

Route 236 Implementation Committee

Summary of Former Relevant Planning Studies Relating to Route 236

December 2004

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Document Name: Maine's Park and Ride Lots

Date of Publication: January 2004

Author: HNTB for Maine Turnpike Authority & Maine DOT

Access to Document: Contact the Maine Turnpike Authority or go to their weblink at http://www.maineturnpike.com/pdfs/park_and_ride_2003.pdf

Summary:

Purposes of the publication were:

1. To create an updated statewide inventory of park and ride lots;
2. To help prioritize improvements to existing lots;
3. To identify areas in which new lots might be needed;
4. To gather information on "unofficial" Park & Ride lots; and
5. To initiate an ongoing process by which all Park & Ride lots are reviewed and evaluated on a regular basis.

Relevant Findings:

- One official and one unofficial lot were identified in South Berwick, but the study had no information about the usage of these lots (Page 32);

Relevant Recommendations:

- Contact key employers to find out about other possible needs. As Section 5 pointed out, Bath Iron Works and Portsmouth Naval Shipyard account for 40% of all Park and Ride lot users. Perhaps these employers know of other locations where Park and Ride service is needed but not yet provided. They may have some insight concerning where expansions could be helpful (p. 36).

Status: ?

Goal: short term, somewhat useful in helping strategize a placement for a park and ride, but it I think we already know where park and rides need to be set up and/or marketed...A park and ride lot near the vicinity of Route 4/109 will probably have the most beneficial effect on 236 by decreasing a small amount of through traffic. Second step would be investigation and marketing of current South Berwick park and ride lots.

- Consider creating new Park & Ride lots in the following locations:
 - d. In the Sanford area. Sanford is the sixth largest city in the state, virtually identical in size to Biddeford. However, Sanford and its surrounding towns are not currently served by any Park & Ride lots. One possible location for a new lot in the area is the intersection of Route 111 and Route 4 in Alfred. These two roads link Sanford commuters with the Greater Portland area as well as with the Biddeford Saco area (pp. 37-8).

Status: SMRPC informing/advocating in various transportation planning forums. This Park and Ride may relieve some congestion for commuters heading south from Sanford through Route 4 and 236.

Goal: short term to medium term. See above. Not part of the study area, but may provide most relief that park and ride could to Route 236 corridor, especially if coordinated with gomaine, private worker shuttle operator, and employers.

- (From Section 9, p. 39, “Areas for Further Study”): This study focused exclusively on Park and Ride lots in Maine. However, SMRPC has identified at least five Park and Ride lots in New Hampshire that serve patrons traveling between the two states. A future study should seek to better understand the extent to which Park and Ride lots outside of the state are used to support Maine travelers.

Status: ?

Goal: short term. It would be worth catching up with Tim Roach to see if he knows of any NH park and ride studies...I'd like to know the number of Maine license plates in those lots if possible, especially the two giant Portsmouth park and ride lots.

Document Name: Draft South Berwick Origin Destination Survey
Date of Publication: 2003
Author: SMRPC/ Wilbur Smith for Town of South Berwick
Access to Document: Contact SMRPC or go to the following weblink:
<http://www.smrpc.org/transportation/kacts/odsurvey.htm>

Summary:

The purpose of the study was to determine peak hour traffic patterns that contribute to congestion in the downtown area of South Berwick. The report summarizes the findings of traffic congestion based on a license plate survey of vehicles passing through four stations: Station 1) Route 4 at Liberty Street; Station 2) Route 236 at Vine Street; Station 3) Route 4 at Agamenticus Road; and Station 4) Route 236 at the South Berwick Post Office.

Relevant Findings:

Key findings (6:00 a.m. – 9:00 a.m.)

- A large proportion (42% or 656) of vehicles that entered the town on Portland St. (Station #3) and continued traveling south on Route 236 (Station #2)
- There was also a large proportion (48% or 539) of vehicles that entered town via Berwick St. (Station #4) and continued south on Route 236 (Station #2). The opposite movement (Station #3 □□ Station #1) had a very similar pattern during the morning at 30% or 469.
- 32% of vehicles (221) that entered town via Route 4 west (Station #1) continued on Route 4 northeast of the downtown (Station #3).
- 18.5% (811) of the total number of inbound vehicles (at all stations) during the 6:00 a.m. – 9:00 p.m. timeframe came back out through the same station. This is most likely due to the number of schools located within the downtown area, and the number of students who are dropped off or picked up at school. Berwick Academy, Marshwood Middle School, Central School, and The Bible Speaks are all located in or near the downtown area, and within the area of each of the license plate recording stations.
- The through-movements in the morning with the least amount of traffic appear to be: Station 1# to Station #4, Station #3 to Station #4 and Station #4 to Station #3.

Key findings (3:00 p.m. – 6:00 p.m.)

- It appears that vehicles travel from Station #4 to Station #3 in the afternoon hours (35%) make up a larger percent of the total traffic passing through the South Berwick downtown area, as compared to the morning (16%). However, the number of vehicles counted during the two time periods remained the same (164).
- Although the percent of traffic entering at Station #2 and traveling through Station #3 is 34%, it is less than the opposite movement (Station #3 to Station #2) in the morning hours. The actual number of vehicles making this movement the

afternoon is higher (740 compared to 656), but the movement between Station #2 and Station #3 is a smaller percentage of the total traffic coming through the downtown.

- 37% of vehicles (632) entered town at Station #1 and exited via Station #3 (Route 4).
- 19.6% (1,143) of the total number of inbound vehicles (at all stations) during 3:00 p.m. – 6:00 p.m. came back out through the same station.
- The through movements in the afternoon with the least amount of traffic appear to be: Station #4 to Station #1, Station #1 to Station #4, and Station #3 to Station #4.

Relevant Recommendations:

- The Town of South Berwick should request planning funds from the KACTS Committee to further analyze transportation improvements and alternatives that may alleviate the traffic congestion in the downtown area. One of these alternatives is the creation of a one-way loop incorporating some existing roadways and the construction of new sections. KACTS will be looking at this option further in the upcoming Route 236 Corridor Study Implementation Plan, scheduled to begin in the summer of 2004.

Status: Route 236 Corridor Implementation Plan began in the Fall 2004 which will help address South Berwick's traffic congestion problems.

Goal: short term to long term. Need more input from South Berwick Selectmen, Planning Board, Transportation Committee, and Maine DOT in terms of next steps.

- KACTS should conduct turning movement counts at the Route 236, Academy Street, and Vine Street intersection. The purpose of these counts is to determine whether any warrants are met for the installation of a traffic signal.
Status: South Berwick Transportation Committee and SMRPC will examine this intersection in 2005.
Goal: short term to medium term. Need to find out more about proposed candidate project for this intersection.
- The Town should work with the Maine Department of Transportation (MDOT) to determine whether a school zone should be established on Route 236 in front of Marshwood Middle School. The Town should also request MDOT conduct a speed zone study in this area to determine whether the current 45 mph speed limit is appropriate for this area of Route 236.
Status: South Berwick Transportation Committee and SMRPC have plans to work with Maine DOT on school zone issue.
Goal: short term. This needs to be coordinated with other school/traffic coordination, especially if coordination directs children to walk and bike to school.
- KACTS/SMRPC should conduct further traffic counts on Liberty Street, Academy Street, and Vine Street to better gauge the amount and direction of

traffic. These and other counts could be conducted by SMRPC under the current KACTS work plan.

Status: Counts are scheduled for 2005.

Goal: Short term.

- A meeting should be held with the superintendent of schools and principals of Berwick Academy, Marshwood Middle School, and Central School regarding the downtown traffic congestion. This meeting could be hosted by the Town Transportation Committee or the KACTS Committee. The purpose of the meeting would be to discuss options, such as staggering school start times or relocating student drop-off locations, which may alleviate some of the downtown traffic conflicts – particularly in the morning.

Status: Discussions between South Berwick Transportation Committee and schools started in Fall 2004.

Goal: Short to Medium Term. High Priority.

- The South Berwick Transportation Committee should communicate and share ideas with the Traffic & Parking Committee in the Town of Ogunquit, as this Committee is trying to address similar downtown traffic congestion issues.

Status: Communication was made through SMRPC. Ogunquit was invited to meetings but was unable to attend.

Goal: Short Term. Low Priority.

Document Name: A Heavy Haul Truck Network for the State of Maine
Date of Publication: 2001
Author: Wilbur Smith for Maine DOT
Access to Document: Contact SMRPC or the Freight Division at Maine DOT

Summary:

The Maine Heavy Haul Truck Network (HHTN) is a statewide study does the following:

- Identifies a network of Maine roadways where truck traffic is most intensive;
- Identifies physical deficiencies along these roadways; and
- Determines the type and cost of improvements that best address these deficiencies.

Route 236 is part of this network system.

Relevant Findings:

In Appendix C: RTAC Region Maps Describing the HHTN, Roadway Deficiencies and Project Proposals:

- The report finds that only in the South Berwick downtown area is there a lane width deficiency for heavy haul trucks passing through the Route 236 corridor.
- The report finds that there is a 1.13 km length section of Route 236 in Kittery that has a shoulder deficiency.

Relevant Recommendations:

- The report made a recommendation that the shoulder deficiency in Kittery be rated against other deficiencies in the RTAC-6 region. Estimated project cost was \$346,974, and the project received the lowest score for all projects that were rated in the region (.15).

Status: ?

Document Name: Weigh Station Diversion Study
Date of Publication: 1999
Author: SMRPC for KACTS
Access to Document: Contact SMRPC

Summary:

In 1996, KACTS conducted a Freight Study of the region, during which the Committee looked at major freight facilities and movements within and around the KACTS area. Of particular concern to the KACTS Committee was the perceived diversion of truck traffic from Interstate 95 and U.S. Route 1 when truck weigh stations were open on these roadways. As a result of these concerns, KACTS worked with the Maine Turnpike Authority, the Maine Department of Transportation and the Commercial Vehicle Enforcement Division of the Maine State Police to coordinate traffic counts around the weigh station schedule for the month of September 1999. Weigh stations were open on Thursday, September 2 from 5 a.m. to 11 a.m. and from 12 p.m. to 2 p.m.

Locations of Vehicle Classification Counts on Route 236 were:

- Route 236 south of Martin & Stevenson Roads and
- Route 236 south of Academy & Vine Streets

Other count locations off Rte 1 and I-95 were located on Route 4 in Berwick, Route 9 in North Berwick, and Route 202 in Lebanon.

Relevant Findings:

- All but one location off the Maine Turnpike experienced more *daily (total for the day)* truck traffic on Thursday than on Wednesday. The exception was on Route 236 in Kittery, where there was a decrease of 26 vehicles (-2%). The total daily increase on Thursday for all locations combined was 318 vehicles, or 7%.
- The highest increase *during hours of operation* occurred on State Route 236 (23.6%).
- Graph on p. 5 show that there were increases in truck traffic at State Route 236 at Martin/Stevenson Roads on Thursday (the day the weigh stations were opened) between 12 a.m.-9 a.m., 10 a.m.-11 a.m., and 1 p.m. to 4 p.m.
- Graph on p. 6 show that there were increases in truck traffic at State Route 236 at Academy and Vine Streets on Thursday (the day the weigh stations were opened) between 12 a.m.- 10 a.m., 11 a.m. to 1 p.m., and 2 p.m. to 3 p.m. and 4 p.m. to 5 p.m. and 6 p.m. to 8 p.m.

No Recommendations were provided in this study.

Document Name: Route 236 Land Use and Transportation Study
Date of Publication: March, 1999
Author: SMRPC for KACTS
Access to Document: Contact SMRPC

Summary:

Early in the summer of 1997, a meeting was held between the towns of Eliot, Kittery, and South Berwick concerning the Route 236 corridor. This meeting was hosted by the Eliot Select Board, and focused on development patterns along the roadway and its effect on traffic flow and safety. Staff from the Kittery Area Comprehensive Transportation Study (KACTS) were invited to the meeting in order to provide input and offer assistance. One of the decisions made at this meeting and subsequent meetings with Eliot was to include a Route 236 land use analysis in following Fiscal Year 1998 KACTS work plan (7/97–6/98). A methodology and study outline was prepared and presented to the KACTS Committee, which approved funding for the project in July of 1997. KACTS staff used ArcView, a Geographic Information System (GIS), to map and analyze past growth patterns and apply future growth scenarios to the study area.

The study area included a 2 mile buffer area around Route 236 starting at the Route 9 intersection in Berwick to the Route 236 terminus in Kittery. The study looked at growth indicators (traffic volume, population, building permits, etc.) and applied growth assumptions based on existing constraints to future development, current zoning, and existing building structure locations.

Relevant Findings:

- Traffic generated by anticipated residential growth in the study area will affect Route 236 capacity the most in two areas: (1) from the intersection with Route 103 in Eliot south to Interstate 95, and (2) from the intersection with Route 91 north to the Berwick town line.
- Level of Service analysis for two lane highways is based on an average “flow rate” per lane. The analysis does not consider the number of conflict points (i.e. curb cuts) on any segment. If the number of curb cuts is allowed to continue at its current rate, vehicle delay and congestion levels will worsen much quicker than indicated in this report.
- The Level of Service analysis for Route 236 in the build out year only takes into account growth within the study area. There is no easy way to derive the percent of traffic flow coming from inside vs. outside the study area. This could only be determined with a detailed license plate or “origin & destination” survey, which is outside the scope and budget of this report. It is likely that the Level of Service will deteriorate more rapidly if growth in surrounding communities mirrors that of the study area.

- Currently, the Town of Kittery is the only municipality in the study area required to provide a local match for Federally funded highway projects. This is due to the population threshold of 6,000. However, it is likely that Berwick, South Berwick and possibly Eliot will be over this population following the U.S. Census count in 2000.
- Roadway costs in the past 20 years have amounted to just over \$2.4 million. Individual projects and associated costs are shown below:

Project Cost	
Intersection improvements/signalization at Beech Road	\$360,000
Intersection improvements/signalization at State Route 101 (Goodwin Rd)	\$250,000
Operational improvements to Route 4/236 in South Berwick	\$165,000
Reconstruction of Route 4/236 in South Berwick Village	\$412,500
Installation of signals at intersection of Route 9 in Berwick	\$70,000
Intersection improvements/ signalization at Martin & Stevenson Roads	\$150,000*
Intersection improvement at State Route 91	\$35,000
Pavement resurfacing on Route 236 (various locations)	\$966,960
Maine DOT South Berwick Bypass Study	\$25,000 est.
Southern Maine RPC Safety Study -- 236/Vine St & 236/Quarry Drive	\$4,000
	\$2,438,460

* Funding provided by the Town of Kittery

- With current development patterns and growth rates, the following intersections on Route 236 will most likely need either signal installation or operational improvements: Quarry Road in South Berwick, Depot Road in Eliot, Bolt Hill Road in Eliot, Route 103 in Eliot (estimated cost = \$800,000)
- The town of Eliot will experience the greatest impact of land area consumption that is forecast for the next twenty year period.
- Land uses along immediately adjacent to Route 236 will be increasingly developed by “fast food”, coffee shops, and retail establishments which primarily rely on capturing pass-by traffic for the bulk of their business.

Relevant Recommendations:

- The KACTS Committee will review and comment on all development proposals within KACTS municipalities which meet the threshold for MDOT review under the Site Location of Development Law. These comments will be provided to MDOT and all municipalities in the KACTS area.
Status: KACTS staff are currently reviewing and commenting on all Traffic Movement Permits in the region. The most recent hearing was for a Dunkin Donuts on Route 236. SMRPC needs to follow up with MDOT on a request for MDOT to review its records regarding an access permit for the Irving Gas Station on Route 236.
May need to enhance this program in terms of developers following through on MDOT traffic improvement requirements.
- The Committee will work with the Southern Maine RideShare program to increase awareness of carpooling in the area through direct marketing, dissemination of program information, and direct contacts with area employers.
Status: KACTS staff works with GoMaine on Employer contacts and events. Other marketing and dissemination strategies could be explored further.
Short term. High Priority, this should be grouped with Park and Ride recommendations.
- The Committee will work toward the establishment of a regional impact fee to assist in the payment of local match for highway improvements to Route 236. As mentioned in the Findings section, Eliot, South Berwick, and Berwick will most likely be responsible (following release of Census 2000 population figures) for a portion of the local match for Federally funded projects. This impact fee system should be in place by 2003.
Status: Not implemented. Research on other models, legal obstacles and other issues is needed. Possible item for Route 236 Implementation Committee.
Short to Medium term. Short term would be research item...Medium term would be implementation.
- The Committee will explore opportunities for the development of commuter bus service along the Route 236 corridor.
Status: There has been no exploration of commuter bus service to date.
Short to Medium term. Research need like the regional impact fee idea.
- Work with KACTS municipalities to develop a detailed inventory of vacant parcels and zoning adjacent to Route 236. The inventory will be developed using a Geographic Information System (GIS), and be used to analyze future growth patterns and its effects on community services and road improvements. If needed, staff will also be available to assist municipalities in analyzing the effects of changing zoning districts or standards adjacent to the highway.

Status: KACTS contract with MDOT for Route 236 Implementation Committee is to provide vacant parcel and zoning analysis adjacent to Route 236 if needed.

- The Committee will amend the KACTS Project Selection Procedure, which is the process by which the Committee prioritizes transportation projects. The amendment will reward more points for projects in municipalities which have access management standards in their land use ordinance. The points will be awarded based on five standards and be applied to project score totals. The five standards are:

- 4% Ordinance contains sight distance requirements equal to MDOT recommendations
 - 4% Ordinance contains provisions for minimum distance between entrances based on highway speed
 - 4% Ordinance addresses minimum distances between entrance and any nearby roadway intersection
 - 4% Maximum number of driveways per lot
 - 4% Entrance(s) allowed only on lower volume roadway if property is a corner lot
- 20% maximum increase

For example:

- a project receives a score of 400 points based on the KACTS Project Selection Procedure
- the municipality in which the project is located has sight distance requirements which meet MDOT standards
- the final score for the project is 416 $[(400*.02)+400]$

Status: This Project Selection Procedure was discussed at KACTS Committee Meetings. A conclusion was made that for the time being the process would be difficult to implement because of MPO funding constraints.

Document Name: Final Report of the Commission to Review Traffic Congestion including Truck Traffic Along the Route 1 York Corridor and the Route 236 Corridor
Date of Publication: December, 1999
Author: The Commission
Access to Document: Contact SMRPC

Summary:

Relevant Findings:

- The traffic circle located at the southern end of Route One in Kittery was constructed prior to the development of the shopping district and does not have the capacity to handle the current volume of traffic;
- Heavy truck traffic and oversize loads are causing serious traffic congestion problems and premature road deterioration along Route 236, particularly in South Berwick;
- Recent toll increases on the Maine Turnpike have contributed to traffic congestion along Route One and Route 236;
- Route 236 is no longer safe and easy to use as a commuter route because of the increasing number of curb cuts from North Berwick to Kittery;
- Greater awareness and incentives are necessary to promote carpooling for commuters;
- Route 236 may need a center turning lane from Kittery to the Eliot-South Berwick Line to promote greater overall safety and to accommodate traffic increases and truck traffic diverted by weigh station operation;
- State Police staffing is insufficient to properly operate weigh stations, patrol Route One and 236 and manage oversize load traffic; and
- The section of Route 236 from South Berwick to Berwick needs to be widened or realigned beyond the limits of its current public easement.

Relevant Recommendations:

- The speed limit on Route 236, from Route 101 to Route 91, should be uniformly posted at 45 mph;
Status: No changes have been made since report.
- When issuing overlimit permits, the Secretary of State-Bureau of Motor Vehicles should give greater consideration to approving routes that avoid town centers;
Status: South Berwick Transportation Committee has plans to work with SMRPC to develop a letter. Other towns will be notified of this letter and offered to participate.

- The Maine Department of Transportation should construct a center lane on Route 236 from Kittery to the intersection with Route 101;
Status: No changes have been made since report.
- State Police staffing of the weight enforcement stations should be increased along with general increases in patrolling of Route 236 and Route One;
Status: ?
- The Maine Turnpike Authority and the MDOT should offer greater incentives for and awareness of carpooling, such as discount toll fares and Park and Ride advertising;
Status: Maine Turnpike Authority and Maine DOT contracted out a Park and Ride Study to give them baseline information and recommendations to increase awareness/access of lots. Both agencies fund the GoMaine program, formally known as RideShare.
- State and local policies pertaining to allowance of curb cuts should be more restrictive to protect the capacity of Route One and Route 236;
Status: The Maine legislature granted access permitting authority to Maine DOT in 2002. Towns do not appear to have developed more restrictive access management policies since the development of this report.
- The Governor should examine the economic impact of the burden and inconvenience caused by traffic safety and congestion problems along Route One and Route 236 and the feasibility of placing restrictions on through truck traffic;
Status: No examination has taken place since report.
- The Maine Department of Transportation should include in its Planning Study of the Kittery to Wells Route One Corridor, traffic congestion and safety issues at the following intersections:

Kittery

Route 236 and Route One southbound

Eliot

Route 236 and Depot Road
Route 236 and Bolt Hill Road

South Berwick

Route 236 and Lower Main Street
Route 236 and Route 4 (Portland Street)
Route 236 and Elementary School Lot
Route 236 and Vine and Academy (Middle School lot)
Route 236 and Route 91 (Old South Road)

Route 236 and Norton Street
Route 236 and Academy Street
Route 236 and Route 4 (Maine Street)
Route 236 and Old Mill Road (Quarry Drive)
Route 236 and Marshwood High School lot

Status: ?

Document Name: South Berwick Route 4 and Route 236 Corridor Plan Study
Date of Publication: April, 1993
Author: DeLuca-Hoffman Associates, Inc. and Terrence Dewan Associates
Access to Document: Contact SMRPC

Summary:

From the Executive Summary: “The major roadways through South Berwick experience a significant increase in traffic during the 1980’s which resulted in traffic congestion particularly on Main Street from Route 236 to Portland Street. Several studies have been performed and improvements recommended to address the problem but none of them have been acceptable to the local community. Therefore the Town, KACTS and the MDOT have engaged the team of DeLuca-Hoffman Associates, Inc. and Terrence J. Dewan Associates to evaluate the problems on Main Street and make recommendations which will be acceptable on both the State and Local level.” This effort was developed to involve citizens in a Maine DOT project to redesign Main Street in South Berwick. DeLuca-Hoffman was hired by KACTS to give input to Maine DOT on this project.

Relevant Findings:

The following deficiencies were identified:

- Main Street/Route 236: Long delays experienced by left turning vehicles coming from Route 236 approach.
- Main Street/Academy Road: Long delays experienced by left turning vehicles on all approaches.
- Main Street from Academy to Paul Street: Parking maneuvers and delays to thru vehicles due to left turn maneuvers from Main St.
- Main Street from Paul to Portland: Parking maneuvers.
- Main Street/Portland Street intersection: Long delays experienced by left turning vehicles. Impact of Main Street left turns on thru movement.
- Main Street from Portland to Young Street: Parking and pedestrian movement.
- Portland Street from Main to Colcord Street: Parking and pedestrian movement.

Relevant Recommendations:

- Recommendations included promotion of bypass routes, on street parking and off-street parking lots, turning and through lanes, sidewalks and signage. Many of these objectives (except the bypass of course) were folded into subsequent Maine DOT construction projects and are results of the design of South Berwick Main Street that we see today. See report for more detailed information.

Document Name: 1987 South Berwick By-Pass Feasibility Study
Date of Publication: Revised Draft, September 20, 1989
Author: Maine Department of Transportation, Bureau of Planning
Access to Document: Contact SMRPC, Town of South Berwick, Maine DOT

Summary:

Concerned with increasing traffic congestion at the intersections of Route 4 and 236 and along Main Street, South Berwick officials requested the Maine Department of Transportation to study the feasibility of constructing a by-pass of South Berwick from Route 236 (s/o South Berwick) to Route 4 (n/o South Berwick). Three alternatives were analyzed:

- Alternative 1: Beginning at the junction of Route 91/236 and extending northeasterly to Route 4 approximately .5 miles N/O the Berwick-North Berwick town line.
- Alternative 2: Beginning at the junction of Route 91/236 and extending northeasterly, then northwesterly to Route 4 approximately .5 mi N/O the junction of Blackberry Hill Rd and Route 4.
- Alternative 3: This alternative follows approximately the same path as Alternative 2 except that this alternative does not use the abandoned railroad right of way.

Findings:

- Project Costs
 - a. Alternative 1: \$18,575,000
 - b. Alternative 2: \$13,000,000
 - c. Alternative 3: \$8,300,000
- Alternatives 1 and 2 follow the abandoned railroad right of way and involve expensive utility relocations
- Alternative 1 would serve approximately 1,400 vehicles at the 1987 Annual Average Daily Traffic level
- Alternatives 2 and 3 would serve approximately 1,900 vehicles at the 1987 Annual Average Daily Traffic level
- The result of benefit/cost analysis indicated that none of the three alternatives studied are economically justified. Assuming a 4 percent growth rate, the following benefit/cost ratios were computed:
 - a. Alternative 1: 0.37
 - b. Alternative 2: 0.47
 - c. Alternative 3: 0.76
- The by-pass provides very little improvements to the existing Level of Service at the two intersections of Routes 4 and 236.

No Recommendations were provided in this study.

Document Name: Powderhouse Hill Land Use Study
Date of Publication: January 1987
Author: T.Y. Lin International/Hunter-Ballew Associates, Mitchell-DeWan Associates, & Normandeau Associates, Inc.
Access to Document: Contact Town of South Berwick

Summary:

This was a study commissioned by the Town of South Berwick to assist its planning board in developing a master plan to encourage orderly, well planned development and growth in an area known as Powderhouse Hill. KACTS contributed funds to the study to examine effects of development that is likely to occur on the transportation system. The Powderhouse Hill study area is bordered by Route 236 to the southwest, Great Works River to the east, and Agamenticus Road on the northwest. The study established two goals:

1. Develop a plan for orderly growth in the Powderhouse Hill Area
 - a. Determine opportunities and constraints for development;
 - b. Recommend a smooth traffic circulation system;
 - c. Recommend land use type and density that harmonize with the environment;
 - d. Recommend changes in existing Town ordinances to guide development;
 - e. Suggest techniques and processes by which the plan could be implemented; and
2. Evaluate the possibility of creating a Route 4/236 connection that circumvented South Berwick's Main Street and relieved commuter pressure from the downtown area.

Relevant Findings:

- It was estimated that between 3000 and 3300 vehicles daily would divert to a Route 4/236 bypass of South Berwick's Main Street should one be available today (1987).
- Bypass would have positive effect on the level of service on intersections at Portland Rd and Main St and Main St at Route 236 next to Cumberland Farm.
- The volumes of AM and PM peak hour traffic on Main Street would be effectively reduced by 25%.

Relevant Recommendations:

- "The Future Land Use Plan suggests a South Berwick Bypass as a long-term objective for the Town. Located on the old railroad bed, paralleling the CMP transmission lines, this land seems like an obvious location for a permanent solution to some of the traffic problems that are currently facing the Town. This route would require considerable legal, traffic, and engineering study to determine

its feasibility. The initial reaction of the Study Team seems to suggest that this route has great merit, and that the Town should be working with Maine DOT as well as KACTS to initiate formal requests for study funds.

Status: Study never implemented.

- ...”it is not realistic to think that a village bypass is the total solution to Main Street congestion. A bypass would address only those through movements on Route 4 and 236 not destined for the South Berwick Town Center....It is recommended that the Town consider conducting a comprehensive transportation study for the Town Center that could program strategies for addressing the impacts of this additional residential growth within the Town...This plan could identify capital improvement projects for the transportation system.... Cost estimates could be prepared for these capital projects and a mechanism for public/private funding could be developed through the establishment of an impact fee assessment program.”

Status: ?