
5 RELATIONSHIP OF THE PROPOSED ACTION TO FEDERAL, STATE, AND LOCAL PLANS, POLICIES AND CONTROLS

The implementation of the proposed action would comply with existing federal regulations and with state, regional, and local policies and programs. The federal acts, executive orders, and policies with which the proposed action must demonstrate compliance include:

- ?? National Environmental Policy Act (NEPA).
- ?? Clean Water Act (CWA).
- ?? Clean Air Act (CAA).
- ?? CERCLA and SARA.
- ?? Endangered Species Act (ESA).
- ?? National Historic Preservation Act (NHPA).
- ?? Coastal Zone Management Act (CZMA).
- ?? Executive Order 11990, Protection of Wetlands.
- ?? Executive Order 11988, Floodplain Management.
- ?? Executive Order 12372, Coordination with State and Regional Agencies.
- ?? Executive Order 12898 Environmental Justice.
- ?? Executive Order 13045, Protection of Children.
- ?? Procedures for Abatement of Highway Traffic Noise 23 CFR 772

5.1 National Environmental Policy Act (NEPA)

NEPA is the National Environmental Policy Act of 1969. This Environmental Assessment has been prepared in accordance with the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 CFR Part 1500-1508) and Army Regulation (AR) 200-2, "Environmental Effects of Army Actions" at 32 CFR Part 651. Executive Order 11991 of May 24, 1977 directed the CEQ to issue regulations for procedural provisions of NEPA; these are binding for all federal agencies.

A number of federal laws, regulations, and policies regulate activities in wetlands, namely:

- ?? Section 404 of the Clean Water Act (CWA), which establishes that the Corps of Engineers require permits for the discharge of dredged and fill material into "waters of the US," a term that includes most wetlands.
- ?? Executive Order 11990, *Protection of Wetlands*, which requires federal agencies to take action to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

- ?? The North American Wetlands Conservation Act, 16 USC S4408, which requires the restoration, management, and protection of wetlands and habitats for migratory birds on federal lands.
- ?? The Wetlands Resources Act, 16 USC S3901, which calls for intensifying cooperative efforts among federal, state, and local governments and private interests for the management and conservation of wetlands.

The Commonwealth of Virginia regulates wetlands through a number of laws and provisions as well:

- ?? The Virginia Wetlands Act of 2000 (Title 62.1 of the Code of Virginia), which protects tidal wetlands and regulates wetland development.
- ?? The Chesapeake Bay Preservation Act (Sections 10.1-2100 et seq. of the Code of Virginia), which allows for the creation of Chesapeake Bay Preservation Areas (RPAs).

Virginia Water Protection Regulations (Virginia Regulations VR 680-15-02), which regulate state waters and require a Virginia Water Protection Permit for activities involving wetlands under Section 404 of the CWA.

Virginia Acts of Assembly Chapters 1054 (House) and 1032 (Senate), passed in the 2000 session, which amend existing wetland laws to require a Virginia Water Protection Permit for certain activities in non-tidal wetlands.

Under the *Federal Facilities Strategy* and *Federal Work Plan* of 1998 and the 1990 Memorandum of Agreement (MOA) between the USEPA and the DoD, Fort Belvoir has agreed in principle to cooperate with state and local government regulations of the Chesapeake Bay Preservation Act (CBPA) as part of the 1987 Chesapeake Bay Cooperation Agreement. Fort Belvoir is consistent to the extent practicable with the Fairfax County Chesapeake Bay Preservation Ordinance (CBPO). The CBPO was enacted pursuant to the CBPA, Sections 10.1-2100, et seq., of the Code of Virginia. The Fairfax County CBPO divides the county into Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) designed to protect water quality in the Chesapeake Bay and its tributaries.

5.2 Clean Water Act (CWA)

The Clean Water Act (CWA) of 1977 (which amends the Federal Water Pollution Act of 1972) and subsequent amendments were designed to assist in restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. The act covers the discharge of pollutants into navigable waters, wastewater treatment management, and protection of relevant fish, shellfish, and wildlife. Congress also passed the Water Quality Act of 1987 to address the excessive levels of toxic pollutants still found in some waters. The proposed action would not generate any point source pollution or shoreline pollution.

5.3 Clean Air Act (CAA)

The Clean Air Act (CAA) of 1955 and subsequent amendments specify regulations for control of the nation's air quality. Federal and state ambient air standards have been established for each criteria pollutant. The 1990 amendments to the CAA require federal facility compliance with all applicable substantive and administrative requirements for air pollution control.

5.3.1 National Ambient Air Quality Standards (NAAQS)

The US Environmental Protection Agency (USEPA), under the requirements of the 1970 Clean Air Act (CAA) as amended in 1977 and 1990, has established National Ambient Air Quality Standards (NAAQS) for six contaminants, referred to as criteria pollutants (40 CFR 50). These are: ozone (O₃), carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), particulate matter (PM), and lead (Pb). The NAAQS include primary and secondary standards. The primary standards were established at levels sufficient to protect public health with an adequate margin of safety. The secondary standards were established to protect the public welfare from the adverse effects associated with pollutants in the ambient air.

The CAA requires that the USEPA review scientific data every five years to ensure that the NAAQS effectively protect the public health. As a result of one such review, on September 16, 1997 the USEPA enacted a more stringent standard for O₃. The final standard has been updated from 0.12 parts per million (ppm) of O₃ measured over one hour to a standard of 0.08 ppm measured over eight hours, with the average fourth-highest concentration over a three-year period determining whether an area is in compliance.

Following the promulgation of this revised NAAQS, the CAA provides up to three years for state governors to recommend and the USEPA to designate areas for attainment or non-attainment of the standard according to their most recent air quality data. In addition, states would have up to three years from designation to develop and submit State Implementation Plans (SIPs) for attaining the new standard.

Additionally, a new standard for particulate matter was issued on July 17, 1997 by the USEPA. The standard for PM 10 remains essentially unchanged, while a new standard for fine particles (PM 2.5: diameter=2.5 micrometers) is set at an annual limit of 15 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), with a 24-hour limit of $65\mu\text{g}/\text{m}^3$. Because this new standard would regulate fine particulates for the first time, the USEPA would allow five years to build a nationwide monitoring network and to collect and analyze the data needed to designate areas and develop implementation plans. Therefore, this standard cannot yet be implemented.

The revised O₃ and new PM 2.5 standards were contested in court, however, and they were remanded to the USEPA by the District of Columbia Circuit Court of Appeals on May 14, 1999. The USEPA appealed this decision to the Supreme Court, and on February 27, 2001, the

Supreme Court reached a decision on this rather complicated matter. In a complex decision, the Supreme Court upheld the USEPA's establishment of the revised ambient air quality standards, but found fault with USEPA's interpretation of the nonattainment implementation provisions of CAA as they apply to the revised O₃ NAAQS. The Supreme Court remanded the case to the Appeals Court to establish proceedings consistent with its opinions. Hence, the new standards have been upheld by the Supreme Court, but details regarding implementation must be determined by the Court of Appeals before the USEPA can establish regulatory policies and procedures for implementing these standards.

Areas that meet the NAAQS standard for a criteria pollutant are designated as being "in attainment;" areas where a criteria pollutant level exceeds the NAAQS are designated as being "in nonattainment." O₃ nonattainment areas are categorized based on the severity of their pollution problem - marginal, moderate, serious, severe, and extreme. CO and PM 10 nonattainment areas are categorized as moderate and serious nonattainment areas. Where insufficient data exist to determine an area's attainment status, it is designated unclassifiable (or attainment).

5.3.2 State Implementation Plan (SIP)

The CAA as amended in 1990 (CAAA) mandates that state agencies adopt SIPs that target the elimination or reduction of the severity and number of violations of the NAAQS. The SIP is a plan that provides for implementation, maintenance, and enforcement of the NAAQS, and it includes emission limitations and control measures to attain and maintain the NAAQS. Conformity to a SIP, as defined in the CAA, means conformity to a SIP's purpose of reducing the severity and number of violations of the NAAQS to achieve attainment of such standards. The federal agency responsible for an action is required to determine if its action conforms to the applicable SIP. SIPs set forth plans to expeditiously achieve and maintain attainment of the NAAQS.

The SIP applicable to this nonattainment area is the *Final State Implementation Plan Revision, Phase I Attainment Plan* (Metropolitan Washington Council of Governments [MWCOG], 1997) and *State Implementation Plan Revision, Phase II Attainment Plan for the Washington DC-MD-VA Nonattainment Area* (MWCOG, 2000).

The SIP sets forth how emissions that contribute to the formation of O₃ would be reduced by 15 percent from 1990 to 1996, and then by three percent per year until the area reaches attainment of the NAAQS. The attainment date for the Washington metropolitan area was 1999, necessitating a 24 percent total reduction in emissions. A plan for reducing emission levels by 15 percent from 1990 to 1996 was approved by the Metropolitan Washington Air Quality Committee (MWAQC) in December 1993. Subsequently, a Post-1996 Rate of Progress Plan was developed and approved by MWAQC in October 1997 with revisions in April 1999. This plan shows how the additional nine percent in reductions required by 1999 would be achieved.

The Phase II Attainment Plan evaluates whether the measures included in the Phase I nine percent plan and other steps being taken are adequate to reach attainment in the Washington metropolitan

area. As part of the Phase II Plan, the Washington region must submit a demonstration using an urban air quality model to show that O₃ concentrations would be reduced to levels below the NAAQS. However, the modeling results show that even with the local measures required to meet the 24 percent rate of progress requirement, air quality in the region would only meet the O₃ NAAQS if overwhelming transport of pollutants into the region from other areas is reduced. MWAQC anticipates that the Washington metropolitan area would attain the O₃ standard based upon data from the O₃ seasons in 2003-2005. Therefore, MWAQC, the states of Maryland and Virginia, and the District of Columbia are requesting an extension of the 1999 attainment date until 2005.

5.3.3 Clean Air Act Conformity

The Clean Air Act Amendments (CAAA) of 1990 require federal agencies to ensure that their actions conform to the appropriate SIP in a nonattainment area. Under Section 176(c) of CAAA, a project is in “conformity” if it corresponds to a SIP’s purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards. Conformity further requires that such activities would not:

- (1) Cause or contribute to any new violations of any standards in any area;
- (2) Increase the frequency or severity of any existing violation of any standards in any area; or
- (3) Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

The USEPA published final rules on general conformity (40 CFR Parts 51 and 93) that apply to federal actions in areas designated nonattainment for any of the criteria pollutants under the CAAA. The proposed rules specify *de minimis* emission levels by pollutant to determine the applicability of conformity requirements for a project.

The Commonwealth of Virginia’s General Conformity Regulations, codified at 9 VAC 5 Chapter 160, Regulation For General Conformity, exempts specific actions from the requirements of the General Conformity Regulations. Specifically, Section 30F exempts the following action from the general conformity regulation:

Transfers of ownership, interests, and titles in land, facilities, and real and personal properties, regardless of the form or method of the transfer.

Based upon this exemption, the proposed action itself is exempt from the requirements of the general conformity regulations.

The following general conformity rule analysis was conducted according to the guidance provided by the USEPA in *Determining Conformity of General Federal Actions to State of Federal Implementation Plans* (1993). Under the general conformity rule, reasonably

foreseeable emissions associated with all operational and construction activities, both direct and indirect, must be quantified and compared to the annual *de minimis* levels for those pollutants for which the area is in non-attainment. The general conformity rule analysis is detailed in Chapter 5. For a serious ozone non-attainment area such as the Fort Belvoir area, the *de minimis* criterion is 50 tons per year (tpy) (45 metric tpy) for both VOCs and NO_x.

5.4 CERCLA and SARA

In 1980, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) was passed in order to provide a superfund for cleanup of sites with uncontrolled releases of hazardous substances. This program was continued in the Superfund Amendments and Reauthorization Act (SARA) of 1986. Section 211 of SARA provides continued authorization for the DoD Environmental Restoration Program and the Defense Environmental Restoration Account. Major responsibilities for monitoring compliance with these acts rest with the USEPA. Implementation of the proposed action would not disturb hazardous materials or waste sites.

5.5 Endangered Species Act (ESA)

The INRMP implements the requirements of the Sikes Act (16 USC 670a et seq.) as amended in the Sikes Act Improvement Act of 1997; DoD Instruction 4715.3, *Environmental Conservation Program*; and Army Regulation (AR) 200-3, *Natural Resources – Land, Forest and Wildlife Management* (US Army Garrison Fort Belvoir, 2001b).

The ESA of 1973 and subsequent amendments provide for the conservation of threatened and endangered species of animals and plants and the habitats in which they are found. The Department of the Army ensures that consultations are conducted as required under Section 7 of the ESA for any action that “may affect” a federally listed threatened or endangered species according to guidance in Army Regulation (AR) 200-3. The Army also complies to the extent practicable with state rare, threatened and endangered species guidelines.

5.6 National Historic Preservation Act (NHPA)

The National Historic Preservation Act (NHPA) was passed in 1966 to provide for the protection, enhancement, and preservation of any property that possesses significant architectural, archaeological, historical, or cultural characteristics. Executive Order (EO) 11593 of 1974 further defined the obligations of federal agencies concerning this act. Section 106 of NHPA requires the head of any federal agency having direct or indirect jurisdiction over a proposed federal or federally financed undertaking, prior to the expenditure of any federal funds on the undertaking, to take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places (NRHP).

Section 106 of the NHPA provides that federal agencies take into account the effects of their actions on any district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP. Implementing regulations for Section 106 established by the Advisory Council on Historic Preservation (ACHP) are contained in 36 CFR 800; Protection of Historic Properties, as amended in January 2001. These regulations provide specific criteria for identifying adverse effects on historic properties. As shown in Table 5-1, the effects of an undertaking on a cultural resource are predicted by evaluating the significant characteristics of the resource and the design and anticipated consequences of the undertaking. Criteria of Adverse Effect set forth in 36 CFR 800.5(a)(1).

Implementation of the proposed action must comply with the NHPA of 1966, as amended. The intent of the NHPA is to integrate consideration of historic preservation issues into the early stages of project planning by a federal agency. Accordingly, under Section 106 of the NHPA, the head of any federal agency having direct or indirect jurisdiction over a proposed federal or federally financed undertaking is required – before the expenditure of any federal funds on that undertaking – to account for its effects on any district, site, building, structure, or object that is included or eligible for inclusion in the NRHP.

Table 5-1
Criteria for Historic Significance

36 CFR 60.4, Part I
<p>The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:</p> <p>A. That are associated with events that have made a significant contribution to the broad patterns of our history; or</p> <p>B. That are associated with the lives of persons significant in our past; or</p> <p>C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or</p> <p>D. That have yielded, or may be likely to yield, information important in prehistory or history.</p>
36 CFR 60.4, Part II
<p>Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties would qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:</p> <p>A. A religious property deriving primary significance from architectural or artistic distinction or historical importance; or</p> <p>B. A building or structure removed from its original location but which is significant primarily for</p>

architectural value, or which is the surviving structure most importantly associated with a historic person or event; or

C. A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life; or

D. A cemetery which derives its primary significance from graves or persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or

E. A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or

F. A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or

G. A property achieving significance within the past 50 years if it is of exceptional importance.

Section 110 of the NHPA, as amended, directs federal agencies to establish a program to locate, inventory, and nominate to the Secretary of the Interior all properties under their ownership or control that appear to qualify for inclusion in the NRHP. Eligibility recommendations are based on NRHP criteria and National Park Service (NPS) guidelines for architectural integrity.

5.7 Coastal Zone Management Act (CZMA)

The Coastal Zone Management Act (CZMA) of 1972 (16 USC § 1451, et seq., as amended) provides assistance to states, in cooperation with federal and local agencies, for developing land and water use programs in coastal zones. Section 307 of the CZMA stipulates that federal projects that affect land uses, water uses, or coastal resources of a state's coastal zone must be consistent to the maximum extent practicable with the enforceable policies of that state's federally approved coastal management plan.

Federal agencies are directed by Section 307(c)(1) of the Coastal Zone Management Act Reauthorization Amendment (CZMARA) to ensure that their actions be consistent with state Coastal Zone Management Program (CZMP) policies to the maximum extent practicable. In Virginia, the Coastal Resources Management Plan (CRMP) is based on application of policies and goals within a core of eight commonwealth regulatory programs, including Fisheries Management, Subaqueous Lands Management, Wetlands Management, Dunes Management, Nonpoint Source Pollution Control, Point Source Pollution Control, Shoreline Sanitation, and Air pollution Control Compliance with and receipt of approvals from these programs implies consistency with CZMP requirements.

The proposed action would have no effect that would fall within the purview of the Commonwealth of Virginia's current coastal legislation and enforceable policies as described in the state's federally approved CRMP.

5.8 Executive Order (EO) 11990, Protection of Wetlands

Executive Order (EO) 11990, *Protection of Wetlands*, signed May 24, 1977, directs federal agencies to take action to protect wetlands on their property and mandates review of proposed actions on wetlands through procedures established by NEPA. The proposed action would have no adverse impact on wetlands.

Nationwide Permit 26 allows discharges affecting up to one acre of headwater and isolated wetlands to occur without notifying the Corps of Engineers. When more than one acre of wetlands are affected a Clean Water Act (CWA) Section 404 permit is required (Bigelow, 1992). The VDOT, as builder, would obtain the necessary permit entitled “General Permit, DA, Norfolk District OE, Virginia Marine Resources Commission,” dated July 13, 1988 for any delineated wetland acreage.

5.9 Executive Order (EO) 11988, Floodplain Management

This order sets forth the responsibilities of federal agencies in reducing the risk of flood loss or damage to personal property, minimizing the impact of flood loss, and restoring the natural and beneficial functions of floodplains. The order was issued in furtherance of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The proposed action would have no adverse impact on floodplains.

Floodplains are significant as a physical feature of the landscape, as a master planning designation for conservation of certain resource values and flood insurance planning, and as a regulatory designation for Executive Order 11988 (Floodplain Management) and Chesapeake Bay Local Assistance Department (CBLAD) regulations. From a planning perspective, EO 11988 sets forth the responsibilities of federal agencies in reducing the risk of flood loss or damage to personal property, minimizing the impact of flood loss, and restoring the natural and beneficial functions of floodplains. Flood insurance maps, approximately depicting the 100-year floodways and 100- and 500- year floodplains, have been prepared by the Federal Emergency Management Agency (FEMA) and are used to determine design requirements for new projects that would encroach on designated areas.

5.10 Executive Order (EO) 12372, Coordination with State and Regional Agencies

Executive Order (EO) 12372, *The Presidential Intergovernmental Review of Federal Programs*, signed on July 14, 1982, directs the Army to pursue close and harmonious planning relations with local and regional agencies and planning commissions of adjacent cities, counties, and states for cooperation and resolution of mutual land use and environmentally-related problems.

In addition, notification may be made to state and regional planning clearinghouses. This EA, information from relevant state, regional, and local agencies was reviewed for data on potential impacts of the proposed action, including that of Fairfax County. The proposed action would be consistent with existing and future land use patterns and other applicable plans and policies.

5.11 Executive Order (EO) 12898, Environmental Justice

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed on February 11, 1994, aims to prevent minority and low-income communities being disproportionately affected by the negative impacts on the environment of federal actions. EO 12898 directs all federal departments and agencies to incorporate environmental justice considerations in achieving their mission. Each federal department or agency accomplishes this by evaluating programs, policies, and activities that may substantially affect human health or the environment in a manner that does not exclude communities from participation in, deny communities the benefits of, nor subject communities to discrimination under such actions because of their race, color, or national origin.

As evaluated in accordance with EO 12898, the direct and indirect effects of the proposed action would not cause adverse environmental or economic impacts specific to any groups or individuals from minority or low-income populations residing in the study area, nor would any persons be displaced as a result of implementation of the proposed action.

5.12 Executive Order (EO) 13045, Environmental Protection of Children

Executive Order (EO) 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, signed on April 21, 1997, aims to prevent children being disproportionately affected by such impacts. Because the scientific community recognized that children may suffer disproportionately from environmental health and safety risks, each federal agency is directed to identify and assess such risks, and consequently to ensure that its policies, programs, activities, and standards address effects on children. “Environmental health and safety risks” are defined as “risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest.” Covered regulatory actions that are affected by this EO are those substantive actions that concern an environmental health risk or safety risk that an agency has reason to believe may disproportionately affect children. The proposed action would not disproportionately affect children.

5.13 Procedures for Abatement of Highway Traffic Noise and Noise Construction - 23 CFR 772

The Federal Highway Administration (FHWA) has established procedures and criteria to determine and evaluate impacts associated with vehicular use of roadways. The primary problems associated with highway noise are activity interference and general annoyances. Therefore, it is the goal of abatement programs to minimize these impacts to exterior land uses. The decibel is the basic unit of sound measurement, and represents, relative acoustic energy intensities. Traffic noise is the sound generated by automobiles and trucks on streets and highways, such as US 1. The sound generated is a composite of tire, engine, and exhaust noise. People respond differently to sound energy in varying acoustic frequency ranges. Sounds heard in the environment usually consist of a range of frequencies, each at a different level. The method of correlating human response to equivalent sound pressure levels at different frequencies is called “weighting”. The weighting system used to correlate human hearing to frequency response is the “A-weighting scale” and the resultant sound pressure level is called “A-weighted sound pressure level”. This is generally abbreviated by the expression dB(A). The dB(A) is generally used in assessing community noise exposure because this scale closely approximates the frequency response of the human ear. The A-weighted equivalent sound level (L_{eq}) is the descriptor used most frequently in highway noise analyses (Table 5-2). The L_{eq} is the equivalent steady state sound level which represents the mean energy or sound intensity level for a given

Table 5-2
Noise Abatement Criteria (NAC)

Activity	$L_{eq}[h]^1$	Description of Activity Category
A	57 (exterior)	Lands on which serenity and quiet are of extraordinary significance 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.
B	67 (exterior)	Picnic areas, recreational areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (exterior)	Developed lands, properties, or activities not included in Cat A or B above.
D	--	Undeveloped lands
E	52 (interior)	Residences, motels, hotels, public meetings rooms, schools, churches, libraries, hospitals

¹Hourly A-weighted Sound Level in Decibels (dBA).

These sound levels are only to be used to determine impact. These are the absolute levels where abatement must be considered, Noise abatement should be designed to achieve a substantial noise reduction- not the noise abatement criteria.

time period. This is the descriptor that would be used in this highway noise analysis. The FHWA guidelines prescribe the use of the hourly equivalent sound level ($L_{eq}[h]$) as the primary

descriptor for noise analysis. $L_{eq}(h)$ is defined as the equivalent steady state sound level, which in one hour contains the same acoustic energy as the time-varying sound level during the same one-hour period.

Noise abatement criteria (NAC) for various land uses have been established by FHWA in 23 CFR 772. According to these procedures, noise impacts occur when predicted traffic noise levels for the design year approach or exceed the noise abatement criterion prescribed for a particular land use category, or when the predicted noise levels are substantially higher than the existing ambient noise levels. This analysis was completed in accordance with Federal procedures and evaluated in accordance with the Virginia State Noise Abatement Policy.
