

Appendix A

EMISSIONS CALCULATIONS AND SUMMARY

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**Table A-1
Summary Stationary Sources for Rivanna Station**

Total Equipment	Emissions (tpy)				
	NO _x	CO	VOC	PM	SO _x
Existing Boilers	0.036	0.076	0.005	0.007	0.001
Existing Generators	1.251	0.246	0.018	0.02	0.02
Document Destructor	-	-	-	1.749	-
TOTAL EXISTING	1.287	0.322	0.023	1.778	0.019
Proposed Boilers	0.144	0.121	0.008	0.011	0.001
Proposed Generators	2.804	0.577	0.066	0.07	0.05
TOTAL PROPOSED	2.947	0.121	0.008	0.011	0.001
TOTAL	4.234	0.443	0.030	1.789	0.020

Actual emissions for existing units are based on actual CY2006 natural gas consumption and estimated hours of operation. "Actual" emissions for proposed units are estimated based on pro-rating CY2006 natural gas consumption, and assuming the same estimated hours of operation.

**Table A-2
Document Destructor Emissions**

Emergency Generators	Amount of Particulate Collected	Weight of Particulate Collected	Control Efficiency of Cyclone	Control Efficiency of Bag Filter	Weight of Documents Fed	Pounds of Particulate Emissions Released	Tons of Particulate Emissions Released
	(cf/yr)	(lb/yr)	(%)	(%)	(lb/yr)	(lb/yr)	(tpy)
Security Engineered Machinery Document Destructor with Cyclone and Baghouse	3,595	43,140	50%	85%	46,638	3,497.8	1.75

1. Amount of particulate collected was based on the following information:

- After a week, the dumpster (72" by 66" by 72") was 1/3 full and the 55-gallon barrel was 1/2 full. This resulted in approximately 69 cubic feet of particulate collected in a week.
- The destructor is used approximately 6 hours/week and the collection containers are emptied once a week.
- Assumed the containers are emptied 52 weeks/year.

2. Assumed density of the collected particulate is 12 lb/cf (similar to sawdust).

3. Assumed 99% efficiency of cyclone and baghouse until manufacturer information is received.

**Table A-3
Boiler Emissions**

Assumed Heat Content for Natural Gas =	1,020	Btu/cf										
Existing Natural Gas Boilers	Maximum Heat Input (Btu/hr)	Natural Gas Consumption (cf/yr)	EF NO _x (lb/10 ⁶ cf)	NO _x (tpy)	EF CO (lb/10 ⁶ cf)	CO (tpy)	EF VOC (lb/10 ⁶ cf)	VOC (tpy)	EF PM (lb/10 ⁶ cf)	PM (tpy)	EF SO _x (lb/10 ⁶ cf)	SO _x (tpy)
Total NG used for all units in 2006	11,064,000	1,814,700										
B-1, Cleaver Brooks, Model CEW700-125, Serial No. 0L099246	5,230,000	857,816	36	0.02	84	0.04	5.5	0.00	7.6	0.00	0.6	2.57E-04
B-2, Cleaver Brooks, Model CEW700-126, Serial No. 0L099247	5,230,000	857,816	36	0.02	84	0.04	5.5	0.00	7.6	0.00	0.6	2.57E-04
W-1, PVI Water Heater, Model 40P250A-MX, Serial No. 0300100445	399,000	65,443	100	0.00	84	0.00	5.5	0.00	7.6	0.00	0.6	1.96E-05
W-2, PVI Water Heater, Model 14P125A-MX, Serial No. 0300100446	140,000	22,963	100	0.00	84	0.00	5.5	6.31E-05	7.6	8.73E-05	0.6	6.89E-06
W-3, State Water Heater, Model SBT5065NEW, Serial No. M00123905	65,000	10,661	100	0.00	84	0.00	5.5	2.93E-05	7.6	4.05E-05	0.6	3.20E-06
Total Existing	11,064,000	1,814,700	-	0.036	-	0.076	-	0.0050	-	0.0069	-	0.0005
NGIC Addition (73,000 sqft)	5,000,000	820,092	100	0.041	84	0.034	5.5	2.26E-03	7.6	3.12E-03	0.6	2.46E-04
JUIAF Building (170,000 sqft)	12,500,000	2,050,230	100	0.103	84	0.086	5.5	5.64E-03	7.6	7.79E-03	0.6	6.15E-04
	17,500,000	2,870,323		0.144		0.121		0.008		0.011		0.001

1. Natural gas emission factors for all pollutants, except NO_x for low NO_x units, were obtained from U.S. EPA's AP-42, Section 1.4. The low NO_x burners on the Cleaver Brooks boilers reduce NO_x emissions to 30 ppm according to manufacturer specifications. Using a standard conversion: lb/MMBtu = ppm / 850, the NO_x emission factor appropriate for burning natural gas in the proposed burners is 0.035 lb/MMBtu or 36 lb/MMcf. (This conversion assumes that the NO_x concentration reflects 3% oxygen.) Conservatively assume that PM10 = PM.
2. The heat input values for the proposed NG boilers are minimums - assumed maximum will be no more than double the proposed minimum. No information has been provided as to whether the new units will be low NO_x; therefore, the units are assumed to be uncontrolled.
3. Rivanna Station has only one natural gas meter for the whole building; therefore, only a facility-wide natural gas CY2006 consumption was available. That value was prorated among the existing boilers by heat input.
4. The natural gas usage for the proposed units was projected by pro-rating the actual CY2006 natural gas consumption by heat input. The total heat input associated with the 1,814,700 cubic feet of natural gas used in 2006 was 11.064 MMBtu/hr. Therefore, the pro-rated amount of additional natural gas from two 2.5 MMBtu/hr boilers would equal 820,092 cubic feet.

**Table A-4
Emergency Generators Emissions**

Emergency Generators	Each (kW)	Each (hp)	Hours (hr/yr)	EF NO_x (lb/10⁶ cf)	NO_x (tpy)	EF CO (lb/10⁶ cf)	CO (tpy)	EF VOC (lb/10⁶ cf)	VOC (tpy)	EF PM (lb/10⁶ cf)	PM (tpy)	EF SO_x (lb/10⁶ cf)	SO_x (tpy)
EG-1, Caterpillar, Model 3516 STD, Engine Serial No. 25Z06782	1,718	2,304	20	0.027	0.63	5.34E-03	0.12	3.82E-04	0.009	4.82E-04	0.011	4.05E-04	0.009
EG-2, Caterpillar, Model 3516 STD, Engine Serial No. 25Z06786	1,718	2,304	20	0.027	0.63	5.34E-03	0.12	3.82E-04	0.009	4.82E-04	0.011	4.05E-04	0.009
TOTAL EXISTING	3,436	4,608	40		1.25		0.25		0.02		0.02		0.02
EG-3, Proposed generator (NGIC)	1,000	1,500	20	0.013	0.20	7.87E-04	0.01	5.33E-05	0.001	1.00E-04	0.002	4.05E-04	0.006
EG-4, Proposed generator (NGIC)	1,000	1,500	20	0.013	0.20	7.87E-04	0.01	5.33E-05	0.001	1.00E-04	0.002	4.05E-04	0.006
EG-5, Proposed generator (JUIAF) ³	2,500	3,353	20	0.024	0.80	0.0055	0.18	0.0006	0.022	0.0007	0.023	0.0004	0.014
EG-6, Proposed generator (JUIAF) ³	2,500	3,353	20	0.024	0.80	0.0055	0.18	0.0006	0.022	0.0007	0.023	0.0004	0.014
EG-6, Proposed generator (JUIAF) ³	2,500	3,353	20	0.024	0.80	0.0055	0.18	0.0006	0.022	0.0007	0.023	0.0004	0.014
TOTAL PROPOSED	9,500	12,740	100		2.80		0.58		0.07		0.07		0.05
TOTAL		-	-	-	4.06	-	0.82	-	0.08	-	0.10	-	0.07

1. Horsepower was taken from the engine for existing units, calculated for proposed units (kW * 1.341 = hp).
 2. Assumed 20 hours/year for each generator in CY2006 - existing and proposed.
 3. Emission factors from AP-42, Section 3.4 until not-to-exceed emission factors can be provided by the manufacturer. Assumed VOC equivalent to 91% of TOC.
 4. Use sulfur content of S=0.05 wt%
- EF = Emissions Factor

List of Acronyms and Abbreviations

AQCR	Air-Quality Control Region
BRAC	Base Realignment and Closure
Btu	British Thermal Units
CAA	Clean Air Act
cf	cubic feet
CFR	Code of Federal Regulations
CO	carbon monoxide
DAIC	Defense Analysis Intelligence Center
DIA	Defense Intelligence Agency
EF	Emission Factor
EPA	U.S. Environmental Protection Agency
FHWA	Federal Highway Administration
HAP	Hazardous Air Pollutant
hr	hour
INSCOM	Intelligence and Security Command
JUIAF	Joint Use Intelligence Analysis Facility
kW	kilowatt
lb	pound
MACT	Maximum Achievable Control Technology
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policies Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NGIC	National Ground Intelligence Center
NO _x	oxides of nitrogen
NNSR	Nonattainment New Source Review
NSPS	New Source Performance Standards
NSR	New Source Review
O ₃	ozone
PM ₁₀	particulate matter less than 10 microns in diameter
PM _{2.5}	particulate matter less than 2.5 microns in diameter
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTE	potential to emit
RONA	Record of Non-Applicability
SIP	State Implementation Plan
SO ₂	sulfur dioxide
tpy	tons per year
µg/m ³	micrograms per cubic meter
USC	United States Code
USEPA	U.S. Environmental Protection Agency
VAC	Virginia Administrative Code
VDEQ	Virginia Department of Environmental Quality
VOC	volatile organic compounds
yr	year

References

USEPA (U.S. Environmental Protection Agency). 2007. *EPA AirDATA Website*. URL: <http://www.epa/air/data>. Accessed: September 28, 2007.

USEPA (U.S. Environmental Protection Agency). 2006c. *Transportation Conformity Guidance for Qualitative Hot-spot Analyses in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas EPA420-B-06-902 March*.

FHWA (Federal Highway Administration). 2006. *Interim Guidance on Air Toxic Analysis in NEPA Documents*.

Table A- 5
Summary Report for Annual Emissions (Tons/Year)

Project Name: Rivanna Station
 On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
 Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	<u>VOC</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>
2008 TOTALS (tons/year)	5.1	11.7	15.9	0.0	1.8	1.0
2009 TOTALS (tons/year)	4.0	6.3	8.1	0.0	0.5	0.4

OPERATIONAL EMISSIONS

Total Equipment	Emissions (tpy)					
	VOC	NOx	CO	SOx	PM	PM2.5
Proposed Boilers	0.00	0.08	0.07	0.00	0.01	0.01
Proposed Generators	0.06	2.25	0.52	0.04	0.07	0.07
Area Sources	0.28	0.00	0.29	0.00	0.00	0.00
Vehicle Emissions	25.97	39.86	326.39	0.22	40.34	7.90
TOTAL PROPOSED	26.31	42.19	327.26	0.26	40.41	7.97

Phase Assumptions

Phase: Fine Grading 01/01/08 - 02/15/08 - Site Grading and Clearing

Total Acres Disturbed: 9.6

Maximum Daily Acreage Disturbed: 2.84

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

- 1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Paving 06/01/09 - 12/31/09 - JUIAF Surface Parking

Acres to be Paved: 2.84

Off-Road Equipment:

- 4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Paving 04/05/08 - 04/15/09 - Roadway Paving

Acres to be Paved: 2.84

Off-Road Equipment:

- 4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 1 Paving Equipment (104 hp) operating at a 0.53 load factor for 8 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 02/01/08 - 12/31/09 - Office Building Construction(JUIAF)

Off-Road Equipment:

- 1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
- 2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
- 1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
- 3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 02/01/08 - 12/31/08 - Office Building Construction (NGIC)

Off-Road Equipment:

- 1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
- 2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
- 1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
- 3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 04/01/08 - 12/31/08 - NGIC Parking Garage

Off-Road Equipment:

- 1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
- 2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
- 1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
- 3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 02/01/09 - 04/01/09 - New Access Control Point

Off-Road Equipment:

- 1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
- 2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
- 1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
- 3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 04/05/08 - 11/01/08 - Remote Delivery Facility

Off-Road Equipment:

- 1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
- 2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
- 1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
- 3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Building Construction 04/05/08 - 05/05/08 - Roadway Construction

Off-Road Equipment:

- 1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
- 1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
- 1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
- 1 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 04/01/09 - 09/01/09 - Vistor's Center

Off-Road Equipment:

- 1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
- 2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
- 1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
- 3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

Phase: Architectural Coating 09/01/09 - 12/31/09 - Architectural Coating (JUIAF)

Rule: Residential Interior Coatings begins 01/01/05 ends 12/31/40 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 01/01/05 ends 12/31/40 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 01/01/05 ends 12/31/40 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 01/01/05 ends 12/31/40 specifies a VOC of 250

Phase: Architectural Coating 09/01/08 - 12/31/08 - Architectural Coating (NGIC)

Rule: Residential Interior Coatings begins 01/01/05 ends 12/31/40 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 01/01/05 ends 12/31/40 specifies a VOC of 250

Rule: Nonresidential Interior Coatings begins 01/01/05 ends 12/31/40 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 01/01/05 ends 12/31/40 specifies a VOC of 250

**Table A-7
Detail Report for Annual Area Source Unmitigated Emissions (Tons/Year)**

Project Name: Rivanna Station
 On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
 Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

<u>Source</u>	<u>VOC</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas							
Hearth							
Landscape	0.02	0.00	0.29	0.00	0.00	0.00	0.49
Consumer Products	0.00						
Architectural Coatings	0.26						
TOTALS (tons/year, unmitigated)	0.28	0.00	0.29	0.00	0.00	0.00	0.49

**Table A-8
Detail Report for Annual Operational Unmitigated Emissions (Tons/Year)**

Project Name: Rivanna Station
 On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
 Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

Source	VOC	NOX	CO	SO2	PM10	PM25
Government office building	25.93	39.80	325.91	0.22	40.28	7.89
General light industry	0.04	0.06	0.48	0.00	0.06	0.01
TOTALS (tons/year, unmitigated)	25.97	39.86	326.39	0.22	40.34	7.90

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Government office building		68.93	1000 sq ft	244.50	16,853.39	127,495.86
General light industry		6.97	1000 sq ft	3.15	21.96	184.98
					16,875.35	127,680.84

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	49.0	2.0	97.6	0.4
Light Truck < 3750 lbs	10.9	3.7	90.8	5.5
Light Truck 3751-5750 lbs	21.7	0.9	98.6	0.5
Med Truck 5751-8500 lbs	9.5	1.1	98.9	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.0	0.0	20.0	80.0
Heavy-Heavy Truck 33,001-60,000 lbs	0.9	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	3.5	77.1	22.9	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	1.0	10.0	80.0	10.0

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land)						
Government office building				10.0	5.0	85.0
General light industry				50.0	25.0	25.0

List of Preparers

LPES, Inc. Engineering and Planning

Timothy Lavallee

M.S., Environmental Health, Tufts University, Medford, Massachusetts, 1997

B.S., Mechanical Engineering, Northeastern University, Boston, Massachusetts, 1992

15 Years of Experience

Appendix B

Coordination Letters and Natural Resources

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L. Preston Bryant, Jr.
Secretary of Natural Resources



Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

217 Governor Street
Richmond, Virginia 23219-2010
(804) 786-7951 FAX (804) 371-2674

September 12, 2007

Amanda Thompson
Paciulli, Simmons and Associates
11212 Waples Mill Road, Suite 100
Fairfax, VA 22030

Re: Rivanna Station

Dear Ms. Thompson:

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the Atlantic pigtoe (*Fusconaia masoni*, G2/S2/SOC/LT) has been documented is adjacent to the project site. Atlantic pigtoe is a medium-sized freshwater mussel reaching a length of 60 mm. In Virginia, this species is known from the James, Chowan and Roanoke River basins (TNC, 1996). The Atlantic pigtoe prefers clear, swift waters with gravel or sand and gravel substrates. Many populations from the main stem of larger rivers have disappeared. The species is limited to the headwater areas of drainages in which it occurs. Threats to this rare mussel species include pollution, impoundments, clearcutting, and dredging (Gerberich, 1991). Please note that this species is currently listed as threatened by the Virginia Department of Game and Inland Fisheries (VDGIF) and is also tracked as a species of concern by the United States Fish and Wildlife Service (USFWS); however, this designation has no official legal status.

Due to the legal status of many of this natural heritage resource, DCR recommends coordination with the VDGIF to ensure compliance with protected species legislation. To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR also recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations.

Our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

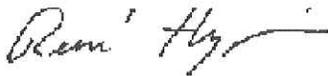
New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

A fee of \$95.00 has been assessed for the service of providing this information. Please find enclosed an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, Department of Conservation and Recreation, 203 Governor Street, Suite 414, Richmond, VA 23219, ATTN: Cashier. Payment is due within thirty days of the invoice date. Please note late payment may result in the suspension of project review service for future projects.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters, that may contain information not documented in this letter. Their database may be accessed from www.dgif.virginia.gov/wildlife/info_map/index.html, or contact Shirl Dressler at (804) 367-6913.

Should you have any questions or concerns, feel free to contact me at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,

A handwritten signature in black ink, appearing to read "S. Rene' Hypes", with a stylized flourish at the end.

S. Rene' Hypes
Project Review Coordinator

Cc: Amy Ewing, VDGIF

Literature Cited

Gerberich, Andy. 1991. Atlantic pigtoe. In Virginia's Endangered Species: Proceedings of a Symposium. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, Virginia.

The Nature Conservancy. 1996. Biological and Conservation Data System. Arlington, Virginia, USA.



COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

Department of Game and Inland Fisheries

J. Carlton Courter, III
Director

September 26, 2007

Amanda Thompson, LEED® AP
Environmental Scientist
Paciulli, Simmons & Associates
11212 Waples Mill Road
Suite 100
Fairfax, Virginia 22030-7404

RE: ESSLOG #24301, Expansion of NGIC Building and Construction of JULAF and Remote Delivery Facility, Rivanna Station, Charlottesville, Albemarle County, VA.

Dear Ms. Thompson:

This letter is in response to your request for information related to the presence of threatened or endangered species in the vicinity of the above referenced project.

The federal endangered/state endangered James spiny mussel (*Pleurobema collina*) and the federal species of concern/state threatened Atlantic pigtoe (*Fusconaia masoni*) have been documented approximately 0.5 mile and 1.75 miles, respectively, from this project area. As well, portions of this project area are adjacent to and/or within a portion of the North Fork Rivanna River that is designated a Potential Anadromous Fish Use Area. This designation is known as Rivanna River, N. F. Additionally, portions of this project area are within 0.5 mile of a portion of the North Fork Rivanna River that is designated a Threatened and Endangered Species' Water. This designation, known as Rivanna River, N. Fk., is due to documented occurrences of the federal endangered/state endangered James spiny mussel (*Pleurobema collina*) and the federal species of concern/state threatened Atlantic pigtoe (*Fusconaia masoni*). Therefore, the applicant should coordinate with the VDGIF Environmental Services Section (804-367-6913) and with the U.S. Fish and Wildlife Service concerning potential impacts to these species and resources. Contact information for the U.S. Fish and Wildlife Service is as follows: Eric Davis, 6669 Short Lane; Gloucester, VA 23061, (804) 693-6694 ext. 104 (phone), and (804) 693-9032 (fax).

Information about fish and wildlife species was generated from our agency's computerized Fish and Wildlife Information System, which describes animals that are known or may occur in a particular geographic area. Field surveys may be necessary to determine the presence or absence of some of these species on or near the proposed area. Also, additional sensitive animal species may be present, but their presence has not been documented in our information system.

Amanda Thompson, LEED® AP
ESSLog #24301
9/26/2007
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Endangered plants and insects are under the jurisdiction of the Virginia Department of Agriculture and Consumer Services, Bureau of Plant Protection. Questions concerning sensitive plant and insect species occurring at the project site should be directed to Keith Tignor at (804) 786-3515.

The Virginia Department of Conservation and Recreation, Natural Heritage Program, maintains a database of natural heritage resources, including the habitat of rare, threatened, or endangered plant and animal species, unique exemplary natural communities, and significant geologic formations, that may contain information not documented in this letter. Their database may be accessed from <http://www.dcr.state.va.us/dnh/nhrinfo.htm>, or by contacting S. Rene Hypes at (804) 371-2708.

This letter summarizes the likelihood of the occurrence of endangered or threatened animal species at the project site. If you have more questions in this regard, please contact me at (804) 367-1185.

There is a processing charge of \$25.00 for our response. Please remit a check, made payable to **TREASURER OF VIRGINIA**, within 30 days. To insure proper credit to your account, please address your payment envelope directly to MaryBeth Murr at the address listed in the letterhead.

Please note that this response does not constitute consultation or management recommendations regarding endangered or threatened wildlife, or any other environmental concerns. These issues are analyzed by our Environmental Services Section, in conjunction with interagency review of applications for state and federal permits. If you have any questions in this regard, please contact the Environmental Services Section at (804) 367-6913.

Please note that the data used to develop this response are continually updated. Therefore, if significant changes are made to your project or if the project has not begun within 6 months of receiving this letter, then the applicant should request a new review of our data.

For your reference, if you do not receive a response from our office within 30 days, this does not constitute a finding of "no adverse impact" to wildlife or wildlife resources. If you need an expedited response to your request, please call Shirl Dressler at (804) 367-6913.

The Fish and Wildlife Information Service, the system of databases used to provide the information in this letter, can now be accessed via the Internet! The Service currently provides access to current and comprehensive information about all of Virginia's fish and wildlife resources, including those listed as threatened, endangered, or special concern; colonial birds; waterfowl; trout streams; and all wildlife. Users can choose a geographic location and generate a report of species known or likely to occur around that point. From our main web page, at www.dgif.virginia.gov, choose the hyperlink

Amanda Thompson, LEED® AP

ESSLog #24301

9/26/2007

Page 3

titled "Virginia Fish and Wildlife Information Service". For more information about the service, please contact Shirl Dressler at (804) 367-6913.

Thank you for your interest in the wildlife resources of Virginia.

Sincerely,



Susan H. Watson
Information Specialist

cc: R.T. Fernald, VDGIF
E. Davis, USFWS
R. Hypes, VDCR-NH



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Ecological Services
6669 Short Lane
Gloucester, VA 23061

Date: September 4, 2007

Project name: National Ground Intelligence Building Expansion

Project number: 51411-2007-TA-0502 City/County Charlottesville, VA

The U.S. Fish and Wildlife Service (Service) has reviewed your request for information on federally listed or proposed endangered or threatened species and designated critical habitat for the above referenced project. The following comments are provided under provisions of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

 We have reviewed the information you have provided and believe that the proposed action will not adversely affect federally listed species or federally designated critical habitat because no federally listed species are known to occur in the project area. Should project plans change or if additional information on listed and proposed species becomes available, this determination may be reconsidered.

 We recommend that you contact **both** of the following State agencies for site specific information on listed species in Virginia. Each agency maintains a different database and has differing expertise and/or regulatory responsibility:

Virginia Dept. of Game & Inland Fisheries
Environmental Services Section
P.O. Box 11104
Richmond, VA 23230
(804) 367-1000

Virginia Dept. of Conservation and Recreation
Division of Natural Heritage
217 Governor Street, 2nd Floor
Richmond, VA 23219
(804) 786-7951

If either agency indicates a federally listed species is **present**, please resubmit your project description with letters from both agencies attached.

If appropriate habitat may be present, we recommend surveys within appropriate habitat by a qualified surveyor. Enclosed are county lists with fact sheets that contain information the species' habitat requirements and lists of qualified surveyors. If this project involves a Federal agency (Federal permit, funding, or land), we encourage the Federal agency to contact this office if appropriate habitat is present and if they determine their proposed action may affect federally listed species or critical habitat.

 Determinations of the presence of waters of the United States, including wetlands, and the need for permits are made by the U.S. Army Corps of Engineers. They may be contacted at: Regulatory Branch, U.S. Army Corps of Engineers, Norfolk District, 803 Front Street, Norfolk, Virginia 23510, telephone (757) 441-7652.

Our website <http://virginiafieldoffice.fws.gov> contains many resources that may assist with project reviews. Point of contact is Sumalee Hoskin at (804) 693-6694, ext.105.

Sincerely,

Karen L. Mayne
Supervisor
Virginia Field Office

ALBEMARLE COUNTY, VIRGINIA
Federally Listed, Proposed, and Candidate Species

<u>SCIENTIFIC NAME</u>	<u>COMMON NAME</u>	<u>STATUS</u>
<u>INVERTEBRATES</u>		
Pleurobema collina	James spiny mussel	LE
<u>MAMMALS</u>		
Myotis sodalis ¹	Indiana bat	LE
Species of Concern (No official Federal status)		
<u>BIRDS</u>		
Haliaeetus leucocephalus	Bald eagle	G5
<u>INVERTEBRATES</u>		
Fusconaia masoni	Atlantic pigtoe	G2
Pyrgus wyandot	Appalachian grizzled skipper	G2
<u>VASCULAR PLANTS</u>		
Phlox buckleyi	Sword-leaved phlox	G2
Sida hermaphrodita	Virginia mallow	G2G3

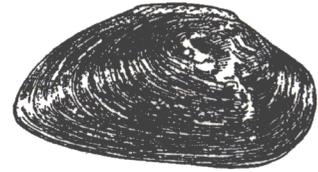
¹This species has been documented in an adjacent county and may occur in this county.

August 8, 2007

Prepared by U.S. Fish and Wildlife Service, Virginia Field Office

James Spiny mussel

Pleurobema collina



Description - This freshwater mussel is found in the upper James and Dan River basins. The species has declined rapidly during the past two decades and now exists only in small, headwater tributaries of the upper James River basin in Virginia and West Virginia. In 2000, it was discovered in the Dan River basin in North Carolina and Virginia. The James spiny mussel is a small freshwater mussel slightly less than three inches in length. Adults have a dark brown shell with prominent growth rings and occasionally, short spines on each valve. Young mussels have a shiny yellow shell with or without one to three short spines.

Life History - Suitable habitat for this species includes free-flowing streams with a variety of flow regimes. The James spiny mussel is found in a variety of substrates that are free from silt. Like other freshwater mussels, this species is a filter feeder. It feeds on plankton collected from water that is passed over its gills. Reproduction

occurs sexually. Females carry eggs in their gills. During spawning, the male releases sperm into the water column and the sperm is taken into the female through the gills. The resulting larvae (known as glochidia) are released from the female into the water column and must attach to a fish host to survive. While attached to the fish host, development of the glochidia continues. Once metamorphosis is complete, the juvenile mussel drops off the fish host and continues to develop on the stream bottom. Known fish hosts for this species include the bluehead chub (*Nocomis leptcephalus*), rosieside dace (*Clinostomus funduloides*), blacknose dace (*Rhinichthys atratulus*), mountain redbelly dace (*Phoxinus oreas*), rosefin shiner (*Lythrurus ardens*), satinfish shiner (*Cyprinella analostana*), central stoneroller (*Camptostoma anomalum*), and swallowtail shiner (*Notropis procne*).

Conservation - The James spiny mussel was federally listed as an endangered species on July 22, 1988. The primary reason for its decline is habitat loss and modification. Threats to this species include siltation, invasion of the non-native Asiatic clam (*Corbicula fluminea*), impoundment of waterways, water pollution, stream channelization, sewage discharge, agricultural runoff including pesticides and fertilizers, poor logging and road/bridge construction practices, and discharge of chlorine.

What You Can Do To Help - If you reside on property that borders a stream or other waterway, avoid using chemicals or fertilizers. To help control erosion and reduce

runoff, maintain a buffer of natural vegetation along streambanks. Install fencing to prevent livestock from entering streams to reduce trampling of mussels, siltation, and input of waste products. Protecting water quality is the most effective way to conserve mussels.

To find out more about the James spiny mussel contact:

Virginia Department of Game and
Inland Fisheries
P.O. Box 11104
Richmond, Virginia 23230
(804) 367-1000

References

Hove, M.C. and R.J. Neves. 1994. Life history of the endangered James spiny mussel *Pleurobema collina* (Conrad, 1837) (Mollusca: Unionidae). American Malacological Bulletin 11(1):29-40.

Neves, R.J. 1991. James spiny mussel. Pages 281-282 in K. Terwilliger, ed. Virginia's Endangered Species, Proceedings of a Symposium. McDonald and Woodward Publishing Company, Blacksburg, Virginia.

U.S. Fish and Wildlife Service. 1990. James spiny mussel (*Pleurobema collina*) recovery plan. Newton Corner, Massachusetts.



U.S. Fish and Wildlife Service
Virginia Field Office
6669 Short Lane
Gloucester, Virginia 23061
(804) 693-6694
<http://www.fws.gov>
June 2003

**ATLANTIC SLOPE FRESHWATER MUSSELS
SURVEY CONTACTS IN VIRGINIA**

This list contains individuals who we have already determined are qualified to conduct surveys for the species listed above. This list does not include all individuals qualified or authorized to survey for this species. If you select someone not on this pre-approved surveyor list, please provide the proposed surveyor's qualifications to this office 30 days prior to the start of the survey. Please send copies of all survey results to this office. If the survey determines that any rare species are present, please contact this office to allow us the opportunity to work with you to ensure that a project avoids or minimizes adverse effects to rare species and their habitats. Inclusion of names on this list does not constitute endorsement by the U.S. Fish and Wildlife Service or any other U.S. Government agency. Listed alphabetically. December 27, 2006

John Alderman
244 Red Gate Road
Pittsboro, NC 27312
(919) 542-5331
aldermanjm@mindspring.com

Braven Beaty
334 Whites Mill Road
Abingdon, VA 24210
(276) 676-2209
bbeaty@tnc.org

Richard Neves
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Virginia Tech
Blacksburg, VA 24061-0321
(540) 231-5927
mussel@vt.edu

Brett Ostby
Dept of Fish and Wildlife
Virginia Tech
Blacksburg, VA 24061-0321
(540) 230-1042
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Steve Roble
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217 Governor St, 3rd Floor
Richmond, VA 23219
(804) 786-7951
steve.roble@dcr.virginia.gov

Tim Savidge
The Catena Group
410-B Millstone Dr
Hillsborough, NC 27278
(919) 732-1300
tsavidge@thecatenagroup.com

Philip Stevenson
Creek Laboratory, LLC
P.O. Box 953
Fredericksburg, VA 22404
(877) 433-8962
phil@creeklab.com



DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT BELVOIR
9820 FLAGLER ROAD, SUITE 213
FORT BELVOIR, VIRGINIA 22060-5928

REPLY TO
ATTENTION OF

May 3, 2007

Directorate of Public Works

SUBJECT: Section 106 Consultation, Rivanna Station Expansion

Mr. Marc Holma
Architectural Historian
Department of Historic Resources
2801 Kensington Avenue
Richmond, Virginia 23221

Dear Mr. Holma:

Fort Belvoir plans to expand its facilities at Rivanna Station, located in Albemarle County, Virginia. The proposed undertaking includes acquisition of approximately 50 acres of land to the north of Boulder Way, and the construction of the following facilities: a 73,280 square foot, four-story addition onto an existing structure, a Joint Use Intelligence Analysis facility, a multi-level parking structure, and temporary 360 space gravel parking lot.

Due to the large scope of this project the Area of Potential Effect (APE) is defined as the boundaries of Rivanna Station, an approximately 50 acre parcel north of Rivanna Station and the surrounding viewshed. In accordance with 36 CRF 800.4 Fort Belvoir has conducted surveys to identify historic resources that may be affected by this undertaking, *Phase I Cultural Resources Survey of Proposed Expansion North of Boulder Way NGIC Facility, Albemarle County, Virginia*, and *Phase I Cultural Resources Survey of Proposed Expansion South of Boulder Way NGIC Facility, Albemarle County, Virginia*. Copies of these reports are enclosed for your review. These surveys determined that there were no historic resources within the APE for this undertaking.

Fort Belvoir has identified a cemetery, Pritchett Cemetery, within the APE, and determined that it is not National Register eligible. Current plans call for the cemetery to be avoided during construction through the establishment of a 50 foot buffer around known cemetery boundaries. In the event that incursion within this boundary is required, Fort Belvoir will conduct formal boundary determination and comply with all relevant statutes regarding the protection/relocation of cemeteries.

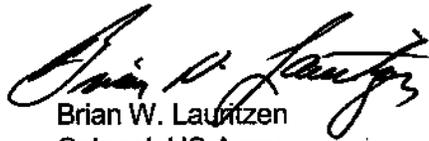
As a result of its historic resources identification and evaluation efforts Fort Belvoir has determined that no historic properties will be affected by the proposed expansion of the Rivanna Station Facility in Albemarle County, Virginia.

“EXCELLENCE THROUGH SERVICE”

Please provide comment on or determination of no historic properties affected in accordance with 36CFR 800.4(d). If we do not receive your comments within the allowed 30 day time period, we will assume concurrence and proceed with the project as planned.

Point of contact is Bill Sanders, Director of Public Works, at 703-806-3017.

Sincerely,

A handwritten signature in black ink, appearing to read "Brian W. Lauritzen". The signature is written in a cursive style with a large, sweeping initial "B".

Brian W. Lauritzen
Colonel, US Army
Installation Commander

Enclosures

RE: Section 106 Consultation, Rivanna Station Expansion

I have reviewed this project, DHR File number _____; Rivanna Station Expansion, Albemarle County, Virginia. I concur/do not concur with Fort Belvoir's finding of "No Historic Properties Affected."

Marc Holma, Architectural Historian
Office of Review and Compliance
Virginia Department of Historic Resources

Date

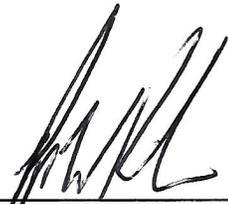
Please return this form via fax or hard copy to:

Patrick McLaughlin
Chief, Environmental and Natural Resource Division
9430 Jackson Loop Road, Suite 100
Fort Belvoir, VA 22060

Fax: (703) 806 0622

RE: Section 106 Consultation, Rivanna Station Expansion

I have reviewed this project, DHR File number 1997-0823; Rivanna Station Expansion, Albemarle County, Virginia. I concur do not concur with Fort Belvoir's finding of "No Historic Properties Affected."



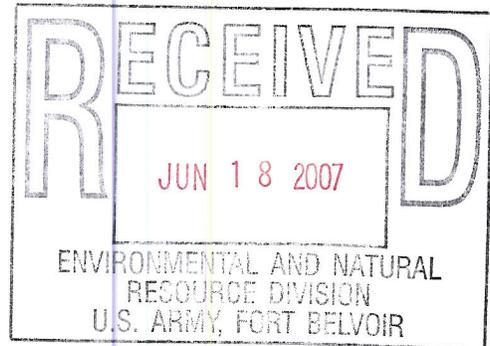

Marc Holma, Architectural Historian
Office of Review and Compliance
Virginia Department of Historic Resources

6-15-07
Date

Please return this form via fax or hard copy to:

Patrick McLaughlin
Chief, Environmental and Natural Resource Division
9430 Jackson Loop Road, Suite 100
Fort Belvoir, VA 22060

Fax: (703) 806 0622



Regional Geology in the Fort Belvoir Area

Age	Formation	Subunits	Characteristics	
Tertiary Unconformity	Alluvium		terrace deposits of sands, gravels, cobbles	
Cretaceous (early) Unconformity	Shirley		massive marine sediment wedge; occurs south of Occoquan River. <i>Not present on Fort Belvoir.</i>	
	Bacon's Castle			
	Potomac Fluvial-deltaic & Marginal marine sediments 200 - 300 foot (60 – 90 m) thick	Albirupear (upper)		inter-fingering lenses of felspathic sands, silt, and clay of differing thickness. <i>Not present on Fort Belvoir</i>
		Iron Ore Clays		<i>Not present on Fort Belvoir</i>
		Aquia Creek (middle)		inter-fingering lenses of sand, silt, and clay of differing thickness.
		Mt. Vernon Clays		a thick clay wedge of chocolate-colored silt, clays interbedded with layers of sandy clays and sand lenses.
		Rappahannock (lower)		inter-fingering lenses of felspathic sands, silt, and clay of differing thickness.
James River Clays		also called Nanjemoy-Marlboro		
Upper Ordovician (early Paleozoic)	-	-	Granitic Intrusives	
Precambrian (Proterozoic)	Piedmont Plateau	basement complex	undifferentiated meta-sedimentary/meta-igneous rocks.	

Sources: Larson and Froelich, 1977; Law Engineering and Environmental Services, 1995; Ward, 1895; Mixon et al., 1989, as cited in Hobson, 1996.

**Wildlife Species Typical of
Upland Hardwood Habitats on Fort Belvoir**

Scientific Name	Common Name
Mammals	
<i>Sylvilagus floridanus</i>	Eastern cottontail rabbit
<i>Sorex longirostris</i>	Southeastern shrew
<i>Blarina brevicauda</i>	Northern Short-tailed shrew
<i>Peromyscus leucopus</i>	White-footed Mouse
<i>Microtus pinetorus</i>	Pine Vole
<i>Sciurus carolinensis</i>	Eastern Gray Squirrel
<i>Glaucomys volans</i>	Southern Flying Squirrel
<i>Tamias striatus</i>	Eastern Chipmunk
<i>Marmota monax</i>	Woodchuck
<i>Odocoileus virginianus</i>	White-tailed Deer
<i>Procyon lotor</i>	Raccoon
<i>Didelphis virginiana</i>	Virginia possum
<i>Mephitis mephitis</i>	Striped shunk
<i>Vulpes vulpes</i>	Red fox
<i>Felis catis</i>	Feral cats
Birds	
<i>Corvus brachyrhynchos</i>	American crow
<i>Turdus migratorius</i>	American robin
<i>Sturnus vulgaris</i>	European starling
<i>Passer domesticus</i>	House sparrow
<i>Cyanocitta cristata</i>	Blue jay
<i>Otus asio</i>	Eastern Screech Owl
<i>Strix varia</i>	Barred Owl
<i>Melanerpes carolinus</i>	Red-billed Woodpecker
<i>Picodes pubescens</i>	Downy Woodpecker
<i>Picodes villosus</i>	Hairy Woodpecker
<i>Colaptes auratus</i>	Northern Flicker
<i>Sayornis phoebe</i>	Eastern Phoebe
<i>Myiarchus crinitus</i>	Great crested Flycatcher
<i>Parus carolinensis</i>	Carolina Chickadee
<i>Parus bicolor</i>	Tufted Titmouse
<i>Sitta carolinensis</i>	White-breasted Nuthatch
<i>Thryothorus ludovicianus</i>	Carolina Wren
<i>Regulus calendula</i>	Ruby-crowned Kinglet
<i>Catharus fuscescens</i>	Veery
<i>Hylocichla mustelina</i>	Wood Thrush
<i>Catharus minimus</i>	Gray-cheeked Thrush
<i>Catharus ustulatus</i>	Swainson's Thrush
<i>Vireo olivaceus</i>	Red-eyed Vireo
<i>Vermivora peregrina</i>	Tennessee Warbler
<i>Dendroica magnolia</i>	Magnolia Warbler
<i>Dendroica coronata</i>	Yellow-rumped Warbler
<i>Wilsonia citrina</i>	Hooded Warbler
<i>Helmitheros vermivorus</i>	Worm-eating Warbler
<i>Dendroica magnolia</i>	Magnolia Warbler
<i>Cardinalis cardinalis</i>	Northern cardinal
<i>Carpodacus mexicanus</i>	House Finch
<i>Buteo Jamaicensis</i>	Red-tailed Hawk

Scientific Name	Common Name
<i>Accipiter cooperii</i>	Cooper's Hawk
<i>Catharus guttatus</i>	Hermit Thrush
<i>Regulus satrapa</i>	Golden-crowned Kinglet
<i>Seiurus noveboracensis</i>	Northern Waterthrush
<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker
<i>Troglodytes troglodytes</i>	Winter Wren
<i>Piranga olivacea</i>	Scarlet Tanager
<i>Carduelis tristis</i>	American Goldfinch
<i>Junco hyemalis</i>	Dark-eyed junco
<i>Larus delawarensis</i>	Ring-billed gull
<i>Zonotrichia albicollis</i>	White-throated sparrow
Amphibians	
<i>Plethodon cinereus</i>	Red-backed Salamander
<i>Plethodon glutinosus</i>	Slimy Salamander
<i>Bufo americanus</i>	American Toad
<i>Bufo woodhousei fowleri</i>	Fowler's Toad
<i>Rana catesbeiana</i>	American Bullfrog
<i>Rana clamitans</i>	Green Frog
<i>Rana palustris</i>	Pickerel Frog
Reptiles	
<i>Coluber constrictor</i>	Northern black racer (Snake)
<i>Elaphe obsoleta</i>	Rat Snake
	Eastern garter snake
Thamnophis sirtalis	Eastern Box Turtle
<i>Terrapene Carolina</i>	Northern black racer snake
<i>Eumeces fasciatus</i>	Five-lined skink
Insects	
	Common water strider
<i>Gerris remigis</i>	Mayfly
<i>Baetis spp.</i>	
Benthic invertebrates	
<i>Chironimidae spp.</i>	Midges
<i>Gastropoda spp.</i>	Snails
<i>Gammarus spp.</i>	Amphipods
<i>Oligochaeta spp.</i>	Worms

Derived from Ernst, et al., 1990 and Abbott, 1988

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Appendix C

RECORD OF NON-APPLICABILITY (RONA)

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RECORD OF NON-APPLICABILITY
In Accordance with the Clean Air Act - General Conformity Rule For
The Proposed Base Realignment and Closure Action at Rivanna Station, Virginia

Date Prepared: 26 March 2008

In accordance with the 2005 Base Realignment and Closure, the US Army Intelligence and Security Command (INSCOM) proposes to realign approximately 830 military and 250 contract personnel currently working for its Defense Intelligence Agency (DIA) at the Defense Analysis Intelligence Center (DAIC) at Bolling Air Force Base to new facilities at Rivanna Station outside of Charlottesville, Virginia. INSCOM plans to construct:

- A new Joint Use Intelligence Analysis Facility (JUIAF) with an access control point.
- Surface parking lots for the JUIAF.
- A separate visitor control center.
- A separate remote delivery facility for mail and other deliveries.
- An addition to the existing NGIC building (Nicholson Building).
- A multi-storied parking garage for the NGIC.
- A two-lane extension to Boulders Road, which provides access from US Route 29 to Rivanna Station.

General Conformity under the Clean Air Act, Section 176 has been evaluated according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to the Proposed Action because:

All activities associated with the Proposed Action are located in an area designated by EPA to be in attainment for all criteria pollutants.

Supported documentation and emission estimates:

- () Are Attached
- () Appear in the NEPA Documentation
- (X) Other (Not Necessary)


PATRICK M. MCLAUGHLIN
Chief of Environmental and Natural Resources Division
U.S. Army Garrison, Fort Belvoir

for

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Appendix D

TRAFFIC IMPACT ANALYSIS

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JOINT USE INTELLIGENCE ANALYSIS FACILITY (JUIAF)

TRAFFIC ANALYSIS JUNE 2007

Prepared for:

RTKL Associates, Inc.

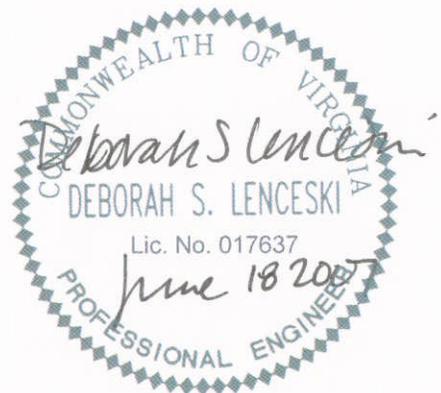


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Introduction

During the initial review conferences for the Joint Use Intelligence Analysis Facility (JUIAF) addition at the National Ground Intelligence Center (NGIC) facilities on Boulder Road, Albemarle County and Virginia Department of Transportation (VDOT) officials voiced concerns over the capacity of the intersection of Seminole Trail (US Route 29) and Boulders Road. Specific interest was expressed over the capacity of the turn lanes to contain the increased entering traffic anticipated from the facilities additional employees. To address these concerns, VDOT required that a traffic analysis be conducted. This report details those findings.

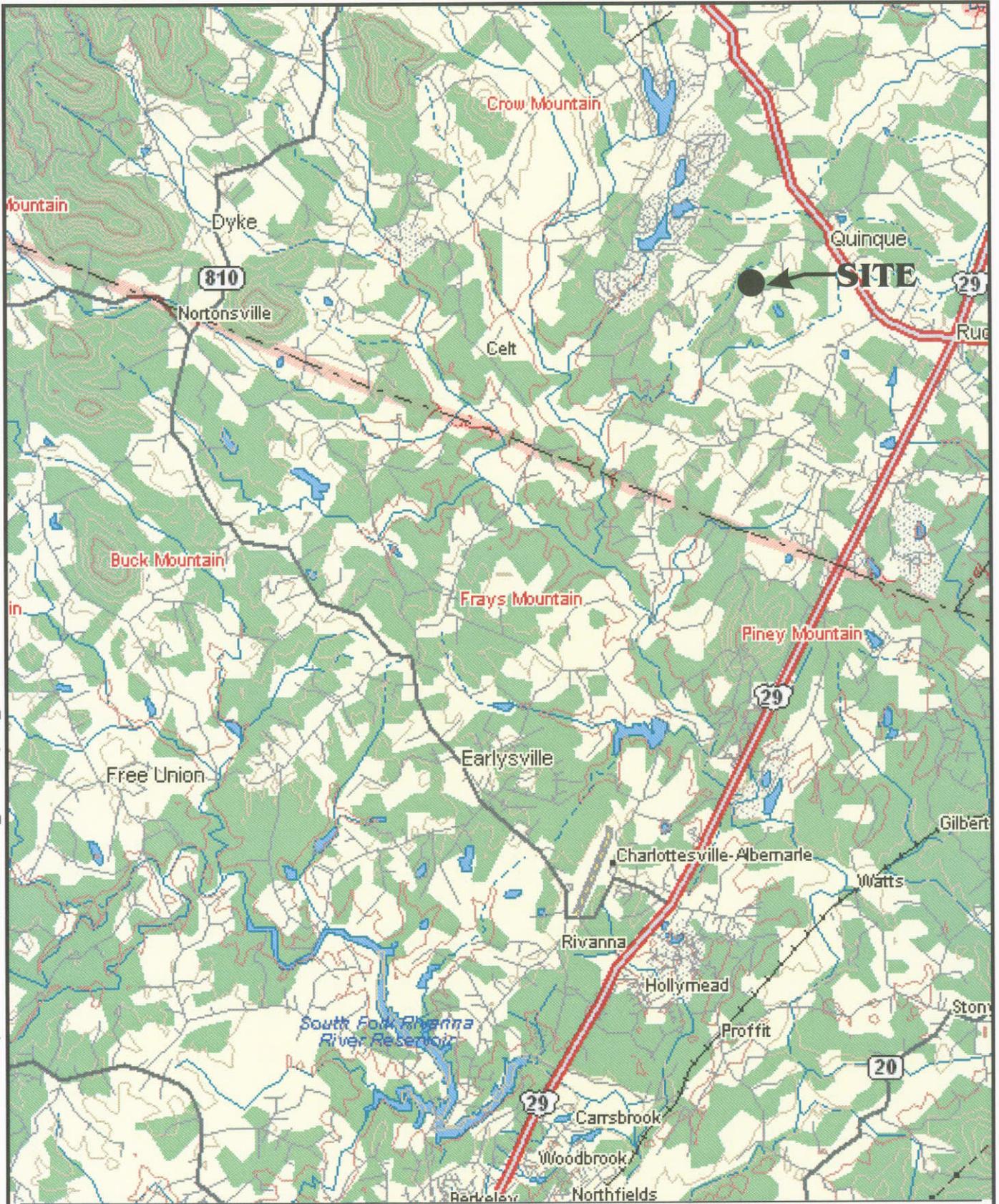
This study focuses on the intersection of Boulders Road and US Route 29. The analysis is based on peak hour turning movement volumes collected in March 2007 combined with current and future employment figures provided by NGIC. The report documents current operating conditions, projects future traffic volumes, estimates the average vehicle delay and queue lengths with the future volumes and no improvement to the intersection, and presents alternatives for remedying the anticipated traffic backups.

Existing Conditions

The NGIC is a military office and training facility on Boulders Road in Albemarle County north of Charlottesville, Virginia. It currently employs 1,175 people and hosts about 30 conferences a year. The facility routinely attracts about sixty visitors a day. A typical conference attracts another 80 visitors and lasts for two to three days. On the first day of a conference, most attendees will drive individually despite recommendations from NGIC to carpool. Visitors arrive from northern Virginia and Charlottesville.¹ The site's location is shown on Exhibit A, and an aerial view is shown on Exhibit B.

Seminole Trail is part of US Route 29 which runs northeast to Washington, D.C. and south to Charlottesville, Danville, and onto Pensacola, Florida. The section of Seminole Trail fronting Boulders Road has a four-lane divided section with a depressed median. There is a median break approximately 2300 feet south of Boulders Road and another 2000 feet to the north. The intersection to the north is signalized. According to the VDOT 2005 traffic count records there are 33,000 trips per day on Seminole Trail at Boulders Road.

¹ Nitzsche, Erich, April 26, 2007 telephone conversation.



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 | 1 mi Scale: 1 : 200,000 Detail: 10-0 Datum: WGS84

EXHIBIT A
JUIAF Traffic Analysis
Vicinity Map

ALBEMARLE COUNTY, VIRGINIA

LANDMARK
DESIGN GROUP

Engineers • Planners • Surveyors
Landscape Architects • Environmental Scientists
VIRGINIA BEACH, VA • WILLIAMSBURG, VA • SUFFOLK, VA



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EXHIBIT B
JUIAF Traffic Analysis
Aerial Photo

ALBEMARLE COUNTY, VIRGINIA

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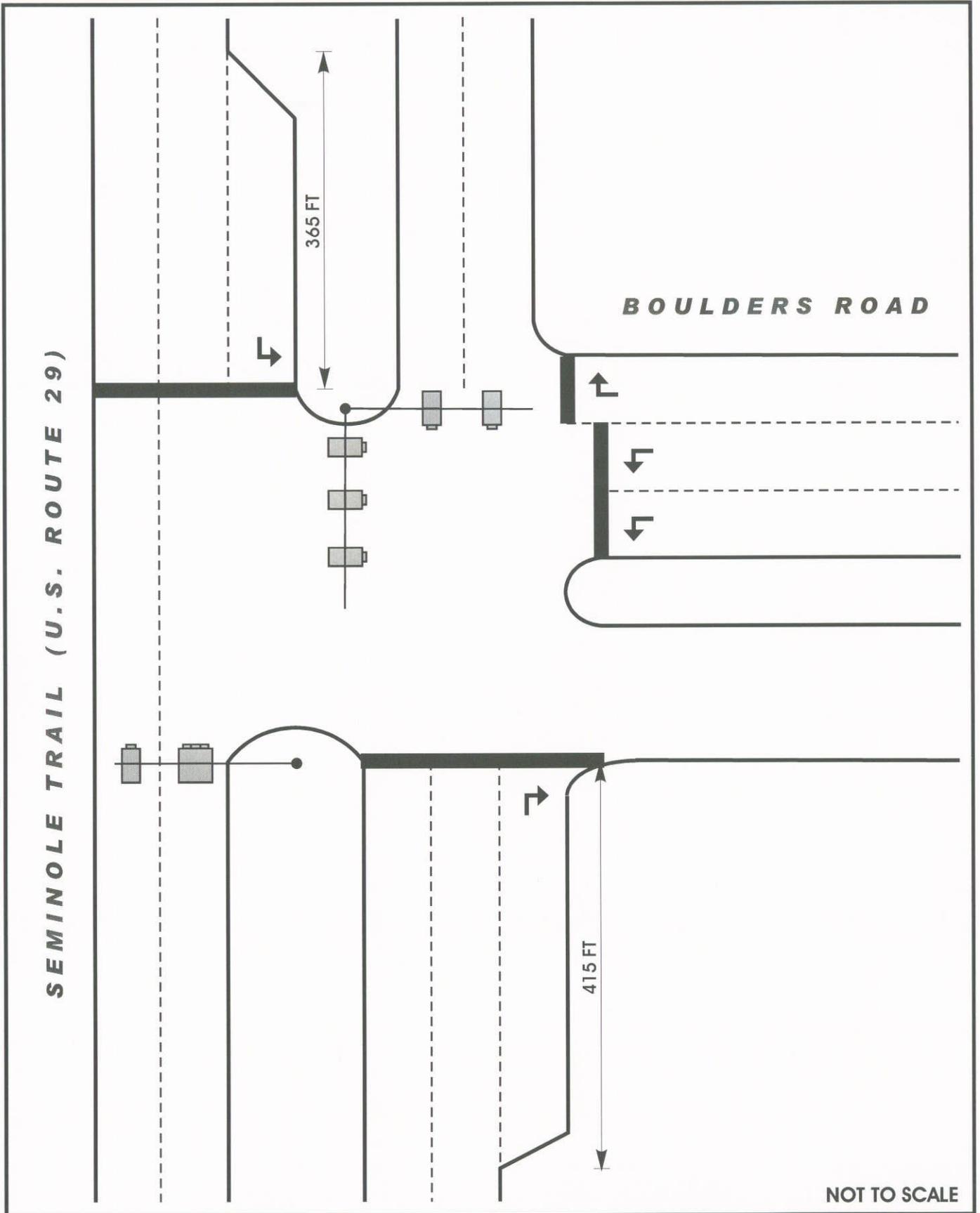
PROJ.NO:	2006014-005.03
FILE NAME:	JUIAF_Traffic Fig02_Ae
SCALE:	GRAPHIC
DATE:	June 6, 2007

Boulders Road provides the sole vehicle access to NGIC. It is a privately developed, divided, four-lane collector road, running east from a signalized intersection at Seminole Trail. The intersection geometry and signal configuration are displayed on Exhibit C. NGIC is the only development on the road thus far.

LandMark Design Group collected peak period turning movement counts at the intersection of Seminole Trail and Boulders Road on March 27, 2007. The peak hour volumes from this count are mapped on Exhibit D; the full data set is included in the Appendix. These volumes were compared to peak hour volumes collected by VDOT in April 2007 and found to be similar. According to NGIC officials, there were no conferences or special meetings planned on March 27, 2007. On the days on which VDOT collected traffic data there were three events which attracted between 60 and 100 additional visitors.

The traffic volumes presented on Exhibit D were analyzed using the High Capacity Manual software, HCS Plus. Base timings were assumed to be in accordance with typical timing found at other rural intersections in Virginia. These analyses show that, with the exiting permissive signal timings, vehicles making the southbound left turn movement are able to flow through gaps in northbound traffic with little delay. The calculated delays are only 5.0 seconds per vehicle during the A.M. peak period. This results in minimal queues of less than one vehicle per cycle. This is consistent with observations made during our traffic counts.

During the P.M. peak period, traffic exiting Boulders Road is subject to longer delays, as the actuated signal system minimizes the amount of green time allowed on the side street to maintain through traffic flows on the main highway. During the P.M. peak hour, through traffic volumes on Seminole Trail operate at level of service C, while the exiting traffic from NGIC experiences level of service D. The current delays and levels of service for each movement of the intersection are listed in Table 1. Printouts of the results from the analyses are included in the Appendix.



NOT TO SCALE

EXHIBIT C
JUIAF Traffic Analysis
Existing Lanes & Signal Configuration

ALBEMARLE COUNTY, VIRGINIA

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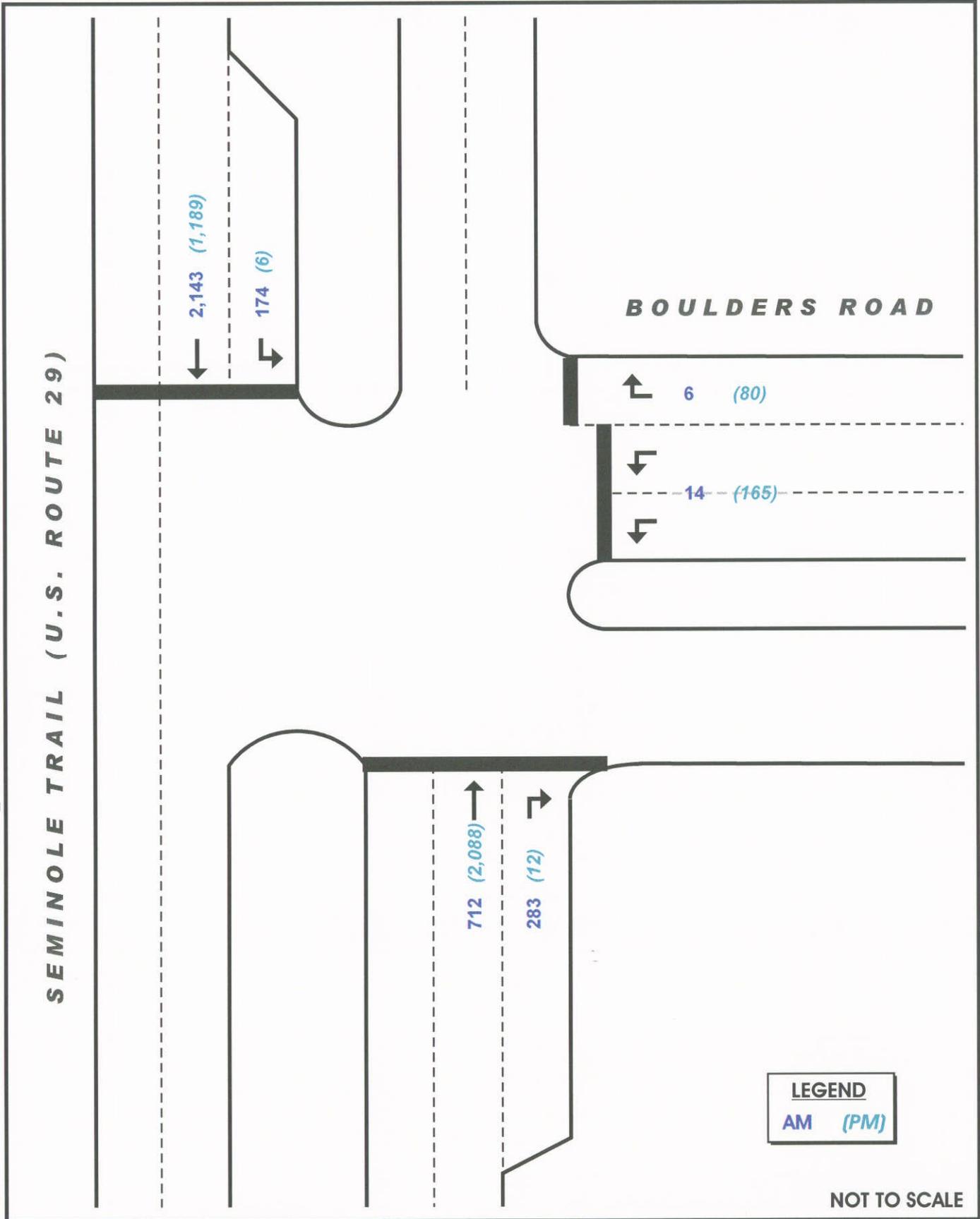


EXHIBIT D
JUIAF Traffic Analysis
Existing Peak Hour Traffic

ALBEMARLE COUNTY, VIRGINIA

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Table 1
Summary of Intersection Capacity Analysis
Year 2007 Conditions
Seminole Trail and Boulders Road

APPROACH	MOVEMENT	A.M. PEAK		P.M. PEAK	
		DELAY	LOS	DELAY	LOS
Westbound	Left	46.0	D	52.9	D
Westbound	Right	42.7	D	53.7	D
Northbound	Through	7.0	A	27.2	C
Northbound	Right	7.8	A	6.5	A
Southbound	Left	5.0	A	30.1	A
Southbound	Through	7.9	A	7.0	A
INTERSECTION		8.1	A	18.9	B

Post Development Conditions

Albemarle County is a growing, thriving community. As the population increases, background traffic on Seminole Trail is expected to increase by the year 2015 as well. The 2007 volumes were increased by a growth rate of three percent per annum to determine the 2015 No-build volumes. These are presented on Exhibit E.

VDOT's long term road plans include widening Seminole Trail to six lanes north to Greene County. VDOT's 2007 Six Year funding plan budgets preliminary engineering funds to the corridor, but does not give a projected construction date.² According to Matthew W. Shiley, Regional Traffic Engineer, VDOT Northwestern Region Operations, VDOT plans to post signs prohibiting U-turn at the Boulders Road median break.³

The federal government plans to expand the NGIC and construct a neighboring facility on Boulders Road to house the JUIAF. The NGIC expansion will employ an additional 218 people and the JUIAF will employ 828 people. Trip generation rates for the facility were determined by dividing the average of the March and April 2007 turning movement volumes, by 1,175 employees. These rates were used to estimate the future traffic flows from the expanded NGIC and JUIAF. These calculations are detailed in Table 2.

² <http://syip.virginiadot.org>

³ Schiley, Matthew, April 30, 2007 Telephone conversation