Highland Avenue
Connector Road Study
South Portland, Maine

Prepared for:

Portland Area Comprehensive
Transportation Committee
233 Oxford Street
Portland ME, 04101

March 2001

Prepared by:

GP Gorrill-Palmer Consulting Engineers, Inc.

Traffic and Civil Engineering Services

PO Box 1237
31 Main Street
Gray, ME 04039

(207) 657-6910
Fax : (207) 657-6912
E-mail: gpcei@maine.rr.com

Highland Avenue
Connector Road Study
South Portland, Maine

Highland Transportation Plan Committee

Ray Ballum
Linda Boudreau, Project PLAN
Christopher Bowring, Mayor
Rommy Brown, Project PLAN
Frederick A. Conley, Jr.
David Cyr, Project PLAN
Jon Doré, South Portland Land Trust
John Duncan, PACTS
Robert Fickett, So. Portland Councilor Jim Gailey, City Planner
Greg Goforth, Merry Manor Hotel
Edward Googins, So. Portland Police
Herbert Gray, Morton, Hale & Hurtubise
Jan Greico, Project PLAN
Herbert Haase, Planning Board Chairman
Tex Haeuser, City Planner
Miles Haskell, So. Portland Deputy Chief
Steve Johnson, Public Works Director
Jeffrey Jordan, City Manager
Fred Kennedy
Vincent Maietta, Project PLAN
Jim Puckett, Project PLAN
Edward Reidman, City Engineer
Douglas Roncarati
Boyce Sanborn, So. Portland Deputy Chief
Mac Sexton, Alliance for Trans. Choice
Craig Skelton, Deputy Assessor
Carol Thorne, Planning Board, Project PLAN
Annette Toman
Jim Wendel, Scarborough, Assist. Planner
Chuck Wilson, Hannaford Brothers

PACTS

PACTS, John Duncan, Executive Director

Consultant

Gorrill-Palmer Consulting Engineers, Inc.

Table of Contents

Executive Summary

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

Gorrill-Palmer Consulting Engineers, Inc. was retained by the Portland Area Comprehensive Transportation Committee (PACTS) to complete a preliminary evaluation for a potential east-west connector road between Main Street (Route 1) and Highland Avenue in the South Portland area. The purpose of this road would be to provide additional east/west access for South Portland traffic in addition to Broadway, Evans and Nutter streets, the other east-west connector in the area. The statement was originally a request by the City of South Portland that came out of Project PLAN.

The original scope of this study called for the examination of potential corridors between Rumery Road and Highland Avenue, with recommendation of no more than two alternatives for final study. However, following initial meetings with the Highland Avenue Committee members, the determination was made to investigate additional corridors for the project, with locations in differing areas than in the original proposal. The transportation benefits would be examined closely.

The project was completed with a Purpose and Need Statement prepared by City staff as a guide. This statement spoke to the issues of east-west access difficulty, the concerns of commuter traffic utilizing local roadways, and the importance of an alternative east-west connector road for purposes of traffic access, emergency vehicles and public safety. When preparing evaluations, particularly the matrices utilized for evaluating roadway alignments, categories for comparison were derived from this Purpose and Need Statement.

Completion of this project was performed with a Highland Avenue Connector Road Committee, composed of local representatives from municipal, private, and citizen-based organizations. With the help of the Committee, 13 different roadway alignments, or alternatives were selected for an initial evaluation. Anticipated 2025 traffic volumes based on the different alternatives were examined for changes to the future traffic patterns. In addition, projections of bi-directional hourly volumes of each new alignment were determined to measure the effectiveness of each to attract traffic.

Following a transportation evaluation performed by the Committee and Gorrill-Palmer Consulting Engineers, Inc., a preliminary environmental comparison was performed to understand the relative costs and impacts associated with the construction of each alternative. Upon completion of both the transportation and environmental alternatives, the Committee selected two Recommended Alternatives for further consideration. These alternatives are the following:

- *Landfill Alternative 2*: This alternative would connect at the intersection of Rumery Road and Dartmouth Street, then run along the southern edge of the landfill to connect to Highland Avenue.
- *Alternative 12:* This alternative would connect at the intersection of Rumery Road and Dartmouth Street, cross the railroad spur at one existing field crossing and run along the eastern side of the spur until reaching the Rigby Road in Scarborough, and exit on Pleasant Hill Road. In addition, a spur would connect the Rigby Road portion of this alternative to Highland Avenue.

This project, the Purpose and Need Statement prepared by City staff, and the recommended alternatives are considered an initial stage in the National Environmental Policy Act (NEPA) process. Further investigations, such as site walks, survey, and other field work will be necessary to complete the NEPA process, as well as arriving at a final alternative, design, and construction of a new connector roadway.

I. Introduction

Study Area

South Portland has several major corridors that transect the city and provide most of its residents and workers access to other portions of the city as well as connections to corridors in and out of the city. These corridors consist of the following:

- Route 1 (Main Street)
- Highland Avenue
- Broadway/Evans Street

Growth of residential areas along Highland Avenue and Pleasant Hill Road in Scarborough has placed significant burdens on these roadways. The situation is further compounded by the growth of adjacent communities, such as Scarborough and Cape Elizabeth. A map of the study area is shown on Figure A of Appendix B.

Purpose and Need

The original Request for Proposals drafted by PACTS in January of 2000 detailed the purpose of the original project's scope. The City of South Portland and PACTS were seeking a proposal that would address the need for a new connector road from Rumery Road to Highland Avenue. The request originally derived from work performed by Project PLAN. The goal was to determine various environmental and other constraints and to create a preliminary set of four alternatives that would fulfil the criteria for a new road.

The evaluation of each alternative would involve a traffic component and an environmental component. The environmental component would involve site walks and a preliminary assessment with the Maine Department of Environmental Protection (Maine DEP) and the Army Corps of Engineers.

However, following initial meetings with City, PACTS, and community representatives, it was determined that restricting the potential alternatives to connectors from Rumery Road to Highland Avenue could be restrictive. It was agreed that examination of additional alternatives would be beneficial to determining the most effective route for traffic and environmental needs. In addition, an assessment of anticipated traffic volumes would be performed for every alternative.

A purpose and need document was drafted on April 13, 2000 by the City of South Portland based on input from local land owners, committee members and City staff. This document was created to tabulate the specific reasons justifying the creation of a

new connector road. The needs were drafted with current and future transportation requirements in mind, and consist of the following issues:

- Evans Street currently experiences significant traffic congestion problems that affect Evans Street as well as various roads to the east. This traffic utilizes Evans to access or depart from Cape Elizabeth, Portland, Scarborough, and South Portland.
- Changes to local traffic patterns due to the construction and use of the new Casco Bay Bridge have resulted in local streets becoming utilized as connectors or even minor arterials. Future changes must not result in this effect.
- The current response time to Highland Avenue neighborhoods for fire and emergency vehicles is unacceptable.
- In the event that Broadway is blocked between Lincoln and Evans Street, emergency vehicles cannot travel between eastern and western portions of South Portland.
- Direct access to Highland Avenue neighborhoods and the proposed athletic fields from the western part of South Portland does not currently exist. In addition, these areas need better access to shopping and employment areas, as well as the interstate highway system.
- Pedestrians in the western portion of South Portland cannot access the Greenbelt Walkway Trail. Similarly, pedestrians in Scarborough cannot readily access the East Coast Greenway.
- Based on current roadway configurations, the creation of an intermodal industrial/rail yard between Main Street (Route 1) and Highland Avenue would result in additional truck traffic in Scarborough or residential streets in South Portland. Without a public right-of-way, requisite sanitary sewer and other utility connections are difficult to make.

This project, on a preliminary basis, has examined potential roadways that could serve as a future connector road to address the above-stated needs. In addition, the needs were resolved into the following evaluation criteria for this project:

- Reducing traffic congestion.
- Restoration of street hierarchy.
- Improving safety.
- Preservation of roadway capacity.
- Improving vehicular access.
- Provision of pedestrian access.

Key Study Area Intersections

Initially, the study was to focus on a specific corridor between Rumery Road and Highland Avenue and utilize existing traffic information. However, it was determined that this approach was insufficient for the purposes of evaluating the local traffic patterns. During meetings with the Committee, the study area for the project was expanded to include the following intersections:

- *Highland Avenue at Route 77 (Ocean Avenue)*
- *Highland Avenue at Evans Street*
- *Highland Avenue at Pleasant Hill Road*
- *Evans Street at Broadway*
- Broadway at Lincoln Street
- Broadway at Main Street (Route 1) – Cash Corner
- Main Street at Rumery Road
- Main Street at Exit 7 Spur
- Main Street at Pleasant Hill Road

Gorrill-Palmer Consulting Engineers, Inc. collected data for all italicized locations and utilized existing data for the remainder of the study area. Traffic counts for the area were compiled and adjusted to reflect year 2000 peak seasonal conditions. The study area is shown on Figure A of Appendix B.

II. Public Participation Process

As discussed in the introduction portion of this report, the initial intent of this project was to determine the most appropriate roadway alignment connecting Rumery Road and Highland Avenue. The Project Team's Proposal created a specific project timeline and goals in keeping with the original Request for Proposals. The determination of this alignment was to have evolved from several criteria, including traffic, environmental, and cost information.

Almost all data for the project was to have come from existing sources of information, ranging from aerial photographs to traffic counts to the South Portland Comprehensive Plan. No additional traffic counts were planned for the project, and a large portion of the project was to determine the environmental and cost feasibility of a potential connector road alternative. It was anticipated that five alternatives would be investigated, with two preferred alternatives to be recommended for further evaluation.

A project of this nature is successful only when the public has a significant role in the process. A Highland Avenue Connector Study Committee was organized by the City of South Portland to assist Gorrill-Palmer Consulting Engineers, Inc. in the process of

determining roadway alignments as well as evaluation of each alignment. In addition, the committee provided guidance on creation of a study area as well as presentation of turning movement data.

Early on in the public process, the decision was made that the project would be more effective if the scope of services was revised to (1) investigate the effectiveness of additional alignments in removing traffic from the local network, and (2) to reduce the depth of the environmental impact analysis. This was spurred on, in part by the recommendation from the Federal Highway Administration that the ability of alternatives to attract traffic must be demonstrated. Otherwise, obtaining federal funds to design and construct any alternative could be an impossible task. In addition, a representative of the FHWA made clear that a great level of detail of environmental impact analysis would be required for any alternative before Federal construction funds could be sought. Each recommended alternative would require a full FHWA environmental assessment based on the significant impacts expected to adjacent areas for each alternative. To adequately determine the preferred alternatives, 11 alignments were initially examined with a focus entirely on the effect each would have upon local traffic volumes. In addition, these alternatives were expanded beyond providing connections solely to and from Rumery Road and Highland Avenue. By the April 6th meeting these initial 11 alternatives had been designated. On a September 28th meeting, the determination was made to add two additional alternatives to further investigate the potential of removing traffic from the local network.

Following the evaluation of future traffic volumes on the total of 13 alternatives, the Highland Avenue Committee and Gorrill-Palmer Consulting Engineers, Inc. each completed a traffic evaluation matrix to rank the relative ability of each alternative to address various traffic needs. Based on these matrices, an additional environmental/cost matrix and further input from the Committee, three preferred alternatives were chosen.

Such public involvement is crucial to the success of such a project. With public participation, the end result is one that benefits the public and reflects the knowledge of those who know the area based on everyday experience. Furthermore, if a roadway concept moves into a permitting and funding phase, public support is critical to the continuation of these processes toward construction of an actual roadway.

A total of seven meetings were held with the Committee from March 16, 2000 to January 24, 2001. The meeting notes are available for reference in Appendix C of this report.

III. NEPA Process

A decision by MDOT and the FHWA to provide funds to build a new roadway such as that proposed for this project is guided principally by these documents:

- *Rule for The Sensible Transportation Policy Act,* prepared by the MDOT; and

- *The Environmental Guide Book,* a guide to Project Development and the Environmental Process prepared by the FHWA-Eastern Resource Center.

The latter document was proposed as a tool to be used for the implementation of the National Environmental Policy Act (NEPA) of 1969. NEPA, as amended, "declares a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality." 23 CFR 771, *Environmental Impact and Related Procedures,* prescribes the policies and procedures of the Federal Highway Administration (FHWA) for implementing NEPA and must serve as the framework for evaluating alternatives.

Of critical importance in evaluating the alternatives is a defined, established and justified purpose and need statement. The document prepared by South Portland City staff and adopted by the Project Committee must meet these three criteria, even though it will not be adopted as a formal purpose and need statement during this preliminary study. If the statement lacks this basis, it will be difficult to determine which alternatives are reasonable, prudent and practical. As the project proceeds to further stages, the purpose and need statement will be scrutinized, revised and adopted by various regulatory agencies.

As part of the NEPA process, projects are classified as to the type of action that will be required as the project proceeds:

- *Class I Environmental Impact Statements (EIS):* This class of action is required for projects that significantly affect the environment and would require the longest time frame for evaluation in comparison with the other classes.

- *Class II (Categorical Exclusions)*: This class is for projects that do not have a significant environmental impact and therefore are not required to prepare an EIS or EA. While possibly still requiring permitting under Section 404 from the ACOE, the project may be implemented earlier than a project requiring Class I or III actions.

- *Class III (Environmental Assessments)*: These are projects in which the significance of environmental impacts is not clearly defined. Further investigation is required to determine the appropriate environmental documentation.

To aid in the determination as to the expectation of which class of action the project will require, resource mapping was prepared. Using Land Development Desktop

(AutoCAD 14), a series of overlays were prepared using the aerial photography from PACTS as the base. These overlays served to allow for evaluation of the alternatives with respect to the criteria required under NEPA. The data that was used in creating the overlays and their source is presented below:

Information	*Source*
Contours	USGS Topographic Maps; information from the City's sewer records.
Wetlands	National Wetland Inventory Maps, Previous work by the City or Development Community
Hydric Soil	SCS Medium Intensity Mapping
Public Parks	Local Comprehensive Plans/Athletic Field
Public Recreation Areas	Local Comprehensive Plans/Athletic Field

In addition to the resource mapping, requests for information were filed with various state and federal agencies relative to natural resources that may exist in the project area. Copies of correspondence received from these agencies are enclosed in Appendix C. A summary of their findings is presented below:

- *State Historic Preservation Office*: As the project proceeds, potential roadway corridors will require:
  - Reconnaissance level architectural surveys to determine whether there are any properties eligible for listing on the National Register of Historic Places.
  - Phase 1 Prehistoric Archaeological Survey
  - Potentially a Phase 1 historical archaeological survey
- *Natural Areas Program*: No rare botanical features are documented to exist within the study area. However, due to limited available existing data, as the project proceeds, potential roadway corridors should be reviewed in the field for rare and exemplary botanical features.
- *US Department of Interior, Fish & Wildlife Service*: No federally listed species under the jurisdiction of the service are known to occur in the project area.
- *Maine Department of Inland Fisheries and Wildlife, Fisheries Division*: No significant fisheries resources exist in the vicinity of the project area that would warrant special attention or consideration.
- *Maine Department of Inland Fisheries and Wildlife, Wildlife Division*: No identified wildlife habitats associated with this site.

Each of the potential alternatives has been classified as to the anticipated class of action that will be required under NEPA as the project proceeds. This classification is

provided on the matrix of environmental and cost benefits presented later in this report.

IV. Selection of Alignment Alternatives

Determination of Locations

The first objective of this study was to locate potential alignments for connector roads in keeping with the Highland Area Transportation Network Purpose and Need Statement. Any alignment must satisfy the purposes outlined in the statement while providing local traffic with a viable connection to and from eastern and western portions of South Portland. The alternatives were selected based on proximity to existing roadways and the potential for reuse of existing rights-of-way and to minimize environmental impact. The process involved input from City and other local officials, as well as public representatives. Initially, four groups, or "families," of alternatives were determined. These groups consist of the following:

- Landfill
- Rigby
- Exit 7
- Athletic Field

As the process continued, alternatives to these families were determined, for a total of 11 alignments. Each alignment is on Figure B Appendix A and are described below:

Landfill Alternative 1

This roadway would connect into the intersection of Rumery Road and Dartmouth Street, traverse the eastern edge of a municipal landfill, and connect to Highland Avenue across from Fairview Street. The total length of the alignment would be approximately one mile.

Landfill Alternative 2

Alternative 2 would connect at the same location with Rumery and Dartmouth Street, but would run along the western edge of the landfill to connect to Highland Avenue. The total length of this alignment would be approximately one mile as well.

Rigby Alternative 1

This roadway would connect into Rumery Road at Rigby Street, run along the eastern edge of the Rigby Rail Yard, and connect to Highland Avenue along the Rigby roadway in Scarborough. This roadway would approximately 1.8 miles in length.

Rigby Alternative 2

This roadway would begin at Rigby Road in South Portland (the same as Rigby Alternative 1), and would run along the eastern side of the Rigby Rail Yard, but turn southward and connect to the western side of proposed athletic fields before terminating the future athletic field access road. This alternative would be approximately 1.8 miles long.

Richmond Alternative 1

Both Richmond alternatives are considered to be in the Rigby family due to their similar alignments. However, both roadways connect to Rumery Road via Richmond Avenue. Alternative 1 would complete its course in the same manner as Rigby Alternative 1, along the eastern side of Rigby Rail Yard and terminating at Pleasant Hill Road. This roadway would approximately 1.7 miles long.

Richmond Alternative 2

Richmond Alternative 2 connects at Richmond Avenue, and then runs an identical course to Rumery Alternative 2, providing a direct connection to the athletic access road. This roadway would be approximately 1.6 miles long.

Exit 7 Alternative 1

This connection would begin at the intersection of Main Street and the Exit 7 Spur, and run southward, over the Rigby Rail Yard, connecting to the athletic access road. This alternative would be approximately 1.5 miles long.

Exit 7 Alternative 2

Alternative 2 would begin at the terminus of Wallace Avenue and continue on the same course as Alternative 1, ending at the athletic access road. This roadway would be approximately 1.1 miles long.

Exit 7 Alternative 3

The third Exit 7 family alternative would connect Gibson Road off of Pleasant Hill Road to the athletic access road. This roadway would be approximately one mile long.

Athletic Field Alternative 1

Athletic Field Alternative 1 would begin at the same location as the landfill alignments, but would cross a rail spur and run along the eastern side of the spur, traversing the western edge of the athletic fields until its terminus at the access road. This alignment would be approximately 1.3 miles long.

Athletic Field Alternative 2

This alternative differs from Alternative 1 in that it traverses the eastern side of the athletic field. This alternative would be approximately 1.2 miles long.

Additional Alternatives

Following an initial meeting discussing the initial alternatives, the Committee requested that two additional alternatives be investigated. A brief discussion of each follows:

Alternative 12

Alternative 12 was designated following the realization that new roadways had been proposed and were partially designed by private engineering firms in the Highland Avenue area. This alternative would connect at the intersection of Rumery Road and Dartmouth Street, and connect the Rigby Road portion of this alternative to Highland Avenue. The total length of this alternative would be approximately 2.4 miles.

Alternative 13

The remaining alternative is in essence a hybrid of two alternatives already discussed. Alternative 13 would merge Rigby Alternative 2 and Exit 7 Alternative 1, providing access to Highland Avenue (and the athletic fields) from the Cash Corner and Exit 7 areas. The total length of this alternative would be approximately 2.8 miles.

The alternatives are shown together on Figure B of Appendix A.

V. Determination of Future Traffic Volumes

As was discussed in the Introduction, volumes were obtained for several of the study area intersections from prior traffic studies, with additional counts performed to obtain volumes for the remaining intersections. The volumes were adjusted for annual growth and seasonal variation to result in the 2000 traffic network. These volumes can be found on Figure 1 in Appendix A.

2025 Traffic Volumes

The 2000 traffic volumes were submitted to PACTS for determination of 2025 traffic volumes using the TRIPS model. This determination included volumes with construction of each alternative, as well as the no-build option utilizing the current roadway network. The revised volumes are shown on Figures 2-14 in Appendix A.

Figures 2-14 show three sets of numbers for each alternative. The numbers without parenthesis or brackets represent the anticipated 2025 traffic volumes, or "base" future volumes. The numbers in parenthesis represent the future volumes anticipated following the completion of that particular alternative. The numbers in brackets represent the deviation of the alternative volumes from the 2025 "base" volumes. In addition, the anticipated turning movements for new intersections at each of the alternatives are shown, as well as the hourly traffic volume in each direction along the alternative.

VI. Evaluation of Alternatives

As previously stated, the purpose of this project was to provide a preliminary evaluation of various proposed alternatives in order to determine three alternatives warranting further investigation. The alternatives were evaluated with two major categories: transportation and environmental. A full discussion of the evaluation based on each category follows.

It should also be noted that the evaluation for the transportation criteria was performed twice. Gorrill-Palmer Consulting Engineers, Inc. initially performed the evaluation, with a follow-up evaluation performed by members of the Committee and compiled by Gorrill-Palmer.

Transportation

The transportation evaluation was based on the more specific criteria of the two components, as more data was available. Each criterion was placed in an importance hierarchy, as determined by the Committee. A "1" on the importance scale was a criteria deemed less important, with a "4" being deemed the most important. In addition, each alternative received a ranking from 1-5, with a "1" being the least favorable ranking, and a "5", the most favorable. Several of the criteria are explained in Summary of Alternatives Table, which can be found in Appendix C of this report. Transportation was broken down into nine categories, which are described below. The transportation matrices completed by the Committee and Gorrill-Palmer Consulting Engineers, Inc. can also be found

Traffic Volumes

This criterion evaluates each alternative based on the bi-directional traffic volumes carried by each. Evaluation was typically based on the assumption that the greater the traffic volumes on a given alternative, the higher the ranking.

Volume Change at Cash Corner

This criterion examined the impact each alternative had upon traffic volumes in Cash Corner. A higher ranking suggested that traffic volumes were reduced at Cash Corner, while a lower ranking implied an increase in traffic volumes. Cash Corner has long been considered a safety deficiency for South Portland traffic, and would be very sensitive to even minor traffic increases.

Volume Change at Evans Street

Two-way volumes along Evans Street, particularly in the vicinity of Broadway, have become those of an arterial, an issue of concern for residents living nearby. Any alternative should ideally aid in reducing traffic volumes along this roadway. Rankings were assigned based on the ability of each alternative to reduce traffic.

Neighborhood Traffic

As drafted in the Purpose and Need Statement, any alternative should avoid reassigning traffic to neighborhoods such that local streets become collectors or minor arterials. Gorrill-Palmer Consulting Engineers, Inc. based their ranking based on impacts to neighborhoods east of Evans Street already affected by traffic reassignment due to the Casco Bay Bridge. However, as any traffic reassignment may negatively affect a neighborhood somewhere in South Portland, each member of the Committee performed the ranking with certain areas in mind. This criterion is one of several that can be construed as subjective.

Emergency Response/Secondary East-West Connector

Each alternative has the potential to improve response time for emergency vehicles to get from the eastern side of the City to outlying Highland Avenue neighborhoods on the western side. Gorrill-Palmer Consulting Engineers, Inc. estimated the time it would take for an emergency vehicle to travel from Cash Corner to Highland Avenue at Fickett Street assuming an average speed of 40 mph. The Committee responses included those from representatives of the Fire and Police departments, as each had a full understanding of emergency vehicle access issues.

Access to Athletic Facilities

With the anticipated construction of the athletic fields, access to these facilities is seen as very important to the City and the public. As the current planned access is from Highland Avenue just to the north of the Scarborough line, access to the fields from residential areas near Cash Corner is rather circuitous. Any alternative that can provide a more direct connection from this portion of South Portland is more desirable than one that does not. In addition to public access, an additional access to the fields is viewed as having critical importance to emergency personnel. A new access could provide a reduction in time needed to respond to a serious injury.

Access to Industrial Lands

Much of the land that would be made accessible if a new east-west connector were constructed would be industrial land. Certain alternatives provide more viable routes than others to achieve this goal. However, any additional access should be tempered with the fact that much of the land in the portion of South Portland served by a new roadway would be wetlands. In addition, heavy buildup of industrial facilities may have a detrimental effect upon the usefulness of a new roadway; too many connecting driveways and new traffic could overwhelm the diverted traffic from existing routes.

Intermodal Access

Another aspect of the land a new east-west connector would provide access to is that of intermodal access. A new roadway with the proper access points, could serve rail to road industrial and shipping needs. Each alternative was examined based on the anticipated ability to provide access to this component.

Pedestrian/Bicycle Access

A component of this evaluation that merits serious discussion is the ability of a new connector to provide improved access for the use of walkers and riders. An east-west connector could provide access to the future Greenbelt and would also provide a route less congested than some of the existing local arterials. It should be noted that any alternative, once fully constructed would provide amenities for both pedestrians and bicyclists in the form of sidewalks and bike lanes.

Results of Transportation Evaluation

As previously stated, two evaluations were performed; one by Gorrill-Palmer Consulting Engineers, Inc. and one by the Committee. The results of each evaluation are shown in Appendix C. The ranking of each alternative is shown on the following table:

Ranking of Alternatives

Alternative	NB	Landfill		Rigby		Richmond		Exit 7			Athletic		12	13
		1	2	1	2	1	2	1	2	3	1	2		
Committee Rank	14	4	10	12	3	12	6	2	9	11	6	6	4	1
GPCEI Rank	14	6	7	13	7	12	7	2	4	11	5	10	3	1

"NB" refers to the option of no-build, or not constructing a connector road at all. As can be seen from the table, neither Gorrill-Palmer Consulting Engineers, Inc. nor the Committee found this alternative to be more favorable than any of the proposed options. In addition, both evaluations agreed upon Alternative 13 and Exit 7 Alignment 1 being the most favorable options. Overall, an option with more anticipated traffic tended to provide better access overall for transportation needs, and therefore typically ranked well in the various access categories.

An overall ranking and score for each option, in order, is as follows:

- Alternative 13: Rank 1 (101 Points)
- Exit 7, Alignment 1: Rank 2 (93 Points)
- Landfill, Alignment 1: Rank 3 (84 Points)
- Exit 7, Alignment 2: Rank 3 (84 Points)
- Alternative 12: Rank 5 (83 Points)
- Athletic Field, Alignment 1: Rank 6 (82 Points)
- Athletic Field, Alignment 2: Rank 7 (79 Points)
- Rigby, Alignment 2: Rank 7 (79 Points)
- Landfill, Alignment 2: Rank 9 (78 Points)
- Richmond, Alignment 2: Rank 10 (77 Points)
- Exit 7, Alignment 3: Rank 11 (56 Points)
- Rigby, Alignment 1: Rank 11 (56 Points)
- Richmond, Alignment 1: Rank 13 (55 Points)
- No Build: Rank 14 (36 Points)

As can be seen by the final points allotted to each alternative in the Committee evaluation, Alternative 13 has the highest score for transportation benefits, followed by Exit 7 Alignment 1. For the rest of the top tier, only two points separates Ranks 3 through 6, and for the midpack, only two points separates Ranks 7 through 10. With the exception of the no build alternative, Ranks 11-13 are separated by only one point.

A few conclusions can be reached from these results. The first is that with the exception of the lowest tier of scores, all alternatives present viable opportunities in terms of transportation benefits. The second conclusion is that with scores being so

close overall (including several ties), another means of comparing the alternatives was necessary. Therefore, comparisons of environmental land use, and construction impacts was created. The goal of this matrix was to determine which alternatives posed the most difficulty to implement. A discussion follows.

Environmental and Cost

Any discussion of this evaluation should be prefaced with the knowledge that a full environmental and cost evaluation would require a level of involvement that exceeds the scope of this project. A full assessment would require detailed field surveys for each alternative, a laborious and time-consuming task. The goal of the project and this report was to provide an initial evaluation of the major environmental and cost considerations of each alternative utilizing existing sources of information.

To assist in this initial evaluation, Gorrill-Palmer Consulting Engineers, Inc. drafted letters to various state and federal agencies inquiring as the environmental and archeological sensitivity of the study area. The responses were combined with the other sources of information to result in an environmental and cost matrix. This matrix, unlike the transportation matrix, does not utilize a standardized ranking or importance system. However, examination of the matrix makes clear the relative impacts and costs associated with each alternative. The categories for evaluation include the following:

Wetlands

This category is a determination of the probable total wetland impact as a result of the construction of a given alternative. The calculations for this category were made with the assumption that a 60-foot right-of-way would be established as part of this project. Data utilized for this category was based on United States Geological Survey topographical and soils maps as well as National Wetlands Inventory maps. The resulting impact was placed in a range of acreages, as determining an exact impact was not feasible. The ranges were 1 to 3 acres, 3 to 5 acres, and 5 to 7 acres. It is critical to note that the anticipated range of wetland impacts may very significantly from those presented in this report based upon actual field deliniations.

Wildlife (Flora and Fauna)

This criterion refers to the potential impact to federally listed endangered species, either plant or animal. Two sources of information were utilized for this category. The first was a letter from Kim Tripp with the United States Department of the Interior. The second was also a letter, from Emily Chase of the State of Maine Department of Conservation. This category, therefore, refers to specific federally listed species that could be threatened by construction of a new roadway.

Fisheries

Similar to the wildlife criterion, Fisheries refers to impact to significant fisheries resources adjacent to a specific alignment. Information on this category was based on a letter from Francis Brautigam of the Department of Inland Fisheries and Wildlife.

Floodplain/Floodway

Although wetland impact is crucial to quantify before proceeding with construction of a given alternative, determination of flood-prone areas is also critical. Information for this category was obtained from Flood Insurance Rate Maps supplied by the FIA and Flood Boundary and Floodway Maps supplied by FEMA. Similar to wetlands, impact was based on an estimated acreage.

Historic/Archeological

This category examines the potential for any of the alternatives to impact either historic sites or structures, or sites with archeological content. Information for this category was obtained via a letter from Earle G. Shettlesworth, Jr. It should be noted that any evaluation with existing information is based on existing data; a full study would require a Reconnaissance Level Architectural Survey as well as a Phase I Prehistoric Archeological Survey.

NEPA Classification

As previously described, three potential classes of action exist as this project moves forward; Class I – Environmental Impact Statement, Class II – Categorical Exclusion, and Class III, Environmental Assessment.

Public Parks/Public Recreation

This category examined the effect each alternative may have on the anticipated municipal athletic facilities to be constructed near Highland Avenue. The criteria established any potential positive or negative impacts an alternative could have on the fields.

Takings

A potentially critical category for the success or failure of a given alternative, takings addresses the potential for an alternative to result in the moving and removal altogether of a specific structures or series of structures. Such a necessity could require the utilization of the power of eminent domain.

Neighborhood

This category specifies areas with notable traffic changes as a result of a given impact. It should be noted that neighborhood traffic impact is a complicated topic, as all alternatives will increase traffic at certain locations, while reducing it at others.

Length of Roadway

This criterion examines the estimated length of each alternative in lane-miles, i.e. one mile of a two-lane road equals two lane-miles. (For the purposes of this study, all alternatives were assumed to have two lanes.) In addition, the length of new roadway and existing roadway requiring reconstruction was examined.

Bridge

Bridge sections refer to any alternative that must cross over the Rigby Rail Yard, as this could not be accomplished with an at-grade crossing. It is important to note that the construction of a bridge, or an overpass, would significantly add to the cost of a given alternative.

Culvert

In addition to crossing the Rigby Rail Yards, alternatives may be faced with the prospect of crossing streams at key locations. Although a less costly measure than a bridge section, a stream crossing would require a culvert, and consequently could complicate the issues of environmental permitting.

CMP Lines

As a major transmission line for Central Maine Power runs through the area transected by the alternatives, the potential exists for some alternatives to have more than one crossing. Each crossing would require the raising of the transmission line, a procedure that would be funded by the City, according to a letter by Julia Picard from Central Maine Power. Each crossing would clearly add to the expense of constructing an alternative.

Results of Environmental and Cost Evaluation

On many levels, results from the environmental and cost evaluation result in an opposing view from that of the transportation evaluation. The no-build option, rated lowest for transportation benefits, is clearly the least expensive and impacting option from an impact standpoint. No construction results in no impacts. The other alternatives are discussed below on a case-by-case basis.

Landfill Alignment 1

An issue of note for this alternative is the potential to impact the cemetery along Highland Avenue as well as the landfill. In particular, an impact on the cemetery could make implementation of this alternative very difficult. This alternative is a total of 3.10 miles, and is one of the shorter routes. Based on preliminary information, this route would have between 3 and 5 acres of wetlands impact. Actual field delineation would be required to better quantify wetland impacts that would apply to this as well as all alignments.

Landfill Alignment 2

This alternative does not have an effect on the cemetery, as it runs along the southern side of the landfill. It is about the same length as Alignment 1 (3.12 miles) and would require at least two stream crossings. Like Alignment 1, this alternative would have about 3 to 5 acres of impact.

Rigby Alignment 1

This Rigby alignment is anticipated to have minimal impact on wetlands, with an expected impact of between 1 and 3 acres. The length of the roadway, at 3.61 miles, is midrange for the various alternatives.

Rigby Alternative 2

This alignment poses few differences in terms of environmental and cost impacts from Rigby Alternative 1. It does, however, affect the athletic fields, as it would traverse the southern side of them. At 3.52 miles, it is a similar length to Rigby 1. However, Rigby 2 would require multiple CMP crossings.

Richmond Alternatives 1 and 2

These alignments are almost identical to their Rigby counterparts and, as such, have similar anticipated environmental and cost impacts.

Exit 7 Alignment 1

This alternative poses many cost and environmental impacts. This alternative is anticipated to displace between 3 and 5 acres of wetlands. In addition, the construction of this alignment would require the taking and demolition of a hotel, which could require the power of eminent domain. This alignment would cross the Rigby Rail Yards, and, as such, would require the construction of an elevated section. In addition, this alignment is the only one that would require all new roadway construction.

Exit 7 Alignment 2

Exit 7 Alignment 2 has less of a potential cost associated with construction than Alignment 1. Anticipated wetlands impact would be from 1 to 3 acres. However, a structure at the end of Wallace Street may require removal for construction to commence, as well as the bridge section over the Rigby Rail Yards. In addition, new roadway construction is far less of that of Alternative 1.

Exit 7 Alignment 3

This alignment would require the bridge section over the Rigby Rail Yards, but with an estimated wetlands impact of 1 to 3 acres, no other major costs are anticipated to be incurred by this alternative.

Athletic Field Alignments 1 and 2

These alternatives are very similar in terms of associated environmental and cost impacts associated with construction. Both would affect an estimated 3 to 5 acres of wetlands and require multiple CMP crossings.

Alternative 12

Alternative 12 is somewhat unique, as it would combine a new alignment with private roadways already under design. The "new" portion would encompass roadway from Dartmouth Street to the Athletic fields. From there, roadway connecting this alternative to Highland Avenue would be constructed by private concerns. This alternative would require 3 culvert crossings, but the portion constructed by the City would be approximately 0.76 miles. Wetland impact for the public portion is anticipated to be between 1 and 3 acres.

Alternative 13

Alternative 13, being a combination of two other alternatives, would result in the combined costs of each. At almost 6 miles long total, this alternative would require the most roadway. It would require a bridge section and eminent domain, and potentially several CMP crossings. It is anticipated that this alternative would be the most costly to implement.

VII. Recommended Alternatives

Following the evaluation of both transportation and evaluation alternatives, the process of selecting two preferred alternatives for further study was pursued. This procedure was performed with the Committee's full involvement, and, as such, the alternative selected for recommendation were determined by discussion about the

merits and drawbacks of each alternative. As previously discussed many of the strongest alternatives for transportation benefits also incurred the most costs and environmental impacts.

This section offers the two recommended alternatives and the reasons they were selected. It is important to note that the order of discussion for each alternative does not in any way reflect a preference for either of these alternatives.

Landfill Alternative 2

Landfill Alternative 2 was viewed as a "middle of the road" alternative in terms of overall transportation benefits. However, it offers many positive benefits for transportation. It is anticipated that this option would carry approximately 831 vehicles in the PM peak hour or about 9,000 vehicles per day, placing it fifth in terms of traffic. In addition, this route is expected to the most effective in reducing traffic along Evans Street, removing 257 vehicles during the PM peak hour. Furthermore, this option would provide one of the better alternatives for emergency vehicle traveling to Highland Avenue-area neighborhoods. Although it would not provide a direct connection to the athletic fields, it is recommended that a spur be added along the alignment to allow for future construction to connect to the athletic fields. This could provide rear access to the fields, something strongly urged by representatives of both the Fire and Police departments.

Wetlands impacts due to construction of this alignment may not be as severe as mapping indicates, as the roadway would run along the edge of the landfill cap. However, survey would be required to determine total impact. In addition, the alignment could be designed to avoid the cap as much as possible, possibly completely. Major concerns, such as a bridge section or removal of structures, are not an issue with this alignment.

Alternative 12

Alternative 12 scored third in the Committee's rankings, and fourth in those performed by Gorrill-Palmer Consulting Engineers, Inc. It would have the third highest traffic volumes of any of the alternatives, with 903 vehicles expected to use it during the PM peak hour, or approximately 10,000 vehicles per day. This alternative would add 59 vehicles to Cash Corner, similar to the Athletic Field alternative. It would remove the third most traffic from Evans Street of any alternative, and provide access to the rear of the Athletic Fields. The connection of private roadways currently in the design process would allow for more access to the industrial lands.

Overall environmental and cost impacts associated with this alignment appear high at first, but the privately developed portion of this alternative incurs many of these costs. The portion that South Portland would need to complete would be less than one mile in length.

It should be noted that each of these recommended alternative would not qualify as a Categorical Exclusion (Class II) and therefore require either an Environmental Impact Statement (Class I) or an Environmental Assessment (Class III).

Future Steps

City Council

With the process of recommending alternatives for further study complete, it becomes necessary to move the selection process into the public arena via the South Portland City Council. The Committee and its various members can make the case for the importance of a new connector road.

If the City Council deems this project to have merits beyond the initial study phase, it can elect to move the process into more detailed feasibility studies, and research how to obtain funding for a potential connector road.

Conclusions

Following the initial investigation into potential Higland Avenue connector roads, Gorrill-Palmer Consulting Engineers, Inc., in cooperation with the Highland Avenue Committee, has found the following two alternatives to be the recommended alternatives for further study:

- *Landfill Alternative 2*: This alternative would connect at the intersection of Rumery Road and Dartmouth Street, then run along the western edge of the landfill to connect to Highland Avenue.
- *Alternative 12:* This alternative would connect at the intersection of Rumery Road and Dartmouth Street, cross the railroad spur, run along the eastern side of the spur until reaching the Rigby Road in Scarborough, and exit on Pleasant Hill Road. In addition, a spur would connect the Rigby Road portion of this alternative to Highland Avenue.

Prepared: Sebago Technics, Inc.
Date: 25-Sep-19

City of South Portland - Cross Town Connector
Opinion of Potential Project Costs

Development Costs

Item Description	U/M	Quantity	Unit Cost	Total Cost	
GENERAL CONDITIONS					
Mobilization & Traffic Control	LS	1	$150,000	$150,000	
Field office-Trailers,toilets,temp signage	MO	12	$1,000	$12,000	
Contractor Layout, Management & Supervision	MH	4,000	$65	$260,000	
				$422,000	**$422,000**
SITE PREPARATION					
Clearing	AC	10	$7,500	$75,000	
Strip\Grub	CY	9,000	$15	$135,000	
				$210,000	**$210,000**
EARTHWORK					
Cuts/Fills	CY	29,000	$15	$435,000	
Stormwater (assumes wetponds/soil filter/gravel wetlands)	LS	1	$500,000	$500,000	
				$935,000	**$935,000**
ELECTRICAL					
Transformer	EA	1	$150,000	$150,000	
Underground Service - Main Feed	LF	1,000	$75	$75,000	
Underground Service - Secondary Feed	LF	7,000	$40	$280,000	
Light Pole	EA	26	$10,000	$260,000	
				$765,000	**$765,000**
EROSION CONTROL					
E & S	LS	1	$100,000	$100,000	
Riprap, D50 6"	CY	1,000	$50	$50,000	
				$150,000	**$150,000**
PAVEMENT & AGGREGATES					
Pavement Overlay - Rumery Road	TN	850	$95	$80,750	
Standard Pavement- HMA 19.0 mm	TN	2,800	$95	$266,000	
Standard Pavement- HMA 9.5 mm	TN	1,200	$95	$114,000	
Sidewalks	SY	5,700	$110	$627,000	
Subbase Gravel - Type D	CY	9,500	$30	$285,000	
Base Gravel - Type B	CY	3,500	$35	$122,500	
Misc. Shoulder Work Rumery Road	CY	500	$35	$17,500	
Signage	LS	1	$25,000	$25,000	
Striping	LS	1	$10,000	$10,000	
				$1,547,750	**$1,547,750**
CURB					
Vertical Granite Curb - Allowance for Misc.	LF	500	$37	$18,500	
Slipform Curb - Allowance for Misc.	LF	3,000	$12	$36,000	
				$54,500	**$54,500**
FENCING					
6' Chainlink Fence - Allowance	LF	1,000	$15	$15,000	
				$15,000	**$15,000**
GAS EXTENSION					
Gas Main and Service Building	LF		$70	$0	
				$0	**$0**
SANITARY SEWER - None Expected					
					$0
WATER SERVICE - None (PWD Costs)					
					$0
STORM DRAINAGE					
15" Storm Drain	LF	4,000	$75	$300,000	
Catch Basins 4' w \ 2' sump	EA	20	$3,500	$70,000	
Type F Basin or Manhole	EA	10	$2,000	$20,000	
				$390,000	**$390,000**
LANDSCAPING					
Loam, seed & mulch x Dozer pl.	SY	4,800	$10	$48,000	
Street Trees - 1 every 100 feet	EA	100	$600	$60,000	
				$108,000	**$108,000**
Traffic					
Signalization at Highland and Cross-Town Roadway	EA	1	$250,000	$250,000	
Lane Widening and Improvements at Highland and Cross Town Road.	LS	1	$500,000	$500,000	
Signalization at Rumery and Cross-Town Roadway	EA	1	$250,000	$250,000	
Signalization and Reconfigure Rumery and Main Street	LS	1	$750,000	$750,000	
				$1,750,000	**$1,750,000**

Subtotal Construction Costs	**$ 6,347,250**
Contingency (15%)	**$ 952,088**
Wetland Mitigation Allowance	**$ 500,000**
Engineering/Design/Traffic and Constr. Services	**$ 1,250,000**
Allowance for Land Acquistion	**$ 300,000**
Allowance for Unknowns At Railroad Crossing	**$ 150,000**
Permitting (City, Site Location of Development, NRPA and USACE)	**$ 150,000**
Total Estimate	**$ 9,649,338**

Rumery Road
2,900 Linear
Feet

Signalization
and Lane
Improvements
at Rumery
Road

Railroad
Crossing

Requires
Land
Acquisition

Cross-Town Connector
Roadway From
Wainwright Connector
to Rumery Road.
3,100 Linear Feet

Connector
Roadway to
Wainright Fields
700 Linear Feet

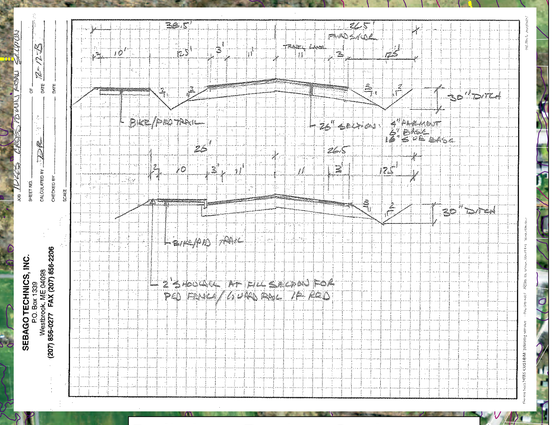
Closed Landfill and
Solar Array

Signalization
and Lane
Improvements
at Highland
Drive

Public Works
Access Drive

New Roadway
to Connector
Roadway
2,000 Linear
Feet

Cross Town Connector will likley require wetland and vernal pool impacts. Amount is unknown at this time but assumed to be in the range of 2 acres. Actual impacts will be based upon a wetland and vernal pool delineation.



Preliminary Roadway Sections

0 250 500 1,000 1,500 2,000 Feet

10223_WORKSHEET.mxd

DATA SOURCES

Maine Office of GIS 2018 Orthoimagery Service
Maine Office of GIS 2006 and 2011 lidar derived contours
City of South Portland parcel data 2016

REV: BY: DATE:

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SEBAGO TECHNICS, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SEBAGO TECHNICS, INC.

STATUS:

SEBAGO TECHNICS
75 John Roberts Rd., Suite 1A
South Portland, ME 04106
tel 207-200-2100

DRAWN BY: MDG

JOB NUMBER 10223

PLANNING MAP
OF:
CROSS-TOWN CONNECTOR
HIGHLAND AVENUE
SOUTH PORTLAND
FOR:
CITY OF SOUTH PORTLAND
25 COTTAGE ROAD
SOUTH PORTLAND, MAINE 04106

DATE	SCALE
09-13 -2019	1 in. = 250 ft.

SHEET 1 OF 1