

DOE/EA-1723

FINAL ENVIRONMENTAL ASSESSMENT

**For
General Motors LLC
Electric Drive Vehicle Battery and Component
Manufacturing Initiative Application**

White Marsh, Maryland and Wixom, Michigan



April 2010

**U.S. DEPARTMENT OF ENERGY
NATIONAL ENERGY TECHNOLOGY LABORATORY**

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ACRONYMS AND ABBREVIATIONS

a.m.	<i>ante meridiem</i> (i.e. before noon)
AQCR	Air Quality Control Region
BMPs	Best Management Practices
BTU	British Thermal Units
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
COMAR	Code of Maryland Regulations
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted Decibel
DNL	Day-night Average Sound Level
DOE	U.S. Department of Energy
e.g.	<i>Exempli gratia</i> , for example
EA	Environmental Assessment
EDV	Electric Drive Vehicles
EERE	Energy Efficiency and Renewable Energy
EIS	Environmental Impact Statement
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
<i>et seq.</i>	<i>et sequens</i> , and the following one or ones
FONSI	Finding of No Significant Impact
ft	Feet
ft ²	Square Feet
FTE	Full-Time-Equivalent
GM	General Motors Corporation (General Motors)
GRE	Global Rear-Wheel Drive Electric Drive Unit
gpd	Gallons per Day
HVAC	Heating, Ventilation, & Air Conditioning
Hz	Hertz
i.e.	<i>id est</i> , that is
I-95	Interstate 95
km	Kilometer
lbs	Pounds
L _{eq}	Equivalent Sound Level
L _{max}	Maximum Allowable Noise Level
lpd	Liters per Day
m	Meter

m ²	Square Meter
MACT	Maximum Available Control Technology
MD	Maryland
MDE	Maryland Department of the Environment
MDEQ	Michigan Department of Environmental Quality
MI	Michigan
MMBTU	Million British Thermal Units
MTA	Maryland Transit Administration
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NETL	National Energy Technology Laboratory
NHPA	National Historic Preservation Act
NNSR	Nonattainment New Source Review
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
NSR	New Source Review
NWI	National Wetlands Inventory
O ₃	Ozone
OSHA	Occupational Safety and Health Administration
OTR	O ₃ transport region
p.m.	<i>post meridiem</i> (i.e. after noon)
Pb	Lead
PM ₁₀	Particulate Matter of 10 Micrometers or Less in Aerodynamic Diameter
PM _{2.5}	Particulate Matter Less than 2.5 Micrometers in Aerodynamic Diameter
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
Recovery Act	American Recovery and Reinvestment Act of 2009, Public Law 111-5
RWD	Rear-Wheel Drive
SHPO	State Historic Preservation Office or Officer
SIP	State Implementation Plans
SO ₂	Sulfur Dioxide
SO _x	Sulfur Oxides
SQG	Small Quantity Generator
tpy	Tons per Year
TSP	Total Suspended Particles
U.S.	United States
USC	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	Volatile Organic Compounds
VT	Vehicle Technologies

1.0 INTRODUCTION

1.1 Background

The Department of Energy's (DOE) National Energy Technology Laboratory (NETL) manages the research and development portfolio of the Vehicle Technologies (VT) Program for the Office of Energy Efficiency and Renewable Energy (EERE). A key objective of the VT program is accelerating the development and production of electric drive vehicle systems in order to substantially reduce the United States' consumption of petroleum. Another of its goals is the development of production-ready batteries, power electronics, and electric machines that can be produced in volume economically so as to increase the use of electric drive vehicles (EDVs).

Congress appropriated significant funding for the VT program in the American Recovery and Reinvestment Act of 2009, Public Law 111-5 (Recovery Act) in order to stimulate the economy and reduce unemployment in addition to furthering the existing objectives of the VT program. DOE solicited applications for this funding by issuing a competitive Funding Opportunity Announcement (DE-FOA-0000026), *Recovery Act - Electric Drive Vehicle Battery and Component Manufacturing Initiative*, on March 19, 2009. The announcement invited applications in seven areas of interest:

- Area of Interest 1 – projects that would build or increase production capacity and validate production capability of advanced automotive battery manufacturing plants in the United States.
- Area of Interest 2 – projects that would build or increase production capacity and validate production capability of anode and cathode active materials, components (e.g. separator, packaging material, electrolytes, and salts), and processing equipment in domestic manufacturing plants.
- Area of Interest 3 – projects that combine aspects of Area of Interest 1 and 2.
- Area of Interest 4 – projects that would build or increase production capacity and validate capability of domestic recycling or refurbishment plants for lithium ion batteries.
- Area of Interest 5 – projects that would build or increase production capacity and validate production capability of advanced automotive electric drive component in domestic manufacturing plants.
- Area of Interest 6 – projects that would build or increase production capacity and validate production capability of electric drive subcomponent suppliers in domestic manufacturing plants.
- Area of Interest 7 – projects that combine aspects of Area of Interest 5 and 6.

The application period closed on May 19, 2009, and DOE received 119 proposals across the seven areas of interest. DOE selected 30 projects based on the evaluation criteria set forth in the funding opportunity announcement; special consideration was given to projects that promoted the objectives of the Recovery Act – job preservation or creation and economic recovery – in an expeditious manner.

This project, U.S. Electric Drive Manufacturing Center – Global Rear-Wheel Drive (RWD) Electric Validation Center, was one of the 30 DOE selected for funding. DOE's Proposed Action is to provide \$105,387,000 in financial assistance in a cost sharing arrangement with the

project proponent, General Motors LLC (General Motors or GM). The total cost of the project is estimated at \$245,900,733.

1.2 Purpose and Need for DOE Action

The overall purpose and need for DOE action pursuant to the VT program and the funding opportunity under the Recovery Act is to accelerate the development and production of various electric drive vehicle systems by building or increasing domestic manufacturing capacity for advanced automotive batteries, their components, recycling facilities, and EDV components, in addition to stimulating the United States' economy. This work will enable market introduction of various electric vehicle technologies by lowering the cost of battery packs, batteries, and electric propulsion systems for EDVs through high-volume manufacturing. DOE intends to further this purpose and satisfy this need by providing financial assistance under cost-sharing arrangements to this and the other 29 projects selected under this funding opportunity announcement.

This and the other selected projects are needed to reduce the United States' petroleum consumption by investing in alternative vehicle technologies. Successful commercialization of EDVs would support DOE's Energy Strategic Goal of "protect[ing] our national and economic security by promoting a diverse supply and delivery of reliable, affordable, and environmentally sound energy." This project will also meaningfully assist in the nation's economic recovery by creating manufacturing jobs in the United States in accordance with the objectives of the Recovery Act.

1.3 Legal Framework

DOE has prepared this EA in accordance with the Council on Environmental Quality (CEQ) "Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act," codified in Title 40 of the *Code of Federal Regulations* in Parts 1500 through 1508 (40 CFR 1500-1508). These implement the procedural requirements of the National Environmental Policy Act (NEPA), found in Title 40 of the *United States Code* in Section 4321 and following sections (42 USC § 4321 *et seq.*).

NEPA *requires* Federal agencies to consider the potential environmental consequences of a Proposed Action in their decision-making processes. NEPA *encourages* Federal agencies to protect, restore, or enhance the environment through well-informed Federal decisions. The CEQ NEPA regulations specify that an EA be prepared to:

- provide sufficient analysis and evidence for determining whether or not to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI);
- aid in an agency's compliance with NEPA when no EIS is deemed necessary; and
- facilitate EIS preparation when one is necessary.

Further, the CEQ NEPA regulations encourage agencies to integrate NEPA requirements with other environmental review and consultation requirements. Relevant environmental requirements are contained in other Federal statutes, such as the Clean Air Act and the Clean

Water Act, and their state counterparts. The following Federal and state statutes and regulations are relevant to this EA. Federal and state permits that may be required are also listed.

American Recovery and Reinvestment Act

American Recovery and Reinvestment Act of 2009, Public Law 111-5 (Recovery Act) is an act making supplemental appropriations for job preservation and creation, infrastructure investment, energy efficiency and science, assistance to the unemployed, and State and local fiscal stabilization. It is through this act that DOE could fund GM's Proposed Project.

Clean Air Act

The Clean Air Act (CAA), 42 USC § 7401 *et seq.*, establishes the National Ambient Air Quality Standards (NAAQS) developed by the U.S. Environmental Protection Agency (USEPA) for the pervasive pollutants: sulfur dioxide (SO₂), carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), lead (Pb), and particulate matter (both particulate matter of 10 micrometers or less in aerodynamic diameter (PM₁₀) and particulate matter less than 2.5 micrometers in aerodynamic diameter (PM_{2.5})). The NAAQS are expressed as concentrations of the criteria pollutants in the ambient air, the outdoor air to which the general public is exposed. The CAA also contains emission control permit programs to protect the nation's air quality and establishes New Source Performance Standards that establish design standards, equipment standards, work practices, and operational standards for new or modified sources of air emissions. Where the NAAQS emphasize air quality in general, the New Source Performance Standards focus on particular industrial categories or sub-categories (e.g., fossil fuel fired generators, grain elevators, and steam generating units). Regulations implementing the CAA are found in 40 CFR Parts 50-95.

Clean Water Act

The Clean Water Act (CWA), 33 USC § 1251 *et seq.*, establishes a comprehensive framework of standards, technical tools, and financial assistance to address "point source" pollution from municipal and industrial wastewater discharges and "nonpoint source" pollution from urban and rural areas. Applicants for federal licenses or permits to conduct any activity that may result in a discharge to navigable waters must provide the Federal agency with a state CWA Section 401 certification that the discharge would comply with applicable provisions of the CWA. CWA Section 404 establishes a permit program to regulate the discharge of dredged and fill material into waters of the United States, including wetlands. CWA Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), which requires point sources of pollutants to obtain permits to discharge effluents and storm water to surface waters. Regulations for implementing relevant CWA programs are found in 33 CFR Parts 320-331 and 40 CFR Parts 400-503

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA), 42 USC § 6901 *et seq.*, regulates the treatment, storage, and disposal of solid and hazardous wastes. RCRA sets "cradle to grave" standards for both solid waste and hazardous waste management. Certain wastes are specifically

excluded because they are regulated under other statutes. Some examples are domestic sewage and septic tank waste; agricultural wastes; industrial discharges; some nuclear wastes; and mining overburden. RCRA regulations are found in 40 CFR Parts 239-282.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 USC § 9601 *et seq.*, also known as “Superfund,” established a tax on the chemical and petroleum industries and provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA also establishes requirements for closed and abandoned hazardous waste sites, provides for the liability of persons responsible for the release of hazardous substances, and established a trust fund to pay for orphan facility cleanup and closure. Regulations for implementing CERCLA are found in 40 CFR Parts 300-312.

Emergency Planning and Community Right-to-Know Act

The Emergency Planning and Community Right-to-Know Act (EPCRA), 42 USC § 1001 *et seq.*, requires Federal agencies to provide information on hazardous and toxic chemicals to state emergency response commissions, local emergency planning committees, and USEPA. EPCRA’s goal is to provide this information to ensure that local emergency plans are sufficient to respond to unplanned releases of hazardous substances. Regulations implementing EPCRA are found in 40 CFR Parts 350-374.

National Historic Preservation Act

The National Historic Preservation Act (NHPA), 16 USC § 470 *et seq.*, requires DOE to consult with the State Historic Preservation Officer (SHPO) prior to any construction to ensure that no historical properties would be adversely affected by a proposed project. DOE must also afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed project. Regulations for implementing NHPA are found in 36 CFR 800-812.

Archaeological Resources Protection Act

The Archaeological Resources Protection Act, 16 USC § 470aa *et seq.*, requires a permit for excavation or removal of archaeological resources from publicly held or Native American lands. The Act requires that excavations further archaeological knowledge in the public interest and that the resources removed remain the property of the United States. Regulations for implementing the Act are found in 43 CFR 7 and 36 CFR 296.

American Indian Religious Freedom Act

The American Indian Religious Freedom Act, 42 USC § 1996, establishes policy to protect and preserve the inherent and Constitutional right of Native Americans to believe, express, and exercise their traditional religions. The law ensures the protection of sacred locations; access of Native Americans to those sacred locations and traditional resources that are integral to the

practice of their religions; and establishes requirements that would apply to Native American sacred locations, traditional resources, or traditional religious practices potentially affected by construction and operation of proposed facilities. Regulations for implementing the Act are also found in 43 CFR 7.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act, 25 USC § 3001, directs the Secretary of the Interior to guide the repatriation of federal archaeological collections and collections that are culturally affiliated with Native American tribes and held by museums that receive federal funding. DOE would follow the provisions of this Act if any excavations associated with the proposed construction led to unexpected discoveries of Native American graves or grave artifacts. Regulations for implementing the Act are found in 43 CFR 10.

Endangered Species Act

The Endangered Species Act (ESA), 16 USC 1531 *et seq.*, establishes a national program for the conservation of threatened and endangered species of fish, wildlife, and plants, as well as the preservation of the ecosystems on which they depend. ESA Section 7 requires any federal agency authorizing, funding, or carrying out any action to ensure that the action is not likely to jeopardize the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of critical habitat of such species. Regulations implementing the ESA interagency consultation process are found in 50 CFR Part 402.

Fish and Wildlife Conservation Act/Fish and Wildlife Coordination Act

The Fish and Wildlife Conservation Act, 16 USC § 2901 *et seq.*, encourages Federal agencies to conserve and promote conservation of non-game fish and wildlife species and their habitats. In addition, the Fish and Wildlife Coordination Act, 16 USC § 661 *et seq.*, requires Federal agencies undertaking projects affecting water resources to consult with the United States Fish and Wildlife Service (USFWS) and the state agency responsible for fish and wildlife resources. Compliance with these statutes is internalized in DOE NEPA process.

Noise Control Act

The Noise Control Act of 1972, 42 USC § 4901 *et seq.*, directs federal agencies to carry out programs in their jurisdictions to the fullest extent within their authority and in a manner that furthers a national policy of promoting an environment free from noise that jeopardizes health and welfare. This would involve complying with applicable municipal noise ordinances to the maximum extent practicable.

Occupational Safety and Health Act

The Occupational Safety and Health Act, 29 USC § 651 *et seq.*, requires employers to furnish employees a place of employment that is free from recognized hazards that are causing or are likely to cause death or serious physical harm to the employees, and to comply with occupational

safety and health standards promulgated by the Occupational Safety and Health Administration (OSHA). OSHA standards are implemented under regulations found in 29 CFR Parts 1900-2400.

Pollution Prevention Act

The Pollution Prevention Act, 42 USC § 13101 *et seq.*, establishes a national policy for waste management and pollution control that focuses first on source reduction, and then on environmentally safe waste recycling, treatment, and disposal. Three executive orders provide guidance to agencies to implement the Pollution Prevention Act: Executive Order 12873, “Federal Acquisition, Recycling, and Waste Prevention,” Executive Order 13101, “Greening the Government through Waste Prevention, Recycling, and Federal Acquisition,” and Executive Order 13148, “Greening the Government through Leadership in Environmental Management.”

Executive Orders

A number of presidential executive orders in addition to those noted above provide additional guidance to Federal agencies in developing EAs, including this EA. The most relevant of them include:

- Executive Order 11514, “Protection and Enhancement of Environmental Quality”
- Executive Order 11988, “Floodplain Management”
- Executive Order 12856, “Right to Know Laws and Pollution Prevention Requirements”
- Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations”
- Executive Order 13423, “Strengthening Federal Environmental, Energy, and Transportation Management”
- Executive Order 13514, “Federal Leadership in Environmental, Energy, and Economic Performance”

Federal executive orders can be accessed at: <http://www.archives.gov/federal-register/codification/>.

Federal and State Permitting

The following are potentially applicable federal permitting requirements to construct and operate the proposed facilities.

- Clean Water Act, Section 401 Certification, Section 402 NPDES Permit, Section 404 Wetlands Permit, and Pretreatment Authorization for Discharge of Wastewater to Municipal Collection System, 40 CFR Parts 104-140, 403
- Clean Air Act, 40 CFR Parts 50-96
- Federal Construction General Permit, Stormwater Discharge
- Hazardous Waste Permit, Title 40 Part 270
- Major Source Construction Permits, Title V Part 70

The following are potentially applicable state permitting requirements to construct and operate the proposed facilities.

Maryland:

- Air Quality Permit to Construct, Maryland Department of the Environment (MDE)
- National Pollutant Discharge Elimination System Permit, Title 9 Part 3
- Waterway and 100-Year Floodplain (Non-tidal Wetlands and Waterways) Permit, Title 5 Parts 5.501-5.514
- Hazardous Waste Permit, Code of Maryland Regulations (COMAR) 26.13

Michigan:

- General Permit for Air Pollution Control, Michigan Department of Environmental Quality (MDEQ) Rule 336.1201a (rule 201a)
- National Pollutant Discharge Elimination System MDEQ Section 5.2.1
- Wetland Permit, Natural Resources and Environmental Protection Act, MDEQ Part 303 1994 PA 451

2.0 PROPOSED DOE ACTION AND ALTERNATIVES

DOE's Proposed Action is to provide GM with \$105,387,000 in financial assistance in a cost-sharing arrangement to facilitate construction and operation of a manufacturing facility to produce electric motor components and assemble an electric drive unit. This Proposed Action through the Vehicle Technologies Program will accelerate the development and production of electric-drive vehicle systems and reduce the United States' consumption of petroleum. This Proposed Action will also meaningfully assist in the nation's economic recovery by creating manufacturing jobs in the United States in accordance with the objectives of the Recovery Act.

2.1 GM's Proposed Project

The objective of the proposed three-year project addressed in this EA is to construct and validate a high-volume U.S. manufacturing facility to produce the first U.S.-manufactured electric motor components and to assemble a second-generation Global Rear-Wheel Drive Electric drive unit, designated "GRE." The GRE electric motor design requires significant advances in manufacturing process technology because of the complexities of the electric motor components. Therefore, a supporting objective is to develop and validate novel electric motor manufacturing technology. The proposed activities would occur at two locations, as described below.

2.1.1 White Marsh, Maryland (U.S. Electric Drive Manufacturing Center)

General Motors proposes to design and construct a new building to house the GRE electric motor component production facility at its White Marsh, Maryland (MD) site (Figure 2.1.1-1). The new electric motor manufacturing area would occupy approximately 37,000 square feet (ft²) (3,400 square meters (m²)) within the footprint of that existing facility property (Figure 2.1.1-2). This would be expected to require 40 full-time-equivalent (FTE) construction jobs over the 9.0 months of construction. The operation of the electric motor manufacturing and drive unit assembly in the proposed project would require 209 FTE jobs, at the maximum sustainable capacity of 40,000 units per year (annual production).

This project would involve an addition to the existing facility dedicated to technology and equipment needed for the manufacturing of electric motors, and a changeover of the existing drive unit facility to manufacture drive units for GM's Global Rear Electric Powertrain. The processes and equipment related to each of these major project elements is set forth below.

1. Electric Motor Production Facility

The project would involve the construction of an addition to the existing facility and the installation of equipment dedicated to the production of electric motors. As noted below with reference to the validation work to be performed at the Wixom Center, the manufacturing process to produce the electric motors begins with the receipt of copper wire and core materials, and continues with wire forming, stator and rotor assembly, varnish and epoxy, final assembly, and test. The types of machinery and equipment to be installed at the facility include a roller straightener, wire cutter, press, wire former, slot liner, wire stripping, cutting, welder, balancer,

electrical and spin test machines, wire installation, twister, lacing, oven, varnish and epoxy application, staking, and rotor & stator assembly machine.

2. Electric Drive Unit Manufacturing

The manufacturing process begins with the receipt of productive materials delivered to the machining and assembly departments. Copper wire and core materials are wire formed, assembled into rotors and stators, final assembled and tested into electric motors. Raw castings or blanks are machined into prismatic and gear components through metal removal utilizing standard oil, synthetic lubricant, or water-soluble metal cutting fluids. Metal removal equipment planned for installation at the facility include provisions for component features such as reaming, drilling, tapping, milling, spot facing, turning, deburring, chamfering, broaching, honing, and boring. Gears are heat treated in nitrogen gas furnaces to increase material strengths. Finished machining components would be checked for hardness, leak tested, inspected, washed utilizing a water-soluble, rust preventative solution, and then delivered to final assembly. Final assembly of drive units would consist of assembly of the prismatics, gears, electric motors and externally purchased parts into a functional electric drive unit. This drive unit would then be filled with automatic transmission fluid, tested, and washed.

New and existing emission control and particulate collection devices, such as dust collectors and a thermal oxidizer for volatile organic compounds (VOC) and process flare would be installed at the facility. Nonhazardous and hazardous waste would be collected, stored, recycled and reclaimed with a certified Treatment, Storage, and Disposal facility, in accordance with applicable laws and regulations to support Landfill Free and Environmental stewardship. Proper maintenance schedules on equipment would be established and adhered to as part of the company's best management practices (BMPs).

A full decommissioning of the facility is not anticipated after cessation of the proposed project/funding. The site is part of an existing manufacturing facility. General Motors may continue to use the facility and equipment after the Electric Drive Vehicle Battery and Component Manufacturing Initiative funding stops. If decommissioning of the building or equipment should occur, the activities would comply with all applicable regulations.

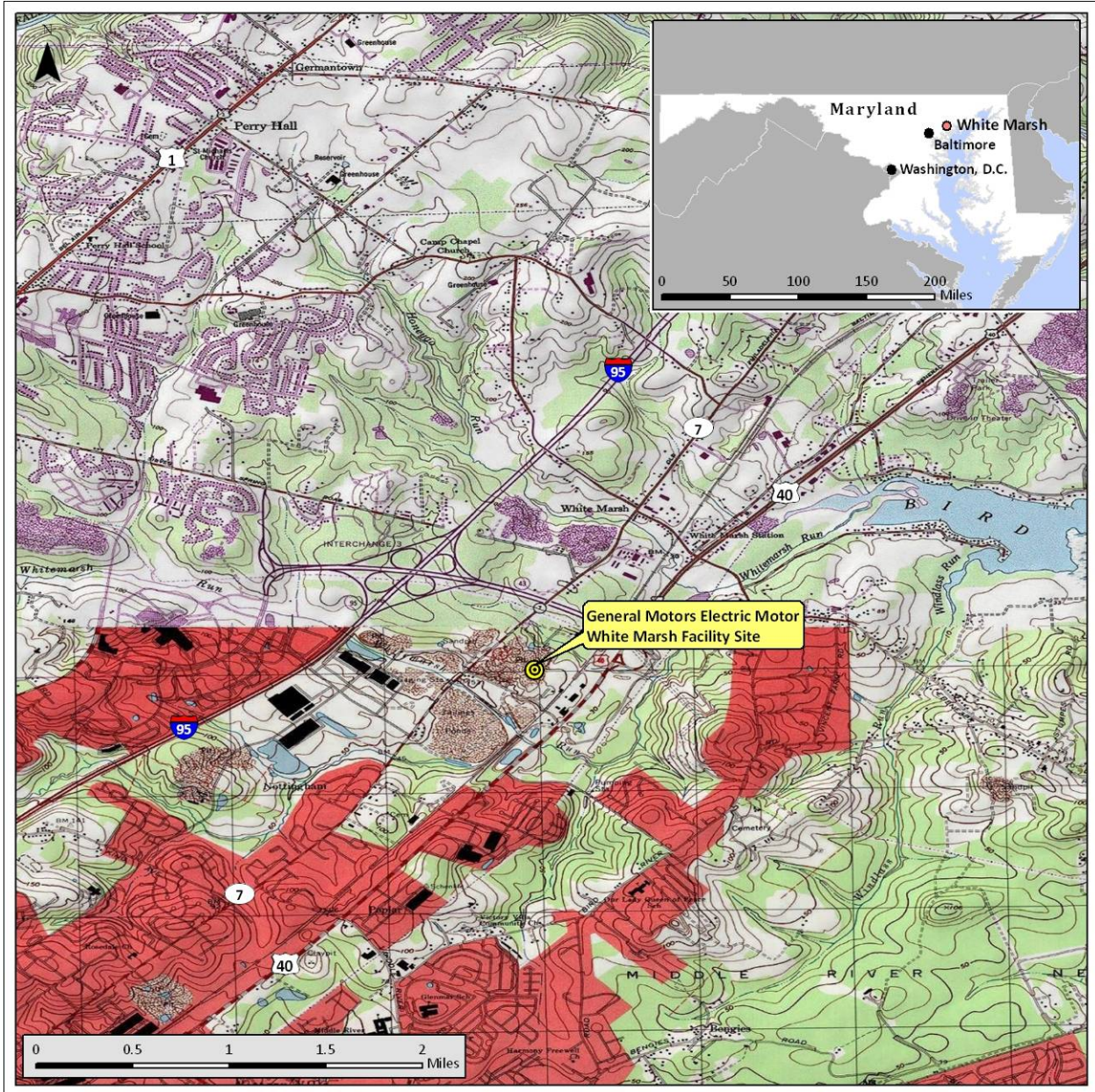


Figure 2.1.1-1. White Marsh Vicinity Map

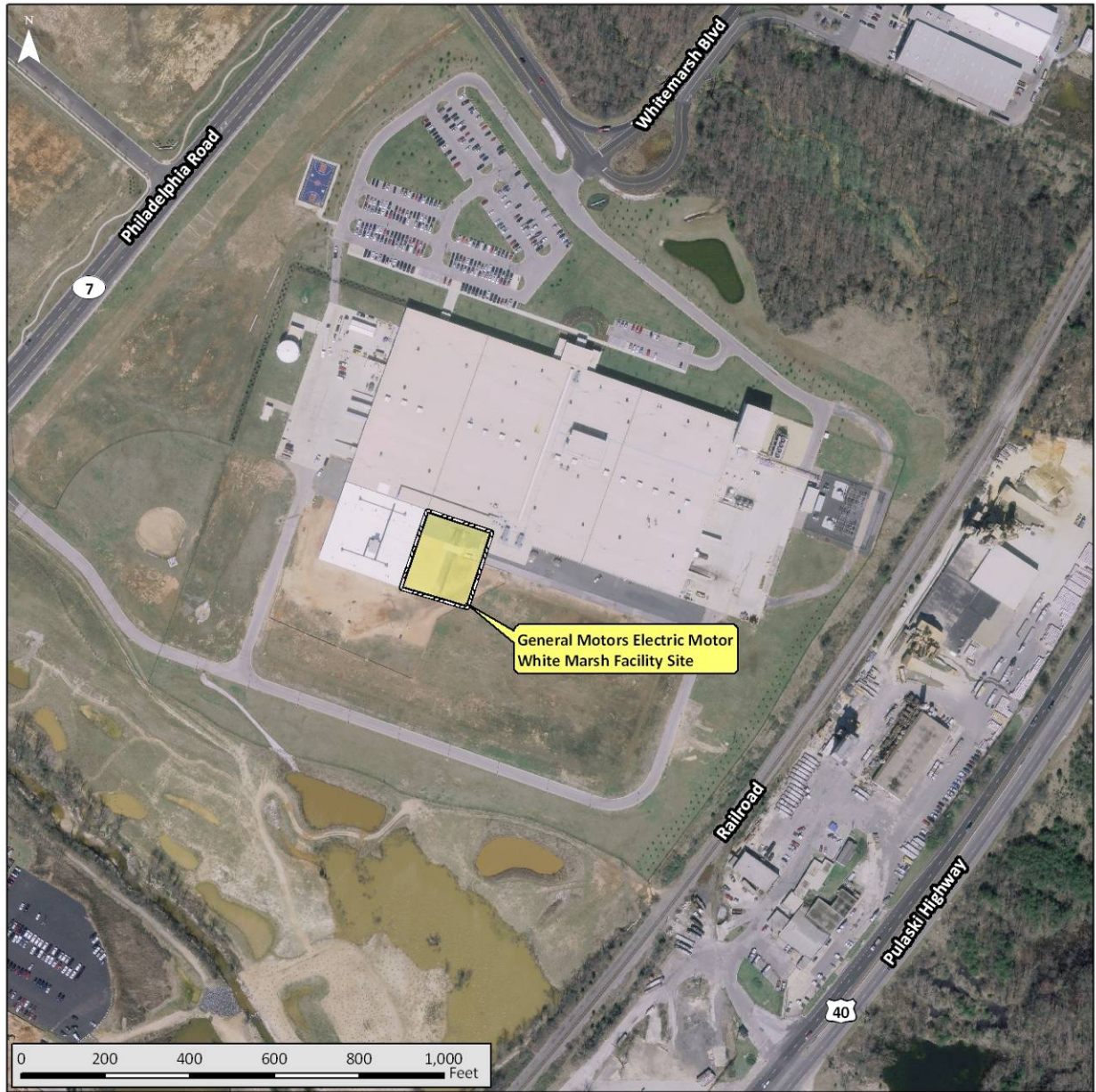


Figure 2.1.1-2. General Motors White Marsh Proposed Expansion Area Map

2.1.2 Wixom, Michigan (Wixom Center Motor Manufacturing Validation Center)

As a part of this program, a Motor Manufacturing Process Validation Center would be created within an existing facility in Wixom, Michigan (MI) (Figure 2.1.2-1). The motor component manufacturing process would initially be developed and validated at the Wixom center. Then, the GRE drive unit component manufacturing and assembly process, including motor components, would be designed and validated to meet the production target. Fundamentally, validation occurs at both locations (Wixom and White Marsh) based on the development process (program timing gate). Components could be shipped from this site to the White Marsh site (one possibility is the GAMMA Development Process), but component shipping from White Marsh to this site would be very unlikely. Any components shipped would be finished manufactured electric motors.

Machine, tooling and equipment requirements would be specified and vendors would be selected. The factory floor in the motor component production facility would be designed for the most efficient implementation of the manufacturing process. The existing 2-mode drive unit component manufacturing area would be adapted for production of GRE components. A new GRE drive unit assembly area would be designed within the footprint of the same facility (Figure 2.1.2-2). No incremental jobs would be created at the Wixom facility.

The project would involve the introduction of new technology and equipment dedicated to the development and validation of electric motor manufacturing. The manufacturing process to produce the electric motors begins with the receipt of copper wire and core materials, and continues with wire forming, stator and rotor assembly, varnish and epoxy, final assembly, and test. The types of machinery and equipment to be installed at the facility include a roller straightener, wire cutter, press, wire former, slot liner, wire stripping, cutting, welder, balancer, electrical and spin test machines, wire installation, twister, lacing, oven, varnish and epoxy application, staking, and rotor & stator assembly machine.

Nonhazardous and hazardous waste would be collected, stored, recycled and reclaimed with a certified Treatment, Storage, and Disposal facility, in accordance with applicable laws and regulations. Proper maintenance schedules on equipment would be established and adhered to as part of the company's BMPs.

A full decommissioning of the Motor Manufacturing Process Validation Center is not anticipated after cessation of the proposed project/funding. The site is part of an existing manufacturing facility. General Motors may continue to use the facility and equipment after the Electric Drive Vehicle Battery and Component Manufacturing Initiative funding stops. If decommissioning of the building or equipment should occur, the activities would comply with all applicable regulations.



Figure 2.1.2-1. Wixom Vicinity Map



Figure 2.1.2-2. Wixom Project Area Map

2.2 Alternatives

DOE's alternatives to this project consist of the 45 technically acceptable applications received in response to the Funding Opportunity Announcement, *Recovery Act - Electric Drive Vehicle Battery and Component Manufacturing Initiative*. Prior to selection, DOE made preliminary determinations regarding the level of review required by the National Environmental Policy Act (NEPA) based on potentially significant impacts identified in reviews of acceptable applications. DOE conducted these preliminary environmental reviews pursuant to 10 CFR 1021.216 and a variance to certain requirements in that regulation grant by the Department's General Counsel (74 Federal Register 30558, June 26, 2009). These preliminary NEPA determinations and reviews were provided to the selecting official, who considered them during the selection process.

Because DOE's Proposed Action is limited to providing financial assistance in cost-sharing arrangements to projects submitted by applicants in response to a competitive funding opportunity, DOE's decision is limited to either accepting or rejecting the project as proposed by the proponent, including its proposed technology and selected sites. DOE's consideration of reasonable alternatives is therefore limited to the technically acceptable applications and a no-action alternative for each selected project.

2.3 No-Action Alternative

Under the No-Action Alternative, DOE would not provide funds to the proposed projects. As a result, these projects would be delayed as they look for other funding sources to meet their needs, or abandoned if other funding sources are not obtained. Furthermore, acceleration of the development and production of various electric drive vehicle systems would not occur or would be delayed. DOE's ability to achieve its objectives under the VT program and the Recovery Act would be impaired.

Although this and other selected projects might proceed if DOE decided not to provide financial assistance, DOE assumes for purposes of this environmental analysis that the project would not proceed without DOE assistance. If projects did proceed without DOE's financial assistance, the potential impacts would be essentially identical to those under DOE's action alternative (i.e., providing assistance that allows the project to proceed). In order to allow a comparison between the potential impacts of a project as implemented and the impacts of not proceeding with a project, DOE assumes that if it were to decide to withhold assistance from a project, it would not proceed.

2.4 Comparison of Impacts

Table 2.4 below compares impacts of GM's proposed project and the No-Action Alternative.

Table 2.4. Comparison of Impacts

Resource	No-Action Alternative	GM's Proposed Project
Air Quality	No impact	Short-term, minor adverse effects as well as long-term, negligible adverse effects on air quality would be expected. The effects would be from air emissions during construction and from operational sources of air emissions at the proposed White Marsh or Wixom facilities. Increases in emissions would not exceed applicability thresholds, be regionally significant, or contribute to a violation of any federal, state, or local air regulation.
Geology and Soils	No impact	Changes in geological or soil stability, permeability, or productivity would be limited in extent. Full recovery would occur in a reasonable time*, as provided for in permit conditions for the project; therefore, the projected impact to geology and soils would be less than significant
Water Resources	No impact	Slight changes to surface water quality or hydrology are confined to the immediate project area. Full recovery would occur in a reasonable time, as provided for in NPDES permit conditions for the project; therefore, the projected impact from the proposed activity would be less than significant.
Wetlands/ Floodplains	No impact	Earthmoving activities at the White Marsh site associated with the proposed facility extension would not occur in the 100-year floodplain or in National Wetland Inventory wetlands but near both resources. With appropriate regulatory compliance and implementation of BMPs, impacts to wetlands and floodplains should be less than the significance threshold.
Terrestrial Vegetation	No impact	Overall, any changes to native vegetation would be limited to a small area and would not affect the viability of the resources. Full recovery would occur in a reasonable time, considering the size of the project and the affected resource's natural state.
Wildlife	No impact	Overall, any impacts on wildlife from GM's Proposed Project would be limited to a small portion of the population and would not affect the viability of the resource. Full recovery would occur in a reasonable time, considering the size of the project and the affected species' natural state.
Threatened and Endangered Species	No impact	Unless a discovery of previously unknown threatened or endangered species occurs, impacts from implementing this alternative would be expected to be less than the significance threshold.
Socioeconomic Resources	Lost opportunity for beneficial economic impact	Activities at both sites would not require an influx of workers and employees that could increase the population, change the demographics of the project area, or potentially overburden finite community resources, such as schools, housing, health facilities, or law enforcement capabilities; therefore, impacts would be beneficial but less than the significance threshold.
Infrastructure/ Utilities	No impact	Short- and long-term, minor adverse effects on transportation infrastructure and utilities would be expected from implementing GM's Proposed Project due to requiring utility upgrades and services to support the proposed facilities. These improvements would be more substantial at the White Marsh facility. There would be limited potential to alter or disturb power or other infrastructure services to the area because of GM's Proposed Project; therefore, overall impacts with BMPs would be less than the significance threshold.

Resource	No-Action Alternative	GM's Proposed Project
Noise	No impact	Given the temporary nature of the construction and the distance to the nearest sensitive receptors at both sites, construction noise would have a minor effect with operational noise being negligible; therefore, the project would be below the threshold of significance at both sites.
Human Health and Safety	Lost opportunity for the advancement of EDV research and economic stimulation	Appropriate monitoring equipment and systems that are consistent with all BMPs and regulations would be in place for the activities, materials, and wastes produced. This would reduce the risk to human health and safety on the site as well as in the local community; therefore, overall less than the significance threshold.
Waste Management	No impact	The Wixom facility is anticipated to be operating at its historic capacity with GM's Proposed Project, and therefore, any additional impacts on solid waste generation and disposal would be negligible. The solid waste generated at the White Marsh facility is anticipated to be similar to the amount generated by past manufacturing at full production rates indicating that any impact from disposal would be negligible, which is less than the significance threshold.

* Recovery in a reasonable time: Constant, sustainable improvement is apparent and measurable when the site is routinely observed, and full recovery is achieved over a period of no more than several years.

2.5 Issues Considered But Dismissed from Further Analysis

The Purpose and Need section above highlighted the importance of the overall program of evaluating EDV as one tool among many to address VT and Recovery Act objectives while providing this nation with a secure energy future and job stability. Potential impact issues typically associated with the preparation of EAs were reviewed. Because of the lack of potential impact to certain issues due to the specific characteristics of GM's Proposed Project, the following issues were considered but dismissed from detailed analysis:

Geology and Soils (Wixom, Michigan)

The Wixom, Michigan project site involves improvements that would be made entirely within the footprint of the existing facility. Thus, the effects on geological and soil resources would be negligible. Therefore, geology and soils were dismissed from further analysis for the Wixom site only.

Water Resources (Wixom, Michigan)

The Wixom, Michigan project site involves improvements that would be made entirely within the footprint of the existing facility. Thus, the effects on water resources would be negligible. Therefore, impacts to water resources are dismissed from further analysis for the Wixom site only.

Groundwater

Since the water supply would be from a public source and construction is limited to near-surface activity, groundwater sources would not be affected. Therefore, impacts to groundwater were

dismissed from further analysis for both sites.

Wetlands and Floodplains (Wixom, Michigan)

No impacts to either wetlands or floodplains are expected at the Wixom site since there would be no construction or other ground disturbing activities. Therefore, wetlands and floodplains were dismissed from further analysis for the Wixom site only.

Terrestrial Vegetation (Wixom, Michigan)

The part of GM's Proposed Project that would occur at Wixom, Michigan would involve retrofitting the existing Powertrain Facility to validate the manufacturing process. Thus, no new construction or ground disturbance would occur that could impact vegetation at this location. Therefore, impacts to terrestrial vegetation were dismissed from further analysis for the Wixom site only.

Wildlife (Wixom, Michigan)

The part of GM's Proposed Project that would occur at Wixom, Michigan would involve retrofitting the existing Powertrain Facility to validate the manufacturing process. Thus, no new construction or ground disturbance would occur that could impact wildlife at this location. Therefore, impacts to wildlife were dismissed from further analysis for the Wixom site only.

Threatened and Endangered Species (Wixom, Michigan)

The part of GM's Proposed Project that would occur at Wixom, Michigan would involve retrofitting the existing Powertrain Facility to validate the manufacturing process. Thus, no new construction or ground disturbance would occur that could impact threatened or endangered species habitat at this location. Therefore, impacts to threatened and endangered species were dismissed from further analysis for the Wixom site only.

Land Use

Under the No-Action Alternative, the sites at White Marsh, Maryland and Wixom, Michigan would continue current uses and ownership. This would result in no impacts to land use. Under GM's Proposed Project at the Wixom site, there would be no land use modification, because all proposed activities would occur within existing buildings. At the White Marsh site, implementation of GM's Proposed Project would entail the construction of a new 37,000 ft² (3,400 m²) building on GM property that would be compatible with current land use at that GM facility. Further, the proposed project would be implemented to ensure avoidance or mitigation of any land use issues at that site with the benefit of the project proponent being the current and future landowner. Moreover, the nearest park to White Marsh is Gunpowder Falls State Park, which is 3 miles (4.8 kilometers (km)) north; and the nearest park to Wixom is Lyon Oaks Park, which is 0.50 miles (0.8 km) to the west. Thus, the proposed project is unlikely to impact parks and recreation, especially as no construction is planned for the Wixom site. The closest Class I Area for White Marsh is Shenandoah National Park, which is 100 miles (160 km) to the west,

and for the Wixom site, the nearest Class I Area is Seney Wilderness Area that is part of Seney National Wildlife Refuge Park, which is 300 miles (480 km) to the north. Because the proposed new building at White Marsh is in an existing industrial area and considering the distance to the nearest Class I areas, these proposed projects are unlikely to impact visual resources more than negligibly. The proposed projects would not interfere with surrounding land uses at either site because they are extensions of current facility activities at established industrial sites. Additionally, the project does not require any zoning changes, and there are no prime farmlands at the sites. Therefore, because projected impacts, if any, to land use would be negligible, this topic was dismissed from further analysis for both sites.

Environmental Justice

Federal agencies must identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations (Executive Order 12898). An environmental justice population is defined as a population comprised of at least half minority status or at least half low-income status, or whose representation of these categories is greater than the general population in a meaningful way. The U.S. Department of Health & Human Services defines the average poverty threshold as a maximum annual income of \$22,025 or less for a family of four for the year 2009 (HHS, 2009).

White Marsh. The population of White Marsh is 88% White non-Hispanic, and only 2.7% of White Marsh residents had incomes below the poverty level, compared to 12.4% in the U.S. overall (Census, 2000a). The similar percentage of “minority” residents (defined as Black or African-American, Hispanic or Latino, Asian, American Indian, Native Hawaiian or other Pacific Islander) and the lower percentage of incomes below the poverty level compared to Maryland as a whole suggest there would be no disproportionate impacts on minority or low income communities from implementing GM’s Proposed Project. Therefore, impacts to environmental justice were dismissed from further analysis.

Wixom. The population of Wixom is 90% White non-Hispanic, and only 5.4% of Wixom residents had incomes below the poverty level, compared to 12.4% in the U.S. overall (Census, 2000b). The similar percentage of “minority” residents (defined as Black or African-American, Hispanic or Latino, Asian, American Indian, Native Hawaiian or other Pacific Islander) and the lower percentage of incomes below the poverty level compared to Michigan as a whole suggest there would be no disproportionate impacts on minority or low income communities from implementing GM’s Proposed Project. Therefore, impacts to environmental justice were dismissed from further analysis.

Cultural Resources

At the Wixom site, there would be no ground disturbance; therefore, there is no chance of disturbing any archeological resources. Also, as the view and buildings would remain the same, there is little chance for community cultural resource impacts due to view modification.

At the White Marsh site, there would be ground disturbance of approximately 37,000 ft² (3,400 m²). However, all construction activities would occur at an existing industrial site and in a

disturbed location, which reduces the probability of discovering or disturbing previously unknown cultural resources. Further, no known eligible or listed National Register of Historic Places sites exist within one mile (approximately 1.6 km) of the proposed White Marsh site (EDR, 2009). For the White Marsh site, the closest reservation is the Onondaga Indian Reservation, and it is 250 miles (402 km) north. The closest cemetery is Holly Hill Memorial Gardens, which is 1.2 miles (1.9 km) to the southeast.

Considering the above factors, it is unlikely that cultural resources at either location would be disturbed; therefore, potential impacts to cultural resources have been eliminated from further analysis at both sites.

The SHPO in Maryland as well as relevant Native American Tribes have been contacted for any possible concerns regarding this project. The Maryland's SHPO determined that there are no historic properties affected by GM's Proposed Project (Appendix C). Should any cultural resources be discovered during construction, work in the area would cease, and the discovery would be reported immediately to the SHPO and any relevant Native American Tribes.

Below are additional issues considered but dismissed due to absence in the project areas.

Right-of-Way Acquisition	There was no need for additional right-of-way.
Wild & Scenic Rivers	There are no designated Wild & Scenic Rivers within proximity of either project site.
Impact Property Values	This is a minor expansion within an existing industrial facility.
Alter Local Hydrology Patterns	None of the proposed construction would significantly impact drainage in the local watershed.

3.0 THE ENVIRONMENTAL ANALYSIS APPROACH

This chapter describes how the environmental review team analyzed the potential impacts of this GM's Proposed Project (i.e., the building and operation of the United States Electric Drive Manufacturing Center—Global RWD Electric Validation Center—in Maryland and the Motor Manufacturing Validation Center in Michigan). Chapter 4 provides a description of the affected environment and the potential environmental effects of GM's Proposed Project and the No-Action Alternative.

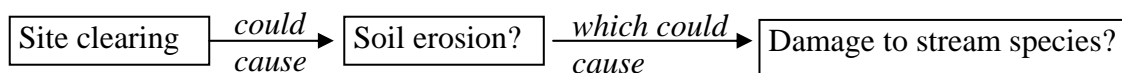
3.1 Approach to the Analysis

An EA is intended to be a clear, focused analysis of impacts. It is not intended to be merely a compilation of encyclopedic information about the project or about the environment. Accordingly, the environmental review team used a systematic approach to identifying, and then answering the relevant impact questions.

The initial step was to develop a detailed description of the components of the United States Electric Drive Manufacturing Center—Global RWD Electric Validation Center—in Maryland and the Motor Manufacturing Validation Center in Michigan process to be used at the proposed sites to study the potential of furthering VT and Recovery Act objectives. This description was presented in Chapter 2.

For each project component (e.g., construction of the facility), the team sought to identify all the types of direct effects which that activity could cause on relevant environmental resources. For example, clearing a site of vegetation could cause soil erosion. In doing this preliminary identification of the types of impacts that potentially could occur, the team drew upon their experience with previous projects.

For each potential direct effect, the team then sought to identify the potential indirect effects on other environmental resources. For example, soil erosion could cause sedimentation in nearby streams, which could in turn harm the fish and other species in the stream.



This served as the framework of the analysis of impacts. That is, the team focused their efforts on answering these questions as to whether these effects would in fact occur, and if so, how extensive, how severe, and how long lasting they would be. This was then compared to the significance levels found in Table 3.2 below.

3.2 Analysis of Significance

The team used a systematic process to evaluate the importance, or significance, of the predicted impacts. This process involved comparing the predictions to the significance criteria established by the team and set out below in Table 3.2. These significance criteria were based on legal and regulatory constraints and on team members' professional technical judgment.

Table 3.2. Impact Significance Thresholds	
Resource Area	Impact Significance Thresholds
	An impact would be significant if it EXCEEDS the following conditions.
Air Quality	The project would not produce emissions that would exceed applicability thresholds, be regionally significant, or contribute to a violation of any federal, state, or local air regulation.
Geology and Soils	Any changes in soil stability, permeability, or productivity would be limited in extent. Full recovery would occur in a reasonable time*, considering the size of the project. Mitigation, if needed, would be simple to implement.
Surface Water	Any changes to surface water quality or hydrology would be confined to the immediate project area. Full recovery would occur in a reasonable time, considering the size of the project and the affected area's natural state.
Wetlands and Floodplains	Any impacts to wetlands and floodplains would be confined to the immediate project area and would not cause any regional impacts.
Terrestrial Vegetation	Any changes to native vegetation would be limited to a small area and would not affect the viability of the resources. Full recovery would occur in a reasonable time, considering the size of the project and the affected resource's natural state. Mitigation, if needed, would be simple to implement.
Wildlife	Any changes to wildlife would be limited to a small portion of the population and would not affect the viability of the resource. Full recovery would occur in a reasonable time, considering the size of the project and the affected species' natural state.
Threatened or Endangered Species	Any effect to a federally listed species or its critical habitat would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population. This negligible effect would equate to a "no effect" determination in U.S. Fish and Wildlife Service terms.
Socioeconomic Resources	Changes to the normal or routine functions of the affected community are short-term or do not alter existing social or economic conditions in a way that is disruptive or costly to the community.
Infrastructure/ Utilities	The project would not noticeably affect or disrupt the normal or routine functions of public institutions, roads, electricity, and other public utilities and services in the project area.
Noise	Noise levels in the project area would not exceed ambient noise level standards as determined by the Federal, state, and/or local government.
Human Health and Safety	The project, with current and updated safety procedures, would pose no more than a minimal risk to the health and safety of on-site workers and the local population.
Waste Management	The action, along with planned mitigation measures, would not cause air, water, or soil to be contaminated with hazardous material that poses a threat to human or ecological health and safety.

* Recovery in a reasonable time: Constant, sustainable improvement is apparent and measurable when the site is routinely observed, and full recovery is achieved over a period of no more than several years.

4.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT AND ENVIRONMENTAL EFFECTS

4.1 Air Quality

4.1.1 Description

The USEPA Region 3 and the MDE regulate air quality in Maryland. The USEPA Region 5 and the MDEQ regulate air quality in Michigan. The CAA (42 USC 7401-7671q) gives USEPA the responsibility to establish the primary and secondary NAAQS (40 CFR Part 50) that set acceptable concentration levels for seven criteria pollutants: PM₁₀, PM_{2.5}, SO₂, CO, nitrous oxides (NO_x), ozone (O₃), and lead. Short-term standards (1-, 8-, and 24-hour periods) have been established for pollutants that contribute to acute health effects, while long-term standards (annual averages) have been established for pollutants that contribute to chronic health effects. Each state has the authority to adopt standards stricter than those established under the federal program; however, both Maryland and Michigan accept the federal standards. Federal regulations designate Air-Quality Control Regions (AQCRs) that are in violation of the NAAQS as nonattainment areas and those in accordance with the NAAQS as attainment areas.

4.1.1.1 White Marsh

Baltimore County, MD (and therefore the proposed GRE drive unit facility) is within the Metropolitan Baltimore Intrastate AQCR (40 CFR AQCR 81.23) and within the O₃ transport region (OTR). The USEPA has designated Baltimore County as the following:

- Moderate nonattainment Area for the 8-hour O₃ NAAQS
- Nonattainment for the PM_{2.5} NAAQS
- Attainment for all other criteria pollutants (USEPA, 2009a).

The existing White Marsh facility has three existing air permits. One of which (Permit Number 005-5-1673M) limits premises-wide NO_x emissions to maximum 25 tons in any rolling 12-month period. The facility is not currently required to submit an emission inventory to MDE.

4.1.1.2 Wixom

Oakland County, MI (and therefore the proposed validation center) is within the Metropolitan Detroit-Port Huron Intrastate AQCR (40 CFR AQCR 81.23). The USEPA has designated Oakland County as the following:

- Maintenance Area for the 8-hour O₃ NAAQS
- Nonattainment for the PM_{2.5} NAAQS
- Attainment for all other criteria pollutants (USEPA, 2009a).

Because both sites are in a nonattainment area, the air conformity regulations may apply. The projects emissions and the applicability thresholds were carried forward to determine the applicability of the general conformity rules and the level of impact under NEPA.

4.1.2 Effects of GM's Proposed Project

Short-term, minor adverse effects as well as long-term, negligible adverse effects on air quality would be expected. The effects would be from air emissions during construction and from operational sources of air emissions at the proposed White Marsh or Wixom facilities. Increases in emissions would not exceed applicability thresholds, be regionally significant, or contribute to a violation of any federal, state, or local air regulation.

Estimated Emissions and General Conformity. The General Conformity Rule specifies applicability thresholds by pollutant to determine if the conformity requirements apply to a project located in a nonattainment or maintenance area. These applicability thresholds vary based on pollutant type and the level of nonattainment. The applicability thresholds for the White Marsh site are 100 tpy for PM_{2.5}, NO_x, and SO₂ and 50 tpy for VOCs. The applicability thresholds for the Wixom site are 100 tpy for PM_{2.5}, NO_x, VOCs, and SO₂. If the total direct and indirect emissions associated with the action are greater than these levels, a formal conformity determination would be required.

All direct and indirect emissions of criteria pollutants for GM's Proposed Project have been estimated and compared to the applicability thresholds to determine the applicability of the general conformity rules and the level of impact under NEPA. The total direct and indirect emissions associated with the following activities were accounted for:

- Constructing the new facilities,
- Operating vehicles for construction workers,
- Paving parking areas,
- Operating personal vehicles for employees, and
- Operating new stationary sources of air emissions.

The requirements of the general conformity rule are not applicable because the highest total annual direct and indirect emissions from these alternatives would not exceed the applicability threshold for any criteria pollutant (Table 4.1.2-1). Because of the limited size and scope of GM's Proposed Project, it is not expected that the estimated emissions from the development and operation of the proposed facilities would make up 10 percent or more of regional emissions for any criteria pollutant, and therefore, they would not be regionally significant. A detailed breakdown of construction and operational emissions are in Appendix A.

Activity	Annual emissions (tpy)						Applicability threshold (tpy)	Would emissions exceed applicability thresholds? [Yes/No]
	CO	NO _x	VOC	SO _x	PM ₁₀	PM _{2.5}		
GRE Drive Unit Facility - White Marsh, Maryland								
Construction	3.39	3.22	0.69	<0.01	0.66	0.22	100(50)*	No
Operational	17.26	2.09	19.79	<0.01	0.16	0.11		
Validation Center - Wixom, Michigan								
Construction	<none>						100	No
Operational			0.5	<0.01	<0.01	<0.01		

* For a moderate nonattainment area for the 8-hour O₃ NAAQS within the OTR, the applicability criterion is 50 tpy

for VOCs. Note: SO_x is sulfur oxides

For the purposes of calculating emissions, it was assumed that approximately 209 permanent personnel would be employed at the proposed White Marsh site, when operating at the 40,000 units maximum sustainable capacity and three personnel would be employed at the Wixom site over the three year project period. Moderate changes in the size or type of equipment ultimately selected or the number of personnel would not substantially change the total direct or indirect emissions or the level of impact under NEPA.

Regulatory Review. The CAA, as amended in 1990, mandates that state agencies adopt and implement State Implementation Plans (SIPs) to eliminate or reduce the severity and number of violations of the NAAQS. Since 1990, both Maryland and Michigan have developed a core of air quality regulations that the USEPA has approved. These approvals signified the development of the general requirements of the SIP. Both Maryland and Michigan’s programs for regulating air emissions affect industrial sources, commercial facilities, and residential development activities. Regulation occurs primarily through a process of reviewing engineering documents and other technical information, applying emission standards and regulations in permit issuance, performing field inspections, and assisting industries in determining their compliance status with applicable requirements.

As part of these requirements, MDE and MDEQ oversee programs for permitting the construction and operation of new or modified stationary source air emissions. MDE and MDEQ air permitting is required for many industries and facilities that emit regulated pollutants. These requirements include Title V permitting of major sources, New Source Review (NSR), Prevention of Significant Deterioration (PSD), New Source Performance Standards (NSPS) for selected categories of industrial sources, and the National Emission Standards for Hazardous Air Pollutants (NESHAP). An overview of the applicability of these regulations to the project is outlined in Table 4.1.2-2.

Regulation	White Marsh Facility	Wixom Facility
Nonattainment New Source Review (NNSR)	The potential emissions would not exceed NNSR threshold and would be exempt from NNSR permitting requirements. A state permit to construct would be required at the White Marsh site.	
PSD	Potential emissions would not exceed the 250-tpy PSD threshold. Therefore, the project would not be subject to PSD review.	
Title V Permitting Requirements	The facility’s potential to emit would be below the Title V major source threshold and would not require a Title V permit.	
NESHAP	Potential Hazardous Air Pollutant emissions would not exceed NESHAP thresholds. Therefore, the use of Maximum Available Control Technology (MACT) would not be required.	
NSPS	All new stationary sources would meet NSPS if required.	

Varnish application for the motor manufacturing project is estimated to emit 18 tpy (or less) of VOC. Other new sources of emissions such as aqueous parts washers in GRE, epoxy usage & wet machining in motor manufacturing, and building Heating, Ventilation, & Air Conditioning (HVAC) units are not expected to generate significant emissions of criteria pollutants. Therefore, total VOC emissions from all new sources combined would be below 25 tons per

year. With all new sources of fuel combustion (for example new HVAC units), the premises wide NO_x emissions would not exceed 25 tpy. The White Marsh facility's current air permit would be amended to cover the modification to machine components and assemble the GRE electric drive hybrid transmission. However, the facility would require a new construction permit to machine and assemble the motors for use in the GRE electric drive hybrid transmission. The emissions control devices would include mist collectors (95% particulate control efficiency) currently in operation in the existing White Marsh facility, and a thermal oxidizer (approximately 85% destruction efficiency) for VOCs. For equipment not required to have controls under applicable laws, emissions would be vented via general ventilation.

Other non-permitting requirements may be required through the use of compliant practices and/or products. For the White Marsh site these regulations are outlined in COMAR Title 26, Subtitle 11, *Air Quality* and include:

- Particulate Matter from Materials Handling and Construction (COMAR 26.11.06.03.D)
- Open Fires (COMAR 26.11.06)
- Control of Emissions of VOCs from Architectural Coatings (COMAR 26.11.33)
- Control of Emissions of VOCs from Consumer Products (COMAR 26.11.32)
- Control of Emissions of VOCs from Adhesives and Sealants (COMAR 26.11.35)

There would be no new stationary sources of air emissions at the Wixom Facility site. Some processes may have small amounts (< 0.5 tpy) of organic solvent vapors or other VOC. For the Wixom Facility site, non-permitting requirements are outlined in Part 55 of the Michigan Administrative Code, *Air Pollution Control* and include:

- General Provisions (PA 451 – Part 1)
- Prohibitions and Limitations on Particulate matter (PA 451 – Part 3)
- Prohibitions and Limitations on VOCs (PA 451 – Part 7)
- Miscellaneous Prohibitions and Limitations (PA 451 – Part 9)

In addition to those outlined above, no person shall handle, transport, or store any material in a manner which may allow unnecessary amounts of air contaminants to become airborne. During construction reasonable measures may be required to prevent unnecessary amounts of particulate matter from becoming airborne (COMAR 26.11.06.03.D and PA 451-3.R 336.1372).

This listing is not all-inclusive; GM and any contractors would comply with all applicable air pollution control regulations at both locations. Outside of these best management practices, no mitigation measures would be required for the construction and operation of the proposed GRE drive unit facility and validation center.

Overall, with BMPs in place, the projected impacts at both sites would be less than the significance threshold.

4.1.3 Effects of No-Action

Selecting the No-Action Alternative would result in no impact to ambient air-quality. No construction would be undertaken, and no new facility operations would take place. Ambient air-quality conditions would remain as described in Section 4.1.1.

4.1.4 Cumulative Effects

Both the State of Maryland and the State of Michigan take into account the effects of all past, present, and reasonably foreseeable emissions during the development of their SIPs. The states account for all significant stationary, area, and mobile emission sources in the development of these plans. Estimated emissions generated by GM's Proposed Project would be below the applicability threshold and would not be regionally significant. Therefore, GM's Proposed Project would not contribute significantly to adverse cumulative effects to air quality in either area.

4.2 Geology and Soils

4.2.1 Description

4.2.1.1 White Marsh

The project site lies within a physiographic province named the Atlantic Coastal Plain, and more specifically the region within the province known as the Western Shore Lowlands Region. In this province and region is a low marine terrace adjacent to Chesapeake Bay with sea level marshes and several tidal streams. The underlying rocks in this area are obscured by thick, unconsolidated marine sediment. In some places, the sediment has been removed by erosion, leaving isolated sedimentary caps, often quite thin, over the underlying rock (Reybold and Matthews, 1976; MGS, 2009).

Mineral resources of the Coastal Plain are chiefly sand and gravel, and are used as aggregate materials by the construction industry. Clay for brick and other ceramic uses is also important. Small deposits of iron ore are of historical interest. Plentiful supplies of ground water are available from a number of aquifers throughout much of this region. The Atlantic Continental Shelf contains abundant sand deposits, useful for beach restoration (MGS, 2009).

The building site for this project contains soil designated as "made land" (Reybold and Matthews, 1976). Made land is created when tidal flats are filled in to expand areas along the coastline to make them suitable for development. For this project site, unknown soil types were used to create the made land and nothing further may be stated about the character of the soil at the site.

Throughout the history of Baltimore County going back to April 1758, there have been earthquake tremors that have been felt in the county. Most of the earthquakes that were felt have had epicenters outside the county (USGS, 2009). Despite this history, the area is located in seismic zone 1, the second lowest seismic risk zone defined by the Uniform Building Code, which has no additional enforceable requirements for structural design due to earthquakes in this zone.

4.2.1.2 Wixom

Impacts to geology and soils were dismissed from further analysis for this site (Section 2.5).

4.2.2 Effects of GM's Proposed Project

Construction activities associated with the project site in White Marsh, MD would have the greatest potential to generate effects on geological and soil resources. Proposed construction is limited to surface and near-surface activity that would have no potential to affect minerals and deeper geological strata. Seismic activity in this region is negligible and would be adequately addressed through compliance with local building codes.

Soil loss and erosion are the major geological resources to be considered and managed with this project. Planned best management practices that can effectively prevent major effects to this resource include stormwater training for onsite personnel, use of erosion control blankets where soil would otherwise be exposed, avoidance of excessive soil stockpiling where soil is exposed to wind and rain, a sediment settling basin as part of the runoff control program, use of water and dust palliatives on soils that are temporarily exposed to erosive elements, and proper use of temporary or permanent landscaping that would hold soils in place and prevent unwanted soil movement.

Changes in geological or soil stability, permeability, or productivity would be limited in extent. Full recovery would occur in a reasonable time, as provided for in permit conditions for the project; therefore, the projected impact to geology and soils would be less than the significance threshold.

4.2.3 Effects of No-Action

Under the No-Action Alternative, none of the proposed construction activity or the operations activities would occur. The absence of construction or operations activities would cause no effects on this resource.

4.2.4 Cumulative Effects

There are no past, present, or foreseeable future projects which can be analyzed collectively with GM's Proposed Project that would result in a greater cumulative effect on this resource than what would occur singularly as a result of GM's Proposed Project.

4.3 Water Resources

4.3.1 Description

4.3.1.1 White Marsh

The project site lies within the Bird River watershed in eastern Baltimore County. The watershed's major tributary, White Marsh Run, passes within 250 yards (0.23 km) of the project

site before it enters Bird River just east of Rt. 40 at Ebenezer Road. The community of White Marsh is one of the original designated growth areas of Baltimore County. The area was targeted for intensive residential, commercial and industrial development and currently clusters of financial, insurance and health care operations, light manufacturing, technology and distribution surround the town center (BALCO, 2007).

The Bird River watershed was also targeted for the County's first comprehensive watershed plan, which was completed in 1995. To date, over 5 miles (8 km) of stream restoration have been completed on the main stem and tributaries of White Marsh Run and Honeygo Run. In addition, numerous water quality retrofit projects have been implemented in this watershed as well as the dredging of Bird River and Railroad Creek (BALCO, 2007).

The project proponents would utilize public systems for water supply and wastewater disposal. There is a current wastewater pretreatment permit WWDP #1507 that covers discharges arising from activities associated with the proposed project. Pretreatment of wastewater would be performed before it enters the public wastewater collection system (GM, 2009a). Operational wastewater discharges are estimated to be 390 gallons per day (gpd) (1,476 liters per day (lpd)) non-contact cooling water, 560 gpd (2,120 lpd) of process water, and 1,080 gpd (4,088 lpd) of sanitary sewage and/or grey water (GM, 2009a). The project would utilize 25% of existing facility floor space, so water surplus from the displaced functions would reduce the new project demand.

The project proponents would also implement erosion control measures during and after construction. There would be new underground storm sewers installed to take the new roof drainage into the existing nearby storm sewer. The project would utilize existing storm sewers and two detention ponds on site. The existing conditions were designed and installed based on a larger footprint than exists today (including the future expansion) (Seibert, 2009).

4.3.1.2 Wixom

Impacts to water resources were dismissed from further analysis for this site (Section 2.5).

4.3.2 Effects of GM's Proposed Project

Both construction and operations activities at White Marsh have the potential to affect water resources in the project area. During the construction and operations phases, erosion control measures are planned, in compliance with local regulations.

Infrastructure capacity is sufficient for water supply and on-site pretreatment of wastewater prior to discharge to a public system. Since water supply and wastewater treatment would be accomplished through properly sized public and on-site systems, any potential concerns with groundwater sources and unregulated waste disposal are avoided.

Slight changes to surface water quality or hydrology are confined to the immediate project area. Full recovery would occur in a reasonable time, as provided for in NPDES permit conditions for

the project; therefore, the projected impact from the proposed activity would be less than the significance threshold.

4.3.3 Effects of No-Action

Under the No-Action Alternative, none of the proposed construction activity or the operations activities would occur. The absence of construction or operations activities would cause no effects on this resource.

4.3.4 Cumulative Effects

There are no past, present, or foreseeable future projects, which can be analyzed collectively with GM's Proposed Project that would result in a greater cumulative effect on this resource than what would occur singularly as a result of GM's Proposed Project.

4.4 Wetlands and Floodplains

4.4.1 Description

4.4.1.1 White Marsh

There are wetlands and floodplains at or near the site in White Marsh, Maryland (Figure 4.4.1).

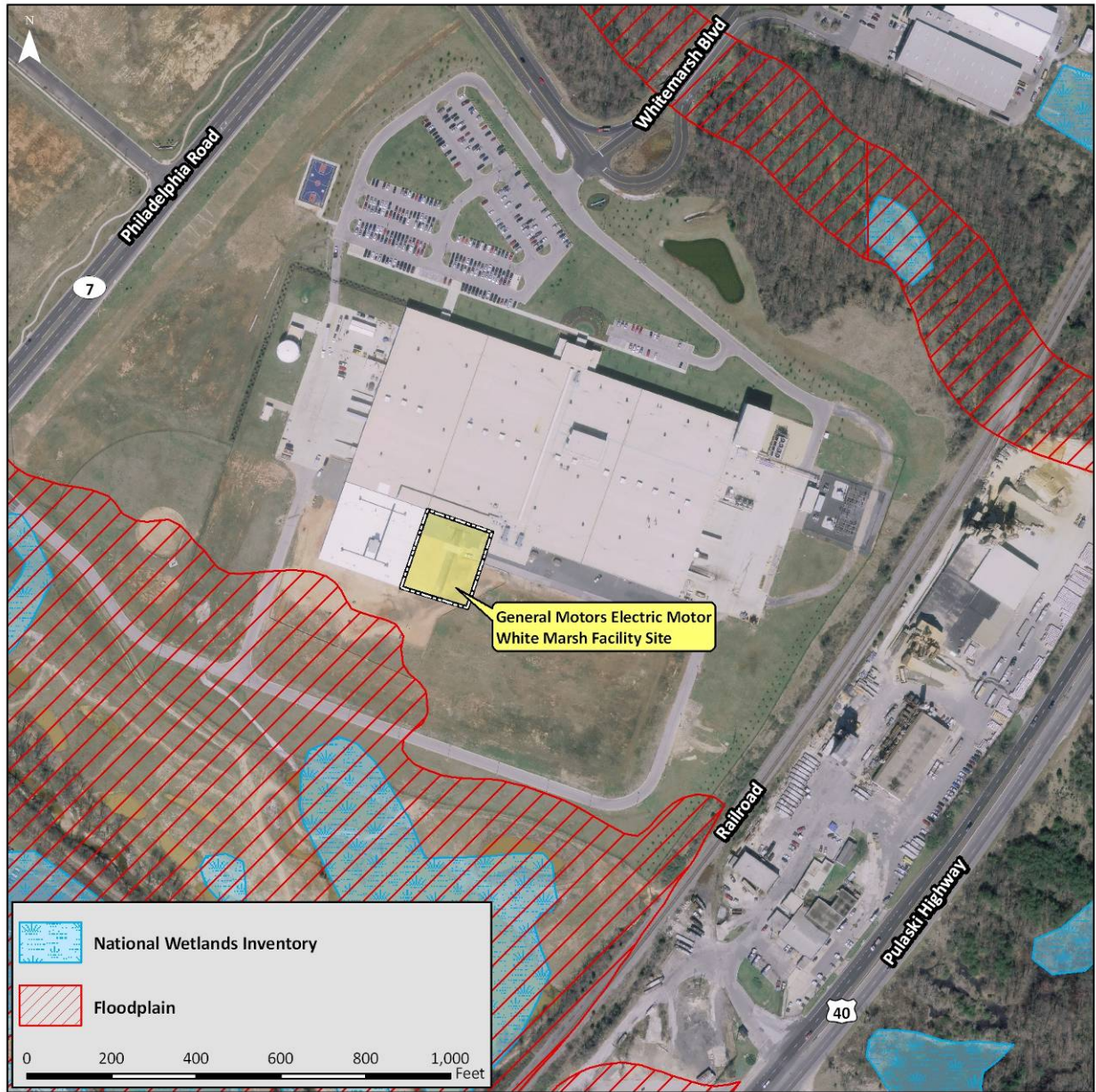


Figure 4.4.1. Wetlands and Floodplains near the White Marsh Site

Construction would only occur at the White Marsh site and would occur within the existing footprint of the General Motors property. No wetlands on a National Wetlands Inventory (NWI) exist in the proposed project footprint, and the proposed footprint is outside of the 100-year floodplain nearby that is non-tidal wetland-designated “A” by Floodway and Flood Insurance Maps (EDR, 2009; MDE, No date). Further, as a part of any construction planning (were GM’s Proposed Project to move forward), a new wetlands determination would be recommended within the proposed construction footprint due to the age of the NWI data and the scale.

4.4.1.2 Wixom

Impacts to wetlands and floodplains were dismissed from further analysis (Section 2.5).

4.4.2 Effects of GM's Proposed Project

As suggested above, while no wetlands are indicated in some data sources, wetlands were indicated in one NWI report near the White Marsh proposed building site; therefore, verification that wetlands are not in the proposed footprint is recommended (EDR, 2009). If wetlands were discovered to be in or near the footprint, proper permitting and best management practices would be required to minimize impacts to wetlands. Earthmoving activities at the White Marsh site associated with the proposed facility extension would not occur in the 100-year floodplain. Any activities in a 100-year floodplain can require design features such as raised foundations and permits, so activities associated with the proposed project should avoid any impacts to floodplains as the floodplains are close to the proposed site. If impacts were to occur, compliance with the requirements of permits and other applicable regulations would minimize impacts to floodplains. Therefore, with appropriate regulatory compliance and implementation of best management practices, impacts to wetlands and floodplains should be less than the significance threshold.

4.4.3 Effects of No-Action

Under the No-Action Alternative, the construction and other project components would not occur. Thus, no impacts to wetlands or floodplains would occur due to lack of earthmoving or ground disturbance activities, which would be below the significance threshold.

4.4.4 Cumulative Effects

Past activities have altered the floodplains and wetlands in the areas. The proposed project would represent a negligible impact at most to floodplains and wetlands due to the size of the proposed activity, lack of these resources in the proposed project footprint, and with applicable regulations compliance and best management practices implementation. Further, there are no other known present or reasonably foreseeable projects impacting these same resources. Therefore, the cumulative impacts are expected to be less than the significance threshold.

4.5 Terrestrial Vegetation

4.5.1 Description

4.5.1.1 White Marsh

The open area proposed for the new GM facility in Maryland was previously disturbed to construct the existing facility, access road, and storm water detention ponds; therefore, existing vegetation consists of landscaping and turf grasses. Vegetation in the surrounding wooded areas likely includes poplar, ash, oak, and hickory trees with possibly some white or loblolly pines. Understory shrubs species likely include dogwood, juniper, sumac, and serviceberry.

Executive Order 13112 - Invasive Species directs federal agencies to make efforts to prevent the introduction and spread of invasive plant species. Invasive species are usually destructive, difficult to control or eradicate, and generally cause ecological and economic harm. A noxious weed is any plant designated by a federal, state, or county government as injurious to public health, agriculture, recreation, wildlife, or property. Maryland's Weed Control Law lists species that may not be grown in the state and must be controlled on both public and private lands. This law is enforced by the Maryland Department of Agriculture and county weed control coordinators. Maryland also restricts the use of certain seeds in grass mixes (MDA, 2009).

4.5.1.2 Wixom

Impacts to terrestrial vegetation were dismissed from further analysis (Section 2.5).

4.5.2 Effects of GM's Proposed Project

The White Marsh project site covers less than 1 acre (0.4 hectare) located adjacent to the existing facility and access road (GM, 2009a). Grading the site for construction would impact the maintained landscape and mowed grounds. Disturbed areas around the new facility would be landscaped with native vegetation and seed mixtures approved by the Maryland Department of Agriculture. Impacts to vegetation would be negligible.

Noxious weeds and invasive plant species are generally found in disturbed soil conditions. Surface disturbance and construction activities could facilitate the establishment and spread of noxious weeds. Aggressive non-native species could become established if ground disturbance during construction is extensive and lengthy. However, the size of disturbance for the proposed manufacturing facility and the short length of time before the ground surface is stabilized would minimize the risk of noxious weeds becoming established and therefore any potential impacts would be negligible.

Preventive measures such as monitoring and eradication would be implemented to reduce weeds from emerging after ground disturbance occurs. Any hay bales used to control surface runoff during construction would be certified as free from weed seeds. Heavy equipment transferring among construction sites could also introduce noxious weeds; however, because of the relatively small scale of the proposed facility, it is likely that equipment would mobilize to the site only once and thereby minimize this risk. With preventative measures implemented, the risks of invasive species should be minimized.

Overall, any changes to native vegetation would be limited to a small area and would not affect the viability of the resources. Full recovery would occur in a reasonable time, considering the size of the project and the affected resource's natural state. Therefore, impacts on terrestrial vegetation would not be expected to exceed the significance threshold.

4.5.3 Effects of No-Action

Site conditions would remain unchanged under the No-Action Alternative. The surface soils

would not be disturbed for construction, and no impacts to vegetation would occur.

4.5.4 Cumulative Effects

Expansion of industrial development in the area would have a cumulative effect to native vegetation in the area; however, no reasonably foreseeable projects in the vicinity exist that would have such an effect with GM's Proposed Project. Cumulative impacts from the proposed project when added to other past, present, and reasonably foreseeable future actions would be minimally adverse and are not expected to exceed the threshold of significance.

4.6 Wildlife

4.6.1 Description

4.6.1.1 White Marsh

Wildlife that could typically be found in a rural/urban interface area similar to the project area in Maryland, include white-tailed deer, fox, rabbit, chipmunk, squirrel, skunk, and different species of mice, moles, shrews, and bats. Avian species may include passerines (such as sparrows, bluebirds, waxwings, robins, and orioles), doves, woodpeckers, crows, ravens, and raptors (hawks and owls). With the close proximity to surface water sources (White Marsh Run and storm water detention ponds), amphibian species such as turtles, salamanders, and frogs are likely present in the project area.

Most birds are protected by the Migratory Bird Treaty Act that prohibits the destruction of active nesting habitat. The wooded areas to the south and east of the GM facility likely provide habitat for foraging and nesting for various species of birds.

4.6.1.2 Wixom

Impacts to wildlife were dismissed from further analysis for this site (Section 2.5).

4.6.2 Effects of GM's Proposed Project

Construction activities would occur adjacent to the existing White Marsh facility and access road. Common wildlife species inhabiting or using this area for forage or cover would be displaced and direct mortality of less mobile species could potentially occur. Similar habitat on adjacent wooded and open land would support the displaced species and thus potential impacts would be negligible. The typical species that could be impacted are widely distributed, and thus loss of some individuals and habitat would not impact the populations throughout their range.

Construction activities could disturb any birds foraging, roosting, or nesting in the nearby wooded area and along White Marsh Run; however, potential impacts would be negligible because of distance between the construction site and habitat, and mobility of the species to move away from the disturbance. Thus, there would be negligible impacts to existing wildlife due to the small population affected and not likely to jeopardize the viability of the resources.

Overall, any impacts on wildlife from GM's Proposed Project would be limited to a small portion of the population and would not affect the viability of the resource. Full recovery would occur in a reasonable time, considering the size of the project and the affected species' natural state. Therefore, overall impacts on wildlife would not be expected to exceed the significance threshold.

4.6.3 Effects of No-Action

The No-Action Alternative would not impact wildlife in the area. There would be no construction that would disturb habitat or displace wildlife species.

4.6.4 Cumulative Effects

Conversion of open land to industrial development would have a cumulative effect to wildlife species in the area. However, there are no reasonably foreseeable projects in the vicinity that would have such an incremental effect with GM's Proposed Project. Cumulative impacts from the proposed project when added to other past, present, and reasonably foreseeable future actions would be minimally adverse and are not expected to exceed the threshold of significance.

4.7 Threatened and Endangered Species

4.7.1 Description

4.7.1.1 White Marsh

A species listed under the ESA is so designated because of danger of its extinction as a consequence of economic growth and development without adequate conservation.

With regard to potential impacts to threatened and endangered species at the proposed Maryland site, the sandplain gerardia (*Agalinis acuta*) is a federally listed plant species known to occur in Baltimore County, Maryland. It was listed in 1988 as endangered by the USFWS under the ESA. The sandplain gerardia is also listed by the State of Maryland as endangered. The favored growing conditions of the plant are native grasslands on sandy loam, loam, and loamy sand soils (USFWS, 1989). Maryland's single known population grows on a site that has been protected for over 20 years as a state Natural Environmental Area (MDNR, 2004).

The bog turtle (*Glyptemys muhlenbergii*), a federally listed animal (amphibian) species, is also known to occur in the county. It was listed as threatened by the USFWS in 1997. Bog turtle habitat includes wetlands and freshwater marshes in northern Maryland counties. The turtles depend on a mosaic of microhabitats for foraging, nesting, basking, hibernation, and shelter (NatureServe, 2009). Larger population sizes in Maryland are associated with circular basins with spring-fed pockets of shallow water, bottom substrate of soft mud and rock, dominant vegetation of low grasses and sedges, and interspersed wet and dry pockets (NatureServe, 2009).

4.7.1.2 Wixom

Impacts to threatened and endangered species were dismissed from further analysis (Section 2.5).

4.7.2 Effects of GM's Proposed Project

The known habitats for sandplain gerardia and bog turtle are not on or near the White Marsh project area, and thus, construction activities for the new facility would not affect either species. The USFWS were consulted to confirm the determination of no impacts to threatened and endangered species (Appendix B). Unless a discovery of previously unknown threatened and endangered species occurs, impacts from implementing this alternative would be expected to be less than the significance threshold.

4.7.3 Effects of the No-Action

There is no known threatened or endangered species habitat in the vicinity of the GM facility in White Marsh, Maryland. Taking no action would have no effect to listed species.

4.7.4 Cumulative Effects

Because GM's Proposed Project would have no effect to listed species or habitat, it would not contribute to any cumulative effects on the species due to loss of potential habitat from other development in the project area. Cumulative impacts from the proposed project when added to other past, present, and reasonably foreseeable future actions would be minimally adverse and are not expected to exceed the threshold of significance.

4.8 Socioeconomic Resources

Socioeconomic factors describe the local demographics, economy, and employment that could be influenced by GM's Proposed Project.

4.8.1 Description

As part of GM's Proposed Project, a testing facility would be created at an existing location at Wixom, MI, and a new manufacturing facility would be created at GM's White Marsh, MD complex.

4.8.1.1 White Marsh

White Marsh, Maryland is an unincorporated community and a census-designated place in Baltimore County, Maryland, with roughly 8,485 residents (Census, 2000a). It is a relatively new community, being formally designated as a town center in the Baltimore County Master Plan in 1979.

Because it is a community of less than 20,000 residents, specific economic data is not available through Bureau of Labor Statistics or U.S. Census. Available local sources suggest that

employment in White Marsh is dominated by construction, public administration finance and insurance and professional services, for males; and by health care, finance and insurance, and education for women (City-Data.com, 2009a). The most current unemployment data is only available down to the Baltimore metro area level. The Baltimore, Maryland metro area had an unemployment rate of 7.6% in September 2009, below the national average of 9.5%, but slightly higher than the Maryland rate of 7.3% (BLS, 2009).

4.8.1.2 Wixom

Wixom, Michigan is a community of roughly 13,263 residents, located 24 miles northwest of Detroit in Oakland County, Michigan (Census, 2000b).

The city is home to the former Wixom Assembly Plant, a Ford Motor Company plant. The Lincoln LS, the Ford Thunderbird, and the Ford GT were all manufactured there. Wixom is home to several production and manufacturing facilities, such as Trijicon, a leading manufacturer of night gun sights and night telescopic sights, as well as Discraft, a leading manufacturer of flying discs for disc sports games like Ultimate, and MAC Valves, Inc. a manufacturer of pneumatic valves used in the automotive and packaging industries (City-Data.com, 2009b).

The economy of Wixom continues to be dominated by manufacturing, which employs 24% of the labor force; as well as educational, health and social services (employing 13% of the work force, retail (also 13%), and professional, scientific and management services (11%) (Census, 2000b). The most current unemployment data is only available down to the Detroit metro area level. The Detroit, MI metro area had an unemployment rate of 17.3% in September 2009, far above the national average of 9.5%, and slightly higher than the Michigan rate of 15.2% (BLS, 2009).

4.8.2 Effects of GM's Proposed Project

This section addresses the potential for positive and negative socioeconomic impacts that might occur in the local community.

GM's Proposed Project would involve constructing a 37,000 ft² (3,400 m²) facility over 9.0 months in White Marsh, Maryland to house its GRE electric motor component production facility.

Also as part of this program, an Electric Motor Manufacturing Process Validation Center would be set up within an existing facility in Wixom, Michigan. The electric motor component manufacturing process would initially be developed and validated at the Wixom Validation Center. Then, the GRE drive unit component manufacturing and assembly process, including electric motor components, would be designed and validated to meet the production target. Machine, tooling, and equipment requirements would be specified, and vendors would be selected. The factory floor in the electric motor component production facility would be designed for the most efficient implementation of the manufacturing process. The existing 2-mode drive unit component manufacturing area would be adapted for production of GRE components. A new GRE drive unit assembly area would be designed within the footprint of the

same facility. GM's proposed project would generate minor beneficial increases in economic activity in the following ways:

(1) The construction of the White Marsh facility is expected to create from 40 FTE construction jobs over the 9.0 months of construction. Project proponents estimate capital construction costs of approximately \$5.6 million and a construction labor cost of approximately \$5.3 million. Roughly, 25% of capital construction costs—\$1.4 million—and all of the labor costs would be spent on construction goods and services within the regional economy.

(2) Once operational, the White Marsh facility is expected to produce about 209 full-time equivalent operational and maintenance positions. The addition of 209 permanent manufacturing jobs to the community would have a minor beneficial impact on economic activity in the region, as the salaries and wages paid to facility staff flow through the local and regional economy in the purchase of goods and services. No incremental jobs would be created at the Wixom facility.

(3) The sale of manufactured products creates employment both “backwards”—in mining and construction—and “forward”, in the transportation, finance and wholesale trade sectors. The U.S. Department of Commerce estimated that every dollar in final sales of manufactured products supports \$1.37 in other sectors of the economy (NAM, 2006).

GM anticipates that both the temporary construction jobs and the ongoing operations jobs can be filled from local or nearby communities. Thus, GM's proposed project would not require an influx of workers and employees that could increase the population, change the demographics of the project area, or potentially overburden finite community resources, such as schools, housing, health facilities, or law enforcement capabilities. Therefore, the impacts from implementing this alternative would be beneficial but less than the significance threshold.

4.8.3 Effects of No-Action

If the construction facility were not built, the opportunity to create short-term construction jobs, long-term manufacturing jobs, and the benefits of resulting economic activity would be lost, which would be less than the significance threshold because this alternative would represent a lost opportunity for a relatively small number of jobs and income in the community. Thus, this alternative would not worsen current conditions. Therefore, the impacts would be less than the significance threshold.

4.8.4 Cumulative Impacts

GM's Proposed Project would not add to local economic development pressures in the White Marsh or Wixom communities, since the new facilities are proposed within the existing GM footprints. In addition, incremental cumulative economic impacts are unlikely because GM's Proposed Project is not large enough to result in enough increased demands for goods and services that would trigger further economic development in either community, and because there are no other planned or reasonable foreseeable projects affecting the same socioeconomic resources. Therefore, the cumulative impacts would be expected to be less than the significance

threshold. Similarly, cumulative impacts of less than the significance threshold would occur from implementing the No-Action Alternative due to the small lost opportunity.

4.9 Infrastructure/Utilities

Characterization of the infrastructure and utilities within the project area focuses on the ability of these elements to serve existing demand as well as any increase that may result from implementation of GM's Proposed Project.

4.9.1 Description

4.9.1.1 White Marsh

Traffic in White Marsh is generated primarily by personal operating vehicles. However, the proposed location also has direct access to Maryland Transit Administration (MTA) bus routes on Philadelphia Avenue and White Marsh Boulevard. Regional access to White Marsh is provided by Interstate-95 (I-95) traveling north to south between Wilmington, Delaware and Baltimore, Maryland approximately one-half mile west of the site. Once entering the area, travelers would approach the site most efficiently via Route 43 that exits directly onto Philadelphia Avenue and into the existing GM facility. Depending on their point of origin, travelers could approach via Route 40 from the south, or via Whitmarsh Boulevard from the east and west. The existing facility has electrical transmission lines, portable water utilities, and sewerage access.

4.9.1.2 Wixom

Traffic in Wixom is generated primarily by personal operating vehicles. Regional access to Wixom is provided by I-96 traveling east to west between Lansing and Detroit, approximately one mile west of the site. Once entering the area, travelers would approach the site most efficiently via South Wixom Road or Pontiac Trail, and then onto Oak Creek Drive and into the existing facility. The facility is adjacent to a no longer used or operated rail track, and within one-half mile of a major north-south rail corridor. The existing facility has electrical transmission lines, potable water utilities, and sewerage access.

4.9.2 Effects of GM's Proposed Project

Short- and long-term minor adverse effects on transportation infrastructure and utilities would be expected from implementing GM's Proposed Project. The changes would be due to construction vehicles and small changes in localized traffic patterns from the additional personnel. The project would not noticeably affect or disrupt the normal or routine functions of public institutions, roads, electricity, and other public utilities and services in the project area; therefore, the impact would be less than the significance threshold.

4.9.2.1 White Marsh

Traffic would increase because of additional construction vehicles and traffic delays near the

construction sites. These effects would be temporary in nature and would end with the construction phase. The local roadway infrastructure would be sufficient to support any increase in construction vehicle traffic. Such effects would be minimized by placing construction staging areas where they interfere with traffic the least. All construction vehicles would be equipped with backing alarms, two-way radios, and Slow Moving Vehicle signs when appropriate.

Access to the site would be limited to a single entrance/exit from Philadelphia Road (Route 7), which would result in effects that are more noticeable on streets near the site than on any of the regional roadways. GM's Proposed Project would introduce approximately 209 permanent employees at the proposed GRE drive unit facility, when operating at maximum sustainable capacity of 40,000 units per year (annual). These personnel would constitute approximately 698 more vehicle trips per normal weekday, and less on the weekend (ITE, 2003). There would be a small increase in public bus use on routes servicing the facility. No changes in rail or air traffic would be expected. Parking would be adequate for the additional personnel.

4.9.2.2 Wixom

There would be no construction at the Wixom site. Access to the site would be limited to the existing entrance/exit on Oak Creek Drive. GM's Proposed Project would introduce approximately three employees at the validation center, over the three year project period. These personnel would constitute approximately six more vehicle trips per normal weekday, and less on the weekend (ITE, 2003). No changes in rail, bus, or air traffic would be expected. Parking would be adequate for the additional personnel.

At both sites, only a fraction of the new vehicle trips would occur during peak traffic periods. These small increases in traffic would not affect the capacity of any of nearby roadway segments or intersections. These effects would be minor. Moderate changes in the number of additional personnel would not substantially change the number of daily trips, the times of travel, or the level of impact under NEPA.

Both sites would require utility upgrades and services to support the proposed facilities; primarily electrical, water, and sewage. These improvements would be more substantial at the White Marsh facility. In the final design stages, all utility upgrades would be reviewed carefully to ensure compatibility with the site as well as local zoning ordinances. There would be limited potential to alter or disturb power or other infrastructure services to the area because of GM's Proposed Project. These effects would be minor and below the threshold of significance.

4.9.3 Effects of No-Action

Selecting the No-Action Alternative would result in no impact to infrastructure and utilities at either location. No construction or changes in facility operations would take place. Conditions would remain unchanged when compared to existing conditions (Section 4.9.1).

4.9.4 Cumulative Impacts

Cumulative impacts would not be anticipated with GM's Proposed Project. There are no

planned or reasonably foreseeable actions for either project area, which when added to the effect of GM's Proposed Project would substantially change local road use or traffic patterns. There would be limited potential to alter or disturb power or other infrastructure services to the area as a result of GM's Proposed Project. Cumulative impacts from the proposed project when added to other past, present, and reasonably foreseeable future actions would be minimally adverse and are not expected to exceed the threshold of significance.

4.10 Noise

Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise, the distance between the noise source and the receptor, receptor sensitivity, and time of day.

Sound varies by both intensity and frequency. Sound pressure level, described in decibels (dB), is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. Hertz (Hz) are used to quantify sound frequency. The human ear responds differently to different frequencies. A-weighting, described in a-weighted decibels (dBA), approximates this frequency response to express accurately the perception of sound by humans. Sounds encountered in daily life and their approximate levels in dBA are provided in Table 4.9.

Table 4.9. Common Sounds and Their Levels

Outdoor	Sound level (dBA)	Indoor
Snowmobile	100	Subway train
Tractor	90	Garbage disposal
Noisy restaurant	85	Blender
Downtown (large city)	80	Ringling telephone
Freeway traffic	70	TV audio
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator
Quiet residential area	40	Library

Source: (Harris, 1998)

The dBA noise metric describes steady noise levels. Very few noises are, in fact, constant, so a noise metric, day-night sound level (DNL) has been developed. DNL is defined as the average sound energy in a 24-hour period with a 10-dB penalty added to nighttime levels (10 p.m. to 7 a.m.). DNL is a useful descriptor for noise because it averages ongoing yet intermittent noise, and it measures total sound energy over a 24-hour period. In addition, equivalent sound level (L_{eq}) is often used to describe the overall noise environment. L_{eq} is the average sound level in dB.

The Noise Control Act of 1972 (Public Law 92-574) directs federal agencies to comply with applicable federal, state, interstate, and local noise control regulations. In 1974, the EPA provided information suggesting that continuous and long-term noise levels in excess of DNL 65

dBA are normally unacceptable for noise-sensitive land uses such as residences, schools, churches, and hospitals.

4.10.1 Description

4.10.1.1 White Marsh

The State of Maryland’s Environmental Noise Act of 1974 limits both the overall noise environment and the maximum allowable noise level in residential, industrial, and commercial areas (Table 4.10.1.1). In addition, a person may not cause or permit noise levels emanating from construction or demolition site activities that exceed 90 dBA during daytime hours (7 a.m. to 10 p.m.). Baltimore County maintains a nuisance noise ordinance; however, it does not specifically outline not-to-exceed noise levels or standards (Baltimore County, 2009).

Table 4.10.1.1. State of Maryland Overall Environmental Noise Standards			
Day/Night	Industrial	Commercial	Residential
Maximum Allowable Noise Level (Lmax)			
Day	75	67	65
Night	75	62	55
Overall Environmental Noise Standards			
24-hour	70 Leq	64 DNL	55 DNL

Source: COMAR, Title 26.02.03

Note: Daytime construction noise limits are 90 dBA for all land use categories.

Existing sources of noise near the White Marsh site include highway and local road traffic, rail traffic, high altitude aircraft, and natural noises such as leaves rustling and bird vocalizations. The site is one-half mile west of I-95 and is adjacent to a major north-south rail corridor. There are no nearby airfields.

4.10.1.2 Wixom

The State of Michigan does not maintain a statewide noise regulation. Wixom maintains a nuisance noise ordinance; however, it does not specifically outline not-to-exceed noise levels or standards (Wixom Municipal Code, Title 18 - Zoning).

Existing sources of noise near the Wixom site include highway and local road traffic, rail traffic, high altitude aircraft, and natural noises such as leaves rustling and bird vocalizations. The site is one-half mile north of I-96 and is adjacent to a major north-south rail corridor. There are no nearby airfields.

Existing noise levels (DNL and L_{eq}) were estimated for both sites and surrounding areas using the techniques specified in the *American National Standard Quantities and Procedures for Description and Measurement of Environmental Sound Part 3: Short-term measurements with an observer present* (ANSI, 2003). Table 4.10.1.2 outlines the closest noise-sensitive areas such as residents, schools, churches, and hospitals, and the estimated existing noise levels at each location. Notably, both areas are primarily industrial commercial and there are no residences, churches, schools, or hospitals within one-half mile of either site.

Table 4.10.1.2. Estimated Existing Noise levels at Nearby Noise-Sensitive Areas

Site	Closest noise-sensitive area			Estimated existing sound levels (dBA)		
	Distance	Direction	Type	DNL	L _{eq} (Daytime)	L _{eq} (Nighttime)
White Marsh Site	2,600 feet (ft) (780 meters (m))	South	Quiet Urban Residential	55	56	50
	3,400 ft (1,000 m)	Southeast				
Wixom Facility Site	4,500 ft (1,400 m)	North	Commercial, Industrial, and Normal Urban Residential	58	58	52
	6,350 ft (2,500 m)	West				

Source: (ANSI, 2003)

4.10.2 Effects of GM’s Proposed Project

Short-term, minor, and adverse effects on the noise environment would be expected. Noise levels would not exceed federal, state, or local noise standards. Minor increases in noise would be primarily from using heavy equipment during construction at the White Marsh Site. Noise from facility operations at both locations would be negligible.

GM’s Proposed Project would require the construction of new facilities at the White Marsh site. Individual pieces of construction equipment typically generate noise levels of 80 to 90 dBA at a distance of 50 feet (Table 4.10.2). With multiple items of equipment operating concurrently, noise levels can be relatively high during daytime periods at locations within several hundred feet of active construction sites. The zone of relatively high construction noise levels typically extends to distances of 400 to 800 feet from the site of major equipment operations. There are no residences closer than 800 feet to the site that would experience appreciable amounts of construction noise. Given the temporary nature of the construction, and the distance to the nearest sensitive receptor, it would have a minor effect and would be below the threshold of significance.

Table 4.10.2. Noise Levels Associated with Outdoor Construction

Construction Phase	dBA L _{eq} at 50 ft from Source
Ground Clearing	84
Excavation, Grading	89
Foundations	78
Structural	85
Finishing	89

Source: (USEPA, 1974).

Although construction-related noise effects would be minor, contractors would limit construction to occur primarily during normal weekday business hours, and properly maintain construction equipment mufflers. It is not expected, therefore, that construction noise would violate the state or local noise ordinances. Noise effects on construction personnel could be limited by ensuring

that all personnel wear adequate personal hearing protection to limit exposure and ensure compliance with federal health and safety regulations.

Operation of the proposed GRE drive unit facility and validation center would not generate disruptive noise levels at the adjacent noise sensitive area. All equipment would be completely enclosed in the proposed facility. In the final design stages, care would be taken to insure compliance with federal, state, and local noise regulations.

4.10.3 Effects of No-Action

Selecting the No-Action Alternative would result in no effect on the ambient noise environment at either location. No construction would be expected. Ambient noise conditions would remain as described in Section 4.10.1.

4.10.4 Cumulative Impacts

GM's Proposed Project would introduce short-term incremental increases to the noise environment. These changes would be minor and temporary. Also, taken as a whole, the cumulative impacts from the proposed project when added to other past, present, and reasonably foreseeable future actions would be minimally adverse and are not expected to exceed the threshold of significance.

4.11 Human Health and Safety

4.11.1 Description

Air pollution causes human health problems. Air pollution can cause breathing problems; throat and eye irritation; cancer; birth defects; and damage to immune, neurological, reproductive, and respiratory systems (USEPA, 2009b). National and state ambient air quality standards represent the maximum allowable atmospheric concentrations that may occur while still protecting public health and welfare with a reasonable margin of safety (See Section 4.1). In addition, OSHA regulations specify appropriate protective measures for all employees.

Spills from the construction of GM's Proposed Project and its operation could also be a source of possible impacts to human health and safety. Spills can introduce soil contamination and allow exposure pathways to workers and the public. The risks and effects of a spill depend on its composition. Similarly, waste management also is a source of possible human health and safety risks from exposure to contaminants (See Section 4.12).

A primary concern to human health and safety within the project area would be industrial accidents. Although the proposed project would be using innovative technology, the new building construction and operation would not present unusual risks for the workers due to the BMPs and safety protocols present and the similar nature to the tasks already occurring. Thus, the workers on the project would be subject to the same types of health risks that are generally associated with their professions. The most fatalities of any industry in the private sector in 2008 occurred in the construction industry with 404 deaths in 2008 (BLS, 2009b). The construction

incident rate of total recordable cases of non-fatal occupational injuries and illnesses in 2008 was 4.7 per 100 full-time workers. The motor vehicle electrical and electronic equipment manufacturing industry had an incidence rate of total recordable cases of non-fatal occupational injuries and illnesses in 2008 of 3.7 per 100 full-time workers (BLS, 2009c).

4.11.2 Effects of GM's Proposed Project

The objective of the proposed three-year project is to construct and validate a high-volume U.S. manufacturing facility to produce the first U.S.-manufactured electric motor components facility and assemble a second-generation Global Rear-Wheel Drive Electric drive unit, at GMs White Marsh, Maryland site. As a part of this program, an Electric Motor Manufacturing Process Validation Center would be set up within an existing facility in Wixom, Michigan.

General Motors has a global safety program applicable for all its facilities. This program includes a plant safety review board, safe operating practices, periodic safety observation tours, incident investigation, and an employee safety concern process (GM, 2005a). The purpose of these programs is to establish a robust health & safety leadership culture that eliminates or mitigates health and safety risks.

If GM's Proposed Project were implemented, the equipment and operations used in the project should only present minimal risks to human health and safety when operated under normal conditions and equipment is maintained. Thus, if BMPs, maintenance, and regulations are followed, the equipment should pose little impact to human health and safety. All personnel would be trained regarding the safety measures and procedures (such as handling hazardous materials) associated with the job. All necessary safety equipment would be worn during operating hours or while on the premises. If necessary, the GM safety manual would be updated. Following safety protocols and other necessary measures would minimize occupational hazards.

GM's Proposed Project would cause some increase in traffic, which increases the potential for accidents. The expected increase in the number of trips due to GM's Proposed Project from the current level of vehicle activity is minor. The current roads near the site should be able to handle the increase in vehicles associated with this project. Thus, the impact to human health and safety from the increase in transportation is not expected to exceed the level of significance threshold (See Section 4.9).

Air emissions from GM's Proposed Project are anticipated to be less than significant (See Section 4.1). Thus, the impacts to human health from air emissions would not be expected to exceed the significance threshold. Following mitigation measures and BMPs would reduce any impacts to human health from air quality. Further, workers would follow OSHA procedures, which would further reduce the impact to human health. Therefore, there would be a minimal risk to human health and safety as long as safety procedures are followed.

The soils are not highly erodible (See Section 4.2); therefore, water contamination from increased runoff, which could lead to human health and safety risks, is not a major issue (See Section 4.3). If significant changes were to occur to stormwater runoff, a new or modified NPDES permit would be required. Further, wastewater would be collected and treated according

to applicable regulations and by qualified personnel (Section 4.3). Therefore, the overall effect of GM's Proposed Project to surface water quality would not be expected to exceed the significance threshold.

If safety procedures and BMPs were followed, spills and leaks from equipment and processes (other than the hazardous wastes) would be of small volumes as well as nonhazardous and non-toxic. This would represent a low risk to human health and safety. Under normal conditions, hazardous and toxic materials can be used safely when appropriate safety precautions are followed. Some hazardous materials would be used/created during the project but in quantities small enough maintain small generator status. Maryland does not recognize conditionally exempted small quantity generators. All generated waste materials would be handled and disposed in accordance with applicable regulations.

With regard to the handling of hazardous materials, GM effectively controls chemicals and exposure with the GM Hazardous Materials Control Program developed to protect health, safety and the environment. GM has documented, validated, and fully implemented plans for managing the life-cycle of chemicals and materials used in GM manufacturing processes and facilities. This includes procurement, storage, use, disposal or reuse as well as a plan to limit exposure to hazardous chemicals based on GM Global Air Sampling Plans and Occupational Exposure Guidelines (GM, 2005b).

Appropriate monitoring equipment and systems that are consistent with all BMPs and regulations would be in place for the materials and wastes produced. This operating procedure would detect leaks and equipment malfunctions to ensure the safety of the workers and enable appropriate early responses to any problems. This would reduce the risk to human health and safety on the site as well as in the local community. As a further precaution, and when necessary as required by regulatory mandate, the local communities and other relevant agencies would be notified of the materials present so that appropriate emergency plans could be modified.

Facility decommissioning would represent the same types of risks as the operation. Thus, with proper safety procedures, the impact to human health and safety should be minimal. Appropriate BMPs and adherence to regulations would minimize the risks present with project implementation. Therefore, the overall impact to human health and safety would not be expected to exceed the significance threshold.

4.11.3 Effects of No-Action

Under the No-Action Alternative, there would be no construction, operation, or decommissioning of the proposed project. Thus, none of the risks listed in the previous section would occur, which would mean no impacts to human health and safety. The exception would be the fact that GM's Proposed Project's purpose, which is to further the research and manufacture of advanced electric drive systems while providing economic stimulation, would not be implemented. However, many other projects are in operation or being proposed to assist in the EDV technology and stimulate the economy. Thus, all possible issues with delaying the advancement of EDV research and economic stimulation would not be attributable to implementing the No-Action Alternative (DOE refusing to fund GM's Proposed Project) for this

project. Nevertheless, while the No-Action Alternative does represent some risk to human health and safety through the lack of EDV system manufacturing, impacts to human health and safety from implementing the No-Action Alternative would be expected to be below the significance threshold.

4.11.4 Cumulative Effects

The cumulative impacts of existing activities in and around the project area do not represent a substantial risk to human health and safety with existing and upcoming mitigation and safety procedures in place. Further, the proposed project would contribute minimally to cumulative impacts due to the minimal risk to human health and safety with BMPs in place. Therefore, the cumulative impacts with implementing GM's Proposed Project would not be expected to exceed the significance threshold.

Since the current projects in the area do not pose a substantial risk to human health and safety, the No-Action Alternative does not represent any additional risks to human health and safety. As described in the previous section, the exception is that not implementing GM's Proposed Project (thus, implementing the No-Action Alternative) would have an adverse impact on the progress towards solutions for electric drive system manufacturing and economic stimulus. However, since this is a single project of many, the cumulative impacts to human health and safety for the No-Action Alternative are not expected to exceed the threshold of significance.

4.12 Waste Management

4.12.1 Description

4.12.1.1 White Marsh

The GM Baltimore Allison Transmission Plant in Maryland is identified by the USEPA as a conditionally exempt small quantity generator (CESQG) of hazardous waste under identification number MDR000019596 (USEPA, 2009c). In 2009, only one hazardous waste shipment was sent, which was 200 pounds of aerosol cans Manifest #002563125 FLE. Clean Harbors Environmental Services, Inc is the hauler (EPA# MAD039322250). This waste went through the Clean Harbors of Baltimore facility (MDD980555189) and eventually disposed/recycled at Clean Harbors Eldorado LLC (ARD069748192) in Eldorado, Arkansas. No hazardous waste shipments have been sent in 2010. Clean Harbors of Baltimore is used by Baltimore Transmission plant for disposing of hazardous wastes and some non-hazardous waste streams. The present hazardous waste streams are not and should not be associated with the GRE, since Baltimore is in the process of eliminating the use of aerosol cans. Any hazardous wastes generated during the manufacturing of the GRE would be dealt with upon determination (Seibert, 2010).

The White Marsh facility manufactures vehicle parts and accessories, electrical equipment for internal combustion engines, aluminum die castings, and plastics products. As a CESQG the facility generates less than 220 pounds (100 kilograms) of hazardous waste per calendar month. The State of Maryland does not have a CESQG status and therefore classifies generators of less

than 220 pounds (100 kilograms) hazardous waste per calendar month as small quantity generators (SQG). The waste stream includes used oil filters, waste oil, solvents, and sludge filter media. The White Marsh facility has been operating at reduced capacity since 2007 (GM, 2009a). The White Marsh facility does not dispose of any of its waste in a landfill as such it is a landfill free facility. Most of the non-hazardous materials associated with the GM Wixom and White Marsh facilities operations are recycled (Seibert, 2009).

4.12.1.2 Wixom

The GM Powertrain Wixom Facility in Michigan is identified by the USEPA as a SQG of hazardous waste under identification number MIK782625164. The Wixom facility manufactures vehicle engines and provides engineering for future engines and transmissions (does not manufacture parts and accessories). As a SQG, the facility generates between 220 and 2,200 pounds (100 and 1,000 kilograms) of solid hazardous waste each calendar month. The waste stream includes petroleum naphtha, waste absorbents, used batteries, and used oil filters. The facility has been operating at reduced capacity since 2007 (GM, 2009b). US Industrial Technologies, Inc. (MIK757944491) handles the hazardous waste at this site, and they use the following vendors:

- Dynecol: MID 074 259 565,
- PSC: MID 980 991 566,
- EQ DET: MID 980 991 566,
- EQ MDI: MID 000 724 831, and
- EQ WDI: MID 048090633 (Siebert, 2010).

The only consistent waste stream is aerosol cans. Those go to PSC for incineration while the other vendors were used for lab packs. Safety Kleen does the parts washers, which is non-hazardous (Seibert, 2010). Most of the non-hazardous materials associated with the GM Wixom and White Marsh facilities operations are recycled (Seibert, 2009). Types of non-hazardous solid waste generally include office trash, paper, scrap metal, aluminum borings, wood, cardboard, and plastics. Materials that are not recycled are sent off-site for energy recovery and are not disposed of in a landfill. The Wixom facility does not dispose of any of its waste in a landfill. Both Wixom and White Marsh facilities are landfill free facilities.

4.12.2 Effects of GM's Proposed Project

Construction activities present the potential to encounter previously unidentified contaminated soils or groundwater. Based on a database search of known locations of hazardous sources and reported activity near the GM facility at White Marsh, the likelihood of encountering contamination is low and impacts from contaminants expected during construction would be negligible. Small amounts of potentially hazardous waste materials (e.g., waste oils, lubricants, solvents, cleaners, paints) would be generated during construction but proper use and storage of the materials would ensure no impact to workers and the environment. Use or storage of hazardous materials on site during construction would be in accordance with applicable regulations, and appropriate spill prevention measures would be implemented. If hazardous materials are spilled or deposited on the site during or after construction, the responsible party

would immediately notify appropriate regulatory parties, take all necessary actions to clean up and properly dispose of the materials, and complete all reporting requirements.

Operations at the Wixom and White Marsh facilities are not expected to generate hazardous waste of a different type or amount than what is currently generated or was generated at the facilities at full operational capacity, and therefore, no changes to GM's status as a SQG at Wixom and CESQG at White Marsh are anticipated. Although not expected, less than 1 ton (0.9 metric ton) annually, or on average less than 200 pounds (90 kilograms) per month, could be generated from the development and validation of the electrical motor components at Wixom (GM, 2009b). Minor amounts of hazardous wastes (code D001, which generally are solvents) may be generated at the White Marsh facility from the manufacturing process (GM, 2009a), having a negligible impact on accumulation quantities or time limits, or frequency of off-site transport. GM's emergency response procedures and spill contingency plans would be updated at the Wixom facility to address the new process.

Increases in office trash are expected with the additional 209 employees expected to operate the new facility at White Marsh. Non-hazardous solid waste generated by the new manufacturing process would be approximately 700 tons (635 metric tons) annually from the White Marsh facility (GM, 2009a), and approximately 124 tons (112.5 metric tons) annually from the Wixom facility (GM, 2009b). All of the non-hazardous solid waste generated is recycled, and thus, the amount of solid waste requiring disposal by the new development, validation, and manufacturing processes would be a negligible impact on the volume received. The Wixom facility is anticipated to be operating at its historic capacity with GM's Proposed Project, and therefore, impacts on solid waste generation and disposal would be negligible. The solid waste generated at the White Marsh facility is anticipated to be similar to the amount generated by past manufacturing at full production rates (GM, 2009a), and thus, any impact from disposal would be negligible. Therefore, overall impacts to waste management from implementing this alternative would be expected to be less than the significance threshold.

4.12.3 Effects of No-Action

The retrofit of the existing Wixom facility and construction of a new manufacturing facility at White Marsh would not occur under the No-Action Alternative. There would be no new development, validation, and manufacturing processes affecting the management of existing hazardous and solid waste at these facilities.

4.12.4 Cumulative Impacts

Increased manufacturing of parts for electric drive vehicles would have a cumulative beneficial effect on the environment from improved electric drive vehicles. There are no reasonably foreseeable projects in the vicinity of either facility that would have similar effects as GM's Proposed Project. Cumulative impacts from the proposed project when added to other past, present, and reasonably foreseeable future actions would be minimally adverse and are not expected to exceed the threshold of significance.

4.13 Sustainability

Executive Order (EO) 13541 on Federal Sustainability issued on 5 October 2009, states in part that it is the **policy** of the Federal government “*to create a clean energy economy*” and that “*Federal agencies shall increase energy efficiency; measure, report, and reduce their greenhouse gas emissions from direct and indirect activities; conserve and protect water resources through efficiency, reuse, and stormwater management; eliminate waste, recycle, and prevent pollution; ...design, construct, maintain, and operate high performance sustainable buildings in sustainable locations; and strengthen the vitality and livability of the communities in which Federal facilities are located.*”

Section 2(f)(iv) of the EO states that each agency shall “*advance regional and local integrated planning by ... identifying and analyzing impacts from energy usage and alternative energy sources in all Environmental Impact Statements and Environmental Assessments for proposals for new or expanded Federal facilities under the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.)*.”

GM’s Proposed Project reviewed by this EA is part of a larger national effort to move this country to a more sustainable future. Efforts are underway to begin the move from non-renewable fuel sources to renewable fuel sources to power our economy. A major part of that non-renewable fuel use is in personal transportation and the use of internal combustion engines in our automobiles. A shift to electric vehicles can be viewed as viable means to a more sustainable future.

General Motors hopes to do its part in this national move to a sustainable future. The action proposed and reviewed in this EA is a part of that effort. If initiated, not only would this project assist in the development of the viable use of electric vehicles but also GM would implement specific project designs that would increase the sustainability of the proposed project. For example, it is the intent of General Motors to add a reclamation system (provides fluid dehydration, filtration, and temperature stabilization) to reclaim synthetic oil from drive unit test stands as an integral part of the project.

5.0 CONSULTATION AND COORDINATION

A kick-off meeting was held on October 20, 2009, at NETL office in Morgantown, West Virginia, with representatives from NETL and Mangi Environmental Group to begin formally the EA process. Subsequent to that meeting, a review was made of available information necessary for the completion of the EA and data gaps were sent to NETL and General Motors.

5.1 Agency Coordination

The CEQ's regulations for implementing NEPA allows federal agencies to invite comment from Tribal, state, and local agencies, as well as other federal agencies in the preparation of EAs. The purpose of this coordination is to obtain special expertise with respect to environmental and cultural issues in order to enhance interdisciplinary capabilities and otherwise ensure successful, effective consultation in decision-making. The below entities were contacted for this effort.

5.1.1 U.S. Fish and Wildlife Service (USFWS)

The mission of the USFWS is to conserve, protect, and enhance fish, wildlife, and plants and their habitats for the continuing benefit of American people. Consultation with USFWS also assists with the Endangered Species Act compliance.

See Appendix B for correspondence with this agency.

5.1.2 State Historic Preservation Office (SHPO)

The National Historic Preservation Act (NHPA) requires DOE to consult with the SHPO prior to any construction to ensure that no historical properties would be adversely affected by a proposed project. DOE must also afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed project.

See Appendix C for correspondence with this agency.

5.1.3 Bureau of Indian Affairs

The American Indian Religious Freedom Act, 42 USC § 1996, establishes policy to protect and preserve the inherent and Constitutional right of Native Americans to believe, express, and exercise their traditional religions. The law ensures the protection of sacred locations; access of Native Americans to those sacred locations and traditional resources that are integral to the practice of their religions; and establishes requirements that would apply to Native American sacred locations, traditional resources, or traditional religious practices potentially affected by construction and operation of proposed facilities.

See Appendix D for correspondence with the Bureau of Indian Affairs.

5.2 Public Involvement

The public comment period on the Draft EA was from April 4 to April 19, 2010. An article informing the public of the availability of the Draft EA at White Marsh Branch Library in White Marsh and Wixom Public Library in Wixom ran April 4 to 6 in the Baltimore Sun and The Oakland Press, respectively. DOE received the public comments found in Appendix E.

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8.0 GLOSSARY

Air-Quality Control Region - A contiguous area where air quality is relatively uniform. AQCRs may consist of two or more cities, counties or other governmental entities, and each region is required to adopt consistent pollution control measures across the political jurisdictions involved.

Ambient - The natural surroundings of a location.

Anode - The *anode* of a device is the terminal where electric current flows in.

Attainment Areas - A zone within which the level of a pollutant is considered to meet the National Ambient Air Quality Standards.

A-weighted Decibels - An expression of the relative loudness of sounds in air as perceived by the human ear.

Best Management Practices - Methods or techniques found to be the most effective and practical means in achieving an objective (such as preventing or minimizing pollution) while optimally using the firms resources.

Cathode - The *cathode* of a device is the terminal where current flows out.

Criteria Pollutants - The Clean Air Act requires EPA to set standards for six common air pollutants. These commonly found air pollutants (also known as "criteria pollutants") are found all over the United States. They are particle pollution (often referred to as particulate matter), ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead.

Cumulative Effects - Those effects on the environment that result from the incremental effect of the action when added to past, present and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions.

Day-night Sound Level - The A-weighted equivalent sound level for a 24-hour period with 10 dB added to levels between 10 P.M. to 7 A.M.

dB (Decibel) - A unit of measurement that expresses the magnitude of a physical quantity (usually intensity) relative to a specified or implied *reference level*. The decibel is useful for a wide variety of measurements in science (for this application, it is sound).

Demographics - The characteristics of human population and population segments, especially when used to describe consumer markets

EA (Environmental Assessment) - A concise public document, prepared in compliance with the National Environmental Policy Act, that briefly discusses the purpose and need for an action, alternatives to such action, and provides sufficient evidence and analysis of impacts to determine

whether to prepare an environmental impact statement or finding of no significant impact (40 CFR 1508.9).

EIS (Environmental Impact Statement) - A detailed written statement required by Section 102(2) (C) of the National Environmental Policy Act, analyzing the environmental impacts of a GM's Proposed Project, adverse effects of the project that cannot be avoided, alternative courses of action, short-term uses of the environment versus the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitment of resources (40 CFR 1508.11).

Electrolytes - In chemistry, an *electrolyte* is any substance containing free ions that make the substance electrically conductive.

Endangered Species - A species that is threatened with extinction throughout all or a significant portion of its range.

Environmental Justice - The confluence of social and environmental movements, which deals with the inequitable environmental burden borne by groups such as racial minorities, women, or residents of developing nations.

Equivalent Sound Level - The level of a steady-state noise without impulses or tone components which is equivalent to the actual noise emitted over a period of time.

Floodplain - The lowlands and relatively flat areas adjoining inland waters, including flood prone areas, which are inundated by a flood.

FONSI (Finding of No Significant Impact) - A document prepared in compliance with the National Environmental Policy Act, supported by an environmental assessment, that briefly presents why a Federal action will have no significant effect on the human environment and for which an environmental impact statement, therefore, will not be prepared (40 CFR 1508.13).

Hazardous Waste/Materials - Waste substances which can pose a substantial or potential hazard to human health or the environment when improperly managed.

Hertz - A unit of frequency equal to one cycle per second.

Invasive Species - An alien (nonnative to the ecosystem) species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Ions - An *ion* is an atom or molecule where the total number of electrons is not equal to the total number of protons, giving it a net positive or negative electric charge.

Level of Service - A measure of the effectiveness of elements of transportation infrastructure. LOS is most commonly used to analyze highways, but the concept has also been applied to intersections, transit, and water supply.

Lithium - A soft, silver-white metal that belongs to the alkali metal group of chemical elements.

Mitigation - Methods or actions taken to improve site conditions by limiting, reducing or controlling adverse impacts to the environment.

NAAQS (National Ambient Air Quality Standards) - Standards established by the USEPA that apply to outdoor air throughout the country. Primary standards are designed to protect human health, with an adequate margin of safety, including sensitive populations such as children, the elderly, and individuals suffering from respiratory disease.

National Emissions Standards for Hazardous Air Pollutants - Emissions standards set by the United States EPA for an air pollutant not covered by NAAQS that may cause an increase in fatalities or in serious, irreversible, or incapacitating illness.

Native - A species that historically occurs in an area or one that was not introduced (brought) from another area.

NEPA (National Environmental Policy Act) - Requires all agencies, including Department of Energy, to examine the environmental impacts of their actions, incorporate environmental information, and use public participation in the planning and implementation of all actions. Federal agencies must integrate NEPA with other planning requirements, and prepare appropriate NEPA documents to facilitate better environmental decision making (40 CFR 1500).

New Source Performance Standards - Pollution control standards issued by the USEPA. The term is used in the Clean Air Act to refer to air pollution emission standards, and in the Clean Water Act referring to standards for discharges of industrial wastewater to surface waters.

Nonattainment Areas - A locality where air pollution levels persistently exceed national standards or that contributes to ambient air quality in a nearby area that fails to meet standards.

Nonpoint Source Pollution - Water pollution affecting a water body from diffuse sources, rather than a point source which discharges to a water body at a single location.

NPDES (National Pollutant Discharge Elimination System) - The national program for administering permits (and pretreatment requirements) under sections 307, 402, 318, and 405 of the Clean Water Act. The term includes state or tribal approved programs.”

Overburden - The term used in mining and archaeology to describe material that lies above the area of economic or scientific interest

Particulate Matter - Small solid particles and liquid droplets in the air.

Physiographic - Pertaining to the science of physical geography.

PM₁₀ - Particulate matter less than 10 microns in diameter.

PM_{2.5} - Particulate matter less than 2.5 microns in diameter.

Pneumatic - Using pressurized gas to affect mechanical motion

Prime Farmland - Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oil seed crops and is available for these uses. Public land is land not available for farming in National forests, National parks, military reservations, and State parks.

Potential to Emit (PTE) - The maximum amount of air contaminants that your source could emit if each process is operated at 100% of its design capacity; each process operated 24 hours/day, 365 days/year; materials that emit the most air contaminants are materials that emit the most air contaminants are used or processed 100% of the time; and air pollution control equipment is turned off.

Reclamation - The process of reclaiming something from a loss or more useful condition

Refurbishment - The process of major maintenance or minor repair of an item, either aesthetically or mechanically.

Retrofit - To adapt to a new purpose or need.

Sedimentary - Formed by the deposition of sediment, as certain rocks.

State Implementation Plan - The state plan for complying with the federal Clean Air Act. A SIP consists of narrative, rules, technical documentation, and agreements that an individual state will use to clean up area not meeting the National Ambient Air Quality Standards.

Sustainability - The capacity to endure. In ecology, the word describes how biological systems remain diverse and productive over time

Threatened Species - A species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Wetland - Area inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

APPENDICES

Appendix A Air Emission Calculations

Table A-1. Construction Equipment Use				
Equipment type	Number of units	Days on site	Hours per day	Operating hours
Excavators Composite	1	58	4	230
Rollers Composite	1	87	8	692
Rubber Tired Dozers Composite	1	58	8	460
Plate Compactors Composite	2	58	4	460
Trenchers Composite	2	29	8	464
Air Compressors	2	58	4	460
Cement & Mortar Mixers	2	58	6	690
Cranes	1	58	7	403
Generator Sets	2	58	4	460
Tractors/Loaders/Backhoes	2	115	7	1610
Pavers Composite	1	29	8	232
Paving Equipment	2	29	8	464

Note: Some inconsistencies due to rounding may occur.

Table A-2. Construction Equipment Emission Factors (pounds/hour)						
Equipment	CO	NO_x	VOC	SO_x	PM₁₀	PM_{2.5}
Excavators Composite	0.5828	1.3249	0.1695	0.0013	0.0727	0.0727
Rollers Composite	0.4341	0.8607	0.1328	0.0008	0.0601	0.0601
Rubber Tired Dozers Composite	1.5961	3.2672	0.3644	0.0025	0.1409	0.1409
Plate Compactors Composite	0.0263	0.0328	0.0052	0.0001	0.0021	0.0021
Trenchers Composite	0.5080	0.8237	0.1851	0.0007	0.0688	0.0688
Air Compressors	0.3782	0.7980	0.1232	0.0007	0.0563	0.0563
Cement and Mortar Mixers	0.0447	0.0658	0.0113	0.0001	0.0044	0.0044
Cranes	0.6011	1.6100	0.1778	0.0014	0.0715	0.0715
Generator Sets	0.3461	0.6980	0.1075	0.0007	0.0430	0.0430
Tractors/Loaders/Backhoes	0.4063	0.7746	0.1204	0.0008	0.0599	0.0599
Pavers Composite	0.5874	1.0796	0.1963	0.0009	0.0769	0.0769
Paving Equipment	0.0532	0.1061	0.0166	0.0002	0.0063	0.0063

Table A-3. Construction Equipment Emissions (tons per year)						
Equipment	CO	NO_x	VOC	SO_x	PM₁₀	PM_{2.5}
Excavators Composite	0.0670	0.1524	0.0195	0.0002	0.0084	0.0084
Rollers Composite	0.1502	0.2978	0.0459	0.0003	0.0208	0.0208
Rubber Tired Dozers Composite	0.3671	0.7515	0.0838	0.0006	0.0324	0.0324
Plate Compactors Composite	0.0061	0.0076	0.0012	0.0000	0.0005	0.0005
Trenchers Composite	0.1179	0.1911	0.0429	0.0002	0.0160	0.0160
Air Compressors	0.0870	0.1835	0.0283	0.0002	0.0130	0.0130
Cement and Mortar Mixers	0.0154	0.0227	0.0039	0.0000	0.0015	0.0015
Cranes	0.1210	0.3240	0.0358	0.0003	0.0144	0.0144
Generator Sets	0.0796	0.1605	0.0247	0.0002	0.0099	0.0099
Tractors/Loaders/Backhoes	0.3271	0.6235	0.0969	0.0006	0.0482	0.0482
Pavers Composite	0.0681	0.1252	0.0228	0.0001	0.0089	0.0089
Paving Equipment	0.0123	0.0246	0.0038	0.0000	0.0015	0.0015
Total	1.42	2.86	0.41	0.0026	0.18	0.18

Table A-4. Painting			
VOC Content	0.84	pounds (lbs)/gallon	
Coverage	400	ft ² /gallon	
Emission Factor	0.0021	lbs/ft ²	
Building/Facility	Wall Surface	VOC (lbs)	VOC (tpy)
All Buildings Combined	74000	155.4	0.078
Total	74000	155.40	0.08

Table A-5. Delivery of Equipment and Supplies						
Number of Deliveries	2					
Number of Trips	2					
Miles Per Trip	30					
Days of Construction	115					
Total Miles	13800					
Pollutant	CO	NO_x	VOC	SO_x	PM₁₀	PM_{2.5}
Emission Factor (lbs/mile)	0.0219	0.0237	0.0030	0.0000	0.0009	0.0007
Total Emissions (lbs)	302.90	327.23	41.30	0.35	11.81	10.20
Total Emissions (tpy)	0.15	0.16	0.02	0.0002	0.01	0.01
Source: (CARB, 2007)						

Table A-6. Surface Disturbance						
TSP Emissions	80	lb/acre				
PM ₁₀ /TSP	0.45					
PM _{2.5} /PM ₁₀	0.15					
Period of Disturbance	30	days				
Capture Fraction	0.5					
Building/Facility	Area (acres)	TSP (lbs)	PM₁₀ (lbs)	PM₁₀ (tons)	PM_{2.5} (lbs)	PM_{2.5} (tons)
Demolition	0.9	2042	919	0.46	69	0.03
Total	0.9	2042	919	0.46	69	0.03
Sources: (USEPA, 1995; USEPA, 2005) Note: TSP is Total Suspended Particles.						

Table A-7. Worker Commutes						
Number of Workers	50					
Number of Trips	2					
Miles Per Trip	30					
Days of Construction	115					
Total Miles	345000					
Pollutant	CO	NO_x	VOC	SO_x	PM₁₀	PM_{2.5}
Emission Factor (lbs/mile)	0.0105	0.0011	0.0011	0.0000	0.0001	0.0001
Total Emissions (lbs)	3639.21	380.49	372.32	3.71	29.34	18.26
Total Emissions (tpy)	1.82	0.19	0.19	0.0019	0.01	0.01
Source: (CARB, 2007)						

Table A-8. Total Construction Emissions (tons per year)						
Activity/Source	CO	NO_x	VOC	SO_x	PM₁₀	PM_{2.5}
Construction Equipment	1.42	2.86	0.41	0.0026	0.18	0.18
Painting	0.00	0.00	0.08	0.0000	0.00	0.00
Delivery of Equipment and Supplies	0.15	0.16	0.02	0.0002	0.01	0.01
Surface Disturbance	0.00	0.00	0.00	0.0000	0.46	0.03
Worker Commutes	1.82	0.19	0.19	0.0019	0.01	0.01
Total Construction Emissions	3.39	3.22	0.69	0.0046	0.66	0.22

Table A-9. Boiler Emissions						
Gross Area	37000	ft ²				
Heating Requirements	99000	BTU/ft ²				
Total Annual Heat Required	3663	MMBTU				
Heating Value	150	MMBTU/1,000 Gallons				
Total #2 Oil Used	24.4	Thousand Gallons				
Pollutant	CO	NO_x	VOC	SO_x	PM₁₀	PM_{2.5}
Emission Factor (lbs/1,000 gal)	5	24	2.493	0.1	2	2
Total Emissions (tons)	0.06	0.29	0.03	0.00	0.02	0.02

Notes: Emission factors for all pollutants were obtained from EPA's AP-42, Section 1.3 (USEPA, 1995); Conservatively assume that PM₁₀ = PM; Assumed sulfur concentration 1%; and Heating requirements obtained from Commercial Buildings Energy Consumption Survey, (DOE, 2003). Also, BTU is British Thermal Units, and MMBTU is Million British Thermal Units. Emission estimations assume the use of #2 oil. It is likely that natural gas fired space heaters would be used in the new building. Therefore, emissions would likely less than those shown herein.

Table A-10. Worker Commutes						
Number of Workers	209					
Number of Trips	2					
Miles Per Trip	30					
Days of Work	260					
Total Miles	3260400					
Pollutant	CO	NO_x	VOC	SO_x	PM₁₀	PM_{2.5}
Emission Factor (lbs/mile)	0.0105	0.0011	0.0011	0.0000	0.0001	0.0001
Total Emissions (lbs)	34392.12	3595.84	3518.60	35.04	277.31	172.57
Total Emissions (tons)	17.20	1.80	1.76	0.02	0.14	0.09

Source: (CARB, 2007)

Table A-11. Total Operational Emissions (tons)						
Activity/Source	CO	NO _x	VOC	SO _x	PM ₁₀	PM _{2.5}
Boiler Emissions	0.06	0.29	0.03	0.00	0.02	0.02
Worker Commutes	17.20	1.80	1.76	0.02	0.14	0.09
Varnish Application Process	0.00	0.00	18.00	0.00	0.00	0.00
Total Operational Emissions	17.26	2.09	19.79	0.02	0.16	0.11

Appendix B USFWS Consultation



NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR • Morgantown, WV • Pittsburgh, PA



November 18, 2009

U.S. Fish and Wildlife Service
177 Admiral Cochrane Drive
Annapolis, MD 21401

Subject: U.S. Electric Drive Manufacturing Center – Global Rear-Wheel Drive (RWD)
Electric Validation Center at its White Marsh, Maryland Facility

Dear Sir or Madam:

The Department of Energy's (DOE) National Energy Technology Laboratory (NETL) manages the research and development portfolio of the Vehicle Technologies (VT) Program for the Office of Energy Efficiency and Renewable Energy. A key objective of the VT program is accelerating the development and production of electric drive vehicle systems in order to substantially reduce the United States' consumption of petroleum. Another of its goals is the development of production-ready batteries, power electronics, and electric machines that can be produced in volume economically so as to increase the use of electric drive vehicles.

Congress appropriated significant funding for the VT program in the American Recovery and Reinvestment Act of 2009, Public Law 111-5 (Recovery Act) in order to stimulate the economy and reduce unemployment in addition to furthering the existing objectives of the VT program. NETL is considering funding the proposed U.S. Electric Drive Manufacturing Center – Global Rear-Wheel Drive (RWD) Electric Validation Center as one of 30 DOE selected for funding under the Recovery Act.

The objective of the proposed three-year project is to construct and validate a high-volume U.S. manufacturing facility to produce the first U.S.-manufactured electric motor components and assemble a second-generation global RWD electric drive unit, designated "GRE." The GRE motor design requires significant advances in manufacturing process technology because of the complexities of the motor components. Therefore, a supporting objective is to develop and validate novel motor manufacturing technology.

General Motors proposes to design and construct a new building to house the GRE motor component production facility at its White Marsh, Maryland site (see attached vicinity map). The new GRE drive unit assembly area would occupy approximately 37,000 square feet (3,400 square meters) within the footprint of that existing facility property (see attached site map).

As part of our coordination and consultation responsibilities and to comply with both Section 7 of the Endangered Species Act of 1973, as amended, and provisions of the Fish & Wildlife Coordination Act, we would appreciate receiving any information you have on important wildlife resources, including endangered and threatened species or critical habitat, in the project area.

Based on the scope of the proposed project, DOE plans to prepare an Environmental Assessment (EA), in accordance with requirements of the National Environmental Policy Act, to analyze,

626 Cochran Mill Road, P.O. Box 10940, Pittsburgh, PA 15236

document, and disseminate information on the potential environmental consequences of the proposed project. Information that you provide will be incorporated and appropriately addressed in the EA. If your initial review concludes that no endangered or threatened species (or their habitat) are present in the project area and that neither protected species nor their habitat would be affected by the proposed action, a written acknowledgement of that conclusion would be appreciated. In any case, the information that you provide will be considered in preparing a draft EA, which will be provided to you for review upon availability.

Should you require additional information, please contact me by telephone at (412) 386-5428 or by email at pierina.fayish@netl.doe.gov.

Sincerely,



Pierina Fayish
NEPA Document Manager

Enclosures



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
410/573-4575



January 6, 2010

National Energy Technology Laboratory
626 Cochran Mill Road
P.O. Box 10940
Pittsburg, PA 15236

*RE: U.S. Electric drive Manufacturing center Global Rear Wheel drive Electric Validation
Center White Marsh MD Facility*

Dear: Pierina Fayish

This responds to your letter, received December 2, 2009, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the vicinity of the above reference project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project impact area. Therefore, no Biological Assessment or further section 7 Consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species, you should contact Lori Byrne of the Maryland Wildlife and Heritage Division at (410) 260-8573.

Effective August 8, 2007, under the authority of the Endangered Species Act of 1973, as amended, the U.S. Fish and Wildlife Service (Service) removed (delist) the bald eagle in the lower 48 States of the United States from the Federal List of Endangered and Threatened Wildlife. However, the bald eagle will still be protected by the Bald and Golden Eagle Protection Act, Lacey Act and the Migratory Bird Treaty Act. As a result, starting on August 8, 2007, if your project may cause "disturbance" to the bald eagle, please consult the "National Bald Eagle Management Guidelines" dated May 2007.

If any planned or ongoing activities cannot be conducted in compliance with the National Bald Eagle Management Guidelines (Eagle Management Guidelines), please contact the Chesapeake Bay Ecological Services Field Office at 410-573-4573 for technical assistance. The Eagle

Management Guidelines can be found at:

<http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf>.

In the future, if your project can not avoid disturbance to the bald eagle by complying with the Eagle Management Guidelines, you will be able to apply for a permit that authorizes the take of bald and golden eagles under the Bald and Golden Eagle Protection Act, generally where the take to be authorized is associated with otherwise lawful activities. This proposed permit process will not be available until the Service issues a final rule for the issuance of these take permits under the Bald and Golden Eagle Protection Act.

An additional concern of the Service is wetlands protection. Federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Basin's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers, Baltimore District, should be contacted for permit requirements. They can be reached at (410) 962-3670.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interests in these resources. If you have any questions or need further assistance, please contact Devin Ray at (410) 573-4531.

Sincerely,



Leopoldo Miranda
Field Supervisor

Appendix C SHPO Consultation



NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR • Morgantown, WV • Pittsburgh, PA



November 18, 2009

J. Rodney Little, Director & State Historic Preservation Officer
Department of Planning
MD Historical Trust - Crownsville Office
100 Community Place
Crownsville, MD 21032-2023

Subject: U.S. Electric Drive Manufacturing Center – Global Rear-Wheel Drive (RWD) Electric Validation Center at its White Marsh, Maryland Facility

Dear Mr. Little:

The Department of Energy's (DOE) National Energy Technology Laboratory (NETL) manages the research and development portfolio of the Vehicle Technologies (VT) Program for the Office of Energy Efficiency and Renewable Energy. A key objective of the VT program is accelerating the development and production of electric drive vehicle systems in order to substantially reduce the United States' consumption of petroleum. Another of its goals is the development of production-ready batteries, power electronics, and electric machines that can be produced in volume economically so as to increase the use of electric drive vehicles.

Congress appropriated significant funding for the VT program in the American Recovery and Reinvestment Act of 2009, Public Law 111-5 (Recovery Act) in order to stimulate the economy and reduce unemployment in addition to furthering the existing objectives of the VT program. NETL is considering funding the proposed U.S. Electric Drive Manufacturing Center – Global Rear-Wheel Drive (RWD) Electric Validation Center as one of 30 DOE selected for funding under the Recovery Act.

The objective of the proposed three-year project is to construct and validate a high-volume U.S. manufacturing facility to produce the first U.S.-manufactured electric motor components and assemble a second-generation global RWD electric drive unit, designated "GRE." The GRE motor design requires significant advances in manufacturing process technology because of the complexities of the motor components. Therefore, a supporting objective is to develop and validate novel motor manufacturing technology.

General Motors proposes to design and construct a new building to house the GRE motor component production facility at its White Marsh, Maryland site (see attached vicinity map). The new GRE drive unit assembly area would occupy approximately 37,000 square feet (3,400 square meters) within the footprint of that existing facility property (see attached site map).

As part of our coordination and consultation responsibilities and to comply with the implementing provisions of Section 106 of the National Historic Preservation Act of 1966, we would appreciate receiving any information you have regarding historic or cultural properties in the project area.

Based on the scope of the proposed project, DOE plans to prepare an Environmental Assessment (EA), in accordance with requirements of the National Environmental Policy Act, to analyze, document, and

disseminate information on the potential environmental consequences of the proposed project. Information that you provide will be incorporated and appropriately addressed in the EA. If your initial review concludes that no historic or cultural properties are present in the project area and that neither historic nor cultural properties would be affected by the proposed action, a written acknowledgement of that conclusion would be appreciated. In any case, the information that you provide will be considered in preparing a draft EA, which will be provided to you for review upon availability.

Should you require additional information, please contact me by telephone at (412) 386-5428 or by email at pierina.fayish@netl.doe.gov.

Sincerely,



Pierina Fayish
NEPA Document Manager

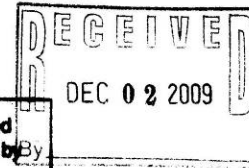
Enclosures



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NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR • Morgantown, WV • Pittsburgh, PA



November 18, 2009



J. Rodney Little, Director & State Historic Preservation Officer
Department of Planning
MD Historical Trust - Crownsville Office
100 Community Place
Crownsville, MD 21032-2023

The Maryland Historical Trust has determined that there are no historic properties affected by this undertaking.

By: Jonathan Sigs Date: 1/3/10

Subject: U.S. Electric Drive Manufacturing Center – Global Rear-Wheel Drive (RWD) Electric Validation Center at its White Marsh, Maryland Facility

AKRA

BA Co.

Miranda Little

Dear Mr. Little:

The Department of Energy's (DOE) National Energy Technology Laboratory (NETL) manages the research and development portfolio of the Vehicle Technologies (VT) Program for the Office of Energy Efficiency and Renewable Energy. A key objective of the VT program is accelerating the development and production of electric drive vehicle systems in order to substantially reduce the United States' consumption of petroleum. Another of its goals is the development of production-ready batteries, power electronics, and electric machines that can be produced in volume economically so as to increase the use of electric drive vehicles.

Congress appropriated significant funding for the VT program in the American Recovery and Reinvestment Act of 2009, Public Law 111-5 (Recovery Act) in order to stimulate the economy and reduce unemployment in addition to furthering the existing objectives of the VT program. NETL is considering funding the proposed U.S. Electric Drive Manufacturing Center – Global Rear-Wheel Drive (RWD) Electric Validation Center as one of 30 DOE selected for funding under the Recovery Act.

The objective of the proposed three-year project is to construct and validate a high-volume U.S. manufacturing facility to produce the first U.S.-manufactured electric motor components and assemble a second-generation global RWD electric drive unit, designated "GRE." The GRE motor design requires significant advances in manufacturing process technology because of the complexities of the motor components. Therefore, a supporting objective is to develop and validate novel motor manufacturing technology.

General Motors proposes to design and construct a new building to house the GRE motor component production facility at its White Marsh, Maryland site (see attached vicinity map). The new GRE drive unit assembly area would occupy approximately 37,000 square feet (3,400 square meters) within the footprint of that existing facility property (see attached site map).

As part of our coordination and consultation responsibilities and to comply with the implementing provisions of Section 106 of the National Historic Preservation Act of 1966, we would appreciate receiving any information you have regarding historic or cultural properties in the project area.

Based on the scope of the proposed project, DOE plans to prepare an Environmental Assessment (EA), in accordance with requirements of the National Environmental Policy Act, to analyze, document, and

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Appendix D Contact with the Bureau of Indian Affairs



NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR · Morgantown, WV · Pittsburgh, PA



November 13, 2009

Bureau of Indian Affairs, Eastern Regional Office
545 Marriott Drive, Suite 700
Nashville, TN 37214

Subject: U.S. Electric Drive Manufacturing Center – Global Rear-Wheel Drive (RWD) Electric Validation Center at its White Marsh, Maryland Facility

Dear Sir or Madam:

The Department of Energy's (DOE) National Energy Technology Laboratory (NETL) manages the research and development portfolio of the Vehicle Technologies (VT) Program for the Office of Energy Efficiency and Renewable Energy. A key objective of the VT program is accelerating the development and production of electric drive vehicle systems in order to substantially reduce the United States' consumption of petroleum. Another of its goals is the development of production-ready batteries, power electronics, and electric machines that can be produced in volume economically so as to increase the use of electric drive vehicles.

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The objective of the proposed three-year project is to construct and validate a high-volume U.S. manufacturing facility to produce the first U.S.-manufactured electric motor components and assemble a second-generation global RWD electric drive unit, designated "GRE." The GRE motor design requires significant advances in manufacturing process technology because of the complexities of the motor components. Therefore, a supporting objective is to develop and validate novel motor manufacturing technology.

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As part of our coordination and consultation responsibilities and to comply with the implementing provisions of The American Indian Religious Freedom Act, 42 United States Code § 1996, we would appreciate receiving any information you have regarding Native American sacred locations, traditional resources, or traditional religious practices potentially affected by the proposed project.

Based on the scope of the proposed project, DOE plans to prepare an Environmental Assessment (EA), in accordance with requirements of the National Environmental Policy Act, to analyze, document, and disseminate information on the potential environmental consequences of the proposed project.

Information that you provide will be incorporated and appropriately addressed in the EA. If your initial review concludes that no Native American sacred locations, traditional resources, or traditional religious practices would potentially be affected by the proposed project, a written acknowledgement of that conclusion would be appreciated. In any case, the information that you provide will be considered in preparing a draft EA, which will be provided to you for review upon availability.

Should you require additional information, please contact me by telephone at (412) 386-5428 or by email at pierina.fayish@netl.doe.gov.

Sincerely,



Pierina Fayish
NEPA Document Manager

Enclosures

Appendix E Public Comments Received



Maryland Department of Planning

Martin O'Malley
Governor
Anthony G. Brown
Lt. Governor

Richard Eberhart Hall
Secretary
Matthew J. Power
Deputy Secretary

April 14, 2010

M' Pierina Fayish
NEPA Document Manager
National Energy Technology Laboratory
626 Cochrans Mill Road
P.O. Box 10940
Pittsburgh, PA 15236

STATE CLEARINGHOUSE REVIEW PROCESS

State Application Identifier: MD20100414-0273

Project Description: Draft E.A. General Motors LLC Electric Drive Vehicle Battery and Component Manufacturing Initiative: design, construct new building dedicated to technology and equipment to make electric motors: +/- 37,000 square feet

Project Address: Philadelphia Road, White Marsh Boulevard, White Marsh, MD

Project Location: Baltimore County, and State of Michigan

Clearinghouse Contact: Bob Rosenbush

Dear M' Fayish:

Thank you for submitting your project for intergovernmental review. Participation in the Maryland Intergovernmental Review and Coordination (MIRC) process helps ensure project consistency with plans, programs, and objectives of State agencies and local governments.

Notice of your application is being provided to State and local public officials through the *Intergovernmental Monitor*, which is a weekly Internet publication identifying projects received by the State Clearinghouse for Intergovernmental Assistance. This document may be viewed at http://www.mdp.state.md.us/CLHOUSE/monitor_fy04.htm. The project has been assigned a unique State Application Identifier that should be used on all documents and correspondence.

All MIRC requirements have been met in accordance with Code of Maryland Regulations (COMAR 34.02.01.04-.06) and this concludes the review process for the above referenced project. If you need assistance or have questions, contact the State Clearinghouse staff person noted above at 410-767-4490 or through e-mail at brosenbush@mdp.state.md.us. Thank you for your cooperation with the MIRC process.

Sincerely,

Linda C. Janey, J.D., Assistant Secretary
for Clearinghouse and Communications

LJ:BR

cc: Jessie Bialek - BLCO
Tammy Edwards - DBED
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