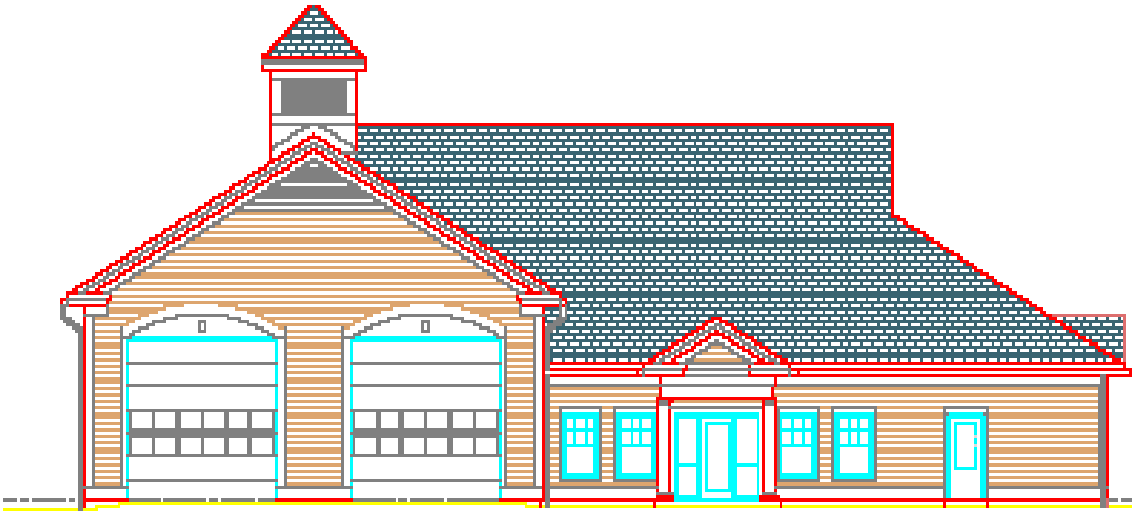
Environmental Assessment

Town of Londonderry, NH
Proposed North Fire Station



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LIST OF ACRONYMS

AFG	Assistance to Firefighters Grant
amsl	Above Mean Sea Level
APE	Area of Potential Effects
AR-I	Agricultural-Residential
bgs	Below Ground Surface
BMP	Best Management Practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CIP	Capital Improvements Plan
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CWA	Clean Water Act
dB	Decibel
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	Emergency Medical Service
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FY	Fiscal Year
GFA	Gross Floor Area
GIS	Geographic Information System
IND-I	Industrial
KW	Kilowatt
Ldn	Day-Night Average Sound Level
LEED	Leadership in Energy and Environmental Design
MHT	Manchester-Boston Regional Airport
MTBE	Methyl Tert-Butyl Ether
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NFS	North Fire Station
NH DES	New Hampshire Department of Environmental Services
NHB	Natural Heritage Bureau
NHDHR	New Hampshire Division of Historical Resources
NHPA	National Historic Preservation Act
NO2	Nitrogen Dioxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O3	Ozone
OSHA	Occupational Safety and Health Administration

LIST OF ACRONYMS
(continued)

Pb	Lead
PCS	Point Control Source
PM2.5	particulate matter less than 2.5 microns
PM10	particulate matter less than 10 microns
SCG	Station Construction Grants
SF	Square Feet
SFS	South Fire Station
SO2	Sulfur Dioxide
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound

1.0 INTRODUCTION

The Town of Londonderry (Town) has applied for and has been granted financial assistance through the Assistance to Firefighters Fire Station Construction Grants (SCG). The SCG provides financial assistance directly to fire departments on a competitive basis to build new or modify existing fire stations in order for departments to enhance their response capability and protect the community they serve from fire-related hazards. SCG assistance will be used to partially pay for the construction of a new North Fire Station (NFS). The NFS will provide safe living accommodations for firefighters, functional space to house a variety of apparatus, and adequate room to perform necessary support functions. The NFS is proposed to be constructed on a site that is strategically located to better serve the community, improve response time to targeted hazards, and improve compliance with National Fire Protection Association (NFPA) 1710.

The Town will use the SCG funding and monies from the June 30 undesignated fund balance to construct the new NFS.

This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, the President's Council on Environmental Quality regulations to implement NEPA (40 Code of Federal Regulations (CFR) Parts 1500-1508), and the Federal Emergency Management Agency (FEMA) regulations implementing NEPA (44 CFR Part 10). FEMA is required to consider potential environmental impacts before funding or approving actions and projects. The purpose of this EA is to analyze the potential environmental impacts of the proposed project. FEMA will use the findings in this EA to determine whether to prepare an Environmental Impact Statement (EIS) or Findings of No Significant Impact (FONSI).

Three alternatives were assessed for the NFS.

- Alternative 1, No Action, would continue to utilize the existing facility located at 535 Mammoth Road in Londonderry,

- Alternative 2, Reconstruction and Enlargement of Existing Facility, would require the demolition and reconstruction of a new facility at the existing location at 535 Mammoth Road, and

- Alternative 3, New Fire Station at 20-22 Grenier Field Road in the northern portion of Londonderry is the proposed action. The proposed project site is located approximately ½ mile northwest of the current NFS.

All three alternatives were assessed as part of this EA. It has been determined that Althernative 1, continued use of the existing facility, no longer meets the needs of the North Londonderry Fire District. Alternative 2 has been determined to be infeasible as the current site is too small to accommodate a new structure that will meet the current and future needs of the North Londonderry Fire District. This alternative, if it were feasible, also would require the station to be out of service during construction activities and would require establishing a temporary fire station in the north part of town in order to provide fire safety coverage during construction. Alternative 3 has been evaluated and determined to meet the needs to provide public health and safety services to the community, as well as comply with the requirements of NFPA.

2.0 LOCATION, BACKGROUND, AND NORTH FIRE DISTRICT

2.1 PROJECT LOCATION

The project location is in the northern portion of the Town of Londonderry, which is located in western Rockingham County in southeastern New Hampshire. The Town of Londonderry is a rural community located approximately 40 miles north of the City of Boston, Massachusetts. Londonderry contains 42.0 square miles of land area and the 2007 Census estimate was 24,975 residents. The City of Manchester, which is the largest city in New Hampshire, borders the Town of Londonderry to the northwest. The new NFS will be constructed in the northern portion of the Town of Londonderry in close proximity to the Manchester-Boston Region Airport (MHT) (which is located approximately 1 mile to the west-northwest of the site), a Tennessee Gas pipeline, and a natural gas fired power plant.

A Site Locus Map showing the locations of the existing fire station and the proposed location for the new NFS is provided in **Appendix A**. Photographs of the current station and the location for the proposed NFS site and surrounding areas are provided as **Appendix B**. Geographic coordinates of the proposed project site are 42.92194N, 71.41330W. The proposed project site is located at 20-22 Grenier Field Road. The 22 Grenier Field Road parcel was acquired by the Town in 1999 for non-payment of property taxes. The abutting 20 Grenier Field Road parcel was purchased by the Town in 2006.

The proposed project site is located in an area zoned Agricultural-Residential (AR-I) and Industrial (IND-I). The site is located between properties of both types with residential to the east and industrial to the west. One residential duplex property is situated immediately adjacent to the east. A FedEx facility is immediately adjacent to the north. An undeveloped industrial zone property is located immediately to the west. An undeveloped parcel zoned Agricultural-Residential is across Grenier Field Road to the south. Additional residences are located to the east and southeast, and a long-existing race track and manufacturing facility are located to the southwest. The industrial-zoned property adjacent to the proposed project site was reportedly re-zoned to Industrial in 1989. The Manchester-Boston Regional Airport is located approximately one mile to the west-northwest. A copy of the Town of Londonderry Tax Map 17 is located in **Appendix C**. The site is located in the western portion of the tax map. No wetlands, floodplains, or waterways are located on or adjacent to the project site. The nearest waterways are an intermittent stream approximately 750 feet to the west of the site and Little Cohas Brook approximately 1,200 feet south of the site. Little Cohas Brook feeds into the Merrimack River, which is north-south flowing and is located west of the site. A copy of a Town of Londonderry GIS map for the area is provided in **Appendix D**.

2.2 BACKGROUND

In June 2005, the Londonderry Fire Department completed a Facility Study to determine the appropriate number, location and size of fire stations for the Town. The study used the NFPA Standard 1710 (Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments) which establishes standards for deployment of fire, rescue, and emergency management services resources. These standards identify that the initial arriving company shall arrive within 4-minutes and/or the initial full alarm assignment

within 8-minutes to 90% of the incidents. In order to achieve town-wide response time within 4 and 8-minutes to 90% of the incidents, the Town would require five fire stations. In summary, the study ultimately recommended:

- the Town maintain the existing fire station configuration, three stations,
- increase staffing at Central Station,
- size of the stations should be 80-feet by 80-feet, 6400 square feet (SF) gross floor area (GFA), each containing a three bay/two deep configuration,
- existing NFS be relocated to Town-owned property at 22 Grenier Field Road to service the Northwest Quadrant commercial/industrial area.

At the annual Town Meeting held in March 2005, voters approved funds for architectural and engineering fees for the design and relocation of South Fire Station (SFS) and NFS. A suitable location for NFS had not been identified as of the 2005 Town Meeting. Town staff reviewed several locations, keeping in mind the importance of maintaining acceptable response times to North Londonderry, while also being mindful of the development occurring in the Northwest Quadrant in and adjacent to Manchester-Boston Regional Airport. This study recommended that development of 22 Grenier Field Road would be consistent with the two goals listed above for the relocation of the NFS. At the annual Town meeting held in March 2006, voters approved the site work preparation for the future replacement of the NFS at 22 Grenier Field Road. Site preparation at the 20-22 Grenier Field Road site occurred in 2005/2006.

2.3 NORTH FIRE DISTRICT

The existing NFS is located at 535 Mammoth Road. Located in Londonderry, and in the NFS primary response district, are several of the largest target hazards in the State of New Hampshire:

- MHT, the state's largest commercial airport,
- A 720 mega-watt natural gas fired power plant,
- An armed forces reserve center,
- Interstate 93 which carries over 150,000 vehicles a day, and
- A Tennessee Gas pipeline.

The condition of the existing NFS has been of concern for some time due to fire, health and building code violations. The station was built in the mid-1950s as a "volunteer" station; that is, it was not constructed to house full-time personnel. Numerous modifications were done over the past half-century to accommodate the growing Department. Currently many deficits exist in the station. Not only must the station be replaced or substantially renovated, but also the existing location is insufficient in size to support a modern station.

The current NFS is 2,752 square feet in size and is a combination of concrete block and unprotected wood-frame construction. It was constructed in the 1950's by volunteers to accommodate fire apparatus of that era. The building was constructed without the benefit of engineering, permits or inspections, and was designed primarily to house apparatus, not firefighters. As the years passed, the need for facilities to

house firefighters was identified and a living area was added on the second floor. This living area was also constructed without the benefit of engineering, building permits or inspections. There is no fire separation between the apparatus room and the living area, and the walls to the living area are combustible wood paneling. In addition, there is inadequate primary and secondary egress from the second floor, no fire alarm or fire sprinkler system, and inadequate venting of the kitchen stove.

The increased load of the living quarters on the second floor, as well as the deterioration and rusting of the salvaged railroad rails used as structural columns to support it, call into question the stability of the structure. There are a number of large cracks in the concrete block which further calls into question the building's structural stability. The roof has significant sagging between the roof rafters and it has leaked numerous times resulting in mold issues in the building. The building has also been found to contain lead paint and asbestos. Some of the mold, lead paint and asbestos have been temporarily mitigated or sealed to allow continued occupancy. At one point, the Town was temporarily forced to vacate the structure to mitigate these hazards.

The existing NFS building is not equipped with accommodations for male and female staff members. There is no decontamination area, and drainage from the apparatus bay goes untreated into the street and into storm drains, which ultimately discharge in wetlands. The electrical system is ungrounded and there is no permanent back-up power supply. Furthermore, the station is too small to accommodate modern fire apparatus, causing mutual aid companies to park apparatus outside. The two apparatus bays are equipped with 10-foot high by 10-foot wide, and 10-foot high by 12-foot wide doors, respectively. The station only accommodates one engine, one forestry vehicle, and three personnel. Any new apparatus needs to be customized to fit into the building, resulting in higher cost. Additional staff, an aerial device or ambulance could not be accommodated in the current station.

The lot the fire station sits on is only 0.96 acres. The building lacks adequate setbacks from the road and is only 30-feet from the adjacent building. Therefore, expansion or replacement of the current station is not a viable option on the current site. Although NFS is occupied 24 hours a day, seven days a week, the building was never intended to be used for such a purpose. As such, the facility is not an adequate working environment for staff. The Town continues to spend money on emergency repairs in an attempt to maintain acceptable conditions. Within the past 12 months, the Town has spent more than $14,000.00 in repairs to the existing NFS.

The Town's environmental consultant has completed environmental investigations and ongoing ground water monitoring activities at the NFS property in response to the historical release of gasoline at the site. The release was identified on August 20, 1993 when two decommissioned 2,000-gallon underground storage tanks (USTs), which formerly contained gasoline for refueling Londonderry Fire Department vehicles, were removed from the site. Petroleum impacted soils were encountered immediately below the USTs upon their removal. During excavation, a clay "barrier" layer was encountered. Per the New Hampshire Department of Environmental Services (NH DES), the excavation activities were ceased at this clay layer to limit the disturbance of the clay, which could provide a potential barrier to the vertical migration of contaminants. Approximately 113 tons of gasoline-impacted soil above the clay layer were excavated and removed, and ground water was not encountered during the excavation activities. In 2001, the Town installed a series of ground water monitoring wells at the site to assess ground water impacts.

Samples collected from the monitoring wells indicated that ground water was impacted from the former leaking USTs. Ground water monitoring activities continued over the next several years to evaluate if the contamination levels were increasing or decreasing, and if the impacted ground water was migrating off-site. In 2004, the NH DES issued a Groundwater Management Permit (GMP) for the site, which outlined ongoing monitoring activities to be completed. At this time, ground water sampling and reporting efforts continue to be periodically completed per the GMP requirements and, although the data indicates that natural degradation of the gasoline-related compounds is resulting in decreasing levels of contamination, ground water impacts at the site still remain at concentrations in excess of NH DES permitted levels.

The 22 Grenier Field Road portion of the proposed project site formerly contained a home, repair shop and automobile salvage yard. Due to historical site use practices associated with the repair shop and salvage yard operation, soil and ground water contamination and buried solid waste existed at the site at the time the Town acquired the property, which required environmental remediation. Environmental investigation and remediation efforts were completed by the Town, and the NH DES reviewed and approved the environmental activities which were completed, and in May 2006 ultimately closed their file for this site. Copies of the Site Investigation Report prepared by EnviroSense are co-located with EA copies located for public review and comment at the Londonderry Town Hall and Londonderry Leach Library.

3.0 PURPOSE AND NEED

The purpose of the SCG is to provide economic stimulus in the form of jobs and increase the safety of the firefighters and the communities they serve.

The Town has identified the need for a new fire station in the north section of the community that will provide safe living accommodations for firefighters, functional space to house a variety of apparatus, and adequate room to perform necessary support functions. A new fire station in this area of town will also satisfy needs to improve response times to target hazards, and to provide a facility that is compliant with NFPA 1710.

The existing Town of Londonderry fire stations provide emergency services to a population of approximately 25,000, covering a 42-square-mile service area. The Londonderry Fire Department plays an active role in providing public assistance and mitigation during community disasters. The existing NFS is a 2,752 square foot, concrete block and unprotected wood frame facility which was built by volunteers in the early 1950's without the benefit of engineering, permits, or inspections and was primarily designed to house firefighting apparatus, and not personnel, as it was originally staffed by volunteer firefighters. As discussed in Section 2.3, this facility no longer adequately serves the needs of the Town. An aerial photograph of the existing station on a Town of Londonderry Geographic Information Services (GIS) Tax Map for the parcel is included as **Appendix E**.

Finally, replacement of the NFS has been included in the Londonderry Planning Board's Capital Improvements Plan (CIP) for five consecutive years, and has been identified as the top priority project for the Town for the past three years. A copy of the FY 2011-2016 CIP is included in **Appendix F**.

4.0 ALTERNATIVE ANALAYSIS

NEPA requires the investigation and evaluation of reasonable project alternatives as part of the project environmental review process. Three alternatives are addressed in this EA. The potential environmental impacts for each of the alternatives are analyzed by resource category and discussed in Section 5.

- Alternative 1: **No Action Alternative** proposes that the Town takes no action and continues to provide fire/rescue services out of the existing station at 535 Mammoth Road.
- Alternative 2: The **Reconstruction and Enlargement Alternative** proposes to rebuild and enlarge the existing station at 535 Mammoth Road.
- Alternative 3: The **Proposed Action** proposes to relocate and enlarge NFS to 20-22 Grenier Field Road, approximately 0.5 miles from the existing NFS.

The June 2005 Facility Study stated that in order to achieve ideal station locations based on NFPA 1710, the Town would need five stations. Based on the Facility Study, only one of the existing locations, Central, is located correctly to achieve the coverage. The remaining four locations identified as a result of the Facility Study do not include existing fire stations. The existing North and South fire station locations would need to be abandoned, four new properties acquired, and four new stations constructed. The alternative of acquiring four new parcels and constructing four new stations are not analyzed in detail in this EA, as this alternative was discounted due to the potential cost implications.

Alternative 1 – No Action Alternative

Under the **No Action Alternative,** the Town would take no action relative to investing in improving facilities for the NFS operations. The town would not benefit from a new fire station and fire/rescue personnel would continue to operate out of the existing 57 year old facility at 535 Mammoth Road (Site Locus Map, **Appendix A**).

Alternative 2 – Reconstruction and Enlargement Alternative

The **Reconstruction and Enlargement Alternative** proposes to rebuild the existing fire station at 535 Mammoth Road. The 535 Mammoth Road parcel is 0.96 acres in size and occupied by the existing fire station and the historic Mayflower Grange building (current Londonderry Senior Center). The Mayflower Grange building is listed on the New Hampshire Register for Historical Places. The lot lacks adequate size and setbacks from the roadways, and is only 30-feet from the adjacent historic Mayflower Grange. If the Town were to construct the minimum 6400 SF station and associated parking areas on the parcel, the historic Mayflower Grange building would need to be removed. Other concerns of the Reconstruction and Enlargement Alternative is the existing environmental condition of the site (both groundwater and soils) and the safety logistics associated with not having a NFS in service during construction.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)

The **New Fire Station Alternative** proposes to construct a new NFS on Town-owned property at 20-22 Grenier Field Road. The 2-acre parcel is located within 0.5 mile of the existing NFS.

The proposed station is designed to accommodate current apparatus assigned to the NFS as well as the anticipated need for an ambulance and aerial in the near future. This apparatus could all be accommodated in the proposed station. The site chosen is also large enough to allow for future expansion of the station, including additional apparatus and living space.

The proposed station will be a 7,060 square-foot concrete block building. The facility will have two, double deep apparatus bays (accommodations for 4 apparatus). The apparatus doors will be 14-feet wide x 16-feet high and would be large enough to accommodate modern fire apparatus. The new station will provide living accommodations for up to six firefighters per shift.

The building will be constructed in accordance with current International Building Code, current Life Safety Code (NFPA 101), and the current Fire Prevention Code (NFPA 1). It will include a complete, supervised automatic fire/smoke/carbon monoxide detection and alarm system installed in accordance with the current edition of NFPA 72. The building will be equipped with a complete automatic sprinkler system installed in accordance with the current edition of NFPA 13. In addition, the facility is designed to meet all the recommendations and requirements of NFPA 1500, current edition.

In addition to the apparatus space (3,200 SF), the building will be outfitted with a full kitchen (210 SF), dayroom (210 SF), office (200 SF), fitness room (234 SF), bunk rooms (500 SF), gear storage and a decontamination room (238 SF) equipped with a heavy duty gear washer (gear washer) and a consumer grade washer and dryer (uniform washer). Both male and female bathroom and shower facilities (300 SF) will also be provided. Other areas include 620 SF for circulation, 310 SF for mechanical, and 180 SF for public access. The building will be serviced by municipal water and sewer, with appropriate separators to pre-treat drainage from the decontamination room and the apparatus bay.

A back-up diesel emergency generator with an automatic transfer switch will be provided under the Proposed Action. The generator will be 100KW in order to provide emergency power for extended power outages. A copy of the plans for the proposed NFS is included in **Appendix G**.

The Town's Plymo-Vent source capture diesel extraction system will be moved from the current NFS and modified as necessary to accommodate the new building. The source capture diesel extraction system was aquired with an Assistance to Firefighters Grant (AFG) in 2005.

5.0 AFFECTED ENVIRONMENT AND POTENTIAL IMPACTS

5.1 PHYSICAL RESOURCES

5.1.1 Geology and Soils

The existing site is located in the northern portion of the Town of Londonderry, which is located in western Rockingham County in southeastern New Hampshire. The City of Manchester, which is the largest city in New Hampshire, borders the Town of Londonderry to the northwest.

According to the U.S. Geological Survey (USGS) Manchester South 7.5-minute topographic quadrangle map for the area, the elevation of the existing project site is approximately 290 feet above mean sea level (amsl). Surface topography slopes gently from north to south (**Appendix A**).

The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) online Web Soil Survey (**Appendix H**), indicates the existing fire station site contains one primary soil that consists of the Scituate-Newfields complex with 3 to 8 percent slopes. The Scituate soil is identified to be moderately well drained fine sandy loam from 0 to 8 inches, cobbly fine sandy loam from 8 to 32 inches, and gravelly loamy sand from 32 to 60 inches. The Newfields soil is further identified to have a parent material of till and is fine sandy loam from 0 to35 inches and gravelly loamy sand from 35 to 64 inches. The Soil Survey indicates the depth to ground water is 18 to 48 inches for the two soil units.

The proposed project area is located approximately one half mile northwest of the existing NFS site.

According to the USGS Manchester South 7.5-minute topographic quadrangle map for the area, the approximate elevation of the proposed project site is about 320 to 330 feet amsl. Surface topography slopes from north to south (**Appendix A**).

The USDA NRCS online Web Soil Survey (**Appendix H**), indicates the proposed project site contains two primary soils. The first primary soil, which covers the majority of the site, consists of the Canton gravelly fine sandy loam with 8 to 15 percent slopes, and is described to be very stony. It is further identified to have till as a parent material, is considered well drained, and has low available water capacity. The Soil Survey indicates the depth to ground water is greater than 80 inches. The Soil Survey states the typical profile is 0 to 21 inches of gravelly fine sandy loam and 21 to 60 inches of loamy sand.

The Soil Survey indicates the second primary soil, which covers the southeast corner of the site, is the Walpole very fine sandy loam with 3 to 8 percent slopes, and is also described to be very stony. The soil Survey reports the setting for the soils to be depressions that are poorly drained with a depth to ground water of 0 to 12 inches.

Beginning 2004, EnviroSense, Inc. (EnviroSense) conducted environmental investigations of the western portion of the proposed site that included soil borings (EnviroSense, 2004; EnviroSense, 2005a).

EnviroSense completed eight soil borings, seven of which were finished as ground water monitoring wells, and two of which were located on the shoulder of Grenier Field Road across the road from the site. In general, EnviroSense interpreted the soils to be medium to very dense fine sand with rock and trace silt. Refusal was encountered at varying depths from approximately 3 to 13 feet below ground surface (bgs).

In 2005, R. W. Gillespie & Associates, Inc. (Gillespie) conducted a Geotechnical Investigation (Gillespie, 2005) of the proposed site. Gillespie conducted four test borings from near the center of the proposed site and five auger probes outwardly located from the borings as part of their investigation. Gillespie's interpretations of the soils from their test borings indicate the soils were generally dense to very dense silty-sand and sandy-silt with little gravel and few cobbles. The test boring logs indicate refusal was encountered at 9 to 15 feet bgs. The five auger probes identify the soil as silty-sand with gravel with refusal encountered at 10 feet bgs in the northwest corner of the property, 3 and 4 feet bgs in the northeast corner of the property, and not encountered at the extents of the auger probes at 10 feet bgs in the southern portion of the property.

It is important to note that the proposed site has been reworked by earth moving activities associated with the clean-up of the former salvage yard, preparation of the site for construction on the western portion of the property, and the removal of homes from the eastern and western portions of the property.

Depth to bedrock across the Site ranges from 0.0 feet to greater than 15 feet below grade. Bedrock exposures occur at several locations in the central, northwestern, and northeastern portions of the Site. Based on the Geologic Map of New Hampshire (Lyons, et al., 1997), bedrock at the Site consists of rocks associated with the Massabesic Gneiss Complex. The Massabesic Gneiss Complex is described as a migmatite consisting of pink, foliated biotite granite intruding gneissic and granulose metasedimentary and metavolcanic rocks. Rock outcrops observed at the Site are consistent with this description.

Alternative 1 No Action–Under the No Action Alternative, no impacts to geology or soils would occur.

Alternative 2 Reconstruction and Enlargement of Existing Facility–Under this alternative, construction activities would not be deep enough to impact underlying geologic resources. Short-term impacts to soils would occur during the construction period. Appropriate best management practices (BMPs) such as silt fence, prompt planting of vegetation, and completion of landscaping would be used to minimize runoff. Petroleum-impacted soil would likely be encountered beneath the footprint of the existing NFS if it is demolished for reconstruction. This soil would be disposed of in accordance with local, state, and/or federal regulations.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)-Under the Proposed Action Alternative, construction activities would not be deep enough to impact underlying geologic resources. Short-term impacts to soils would occur during the construction period. Much of the site grading work and catch basin and detention pond system construction has been completed, so minimal additional impacts to site soils would be anticipated. Appropriate BMPs such as silt fence, prompt planting of vegetation, and completion of landscaping would be used to minimize runoff.

5.1.2 Air Quality

The Clean Air Act (CAA) requires that states adopt ambient air quality standards. The standards have been established to protect the public from potentially harmful amounts of pollutants. Under the CAA, the U.S. Environmental Protection Agency (EPA) establishes primary and secondary air quality standards. Primary air quality standards protect the public health, including the health of "sensitive populations, such as people with asthma, children, and older adults." Secondary air quality standards protect public welfare by promoting ecosystems health, and preventing decreased visibility and damage to crops and buildings. The EPA has set national ambient air quality standards (NAAQS) for the following six criteria pollutants:

ozone (O_3),
particulate matter ($PM_{2.5}$, PM_{10}),
nitrogen dioxide (NO_2),
carbon monoxide (CO),
sulfur dioxide (SO_2), and
lead (Pb).

According to the EPA Air Quality Index Report for 2008 (the most recent yearly report), Rockingham County had 284 air quality days reported, of which, 258 were reported as good, 23 were reported as moderate, and 3 were reported as unhealthy for sensitive groups. The report also identified that on 174 days, the pollutant was O_3, 61 days it was SO_2, and 49 days it was $PM_{2.5}$ (EPA, 2010). A copy of the Air Quality Index Report is included in **Appendix I**.

Alternative 1 No Action–Under the No Action Alternative, there would be no additional impacts to air quality because no construction would occur.

Alternative 2 Reconstruction and Enlargement of Existing Facility–Under this Alternative, short-term impacts to air quality would occur during demolition and reconstruction activities of the existing facility. To reduce impacts during demolition, BMPs would be employed to mitigate potential exposures to lead paint dust and to asbestos. To reduce impacts during construction, the construction contractors would be required to wet down construction areas as needed to mitigate fugitive dust. Emissions from fuel-burning engines (e.g., heavy equipment and earthmoving machinery) could also temporarily increase the levels locally of some of the criteria pollutants, such as CO, NO_2, O_3, PM_{10}, and non-criteria pollutants such as volatile organic compounds (VOCs). To mitigate these emissions, fuel-burning equipment run times would be kept to a minimum and equipment would be properly maintained.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)–Under the Proposed Action Alternative, short-term impacts to air quality would occur during construction activities. To reduce impacts, the construction contractors would be required to wet down construction areas as needed to mitigate fugitive dust. Emissions from fuel-burning engines (e.g., heavy equipment and earthmoving machinery) could also temporarily increase the levels of some of the criteria pollutants locally at and near the construction site, such as CO, NO_2, O_3, PM_{10}, and non-criteria pollutants such as VOCs. To mitigate these emissions, fuel-burning equipment run times would be kept to a minimum and equipment would be properly maintained.

5.1.3 Impacts to Climate

Alternative 1 No Action-Under Alternative 1, there will be no changes to the existing station that may act to improve the facility efficiencies or reduce greenhouse gas emissions.

Alternative 2 Reconstruction and Enlargement of Existing Facility– Under this Alternative, the reconstruction of a new fire station at the existing site would ultimately be expected to reduce the overall impact of the NFS on the environment. The existing station was not originally constructed to house personnel, and was built prior to current building codes and methods. The building does not meet current standards for energy use and conservation. A new building would meet current building code requirements, new construction materials and methods would improve the energy efficiency of the facility, and the new building's heating and cooling system would be much more efficient in its energy consumption compared to the system in use today.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)– Under the Proposed Action, the construction of a new station at the Grenier Field Road parcel would ultimately be expected to reduce the overall impact of the NFS on the environment compared to the existing station. A new building would meet current building code requirements, new construction materials and methods would improve the energy efficiency of the facility, and the new building's heating and cooling system would be much more efficient in its energy consumption compared to the system in use today. In addition, the new NFS was designed to meet the Leadership in Energy and Environmental Design (LEED) criteria, which was one of the original requirements in the grant funding program under which this facility would be constructed. The new NFS includes the incorporation of increased insulation to minimize heating and cooling requirements, solar tubes to bring natural light into the interior of the facility, motion sensors to turn off lights in unoccupied areas of the building, solar panels to supplement hot water supply demand, and heating and cooling via geothermal heat pumps. These design elements will further reduce the impacts of the NFS to the climate relative to the existing fire station building.

5.1.4 Hazardous Materials

To identify potential hazardous materials sites in the vicinity of the project area, the NH DES Web GIS environmental database was reviewed in February 2010. The web GIS database included searches for the following items related to hazardous materials:

- Air Stationary Sources
- Asbestos Disposal Sites
- AST Facilities
- Automobile Salvage Yards
- Hazardous Waste Generators

- Local PCS Inventory
- Environmental Monitoring Sites
- Non-point Sources
- Remediation Sites
- UST Facilities

The NH DES WEB GIS search was limited to a 1,000 foot radius from the proposed site. One Air Stationary Source was identified, which was NU-CAST, Inc. at 29 Grenier Field Road, the nearest industrial property located to the southwest of the Site. NU-CAST, Inc. was also the one Hazardous Waste Generator identified within 1,000 feet of the proposed site. Two Remediation Sites were identified, both of which have been closed by the NH DES. One is the site itself, the western portion of which was a former salvage yard. The second was a detection of Methyl Tert-Butyl Ether (MTBE) at 13 Harvey Road. Copies of the NH DES GIS map and table are included in **Appendix J**.

Alternative 1 No Action–Under the No Action Alternative, there would be no construction and there would be no impacts related to hazardous materials or waste.

Alternative 2 Reconstruction and Enlargement of Existing Facility–Under this Alternative, it is anticipated that asbestos containing material, lead paint, and gasoline-impacted soil would be encountered and disturbed. Any hazardous materials discovered, generated, or used during construction would be handled and disposed of in accordance with applicable local, State, and Federal regulations.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)–Under the Proposed Action Alternative, minimal hazardous materials or waste-related impacts would be anticipated. The site has been prepared for construction activities and solid waste and/or hazardous waste has previously been mitigated. The 22 Grenier Field Road lot formerly contained a home, repair shop and automobile salvage yard. Soil and ground water contamination, and buried solid waste existed at the site at the time the Town acquired the property, which required environmental remediation. Environmental investigation and remediation efforts were completed by the Town, and the NH DES reviewed and approved the environmental activities which were completed, and ultimately closed their file for this site. The NH DES site closure documentation is included in **Appendix K**. Site preparation activities have already installed storm water basins and conducted site grading. Additional excavation will be required for the building foundation and utilities, and it is possible that minor amounts of buried solid waste associated with historical site use may be encountered. Any hazardous or solid waste materials discovered, generated, or used during construction would be handled and disposed of in accordance with applicable local, State, and Federal regulations.

5.2 WATER RESOURCES

5.2.1 Water Resources and Water Quality (Surface Water)

The Clean Water Act (CWA), as amended in 1977, established the basic framework for regulating discharges of pollutants into waters of the United States. Local site topography is shown on the Site Locus Map in **Appendix A**. The topography of the project site was originally hilly with an elevation difference of approximately 15 feet, sloping to the southeast, but significant site work has been done to level the site. The 2-acre project site currently is vacant.

To identify potential water resources in the vicinity of the project area, the NH DES Web GIS environmental database was reviewed in February 2010. The web GIS database included searches for the following items related to water resources and water quality:

- Dams
- Drinking Water Source Protection Area
- Wellhead Protection Area
- GAA Groundwater Classification Area
- GA1 Groundwater Classification Area
- NPDES Outfalls
- Public Water Supply Sources
- Registered Water Withdrawals
- Water Well Inventory
- Hydrologic Units (Level 5)
- Hydrologic Units (Level 6)
- Aquifer Transmissivity
- Aquifer Saturated Thickness Contours (feet)
- Water Supply Intake 1/4-Mile Radii
- Surface Water Impairments with 1-Mile Buffer for Development Projects
- Outstanding Resource Water Watersheds

The NH DES WEB GIS search was limited to a 1,000 foot radius from the proposed site. One dam was identified within 1,000 feet of the proposed site. The impoundment is a detention pond located uphill to the west of the site and is associated with industrial complex that houses the Federal Express facility located to the north. The proposed site lies within a Drinking Water Source Protection Area. This area is associated with Pennichuck Water Works. One Water Well Inventory was identified at 18 Grenier Field Road, which is the residential duplex immediately east of the proposed site. It is believed that the residence is connected to the public water supply. Hydrologic units were identified with Levels 3 and 4 being the Merrimack River, Level 5 being the Manchester Tributaries, and Level 6 being the Londonderry Tributaries. A copy of the NH DES GIS map and table are included in **Appendix J**.

The proposed project consists of a single-story fire station, approximately 7,060 SF in plan size with a parking lot, curbing, and sidewalks around the building. A new storm sewer has been constructed to drain runoff from several areas of the proposed parking lot to the engineered detention pond located on the southeast corner of the site and adjacent to Grenier Field Road. Additional details are provided in the design plans for the proposed project in **Appendix G**.

Alternative 1 No Action–Under the No Action Alternative, no additional adverse impacts to surface water would be anticipated. Storm water and other run-off would enter into the storm drain catch basins along Foxglove Street or Mammoth Road and be discharged to the underground dry well or to the wetlands located south of the station, respectively.

Alternative 2 Reconstruction and Enlargement of Existing Facility–Under this Alternative, there would likely be little to no direct permanent additional impacts to surface waters and wetlands because storm water run-off would likely utilize the existing storm sewer-catch basin system. It is likely that a newly-constructed facility could improve the quality of run-off water entering the storm sewer as station design could incorporate a floor-drain/oil-water separator system that could aid in preventing discharges to the storm sewer when the trucks are washed. Temporary short-term impacts to wetlands associated with Little Cohas Brook could occur during the construction period because of altered site runoff and additional soil erosion. Gasoline-impacted soils would be disturbed during construction increasing the likelihood of gasoline releases to the storm water system and potentially the wetlands associated with Little Cohas Brook. To reduce impacts to surface water, the applicant would implement appropriate BMPs, such as installing silt fences and prompt replanting of bare soils.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)–Under the Proposed Action Alternative, there would be no direct permanent impacts to surface waters. However, temporary short-term impacts to downstream surface waters could occur during the construction period because of soil erosion. To reduce impacts to surface water, the applicant would implement appropriate BMPs, such as installing silt fences and prompt replanting of bare soils.

5.2.2 Wetlands (Executive Order 11990)/Water of the U.S. Including Wetlands

The U.S. Army Corps of Engineers (USACE) regulates the discharge of dredged or filled material into waters of the U.S., including wetlands, pursuant to Section 404 of the CWA. Additionally, Executive

Order (EO) 11990 (Protection of Wetlands) was issued "in order to avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative", and as such requires Federal agencies to avoid, to the extent possible, adverse impacts on wetlands that may result from federally funded actions. For the purposes of EO 11990, "wetlands" is defined by EO 11990 as 'those areas that are inundated by surface or ground water with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. For the purposes of EO 11990, "new construction" is defined by EO 11990 to include 'draining, dredging, channelizing, filling, diking, impounding, and related activities and any structures or facilities begun or authorized after the effective date of (EO 11990)'.

Consistent with FEMA guidance regarding EO 11990, detailed maps defining wetland boundaries within the project area were accessed on-line via the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory Maps program. Copies of the USFWS National Wetlands Inventory Maps generated for the project site are provided in **Appendix L**. Also reviewed for this assessment was a Town of Londonderry GIS map, which shows wetlands (**Appendix D**). It was noted during review of the USFWS maps and the Town of Londonderry map that no surface water bodies or wetlands were mapped either within the current NFS property or within the proposed project property. The USFWS maps indicate that the closest surface water body or wetland to the current NFS property is a wetland located along Weymouth Road, approximately 200 feet to the south-southeast of the NFS property line. The Town of Londonderry map also shows a wetland located along Weymouth Road. Regarding the proposed project property, the USFWS and Town of Londonderry wetlands maps are not in agreement regarding the location of the nearest stream or wetland. The Town of Londonderry map indicates that the closest surface water body or wetland is a wetland located approximately 400 feet south of the proposed project site property boundary. The USFWS map indicates that the closest surface water body or wetland is a pond associated with Little Cohas Brook which is located approximately 900 feet south of the proposed project site property boundary.

It was noted during a review of information provided by the Town of Londonderry that the storm drain catch basin systems located along the Foxglove Street and Mammoth Road edges of the current NFS property discharge locally. Based on information provided by the Town of Londonderry, drainage from the paved areas that flow into the Foxglove Street catch basins is discharged to a dry well located near the southern edge of the property, in the direction of the Weymouth Road wetland. Based on information provided by the Town of Londonderry, drainage from the paved areas that flow into the Mammoth Road catch basins is discharged to ground surface at a point located southeast of the property, which appears to be in close proximity to the Weymouth Road wetland. Based on facility usage information provided by the Town of Londonderry, drainage from the NFS's apparatus bay, including vehicle wash water, goes untreated into the streets and enters the catch basin systems. It is considered likely that surface water runoff originating at the current NFS poses a potential threat to the water quality within the wetland at Weymouth Road.

Alternative 1 No Action–Under the No Action Alternative, no impacts to waters of the U.S., including wetlands, would occur within the boundaries of the current NFS because no surface waters or wetlands are present within the property. However, the existing catch basin system associated with the current NFS would continue to pose a potential threat to the water quality within the wetland at Weymouth Road.

Alternative 2 Reconstruction and Enlargement of Existing Facility–Under Alternative 2, reconstruction and the enlargement of the existing NFS would result in no impacts to waters of the U.S., including wetlands, within the property boundaries because none are present on or near the proposed project site. However, due to the potential threat to the Weymouth Road wetland posed by the existing catch basin system associated with the current NFS, if Alternative 2 were selected, this alternative would have to incorporate catch basin upgrades into the design phase of the project to determine what options are available for mitigating the threat to wetlands posed by the current catch basin system discharge.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)–Under the Proposed Action Alternative, no impacts to waters of the U.S., including wetlands, would occur because none are present on or near the proposed project site. Surface water closest to the proposed project site (900 feet south) are outside of the area to be disturbed by grading or filling and would not be directly or indirectly impacted by construction. During construction, the use of BMPs would minimize erosion at the site and mitigate potential impacts to the nearest water resources. Appropriate BMPs would be required at the construction site, including, but not limited to, the installation of silt fences and the revegetation of bare soils to minimize erosion. The project's Stormwater Management and Erosion Control Plan is incorporated into the design plans provided as **Appendix G**.

5.2.3 Floodplain Management (Executive Order 11988)

As summarized on the FEMA website, EO 11988 (Floodplain Management) 'requires Federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.' For the purposes of EO 11988, "floodplains" is defined by EO 11988 as 'the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year.' To assist communities to develop and implement programs of corrective and preventative floodplain management ordinances, FEMA instituted the National Flood Insurance Program (NFIP). FEMA uses Flood Insurance Rate Maps (FIRMs) to identify the regulatory 100-year floodplain for the NFIP. The 100-year floodplain is considered analogous to 'that area subject to a one percent or greater chance of flooding in any given year'.

Consistent with EO 11988, FIRMs obtained from the FEMA website were examined during the preparation of this EA. Copies of the FIRMs are provided in **Appendix M**. It was noted that the proposed project site appears on FIRM Map Number 33015C0316E and the existing NFS appears on adjacent FIRM Map Number 33015C0317E. Based on the information provided on the FIRM maps, neither the existing NFS nor the proposed project site is within the 100-year or 500-year floodplain. The existing NFS is located approximately 900 feet northeast of the closest 500-year flood zone and 1,150 feet

northeast of the closest 100-year flood zone. The proposed project site is located approximately 1,000 feet north of the closest 500-year and 100-year flood zones.

Alternative 1 No Action–Under the No Action Alternative, no construction would occur and therefore no impacts to the floodplain would occur.

Alternative 2 Reconstruction and Enlargement of Existing Facility–Under this Alternative, remodeling and upgrading of the existing facility would not change the location of the existing facility and therefore no impacts to the floodplain would occur.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)–Under the Proposed Action Alternative, construction activities would take place approximately 1,000 feet north of the nearest mapped floodplain, and as such no impacts to the floodplain are anticipated.

5.3 COASTAL RESOURCES

As neither the current nor the proposed site is located near the coast, coastal resources are not assessed for this EA.

5.4 BIOLOGICAL ENVIRONMENT

5.4.1 Threatened and Endangered Species

The proposed project site includes two currently undeveloped lots in north Londonderry. Prior to their current state, both lots were residential properties, and the lot to the west also housed an automotive repair facility and salvage yard. The proposed site in the past may have supported wildlife common to rural residential land, including song birds, reptiles, amphibians, and small mammals, and upon completion of the new NFS could once again support animals in the landscaped areas and around the detention pond. The detention pond area could also support a wide range of native plants. The area northeast of the proposed site is wooded as is the area immediately south across Grenier Field Road from the proposed site. The lot immediately east of the site is a residential duplex that was constructed approximately 5 years ago and replaced another home that was on the lot.

The New Hampshire Natural Heritage Bureau (NHB) was contacted to research their inventory for endangered or threatened species that could be impacted from the reconstruction of the NFS on the existing site, or construction of a new NFS facility at the 20-22 Grenier Field Road site. The NHB review determined that although two species were identified in the area that were listed as “endangered”, the projects being considered in this EA are not expected to impact these species. The two endangered species identified by NHB include the Blanding’s Turtle and the Eastern Hognose Snake. The NHB report, as well as documentation of review of the NHB report by New Hampshire Fish and Game, is included in **Appendix N**.

Alternative 1 No Action–Under the No Action Alternative, there would be no new impacts to the terrestrial or aquatic environments.

Alternative 2 Reconstruction and Enlargement of Existing Facility–Under this Alternative, impact to the terrestrial environment would not be a concern. A letter from the Department of Resource and Economic Development, New Hampshire NHB has been received, and a copy of NHB File 10-0348 is attached in **Appendix N**.

The site was also reviewed for the presence of federally-listed or proposed, threatened or endangered species or critical habitat per instructions provided on the USFWS New England Field Office website. No federally-listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the USFWS is known to occur in the project area, as noted in **Appendix N**.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)–Under the Proposed Action Alternative, impacts to nearby aquatic environments would not be a concern. A letter from the Department of Resource and Economic Development, New Hampshire National Heritage Bureau has been received and a copy of NHB 10-0341 is attached. Kim Tuttle, Wildlife Biologist at New Hampshire Fish and Game (NHF&G) was contacted relative to the project, and her correspondence relative to the Blanding's Turtle and Eastern Hognose Snake noted in the NHB report is attached in **Appendix N**.

The site was reviewed for the presence of federally-listed or proposed, threatened or endangered species or critical habitat per instructions provided on the United States Fish and Wildlife Service's (USF&W) New England Field Office website. No federally-listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the USF&W Service is known to occur in the project area, as shown in **Appendix N**.

5.5 CULTURAL RESOURCES

In addition to review under NEPA, consideration of effects to historic properties is mandated under Section 106 of the National Historic Preservation Act (NHPA), as amended, and implemented by 36 CFR Part 800. Requirements include identification of significant historic properties that may be affected by the Proposed Action. Historic properties are defined as archaeological sites, standing structures, or other historic resources listed in or eligible for listing in the National Register of Historic Places (NRHP) (36 CFR 60.4). As defined in 36 CFR Part 800.16(d), the Area of Potential Effect (APE), "is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist."

5.5.1 Historic Structures and Archaeological Resources

Alternative 1 No Action–Under the No Action Alternative, there would be no construction and therefore no impacts to historic or cultural resources.

Alternative 2 Reconstruction and Enlargement of Existing Facility–Because of the constraints at the existing Fire Station property, there is limited space available for reconstruction and expansion. A short report and bibliographic inventory form for the Phase IA Archaeological Sensitivity Assessment for the existing fire station at 565 Mammoth Road was performed by Monadnock Archaeological Consulting,

LLC. The existing fire station shares a parcel with the Mayflower Grange Building, which is listed on the New Hampshire Register of Historic Places. The Phase IA Archaeological Sensitivity Assessment is included in **Appendix O**.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)– A short report and bibliographic inventory form for the Phase IA Archaeological Sensitivity Assessment for the proposed new fire station at 20-22 Grenier Field Road was performed by Monadnock Archaeological Consulting, LLC, and is included in **Appendix O**. The report did not identify any archaeological resources in the project area, and no further study was recommended to be undertaken for this project.

A letter dated April 13, 2010 from Mr. Jack Sullivan, Regional Environmental Officer, FEMA Region 1 to Ms. Edna Feighner of the New Hampshire Division of Historical Resources (NHDHR) indicates "FEMA has determined that this proposed construction project will result in no historic properties affected." A copy of this letter is included in **Appendix O**.

5.5.2 Tribal Coordination and Religious Sites

The State of New Hampshire has no federally-recognized tribes. Native American resources or religious sites are not known to exist on the property.

Alternative 1 No Action–Under the No Action Alternative, there would be no construction and therefore no impacts to Native American resources or religious sites.

Alternative 2 Reconstruction and Enlargement of Existing Facility– The NHDHR was consulted regarding Native American resources at the site and it was determined that none exists at the site.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)– The NHDHR was consulted regarding Native American resources at the site and it was determined that none exists at the site.

5.6 SOCIOECONOMICS

5.6.1 Environmental Justice (Executive Order 12898)

EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low- Income Populations) mandates that Federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. Socioeconomic and demographic data for the project area were analyzed to determine if a disproportionate number of minority or low-income persons have the potential to be adversely affected by the proposed project.

The U.S. Census Bureau data for Londonderry, NH states that 96.9% of the population is white, 0.6% African American, 0.2% American Indian or Alaska Native, 1.2% Asian, 0.3% some other race, and 0.8% two or more races (U.S. Census Bureau, 2000). The Census Bureau data also indicates the percentage of families living below the poverty level as 1.6% and the overall percentage of individuals living below the

poverty level at 2.0 %. No concentration of minority or low income populations were identified near the proposed project site. A copy of the U.S. Census Map for Londonderry and a printout of Census Bureau statistics are included as **Appendix P**.

Alternative 1 No Action–Under the No Action Alternative, there would be no disproportionately high and adverse effects on minority or low-income populations. All populations could potentially be adversely affected by the lack of improvements to the NFS.

Alternative 2 Reconstruction and Enlargement of Existing Facility–Under this alternative, there would be no disproportionately high and adverse impacts on minority or low-income populations. Improvements to the existing facility, although not feasible, would benefit all populations.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)–Under the Proposed Action Alternative, there would be no disproportionately high and adverse impacts on minority or low-income populations. Implementation of the Proposed Action would benefit all populations within Londonderry, as it would increase the response time from the NFS to the majority of the town by being located on a more accessible roadway, having additional personnel and equipment, and allowing for larger equipment which may be better able to handle larger emergency situations.

5.6.2 Noise

Noise can be considered unwanted sound and sound is typically measured in decibels (dB). An average measure of sound is known as the day-night average sound level (Ldn), and is used by agencies for estimating sound impacts and establishing guidelines for compatible land uses. An EPA document, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety* (EPA, 1974) provides a basis for State and local governments' judgments in setting standards. The document identifies a 24-hour exposure level of 70 dB as the level of environmental noise that will prevent any measurable hearing loss over a lifetime. Also, levels of 55 dB outdoors and 45 dB indoors are identified as preventing activity interference and annoyance. These levels are considered those which will permit spoken conversation and other activities such as sleeping, working and recreation. The levels are not single event, or "peak" levels, but rather, they represent averages over long periods of time. An occasional higher noise level would be consistent with a 24-hour average of 70 dB, provided a sufficient amount of relative quiet is experienced for the remainder of the 24-hour period (a time-weighted average). The sound level of a typical sound outdoors decreases at 6 dB per doubling of distance, or for each doubling of the distance the intensity decreases by a factor of four or is one quarter as loud as the initial distance. Assuming a typical siren is 115 dB at a distance of 10 feet, at 20' it will be 109 dB or $1/4^{th}$ as loud at 10 feet, at 40 feet it will be 103 dB or $1/16^{th}$ as loud as at 10 feet, at 80 feet it will be 97 dB or $1/64^{th}$ as loud as at 10 feet, and so on. The amount of the decrease in noise is also dependent upon the environmental media over which it is propagating. Vegetated areas such as grassy fields or wooded areas will attenuate the sound by greater amounts than distance alone. Buildings can act to redirect and disperse sound. The proposed project site on Grenier Field Road in the north section of Londonderry is located between an industrial zoned area and an agricultural-residential zoned area.

Alternative 1 No Action–Under the No Action Alternative, no additional impacts related to noise would occur. Noise generated by emergency response would continue in this residential setting.

Alternative 2 Reconstruction and Enlargement of Existing Facility–Under Alternative 2, only temporary short-term increases in noise levels would be anticipated during construction. To reduce noise levels during that period, construction activities would be restricted to normal business hours. Equipment and machinery utilized at the site would meet all local, State, and Federal noise regulations. Over the long term, no significant change to noise levels would be anticipated. The site is currently used as the fire station, in a residential area on Mammoth Road in North Londonderry. Because of the size the site and numerous constraints on expansion at the site, any remodeling and expansion of the facility would be limited. Therefore, no significant change to noise levels would be anticipated and noise generated by emergency response would continue in this residential setting.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)–Under the Proposed Action Alternative, temporary short-term increases in noise levels would be anticipated during construction. However, as the proposed location is adjacent to an industrial zoned area, the opportunities for nuisance noise will be lessened. To reduce noise levels during construction, activities would be restricted to normal business hours. Equipment and machinery utilized at the site would meet all local, State, and Federal noise regulations. Over the long term, vehicle traffic would increase at the proposed project site, primarily when Emergency Medical Services (EMS) personnel are training or responding to traffic accidents, fires, severe weather, or other emergency events. The increased traffic and sirens would increase the noise level, but these increases would be very short in duration and would occur very infrequently. It is anticipated that these noise peaks would not cause an exceedance of the EPA's 24-hour exposure levels.

5.6.3 Zoning and Traffic

Alternative 1 No Action–Under the No Action Alternative, there would be no changes to zoning or transportation. The current station will remain in the residential area along Mammoth Road, and the NFS facility vehicles will continue to use the streets in this neighborhood.

Alternative 2 Reconstruction and Enlargement of Existing Facility–Under Alternative 2, there would be temporary increases in the volume of construction-related traffic in the immediate vicinity of the 535 Mammoth Road project site. Since the fire station site is small and space is limited, construction planning and staging of construction activities would be needed. Traffic disruptions on Mammoth Road and Foxglove Street and slower traffic flow would be likely during construction. To mitigate potential delays, construction vehicles and equipment would be stored on-site during construction to the extent possible. An off-site location would likely also be needed for storage of most of the construction vehicles and equipment. Appropriate traffic control and signage would be utilized. Over the long term, there would be little to no vehicle traffic increase at the proposed project site since the site is currently used as the fire station. Because of numerous constraints on expansion at the site, any remodeling and expansion of the facility would be limited. No significant increase in the number of facility-related vehicles coming and going from the site would be expected.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)–Under the Proposed Action Alternative, there would be temporary increases in the volume of construction-related traffic in the immediate vicinity of the proposed project site. This would potentially result in a slower traffic flow for the duration of the construction phase. To mitigate potential delays, construction vehicles and equipment would be stored on-site during construction. There is ample room at the site for equipment and materials staging. Appropriate traffic control and signage would also be utilized. Over the long term, vehicle traffic would increase at the proposed project site, primarily when EMS personnel are training or responding to traffic accidents, fires, severe weather, or other emergency events. No significant adverse impacts to transportation, site access, or traffic levels within the area of the proposed project site are anticipated.

The parcel is bordered to the west by an undeveloped industrial-zoned property, to the south by Grenier Field Road and undeveloped property, to the east by a residential duplex, and to the north by a Federal Express trucking facility. The project site and lands to the north and west are zoned industrial, and the properties to the east and south are zoned agricultural-residential. The Proposed Action is consistent with the Town's Master Plan and CIP recommendations. Current land uses at and around the proposed site are IND-1 north and west of the proposed site, and AR-1 south and east of the proposed site.

5.6.4 Public Services and Utilities

Public services to both the proposed Grenier Field Road site and the existing Mammoth Road site are provided by the Town of Londonderry. These include police, fire, sewer, and water. Both sites are serviced by Public Service of New Hampshire for Electric service. Natural gas service is provided to the Grenier Field Road site by National Grid.

Alternative 1 No Action–Under the No Action Alternative, there would be no changes to public services or utilities, and no improvements would be made to the existing NFS. The station would continue to be serviced by an aboveground storage tank providing No. 2 fuel oil for heat. In the short term, fire and other EMS would continue to be provided adequately. In the long term, without a new or improved facility there would be a negative impact on the NFS District, due to the growth being experienced in the northern portion of town and in the area around the airport.

Alternative 2 Reconstruction and Enlargement of Existing Facility–Under Alternative 2, the existing facility would be reconstructed and enlarged. The new facility would meet applicable building codes, and utilities would be accordingly upgraded.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)–Under the Proposed Action Alternative, there would be no changes to most public services and utilities in the area of the project. However, the new NFS would be supplied with natural gas for heat.

5.6.5 Public Health, Safety and Security

To minimize risks to safety and human health, all construction activities would be performed using qualified personnel trained in the proper use of the appropriate equipment including all appropriate safety precautions. Additionally, all activities would be conducted in a safe manner in accordance with the standards specified in Occupational Safety and Health Act (OSHA) regulations.

Alternative 1 No Action–Under the No Action Alternative, there would be no construction and no direct impacts to safety of the population would occur. If an emergency event were to occur, area residents would continue to be served by the existing NFS.

Alternative 2 Reconstruction and Enlargement of Existing Facility-Under this alternative, a new larger NFS would be constructed on the current site. Regarding safety, this would require the NFS to be closed for up to a year during construction and place the fire equipment housed at the current NFS at the Central Fire Station, South Fire Station, or a temporary facility not designed to operate as a fire station. Doing so could significantly increase response times to emergency situations in the northern portion of the town and the airport, thus impacting the safety and welfare of the citizenry of the northern portion of Londonderry.

Construction activities would present safety risks to those performing the activities and a potential for airborne contaminants, including asbestos and dust from lead paint is possible. Although access to the site would be restricted during construction to protect the public and to minimize risks to safety and human health, the station is located in a residential setting, so there could be an increase in the number of trespassers, including children. The appropriate signage and barriers would be in place prior to construction activities to alert pedestrians and motorists of project activities. As children are more susceptible to lead, there could be a disproportionate health and safety risks to children, should lead become airborne during demolition activities.

Alternative 3 New Fire Station, Grenier Field Road (Proposed Action)–Under the Proposed Action Alternative, construction of a new NFS would provide increased protection for area residents during emergency events. Construction activities would present safety risks to those performing the activities. Access to the site would be more easily restricted to protect the public and to minimize risks to safety and human health, as it would be located further from a residential setting which includes children. The appropriate signage and barriers would be in place prior to construction activities to alert pedestrians and motorists of project activities. There would be a lesser risk to health and safety of children than for Alternative 2.

5.7 CUMULATIVE IMPACTS

According to Council on Environmental Quality (CEQ) regulations, cumulative impacts represent the "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7)." In accordance with NEPA and to the extent reasonable and practical, this EA considered the combined effect of the Proposed Action Alternative and other actions occurring or proposed in the vicinity of the proposed project site. No current proposed or occurring actions by others were identified in the vicinity of the proposed project site; therefore, no cumulative impacts are anticipated with this project. Additional secondary development is not anticipated as a result of the construction of the new NFS.

5.7.1 Comparison Of Alternatives

This section describes the potential impacts of the proposed alternatives and the No-Action Alternative. Where potential impacts exist, conditions or mitigation measures to offset these impacts are detailed in the body of the document. A summary table is provided below.

Table 1: Impact and Mitigation Summary		
Affected Environment	**Impacts**	**Mitigation**
Geology and Soils	Alt 1: No impacts	None
	Alt 2: No impacts to geology, minimal, short-term impact to soils (where footprint of existing structure is expanded).	Appropriate BMPs: silt fence, prompt planting of vegetation and landscaping to minimize runoff. Petroleum impacted soil, if encountered would be disposed of in accordance with local, state, and/or federal regulations.
	Alt 3 (proposed): No significant impacts to geology, short-term impacts to soils during construction.	Appropriate BMPs: silt fence, prompt planting of vegetation and landscaping to minimize runoff.
Air Quality	Alt. 1: No impacts.	None.
	Alt 2: Short-term impacts from dust and emissions from equipment would occur during construction. Potential for airborne asbestos and lead dust due to demolition of the old NFS.	Dust control measures such as watering down construction areas would be implemented as needed. Fuel-burning equipment run times could be minimized and equipment properly maintained. Asbestos and lead paint mitigation would be required.
	Alt 3 (proposed): Short-term impacts from dust and emissions from equipment would occur during construction.	Dust control measures such as watering down construction areas would be implemented as needed. Fuel-burning equipment run times could be minimized and equipment properly maintained.

Table 1: Impact and Mitigation Summary (continued)		
Affected Environment	**Impacts**	**Mitigation**
Impacts to Climate	Alt. 1: No impacts	None
	Alt 2: An overall decrease to impacts to the climate from this alternative would be expected due to modern construction methods and current mechanical equipment technology.	Improvement over existing NFS impacts. Reconstruction would improve the energy demands on the NFS, and new mechanical equipment for heating and cooling would be more efficient and produce fewer emissions than the existing equipment.
	Alt 3 (proposed): An overall decrease to impacts to the climate from this alternative would be expected due to modern construction methods and current mechanical equipment technology.	Improvement over existing NFS impacts. New construction would result in improved energy efficiency compared to the existing NFS, as a result of modern building construction methods and equipment. Design plans also incorporate LEED energy components.
Hazardous Materials	Alt. 1: No impacts	None
	Alt 2: No additional impacts anticipated. Gasoline-impacted soil exists at the site.	Any hazardous substances generated, or used would be handled and disposed of in accordance with applicable local, state, and federal regulations.
	Alt 3 (proposed): No additional impacts anticipated. Site work and previous environmental assessments have mitigated solid and hazardous waste, respectively.	Any hazardous substances generated, or used would be handled and disposed of in accordance with applicable local, state, and federal regulations.

Table 1: Impact and Mitigation Summary (continued)		
Affected Environment	**Impacts**	**Mitigation**
Water Resources and Water Quality (Surface Water)	Alt 1: No impacts	None.
	Alt 2: Short-term impacts to surface water are possible during construction as any runoff, which could include water that has contacted petroleum-impacted soil, would enter the catch basin/storm sewer system that eventually leads to Little Cohas Brook. Incidental spillage of fuel could impact ground water resources. Potable water is supplied to the site.	A Stormwater Pollution Prevention Plan (SWPPP) is required. A Stormwater Management and Erosion Control Plan and implementation of stormwater BMPs will minimize runoff and erosion.
	Alt 3 (proposed): Short-term impacts to surface water are possible during construction. No impacts anticipated post-construction. Incidental spillage of fuel could impact ground water resources.	A SWPPP is required. A Stormwater Management and Erosion Control Plan and implementation of stormwater BMPs will minimize runoff and erosion during and following construction activities.
Waters of the U.S. Including Wetlands	Alt. 1: No impact	None
	Alt 2: The site is not bordered by wetlands or floodplains. However, surface water runoff is to a catch basin system that feeds into a buried dry well and that also drain to a nearby wetland.	Construction would need to be constrained at this site to minimize or avoid impacts to the catch basin system.
	Alt 3 (proposed): No impacts anticipated. Surface detention pond is already in place to control surface run-off	None.
Floodplains	Alt 1: No impacts.	None.
	Alt 2 : No impacts anticipated.	None.
	Alt 3 (proposed): No impacts anticipated.	None.

Table 1: Impact and Mitigation Summary (continued)		
Affected Environment	**Impacts**	**Mitigation**
Threatened and Endangered Species	Alts 1, 2 and 3 (proposed): No impacts are anticipated.	None.
Historic and Cultural Resources	Alt. 1: No impacts.	None
	Alts 2 and 3 (proposed): No impacts anticipated.	None.
Tribal Coordination and Religious Sites	Alt. 1: No impacts.	None
	Alts 2 and 3 (proposed): No impacts anticipated.	None.
Affected Environment	**Impacts**	**Mitigation**
Environmental Justice	Alt. 1: No impacts.	None.
	Alts 2 and 3 (proposed): No disproportionately high or adverse effect on minority or low-income populations is anticipated.	None.
Noise	Alt. 1: No impacts	None.
	Alts 2 and 3 (proposed): Short-term impacts from heavy equipment would occur during construction. Long-term impacts for Alt 2 would include maintained or increased traffic and siren noise in a residential setting from EMS vehicles.	Construction would be limited to normal business hours and equipment would meet local, State, and Federal noise regulations. The infrequent and short duration noise impacts from EMS vehicles would not cause 24-hr exposure levels to be exceeded.

Table 1: Impact and Mitigation Summary (continued)		
Affected Environment	**Impacts**	**Mitigation**
Zoning and Traffic	Alt. 1: No impact	None
	Alt 2: No impact to existing zoning and land use of the site. Short-term increase in the volume of construction-related traffic in the vicinity of the site.	During construction, vehicles and equipment would be stored on-site to the extent possible. Traffic control and signage would be used as needed.
	Alt 3 (proposed): No impact to existing zoning and land use of the site. The proposed use of the site is consistent with zoning and planned land use for the area. Short term increase in the volume of construction-related traffic in the vicinity of the site.	During construction, vehicles and equipment would be stored on-site to the extent possible. Traffic control and signage would be used as needed.
Public Services and Utilities	Alt. 1: No impacts	None.
	Alt 2: No impacts to utilities are anticipated. Disruption or delay of emergency response services during construction activities at the facility as station would likely have to be temporarily closed.	Disruption or delay to emergency response services inevitable.
	Alt 3 (proposed): No impacts to utilities are anticipated. Potential minor disruption or delay of emergency response services during the transition from the existing facility to the new facility.	Thorough planning and staging of the transition of equipment and personnel from the existing facility to the new facility would be required to prevent any disruption or delay to emergency response services.

Table 1: Impact and Mitigation Summary (continued)		
Affected Environment	**Impacts**	**Mitigation**
Public Health, Safety, and Security	Alt. 1: No impacts.	None
	Alt 2: Short-term adverse impact to public safety and health of up to a year related to closing the existing NFS during reconstruction activities. Long-term improvements to public safety would result from improved EMS facilities.	No feasible mitigation to handle the shut down of the existing NFS. Trucks and personnel would have to be relocated to Central or South Fire Stations or a temporary facility during construction activities.
	Alt 3 (proposed): No Short-term adverse impacts anticipated.	None.

6.0 AGENCY COORDINATION, PUBLIC INVOLVEMENT, AND PERMITS

6.1 AGENCY COORDINATION

The following agencies and organizations were consulted or were contacted to request project review during the preparation of this EA. Responses and reports received to date are included in the appendices.

1. New Hampshire Department of Resources and Economic Development, Natural Heritage Bureau
2. New Hampshire Fish and Game, Kim Tuttle, Wildlife Biologist
3. Town of Londonderry Dept. of Public Works, John R. Trottier, P.E., Asst. Director
4. Londonderry Fire Department, Mark W. Tetreault, EFO, Captain/Fire Marshall
5. Londonderry Historical Society

6.2 PUBLIC INVOLVEMENT

FEMA is the lead Federal agency for conducting the NEPA compliance process for the Town of Londonderry NFS Project, Rockingham County, New Hampshire. It is the goal of the lead agency to expedite the preparation and review of NEPA documents and to be responsive to the needs of the community and the purpose and need of the proposed action while meeting the intent of NEPA and complying with all NEPA provisions. Interagency reviews have been conducted in the form of agency consultation letters and the responses received from the agencies. Agencies consulted are listed in Section 6.1. Agency responses and reports are provided in the appendices.

The proposed project has been discussed since 2005 at numerous Town Council Meetings and Annual Town Meetings that are open to the public. In addition, the project was presented in public at the Londonderry Planning Board on April 5, 2006. Minutes of the Planning Board meeting are included in **Appendix Q**. The proposed project has also been included in the Londonderry Planning Board's annual Capital Improvements Plan (CIP) for the past five fiscal years, and has been rated as the number one priority in the CIP that the Town needs to address for the past three years. The Town of Londonderry will notify the public of the availability of the EA through publication of a public notice in a local newspaper. FEMA will conduct a public comment period commencing on the initial date of publication of the public notice.

6.3 PERMITS

In accordance with applicable local, State, and Federal regulations, the applicant would be responsible for acquiring any necessary permits prior to commencing construction at the proposed project site. The following permits and approvals may be required prior to construction:

1. Building Permit – Town of Londonderry
2. Sewer Discharge Permit – Town of Londonderry

7.0 LIST OF PREPARERS

Preparation and quality control review of Draft and Final Environmental Assessment:

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Assistance was also provided by Jack Sullivan, Environmental Historic Preservation Officer, FEMA

8.0 REFERENCES

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APPENDIX A
SITE LOCUS MAP

APPENDIX B
SITE PHOTOGRAPHS

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TOWN OF LONDONDERRY TAX MAP 17

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TOWN OF LONDONDERRY GIS MAP

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U.S. CENSUS MAP AND STATISTICS
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APPENDIX Q
TOWN OF LONDONDERRY
PLANNING BOARD MINUTES APRIL 5, 2006