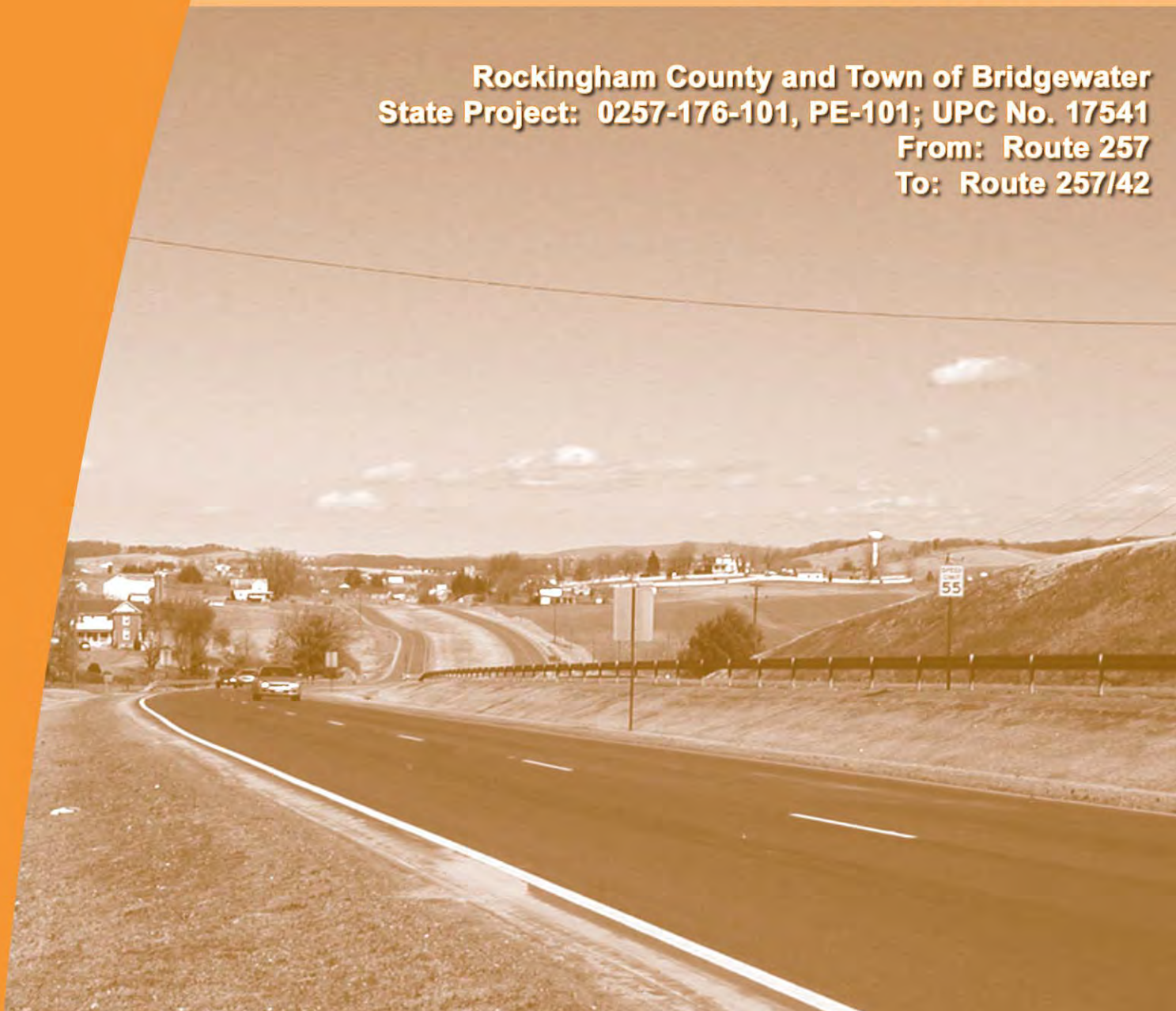
VDOT
Virginia Department of Transportation

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
and
VIRGINIA DEPARTMENT OF TRANSPORTATION

REVISED ENVIRONMENTAL ASSESSMENT

BRIDGEWATER BYPASS

Rockingham County and Town of Bridgewater
State Project: 0257-176-101, PE-101; UPC No. 17541
From: Route 257
To: Route 257/42



FEDERAL HIGHWAY ADMINISTRATION

FINDING OF NO SIGNIFICANT IMPACT

FOR

ROUTE:	Bridgewater Bypass
LOCATION:	Rockingham County and Town of Bridgewater, Virginia
FEDERAL PROJECT:	STP-5176(002)
STATE PROJECT:	0257-176-101, PE-101 (ID 17541)

The Federal Highway Administration has determined that Candidate Build Alternative A will have no significant impact on the environment. This Finding of No Significant Impact is based on the Revised Environmental Assessment which has been independently evaluated by the Federal Highway Administration and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required.

In addition, in accordance with 23 CFR 774, the Federal Highway Administration hereby makes a Section 4(f) finding of de minimis impact for the Mary Miller House.

_____ _____

Date FHWA Division Administrator

Rationale for the Finding of No Significant Impact
Bridgewater Bypass
State Project Number 0257-176-101, PE-101 (ID 17541)

I have reviewed the Virginia Department of Transportation's September 22, 2009 letter requesting a Finding of No Significant Impact (FONSI), the Revised Environmental Assessment, comments received on the Environmental Assessment and as part of the public involvement process as well as responses to those comments, and other project documentation.

Prior to the finalization of the Revised Environmental Assessment, I reviewed that document and provided comments. All of my comments have been addressed. The Revised Environmental Assessment is attached to this FONSI and is hereby incorporated by reference into this rationale supporting the FONSI.

Environmental Impacts

The Environmental Assessment was transmitted to numerous federal and state environmental resource agencies and was made available for public review prior to and at the Public Hearing. No comments were received from any agency or any member of the public that suggested that the project would have a significant environmental impact. The following discussion summarizes the environmental impacts from Candidate Build Alternative A as identified in the Revised Environmental Assessment.

Candidate Build Alternative A (CBA A) would have no impacts on the following resources: federally threatened and endangered species, parks and recreation facilities, wildlife and waterfowl refuges, anadromous fish, trout waters, scenic byways, wild and scenic rivers, open space easements, federal properties, public water supplies, sole source aquifers, and environmental justice populations. In addition, CBA A would not result in an exceedance of the National Ambient Air Quality Standard for any pollutant.

Land Use, Socioeconomics, and Right-of-Way and Relocations

Agriculture dominates land use in most of the area traversed by CBA A. However, Rockingham County's Comprehensive Plan designates most of the land within the study area for residential and commercial uses, and the Town of Bridgewater's Comprehensive Plan indicates residential, commercial, and industrial land uses along a proposed bypass corridor. In addition, Rockingham County and the Town of Bridgewater both passed resolutions supporting CBA A during this study.

Candidate Build Alternative A was located to avoid splitting communities and residential subdivisions, and no communities or subdivisions would be isolated. The project would likely require approximately three residential relocations. Two businesses – a car wash and mini-warehouse storage facility – may also be impacted, but it is probable that these

businesses can be avoided during final design of the project. One farm would be displaced; three other farms would be crossed by CBA A, but none of the structures on the farms would be displaced. The Bridgewater Volunteer Rescue Squad is near CBA A but it is unlikely that it would need to be displaced. Upon initiation of the right-of-way acquisition, the Virginia Department of Transportation (VDOT) will develop a detailed relocation plan to ensure that orderly relocation of all displacees can be accomplished in a satisfactory manner. The acquisition of right-of-way and the relocation of displacees will be in accordance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended. Assurance is given that relocation resources would be available to all residential, business, farm, and nonprofit displacees without discrimination.

Based on current real estate multiple listings services (MLS), there appears to be adequate housing and business replacement sites in the Harrisonburg/Rockingham/Bridgewater area. VDOT has the ability and, if necessary, is willing to provide housing of last resort including: the purchase of land or dwellings; repair of existing dwellings to meet decent, safe, and sanitary conditions; relocation or remodeling of dwellings purchased by VDOT; and construction of new dwellings. Assurance is given that all displaced individuals would be relocated to suitable replacement housing, and that all replacement housing would be fair housing available to all persons without regard to race, color, religion, sex, or national origin and would be within the financial means of the displacees. Each person would be given sufficient time to negotiate for and obtain possession of replacement housing. No residential occupants would be required to move from property needed for the project until comparable decent, safe, and sanitary replacement dwellings have been made available to them.

FHWA finds that the land use and socioeconomic impacts are not significant.

Farmland

Context. Rockingham County's Comprehensive Plan indicates that the County plans to maintain "its rural agricultural nature by directing new development to areas in or near existing towns and communities served by public water and sewer, and by curtailing development in rural areas." Accordingly, the County has designated Urban Growth Areas in and around the incorporated towns and adjacent to major road corridors. Bridgewater and portions of the county between Bridgewater and Harrisonburg are contained within the designated Urban Growth Area around the City of Harrisonburg. The Plan states that the area to absorb the largest amount of growth is south and east of Harrisonburg (including Bridgewater). The plan specifically mentions that the area between Harrisonburg and Bridgewater, Dayton, and Mount Crawford "is expected to absorb a significant amount of the future development and population growth of the county during the next several decades."

Farmland Protection Policy Act. Under the federal Farmland Protection Policy Act (FPPA), the U.S. Department of Agriculture defines "farmland" as:

- Prime farmland – land that has the best combination of physical and chemincal characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses.
- Unique farmland – land other than prime farmland that is used for production of specific high-value food and fiber crops.
- Farmland other the prime or unique farmland that is of statewide importance for the production of food, feed, fiber, forage, or oilseed crops.

According to the Natural Resources Conservation Service's District Conservationist, there are approximately 255,241 acres of farmable land in Rockingham County, of which approximately 165,525 acres meet the definition of "farmland" under the FPPA.

Intensity. Candidate Build Alternative A would convert less than 0.04% of the farmland in Rockingham County to highway use, and the affected farmland is not unique as there is similar farmland nearby and throughout the county. In accordance with the FPPA, Form CPA-106 was completed in cooperation with the Natural Resources Conservation Service. The Revised Environmental Assessment contains a detailed description of the procedures for completing the form. In accordance with the regulations implementing the FPPA at 7 CFR Part 658, corridors receiving a total score less than 160 need not be given further consideration for protection. The total score for CBA A was less than 160. Therefore, no further consideration is required under the FPPA for farmland protection measures or other alternatives that might reduce farmland conversion.

FHWA finds that the farmland impacts are not significant.

Historic Properties

The impacts to historic properties were assessed in accordance with Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations at 36 CFR Part 800. Historic properties are archaeological sites and historic buildings, structures, objects, and districts that are listed in, or eligible for listing in, the National Register of Historic Places. Two historic properties are in the project's area of potential effects: Mary Miller House and Sundial Dairy. However, the Virginia State Historic Preservation Officer has concurred that neither property would be adversely affected by CBA A.

FHWA finds that the impacts to historic properties are not significant.

Surface Waters

Surface waters in the area consist of Cooks Creek and several intermittent or ephemeral unnamed tributaries and several farm ponds. The U.S. Environmental Protection Agency (EPA) and the Virginia Department of Environmental Quality (VDEQ) have categorized

Cooks Creek as impaired because water quality does not meet water quality standards for fecal coliform bacteria and benthic aquatic life. The EPA and VDEQ have established total maximum daily loads for the applicable pollutants (fecal coliform bacteria, sediment, and phosphorous). The principal sources of these pollutants are agricultural, residential, and urban runoff.

Approximately ½ mile of streams would be disturbed by the planning corridor associated with CBA A. Pipe culverts likely would be the preferred method of carrying the smallest streams under the roadway. Culverts would be countersunk to provide for low flow conditions and so that natural bottoms could reestablish inside the culverts. Bridges likely would be used at Cooks Creek, and such bridges would be comparable to existing bridges downstream that carry Route 11 and Route 275 over Cooks Creek. Any unavoidable stream relocations will be performed using natural stream design, which means that the channel should mimic the dimension, pattern, and profile of a representative reference stream reach.

Compensation for stream impacts may be provided as part of permit conditions for authorizations issued by the U.S. Army Corps of Engineers and VDEQ. Because these agencies determine the compensation requirements for stream impacts on a case-by-case basis, the requirements for CBA A would be determined with those agencies as part of the permit application process during final design. Compensation may involve enhancement or restoration to stream and riparian areas, use of credits from an approved stream mitigation bank, or payments to the Virginia Aquatic Resources Trust Fund.

Minor long-term water quality effects could occur as a result of increases in impervious pavement surfaces, increases in traffic volumes, and associated increases in pollutants washed from the road surface into receiving streams. Because none of the receiving streams are elements of local public water supplies, the potential for human health effects from roadway runoff is minimal. Moreover, temporary and permanent stormwater management measures, including detention basins, vegetative controls, and other measures, would be implemented to minimize potential degradation of water quality. These measures would reduce or detain discharge volumes and remove pollutants. The requirements and special conditions of any required permits for work in and around surface waters would be incorporated into construction contract documents. The construction contractor would be required to comply with those conditions and with the pollution control measures specified in VDOT's Road and Bridge Specifications.

FHWA finds that the impacts to surface waters are not significant.

Wetlands

Wetlands in the area are small in size and scattered in distribution. The five wetlands along CBA A are palustrine emergent (PEM) systems. Candidate Build Alternative A would impact approximately 0.8 acres of wetlands, which a relatively minor amount for a project of this nature. Measures to avoid and minimize impacts to wetlands would be implemented where feasible. For unavoidable wetland impacts, during final design

VDOT will develop compensatory mitigation in accordance with what the federal and state water quality permitting agencies determine acceptable. Such compensation would account for lost wetland types and functions and could include construction of replacement wetlands onsite or offsite, enhancement of existing wetlands, use of credits form an approved wetlands mitigation bank, or payments to the Virginia Aquatic Resources Trust Fund.

FHWA finds that the impacts to wetlands are not significant.

Floodplains

The Federal Emergency Management Agency (FEMA) mapping of floodplains indicates the presence of a 100-year floodplain along Cooks Creek. Crossings of Cooks Creek would be designed so that potential increases in flood levels would be minimal and that no floodplain encroachments would increase the probability of flooding or the potential for property loss and hazard to life during the service life of any bridges or other drainage structures and their roadway approaches. Candidate Build Alternative A would not significantly impact fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, groundwater recharge, and other natural and beneficial floodplain values. The project would not encourage, induce, allow, serve, support, or otherwise facilitate additional or incompatible base floodplain development. Therefore, CBA A would not have an effect on flooding risks. The floodplain encroachments would not be "significant encroachments" as defined in 23 CFR 650.105(q) because: 1) they would pose no significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or that provides a community's only evacuation route; 2) they would not pose significant flooding risks; and 3) they would not have significant adverse impacts on natural or beneficial floodplain values.

Sections 107 and 303 of VDOT's specifications require the use of stormwater management practices to address concerns such as post-development storm flows and downstream channel capacity. These standards require that stormwater management ponds be designed to reduce stormwater flows to pre-construction conditions for up to a 10-year storm. VDOT would adhere to its specifications to prevent an increase in flooding risks associated with the project. It is expected that backwater elevations and velocity increases would be minimal or nonexistent. During final design, a detailed hydraulic survey and study would evaluate specific stormwater discharges. This evaluation would help ensure that no substantial increases in downstream flooding would occur.

Through coordination with Rockingham County floodplain management officials, the local floodplain ordinance was obtained and reviewed. The ordinance requires that any proposed development not result in increasing the elevation of the 100-year flood by more than one foot at any point. This project would be consistent with that provision.

FHWA finds that the impacts to floodplains are not significant.

Noise

Context. The context of the project is such that a certain amount of noise is already present as evidenced by the ambient noise levels noted in the noise analysis (38 to 69 dB(A)). (The noise study contains a description of the characteristics of noise, including the A-weighted decibel (db) scale (db(A)) and the equivalent steady state sound level (Leq).) By comparison, ambient noise levels in undeveloped areas can be in the low 30s (db(A)) or even lower.

Intensity. The intensity of the noise impacts consists of 13 receptor locations that would be impacted under 2030 build conditions according to the FHWA Noise Abatement Criteria (NAC). None of the impacted sites fall within Activity Category A of the NAC, which is defined as "Lands on which serenity and quiet are of extraordinary and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose." All impacts are the result of approaching or exceeding that NAC, and there would be no substantial increases in noise levels (10 or more db(A) over existing levels). The greatest noise increase for impacted properties is 13 db(A) as compared to the No-Build Alternative, and would be experienced at the exterior of the residences. The noise impacts identified for the project would not be continuous, but rather are based on the worst hourly traffic conditions in the project's design year.

FHWA noise regulations (23 CFR 772.13(d)) discuss a situation whereby noise abatement measures other than those listed can be utilized. One of the criteria is that there has to be a severe noise impact. FHWA's *Highway Traffic Noise and Abatement Policy and Guidance* sheds light on determining a severe impact, and states that "…the affected activities experience traffic noise impacts to a far greater degree than other similar activities adjacent to highway facilities, e.g., residential areas with absolute noise levels of 75 db(A) Leq(h) or more, residential areas with noise level increases of 30 db(A) or more over existing noise levels." Although the determination of a severe impact is in the context of noise abatement, the concept can be used to aid in the determination of whether the noise impacts are significant. The noise impacts from the project are not severe for any of the 13 impacted receptor locations as the highest absolute noise levels (71 db(A)) and greatest noise level increase (13 db(A)) are below the 75 db and 30 db threshold, respectively.

Mitigation. As stated in the noise analysis, noise mitigation measures that have been considered for this project include acquisition of additional right-of-way to provide buffer zones between the highway and adjacent noise-sensitive land uses, traffic management measures, and the construction of noise barriers and earth berms. Noise barriers appear to be feasible and within the State Noise Abatement Policy criteria for cost effectiveness for seven properties. Further analysis of potential noise barriers at these locations would be conducted during final design.

FHWA finds that the noise impacts are not significant.

Indirect and Cumulative Effects

Indirect Effects. The most common indirect effects associated with roadway projects relate to induced development; that is, development and the effects of such development that would not otherwise occur if the project were not constructed. Lands surrounding CBA A currently can be accessed from the existing road network. As such, they are subject to development even if the absence of the construction of CBA A assuming appropriate zoning and other local approvals. Construction of this project would enhance access into these currently undeveloped lands, and the project could make it easier for property owners to develop their lands. However, the project by itself would not be the direct cause of such development because other factors, such as economic conditions and local land use decisions, play a large role in development decisions. The area is planned for future development and some development has already occurred in nearby areas without a bypass being in place.

The bypass would be consistent with local planning regarding land use goals in the surrounding area. In addition, the Commonwealth Transportation Board designated CBA A as a limited access roadway, meaning that access would only be provided at the existing intersections at Route 257, Route 704, and Route 257/Route 42. This lack of direct access from adjacent properties would minimize any development that could be caused by the construction of CBA A.

Cumulative Effects. Table 4 in the Revised Environmental Assessment summarizes the more prominent environmental resources in the study area that would be impacted by the project, the effects that these resources have experienced from past and present actions, the incremental effect expected from CBA A, identification of reasonably foreseeable future actions, and the potential effects that may occur from reasonably foreseeable future actions in the study area. Any effects to the impaired Cooks Creek from future actions would be subject to the same water quality permitting authorities as CBA A, and the mitigation would be based on what the permitting agencies determine acceptable. Any future conversion of farmland would be in accordance local zoning requirements.

FHWA finds that the indirect effects and the cumulative effects are not significant.

Council on Environmental Quality's Regulations

The Council on Environmental Quality's regulations require consideration of a project's context and intensity in determining whether the project will have a significant impact (40 C.F.R. 1508.27). Regarding context, the regulations state, "Context means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant."

Since this project is a site-specific action, significance depends upon the effects of the project on the project area.

Regarding intensity, the regulations identify issues that should be considered in determining if the intensity of a project's impacts is substantial enough to warrant the preparation of an environmental impact statement (40 C.F.R. 1508.27(b)(1-10)). These issues are considered in the determination of whether there is a significant impact. The issues are addressed as follows:

1. *Impacts that may be both beneficial and adverse* – The project would result in a few beneficial impacts on the human environment. An alternative route for traffic, including truck traffic, would be provided so that it does not have to travel through downtown Bridgewater. Conflicts between vehicular, pedestrian, and bicycle travel on existing roads would be reduced, thereby increasing safety.

We find that these beneficial impacts, when taken in conjunction with the adverse impacts, are not significant.

2. *The degree to which the project affects public health or safety* – The project should not adversely affect public health and safety. On the contrary, since conflicts between vehicles and pedestrians would be reduced, public health and safety should improve. Also, the project will not cause or contribute to an exceedance of the National Ambient Air Quality Standards.

3. Unique characteristics of the geographical area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers or ecologically critical area – No historic or cultural resources, park lands, wild and scenic rivers, or ecologically critical areas would be adversely affected by the project. The project's effects to farmland (including prime farmland) and wetlands, as well as the reasons that those effects do not represent a significant impact, are explained above.

4. The degree to which the effects on the environment are expected to be highly controversial – Based on case law, it is our position that the term "controversial" refers to cases where substantial dispute exists as to the size, nature, or effect of the action rather than to the existence of opposition to a use, the effect of which is relatively undisputed. On this project, there has been no documented dispute regarding the size, nature, or effect of the project from the state or federal environmental resource agencies and no agency has opposed the project.

Based on the above, we find that the degree to which the effects on the environment are expected to be highly controversial does not require an environmental impact statement for this project.

5. The degree to which the effects on the quality of human environment are highly uncertain or involve unique or unknown risks – There are no known effects on the quality of the human environment that can be considered highly uncertain or involve unique or unknown risks.

6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration – This action will not set a precedent for future actions with significant effects or represent a decision in principle about a future consideration. The project has logical termini and independent utility and represents a reasonable expenditure of funds; it does not force additional improvements to be made to the transportation system. This decision will not establish a precedent regarding the requirements of the National Environmental Policy Act as they will be applied to future projects.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts - This action has logical termini and independent utility and does not force additional transportation improvements to be made to the transportation system. Cumulative effects were addressed in the Revised Environmental Assessment and in this document, and we find that they are not significant.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss of significant scientific, cultural, or historic resources – No districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places would be adversely affected by the project.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act – No federally endangered or threatened species or critical habitat will be affected by the project.

10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment – The project does not threaten a violation of any Federal, State, or local law for the protection of the environment. All applicable permits will be acquired prior to construction.

Conclusion

Based on the foregoing information and other supporting information, we find that the proposed project will not have a significant impact on the environment. Therefore, an Environmental Impact Statement is not warranted, and the Finding of No Significant Impact is being issued accordingly. The Finding of No Significant Impact will be reevaluated as appropriate pursuant to 23 C.F.R. 771.129(c) as major approvals are requested from FHWA.

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Purpose and Need

STUDY AREA

The Virginia Department of Transportation (VDOT), in cooperation with the Federal Highway Administration (FHWA), is studying potential locations for a bypass of the Town of Bridgewater connecting Routes 257 (Dinkel Avenue) and 257/42 (North Main Street/John Wayland Highway). While the project would be located generally east and north of Bridgewater, the study area, as shown on **Figure 1**, encompasses the Towns of Bridgewater and Mount Crawford, as well as portions of Rockingham County.

HISTORY

This study arose out of a perceived need on the part of local officials for a bypass road east of the Town of Bridgewater connecting Route 257 east of the town and Route 257/42 north of the town. A concept for such a connector road was contained in the regional transportation plan, known as the Harrisonburg Area Transportation Study (HATS), developed in the 1990s and adopted by local governments. HATS has since been replaced by the Harrisonburg-Rockingham Metropolitan Planning Organization's (HRMPO) *2030 Transportation Plan*.

The Bridgewater Bypass is included in the "Vision Plan" element of the *2030 Transportation Plan*, which includes transportation improvements identified by HRMPO members, citizens, and other parties (e.g., universities, goods movement interests) as being needed to address regional transportation deficiencies. Due to funding constraints, the proposed bypass has not been included in the financially Constrained Long-Range Plan. However, funding is provided in the short term in HRMPO's Transportation Improvement Program (TIP) and VDOT's Six-year Improvement Program for preliminary engineering and location studies.

The bypass also is included in Rockingham County's *Comprehensive Plan for 2020 and Beyond* and a bypass is discussed in the Town of Bridgewater's *Comprehensive Plan 2008* and depicted on its Future Land Use Map. Discussions also have been held at various times with Town of Bridgewater and Rockingham County representatives over the last several years regarding the project.

NEEDS - EXISTING CONDITIONS

Bridgewater, with a current population of approximately 5,400, sits astride two Virginia primary highways: Route 42, the main route between Bridgewater and the City of Harrisonburg; and Route 257, which connects Bridgewater with U.S. Route 11 and with I-81 (at exit 240). Route 257 and Route 42 overlap between their intersection in downtown Bridgewater and their divergence point three miles to the north at the Town of Dayton. Within Bridgewater, Routes 257 and 42 are lined on both sides with homes, businesses, industry, and institutional land uses. Bridgewater College, with an enrollment of approximately 1,500 students, straddles Route 257 and generates substantial pedestrian travel across the road at five crosswalks (more than 200 pedestrians during each of two 20-minute sample counts, one in the morning and one in the afternoon).

Routes 257 and 42 through Bridgewater are characterized by low travel speeds (posted speeds are 30 to 35 mph), inadequate geometry (pavement is narrow along some sections, e.g., 11-foot-wide lanes instead of 12-foot standard), and substantial interference to traffic flows caused by a large number of private entrances and intersecting streets (average of 50 access points per mile, includes intersecting streets, residential driveways, and commercial and institutional entrances along Dinkel Avenue between Mount Crawford Avenue and North Main Street; along North Main Street between Dinkel Avenue and Turner Ashby High School; and along Mount Crawford Avenue between Dinkel Avenue and North Main Street). Although no accident data are available for this study, research indicates that large numbers of driveways increase the potential conflicts and resulting crashes on highways and also increase congestion. It is impossible to maintain free flow speeds when numerous access points cause slow moving vehicles. A research synthesis found that roadway speeds were reduced an average of 2.5 miles per hour for every 10 access points per mile, up to a maximum of a 10 miles per hour reduction (at 40 access points per

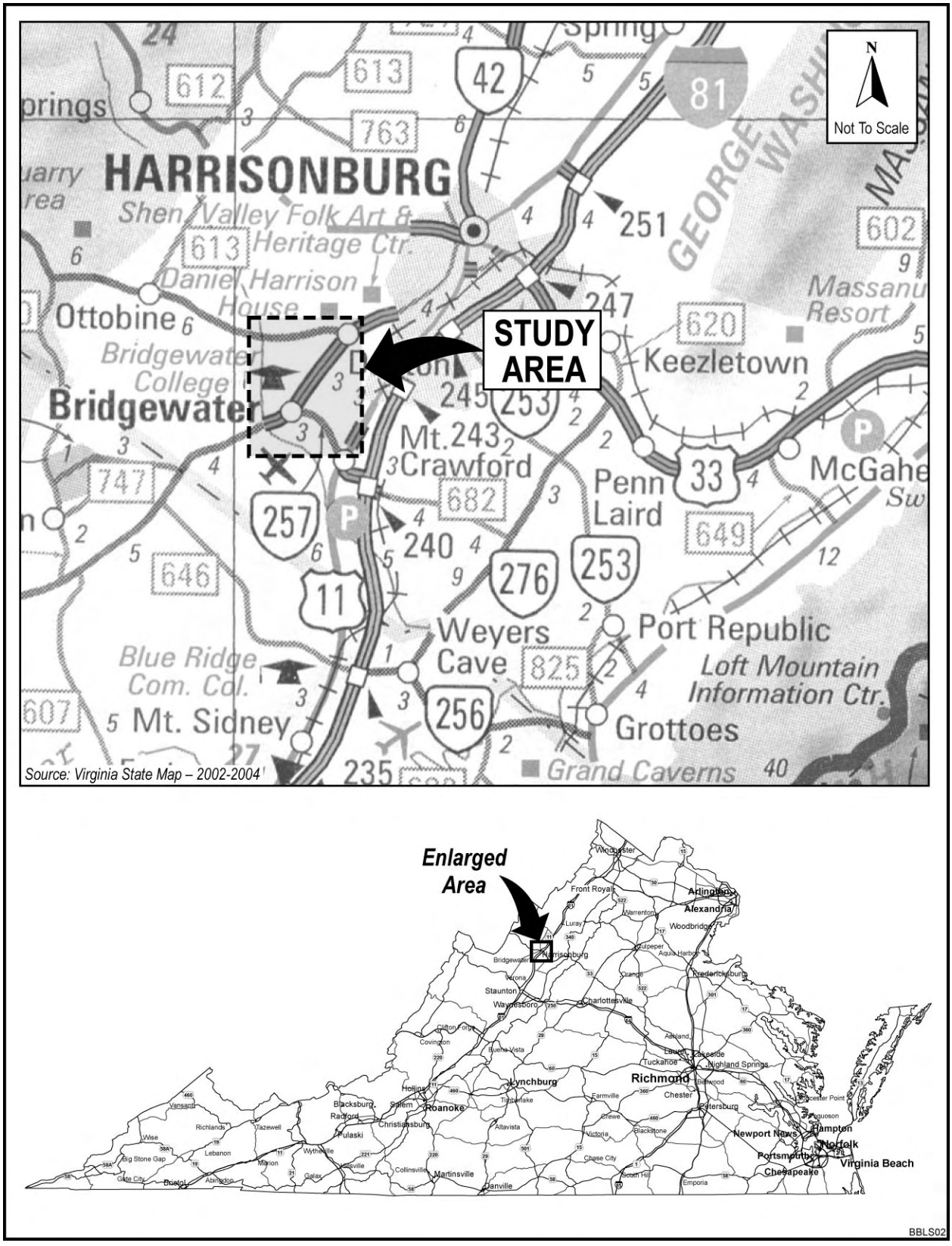


FIGURE 1. PROJECT LOCATION AND STUDY AREA

mile).[1] The low speeds and congestion hamper mobility for traffic traveling from points east of Bridgewater to points north of Bridgewater.

Daily traffic volumes through Bridgewater (approximately 8,100 on Route 257 and approximately 13,400 to 17,100 on Route 257/42) are becoming heavier. Because of increasing volumes along Route 257 and resulting congestion and delays, some traffic diverts to the parallel Route 1310 (Mount Crawford Avenue, current daily volume approximately 2,600). Moreover, heavy trucks (some 4% of the total volume) have difficulty turning at the intersections of Route 42 with Route 257 and Route 1310 because turning radii are inadequate, and trucks are observed to swing wide into oncoming travel lanes and still run up on sidewalks in making their turns. Many of these trucks travel between the industrial area in or near the northern portion of Bridgewater or farther to the north in Dayton and locations beyond the study area via the Route 257/Interstate 81 interchange. An alternate, more direct, route would allow these trucks to travel around rather than through downtown Bridgewater. The existing development along existing Route 257 east of Route 42, particularly Bridgewater College, a retirement community, and other residential and commercial activity, generate much pedestrian traffic. The heavy volume of traffic, particularly truck traffic, is a safety concern because of the vehicular/pedestrian traffic conflicts.

NEEDS - FUTURE CONDITIONS

Rockingham County's comprehensive plan designates most of the area east and north of Bridgewater for future development. With both population and employment in the Bridgewater area expected to more than double by the year 2030, traffic volumes also are expected to grow (estimated daily volumes for year 2030 are 11,000 to 16,200 on Route 257; 17,300 to 26,200 on Route 257/42; and 7,200 on Route 1310). Thus the existing conditions relative to safety concerns and inadequate connectivity and capacity will only get worse.

SUMMARY

The purpose of the Bridgewater Bypass is to provide an alternate route for traffic, especially truck traffic, so that it doesn't have to travel through downtown Bridgewater. Such a route would:

- Enhance connectivity between sections of Route 257 east of Bridgewater and sections of Route 257/42 north of Bridgewater, thereby improving mobility.
- Divert through traffic from existing Routes 257, 42, and 1310.
- Reduce conflicts between vehicular, pedestrian, and bicycle travel on Dinkel Avenue, North Main Street, and Mount Crawford Avenue and reduce conflicts with turning movements.

[1] Gluck, J., H. S. Levinson, and V. Stover, 1999, Impacts of Access Management Techniques, NCHRP Report 420, Transportation Research Board.

Alternatives

INTRODUCTION

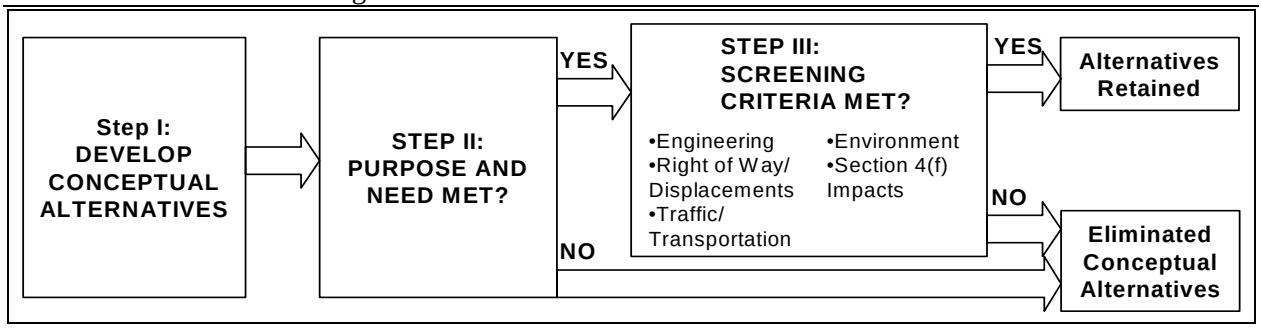
This section discusses the range of alternatives considered, the process used to identify and screen the alternatives, alternatives considered and eliminated from further consideration, and alternatives carried forward for detailed study. The No-build Alternative was retained and it serves as a baseline for alternatives comparison. Two Candidate Build Alternatives (CBAs) have been identified and are described in detail.

ALTERNATIVES DEVELOPMENT AND SCREENING

The flowchart below illustrates the steps in the alternatives development and screening process. This process involved identifying a broad range of alternatives initially and then narrowing the options to two CBAs for detailed consideration.

In the course of developing alternatives, a typical cross section was developed as shown in **Figure 2** to be used as a template for any bypass alternative. This template is based on recommendations from local government and criteria from VDOT design standards for a Rural Collector [GS-3] in rolling terrain. The project would have the following design features:

- Design speed: 60 mph.
- Posted speed: 55 mph.
- Maximum grade: 6%.
- Limited access (partial control) with entrance and crossover spacing 1,000' minimum.
- 4 lanes @ 12' wide each.
- Shoulders 8' wide (11' where guardrail required), with 6' paved.
- Raised median 16' wide.
- For pedestrians, bikes, and horse and buggy travel, a multi-use trail 14' wide with shoulders 2' wide; trail offset from road; trail to be on west side of bypass.
- Minimum right of way width 140'.
- All intersections to be at-grade.
- Bypass to "T" into Routes 257 and 42 (i.e., main movements will remain into Bridgewater rather than onto bypass).



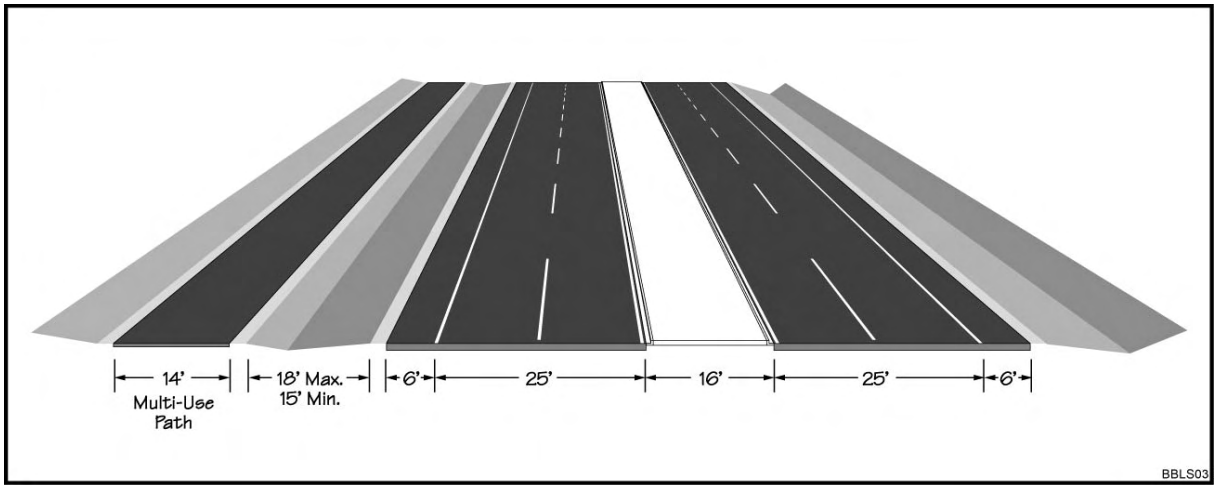


FIGURE 2. TYPICAL CROSS SECTION

ALTERNATIVES ELIMINATED FROM DETAILED STUDY

Through the alternatives screening, several concepts and alternatives were eliminated from further consideration and not carried forward for detailed study. **Table 1** lists the eliminated alternatives and reasons for their elimination. **Figure 3** shows the alternatives considered.

Table 1. Alternatives Eliminated from Detailed Study

Alternative	Basis for Elimination
Transportation System Management (TSM) Alternative	"TSM" generally means implementation of relatively low-cost actions to improve efficiency of existing transportation systems. Examples include traffic controls, signal synchronization, turn lanes, parking management, access management, operational modifications, flexible work hours, van pools, transit scheduling, bicycle and pedestrian improvements, modifying driver behavior with incentives, pricing, or restrictions. Although such actions are important elements in the overall transportation plan for any urbanized area, there are none that would meet the identified needs for this study because they would not alleviate the conditions caused by the presence of numerous access points and pedestrian crossings, nor would they promote connectivity and mobility between Route 257 east of Bridgewater and Route 257/42 north of Bridgewater or serve the expected future development east of Bridgewater.
Mass Transit Alternative	Mass transit would not satisfy the identified purpose and need for the same reasons that the TSM Alternative would not.
Widen Existing Dinkel Avenue and North Main Street	Would not provide a bypass of the problem areas and would cause excessive disruption to existing development.
Widen Mount Crawford Avenue	Would not provide a bypass of the problem areas and would cause excessive disruption to existing development.
Widen Route 704 between Route 257/42 and Route 11	Agricultural and Forestal District impacts (on east end) and disruption of existing development and a cemetery. Not effective in meeting purpose and need.
Alignments that join Route 11 north of Route 704	Agricultural and Forestal District and fairgrounds impacts; alignments too circuitous.
Alignments that join Route 11 south of Route 704	Impacts to industrial sites and longitudinal encroachment into Cooks Creek floodplain.
Alignments that join Route 257 between Don Litten Parkway and Route 11	Greater disruption of farmland, skewed crossings of Cooks Creek and floodplain, and impacts to Town of Bridgewater facilities.
Alignments that join Route 257/42 closer to Dayton	Greater disruption of farmland, skewed crossings of Cooks Creek and floodplain and impacts to Agricultural and Forestal District.

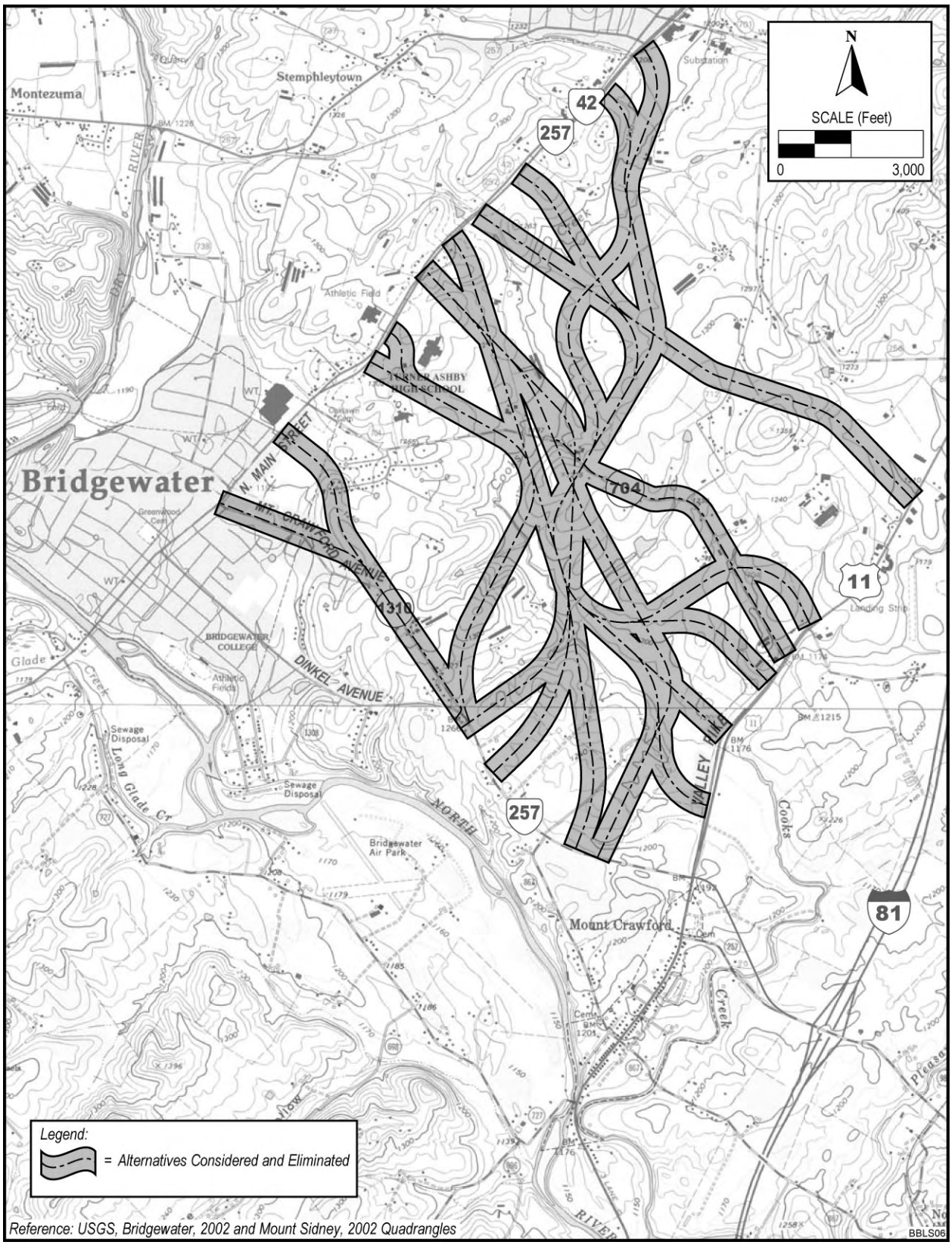


FIGURE 3. ALTERNATIVES CONSIDERED

ALTERNATIVES CARRIED FORWARD

NO-BUILD ALTERNATIVE

Under the No-build Alternative, there would be no bypass of Bridgewater; existing roads generally would remain in their present configuration. HRMPO's financially constrained long-range transportation plan contains only two road projects in Bridgewater. These would be considered part of the future no-build condition with respect to the proposed bypass. One is for reconstruction of 0.2 miles of Mount Crawford Avenue just east of its intersection with Route 257/42 to upgrade the existing road to a standard two-lane urban facility with sidewalk; the other is for preliminary engineering of an additional 0.8 miles of reconstruction of Mount Crawford Avenue. The No-build Alternative would not displace any families, businesses, farms, or nonprofit organizations, and would not affect any natural, ecological, cultural, or scenic resources. However, this alternative would not satisfy the identified transportation needs. Notwithstanding, the No-build Alternative was considered and it can be used as a benchmark to assess environmental impacts attributable to the proposed project.

CANDIDATE BUILD ALTERNATIVE A

Description: CBA A, as shown on **Figure 4**, begins at the intersection of Route 257 and Don Litten Parkway, follows the alignment of Don Litten Parkway, and then proceeds in a northeasterly direction to cross Cooks Creek perpendicularly, then turns northwestward, crossing Route 704, skirting the edge of the Turner Ashby High School complex, and joining Route 257/42 in the vicinity of Herring Lane. The typical section would be as shown on Figure 2. For environmental analysis purposes, the study corridor is 500 feet wide. The actual width of the required right of way would be determined during final design. The length of the corridor is approximately 2.3 miles and the total area within the 500-foot-wide corridor is approximately 153 acres. Access to the new road would be limited, with partial control. At-grade intersections would be constructed at Route 257, Route 704, and Route 257/42. Other major design features would include bridges over Cooks Creek and improvements to Route 704 at the project crossing. This alternative was retained for detailed study because it would meet the identified needs, partially follows an existing established roadway (Don Litten Parkway), provides the desired "T" intersections with Routes 257 and 257/42, generally follows favorable terrain, crosses Cooks Creek at advantageous points, avoids impacts to agricultural and forestal districts, avoids use of lands from public parks, and attempts to minimize impacts to farmland by hugging property lines where possible.

Cost: The total estimated preliminary engineering and construction cost of CBA A is $40.8 million (year 2015 advertisement date assumed for construction estimate). The right of way and relocation costs were previously estimated at $20.3 million (year 2015). However, the number of relocations likely will be less than previously estimated and associated right of way and relocation costs would be correspondingly lower. More detailed estimates will be made during the final design phase when detailed design and right of way limits are determined.

CBA A was selected by the Commonwealth Transportation Board on April 16, 2009 as the preferred alternative. CBA A is the preferred alternative of the Town of Bridgewater and Rockingham County, as expressed by resolutions passed by the local governments. The amount of right of way required and the construction cost would be lower for CBA A than for CBA B. CBA A would have less impact to farm operations because its alignment would run along the edges of farms north of Route 704 rather than splitting them as CBA B would.

CANDIDATE BUILD ALTERNATIVE B

Description: CBA B, as shown on Figure 4, begins like CBA A at the intersection of Route 257 and Don Litten Parkway, follows the alignment of Don Litten Parkway, then proceeds

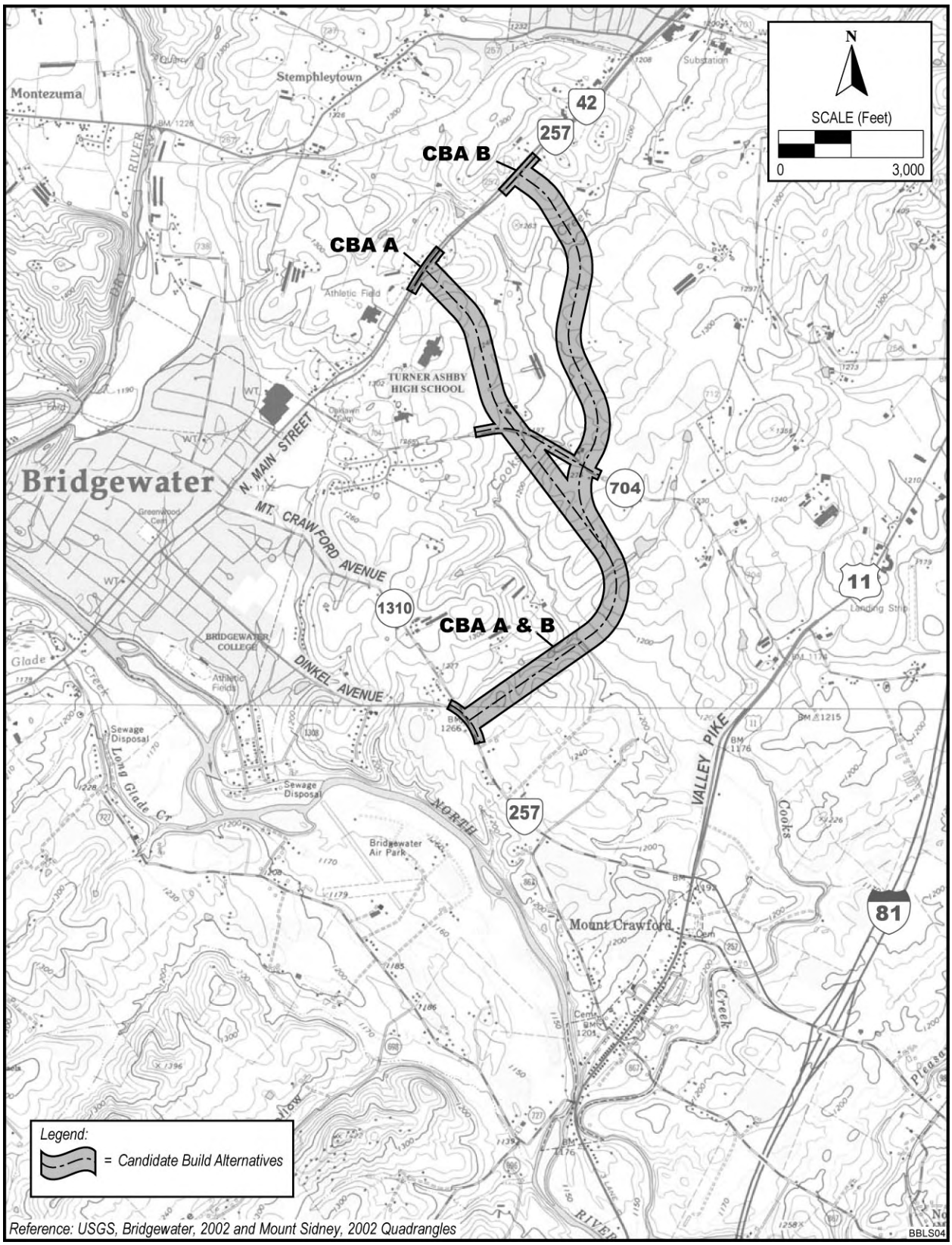


FIGURE 4. CBA A AND CBA B

in a northeasterly direction to cross Cooks Creek perpendicularly, and then turns northwestward. It crosses Route 704 east of Cooks Creek, continues northward, and then turns northwest to again cross Cooks Creek before joining Route 257/42 at a point not quite midway between Herring Lane and the Town of Dayton. The typical section would be as shown on Figure 2. For environmental analysis purposes, the study corridor is 500 feet wide. The actual width of the required right of way would be determined during final design.

The length of the CBA B corridor is approximately 2.6 miles and the total area within the 500-foot-wide corridor is approximately 172 acres. Access to the new road would be limited, with partial control. At-grade intersections would be constructed at Route 257, Route 704, and Route 257/42. Other major design features would include bridges over Cooks Creek and improvements to Route 704 at the project crossing. This alternative was retained for detailed study because it would meet the identified needs, partially follows an existing established roadway (Don Litten Parkway), provides the desired "T" intersections with Routes 257 and 257/42, generally follows favorable terrain, crosses Cooks Creek at advantageous points, provides a favorable crossing of Route 704, avoids impacts to agricultural and forestal districts, avoids use of lands from public parks, and attempts to minimize impacts to farmland by hugging property lines where possible.

Cost: The total estimated preliminary engineering and construction cost of CBA B is $44.4 million (year 2015 assumed for construction advertisement). The estimated right of way and relocation cost is $12.2 million (year 2015).

ABILITY OF CANDIDATE BUILD ALTERNATIVES TO MEET NEEDS

Either of the Candidate Build Alternatives would meet the identified transportation needs. CBA A is projected to carry approximately 6,200 to 7,300 vehicles per day in the year 2030 and CBA B is projected to carry approximately 5,500 to 8,300 vehicles per day in the year 2030. Either alternative would allow traffic to travel at a posted speed of 55 mph and with limited interference from traffic turning onto or out of intersecting roads and driveways and from pedestrians crossing the roadway. Traffic traveling on either alternative would avoid the slower-speed conditions through downtown Bridgewater. Trucks traveling on either alternative would avoid the constrained turning conditions at the existing intersections in downtown Bridgewater. By providing for higher travel speeds and less interference, either alternative would improve mobility between Route 257 east of Bridgewater and Route 257/42 north of Bridgewater.

Environmental Consequences

OVERVIEW OF ENVIRONMENTAL ISSUES

Table 2 summarizes environmental issues and their relevance to the project. **Figure 5** shows the environmental features of the study area. **Table 3** quantifies impacts of CBA A and CBA B. Key issues requiring further discussion are addressed following the tables and figure.

Table 2. Environmental Issues

Resource/Issue	Remarks
Land Use, Socioeconomics, and Right of Way and Relocations	Agriculture dominates land use in most of the area traversed by the Candidate Build Alternatives. Residential, commercial, industrial, and institutional land uses also exist, particularly along existing roads and in the Town of Bridgewater. Rockingham County's comprehensive plan designates most of the land within the study area for "community residential" and commercial uses. See **Relocations and Community Impacts** section for relocations.
Environmental Justice Populations	No minority or low-income populations under the purview of Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, would be affected by the project.
Agriculture, Prime Farmland, and Soils	Much of the land along the CBAs currently is used for agriculture. However, Rockingham County's comprehensive plan indicates that most of the study area is planned for future residential and commercial development. The federal Farmland Protection Policy Act (FPPA) requires assessment of potential conversions of certain farmland to nonagricultural uses. State law protects agricultural and forestal districts, two of which are located in the study area. Oak Grove Agricultural and Forestal District lies east of CBA B and Dry River Agricultural and Forestal District lies north of the northern termini of both CBAs. Neither of the CBAs would require use of any land from either District. See **Farmland** section for details.
Federal Properties	There is no federal property within the project limits.
Parks and Recreational Resources	Cooks Creek Arboretum, a Town of Bridgewater publicly owned public park, lies astride Cooks Creek near the western edge of CBA A. No acquisition of land from this park would be required and the project would require no use of park land under the purview of Section 4(f) of the Department of Transportation Act.
Historic Properties	Two historic properties that are eligible for the National Register of Historic Places are within the Area of Potential Effects. CBA A (the preferred alternative) would use a small amount of land from one of them, resulting in no adverse effect pursuant to Section 106 and a *de minimis* impact pursuant to Section 4(f). See **Historic Properties** section.
Waters of the U.S., Including Wetlands	Construction of either of the CBAs would entail two crossings of Cooks Creek. There are several other small tributaries in the study area. Wetlands generally consist of small disjunct patches of palustrine emergent types along streams and pond margins. See **Water Resources** section.
Water Quality	Cooks Creek is designated by the Virginia Department of Environmental Quality under the Clean Water Act, Section 303(d), as an "impaired water" for violations of the fecal coliform bacteria water quality standard and the General Standard for aquatic life (benthic). A total maximum daily load (TMDL) implementation plan has been developed by the state to identify best management practices and strategies to meet the water quality standards. The sources of contamination leading to the designation include agricultural livestock waste deposition and runoff, wildlife, and runoff from residential and urban land.
Public Water Supplies	There are no surface public water supplies in the study area. Groundwater is the water supply source for a number of homes. There are no sole-source aquifers designated by the U.S. Environmental Protection Agency in the study area. The Town of Bridgewater operates a public water supply system within the town.

Table 2. Environmental Issues	
Resource/Issue	**Remarks**
Floodplains	Cooks Creek has associated with it a 100-year floodplain as designated by the Federal Emergency Management Agency. Both CBAs would entail crossings of the floodplains. See **Water Resources** section.
Air Quality	Air quality generally is good and the region is in attainment of all National Ambient Air Quality Standards (NAAQS). An air quality analysis showed that the project would result in no violations of the NAAQS. The analysis further concluded that the project is of a type that would have low potential for mobile source air toxics effects. On a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide mobile source air toxics to be significantly lower than they are today.
Noise	There are noise-sensitive receptors (mainly residential sites) along both CBAs. Turner Ashby High School and Cooks Creek Arboretum are adjacent to CBA A. See **Noise** section.
Karst Terrain	The project lies almost entirely on the Martinsburg formation, which does not support the development of karst topography to any significant extent because it is predominantly shale.
Forest Resources	Forest resources have limited presence in the study area due to agricultural activities and other development.
Terrestrial and Aquatic Habitat and Wildlife	Former natural habitats have been extensively altered by agriculture and development and few native woodlands exist. Nevertheless, a number of animal species adapted to human-altered environments reside in or migrate through the remaining mosaic of forests, farms, and yards.
Threatened and Endangered Species	Federal and state agencies identified no federally listed threatened or endangered species as potentially occurring in the study area. The Virginia Department of Game and Inland Fisheries requested a habitat assessment for the state-listed threatened loggerhead shrike. Suitable habitat is present within the alignments of the CBAs. See **Threatened and Endangered Species** section.
Wildlife and Waterfowl Refuges	There are no wildlife or waterfowl refuges in the vicinity of the project.
Anadromous Fish, Trout Waters, Shellfish	There are no anadromous fish or trout waters or shellfish grounds in the vicinity of the project.
Invasive Species	In accordance with Executive Order 13112, *Invasive Species*, the potential for the establishment of invasive terrestrial or aquatic animal or plant species during construction would be minimized by following provisions in VDOT's *Road and Bridge Specifications*. These provisions require prompt seeding of disturbed areas with mixes that are tested in accordance with the Virginia Seed Law and VDOT's standards and specifications to ensure that seed mixes are free of noxious species. While the right of way would be vulnerable to colonization by invasive plant species from other portions of the site and from adjacent properties, implementation of the stated provisions will reduce the potential for establishment and proliferation of invasive species.
Scenic Byways / Scenic Rivers	No state-designated scenic byways or scenic rivers and no federally designated wild and scenic rivers are located within or near the study area.
Open Space Easements	The project would not affect any open space easements held by the Virginia Outdoors Foundation.
Hazardous Materials	The hazardous material sites (sites potentially containing flammable, explosive, corrosive, or toxic substances) in the area are typical of those for a small town and rural agricultural community. They include gas stations, industrial sites, underground tanks, and others. Concerns associated with them include health hazards, liability issues, and the potentially high costs of clean-up.

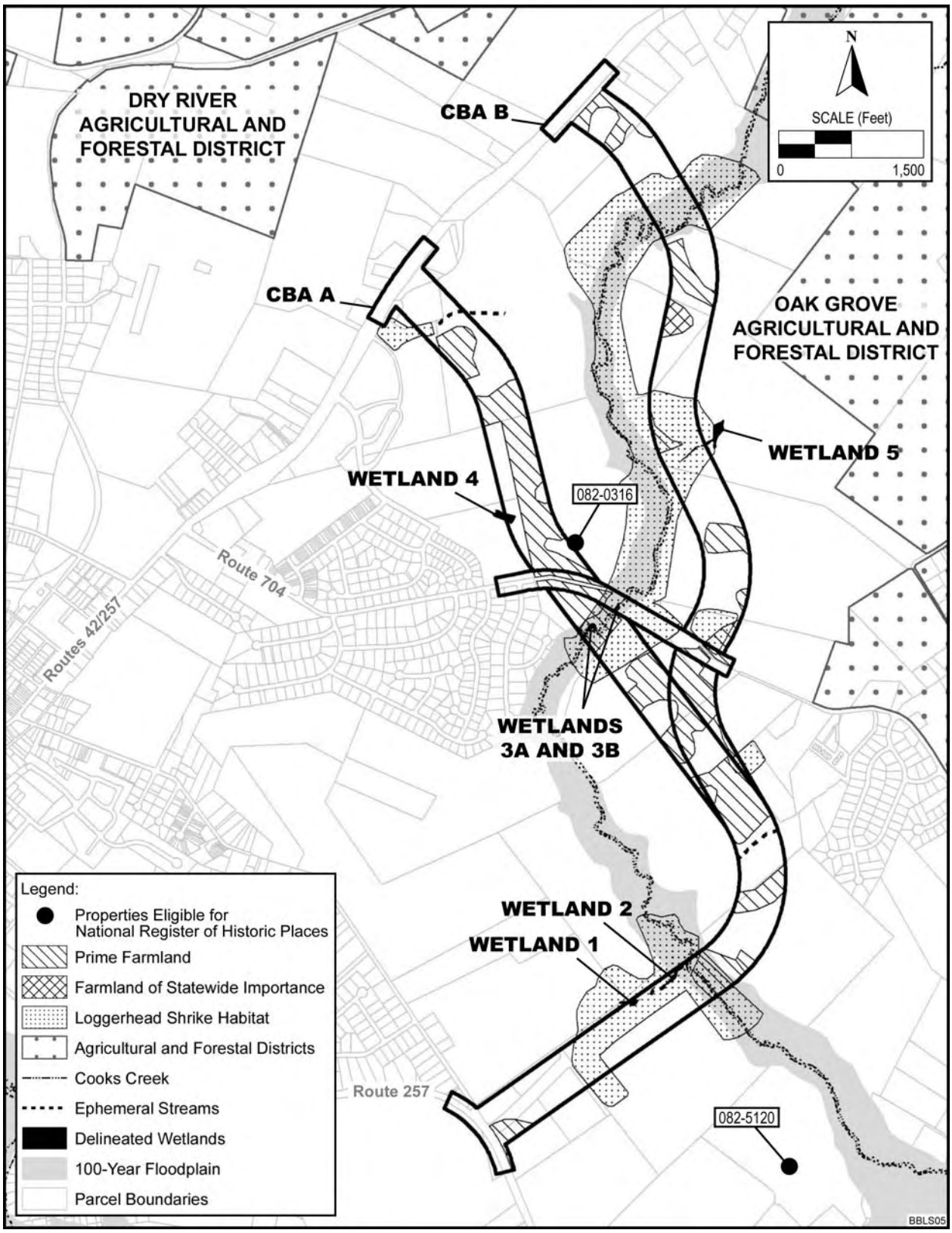


FIGURE 5. ENVIRONMENTAL FEATURES OF STUDY AREA

Table 3. Summary of Impacts		
Category	Impacts	
	CBA A	CBA B
Total Area within Alternative (acres within 500-foot-wide corridor)	153	172
Homes Displaced	3	3
Businesses Displaced	2	0
Farms Displaced	1	1
Schools Displaced	0	0
Churches Displaced	0	0
Cemeteries Displaced	0	0
Other Community Facilities Displaced (rescue squads, fire stations, etc.)	0	0
Section 4(f) Property Used (acres)	< 1*	0
Noise Impacts (Number of Receptors Impacted)	13	14
Length of Streams Disturbed (feet)	2,717	2,525
Wetlands Displaced (acres)	0.8	0.6
Floodplains Crossed (acres)	9	7
Historic Properties within APE (number of properties)	2	2
Forest Land Displaced (acres)	1	0
Potential Loggerhead Shrike Habitat Displaced (acres)	26	41
Prime, Unique, or Statewide-important Farmland Displaced (acres)	59	49
Agricultural and Forestal District Land Used (acres)	0	0
Hazardous Material Sites Impacted (number of sites)	1	1

* The use has been determined to be *de minimis*.

RELOCATIONS AND COMMUNITY IMPACTS

The original Environmental Assessment (EA) indicated that CBA A would require the relocation of 15 families, two businesses, and one farm. However, these numbers were based on a wide 500-foot corridor. Since then, in evaluating a potential realistic footprint for the project, it appears that the number of residential displacements would likely be approximately three. The two businesses consist of a car wash and a mini-warehouse storage facility. It is probable that these businesses can be avoided during final design of the project. Three additional farms would be crossed by CBA A, but none of the structures on those farms would be displaced. Total relocation costs were previously estimated at $1,635,000 for CBA A. However, these costs would likely be less than that with the smaller number of relocations now estimated. More detailed right of way and relocation costs will be determined during the final design phase.

CBA B would require the relocation of three families and one farm. Four additional farms would be crossed by CBA B, but none of the structures on those farms would be displaced. Total relocation costs are estimated at $550,000 for CBA B.

The Town of Bridgewater and nearby farm areas have a high concentration of Mennonites. Some of the farms traversed by the CBAs may be Mennonite-owned. However, potential displacees have not yet been contacted for purposes of the relocation estimates, so specific relocation needs for members of the Mennonite community could not be identified at this time.

The Director of Rockingham County's Department of Community Development and the Town Manager of Bridgewater have indicated that the multi-use path proposed as part of the project would be beneficial to members of the Mennonite community who travel by horse and buggy or bicycle.

The Bridgewater Volunteer Rescue Squad is within the 500-foot-wide planning corridor for both alternatives. However, it is unlikely that this facility would be displaced by the project because there is sufficient room within the corridor to easily avoid it with the ultimate design, particularly since the ultimate design likely would follow the existing Don Litten Parkway that serves the rescue squad and the Town's nearby maintenance facilities. Both CBAs would improve the ability to provide emergency services.

Upon the initiation of right of way acquisition, VDOT will develop a detailed relocation plan upon completion of a more in-depth design to ensure that orderly relocation of all displacees can be accomplished in a satisfactory manner. The acquisition of right of way and the relocation of displacees would be in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Assurance is given that relocation resources would be available to all residential, business, farm, and nonprofit displacees without discrimination.

Based on current real estate multiple listings services (MLS), there appears to be adequate housing and business replacement sites in the Harrisonburg/ Rockingham/Bridgewater area. VDOT has the ability and, if necessary, is willing to provide housing of last resort, including the purchase of land or dwellings; repair of existing dwellings to meet decent, safe, and sanitary conditions; relocation or remodeling of dwellings purchased by VDOT; or construction of new dwellings. Assurance is given that all displaced families and individuals would be relocated to suitable replacement housing, and that all replacement housing would be fair housing available to all persons without regard to race, color, religion, sex, or national origin and would be within the financial means of the displacees. Each person would be given sufficient time to negotiate for and obtain possession of replacement housing. No residential occupants would be required to move from property needed for the project until comparable decent, safe, and sanitary replacement dwellings have been made available to them.

The alignments of the CBAs have been located to avoid splitting communities and residential subdivisions and they would not isolate any portions of communities or ethnic groups.

Both CBAs, by providing a new roadway, would introduce a new travel pattern whereby traffic could bypass downtown Bridgewater and travel more directly between points east of Bridgewater and points north of Bridgewater. Access to some properties may be altered or relocated; however, the exact locations of such changes would not be known for certain until the detailed design process is undertaken.

FARMLAND

Under the federal Farmland Protection Policy Act (FPPA), the U.S. Department of Agriculture defines "farmland" as:

- Prime farmland - land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses.
- Unique farmland - land other than prime farmland that is used for production of specific high-value food and fiber crops.
- Farmland other than prime or unique farmland that is of statewide or local importance for the production of food, feed, fiber, forage, or oilseed crops.

The land may be in cultivation, forest, pasture, or other uses except for urban or built-up land or water uses.

Figure 5 shows the extent of soils along the CBAs classified as prime and statewide important, but excludes areas that no longer are available for producing crops. There are no unique farmlands within the CBAs. [Note:

some lands in the study area, while not classified on the basis of soil types as prime farmland, are nonetheless farmed for crop or livestock production.] According to the Natural Resources Conservation Service's (NRCS) District Conservationist, there are approximately 255,241 acres of farmable land in Rockingham County, of which approximately 165,525 acres meet the definition of farmland under the FPPA.

Rockingham County's Comprehensive Plan indicates that the County plans to maintain "its rural agricultural nature by directing new development to areas in or near existing towns and communities served by public water and sewer, and by curtailing development in rural areas." Accordingly, the County has designated Urban Growth Areas in and around the incorporated towns and adjacent to designated major road corridors. Bridgewater and portions of the county between Bridgewater and Harrisonburg are contained within the designated Urban Growth Area around the City of Harrisonburg. The Plan states that the area to absorb the largest amount of growth is south and east of Harrisonburg (including Bridgewater). The plan specifically mentions that the area between Harrisonburg and Bridgewater, Dayton, and Mt. Crawford "is expected to absorb a significant amount of the future development and population growth of the county during the next several decades."

As required by the FPPA, Form CPA-106, *Farmland Conversion Impact Rating for Corridor Type Projects* (see Appendix A), was submitted to NRCS's District Conservationist. The District Conservationist confirmed that farmland as defined by the FPPA lies within the limits of the alternatives and provided the total acreages of farmable land in the county and total acreage of farmland that is covered by the FPPA. The District Conservationist also provided in Part V of the form the relative value of land within the corridors as farmland, which was 74 on a scale of 0 to 100. The relative value score is based on information from several sources including soil surveys, NRCS field office technical guides, soil potential ratings or soil productivity ratings, land capability classifications, and important farmland determinations. The score represents the relative value, for agricultural production, of the farmland to be converted by the project compared to other farmland in the county.

Part VI, Corridor Assessment, of the form then was completed. This section of the form contains assessment criteria from 7 CFR 658.5(c), for which scores are assigned based on factors such as proximity of the farmland to urbanized areas; percentage of adjacent lands in farm use; history of farming on the land; whether the land is subject to government policies or programs to protect farmland; proximity to water, sewer, and other facilities and services whose capacities and design would promote nonagricultural use; relative size compared to the average for the county; availability of nearby farm support services; level of on-farm investments (e.g., barns, drainage, infrastructure for livestock); and the extent to which farm support services would be reduced so as to jeopardize the continued existence of farm support services and the viability of the farms remaining in the area. Out of a possible total combined score of 160 for these criteria, CBA A scored a total of 69 and CBA B scored a total of 75.

In accordance with NRCS guidelines, the relative value score provided by the District Conservationist and the score for the corridor assessment are then added together. Corridors with the highest combined scores are to be regarded as most suitable for protection; and corridors with the lowest scores as least suitable. Corridors receiving a total score of less than 160 need not be given further consideration for protection. The total combined score for impacts to farmland was less than 160 for both alternatives, although the score for CBA A was a few points lower than the score for CBA B. Therefore, no further consideration is required for farmland protection measures or other alternatives that might reduce farmland conversion.

To summarize:

- The preferred alternative, CBA A, would convert approximately 59 acres of farmland to highway use. While greater than the 47 acres estimated for CBA B, it amounts to less than 0.04% of farmland in Rockingham County

and less than 0.03% of farmable land in the county.

- The affected farmland is not unique in Rockingham County as there is similar farmland nearby and throughout the county.
- The affected farmland is in a part of the county that is designated in the County's comprehensive plan for residential and other developed uses due to its proximity to existing urbanized areas.
- While the acreage of farmland under CBA A-is 20% higher than the farmland acreage under CBA B, the character of the impacts is different. CBA A, in the area north of Route 704, would run along the edges of farms, whereas CBA B would split the farms, making intra-farm equipment movement and farm operations more difficult.
- An evaluation pursuant to the FPPA resulted in a total assessment score that is less than the threshold that requires further consideration of other alternatives or other mitigation measures that might reduce farmland conversion impacts.

HISTORIC PROPERTIES

Historic properties are archaeological sites and historic buildings, structures, objects, and districts that are listed in, or eligible for listing in, the National Register of Historic Places (NRHP). Two eligible properties were identified within the area of potential effects (APE) for the CBAs:

- ***Mary Miller House*** (VDHR #082-0316). Built around 1850, this house, located as shown on Figure 5, is a masonry vernacular-style home with Greek Revival-style detailing that features a brick structural system and rests on a solid foundation of coursed limestone. The Mary Miller House was recommended as potentially eligible for listing in the NRHP under Criterion C as a mid-nineteenth-century masonry dwelling that retains a high level of architectural integrity.
- ***Sundial Dairy*** (VDHR #082-5120). Built around 1840, this two-story masonry vernacular-style dwelling with Greek Revival detailing features a solid limestone foundation. Sundial Dairy was recommended as potentially eligible for listing in the NRHP under Criterion C as a mid-nineteenth-century masonry dwelling that retains a high level of architectural integrity.

Further work on both sites was subsequently conducted to conclusively determine their NRHP eligibility and their boundaries. Based on the additional work, the two properties were determined eligible for the NRHP, and the Virginia Department of Historic Resources (VDHR concurred with that determination.

Further preliminary design efforts were undertaken for CBA A to illustrate how the actual impacts and right of way requirements would be less than those computed using the 500-foot-wide study corridor. As a result of those efforts, it was determined that the project could be designed in such a way that less than one acre of land within the historic property would be needed for right of way. Additionally, VDOT has agreed that the existing line of trees will be replaced with similar trees. The exact species and a planting plan would be developed during the design phase of the project. **Figure 6** shows the NRHP-eligible boundaries of the Miller house historic property and the estimated "footprint" of the project across the western edge of the property.

Because substantial expense is associated with archaeological field surveys of long corridors, because the historic value of most archaeological sites can be realized only through scientific excavation, and because most archaeological sites are of value chiefly for what can be learned through archaeological data recovery, intensive efforts to identify archaeological sites potentially affected by the CBAs were deferred until after a preferred alternative was identified. This approach is consistent with 36 CFR 800.4(b)(2), which provides for the phased identification of historic properties on projects "where alternatives under consideration consist of corridors or large land areas," and with Stipulation 9 of the Programmatic Agreement Between the Virginia Departments of Transportation and Historic Resources Concerning Interagency Project Coordination (1999). Archaeological field studies were conducted along CBA A and no NRHP-eligible sites were found. A report on the survey was submitted to VDHR, which concurred with the findings of the survey.

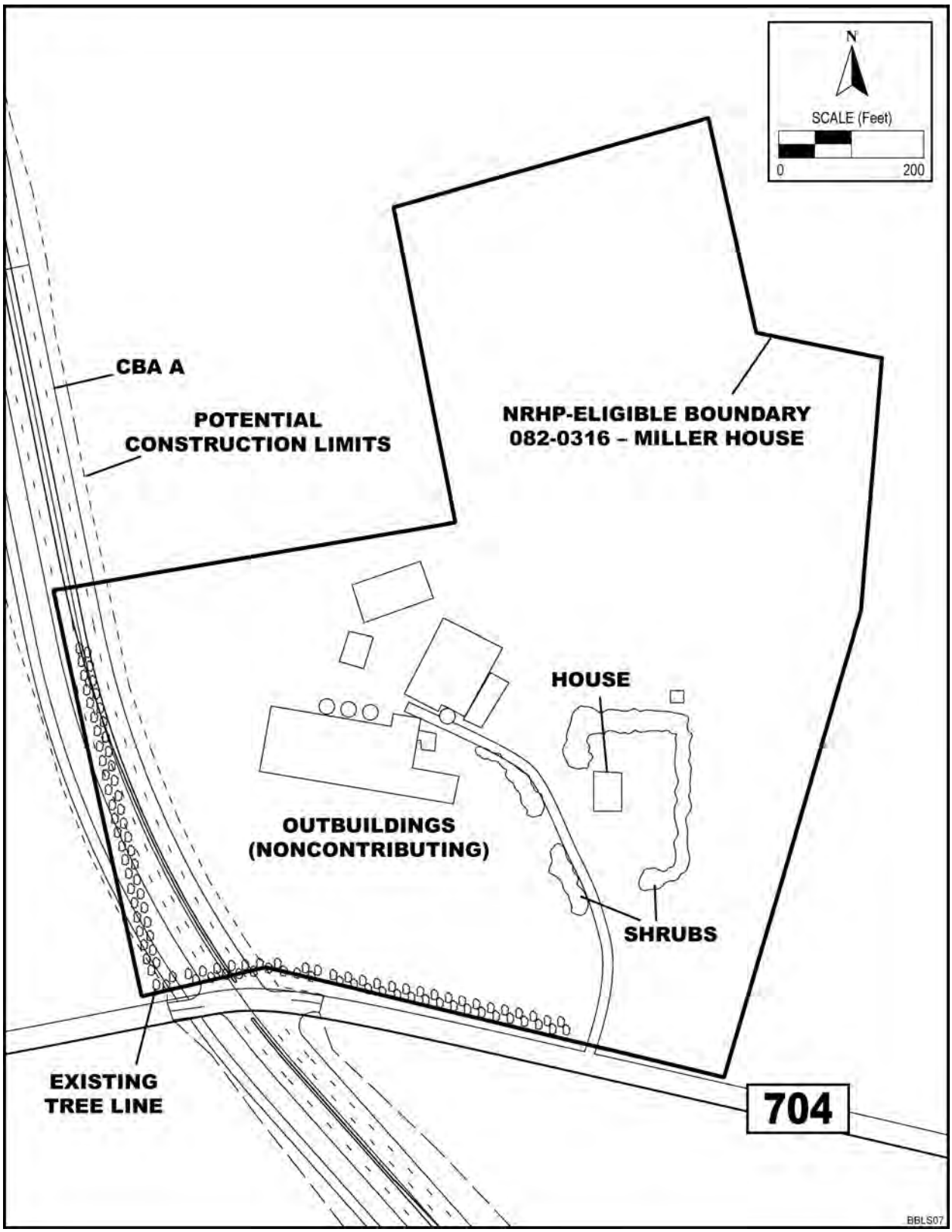


FIGURE 6. MILLER HOUSE HISTORIC PROPERTY BOUNDARY AND CBA A

No other districts, sites, buildings, structures, or objects significant in American history, architecture, archaeology, engineering, or culture are located in the project's area of potential effects.

A formal determination of effect on historic properties within the area of potential effects was prepared by VDOT and coordinated with VDHR. "Effect" is defined as an alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the NRHP (36 CFR 800.16(i)). The effect is adverse when the alteration of a qualifying characteristic occurs in a "manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association" [36 CFR 800.5(a)]. VDHR concurred that the project would have no adverse effect on historic properties, provided that VDOT replace the existing tree line in kind in order to screen the Mary Miller house from the new roadway. VDOT has committed to replacing the tree line in kind.

CBA A, the preferred alternative, would result in a Section 4(f) use of the Mary Miller House property. However, Section 4(f) requirements are satisfied if it is determined that the proposed project would have a *de minimis* impact on the Section 4(f) property. Based on the following criteria and procedures in 23 CFR 774, the project's use will have a *de minimis* impact on the property:

- The public hearing for the project met the public notice and comment requirements of 36 CFR 800.
- The consulting parties identified pursuant to 36 CFR 800 were consulted.
- VDOT and FHWA, based upon consideration of the views of VDHR and other consulting parties, and upon other factors, have determined that the project would have no adverse effect on the Miller House under provisions of Section 106 of the National Historic Preservation Act (NHPA).
- VDHR was informed that FHWA intended to make a Section 4(f) *de minimis* impact determination if VDHR concurred with the finding of no adverse effect.
- VDHR has concurred that the project would have no adverse effect on the historic property.

WATER RESOURCES

SURFACE WATERS

Surface waters in the study area consist of Cooks Creek and several intermittent or ephemeral unnamed tributaries and several farm ponds. Figure 5 shows the drainage pattern in the study area. Cooks Creek stretches approximately 13.7 miles from its headwaters to its confluence with the North River. Excluding the drainage area of Blacks Run, a major tributary that joins Cooks Creek downstream of the project area, the drainage area of Cooks Creek is approximately 15,919 acres (almost 25 square miles). Land use in the watershed is predominantly agricultural (44% cropland and 23% pasture/hay land) and urban/residential (25%), with only 7% being forested. The U.S. Environmental Protection Agency (EPA) and the Virginia Department of Environmental Quality (VDEQ) have categorized Cooks Creek as impaired, because water quality does not meet water quality standards for fecal coliform bacteria and benthic aquatic life. EPA and VDEQ established total maximum daily loads (TMDL)[2] for the applicable pollutants (fecal coliform bacteria, sediment, and phosphorus). The principal sources of these pollutants are agricultural and urban runoff.

[2] A TMDL identifies the sources polluting a water and expresses the amount of a pollutant that can be introduced from those sources without causing the water to exceed a state's water quality standards. The objective of a TMDL is to allocate allowable loads among different pollutant sources so that appropriate control actions can be taken in order to achieve water quality standards.

Figure 5 shows the locations of stream crossings by the CBAs. Table 3 lists the lengths of streams within the planning corridors for the CBAs. At this stage of project development, detailed hydraulic studies have not been done to conclusively determine the sizes and types of drainage structures that would be needed. However, pipe culverts likely would be VDOT's preferred method of carrying the smallest streams under the roadway. Culverts would be countersunk to provide for low flow conditions and so that natural bottoms could reestablish inside the culverts. Bridges likely would be used at the crossings of Cooks Creek. Such bridges would be comparable to existing bridges downstream that carry Route 11 and Route 257 over Cooks Creek. Any unavoidable stream relocations will be performed using natural stream design, which means that the channel should mimic the dimension, pattern, and profile of a representative reference stream reach.

At this stage of development, sufficient design has not been developed to determine the precise locations of stormwater management facilities such as detention ponds. However, all practicable efforts will be made to ensure that such facilities would not be located in streams or wetlands. Any requests for authorization under the requisite federal and state water quality permits to place these facilities or portions of them in streams would be accompanied by analyses of why alternative upland sites are not practicable.

Compensation for stream impacts may be provided as part of the permit conditions for any authorizations issued by the U.S. Army Corps of Engineers and VDEQ. Because these agencies determine the compensation requirements for stream impacts on a case-by-case basis, the quantitative requirements for the selected alternative would be negotiated with them as part of the permit application process. Compensation may involve enhancement or restoration to stream and riparian areas, use of credits from an approved stream mitigation bank, or payments to the Virginia Aquatic Resources Trust Fund.

Minor long-term water quality effects could occur as a result of increases in impervious pavement surfaces, increases in traffic volumes, and consequent increases in pollutants washed from the road surface into receiving streams. Pollutants would include grease, oil, metals, nutrients, nitrogen, deicing salts, roadside vegetation management chemicals, and suspended solids. Because none of the receiving streams are elements of local public water supplies, the potential for human health effects from roadway runoff is minimal. Moreover, temporary and permanent stormwater management measures, including detention basins, vegetative controls, and other measures, would be implemented to minimize potential degradation of water quality. These measures would reduce or detain discharge volumes and remove pollutants. The requirements and special conditions of any required permits for work in and around surface waters would be incorporated into construction contract documents. The construction contractor would be required to comply with those conditions and with pollution control measures specified in VDOT's *Road and Bridge Specifications*.

WETLANDS

Wetlands are defined by the presence of surface and/or groundwater hydrology, hydric soils (soils that develop under wet conditions), and hydrophytic vegetation (plants that are favored by wet conditions). Wetlands in the study area are small in size and scattered in distribution and generally occur along streams or pond margins. Based on the classifications of waters and wetlands developed by Cowardin, et al.,[3] the five wetlands along CBA A and the four wetlands along CBA B are all palustrine emergent (PEM) systems. The functions of these wetlands include groundwater discharge to

[3] Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. U.S. Fish and Wildlife Service FWS/OBS - 79/31. 131 pp. A hierarchical system for classifying waters and wetlands based on hydrological and ecological characteristics, widely used by state and federal agencies in mapping and evaluating water resources and adopted by the Federal Geographic Data Committee as a Data Classification Standard.

support low-flow conditions, sediment/toxicant retention, nutrient removal, sediment stabilization, and wildlife habitat. Both alternatives would displace less than one acre of wetlands.

All available measures to avoid and minimize impacts to wetlands would be implemented where feasible. For unavoidable wetland losses, VDOT will develop compensatory mitigation in cooperation with the federal and state water quality permitting agencies. Such compensation would account for lost wetland types and functions and could include construction of replacement wetlands onsite or offsite, enhancement of existing wetlands, use of credits from an approved wetlands mitigation bank, or payments to the Virginia Aquatic Resources Trust Fund.

Wetland Finding. Based upon the above considerations, in accordance with Executive Order 11990, *Protection of Wetlands*, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

FLOODPLAINS

The Federal Emergency Management Agency (FEMA) mapping of floodplains indicates the presence of a designated 100-year floodplain along Cooks Creek. No substantial effects on natural or beneficial floodplain values are expected to result from the proposed project.

Crossings of Cooks Creek would be designed so that potential increases in flood levels would be minimal and that no floodplain encroachments would increase the probability of flooding or the potential for property loss and hazard to life during the service lives of any bridges or other drainage structures and their roadway approaches. Therefore, neither of the CBAs would have any effect on flooding risks. Neither of the CBAs would be expected to have substantial effects on fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, groundwater recharge, and other natural and beneficial floodplain values. The project would not encourage, induce, allow, serve, support, or otherwise facilitate additional or incompatible base floodplain development. The floodplain encroachments would not be "significant encroachments" (as defined in 23 CFR 650.105(q)) because:

- They would pose no significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or that provides a community's only evacuation route.
- They would not pose significant flooding risks.
- They would not have significant adverse impacts on natural and beneficial floodplain values.

Therefore, the project is consistent with Executive Order 11988, *Floodplain Management*, which prohibits federal support of incompatible floodplain development unless there is no practical alternative, and no Floodplain Finding in accordance with Executive Order 11988 is required.

Sections 107 and 303 of VDOT's specifications require the use of stormwater management practices to address concerns such as post-development stormflows and downstream channel capacity. These standards require that stormwater management ponds be designed to reduce stormwater flows to pre-construction conditions for up to a 10-year storm. VDOT would adhere to its specifications to prevent an increase in flooding risks associated with the project. It is expected that backwater elevations and velocity increases at the floodplain encroachments would be nonexistent or minimal. During final design, a detailed hydraulic survey and study would evaluate specific effects on stormwater discharges. This evaluation would help ensure that no substantial increases in downstream flooding would occur.

Through coordination with Rockingham County local floodplain management officials, the local floodplain ordinance was obtained and reviewed. The ordinance requires that any

proposed development not result in increasing the elevation of the 100-year flood by more than one foot at any point. Based on the discussion above, the project would be consistent with that provision.

Based on the above, neither of the Candidate Build Alternatives would be expected to have substantial impacts to floodplains or the natural and beneficial values of floodplains.

NOISE

The potential noise impacts caused by the alternatives have been assessed in accordance with FHWA guidelines published in Volume 7, Chapter 7, Section 2 of the Federal Aid Policy Guide (FAPG 7-7-2) and with the State Noise Abatement Policy. Included in FAPG 7-7-2 are noise abatement criteria (NAC), which are noise levels (in decibels, denoted as dBA) representing the threshold at which noise impact is considered to occur, and at which noise abatement measures must be considered. The NAC apply to areas where regular human activity occurs. The noise analysis performed for this study quantified design year (2030) noise levels in areas with applicable human activity for the No-build and each of the Candidate Build Alternatives. If these noise levels approach or exceed the NAC, then an impact is said to occur and abatement measures must be considered. VDOT defines "approach" as being within 1 dBA of the NAC. A noise impact also is deemed to occur if the design-year-build noise levels are substantially higher than existing levels, even though the levels may not reach the NAC. As with areas where noise levels approach or exceed the NAC, abatement measures must be considered for those areas where noise levels are substantially higher than existing levels. The State Noise Abatement Policy defines a substantial increase as 10 or more dBA. Final decisions on whether to provide noise abatement measures take into account design feasibility, cost, and the opinions of property owners impacted by the noise.

The noise analysis performed for the No-build alternative and each of the Candidate Build Alternatives assessed noise levels at 20 receptor locations representing 47 residences, one school, and two agricultural use areas. The projected levels of noise impacts for each of the Candidate Build Alternatives are described below.

CBA A

Of the 50 noise-sensitive properties evaluated for CBA A, 13 properties would incur noise impacts under design year 2030 build conditions due to noise levels approaching or exceeding the NAC impact criterion of 66 dBA. No properties would incur impacts due to substantial increases in noise levels (10 or more dBA over existing levels). Noise abatement measures appear to be feasible and within VDOT criteria for costs-per-benefited-residence for seven properties. Noise abatement appears to be feasible at an additional four properties but not within the VDOT cost criteria – further analysis of potential barriers at these locations is recommended in the final design phase of the project.

CBA B

For CBA B, 13 properties would incur noise impacts under design year 2030 build conditions due to noise levels approaching or exceeding the NAC impact criterion of 66 dBA. One additional property would incur noise impacts based on substantial increases in noise levels of 10 or more dBA over existing levels. Noise abatement measures appear to be feasible and within VDOT criteria for costs per benefited residence for seven properties. Noise abatement appears to be feasible at an additional five properties but not within the VDOT cost criteria. Further analysis of potential barriers at these locations is recommended in the final design phase of the project.

THREATENED AND ENDANGERED SPECIES

The Virginia Department of Game and Inland Fisheries requested that a habitat assessment be conducted for the state-listed threatened loggerhead shrike. Breeding habitat generally includes grasslands interspersed with scattered trees and shrubs that provide nesting and perching sites; barbed-wire fences

also are commonly used as perches. Most of the area traversed by the CBAs is actively farmed to produce row crops (mainly corn), hay, and livestock (cattle and poultry). Clumps of trees and shrubs are scattered along fencelines and drainageways. Thus, potential loggerhead shrike habitat is located along both build alternatives, as indicated on Figure 5. These areas consist of open pastures lined with barbed wire fencing, small shrubs and trees along fence lines, small stands of trees, and lone trees, which could be used for nesting, perching, and roosting. No red cedars (*Juniperus virginiana*) or hawthorns (*Crataegus* spp.), which are frequently used for nesting, were found along either of the CBAs. If construction is to be conducted during the breeding season (April 1 to July 31), field biologists familiar with shrike habitat will conduct a nesting survey prior to construction, or construction activities within suitable habitat will be restricted during that time period.

CONSTRUCTION

During construction, temporary environmental impacts usually can be controlled, minimized, or mitigated through careful attention to prudent construction practices and methods. Potential temporary construction impacts and preventive practices are summarized below.

WATER QUALITY

During construction, non-point source pollutants could possibly enter groundwater or surface water from stormwater runoff. To minimize these impacts, appropriate erosion and sediment control practices will be implemented in accordance with VDOT's *Road and Bridge Specifications*. These specifications also prohibit contractors from discharging any contaminant that may affect water quality. In the event of accidental spills, the contractor is required to immediately notify all appropriate local, state, and federal agencies and to take immediate action to contain and remove the contaminant.

AIR

Air quality impacts from construction, consisting of emissions from diesel-powered construction equipment, burning of debris, and fugitive dust, would be temporary. This project will comply with all applicable local, state, and federal regulations, including the Virginia Environmental Regulations 9 VAC 5-40-5600 *et seq*. regarding open burning and 9 VAC 5-50-60 *et seq*. regarding fugitive dust emissions. To control dust, measures will be taken to minimize exposed earth by stabilizing with grass, mulch, pavement, or other cover as early as possible.

NOISE

Construction activity may cause intermittent fluctuations in noise levels. During the construction phase of the project, all reasonable measures will be taken to minimize noise impacts from these activities. VDOT's *Road and Bridge Specifications* establish construction noise limits and the contractor will be required to conform to this specification to reduce any impacts of construction noise.

SOLID WASTE AND HAZARDOUS MATERIALS

All solid waste material resulting from clearing and grubbing, demolition, or other construction operations would be removed from the project and disposed of in a legal manner. If contaminated soils are encountered during construction, VDOT would develop and implement appropriate procedures for their proper management and coordinate the removal, disposal, and/or treatment of the soil, as necessary. If contaminated groundwater is encountered during construction, VDOT would implement appropriate specifications for proper management and treatment of the water, as necessary.

INDIRECT EFFECTS

Indirect effects are those that are caused by a proposed action but occur later in time or farther in distance than the direct impacts discussed elsewhere in this document. The most common

indirect effects associated with highway projects have to do with induced development, that is, development and the impacts of such development that would not otherwise occur if the project were not constructed. Lands surrounding the CBAs currently can be accessed from the existing road network. As such, they are subject to development even in the absence of implementation of this project. On the other hand, construction of this project would enhance access into these currently undeveloped lands. In this sense, the proposed project could make it easier for the property owners to develop their lands. However, it cannot be said that the project by itself would be the direct cause of such development because other factors, such as economic conditions, play a larger role in development decisions. The entire area is planned for future development and, indeed, some development already has occurred in nearby areas without a bypass being in place. In summary, a bypass would serve, but would not directly cause, development on adjoining lands. Moreover, the bypass would be consistent with local comprehensive planning regarding land use goals in the surrounding area and would be expected to improve overall mobility and connectivity among surrounding land uses and transportation facilities.

CUMULATIVE EFFECTS

Cumulative effects are the incremental effects of the action when added to other past, present, and reasonably foreseeable future actions, regardless of the sponsor of those actions. The assessment of cumulative effects requires an assessment of the impact that past and present actions have had on the environmental resources in the project study area that will also be impacted by the project; the current affected environment is a reflection of the impacts of those past and present actions over time. Additionally, a review of cumulative effects requires an assessment of how reasonably foreseeable future actions may affect the same environmental resources that would be affected by the project. **Table 4** summarizes the more prominent environmental resources in the project study area that would be impacted by the proposed project, the impact that these resources have experienced from past and present actions, the incremental impact expected from the proposed project, identification of potential reasonably foreseeable future actions, and the potential impact that may occur from other reasonably foreseeable future actions in or near the study area.

Despite the dramatic changes in the landscape that have occurred over time due to human settlement in the surrounding area, the intensity of the incremental impacts of the project are considered small, when viewed in the context of impacts from other past, present, and reasonably foreseeable future actions, and would not rise to a level that would cause significant cumulative impacts.

Table 4. Cumulative Effects Matrix

Environmental Resources in Study Area	Impacts from Past and Present Actions	Impact from Proposed Project	Potential Future Action	Potential Impact on Resources from Potential Future Actions
Cooks Creek	Degradation of water quality from agricultural and other runoff.	Temporary siltation during construction and increase in pollutant loadings, which would be minimized through implementation of E&S controls	City of Harrisonburg street sweeping and pet waste collection.	Reduce sediment load by 576,000 pounds and remove 30,000 bags of pet waste.
			Build-out of residential and commercial developments in accordance	Additional inputs of sediment during construction and increased stormwater discharges due to increases in impervious surfaces, offset by implementation of erosion and sediment controls and stormwater

Table 4. Cumulative Effects Matrix				
Environmental Resources in Study Area	**Impacts from Past and Present Actions**	**Impact from Proposed Project**	**Potential Future Action**	**Potential Impact on Resources from Potential Future Actions**
		and stormwater management measures.	with local zoning and comprehensive planning.	management measures in accordance with state and local statutes and regulations.
Farmland	Conversions of farmland to residential and other uses.	Conversion of 49 to 59 acres of farmland to highway right of way.		Additional conversions of farmland to residential and other uses consistent with local zoning and comprehensive planning.
Historic Properties	Many older homes in the area have been demolished, or have been so altered that they have lost historic integrity that may have qualified them for eligibility for the NRHP.	Two historic properties that are eligible for the NRHP are within the area of potential effect. However, the project would have no adverse effect on historic properties pursuant to Section 106 of the National Historic Preservation Act.		Owners of the historic properties may elect to alter the buildings or demolish them, thereby diminishing their integrity or destroying them altogether.

Coordination and Comments

AGENCY COORDINATION

In the process of preparing this document, the federal, state, and local agencies listed below were consulted to obtain pertinent information and to identify key issues regarding potential environmental impacts.

- Federal Emergency Management Agency
- National Marine Fisheries Service
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- Natural Resources Conservation Service
- Virginia Department of Agriculture and Consumer Services
- Virginia Department of Conservation and Recreation
- Virginia Department of Conservation and Recreation, Karst Protection Coordinator
- Virginia Department of Environmental Quality - Air, Water, and Waste Divisions
- Virginia Department of Forestry
- Virginia Department of Game and Inland Fisheries
- Virginia Department of Health
- Virginia Department of Historic Resources
- Virginia Marine Resources Commission
- Virginia Department of Mines, Minerals, and Energy
- Virginia Outdoors Foundation
- Central Shenandoah Planning District Commission/Metropolitan Planning Organization
- Rockingham County Administrator
- Rockingham County Planning and Community Development Department
- Rockingham County Recreation and Facilities Department
- Rockingham County Public Works Department
- Rockingham County Public Schools Superintendent
- Harrisonburg/Rockingham Joint Local Emergency Planning Coordinator
- Town of Bridgewater, Town Superintendent
- Bridgewater College

PUBLIC INVOLVEMENT

VDOT held a location public hearing for this project on January 16, 2008. The purpose of this hearing was to present the alternatives and the findings of the EA, to provide a discussion forum between the public and VDOT, and to obtain input and comments from the community. The EA was made available for public inspection prior to and at the hearing. Maps, drawings, and other reports and data pertaining to the study also were available for review at the hearing. In compliance with Section 106 of the National Historic Preservation Act and 36 CFR Part 800, information concerning the potential effects on properties listed in or eligible for listing in the National Register of Historic Places was available at the hearing.

The attendance sign-in sheets show that at least 104 people attended the hearing. Thirty-four (34) individuals submitted written comments at the Public Hearing or during the 10-day comment period following the hearing. Three oral comments were recorded at the hearing. The principal issues raised in comments received as part of the public involvement process and EA comment period include the following:

PURPOSE AND NEED/TRAFFIC DATA:

Comment: *What truck data do we have (volumes, routes, origins/destinations; e.g., Marshalls, Perdue, Padget, IGA)? Have the major truck generators in the area (e.g., Marshalls, Perdue) been approached to discuss truck volume and routing issues? Travel distance/time differentials between Candidate Build Alternatives and the routes trucks are currently using (would trucks really use the bypass?).*

Response: There are three major generators of tractor-trailer traffic in and near the study area. The first is Cargill, a poultry processing plant located in Dayton on the east side of John Wayland Highway (Route 42). Cargill, with 2,000 employees, is the second largest employer in the region. Marshalls, the region's tenth largest employer (915 employees), is located west of North Main Street, just south of the Oakwood Drive (Route 704) intersection. Perdue, the 11th largest employer in the region (740 employees), is located west of North Main Street (Route 42) several blocks north of Mount Crawford Avenue. Other generators of appreciable truck volumes include the Bridgewater IGA grocery store and farm operations throughout the study area.

The primary truck routes in and through the study area are Dinkel Avenue (Route 257), North Main Street (Route 42), and Valley Pike (Route 11). **Figure 7** shows truck traffic volumes based on traffic counts performed in January and March 2008. Over three-quarters of the east-west peak-hour truck traffic in the study area is on Dinkel Avenue, while 19 percent is on Route 704. Field observation also suggests that an appreciable portion of the truck traffic on Route 704 is trucks going to and from farm operations. Other items of note:

- There is twice as much truck traffic in the a.m. peak hour than in the p.m. peak,
- Two-thirds of regional truck traffic is on north-south roadways (Route 11 and Route 42), and
- There is very little truck traffic on Mount Crawford Avenue (4 trucks during the a.m. peak hour, 1 in the p.m. peak hour).

Travel times, speeds, and delays were recorded in the field and a spreadsheet-based methodology was applied to estimate travel times between several key origin and destination points in the study area. The spreadsheet methodology accounted for segment travel times, average intersection delays for individual turning movements, and average delays on Dinkel Avenue due to pedestrian crossings at Bridgewater College. **Table 5** summarizes the travel times between Route 257 at Route 11 and three major truck generators in the study area (Perdue, Marshall's, and Cargill).

Correspondence from Perdue and Marshalls indicate support for the proposed bypass.

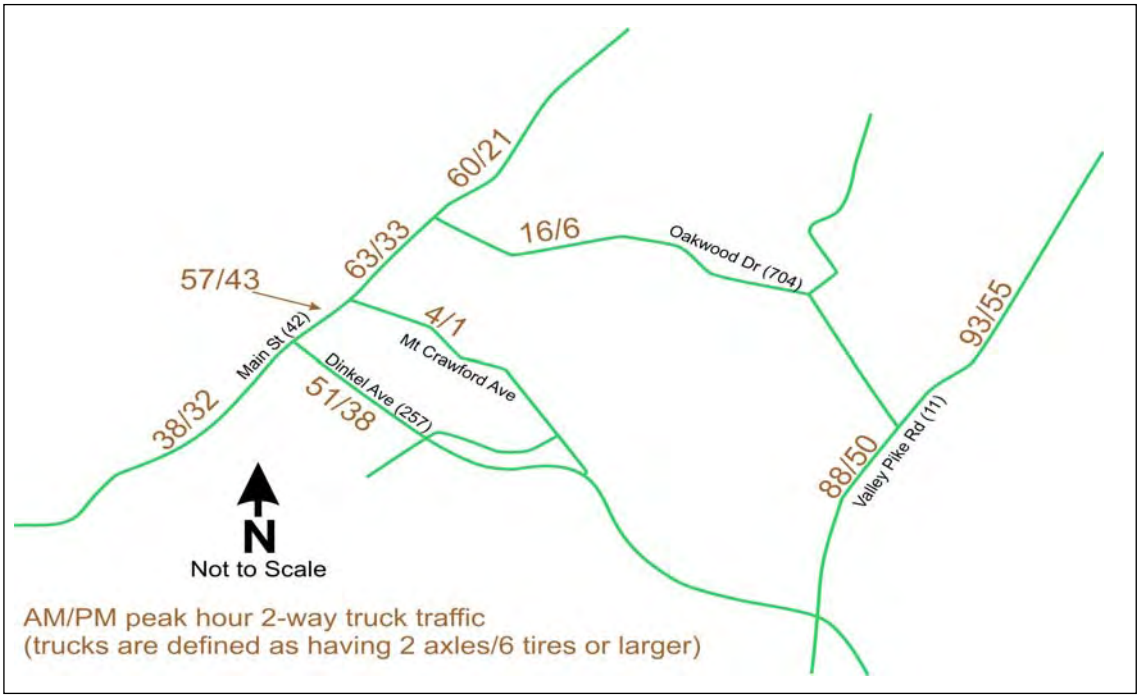


FIGURE 7
2008 AM/PM PEAK HOUR TRUCK VOLUMES IN THE STUDY AREA

Table 5. Travel Times and Estimated Percentages of Traffic Using Various Routes				
Origin and Destination	**Route #**	**Route Description**	**Travel Time**	**Percent on Route**
11/257 to Perdue	1	Dinkel-Main	0:05:56	18.4%
	2	Dinkel-Mt Crawford-Main	0:04:28	49.5%
	3	Dinkel-Alts A/B-Oakwood-Main	0:06:43	10.9%
	4	Dinkel-Alt A-Wayland/Main	0:07:22	7.1%
	5	Dinkel-Alt B-Wayland/Main	0:08:47	2.7%
	6	Valley-Oakwood-Main	0:07:34	6.2%
	7	Valley-Oakwood-Alt A-Wayland/Main	0:08:17	3.8%
	8	Valley-Oakwood-Alt B-Wayland/Main	0:09:58	1.2%
11/257 to Marshalls	1	Dinkel-Main	0:06:22	15.0%
	2	Dinkel-Mt Crawford-Main	0:04:53	37.0%
	3	Dinkel-Alts A/B-Oakwood-Main	0:06:18	15.6%
	4	Dinkel-Alt A-Wayland/Main	0:06:57	10.5%
	5	Dinkel-Alt B-Wayland/Main	0:08:22	4.4%
	6	Valley-Oakwood-Main	0:07:08	9.3%
	7	Valley-Oakwood-Alt A-Wayland/Main	0:07:52	6.0%
	8	Valley-Oakwood-Alt B-Wayland/Main	0:09:33	2.1%
11/257 to Cargill	1	Dinkel-Main	0:10:50	2.4%
	2	Dinkel-Mt Crawford-Main	0:09:21	5.1%
	3	Dinkel-Alts A/B-Oakwood-Main/Wayland	0:08:55	6.4%
	4	Dinkel-Alt A-Wayland	0:06:34	21.3%
	5	Dinkel-Alt B-Wayland	0:05:52	30.6%
	6	Valley-Oakwood-Wayland	0:09:46	4.2%
	7	Valley-Oakwood-Alt A-Wayland	0:07:30	13.3%
	8	Valley-Oakwood-Alt B-Wayland	0:07:02	16.8%
Perdue to 11/257	1	Main-Dinkel	0:06:06	17.3%
	2	Main-Mt Crawford-Dinkel	0:04:28	51.8%
	3	Main-Oakwood-Alts A/B-Dinkel	0:06:43	11.4%
	4	Wayland/Main-Alt A-Dinkel	0:07:27	7.0%
	5	Wayland/Main-Alt B-Dinkel	0:08:52	2.7%
	6	Main-Oakwood-Valley	0:07:49	5.5%
	7	Wayland/Main-Alt A-Oakwood-Valley	0:08:37	3.2%
	8	Wayland/Main-Alt B-Oakwood-Valley	0:10:18	1.0%
Marshalls to 11/257	1	Main-Dinkel	0:06:32	14.3%
	2	Main-Mt Crawford-Dinkel	0:04:53	39.0%
	3	Main-Oakwood-Alts A/B-Dinkel	0:06:18	16.4%
	4	Wayland/Main-Alt A-Dinkel	0:07:02	10.5%
	5	Wayland/Main-Alt B-Dinkel	0:08:27	4.4%
	6	Main-Oakwood-Valley	0:07:23	8.4%

Table 5. Travel Times and Estimated Percentages of Traffic Using Various Routes				
Origin and Destination	**Route #**	**Route Description**	**Travel Time**	**Percent on Route**
	7	Wayland/Main-Alt A-Oakwood-Valley	0:08:12	5.1%
	8	Wayland/Main-Alt B-Oakwood-Valley	0:09:53	1.8%
Cargill to 11/257	1	Main-Dinkel	0:09:02	7.9%
	2	Main-Mt Crawford-Dinkel	0:08:03	12.5%
	3	Main-Oakwood-Alts A/B-Dinkel	0:09:30	6.3%
	4	Wayland/Main-Alt A-Dinkel	0:07:09	18.9%
	5	Wayland/Main-Alt B-Dinkel	0:06:27	26.3%
	6	Main-Oakwood-Valley	0:10:36	3.8%
	7	Wayland-Alt A-Oakwood-Valley	0:08:20	10.9%
	8	Wayland-Alt B-Oakwood-Valley	0:07:52	13.5%

Comment: *What would be required and who would have the authority to ban through trucks from downtown Bridgewater?*

Response: Section 46.2- 809 of the Code of Virginia provides that the Commonwealth Transportation Board (CTB), or its designee, in response to a formal request by a local governing body, after such body has held public hearings, may, after due notice and a proper hearing, prohibit or restrict the use by through traffic of any part of a primary or secondary highway if a reasonable alternate route is provided. The Board, or its designee, shall act upon any such formal request within nine months of its receipt, unless good cause is shown. Such restriction may apply to any truck or truck and trailer or semitrailer combination, except a pickup or panel truck, as may be necessary to promote the health, safety, and welfare of the citizens of the Commonwealth. In guidelines for considering requests for restricting through trucks adopted in October 2003, the CTB indicated its philosophy that all vehicles should have access to the roads on which they are legally entitled to travel, and that travel by any class of vehicle on any class of highway should be restricted only upon demonstration that it will promote the health, safety and welfare of the citizens of the Commonwealth without creating an undue hardship on any of the users of the transportation system. In order to conform to the requirements of the Code of Virginia and to insure that all concerned parties have an opportunity to provide input, the local governing body must hold a public hearing and make a formal request of the Department. The following must be adhered to:

(A) The public notices for the hearing must include a description of the proposed through truck restriction and the alternate route with the same termini. A copy of the notices must be provided.

(B) A public hearing must be held by the local governing body and a transcript of the hearing must be provided with the resolution.

(C) The resolution must describe the proposed through truck restriction and a description of the alternate route, including termini.

(D) The governing body must include in the resolution that it will use its good offices for enforcement of the proposed restriction by the appropriate local law enforcement agency.

Failure to comply with (A), (B), (C) and (D) will result in the request being returned. The Commonwealth Transportation Board and the Commissioner shall act upon any such formal request within nine months of its receipt, unless good cause is shown.

The guidance goes on to say that travel by any class of vehicle should be restricted only upon demonstration that it will promote the health, safety and welfare of the citizens of the

Commonwealth without creating an undue hardship on any users of the transportation network. In reviewing requests for truck restrictions, the following criteria will be considered. The proposed restriction must meet both the first and second criteria in order to be approved:

1. Reasonable alternate routing is provided. The alternate route will be evaluated for traffic and safety related impacts. To be considered reasonable, the alternate route(s) must be engineered to a standard sufficient for truck travel, and must be judged at least as appropriate for truck traffic as the requested truck restriction route. If an alternate route must be upgraded, the improvement shall be completed before the truck restriction can be implemented. The termini of the proposed restriction must be identical to the alternate routing to allow a time and distance comparison to be conducted between the two routings. Also, the alternate routing must not create an undue hardship for trucks in reaching their destination.
2. The character and/or frequency of the truck traffic on the route proposed for restriction is not compatible with the affected area. Evaluation will include safety issues, accident history, engineering of the roadway, vehicle composition, and other traffic engineering related issues.

In addition to meeting the first two criteria, the proposed restriction must meet either the third or the fourth criteria in order to be approved.

3. The roadway is residential in nature. Typically, the roadway will be judged to be residential if there are at least 12 dwellings combined on both sides within 150' of the existing or proposed roadway center line per 1,000 feet of roadway.
4. The roadway must be functionally classified as either a local or collector.

Failure to satisfy criteria 1 and 2, and either criteria 3 or 4 will normally result in rejection of the requested restriction.

Comment: *Traffic coming from/going to south of Bridgewater is a large movement and would not be served by this bypass.*

Response: Addressing traffic coming from/going to south of Bridgewater is not part of the purpose and need for this study; therefore, alternatives to address this traffic were not developed. Notwithstanding, the following discussion is included in order to address the comment.

Travel patterns as identified from intersection count data suggest that, overall, more of both the northbound and southbound traffic on North Main Street north of Dinkel Avenue comes from or goes to the south on South Main Street rather than the east on Dinkel Avenue. In the a.m. peak hour, more than 70 percent of the traffic on North Main Street comes from South Main Street, as does about 58 percent of the traffic in the p.m. peak. For southbound traffic, the pattern differs between the a.m. and p.m. peak periods: during the a.m. peak slightly more than half of the traffic goes east on Dinkel Avenue, while in the p.m. peak, more than 60 percent of the southbound traffic goes south on South Main Street. In general, this suggests that the Bridgewater Bypass would provide a potential alternative route for somewhere in the range of 25 to 35 percent of the total traffic on North Main Street just north of Dinkel Avenue.

An assessment of the turning movement data for truck traffic, however, indicates that there is generally an even split of truck traffic between South Main Street and Dinkel Avenue. The exception to this is the p.m. peak period, where the majority of southbound trucks on Main Street north of Dinkel Avenue go east – about 60 percent of southbound trucks turn left onto eastbound Dinkel Avenue and 40 percent go south onto South Main Street.

These data confirm and quantify the observation of those who provided comments at the public hearing that the proposed Bridgewater Bypass would provide a potential diversion for about a third of the traffic on North Main Street in Bridgewater.

Comment: *What's the relationship of the proposed bypass to the Town of Bridgewater's Comprehensive Plan regarding future commercial development?*

Response: The Town of Bridgewater's Comprehensive Plan indicates residential, commercial, and industrial land uses along the proposed bypass corridor. A generalized alignment for the bypass is depicted on the Future Land Use Map (see **Figure 8**). The Capital Improvements Plan chapter of the Comprehensive Plan refers to an "Industrial Access Road" connecting Route 257 (Dinkel Avenue) and Route 42 (North Main Street) (i.e., the proposed bypass). This facility is described as a "limited access route," with traffic allowed to enter and exit only at designated intersections. This is consistent with the Commonwealth Transportation Board's resolution and the project described in this Revised EA. The description also is consistent with the project purpose and need (see pages 2–4, Purpose and Need), which is to provide an alternate route for traffic, especially truck traffic, and improve mobility between sections of Route 257 east of Bridgewater and sections of Route 42 north of Bridgewater.

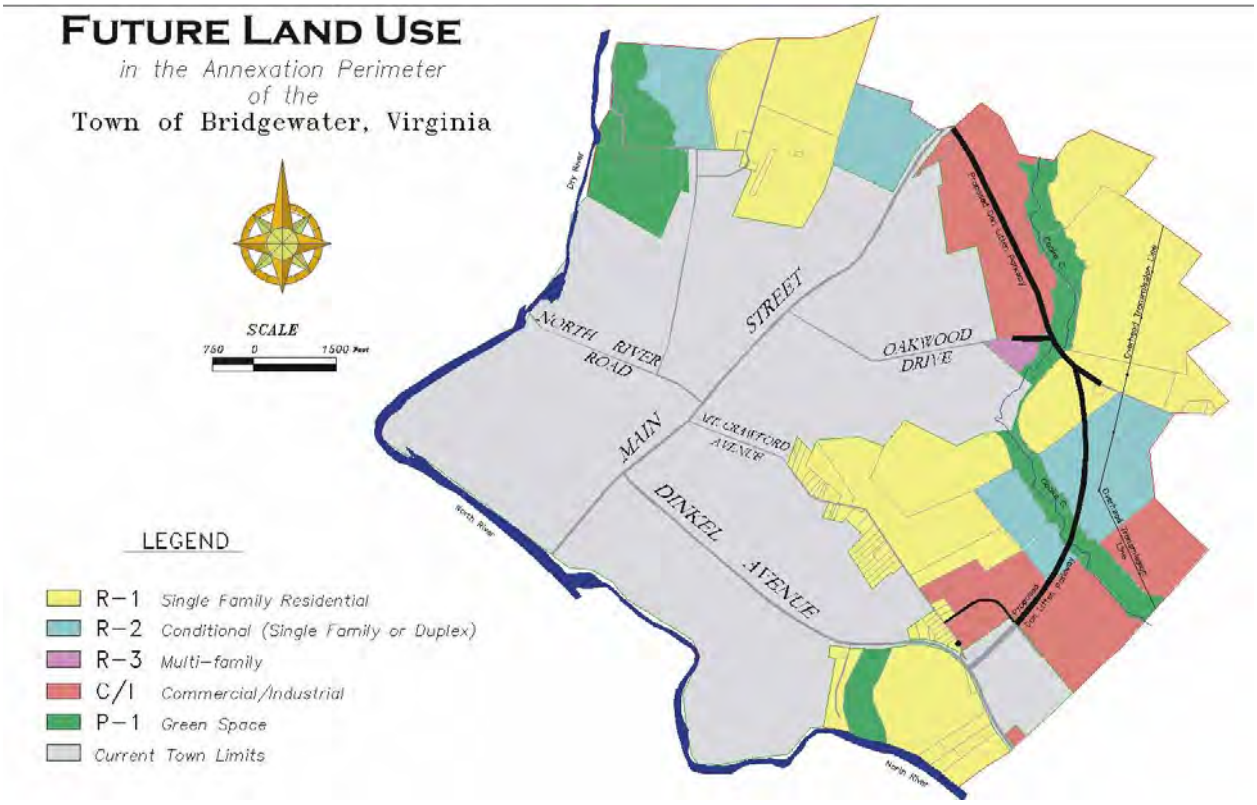


FIGURE 8. BRIDGEWATER FUTURE LAND USE PLAN

Comment: *"Bridgewater's comprehensive plan calls on VDOT to conduct an origin and destination study for the bypass (p. 20) but one was never undertaken." ... We request that an origin and destination study be thoroughly conducted and incorporated into the decision making process for the Bridgewater study area.*

Response: The commenter has mischaracterized the statement from Bridgewater's Comprehensive Plan; it does not specifically require an origin-destination study for the proposed bypass. The referenced section is reproduced below:

"Objective 4: Promote regional transportation improvements through cooperation with County officials and the Virginia Department of Transportation.

Recommendation: Town, County, and VDOT officials, in conjunction with local residents, should explore and propose alternatives for reducing non-local vehicular traffic on Routes 42 and 257. Origin destination studies should be undertaken by VDOT officials to determine the volume of nonlocal traffic and suggest routes appropriate to meet driver's needs." (p19, Town of Bridgewater *Year 2008 Comprehensive Plan*; online at http://town.bridgewater.va.us).

Notwithstanding, the recommendations in a town's comprehensive plan do not dictate FHWA's and VDOT's responsibilities under NEPA. Although a detailed origin-destination study was not part of the scope of this project study, the traffic analysis was performed using the Harrisonburg-Rockingham Metropolitan Planning Organization (HRMPO) travel demand model. The model was developed and validated by HRMPO based on a number of parameters including an extensive traffic count database, existing and projected regional demographics by traffic analysis zones, and a travel distribution algorithm that incorporated home interview survey data and well-established techniques for estimating trip origins and destinations. Accordingly, the purpose and need in the EA was reasonable and was appropriately developed based on existing and future conditions.

Comment: *Traffic data from 2006 Special Locality Report conflicts with data presented in the EA and supporting documentation.*

Response: The referenced *Special Locality Reports* (SLR) are published by the Virginia Department of Transportation (VDOT), which conducts a program where traffic count data are gathered from sensors in or along Virginia's streets and highways and other sources. From these data, estimates of the average daily number of vehicles that traveled each segment of road are calculated. **Table 6** summarizes the relevant data.

Table 6. Summary of Traffic Volumes by Year and Road Segment

Data Source	Annual Average Daily Traffic (AADT) on Road Segment			
	Rte 257 Main St. to ECL Bridgewater	N. Main (Rte 42) Dinkel to Mt. Crawford	N. Main (Rte 42) Mt. Crawford to N. River Rd.	N. Main (Rte 42) N. River Rd. to NCL Bridgewater
EA	8,100	13,400 – 17,100		
2007 SLR	7,900	13,000	16,000	16,000
2006 SLR	7,800	13,000	15,000	15,000
2005 SLR	8,100	13,000	17,000	17,000
2004 SLR	7,900	13,000	17,000	17,000
2003 SLR	7,600	13,000	16,000	16,000
2002 SLR	8,700	15,000	17,000	15,000
2001 SLR	8,200	14,000	16,000	14,000

Sources: Virginia Department of Transportation, Daily Traffic Volume Estimates Including Vehicle Classification Estimates Where Available, Special Locality Report 176, Town of Bridgewater, years 2002, 2003, 2004, 2005, 2006, 2007; Virginia Department of Transportation, Daily Traffic Volume Estimates Including Vehicle Classification Estimates Where Available, Jurisdiction Report 82, Rockingham County, 2001.

The data show that the traffic numbers presented in the EA, while not matching exactly, are entirely consistent with other estimates developed by VDOT over the last several years. It should be noted that these are all estimates, and not necessarily exact counts. Furthermore, the data show that traffic volumes can vary from year to year. Such variability can be attributed to changes in travel patterns, land use changes, the state of the local economy, or any number of other factors. Finally, forecasts for the design year using the approved regional travel model do show growth in future traffic volumes as a result of expected growth in population and employment and land use changes over the coming years.

Comment. *The needs of the Mennonite community should be included in the origin and destination study mentioned earlier.*

Response. The purpose and need of the project is related primarily to motor vehicle traffic and not to the needs of a specific segment of the population. Such a specific origin and destination study is beyond the scope of this study.

Comment: *The Purpose and Need of the Bridgewater Bypass is so narrowly defined that the outcome of the Environmental Assessment was preordained. Indeed, the name of the project, Bridgewater Bypass, specifies the outcome. The Purpose and Need should be revised to address specific transportation concerns rather than just stating the desired outcome of the study – a bypass.*

Response: The Purpose and Need for the project addresses specific transportation concerns, including:

- Geometric limitations of the existing road network.
- The need for an alternate route for traffic, especially truck traffic, so that it doesn't have to pass through downtown Bridgewater, thereby reducing conflicts between vehicular, pedestrian, and bicycle travel on Dinkel Avenue, North Main Street, and Mount Crawford Avenue and reducing conflicts with turning movements.
- The need to enhance connectivity between sections of Route 257 east of Bridgewater and Sections of Route 257/42 north of Bridgewater, thereby improving mobility.

These needs are consistent with local and regional planning, are reasonable, and were appropriately developed based on existing and future conditions in the study area.

ALTERNATIVES:

Comment: *The Alternatives Considered map (Figure 3) is poorly shown and gives no information on what actual starting and ending points were considered as alternatives and what the criteria was for eliminating them. We request that the Environmental Assessment be revised to more fully evaluate and explain options that were considered. In particular, we request that information used for evaluating Oakwood be included.*

Response: The graphic was purposely drawn to show that a multitude of possible alternatives exists by combining various segments of the alignments shown. Reasons for eliminating alternatives are summarized in Table 1. Expanding the table or the discussion to cover every possible combination would be excessively redundant and not needed to make an informed decision. See the response to the next comment for discussion of the "Oakwood" [i.e., Route 704] alternative.

Comment: *Why not just widen Route 704?*

Response: An upgrade to Route 704 was initially considered and then dropped from detailed consideration because of impacts to Agricultural and Forestal Districts and disruption of existing development and a cemetery (Table 1) and because, based on the analysis performed using the regional travel demand model, it would provide limited potential for diverting traffic from downtown Bridgewater. Based on comments received as part of the public involvement process, the alternative was reexamined. Supplemental technical analysis using the regional travel demand model confirmed that upgrades to Route 704 would provide small benefits in addressing

the needs identified at the outset of the study. Therefore, in addition to the environmental concerns noted above, upgrades to Route 704 would not meet the identified transportation purpose and need.

Comment: *Why not widen Route 704 and Pike Church Road and extend Turner Ashby Drive out to Route 704?*

Response: See above for discussion of the Route 704 alternative. Pike Church Road (Route 712) is a narrow winding secondary road that goes through the Oak Grove Agricultural and Forestal District. It does not meet the purpose and need and, even if it did, the agricultural and forestal district involvement would be problematic due to restrictions posed by such districts. Extending Turner Ashby Drive out to Route 704, in combination with widening Route 704, would not meet the needs for the project, as discussed above for Route 704 widening alone.

Comment: *Why not relocate the Quarles gas station and make the truck route one block west of Route 42 (i.e., Grove Street)? Or, consider making Main Street one-way and designating some of the back streets as one-way.*

Response: Several alternatives were considered for constructing either a new roadway that could better accommodate trucks, or for constructing the second half of a one-way pair. For a one-way pair, existing North Main Street would carry either the northbound or southbound traffic and a parallel roadway would carry traffic in the other direction. Two primary options for developing this new roadway were identified: 1) using North Liberty Street (east of Main Street), or 2) using North Grove Street (west of Main Street).

Each of these options would present a number of issues due to overall impacts as well as potential costs/impacts versus benefits. Key concerns include:

- Both alignments pass through residential areas, creating both perceived and real impacts to these communities.
- The North Grove Street alignment would likely require the displacement of several houses.
- Connecting the southern end of North Grove Street to Main Street in the vicinity of Dinkel Avenue would result in substantial impacts to the gas station and church in this area. While these impacts could be mitigated to some degree based on reduced geometrics, the role of the new roadway in terms of carrying trucks requires that the roadway and intersection geometrics accommodate trucks.
- Using North Liberty Street would require roadway on new alignment north of Mount Crawford Avenue. Much of this alignment would pass close to and perhaps within Oakdale Park property.
- These options do not address the purpose and need to provide an alternate route to traveling through downtown Bridgewater.

Comment. *Even with the serious flaws in the Purpose and Need, the Bypass doesn't satisfy it. Traffic data from Appendix D of the Noise Analysis shows an increase in traffic on Dinkel and 42 over the no-build option in 2030. In other words, a project that is supposed to take traffic off Dinkel Avenue and 42 actually makes the problem worse than if nothing were done. This is in direct conflict with the Purpose and Need. In addition, a traffic engineer at the public hearing held on January 16, 2008, stated that the traffic model showed the bypass only took 3% of traffic off of Dinkel Avenue. The Environmental Assessment states that the bypass would reduce conflicts between vehicles and pedestrian travel on Dinkel Avenue. Three percent is an awfully small reduction in vehicle/pedestrian conflict for a $44 million project.*

Response. Appendix D of the Noise Technical Report contains three tables:

- Existing (2007) and forecasted (2030) AM Peak traffic volumes.
- Existing (2007) and forecasted (2030) PM Peak traffic volumes.

- Existing (2007) and forecasted (2030) Average Daily traffic volumes.

It is assumed that the commenter is referring to the data in the average daily traffic volumes table, as that is where data are provided for segments of Dinkel Avenue and Main Street within downtown Bridgewater.

It is clear that traffic volumes forecasted for year 2030 without the bypass are dramatically higher than existing volumes. In fact, every section of roadway analyzed in the report is forecasted to carry higher volumes. It is also true that volumes on some segments of Dinkel Avenue and Main Street are forecasted to be higher with a bypass in place then without. This can be attributed to the following:

- Traffic from other roads takes the place of the traffic that is diverting to the bypass.
- This shift from other roads is occurring because Dinkel Avenue and North Main Street are projected to be near or over capacity and removing traffic from these roads frees up capacity that could be used by traffic currently using other routes to avoid the congestion.

However, on the majority of segments, volumes are forecasted to be lower. This study focused on overall benefits to the corridor, and not just the limited areas where there may be slight increases in traffic. For example, either alternative enhances connectivity between sections of Route 257 east of Bridgewater and sections of Route 257/42 north of Bridgewater, thereby providing an alternate travel route and improving mobility. By improving mobility, thousands of vehicles each day can avoid segments of Dinkel Avenue and Main Street.

Comment. The proposed Bypass will not serve its stated purpose.

Response. As discussed in the Alternatives section of this EA, CBA A is projected to carry approximately 6,200 to 7,300 vehicles per day in the year 2030 and CBA B is projected to carry approximately 5,500 to 8,300 vehicles per day in the year 2030. Either alternative would allow these thousands of vehicles to travel at a posted speed of 55 mph and with limited interference from traffic turning onto or out of intersecting roads and driveways and from pedestrians crossing the roadway. Traffic traveling on either alternative would likely avoid the slower-speed conditions through downtown Bridgewater. Trucks traveling on either alternative would likely avoid the constrained turning conditions at the existing intersections in downtown Bridgewater. By providing for higher travel speeds and less interference, either alternative would improve mobility between Route 257 east of Bridgewater and Route 257/42 north of Bridgewater. In view of the above, the proposed bypass would indeed serve its stated purpose.

Comment: *Realizing that it may seem one-sided to simply criticize the proposal without offering any alternatives in light of local government's and Bridgewater College's perceived need for traffic relief, we would suggest that VDOT consider a proposal whereby Dinkel Avenue. Mt. Crawford Avenue, and Oakwood Drive are all improved for greater and safer capacity. In particular, the one-lane bridge on Oakwood Drive is troubling. We understand that this bridge is slated for improvement in the proposed bypass project but all three of these roads will almost certainly need some improvements in the coming years and have the advantage of modifying existing roadways with little disruption to farm families in the area. Therefore, we urge VDOT to look seriously at these alternatives and conduct the necessary traffic studies and surveys to see whether improvements to existing roads would serve the perceived needs. It is our hope that with some slight widening and straightening of those existing roads, the perceived problem could be rectified. We note that while the study did consider those alternatives, it appears to have done so in isolation and apparently did not consider the collective impact of less-intrusive improvements to all three routes that currently serve as connectors to the Interstate 81 interchange at 257.*

Response. Widening of Dinkel Avenue and Main Street are problematic due to the extensive residential and commercial development along these roads. Widening by itself would not remedy the friction on traffic flow caused by the large number of driveways and commercial entrances.

Expansion of the intersection at Dinkel Avenue and Main Street to accommodate truck turning movements could result in impacts to several businesses at and near the intersection. Traffic still would have to contend with low-speed conditions through town.

ENVIRONMENTAL:

Comment: *Try again to get feedback from NRCS District Conservationist regarding farmland impacts.*

Response: The NRCS District Conservationist was contacted again, and the Farmland Conversion Impact Rating form (NRCS-CPA-106) has now been completed and is included in Appendix A. See also the farmland impacts discussion beginning on page 17.

Comment: *Impacts to farmland would consist of more than direct conversions of farmland to highway use (e.g., splitting of farms and associated issues with crossing the new road to access the split parcels). Impacts to farmland should be more fully discussed in the Environmental Assessment.*

Response: The farmland discussion has been expanded; it begins on page 17.

Comment. *On page 23, Table 4 lists only conversion of farmland to highway right of way under "Impact from Proposed Project." It is completely misleading to list the land being paved over as the only land being "impacted." For example, there is one farm that would be split in two, with the road project shown running between the poultry houses. Clearly this entire farm will be "impacted."*

Response: The farmland discussion has been expanded; it begins on page 17.

Comment. *Sound walls would be terribly inappropriate for this project given the rural character of the surrounding area.*

Response. Any final decision on provision of noise walls as part of the project will take into account more detailed design information that would be developed during the final design phase, as well as the opinions and suggestions of affected citizens.

Comment: *On page 20 of the EA it states "Neither of the CBAs would be expected to have substantial effects on...open space, natural beauty...agriculture..." This statement is hard to believe since the proposed bypass will bisect agricultural lands whose owners wish to continue farming.*

Response: Although the project would directly convert land from existing uses to highway right of way, the project would not appreciably diminish the quantity of open space and agricultural land in Rockingham County. Furthermore, the project is near urban areas where buildings, water and communications towers, and other human infrastructure are clearly visible throughout the study area. In addition, town and county comprehensive plans have designated the study area for development. Finally, owners of most of the agricultural lands traversed by the preferred alternative, CBA A, would be able to continue farming activities if they wish.

Comment: *Though, as stated on page 22 of the EA "Land surrounding the CBAs currently can be accessed from the existing road network," the conclusion reached, "As such, they are subject to development even in the absence of implementation of this project," is flawed.*

Response. The referenced statement is accurate. There are no properties adjacent to the project that could not be developed in the absence of the project, assuming appropriate zoning and other approvals are obtained from local governments.

RESOLUTIONS FROM TOWN AND COUNTY

The Bridgewater Town Council passed a resolution on February 8, 2009 requesting VDOT to select CBA A for the bypass. The Rockingham County Board of Supervisors passed a resolution on March 25, 2009 endorsing CBA A.

APPENDIX A
FARMLAND CONVERSION IMPACT RATING

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-10(
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 10/15/07	4. Sheet 1 of 1
1. Name of Project **Bridgewater Bypass Location Study**	5. Federal Agency Involved **Federal Highway Administration (FHWA)**	
2. Type of Project **Highway Location Study**	6. County and State **Rockingham County, Virginia**	
PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 2/11/08	2. Person Completing Form MaryAnn Trent
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☒ NO ☐		4. Acres Irrigated / Average Farm Size 118 Ac.
5. Major Crop(s) Corn, Small grain, hay	6. Farmable Land in Government Jurisdiction Acres: 255,241 %	7. Amount of Farmland As Defined in FPPA Acres: 165,525 %
8. Name Of Land Evaluation System Used LESA	9. Name of Local Site Assessment System	10. Date Land Evaluation Returned by NRCS 3/6/08

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment			
	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	153	172		
B. Total Acres To Be Converted Indirectly, Or To Receive Services	0	0		
C. Total Acres In Corridor	153	172	0	0
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	59	47		
B. Total Acres Statewide And Local Important Farmland	0	2		
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*	74	74		
PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))* — Maximum Points				
1. Area In Nonurban Use — 15	9	10		
2. Perimeter In Nonurban Use — 10	7	10		
3. Percent Of Corridor Being Farmed — 20	18	20		
4. Protection Provided By State And Local Government — 20	0	0		
5. Size of Present Farm Unit Compared To Average — 10	10	10		
6. Creation Of Nonfarmable Farmland — 25	0	0		
7. Availability Of Farm Support Services — 5	5	5		
8. On-Farm Investments — 20	20	20		
9. Effects Of Conversion On Farm Support Services — 25	0	0		
10. Compatibility With Existing Agricultural Use — 10	0	0		
TOTAL CORRIDOR ASSESSMENT POINTS — 160	69	75	0	0
PART VII *(To be completed by Federal Agency)*				
Relative Value Of Farmland (From Part V) — 100	74	74		
Total Corridor Assessment (From Part VI above or a local site assessment) — 160	69	75	0	0
TOTAL POINTS *(Total of above 2 lines)* — 260	143	149	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
A	59	4/16/09 CTB Resolution	YES ☐ NO ☒

5. Reason For Selection:

Local preference, Level of Impacts

Signature of Person Completing this Part: [signature] DATE 7/8/09