian crosswalks and pedestrian-actuated traffic signals, bus
pullouts, and bus-stop shelters; (2) sponsor TDM programs such as GOMAINE, which provides carpool, vanpool, park ‘n’ ride, and ridesharing services; and (3) continue to support local bus service and regional passenger rail. At the same time, the business community can promote telecommuting and implement staggered/flexible work hours and compressed work weeks and support amenities such as bicycle storage and shower facilities.

Roadway Options

In response to the strong desire of the two communities for multimodal transportation solutions, the various roadway options that were evaluated incorporated bicyclist and pedestrian accommodations, introduced access management and traffic-calming elements, and - most important - were designed to provide only the minimal additional capacity needed to meet future projected travel demands. That is, the roadway options were designed to operate close to capacity during the future 2035 design hour in an effort to support the TDM actions. The roadway options that were developed and evaluated in each of the five previously described needs are discussed in the following sections.

Strategy 1 - Provide Direct Access to US Route 1 from the NASB

The successful redevelopment of the NASB property has the potential to substantially mitigate the expected economic loss to the region that will result from the closure of the NASB. Good access to US Route 1 will be needed if the redevelopment is to reach its full potential. For this reason, three direct-access-to-US Route 1 interchange options were considered. The options include a “trumpet” interchange, a “flyover” interchange, and a “split-diamond” interchange.

The trumpet and flyover interchange options each provide a direct connection to US Route 1 with the construction of a connector roadway that passes beneath Bath Road and the Rockland Branch Railroad and then over US Route 1. The difference between the two options is that the trumpet option provides a loop-ramp configuration to accommodate the US Route 1 southbound movements. The flyover interchange accommodates the US Route 1 southbound movements with a multi-tier ramp system in which the southbound off-ramp passes over both US Route 1 and the southbound on-ramp. Both options enhance bicyclist and pedestrian mobility by providing a multiuse path that connects the NASB and the existing Androscoggin River Bicycle and Pedestrian Path.

A third option, the split-diamond interchange, is configured such that the US Route 1 northbound and southbound ramps are split and connect to the existing Cooks Corner cross roadway and a new NASB access roadway. The two cross roadways are linked by one-way frontage roadways that run parallel to US Route 1 and terminate opposite the new ramp intersections, creating two four-way signalized intersections.
along each of the cross roadways. Unlike the alignment of the trumpet and flyover options, which are located west of Merrymeeting Plaza, the new connector roadway for the split-diamond option is located east of the shopping center. The connector roadway passes over US Route 1 but, unlike the other two options, the connector bridges over Bath Road and the rail line. Like the trumpet and the flyover interchanges, the split-diamond configuration enhances bicyclist and pedestrian mobility by providing a multiuse path that connects the NASB to the existing Androscoggin River Bicycle and Pedestrian Path.

**Strategy 2A - Improve Mobility along the Coastal Connector and Route 201**

The options to increase the throughput capacity of the Coastal Connector; address congestion problems at the State Route 196/US Route 201 intersection; and provide good pedestrian, bicyclist, and local vehicular connectivity ranged from:

- widening the Coastal Connector to four lanes
- installing a roundabout at the State Route 196/Route 201 intersection
- installing a traffic signal on State Route 196 at the Exit 31 southbound on-ramp and extending the left-turn storage length
- realigning Canam Drive and Old Augusta Road to form a single four-way signalized intersection on US Route 201 that serves as the primary access to the redeveloped Topsham Annex (the Topsham Annex intersection also provides access to properties with redevelopment potential located on the west side of State Route 201)

In addition, to improve the efficient movement of vehicular traffic on the Coastal Connector while enhancing the local street function and “feel” of US Route 201, a grade-separated option was evaluated. This option consisted of grade-separating the Coastal Connector/Route 201 intersection with the Coastal Connector bridging over US Route 201. Whereas the Coastal Connector provides four lanes (i.e., two lanes in each direction) with a raised-center median, US Route 201 is limited to a single through lane in each direction as well as turn lanes with the potential for wider sidewalks, bicycle lanes, and landscaped medians, which present a more pedestrian-friendly character.

Access through the local secondary connector roadways west of Route 201, such as Union Park and Monument Place, is maintained. However, the grade-separated option includes construction of additional connector roadways on the northeast and southeast quadrants of the intersection. The new connector roadways intersect the Coastal Connector east of Route 201 with traffic movements limited to right-turn in/right-turn out. The new roadway on the southeast quadrant intersects Route 201 opposite Monument Place, whereas the new connector roadway on the northwest quadrant intersects Route 201 at a newly realigned Eagles Way. This grade-separated option provides two suboptions: single-lane roundabouts at the two newly formed...
connector-roadway intersections with Route 201 or traffic-signal control at these intersections.

**Strategy 2B - Improve Mobility along Pleasant Street**

Based on public input, it is important to improve the safe and efficient movement of motor vehicles, pedestrians, and bicyclists and to address existing deficiencies while respecting the access needs of numerous businesses located along the Pleasant Street corridor. Additionally, there is a desire to decrease automobile dominance throughout the corridor. To accomplish these goals, the options were developed with the application of access-management and traffic-calming techniques. The three basic options include a traffic-calming boulevard, an urban boulevard, and a five-lane cross section. All three options include secondary connector roadways (i.e., access management) that parallel Pleasant Street and provide connections between abutting roadside properties and the major intersections along the corridor, thereby allowing left-turn movements at these controlled locations. The locations of the secondary connector roadways are conceptual only, and it is envisioned that these connections would occur over time, if and when property owners consider redevelopment opportunities. The placement and implementation of these secondary connections will require the involvement and cooperation of the property owners.

An important traffic-calming action is the proposed installation of a roundabout at the Exit 28 Connector/US Route 1 intersection. The primary purpose of this roundabout is to serve as a gateway that provides a transition from the high-speed I-295 Exit 28 to a more built-up, soon-to-be pedestrian-friendly Pleasant Street.

The traffic-calming boulevard also includes two-lane roundabouts at the Church Road and River Road intersections with a raised-center median so that all driveways located away from these major intersections accommodate right-turn-in/right-turn-out movements. Left turns either use the parallel connectors or reverse direction at the roundabouts. This option does not provide for a roundabout at the Stanwood Street/Mill Street intersection because it was determined to have an unacceptable operation. The option at this location provides traffic-signal control at a realigned intersection where US Route 1 (i.e., Pleasant Street and Mill Street) is aligned as the through movement.

The urban-boulevard option is similar to the traffic-calming option – the only difference being that the Church Road and River Road intersections would be traffic-signal controlled with exclusive left-turn lanes provided. The five-lane option is similar to the urban-boulevard option in that it provides the same traffic-signal control. The difference is that a two-way center left-turn lane is provided along the length of Pleasant Street as opposed to a raised-center median.

An additional option considers relocating the River Road intersection to the west side of the Hyundai dealership to form a new four-way intersection with the fourth
leg of the intersection, which provides access to property on the south side of Pleasant Street that could present a redevelopment opportunity. This relocated intersection would be a roundabout or a signalized intersection.

**Strategy 2C - Improve Mobility along Mill Street**

Based on public input, there is little agreement about which actions should be taken to improve safety and mobility along Mill Street. Some people contend that as a principal arterial, Mill Street (i.e., US Route 1) should be widened to four lanes (i.e., two lanes in each direction); others, stressing the proximity of the nearby residential neighborhood on the south side and the Androscoggin Brunswick-Topsham Riverwalk (with its recent restoration of the historic John A. Roebling Swinging Bridge) on the north side, believe that Mill Street should remain a two-lane roadway.

In addition to the No Action Option, which maintains the existing two-lane cross section, three- and four-lane options were evaluated. The three-lane option consists of two northbound and one southbound travel lanes separated by a raised-center median. The basis for the three-lane section is that maintaining the single southbound lane (and the resulting delay) may encourage through traffic destined to I-295 to use the Coastal Connector. This perspective is consistent with the traffic-calming actions that are targeted for the Pleasant Street corridor. The four-lane option consists of two northbound and two southbound travel lanes separated by a raised-center median.

To enhance pedestrian safety and provide the desired bicyclists and pedestrian connectivity, both the three- and four-lane options include sidewalks along Mill Street and construction of a pedestrian bridge in the vicinity of the existing railroad bridge. The pedestrian bridge essentially extends the Androscoggin Brunswick-Topsham Riverwalk to the residential neighborhood located on the opposite side of Mill Street.

**Strategy 3 - Extend the Existing Rail Spur to the NASB**

In keeping with the desire to consider opportunities for nonautomobile-oriented modes of access to the NASB, options were developed for extending the Rockland Branch Railroad spur - which currently runs along the north side of Bath Road - into the NASB. Two route options were developed for the spur, each of which provides rail access to the NASB near Hangar No. 6. The two route options consider crossing Bath Road either at grade or by way of grade separation where the rail spur crosses beneath Bath Road, resulting in four rail-spur options. The primary difference between the two route options is the origin of the spur on the Rockland Branch Railroad and the route to Hangar No. 6 on the NASB. The western alignment intersects Bath Road just east of Jordan Avenue; the eastern alignment intersects Bath Road just west of the Merrymeeting Plaza Shopping Center.
Evaluation/Next Steps

Based on results of the evaluation and extensive public input, the following overarching plan elements were identified:

- Improve the safe and efficient movement of vehicular traffic through access management.
- Reduce the dominance of vehicular traffic by introducing traffic calming.
- Encourage multimodal mobility through enhanced pedestrian and bicyclist accommodations and through the support of public transportation.
- Limit the need to continually increase roadway capacity by the implementation of aggressive TDM strategies and by the willingness to accept some level of traffic congestion on the roadway system.

With regard to the interchange options that were evaluated to provide a direct connection between the NASB and US Route 1, the results - at a planning level - suggest that although each option does have impacts, the concept of constructing a new direct-connection interchange is feasible. However, the pursuit of this strategy would likely require the preparation of an Environmental Impact Statement or an Environmental Assessment as a provision of the National Environmental Policy Act (NEPA) of 1969. The NEPA study would examine the project options and impacts in greater detail and also entail additional in-depth public involvement. Given that this improved access is critical to the redevelopment of the NASB reaching its full potential, the general public support of this strategy voiced during the Feasibility Study, and the time needed to conduct such an in-depth study, the MaineDOT should consider pursuing this strategy as an early-action item. Project funding should be programmed prior to the initiation of the NEPA study.

With regard to the strategies to improve mobility along the Coastal Connector, Pleasant Street, and Mill Street, consensus still must be reached on a fundamental question: whether the functional characteristics of these three principal arterials should be changed so as to encourage through traffic to use the Coastal Connector. This sentiment was voiced by many throughout the Feasibility Study’s public-participation process. If the decision is to encourage regional through traffic to use the Coastal Connector and as a result reclassify (i.e., downgrade) Pleasant Street and Mill Street, then options such as the widening of the Coastal Connector to a uniform four lanes and grade-separating the Route 196/Route 201 intersection should be pursued early, followed by the traffic-calming options considered for Pleasant Street. These options also may require NEPA action.

Because the secondary connector roadways, which comprise an important component of the Pleasant Street access-management plan, are likely to be implemented over time as properties along the corridor redevelop, the full implementation of the Pleasant Street modifications may be phased and take many years. However, installation of the gateway roundabout at the Exit 28 Connector/US
Route 1 intersection could be considered. This action would serve to begin the
transition of the Pleasant Street corridor from its current automobile-dominant
corridor to a corridor that accommodates multiple modes of travel, including the
movement of pedestrians.

Other physical roadway modifications that could be considered for early
implementation include the following:

► installation of the traffic signal and the lengthening of the left-turn lane at the
  intersection of Route 196 and the I-295 Exit 31 southbound on-ramp
► construction of the pedestrian overpass of Mill Street
► depending on timing of the redevelopment of the Topsham Annex, realignment
  of Canam Drive and Old Augusta Road to form a single four-way signalized
  intersection on State Route 201

Ultimately the decision as to which of the alternatives will be advanced for
additional study or for implementation will involve further discussion between the
MaineDOT and the Towns of Brunswick and Topsham.