IV. Environmental Consequences

The environmental consequences and potential mitigation measures associated with construction of each build alternative were identified through studies of the social and natural environment. A larger, more regional area was evaluated for some socioeconomic subjects and secondary and cumulative impacts.

Alternative 4A and the Preferred Alternative have been carried through detailed studies and are discussed; all other alternatives were dismissed (Section II, Alternatives Analysis).

A. Social Environment

1. Land Use and Zoning

a. Existing Land Use

Alternative 4A and the Preferred Alternative would directly impact land uses through the acquisition of new right-of-way and conversion of a variety of land uses to transportation use (Table IV-1).

Table IV-1, Impacts to Land Use by Alternative

Alternative	Agriculture: (acres)	Commercial: (acres)	Residential: (acres)	Undeveloped: (acres)	Total: (acres)
4A	11.0	1.0	12.5	42.5	67.0
4E*	9.0	1.0	11.0	47.5	68.5

Note: *1 acre = 0.4047 hectare*
**Alternative 4E is the preferred alternative.*

MDOT typically acquires a right-of-way width of 36.6 m (120 ft.) for highways constructed on new alignment and a right-of-way width of 30.5 m (100 ft.) for highway reconstruction on existing alignment. During final design, MDOT will attempt to minimize the extent of right-of-way required.

b. Future Land Use

Alternative 4A and the Preferred Alternative would result in potential impacts to future land use. Positive impacts to future land use would result in the areas adjacent to the southern and northern portions of Route 26 that are designated as "growth areas". This may be especially true for those undeveloped lands designated for growth in the southern portion of the study area, adjacent to where build alternatives diverge from Route 26. To help control potential development, Alternative 4A and the Preferred Alternative would be limited access highways. The presence of the bypass would make land available for potential development within a designated growth area. Other impacts may result from a bypass to the north and west through undeveloped lands designated as rural areas. Without strict land use control at the Town level, the presence of a new roadway may encourage more intensive development than is currently planned in these rural areas designated for low density development.

c. Zoning

The acquisition of right-of-way for Alternative 4A and the Preferred Alternative may render certain parcels nonconforming with respect to the dimensional standards of the zoning districts. The Town of New Gloucester will permit the continued use of properties that are reduced in size as a result of construction of the Preferred Alternative.

Alternative 4A and the Preferred Alternative could result in impacts to zoning consistency. Positive impacts could result in the areas adjacent to the southern and northern portions of Route 26 zoned to accommodate commercial or higher density residential development. This would be especially true for those undeveloped lands designated for growth in the southern portion of the study area, adjacent to where the build alternatives diverge from existing Route 26. A bypass could have the potential to make land available for development, consistent with zoning. Other impacts may result from a bypass to the north and west through undeveloped lands designated for less intensive development.

To limit potential development, Alternative 4A and the Preferred Alternative would be limited access highways (Section A-1-b, Future Land Use).

Without strict land use control at the Town level, the presence of a new roadway may encourage more intensive development than is currently zoned in these rural residential and farm and forest zones.

d. Access

To control access on the new roadway, abutting parcels or portion of parcels would be allowed access onto the road if they do not currently have access to existing Rt. 26 or another local road. Where the new roadway splits a parcel, access to the new roadway would be permitted only for that portion of the parcel landlocked by the new roadway. Parcels or portions of parcels with existing access to Rt. 26 will not be permitted direct access to the new roadway. Based on the preliminary design of the Preferred Alternative, approximately 12 parcels may be permitted access to the new roadway.

2. Community Characteristics

The build alternatives would result in minor impacts to community characteristics. Negative impacts would result from the displacement of some residences and by moving the highway closer to some currently isolated residential areas (such as those residences along Dermot Drive and Brackett Road). Positive impacts would result to abutters and those residential areas along Route 26 south of Shaker Bog from lower traffic volumes.

The build alternatives would not disproportionately impact low income, minority, or elderly populations.

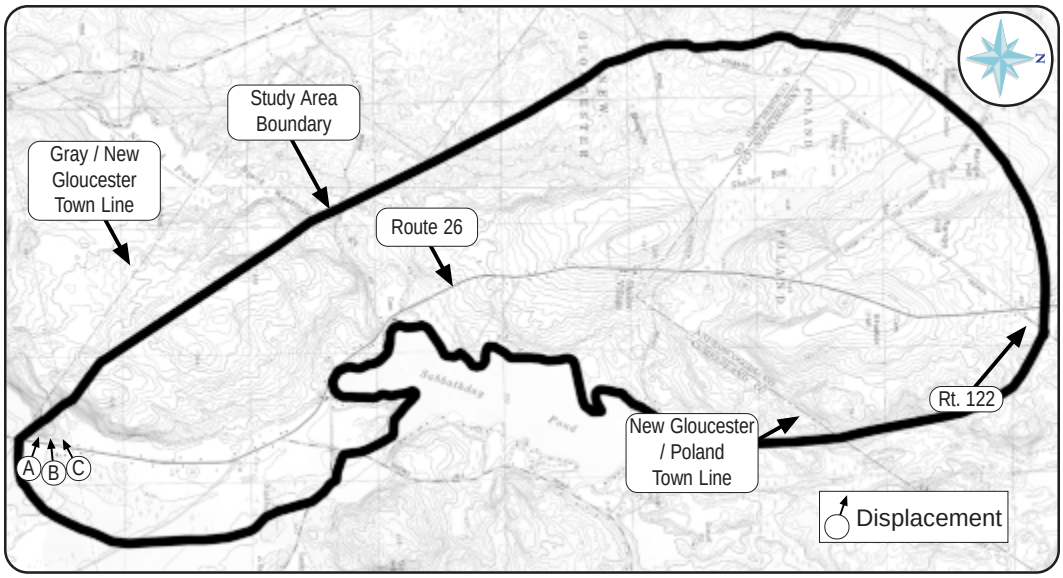


Figure IV-1, Displacements *Scale 1:60,000*

3. Displacements

Alternative 4A and the Preferred Alternative would result in the displacement of three residential structures at the southern connection with Route 26 (Figure IV-1).

Federal and federally-assisted actions which require acquisition of property must comply with Title VI of the Civil Rights Act of 1964 and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (49 USC 4601 et seq). Each of these legislative controls protects owners from unfair and unequitable acquisition of property.

In addition to the protection provided by the Civil Rights Act and the Uniform Relocation Assistance and Real Property Acquisition Policies Act, special segments of the population are defended from discrimination by Executive Order 12989, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 1994. This order requires Federal agencies to identify these population segments and identify discriminatory and disproportionately high and adverse human health or environmental effects, including social and economic effects, generated by the proposed action.

4. Community Facilities and Services

Alternative 4A and the Preferred Alternative benefit school bus and emergency vehicle services through reduced traffic volumes on portions of existing Route 26. No other impacts to community facilities and services would result.

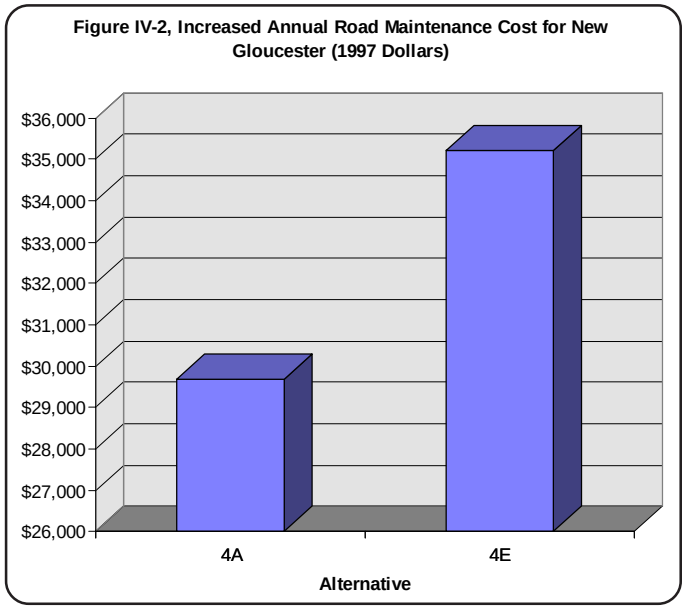
Potential traffic delays during construction could temporarily increase travel times and congestion within the study area.

Table IV-2, Labor Force Characteristics

Jurisdiction	Civilian Labor Force	% of Tot. Pop. in Labor Force	% of Females in Labor Force	% of Labor Force Unemployed	% of Labor Force Working within Resident Jurisdiction
New Gloucester	2,011	46.9%	45.1%	5.6%	19.9%
Poland	2,265	52.4%	46.2%	4.8%	15.0%
The State of Maine	612,564	49.9%	46.4%	6.6%	96.6%

5. Economic Characteristics

Alternative 4A and the Preferred Alternative would have positive impacts on the regional economy. The proposed improvements would facilitate the safe and efficient movement of goods and people along the Route 26 corridor serving the western Maine region.



Note: *Alternative 4E is the preferred alternative.*

Local industries would benefit from the improved travel conditions. However, several small commercial and home businesses along Route 26 south of Sabbathday Lake rely in part on patronage generated by "pass-by" traffic and would be adversely impacted by Alternative 4A and the Preferred Alternative. These alternatives would remove much of the traffic from Route 26 south of Sabbathday Lake.

Alternatives 4A and 4E would result in the annual loss of approximately $4,800 in tax revenue from the removal of some property from the local tax rolls.

In addition to the losses in tax revenue, New Gloucester would incur additional annual maintenance costs for the sections of Route 26 that would be bypassed and returned to the Towns (Figure IV-2).

The MDOT would improve the portions of Route 26 to be bypassed, prior to turning them over to the Town of New Gloucester.

6. Pedestrian and Bicycle Use

Alternative 4A and the Preferred Alternative would have positive impacts on pedestrian and bicycle use. These alternatives would provide wider, uniform, paved shoulders. Pedestrians and bicyclists would benefit from reduced traffic volume on existing Route 26. These alternatives would bypass both Sabbathday Lake and Shaker

Village. The removal of heavy through traffic from these two sensitive areas would result in increased pedestrian safety. Alternative 4A would require an additional crossing of the trail system along the Central Maine Power Line.

Construction activities could temporarily impact pedestrian and bicycle activity. Cyclists or pedestrians may need to alter their travel patterns to avoid construction areas.

7. Visual Impacts to Historic Properties

Alternative 4A and the Preferred Alternative would result in impacts to visual resources along portions of Route 26 that would be upgraded and in areas where bypasses would be constructed.

These alternatives would result in both positive and negative impacts to the Shaker Village and the three properties potentially eligible for the National Register of Historic Places (Appendix A, Section 4(f) Statement). The elimination of through traffic, especially truck traffic, that currently bisects the Village would have a substantial positive impact on the visual quality within the Village. A more pleasant visual environment would be experienced by those living in and visiting the Shaker Village. The relocated highway up gradient and to the west would offer a better view scape to the Shaker Village and possibly to Sabbathday Lake, than is currently afforded.

These alternatives, which would traverse the agricultural fields and orchard to the west, would adversely affect views from the Shaker Village. Alternative 4A (a worst case with respect to the visual impact), located closest to the Shaker Village, would have slightly greater adverse visual impacts than the Preferred Alternative. In the vicinity of Shaker Village, Alternative 4A would traverse a field northwest of the Village, the lower portion of the orchard west of the Village, and a corn field to the southwest of the Village before merging with Route 26. Little natural screening exists between the orchard and the cemetery at Shaker Village (Photos IV-1a, 1b). Some natural screening of the proposed roadway would be afforded by a small wooded area west of the Shaker Library (Photos IV-2a, 2b). Alternative 4A and its modifications would be visible in the southeastern portion of the orchard (Photo IV-3a, 3b).

The Preferred Alternative will parallel existing Route 26 through the orchard and corn field to the south. South of the Shaker property, it would traverse former agricultural fields associated with several historical structures along the west side of Route 26, resulting in impacts to views from these structures to the west.

Overall it would be anticipated that the positive visual impacts generated by removing Route 26 from the Shaker Village would outweigh the negative impacts associated with the construction of a roadway west of the Shaker Village.

Efforts to avoid and minimize impacts to the visual character of the study area and visually sensitive resources in proximity to the Shaker Village have been ongoing. Measures such as placing the roadway in deeper cut and minimizing visual intrusion on the Shaker Village were considered but dismissed due to prohibitive costs.

Photo IV-1a, View, of a portion of the meadow north of the Shaker Library from Route 26. (Photo taken 3/2/98)

Photo IV-1b, Conceptual rendering of the same view after construction of Alternative 4A.

Photo IV-2a, View of the area to the west of the Shaker Library and Meetinghouse from Route 26. (Photo taken 3/2/98)

Photo IV-2b, Conceptual rendering of the same view after construction of Alternative 4A.

Photo IV-3a, View of a portion of the orchard to the south of the Shaker Meetinghouse from Route 26. (Photo taken 3/2/98)

Photo IV-3b, Conceptual rendering of the same view after construction of Alternative 4A.

8. Farmlands

Alternative 4A and the Preferred Alternative would impact active agricultural lands and lands underlain by soils classified as prime farmland soils or soils of state-wide importance, subject to FPPA (Table IV-3). Active agricultural lands include lands currently used for agricultural purposes. Impacts to prime farmlands soils and soils of state-wide importance involve lands not in urban development that are underlain by soils conducive to agricultural activities, regardless of whether these lands are currently farmed.

Table IV-3, Impacts to Farmlands by Alternative

Alternative	Active Agricultural Prodcution (acres)	Prime Farmland and Statewide Important Soils (acres)
4A	11.0	12.3
4E*	9.0	12.8

Note: *1 acre = 0.4047 hectare*
**Alternative 4E is the preferred alternative.*

B. Natural Environment

1. Geology and Soils

a. Geology

Alternative 4A and the Preferred Alternative will not impact the geology in the study area.

b. Soils

Alternative 4A and the Preferred Alternative would impact soils. The removal of vegetation and earth-moving activities associated with construction would expose soils to erosive forces. Erodible materials that may be exposed would result in an increase in the potential for sedimentation of waters. Erosion and sedimentation control strategies will be incorporated into the design and implemented during construction of this project in accordance with Section II of the MDOT's *Best Management Practices for Erosion and Sedimentation Control* (MDOT Sept. 1997).

2. Water Resources

a. Surface Waters and Aquatic Biota

Alternative 4A and the Preferred Alternative would result in an increase in pollutants to surface waters due to the increase in impervious surface within the watershed. Impacts of these alternatives would include effects upon aquatic biota in streams.

The highway drainage system would be designed and maintained to reduce the transport of sediments and other particulates into surface waters. The build alternatives are west of Route 26, which increases the in-stream travel distances to Sabbathday Lake. Longer travel distances would result in less sediment transport to the lake. Impacts related to sedimentation would be temporary and related to construction activities. A short-term increase in the potential for sediment loading to Mosquito Brook and the Shaker Bog outlet would occur, however this effect would

be minimized through the use of appropriate erosion and sedimentation controls. Any short-term increase would diminish upon the completion of construction and the reestablishment of vegetation along the new crossings.

Impacts on aquatic communities are related to the crossing of streams. Alternative 4A and the Preferred Alternative would result in minor impacts to the aquatic communities of Mosquito Brook and the Shaker Bog outlet. At the crossings of Mosquito Brook and one of the Shaker Bog outlet streams, the alternatives would be constructed on new alignments resulting in small increases in stream encroachment. These crossings would generally be adjacent to the existing crossing. Existing culverts in these streams would be replaced with new culverts sized to convey the passage of flows under Route 26.

b. Groundwater Resources

Alternative 4A and the Preferred Alternative would impact the quantity and quality of the water supply at the Shaker Village.

3. Wetlands

Alternative 4A and the Preferred Alternative would impact palustrine wetlands (Table IV-4, & Appendix B); wetland impacts would be necessary if the project purpose and needs are to be satisfied. Each of the build alternatives was designed to avoid wetlands to the extent possible.

The Preferred Alternative would impact 0.4 ha (0.9 ac.) of an intermittent riverine wetland near Abby Road (an MDEP jurisdictional wetland).

Table IV-4, Impacts to Wetlands Under USACOE's Jurisdiction by Alternative

Alternative	PEM (acres)	PSS (acres)	PFO (acres)	Total (acres)
4A	1.3	—	0.7	2.0
4E*	1.6	0.3	0.7	2.6

Note: *1 acre = 0.4047 hectare*
PEM = Palustrine Emergent
PSS = Palustrine Scrub-Shrub
PFO = Palustrine Forested
**Alternative 4E is the preferred alternative.*

4. Vegetation

Alternative 4A and the Preferred Alternative would impact vegetation in the study area (Table IV-5).

Table IV-5, Impacts to Vegetation by Alternative

Alternative	Forest Impacts	Agricultural Impacts	Total
4A	40.5 acres	9.0 acres	49.5 acres
4E*	44.5 acres	8.0 acres	52.5 acres

Note: *1 acre = 0.4047 hectare*
**Alternative 4E is the preferred alternative.*

5. Wildlife

Alternative 4A and the Preferred Alternative would impact approximately 5.1 ha (12.6 ac.) of unfragmented habitat in the southern portion of the study area.

6. Threatened and Endangered Species

Alternative 4A and the Preferred Alternative would not impact threatened and endangered species.

7. Floodplains

As specified in Executive Order 11988, (Floodplain Management, DOT Order 5650.2 Floodplain Management and Protection), the impacts on floodplains and floodplain encroachments must be considered for each alternative. Encroachments are considered significant if at least one of the following factors is applicable:

- It has a significant effect on natural and/or beneficial Floodplain values.
- It would increase the risk of flooding that could result in loss of life or property.
- It would significantly impact or otherwise disrupt vital services, facilities, or travel routes.

Alternative 4A and the Preferred Alternative would impact approximately 0.3 ha (0.7 ac.) of floodplains, but these impacts would not be significant under Executive Order 11988. Impacts to the 100 year floodplain at Mosquito Brook would result from widening an existing crossing. Infrastructure (culvers, bridges, etc.) at the crossing will be of adequate size to provide improved conveyance of floodflow compared to the existing inadequte culvert.

C. Hazardous Wastes or Materials

Alternative 4A and the Preferred Alternative would not impact known hazardous wastes or materials nor would they be affected by these materials.

D. Noise

Using 1997 traffic data and the observed speeds from the measurement period and calibration process, 1997 peak noise hour predictions were estimated at 85 analysis points within the NSAs in the study area (for the location of specific noise sensitive sites, refer to the Noise Technical Memorandum, MDOT 1998). These predicted noise levels vary slightly from noise levels taken during the measurement period due to several factors:

- Analysis sites are often at different locations within the NSA from measurement sites.
- Existing peak noise hour volumes provided by MDOT are typically higher than counts taken during the measurement periods.
- The model assumes traffic traveling at equal spacing; during the monitoring period, periods existed during which little traffic passed the noise measurement site.
- Composition of vehicles varies from day to day, and from hour to hour; the MDOT traffic projections are based on average peak hour conditions over a year's period.

Noise levels for the design year (year 2020) for Alternative 4A and the Preferred Alternative were projected for the analysis sites. For a comparison of the increase over existing noise level, existing year 1997 noise levels were calculated. The range of noise levels within each NSA along with maximum and minimum increases

over existing noise level values was predicted (Table IV-6). The number of sites which qualify for consideration of noise abatement based on either of the FHWA or MDOT criteria was noted.

Comparison of the 2020 noise levels with existing noise levels indicates that normal traffic increases during the 23-year period would result in a maximum 2 dBA increase in noise levels; increases in noise less than 3 dBA are generally not perceptible changes.

FHWA Noise Abatement Criteria (NAC) and MDOT policies require consideration of noise abatement at sites where the noise level approaches or exceeds the NAC level (i.e., where a level equal to or greater than 66 dBA is predicted) or where a substantial increase in noise levels (equal to or greater than 15 dBA) is predicted. Sites meeting these criteria were evaluated for noise abatement in terms of both the feasibility and reasonableness of abatement. For sites along Route 26, noise abatement is not feasible due to the need to maintain access to adjacent properties and roadways. Building noise barriers, while still providing the necessary openings for access, would render the barrier acoustically ineffective.

Table IV-6, Summary of Noise Levels and Impacts by Noise Sensitive Area

Noise Sensitive Area and Limits	Analysis Sites	1997 Existing	Year 2020 Alt. 4A	Year 2020 Alt. 4E*
NSA 1: Carpenter Rd. to Highview Dr.	R44 to R56			
Noise Level Range		58-71	60-73	60-73
Maximum IOE			2	2
Minimum IOE			2	2
NSA 2: Highview Rd. to Outlet Rd.	R38 to R43			
Noise Level Range		55-63	57-66	57-66
Maximum IOE			2	2
Minimum IOE			2	2
NSAs 3 and 4: Outlet Rd. to Potters Lane	R34 to R36 and S1 to S5			
Noise Level Range		62-69	60-70	60-68
Maximum IOE			2	5
Minimum IOE			-7	-8
NSAs 5 and 8: Potters Lane to Pond Rd.	R27 to R33, P1 to P6, and B1 to B9			
Noise Level Range		38-68	43-69	43-70
Maximum IOE			10	12
Minimum IOE			-4	-4
NSA s 6 and 9: Pond Rd. to Mayall Rd.	R16 to R26 and D1 to D8			
Noise Level Range		42-67	52-63	52-63
Maximum IOE			19	19
Minimum IOE			-4	-4
NSA 7: Mayall Rd. to Colebrook Rd.	R1 to R15			
Noise Level Range		63-69	53-81	53-81
Maximum IOE		2	15	15
Minimum IOE		1	-11	-11

Note:
- *All noise levels are peak hour Leq in dBA; values calculated to nearest tenth of a dBA and then rounded to nearest dBA.*
- *IOE = Increase over existing noise level; values calculated to nearest tenth of a dBA and then rounded to nearest dBA.*
- *There is no site named R37.*

**Alternative 4E is the preferred alternative.*

Sites where noise abatement consideration is warranted and local access needs would not preclude barrier construction are in the vicinity of Dermot Drive. Options for abatement were evaluated (Table IV-7). While noise barriers could provide substantial noise abatement and could be considered feasible in accordance

with Maine DOT policy, none were found to be reasonable. The MDOT's noise policy uses cost per residence, among other criteria, as a measure of reasonableness; the cost of noise barriers would substantially exceed the criteria of $20,000 per benefited receiver.

Table IV-7, Noise Abatement Options Considered

Alternatives	Barrier Option	Max. Barrier Height (ft.)	Barrier Area (sq. ft.)	Barrier Cost	Max. Atten-uation (dBA)	Sites > 5 dBA	Sites > 10 dBA	Cost / Residence > 5 dBA
4A and 4E*	1	10	8,332	$166,640	2	0	0	n/a
4A and 4E*	2	18	26,807	$536,140	6	2	0	$268,070

**Alternative 4E is the preferred alternative.*

E. Air Quality

No increase in emissions would result from Alternative 4A and the Preferred Alternative. No air quality impacts are anticipated based on the results of the CO air quality analysis (MDOT 1998).

F. Cultural Resources

Under Section 110 of the NHPA, agencies are required to minimize harm to resources eligible for the National Register of Historic Places and National Historic Landmarks. Coordination with the Shaker community and State Historic Preservation Office (SHPO) has been ongoing throughout the project planning phase to develop alternatives which: (1) are acceptable to the members, and (2) which provide minimum impact upon the community and the historical setting of the village (Section V-B, Public Involvement).

1. Archaeological Resources

While it does not appear that Alternative 4A and the Preferred Alternative would impact potential archaeological resources, MDOT will continue to coordinate with the SHPO during final design.

2. Historic Resources

Alternative 4A would avoid the 19th century colonial-style farmhouse. This alternative would require the acquisition of 0.3 ha (0.7 ac.) of property from the frontage of the 19th century frame farmhouse.

Alternative 4A would require the acquisition of 5.7 ha (14.1 ac.) from the Shaker Property to accommodate a bypass of the Village. MDOT recommends that a section of Route 26 be discontinued and removed on the southern portion of the Shaker Village property and the primary access to the Shaker Village be from the north using existing Route 26 via Quarry Road. This alternative would remove through-traffic from the Village satisfying the needs of the Shaker Village associated with safety, traffic, noise, the protection of water quality, and the protection of the

village. Alternative 4A would directly impact the water tower and the spring — the sole source of water to the Village. This alternative would remove a portion of the orchard from production; however, the Shaker community is presently replacing the old orchard growth at a new location. Portions of Alternative 4A would be visible from parts of the Village (Section A-1-7, Visual Impacts to Historic Properties). Alternative 4A would avoid the cemetery to the north of the Shaker library.

The Preferred Alternative will create a bypass to the west of the two historic properties. This alternative will require the acquisition of 1.1 ha (2.8 ac.) from the 19th century frame farmhouse, and 0.2 ha (0.6 ac.) from the 19th century colonial-style farmhouse. While the bypass created by the Preferred Alternative will create a physical barrier between these two structures and the remainder of their respective properties, this alternative would increase the distance between traffic on Route 26 and the houses. The existing Route 26 would remain in place to serve local traffic.

The Preferred Alternative will require the acquisition of 4.5 ha (11.1 ac.) from the Shaker Property to accommodate a bypass of the Village. This alternative would remove through-traffic from the Village satisfying the Shaker Village's needs associated with safety, traffic, noise, the protection of water quality, and the protection of the Village. The Preferred Alternative will indirectly impact the water tower and the spring — the sole-source of water to the Village. This alternative would remove a portion of the orchard from production; however, the Shaker community is presently replacing the old orchard growth at a new location. Portions of this alternative may be visible from parts of the Village. The Preferred Alternative will avoid the cemetery to the north of the Shaker library.

G. Summary of Construction Impacts

Construction of Alternative 4A and the Preferred Alternative would result in temporary impacts within the study area. These impacts would generally be limited to the duration and location of construction activities. Construction activities would have the following impact:

Community Facilities and Services — Potential traffic delays during construction would increase travel time and temporarily increase congestion. This situation may slightly increase response time for emergency services.

Pedestrian and Bicycle Use — Construction would temporarily hinder pedestrian and bicycle circulation. Cyclists and pedestrians may need to change their travel patterns to avoid construction areas.

Visual Impacts to Historic Resources — Temporary use and placement of construction equipment and materials would impact the visual quality of the study area.

Geology and Soils — Construction activities would potentially result in a temporary increase in soil erosion within the disturbed portions of the study area.

Surface Waters — Construction would potentially result in a temporary increase in soil erosion within the disturbed portions of the study area.

Groundwater — Construction would impact the quantity and quality of water from the spring at the Shaker Village and its continued use as the only source of water to the property.

Wetlands — Permanent wetland impacts would be mitigated in accordance with the Clean Water Act Section 404(b)(1) Guidelines.

Vegetation — Construction would temporarily impact vegetation in portions of the right-of-way and staging and stockpiling areas.

Air Quality — Local ambient air quality would be affected by the generation of fugitive dust from activities such as earth moving and equipment and materials handling.

Noise and Vibration — Earthwork, grading, and paving operations associated with the construction would generate temporary increases in noise and vibration. Temporary noise levels in excess of the existing background noise level would occur during construction. Construction noise is of a fixed duration and ceases upon completion of the construction phase.

Wildlife — Construction-related impacts to wildlife would involve vegetation impacts and noise.

H. Secondary Impacts and Cumulative Effects

1. Secondary Impacts

Secondary impacts are those that are "caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable" (40 CFR 1508.8). Secondary impacts are normally associated with development that may indirectly result from the construction or improvement of a facility, such as a transportation project. Secondary impacts differ from those directly associated with the construction and operation of the facility itself and are often caused by what is commonly referred to as induced development. Induced development may include a variety of secondary effects such as changes in land use, water quality, economic vitality, and population density. Therefore, the potential for secondary impacts to actually occur is determined in great part by the individual municipal planning objectives and the location of the project.

To control potential development, Alternative 4A and the Preferred Alternative would be limited access highways. MDOT would permit abutters one accessway to each property or portion of a property which, upon implementation of a build alternative, would no longer have access to existing Route 26. Existing driveways along Route 26 will not be permitted to be changed to the bypass.

Alternative 4A and the Preferred Alternative may result in the secondary impact of inducing limited development and its resultant economic and environmen-

tal impacts. Properties or portions of properties within the study area that may experience secondary impacts were identified; these properties exhibited the following characteristics:

- Currently undeveloped or not fully developed (e.g., large-lot single residence)
- Absence of natural features that would preclude or discourage development
- Proximity to existing development (i.e., avoidance of "leapfrog" development)
- Within defined growth areas of New Gloucester and Poland
- Access available to future roadways

Alternative 4A and the Preferred Alternative would provide traffic relief to the portion of Route 26 in the Town of New Gloucester, thereby enhancing the desirability and long-term potential for residential growth and development along existing Route 26. This result would be consistent with the Town of New Gloucester Comprehensive Plan which designates the southern portion of existing Route 26 as an area for "Village Growth."

In addition to new roadways, the new intersections created by Alternative 4A and the Preferred Alternative present a limited opportunity for secondary impacts; the new intersections created by these alternatives could increase the development potential of adjacent parcels. These areas would include intersections with existing Route 26 in the southern portion of the study area and at Pond Road. Despite this increased potential, development of these sites would be limited by the Town of New Gloucester's growth boundary, the small number of parcels adjoining these alternatives, and the steep topography of the area.

Given the limitations and physical restrictions of areas proximate to Alternative 4A and the Preferred Alternative, the proposed project would not result in substantial secondary impacts. The potential environmental impacts resulting from secondary development would be limited by the small area subject to secondary impacts and the rules and regulations governing protection of the individual resources and future development. Based on a review of environmental information available, no substantial resource impacts due to limited development appear to be likely in these areas.

2. Cumulative Effects

To assess cumulative effects, other projects with local and regional significance which are planned or envisioned within the near future were identified. These projects would include other transportation or transit programs, large-scale residential or commercial development, and governmental programs or regulations affecting a resource. Evaluation of the potential cumulative effect of these projects and programs are included within each resource discussion. Reasonably foreseeable future projects identified include:

1) Two potential actions are being considered in the town of New Gloucester. They include the construction of a new fire station along Route 26 and the establishment of a public beach at Sabbathday Lake near the Sabbathday Grange. The town of New Gloucester has planned for the implementation of access management and sign regulation measures along Route 26.

2) An alteration to the Gray Interchange of the Maine Turnpike is currently under study by the Maine Turnpike Authority. The Gray/New Gloucester Access Study is looking at alternatives for reducing turnpike traffic through downtown Gray.

3) Other improvements are planned for Route 26 within Cumberland and Androscoggin Counties. These improvements involve reconstruction of the existing roadway, with the addition of center left-turn lanes, truck lanes, drainage, curbing, and sidewalks. Two projects were identified: Pigeon Hill section of Route 26 in Mechanic Falls and Route 26 between Oxford and Norway. Additionally, expansion of the Gray Park and Ride lots at the Maine Turnpike near Route 26 may occur.

The status and trends of select social and natural features and the projected cumulative effects of the impacts of the various projects identified, including the proposed project, were considered. The features and resources analyzed included:

- Land Use
- Recreation Areas
- Groundwater
- Wildlife
- Community Characteristics
- Surface Waters and Aquatic Biota
- Farmland
- Wetlands

The proposed project would not result in a substantial cumulative effect, in terms of intensity or context, to the social and natural features analyzed. Scattered residential and commercial development would continue to occur within the region; however, the growth of development is projected to slow. The effect of other reasonably foreseeable future projects would continue the current impacts within region. Impacts to environmental resources, even without improvement in the study area, would follow existing trends. Implementation of Alternative 4A or the Preferred Alternative with other projects identified, especially the Gray interchange, would present some increased incentive for residential growth in the region, but other incentives would need to be proposed to significantly affect the current rate of impact generated by rural growth.

I. Summary of Impacts from Alternatives 4A and The Preferred Alternative

A comparative summary of the most distinguishing characteristics and environmental impacts of Alternative 4A and the Preferred Alternative was prepared (Table IV-8); these items are summarized because they are either directly protected by legislation or, in the case of the social environment, overriding concerns of the PAC.

From these distinguishing characteristics, the following observations and conclusions are drawn:

- Alternative 4A would impact approximately 0.6 ac. wetlands less than the Preferred Alternative.
- The Preferred Alternative will have less impact to active farmland than Alternative 4A.
- The Preferred Alternative will use less area from historic resources than Alternative 4A.
- The Preferred Alternative is supported by the Shaker community because of less overall impact to their property and operations.

Table IV-8, Summary of Impacts from Alternatives 4A and 4E

Alternative	4A	4E*
Social Environment		
Area (acres)	67.0	68.5
Displacements	3	3
Natural Environment		
Wetlands (acres)	2.0	2.6
Floodplains (acres)	0.7	0.7
Farmland		
Active Production (acres)	11.0	9.0
Prime Farmland Soils (acres)	12.3	12.8
Other		
Historic Properties (each/acres)	2/14.8	3/14.5

Note: *1 acre = 0.4047 hectare*
**Alternative 4E is the preferred alternative.*

J. Summary of Mitigation and Other Commitments

The following measures have been developed to mitigate the impacts of the proposed project to features in the study area:

1. Farmlands

MDOT has completed and submitted a *Farmland Conversion Rating Form* (Form 1006) to the U.S. Natural Resource Conservation Service offices in Cumberland and Androscoggin counties.

2. Traffic

MDOT will improve the portions of Route 26 to be returned to the Town of New Gloucester. The improvements will be consistent with a level 2 overlay and include repairing culverts, removing ruts, providing a good structural overlay, improving ditches, and improving drainage.

3. Geology and Soils

The project will comply with the MDEP/MDOT memorandum of agreement for stormwater.

4. Surface Waters and Aquatic Biota

Surface runoff impacts will be mitigated through development of an erosion and sedimentation control plan in accordance with the MDOT's *Best Management Practices for Erosion and Sedimentation Control* (MDOT Sept. 1997).

5. Wetlands

MDOT will compensate for unavoidable impacts by complying with the Clean Water Act Section 404(b)(1) Guidelines, the accompanying Memorandum of Agreement between the USACOE and USEPA, the Highway Methodology (USACOE, New England Division, November 1993), and Chapter 310 of the Maine Natural Resource Protection Act (NRPA). The level of mitigation proposed in the project permit application would be appropriate and practicable (defined in Section 230.3(q) of the Federal guidelines), as determined by the State and Federal permitting agencies.

6. Wildlife

Impacts to wildlife and habitat will be partly mitigated through the revegetation of disturbed areas and wetlands compensation.

7. Hazardous Waste or Materials

MDOT will perform a Phase II Site Assessment during final design on site(s) in proximity to the Preferred Alternative to ensure that the project does not promote migration of currently undocumented contamination, protects site workers, and minimizes long-term liability

8. Noise

During final design, the geometry and grading for the Preferred Alternative in the vicinity of Dermot Drive and Pond Road will be revisited in an effort to minimize noise.

9. Cultural Resources

The Preferred Alternative includes a bypass of the Shaker Village that will generate many beneficial impacts to the Shaker community, but they also generate some negative impacts to elements of the historic character of the Shaker community. The following mitigation measures have been developed in coordination with the Shaker Community and the SHPO, and in consultation with the Advisory Council on Historic Preservation (ACHP), to ensure continued use of the property as a functional community, a center of tourism, and a National Historic Landmark:

- Stone Walls — Walls at the northern and southern property boundaries may be disturbed by the project. The appropriate methods for rehabilitation of these walls will be determined during final design in coordination with the Shaker community and the SHPO.
- Shaker Cemetery — The Preferred Alternative will avoid impacting the cemeteries.
- Water Supply — The Preferred Alternative will impact the domestic water supply system at the Shaker Village. A new well will be provided on the property prior to the start of construction to ensure a continued water supply. Additionally, if required, the ornamental "covers" on the existing spring and water tank will be moved to new locations on the property, in consultation with the Shaker community and the SHPO.
- Existing Roadway — Traffic will be removed from the existing roadway through the village. MDOT recommends that the primary access to the Shaker Village from the Preferred Alternative be from the north using existing Route 26 via Quarry Road. The final roadway surface will be determined in consultation with the Town of New Gloucester, the Shaker community, and the SHPO. The MDOT also recommends the construction of a cul-de-sac at the south end of the Shaker Village property. Consultation with the Shaker community, the Town of New Gloucester, the MDOT, and the SHPO will be required.
- Visual Resources — Portions of the Preferred Alternative will be constructed in small cut sections when in proximity to buildings or scenic views. Vegetative screening will be provided for at-grade sections of the bypass alternatives. Vegetative screening design will be developed in consultation with the Shaker community and the SHPO.
- Construction Impacts — A pre- and post-construction building survey will be performed to document construction impacts upon structure integrity. If impacts result from construction, repairs will be performed after the completion of the roadway. Details will be developed in consultation with the Shaker community and the SHPO to ensure repairs are historically accurate.

Since the proposed project will result in effects to historic resources, an agreement will be reached on measures which mitigate the adverse effects of the proposed project and construction. These measures will be embodied in a Memorandum of Agreement (MOA) between the FHWA, ACHP, and the MHPC, and the MDOT as a concurring party.