

DRAFT EXECUTIVE SUMMARY – CYCCS PHASE II EVALUATION RESULTS

STUDY BACKGROUND

The Central York County Connections Study (CYCCS) is developing and evaluating strategies to improve connectivity between central York County and the major transportation corridors along the coast (the Maine Turnpike and Route 1). The study's Purpose and Need statement defines the problems to be addressed:

The purpose of the Central York County Connections Study is to identify, evaluate and recommend feasible transportation and related land use strategies that will:

- *enhance regional economic growth;*
- *increase regional transportation interconnectivity;*
- *improve traffic safety;*
- *direct expected travel demand through a strong mix of multimodal strategies; and*
- *preserve and improve existing infrastructure.*

These purposes are to be achieved while striving to maintain the visual, cultural and historic character of village centers and rural areas and minimizing environmental impacts.

Additional information on the study, including the full Purpose and Need Statement, is available at the project website: www.connectingyorkcounty.org.

The CYCCS Study Area includes the Town of Sanford, and portions of Alfred, Arundel, Biddeford, Kennebunk, Lyman, North Berwick, Ogunquit, Waterboro, and Wells (Figure 1).

The Maine Turnpike (I-95) is the primary highway linking Maine to New Hampshire and the rest of New England. The Turnpike travels through Ogunquit, Wells (exit 19), Kennebunk (exit 25), Arundel and Biddeford (exit 32) within the CYCCS study area.

Route 111 is the primary highway connecting the Sanford area to the Maine Turnpike in Biddeford (exit 32), while Route 109 connects to the Turnpike in Wells (exit 19). Both also provide access to US Route 1.

US Route 202 and Route 4 are other major regional highways serving central York County. Additional access into central York County is provided from Turnpike exit 25 in Kennebunk, by way of Route 35 to Lyman and Route 99 to Sanford.

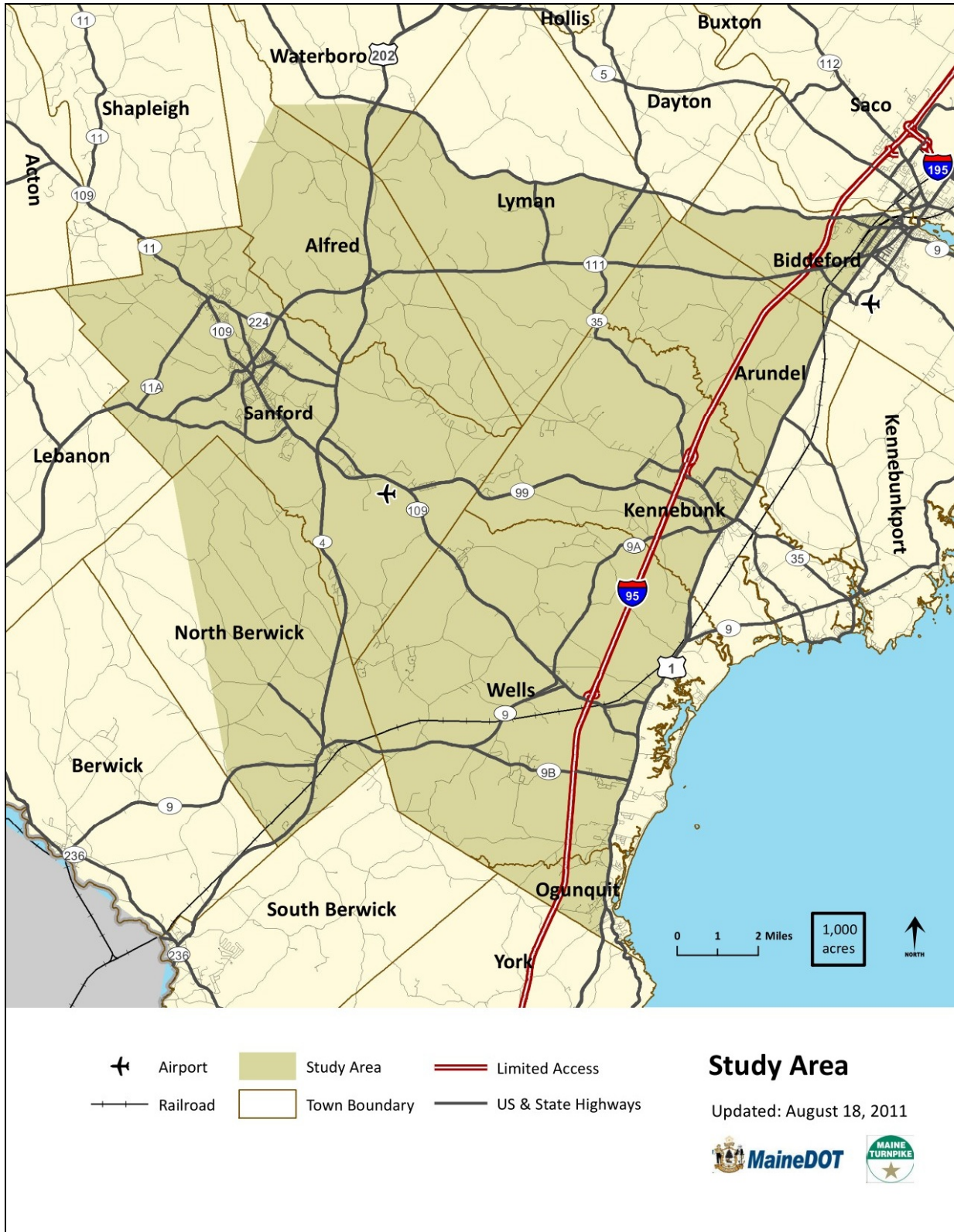


Figure 1: CYCCS Study Area



STUDY PROCESS

The CYCCS study is being conducted by the MaineDOT and Maine Turnpike Authority (MTA), with participation by the Southern Maine Regional Planning Commission (SMRPC) and study area towns. Two committees are participating in the study process. A broad range of residents, representatives from stakeholder and interest groups, and agency staff comprise the study's Advisory Committee. Town and agency officials make up the Steering Committee. Each group has met regularly to review and comment on study progress. Information on the study team and committee composition may be found on the study's website: <http://www.connectingyorkcounty.org/study-committee-and-study-team>

The CYCCS is organized into four primary study phases:

- I. Organization and Background Information.
The study's first phase involved developing the purpose and need statement, collecting and synthesizing available transportation, land use, environmental and other relevant data, and initiating the public outreach process.
- II. Initial Investigations and Analyses.
The second phase involved development and evaluation of a range of large-scale, conceptual highway corridor strategies. The intent of the Phase II effort was to test the extent to which major expansions of the region's highway network could influence regional economic conditions, and investigate the costs and potential impacts associated with these strategies. Efforts were also initiated to begin to identify other types of strategies that will be considered during Phase III (see Phase III discussion below). Technical memoranda and documents detailing Phase I and II are posted on the study website and listed at the end of this Executive Summary.
- III. Detailed Strategy Development and Assessment.
During Phase III, which is just getting underway, the study team will investigate transportation issues at a finer-grained, more specific level of detail. These may include safety and operation improvements to the region's highways and intersections, access management strategies, land use recommendations, transportation systems management improvements to make the current system operate more efficiently, and multimodal improvements to enhance the environment for walkers, bicyclists and transit users. This work is being conducted from March through July 2012.
- IV. Study Documentation.
Completion and documentation of the study, which is anticipated in August 2012.

This memo summarizes the evaluation of nine large-scale regional highway strategies during Phase II of the study, as well as three smaller localized highway improvement strategies. These results identify the potential benefits and impacts of the strategies evaluated, and will inform the selection and further development of strategies for the next phase of the study.

PHASE II HIGHWAY STRATEGIES

The highway strategies evaluated in Phase II are conceptual representations. Corridor alignments, interchange locations and other defining features are only approximately defined at this point and should not to be considered to be specific, finalized choices. The Phase II strategies are fully detailed in the *Phase II Highway Corridor Strategy Descriptions Technical Memorandum* (August 2011).

REGIONAL STRATEGIES

Regional Strategies were the focus of the Phase II evaluation (Figure ES-2). These involve capital-intensive, major improvements to existing highways or construction of new highway corridors. Strategies are organized within three general corridors – Biddeford, Kennebunk/Wells, and North Berwick/Ogunquit – that link the Sanford region of central York County to the major highway corridors along Maine’s coast (the Maine Turnpike and Route 1).

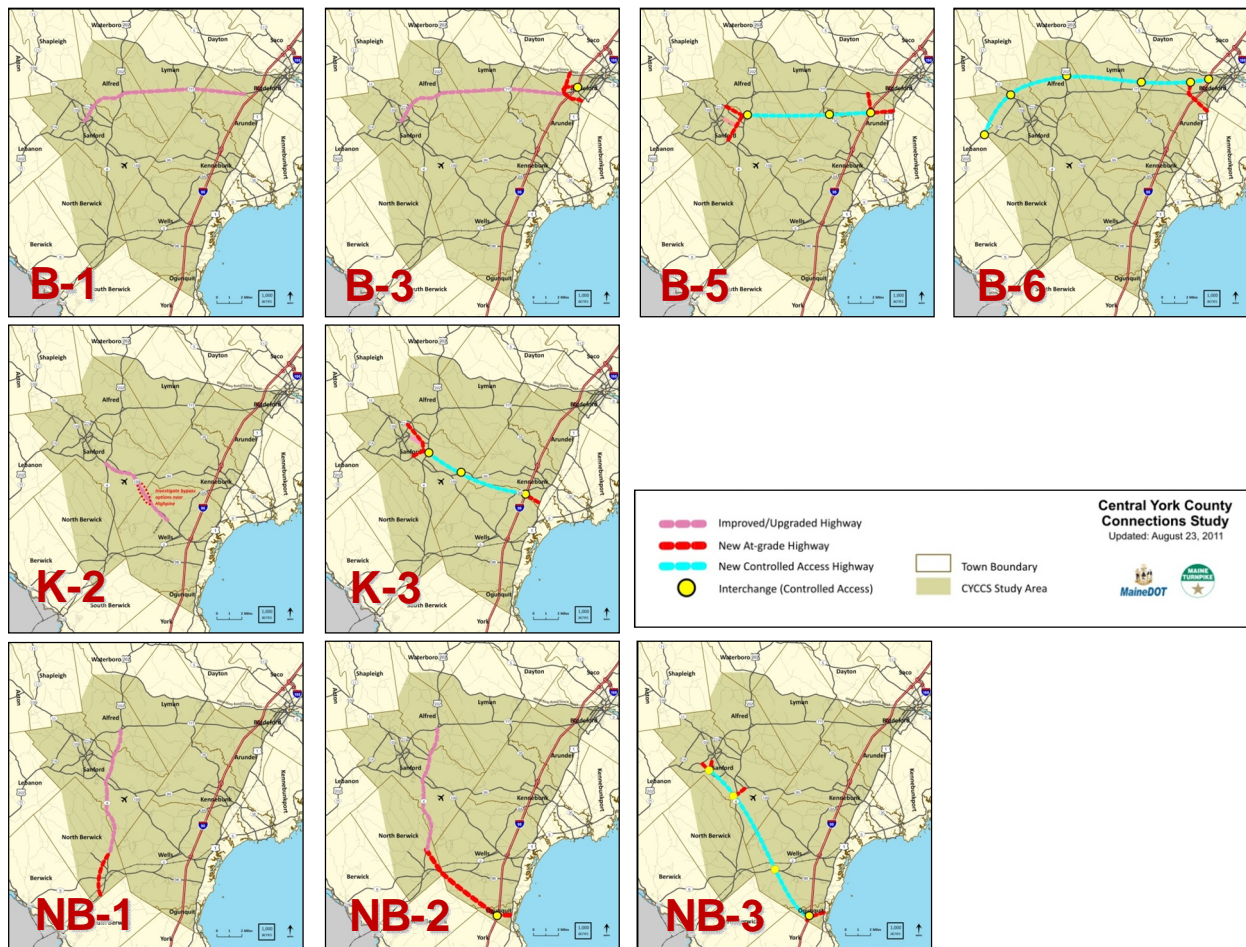


Figure ES-2: Phase II Regional Strategies

Biddeford Corridor Regional Strategies

These strategies focus on east-west connections linking Sanford, Alfred, Lyman, Arundel and Biddeford.

- Strategy B-1 is an upgrade to the existing Route 111/202 highway between Sanford and Biddeford to increase speed and capacity.
- Strategy B-3 includes the upgrades of B-1, plus additional connections from Route 111 to other highways in the Biddeford area and to the Exit 32 Maine Turnpike interchange.
- Strategy B-5 is a new four-lane, access controlled expressway. It would be located south of Route 111, extending from a new interchange with the Maine Turnpike (south of Exit 32), Route 111 and Route 1 in Arundel to Route 4 near the Sanford/Alfred town line. Additional interchanges would provide access to Route 35 near the Arundel/Kennebunk/Lyman town line and to Route 4 and the local street network near the Alfred/Sanford town line.
- Strategy B-6 is a new four-lane, access controlled expressway. It would run north of Route 111, connecting to US 202 with a new interchange west of Sanford near the Sanford/Lyman town line and to the Maine Turnpike north of Exit 32. Additional interchanges would provide connections to Route 109 in Sanford (Springvale), Route 202 in Alfred, Route 35 in Lyman, and Routes 1 and 111 near the Arundel/Biddeford town line.

Kennebunk/Wells Corridor Regional Strategies

These strategies link Sanford with the Maine Turnpike and US Route 1 in Kennebunk or Wells.

- Strategy K-2 is an upgrade to the existing Route 109 in Sanford and Wells to increase speed and capacity.
- Strategy K-3 is a new four-lane, access-controlled expressway. It would extend from the Maine Turnpike in Kennebunk (south of exit 25) to Route 4 near the Sanford/Alfred town line, with interchanges providing access to the Maine Turnpike, US Route 1 and Route 9A in the vicinity of Kennebunk/Wells town line; Route 99 in Sanford (east of Route 109); and Route 4 and the local street network in Sanford (east of Route 109 near School Street).

North Berwick/Ogunquit Corridor Strategies

These strategies link Sanford to communities to the southwest, including North Berwick and/or Ogunquit.

- Strategy NB-1 is an upgrade to the existing Route 4 in Alfred, Sanford and North Berwick, including a bypass of North Berwick's town center.
- Strategy NB-2 is a new two-lane highway connecting Route 4 with the Maine Turnpike at a new interchange in Ogunquit, coupled with improvements to Route 4.
- Strategy NB-3 is a new four-lane, access controlled expressway. It would extend from a new interchange with the Maine Turnpike in Ogunquit to Sanford, ending at a new interchange near US 202 west of downtown. Other interchanges would be provided to Route 9 in Wells (near the South Berwick town line), and to Route 4 near the Sanford Airport.

LOCAL STRATEGIES

Three strategies of a more local nature were investigated during Phase II as well (Figure ES-3). The intent was to gauge the potential for smaller improvements to affect regional mobility.

- Strategy B-2 is a locally focused improvement involving construction of new roads in Biddeford connecting Route 111 south to US Route 1 (west of Biddeford Spur) and north to South Street (South Waterboro Road).
- Strategy B-4 is a new two-lane roadway connecting Route 202 (west of Sanford), Route 109 in South Sanford, and Route 4 near the Alfred/Sanford town line.
- Strategy K-1 is a new, more direct two-lane highway connection linking Route 99, Alfred Road, Route 35 and exit 25 of the Maine Turnpike in Kennebunk. This strategy would involve constructing a new bridge over the Mousam River just north of the Maine Turnpike.

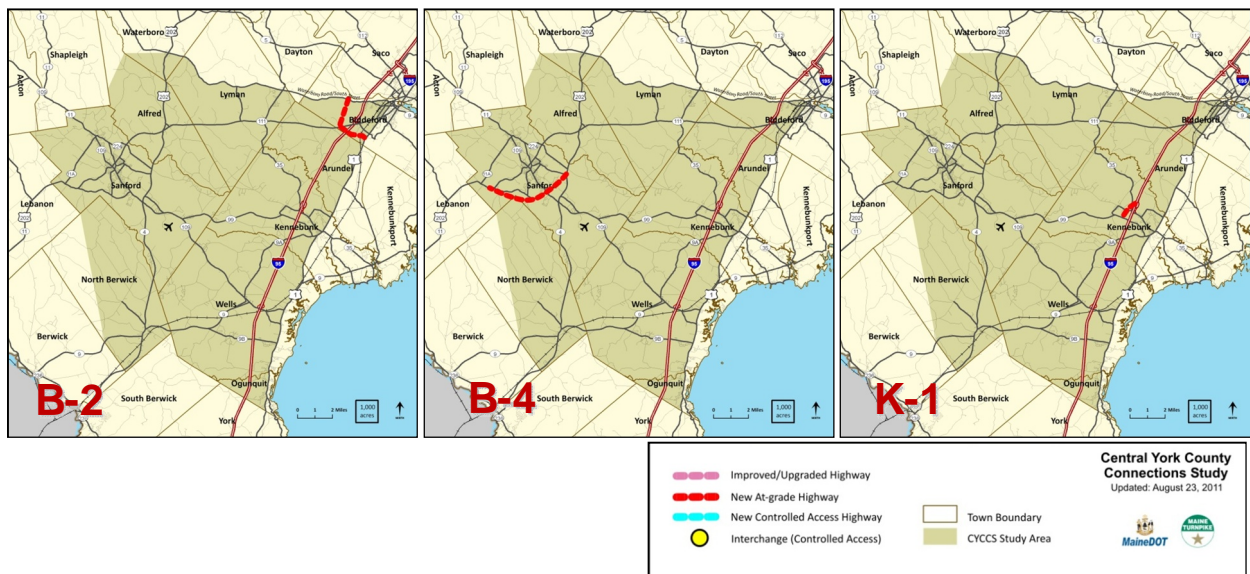


Figure ES-3: Phase II Local Strategies

EVALUATION PROCESS

MEASURES OF EFFECTIVENESS (MOEs)

The Phase II highway strategies were evaluated based on nine Measures of Effectiveness (MOEs), which were collectively developed by the study team with input from the study's Steering Committee and Advisory Committee. Each MOE is based on the Study Purpose and Need Statement and is comprised of one or more specific measures, as summarized in Table ES-1.

Table ES-1: Measures of Effectiveness (MOEs)

MOE Name	Measure
Economic Benefit	<ul style="list-style-type: none"> Potential job creation Change in regional economic activity (dollars)
Cost	<ul style="list-style-type: none"> Approximate (planning-level) cost of strategy
Benefit/Cost	<ul style="list-style-type: none"> Ratio of projected benefits to costs
Daily Traffic Volumes	<ul style="list-style-type: none"> Changes in corridor traffic volumes VMT (vehicle miles traveled) Effect on traffic at congested locations
Travel Times and Delay	<ul style="list-style-type: none"> Projected travel times between key origins and destinations VHT (vehicle hours of travel)
Traffic Safety	<ul style="list-style-type: none"> High Crash locations addressed Potential change in crash frequency
Transit Operations and Access	<ul style="list-style-type: none"> Potential to benefit/impact existing transit services
Rural and Urban Character	<ul style="list-style-type: none"> Rural lands in the corridor Town centers and historic sites in the corridor
Environmental Constraints	<ul style="list-style-type: none"> Miles of wetlands and environmental features in corridor

EVALUATION RESULTS

The Phase II highway strategies were evaluated using the nine MOEs noted above. A summary of the evaluation results is presented in Figure ES-4. Each strategy received a relative score, ranging from worst to best, for each of the MOEs. The five-tier scoring system is illustrated in a graphical manner, with an empty circle representing the worst possible score and a completely filled circle representing the best possible score.

Figure ES-5 provides further detail on the benefit/cost evaluation. The primary benefits considered are related to reductions in travel time between York County and other population and employment centers, changes in fuel consumption and operating costs, potential for crash reduction, and environmental factors such as changes in vehicle emissions. In some circumstances, benefits can

actually be negative, or “disbenefits”. Costs include construction costs (including a gross estimate of right-of-way acquisition costs) and life-cycle maintenance costs.

Expressway strategies (B5, B6, K3 and NB3) tend to show the greatest regional benefit in terms of economic and traffic related benefits (including travel times and safety). However, these strategies also have greater potential to impact the environment and rural/urban character, and are considerably more expensive to construct and maintain. Of the expressway strategies, only the Kennebunk Expressway (K3) strategy achieved a benefit/cost ratio of 1.0 or higher.


Corridor upgrades to Route 111 in the Biddeford corridor (B1, B3) scored better overall than the other regional highway strategies. They achieved positive economic and traffic-related benefits, and would have fewer environmental impacts. Rural/urban character impacts are of concern for these corridor upgrades, which could potentially impact areas adjacent to the highway. Overall, the benefit/cost of corridor upgrades to Route 111 proved highest of the regional strategies evaluated. Corridor-wide upgrades in the Route 109 (K2) and Route 4 (NB1 and NB2) corridors were found to have modest benefits as measured by the range of MOEs, which is in-part likely a reflection of sufficient capacity and relatively delay-free travel in those corridors today. Specific improvements to address safety issues or spot congestion issues in the corridor may be considered during Phase III of the study, though much of Route 109 was upgraded in 2011.

The benefit/cost assessment for the North Berwick/Ogunquit corridor (NB-1, NB-2, NB-3) strategies found that the modest benefits in terms of travel time savings for strategies in this corridor were outweighed by impacts associated with increases in vehicle miles traveled (e.g. – travel costs, safety impacts associated with more travel, etc.). As a result, the net benefits associated with large-scale improvements in this corridor were negative.

The localized strategies fared relatively well in the Phase II evaluation in terms of benefit/cost, though the methodology used for Phase II analysis is intended to evaluate larger-scale strategies based on region-wide benefits rather than such local strategies. Further work would be needed in Phase III to confirm the benefits for these or other smaller scale strategies, as well as to consider the role these strategies might have in conjunction with other improvements. Both the benefits and impacts associated with the local strategies tend to be relatively modest and localized.



← Worse Score Better Score →



		Cost	Benefit/ Cost	Economic Benefit	Daily Traffic Volumes	Travel Times and Delay	Traffic Safety	Transit Ops. & Access	Rural and Urban Character	Environ- mental
<i>Regional Strategies</i>										
B-1	Upgrade Rte 111/202									
B-3	Upgrade Route 111/202 with add'l Turnpike access and connections									
B-5	Biddeford Expressway (South)									
B-6	Biddeford Expressway (North)									
K-2	Upgrade Rte 109									
K-3	Kennebunk Expressway									
NB-1	Upgrade Rte 4 and New North Berwick Bypass									
NB-2	Upgrade Rte 4 and New North Berwick – Maine Tpk/Ogunquit Hwy									
NB-3	Ogunquit Expressway									
<i>Local Strategies</i>										
B-2	New Biddeford Highway Connections									
B-4	Southern Sanford Bypass									
K-1	Rte 99 – Rte 35 Connection									

Figure ES-4: Summary of MOE Results

Benefit/Cost Analysis		Total Net Benefits	Total Net Costs (Construction + R&R)	Benefit/Cost Ratio
<i>Regional Corridors</i>				
B-1	Upgrade Rte 111/202	\$ 114 M	\$83 M	1.4
B-3	Upgrade Route 111/202 with Add'l or Turnpike access and connections	\$ 171 M	\$135 M	1.3
B-5	Biddeford Expressway (South)	\$ 152 M	\$256 M	0.6
B-6	Biddeford Expressway (North)	\$ 233 M	\$365 M	0.6
K-2	Upgrade Rte 109	\$ 15 M	\$32 M	0.5
K-3	Kennebunk Expressway	\$ 206 M	\$199 M	1.0
NB-1	Upgrade Rte 4 and New North Berwick Bypass	Negative Net Benefits	\$33 M	N/A
NB-2	Upgrade Rte 4 and New North Berwick – Maine Turnpike/Ogunquit Highway	Negative Net Benefits	\$97 M	N/A
NB-3	Ogunquit Expressway	Negative Net Benefits	\$293 M	N/A
<i>Local Strategies</i>				
B-2	New Biddeford Highway Connections	\$ 40 M	\$21 M	1.8
B-4	Southern Sanford Bypass	\$ 31 M	\$26 M	1.3
K-1	Rte 99 – Rte 35 Connection	\$ 30 M	\$11 M	2.7

Figure ES-5: Benefit Cost Evaluation Details.

STUDY COMMITTEE AND PUBLIC COMMENT

The Advisory and Steering Committees met in September 2011 and March 2012 to review results of the Phase II analysis. The study team presented Phase II results at a public meeting in Kennebunk on March 27, 2012.

Presentation materials and meeting summaries are available at:

<http://www.connectingyorkcounty.org/meetings/list/minutes>

ADVISORY COMMITTEE

The study's Advisory Committee expressed concern over the magnitude of upgrades (4-lane cross section) proposed under the Biddeford Corridor Upgrade strategies (B-1, B-3), but supported further study of corridor upgrade strategies on Route 111. Of the Expressway strategies, the Advisory Committee felt that the Kennebunk Expressway (K-3) showed the best potential, but expressed strong concerns about environmental and rural character impacts, as well as costs, associated with any of the new corridors. Several Advisory Committee members noted that the benefits of the Expressway



strategies – both travel and economic benefits – were modest. As a result, the group recommended dropping B-5, B-6, NB-2 and NB-3.

The group also noted that the major corridor upgrades, except those on Route 111, were not expected to greatly change travel conditions, and therefore didn't recommend further study of K-2 or NB-1.

The Advisory Committee did express support for further study of the local strategies in Phase III, but with some reservation about potential environmental and community impacts associated with these strategies, especially those around the Rte. 111/Maine Turnpike intersection.

At the March meeting, the Advisory Committee generally concurred with MaineDOT and MTA's recommendations to drop all the Expressway strategies, including K-3; however it was noted that York County is one of the largest growing workforces in the state and the need to efficiently move people in, out and around the county is key to strong employment.

STEERING COMMITTEE

The study's Steering Committee responded similarly to the Advisory Committee. They also supported further study of the Biddeford Corridor Upgrade strategies (B-1, B-3). They noted that these appear to provide travel benefits with lower cost and fewer impacts than new corridors would. The majority of the group felt that the Biddeford Expressway strategies (B-5 and B-6) were too costly, had considerable potential for environmental and rural character impacts, and would not result in benefits sufficient to justify their considerable cost.

The Steering Committee was split on the Kennebunk Expressway (K-3) strategy. While expressing strong concerns over environmental impacts, there was general agreement that it was the most promising of the new expressway strategies considered. If any of the expressway strategies were to be carried forward, some Steering Committee members felt K-3 was the best candidate.

The Steering Committee did not feel that the other major highway strategies (K-2, NB-1, NB-2, NB-3) warranted further consideration due to limited travel and economic benefits. They did concur with further study of the local strategies in Phase III.

At the March meeting, most of the committee members concurred with MaineDOT and MTA's recommendation to drop all the expressway strategies. However, a few committee members did express concerns that economic benefits may not have been fully captured in the analysis. One member also expressed the opinion that strategies should not be eliminated due to current financial constraints, contending that they could at some point become more financially viable.

PUBLIC MEETING

Those members of the public who spoke at the meeting expressed a number of concerns regarding the Phase II regional highway strategies; particularly those that involved construction of new corridors. Environmental concerns, costs, and limited benefits were cited by many as reasons to not carry forward these strategies.

Audience members also noted that even the smaller, local strategies that involve new corridors have the potential for impacts to sensitive areas. In Biddeford, the land north of Route 111 and west of the Maine Turnpike includes wetlands and habitats that community members have been working to preserve. They expressed concern that Strategies B2 and B3, which include a new connection between Route 111 and South Street (Waterboro Road) would impact these areas.

Some attendees spoke in favor of greater consideration of non-highway strategies, such as transit improvements and corridor management strategies, such as interconnecting commercial properties with a central access point. A representative of the Sanford Regional Growth Council expressed support for more detailed study of the existing corridors given the unfavorable findings associated with new corridors.

RECOMMENDATIONS AND NEXT STEPS

Based on the results of Phase II analysis, as well as committee and public feedback, the MaineDOT and MTA have decided to continue studying smaller scale highway improvements, as well as non-highway strategies, moving forward. Specifically, Phase III of the CYCCS will include the following;

- Variations of the Biddeford Corridor Upgrade strategies (B-1, B-3) will be further investigated. These are expected to involve improvements to Route 111/202 of a smaller scale than originally investigated during Phase II.
- The Local Strategies (B-2, B-4, K-1) will be further studied. The definitions of these strategies may be refined or altered as more specific, detailed investigations are conducted.
- Additionally “spot” improvements will be considered at intersections and/or specific segments of study area highways. The need for these will be determined based on subsequent, more detailed analysis in Phase III of corridor traffic operations and safety along the primary highway corridors serving central York County; Routes 4, 35, 99, 111, and 202, as well as portions of Route 1 that intersect with these major inland routes.
- The role of land uses polices, access management, transit services and travel demand management programs in providing access and mobility will be further explored.

None of the major new corridors (B-5, B-6, K-3, NB-2, NB-3) will be considered further as part of the CYCCS. In addition, corridor-wide improvements to Routes 109 and Route 4 as proposed in strategies K-2 and NB-1 will not be studied further, though spot improvements to those and other study area highways may be considered as noted above.



CYCCS PHASE I AND II STUDY DOCUMENTS AND TECHNICAL MEMORANDA

Purpose and Need Statement (Updated March 31, 2011)

<http://www.connectingyorkcounty.org/news/purpose-and-need-statement>

Population and Employment Projections – Methodology and Summary Results (August 2011)

<http://www.connectingyorkcounty.org/news/technical-memorandum-population-and-employment-projections>

Historical and Archeological Resources: Phase I Technical Memorandum (August 2011)

<http://www.connectingyorkcounty.org/news/historical-and-archeological-resources-phase-i-technical-memorandum>

Review of Local Plans and Development Regulations Phase I Technical Memorandum
(September 2011)

<http://www.connectingyorkcounty.org/news/review-local-plans-and-development-regulations-phase-i-technical-memorandum>

Phase II Highway Corridor Strategy Descriptions Technical Memorandum (September 2011)

<http://www.connectingyorkcounty.org/news/phase-ii-highway-corridor-strategy-descriptions-technical-memorandum>

Review of Local Plans and Development Regulations Phase I Technical Memorandum (September 2011)

<http://www.connectingyorkcounty.org/news/review-local-plans-and-development-regulations-phase-i-technical-memorandum>

Phase II Transit, Travel Demand Management and Transportation Systems Management Technical Memorandum (March 2012)

<http://www.connectingyorkcounty.org/news/phase-ii-transit-travel-demand-management-and-transportation-systems-management-technical-memor>

Review of Transportation Plans and Prior Studies (March 2012)

<http://www.connectingyorkcounty.org/news/list>

Natural Resources – Summary of Existing Baseline Information (March 2012)

<http://www.connectingyorkcounty.org/news/phase-i-technical-memorandum-natural-resources-summary-existing-baseline-information>