



APPENDIX J: WETLAND FUNCTIONS AND VALUES TABLE

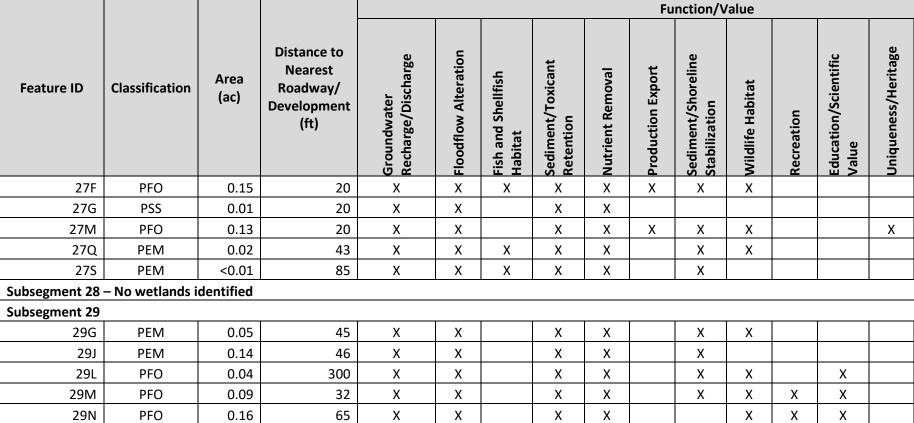




									Fu	nction/\	/alue						
Feature ID	Classification	Area (ac)	Distance to Nearest Roadway/ Development (ft)	Groundwater Recharge/Discharge	Floodflow Alteration	Fish and Shellfish Habitat	Sediment/Toxicant Retention	Nutrient Removal	Production Export	Sediment/Shoreline Stabilization	Wildlife Habitat	Recreation	Education/Scientific Value	Uniqueness/Heritage	Visual Quality/Aesthetics	Endangered Species Habitat	Other
Subsegment 20 -	– No wetlands i	dentified															
Subsegment 21			r		1	1	1	1		1	1				1	1	
21P	PFO	0.02	100	Х	Х		Х	Х			Х						
21Q	PFO	0.07	90	Х	Х		Х	Х	Х		Х						
21T	PFO	0.05	60	Х			Х	Х			Х						I
Subsegment 22			r														
22BBB	PFO	0.36	~100				No f	unctions	s and va	lues data	a – delin	eated b	y VDOT		1	1	
22CCC	PFO	0.13	~15		Х			Х	Х		Х			Х			
22E	PEM	0.01	35	Х			Х	Х									
22F	PEM	0.02	35	Х			Х	Х									
22G	PFO	0.02	32	Х	Х		Х	Х									
22GG	PEM	0.02	14				х	Х			Х						
221	PFO	0.46	40	Х	х		Х	Х	Х		Х						
2211	PFO	<0.01	120		х		Х	Х	Х		Х						
22JJ	PFO	0.01	100	Х			Х	Х	Х		Х						
22K	PEM	0.05	100	Х	Х		Х	Х									
22L	PEM	0.01	100	Х	Х		Х	Х									
22L_VP	PEM	0.05	100	Х	Х		х	Х									
22LL_VP	PFO	0.05	140								Х						
220	PFO	0.45	100	Х	Х		Х	Х	Х		Х						
2200	PFO	>0.84	50					Х	Х		Х						
22PP	PFO	0.01	50	Х													
22R	PFO	0.27	50	Х			х	Х			Х						
22TT	PFO	0.82	~90				No f	unctions	s and va	lues data	a – delin	leated b	by VDOT				
22U	PFO	0.02	50	Х	Х		х	Х	Х		Х						
22W	PEM	>1.66	0-150	Х	Х		х	Х	Х		Х	Х		Х			
22X	PFO	0.03	90	Х			х	Х			Х						
22Y	PEM	0.04	~100				х	Х			Х						
Subsegment 23																	
23BB	PEM	0.03	31	Х	Х		Х	Х		Х							
23CC	PFO	0.07	26	Х	Х	Х	х	Х	Х	х							
23EE	PFO	0.04	30	Х	Х		Х	Х									



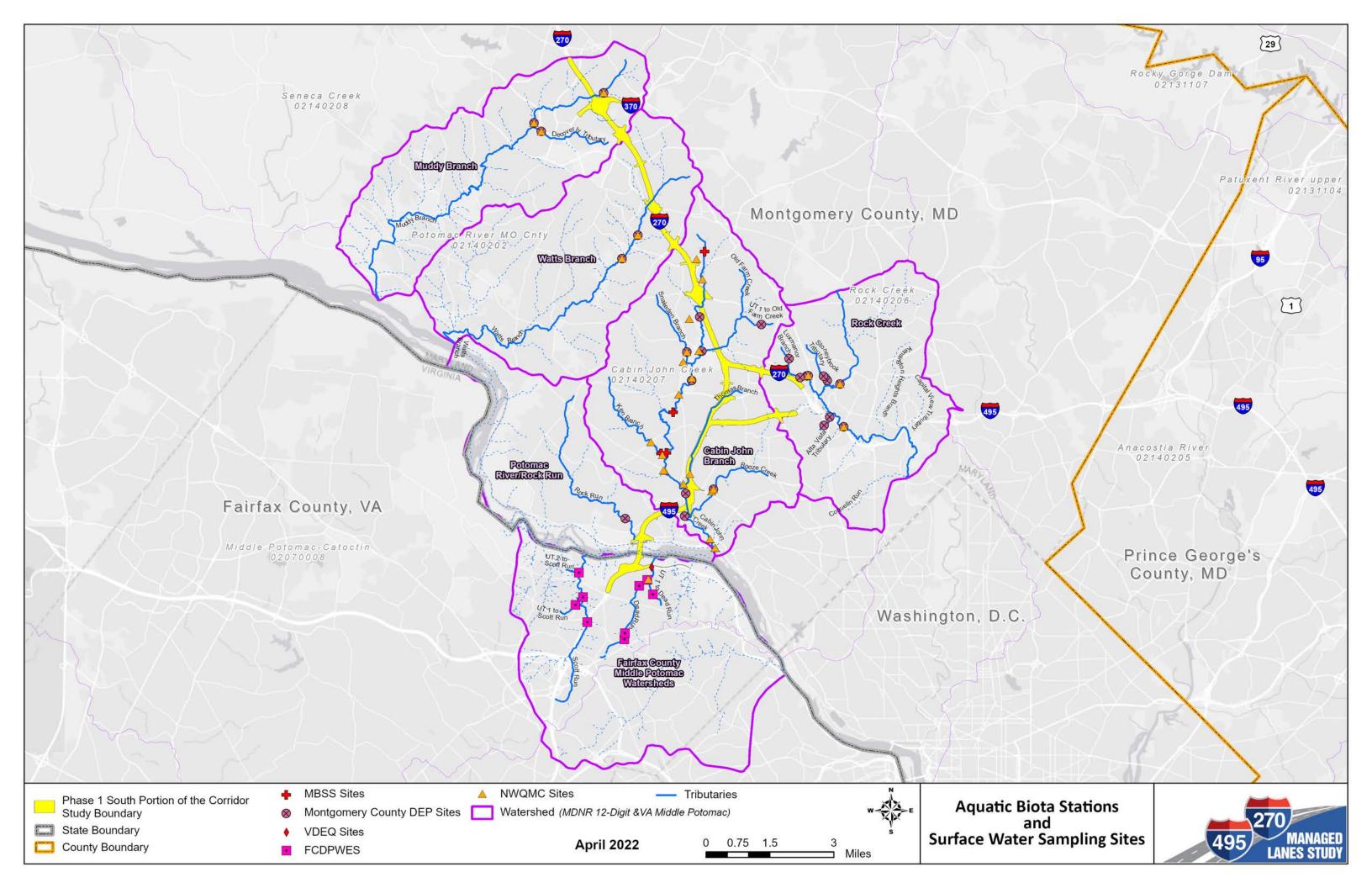
					Function/Value												
Feature ID	Classification	Area (ac)	Distance to Nearest Roadway/ Development (ft)	Groundwater Recharge/Discharge	Floodflow Alteration	Fish and Shellfish Habitat	Sediment/Toxicant Retention	Nutrient Removal	Production Export	Sediment/Shoreline Stabilization	Wildlife Habitat	Recreation	Education/Scientific Value	Uniqueness/Heritage	Visual Quality/Aesthetics	Endangered Species Habitat	Other
23F	PEM	0.63	75	Х	Х	Х	Х	Х	Х	Х	Х						
23GG	PFO	0.32	20	Х	Х		Х	Х									
23HH	PFO	>0.14	105	Х	Х		Х										
23J	PFO	0.20	106		Х		Х	Х									
23KK	PEM	0.53	105		Х		Х	Х									
23L	PEM	0.01	~40	Х	Х		Х	Х									
23LL	PEM	0.04	82	Х	Х		Х	Х			Х						
23MM	PFO	0.12	115	Х	Х		Х	Х			Х				Х		
23P	PFO	0.03	35	Х	Х		Х	Х	Х	Х	Х						
23W	PEM	0.32	43	Х	Х	Х	Х	Х		Х	Х						
23WW	PFO	0.06	65		Х		Х				Х						
23X	PEM	0.02	35	Х	Х		Х	Х		Х							L
Subsegment 24					1	1	[]					1	1		1	1	
24M	PFO	0.36	46	Х	Х		Х	Х	Х	Х	Х				Х		
24N	PFO	1.00	106	Х	Х		Х	Х		Х							
24Q	PFO	0.04	70	Х	Х		Х	Х		Х							
24R	PFO	1.27	300	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х		
24W	PEM	0.05	46	Х	Х		Х	Х	Х	Х	Х				Х		
24X	PEM	0.09	163	Х	Х		Х	Х	Х	Х	Х				Х		L
Subsegment 25	1					1							1			1	
25B	PFO	0.84	70	Х	Х		Х	Х									
25D	PFO	0.34	80	Х	Х	Х	Х	Х	Х	Х	Х						
25K	PEM	>1.26	30	Х	Х	Х	Х	Х	Х	Х	Х			Х	Х		
25M	PEM	<0.01	25				Х	Х									
25P	PSS	0.01	53	Х	Х		Х	Х			Х						
Subsegment 26			r			1	[1			1			1	
26A	PEM	0.28	56	Х	Х		Х	Х									
26D	PEM	0.02	30	Х	Х		Х	Х									
26E	PEM	0.03	48	Х	Х		Х	Х									
26F	PEM	1.57	30	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х		
26H	PEM	0.02	30	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х		Х		
Subsegment 27	1					1				, ı			1	[1	
27E	PFO	0.13	50	Х	Х	Х	Х	Х	Х	Х	Х						



Visual Quality/Aesthetics	Endangered Species Habitat	Other
_		
Х		
X X X	X X	
Х	Х	



APPENDIX K: AQUATIC BIOTA AND WATER QUALITY MONITORING STATIONS MAP





APPENDIX L: OBSERVED WILDLIFE TABLE



Vertebrates Observed Within the I-495 & I-270 MLS Preferred Alternative During Fieldwork

	AMPHIBIANS	-					
	Order Anura – Frogs and Toa	ds					
	American toad	Anaxyrus americanus					
Bufonidae	Fowler's toad	Anaxyrus fowleri					
Hylidae	Spring peeper	Pseudacris crucifer					
•	Green frog	Lithobates clamitans					
Ranidae	Pickerel frog	Lithobates palustris					
	American bullfrog	Lithobates catesbeianus					
	Order Caudata - Salamande						
Plethodonditdae	Eastern red-backed salamander	Plethodon cinereus					
	Northern two-lined salamander	Eurycea bislineata					
	REPTILES	L'arycea biointeata					
	Order Squamata – Lizards and S	nakes					
Scincidae	Five-lined skink	Plestiodon fasciatus					
Scincidae	North American racer	Coluber constrictor					
	Eastern rat snake	Pantherophis alleghaniensis					
	Common watersnake	Nerodia sipedon					
	Ring-necked snake	Diadophis punctatus					
Colubridae	common gartersnake	Thamnophis sirtalis					
	Eastern copperhead	Agkistrodon contortrix					
	Common wormsnake	Carphophis amoenus					
	Rough greensnake	Opheodrys aestivus					
	Order Testudines – Turtles						
Chelydridae	Snapping turtle	Chelydra serpentina					
Cheryunuae	Eastern box turtle ²	Terrapene carolina					
Emydidae	Eastern painted turtle	Chrysemys picta					
Emydidae	Red-bellied Turtle	Pseudemys rubriventris					
	BIRDS	Pseudennys rubriventris					
	Order Anseriformes – Geese and	Ducks					
	Canada goose	Branta canadensis					
	Lesser scaup	Aythya affinis					
Anatidae	Mallard	Anas platyrhynchos					
Anatidae	Hooded merganser	Lophodytes cucullatus					
	Wood duck	Aix sponsa					
	Order Accipitriformes –Haw						
	Cooper's hawk	Accipiter cooperii					
Acciptridae	Red-tailed hawk						
Accipititude	Red-shouldered hawk ¹	Buteo jamaicensis Buteo lineatus					
	Order Suliformes						
Phalacrocoracid	Double-crested cormorant	Nannopterum auritum					
rnalaciocoraciu							



	Order Pelecaniformes – Pelicans	and Herons
Ardeidae	Great blue heron ²	Ardea herodias
	Order Columbiformes – Doves a	and Pigeons
Columbidae	Mourning dove	Zenaida macroura
	Order Coraciiformes – King	fishers
Alcedinidae	Belted kingfisher	Megaceryle alcyon
	Order Piciformes – Woodp	eckers
	Red-bellied woodpecker	Melanerpes carolinus
	Downy woodpecker	Dryobates pubescens
Picidae	Hairy woodpecker ¹	Dryobates villosus
	Northern flicker	Colaptes auratus
	Pileated woodpecker ¹	Dryocopus pileatus
	Order Falconiformes - Fal	lcons
Falconidae	Peregrine falcon ²	Falco peregrinus
	Order Passeriformes – Perch	ing Birds
Tyrannidae	Eastern phoebe	Sayornis phoebe
Vireonidae	Red-eyed vireo ¹	Vireo olivaceus
Comideo	Blue jay	Cyanocitta cristata
Corvidae	Fish crow	Corvus ossifragus
Paridae	Carolina chickadee	Poecile carolinensis
Paridae	Tufted titmouse	Baeolophus bicolor
Regulidae	Golden-crowned kinglet	Regulus satrapa
Sittidae	White-breasted nuthatch	Sitta carolinensis
Polioptilidae	Blue-gray gnatcatcher	Polioptila caerulea
Troglodytidae	Carolina wren	Thryothorus ludovicianus
Mimidae	Gray catbird	Dumetella carolinensis
Sturnidae	European starling	Sturnus vulgaris
Turdidae	American robin	Turdus migratorius
Turuluae	Eastern bluebird	Sialia sialis
Fringillidae	House finch	Haemorhous mexicanus
Tinginuae	American goldfinch	Spinus tristis
	Dark-eyed junco	Junco hyemalis
Emberizidae	White-throated sparrow	Zonotrichia albicollis
	Song sparrow	Melospiza melodia
Icteridae	Red-winged blackbird	Agelaius phoeniceus
	Brown-headed cowbird	Molothrus ater
Cardinalidae	Northern cardinal	Cardinalis cardinalis
Cardinandae	Indigo bunting	Passerina cyanea
	Mammals	
	Order Lagomorpha – Rat	obits
Leporidae	Eastern cottontail	Sylvilagus floridanus
	Order Rodentia – Rode	nts



	Eastern chipmunk	Tamias striatus							
Sciuridae	Eastern gray squirrel	Sciurus carolinensis							
	Woodchuck	Marmota monax							
Order Carnivora – Carnivores									
Canidae	Red fox	Vulpes vulpes							
Procyonidae	Raccoon	Procyon lotor							
Order Artiodactyla – Even-toed Ungulates									
Cervidae	White-tailed deer	Odocoileus virginianus							

¹Forest Interior Dwelling Bird Species

²Species of Greatest Conservation Need





APPENDIX M: AQUATIC BIOTA MONITORING TABLE



Aquatic Habitat, BIBI, and FIBI Scores and Rankings for Monitoring Sites within the Vicinity of the Preferred Alternative

			Site				Aquatic Ha	abitat		BIBI	FIBI	
MD 12-digit Watershed Name	Waterway	Source	Site Coordinates	Site I.D.	Year	Method	Score	Narrative Ranking	Score	Narrative Ranking	Score	Narrative Ranking
Fairfax County Middle			38.959552,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.176163	1646305	2008				19.1	Very Poor		
Fairfax County Middle			38.959552,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.176163	1646305	2009				15.5	Very Poor		
Fairfax County Middle			38.959552,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.176163	1646305	2010				30.5	Poor		
Fairfax County Middle			38.959552,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.176163	1646305	2011				29.7	Poor		
Fairfax County Middle			38.959552,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.176163	1646305	2012				13.3	Very Poor		
Fairfax County Middle			38.959552,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.176163	1646305	2013				12.5	Very Poor		
Fairfax County Middle			38.959552,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.176163	1646305	2014				38	Poor		
Fairfax County Middle			38.959552,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.176163	1646305	2015				27.7	Poor		
Fairfax County Middle			38.959552,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.176163	1646305	2016				27.4	Poor		
Fairfax County Middle			38.959552,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.176163	1646305	2017				22.8	Poor		
Fairfax County Middle			38.959552,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.176163	1646305	2018				22.9	Poor		
Fairfax County Middle			38.963833,									
Potomac Watersheds ¹	Dead Run	VDEQ	-77.174194	1ADED000.29	2009	RBP	118	Good	22.1	Severe Stress		
Fairfax County Middle			38.963833,									
Potomac Watersheds ¹	Dead Run	VDEQ	-77.174194	1ADED000.29	2009	RBP	123	Good	45	Stress		
Fairfax County Middle			38.954615,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.173664	DE0801	2008	RBP	91	Fair	31.5	Poor		
Fairfax County Middle			38.939267,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.185968	DE1001	2010	RBP	81	Fair	23.7	Poor		Very Poor
Fairfax County Middle			38.941415,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.185826	DE1301	2013	RBP	100	Fair	32.8	Poor		Very Poor
Fairfax County Middle			38.957478,									
Potomac Watersheds ¹	Dead Run	FCDPWES	-77.179598	DE1501	2015	RBP	99	Fair	39.7	Poor		Very Poor
Fairfax County Middle			38.950935,				Ι Τ					
Potomac Watersheds ¹	Scotts Run	FCDPWES	-77.207424	SC0901	2009	RBP	108	Good/Fair	23.3	Poor		
Fairfax County Middle			38.953597,									
Potomac Watersheds ¹	Scotts Run	FCDPWES	-77.204092	SC1201	2012	RBP	63	Fair	18.1	Poor		Very Poor



			C!+-				Aquatic H	abitat		BIBI	FIBI	
MD 12-digit Watershed Name	Waterway	Source	Site Coordinates	Site I.D.	Year	Method	Score	Narrative Ranking	Score	Narrative Ranking	Score	Narrative Ranking
Fairfax County Middle			38.961924,									
Potomac Watersheds ¹	Scotts Run	FCDPWES	-77.205895	SC1401	2014	RBP	110	Good/Fair	66	Good		
Fairfax County Middle			38.945136,									
Potomac Watersheds ¹	Scotts Run	FCDPWES	-77.202216	SC1402	2014	RBP	99	Fair	37.7	Poor		Very Poor
			38.980389,									
Potomac River/Rock Run	Rock Run	MCDEP	-77.185753	RORO203	2010	RBP	141	Good	16	Poor	3.70	Good
			38.980389,									
Potomac River/Rock Run	Rock Run	MCDEP	-77.185753	RORO203	2014	RBP	127	Good	22	Fair	3.20	Fair
			38.990395,		2000			- ·			1.10	5
Cabin John Creek	Booze Creek	MCDEP	-77.147331	CJBC202	2008	RBP	96	Fair			1.40	Poor
Cabin Jahn Creak	Cabin Jahn Cuash	MADOG	39.07126, -	CARL 102 R 2017	2017	DUU			1.22	Marry Dalar	2.22	F _:-
Cabin John Creek	Cabin John Creek	MBSS	77.15142	CABJ-102-R-2017	2017	PHI			1.33	Very Poor	3.33	Fair
Cabin John Creek	Cabin John Creek	MBSS	39.002787, -77.167945	CABJ-207-B-2008	2008	PHI	79.56	Partially	1.33	Vory Door	3.33	Fair
		IVIDSS		CADJ-207-D-2006	2008	PHI	79.50	Degraded	1.55	Very Poor	5.55	Fall
Cabin John Creek	Cabin John Creek	MBSS	39.016612, -77.165032	CABJ-208-B-2008	2008	PHI	60.74	Degraded	1.00	Very Poor	3.67	Fair
		101055	39.049019,	CADJ-200-D-2008	2008	FIII	00.74	Degraded	1.00	Very POOI	3.07	i dii
Cabin John Creek	Cabin John Creek	MCDEP	-77.153427	CJCJ202	2008	RBP	135	Good	14	Poor	3.90	Good
			39.049019,	6,6,202	2000		100	0004		1001	5.50	0000
Cabin John Creek	Cabin John Creek	MCDEP	-77.153427	CJCJ202	2014	RBP	110	Good/Fair	12	Poor	4.10	Good
			39.02743, -									
Cabin John Creek	Cabin John Creek	MCDEP	77.15691	CJCJ302	2008	RBP	94	Fair	14	Poor	3.70	Good
			39.02743, -									
Cabin John Creek	Cabin John Creek	MCDEP	77.15691	CJCJ302	2014	RBP	105	Good/Fair	16	Poor	3.70	Good
			38.988956,									
Cabin John Creek	Cabin John Creek	MCDEP	-77.159439	CJCJ305	2008	RBP	141	Good	18	Fair	3.90	Good
			38.981262,									
Cabin John Creek	Cabin John Creek	MCDEP	-77.159813	CJCJ306	2008	RBP	120	Good	12	Poor	3.40	Good
			38.981262,									
Cabin John Creek	Cabin John Creek	MCDEP	-77.159813	CJCJ306	2014	RBP	108	Good/Fair	16	Poor	3.00	Fair
			39.002535,									
Cabin John Creek	Ken Branch	MBSS	-77.170184	CABJ-104-B-2008	2008	PHI	60.19	Degraded	1.00	Very Poor	3.00	Fair
			39.037365,									
Cabin John Creek	Old Farm Creek	MCDEP	-77.152504	CJOF204	2008	RBP	137	Good	10	Poor	3.00	Fair
			39.037365,									
Cabin John Creek	Old Farm Creek	MCDEP	-77.152504	CJOF204	2014	RBP	93	Fair	20	Fair	3.40	Good
			39.037064,		0005							
Cabin John Creek	Snakeden Branch	MCDEP	-77.159103	CJSB101	2008	RBP	106	Good/Fair	22	Fair		



			e ::				Aquatic H	abitat	BIBI		FIBI	
MD 12-digit Watershed Name	Waterway	Source	Site Coordinates	Site I.D.	Year	Method	Score	Narrative Ranking	Score	Narrative Ranking	Score	Narrative Ranking
			39.037064,						_	_		
Cabin John Creek	Snakeden Branch	MCDEP	-77.159103	CJSB101	2014	RBP	95	Fair	8	Poor		
Cabin John Creek	Unnamed Tributary to Old Farm Creek	MCDEP	39.046502 <i>,</i> -77.126512	CJOF103	2015	RBP	79	Fair			1.70	Poor
	· ·		39.012202,									
Rock Creek	Alta Vista Tributary	MCDEP	-77.099176	LRAV101A	2011	RBP	98	Fair				
			39.012202,									
Rock Creek	Alta Vista Tributary	MCDEP	-77.099176	LRAV101A	2012	RBP	116	Good	8	Poor	1.00	Poor
Pack Crock	Alto Visto Tributory	MCDED	39.012202,		2012	RBP	97	Fair	0	Door	1.40	Deer
Rock Creek	Alta Vista Tributary	MCDEP	-77.099176	LRAV101A	2013	KBP	97	Fair	8	Poor	1.40	Poor
Rock Creek	Alta Vista Tributary	MCDEP	39.014967, -77.096683	LRAV101B	2011	RBP	107	Good/Fair				
			39.014967,									
Rock Creek	Alta Vista Tributary	MCDEP	-77.096683	LRAV101B	2012	RBP	107	Good/Fair	8	Poor	1.40	Poor
			39.014967,									
Rock Creek	Alta Vista Tributary	MCDEP	-77.096683	LRAV101B	2013	RBP	123	Good	12	Poor	1.40	Poor
			39.028492,							-		
Rock Creek	Luxmanor Branch	MCDEP	-77.109673	LRLB101Z	2014	RBP	97	Fair	8	Poor		
Rock Creek	Luxmanor Branch	MCDEP	39.034875 <i>,</i> -77.114454	LRLB103	2014	RBP	120	Good	12	Poor		
		WIEDEI	39.029099,		2014		120	6000	12	1001		
Rock Creek	Luxmanor Branch	MCDEP	-77.106102	LRLB202	2008	RBP	110	Good/Fair	12	Poor	1.40	Poor
			39.029099,									
Rock Creek	Luxmanor Branch	MCDEP	-77.106102	LRLB202	2012	RBP	110	Good/Fair	10	Poor	1.40	Poor
			39.029099,				100			-		_
Rock Creek	Luxmanor Branch	MCDEP	-77.106102	LRLB202	2017	RBP	109	Good/Fair	10	Poor	1.40	Poor
Rock Creek	Luxmanor Branch	MCDEP	39.02903, - 77.10671	LRLB202A	2017	RBP	109	Good/Fair	8	Poor	1.70	Poor
NOCK CIEEK		WEDEI	39.026264,	LILDZUZA	2017	NDI	105	Goodynan	0	1001	1.70	1001
Rock Creek	Rock Creek	MCDEP	-77.0923	LRLR413	2008	RBP	118	Good	14	Poor	3.40	Good
			39.026264,									
Rock Creek	Rock Creek	MCDEP	-77.0923	LRLR413	2017	RBP	91	Fair	18	Fair		
			39.011749,									
Rock Creek	Rock Creek	MCDEP	-77.090576	LRLR418	2008	RBP	121	Good	18	Fair	3.90	Good
Pack Crook	Pack Crook	MCDED	39.011749,		2017	חחם	111	Cood/Fair	10	Eair	4.10	Cood
Rock Creek	Rock Creek	MCDEP	-77.090576 39.02896, -	LRLR418	2017	RBP	111	Good/Fair	18	Fair	4.10	Good
Rock Creek	Stoneybrook Tributary	MCDEP	39.02896, - 77.09946	LRST101A	2014	RBP	89	Fair	10	Poor	1.90	Poor



			Site				Aquatic H	abitat		BIBI		FIBI	
MD 12-digit Watershed Name	Waterway	Source	Coordinates	Site I.D.	Year	Method	Score	Narrative Ranking	Score	Narrative Ranking	Score	Narrative Ranking	
			39.027416,										
Rock Creek	Stoneybrook Tributary	MCDEP	-77.097766	LRST101B	2014	RBP	117	Good	12	Poor	2.30	Fair	
			39.076775,										
Watts Branch	Watts Branch	MCDEP	-77.180534	WBWB204	2007	RBP	101	Good/Fair	14	Poor	3.70	Good	
			39.076775,										
Watts Branch	Watts Branch	MCDEP	-77.180534	WBWB204	2014	RBP	131	Good	20	Fair	3.90	Good	
			39.068817,										
Watts Branch	Watts Branch	MCDEP	-77.187477	WBWB303	2007	RBP	104	Good/Fair	16	Poor	2.60	Fair	
			39.068817,										
Watts Branch	Watts Branch	MCDEP	-77.187477	WBWB303	2014	RBP	89	Fair	22	Fair	3.40	Good	
			39.068817,										
Watts Branch	Watts Branch	MCDEP	-77.187477	WBWB303R	2014	RBP	105	Good/Fair	20	Fair			
			39.111992,										
Muddy Branch	Decoverly Tributary	MCDEP	-77.222801	MBMB207	2007	RBP	132	Good	18	Fair	4.10	Good	
			39.12516, -										
Muddy Branch	Muddy Branch	MCDEP	77.195541	MBMB204	2007	RBP	120	Good	16	Poor			
			39.114853,										
Muddy Branch	Muddy Branch	MCDEP	-77.225922	MBMB302	2007	RBP	103	Good/Fair	16	Poor	3.40	Good	
			39.114853,										
Muddy Branch	Muddy Branch	MCDEP	-77.225922	MBMB302	2014	RBP	96	Fair	18	Fair	3.00	Fair	

¹Note that Fairfax County Middle Potomac Watersheds is not a MD 12-digit watershed



APPENDIX N: SELECT AGENCY CORRESPONDENCE

Caryn Brookman

From:	Ernst Aschenbach <ernie.aschenbach@dgif.virginia.gov></ernie.aschenbach@dgif.virginia.gov>
Sent:	Thursday, April 5, 2018 11:55 AM
То:	Caryn Brookman; Amy Golden
Cc:	ProjectReview (DGIF)
Subject:	Preliminary NEPA scoping request for project located entirely in Maryland, USA: MDOT SHA I-495 & I-270 managed lanes study

To Whom It may concern:

Subject: DGIF instructions in response to request for preliminary scoping review and comments.

We appreciate that you submitted your project(s) for review by VDGIF to ensure the protection of sensitive wildlife resources during project development. Due to current staffing limitations within our Fish and Wildlife Information Services (FWIS) and Environmental Services sections, we are unable to review and provide comments on projects that are not currently involved in one of the regulatory review processes for which we are a consultative agency see https://www.dgif.virginia.gov/environmental-programs/environmental-services-section/.

Please note that no response from VDGIF does not constitute "no comment" nor does it imply support of the project or associated activities. It simply means VDGIF has not been able to respond to your request.

To assist you in determining which, if any, wildlife resources under our jurisdiction, including threatened and endangered wildlife, may be present on or near your project site, we recommend that you access the Virginia Fish and Wildlife Information System (VAFWIS) at <u>http://vafwis.org/fwis/</u>.

If you should have further questions or need additional information about VDGIF's Environmental Programs, please visit: <u>https://www.dgif.virginia.gov/environmental-programs/</u>.

Please feel free to attach a copy of this correspondence and any reports from VAFWIS with your project paper work to document your correspondence with us regarding this project.

Thank you,

Ernie Aschenbach Environmental Services Biologist Virginia Dept. of Game and Inland Fisheries Phone: (804) 367-2733 Email: Ernie.Aschenbach@dgif.virginia.gov

<u>Physical Address</u>: 7870 Villa Park Drive, Suite 400 | Henrico, VA 23228 <u>Mailing Address</u>: P.O. Box 90778 | Henrico, VA 23228-0778 Matthew J. Strickler Secretary of Natural Resources

Clyde E. Cristman *Director*



Rochelle Altholz Deputy Director of Administration and Finance

Russell W. Baxter Deputy Director of Dam Safety & Floodplain Management and Soil & Water Conservation

Thomas L. Smith Deputy Director of Operations

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

MEMORANDUM

DATE: May 3, 2018

TO: Caryn J. G. Brookman, MDOT

FROM: Roberta Rhur, Environmental Impact Review Coordinator

SUBJECT: MDOT: I-495 & I-270 MANAGED LANES STUDY

Division of Planning and Recreation Resources

The Department of Conservation and Recreation (DCR), Division of Planning and Recreational Resources (PRR), develops the *Virginia Outdoors Plan* and coordinates a broad range of recreational and environmental programs throughout Virginia. These include the Virginia Scenic Rivers program; Trails, Greenways, and Blueways; Virginia State Park Master Planning and State Park Design and Construction.

This project potentially affects the George Washington Parkway, a National Scenic Byway. For this reason, we recommend coordination with the National Park Service.

Division of Natural Heritage

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, natural heritage resources have been documented in the project area (See Attached Table). The table lists natural heritage resources within two miles of the project footprint in Virginia. As specific projects are being planned, DCR recommends coordination with this office for updated natural heritage information and determination of potential impacts to natural heritage resources.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Game and Inland Fisheries (VDGIF) 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 <u>http://vafwis.org/fwis/</u> or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.



Coordination Sheet for MD DNR Environmental Review Related to Project Locations

Date of Request: June 19, 2018 Name of Requestor: Kirby Cole FMIS Number: AW073A11

Project Name and Location: I-495 and I-270 Managed Lanes Study

The Maryland Department of Transportation State Highway Administration is reviewing existing and future traffic, roadway, and environmental conditions along the I-495 and I-270 corridors to identify potential improvement alternatives and assess potential impacts. Please see the attached "Corridor Boundary" shapefile for precise study limits.

Please note that this letter does not provide information regarding rare, threatened, and endangered species, which are being coordinated between DNR's Wildlife and Heritage Service separately.

NAME OF STREAM(S) (and MDE Use Classification) WITHIN THE STUDY AREA:

I495 Streams Rock Run (Use I) Potomac River (Use I) Chesapeake & Ohio Canal (Use I) Cabin John Creek (Use I) Thomas Branch (Use I) Bulls Run (Use I) Old Farm Creek (Use I) Rock Creek (Use I) Unnamed Tributaries to Rock Creek (Use I) Sligo Creek (Use I) Northwest Branch Anacostia (Use IV) Paint Branch (Use III) Unnamed Tributary (UT) to Paint Branch (Use I) Indian Creek (Use I) Brier Ditch and UTs to Brier Ditch (Use I) Beaverdam Creek and UTs to Beaverdam Creek (Use I) Cattail Branch (Use I) Bald Hill Branch (Use I) Western Branch of Patuxent (Use I) UT to Henson Creek (Use I)

<u>I270 Streams</u> Cabin John Creek (Use I) Old Farm Creek (Use I) Watts Branch (Use I) Muddy Branch (Use I

DNR RESPONSE:

 $\sqrt{}$ Where presence of yellow perch has been documented in the vicinity of an instream project area, generally no instream work is permitted in Use I waters during the period of February 15 through June 15, inclusive, during any year (*Bald Hill Branch and Western Branch of Patuxent*).

<u> $\sqrt{}$ </u> Generally, no instream work is permitted in Use III streams during the period of October 1 through April 30, inclusive, during any year (*Paint Branch*).

GENERAL RESOURCES NOTES:

Important fisheries resources in this area include American Eel presence. American Eels migrate upstream through this region to smaller streams where they grow to adult stages. Some eels may reside within the project study area long term. Their spawning runs then take them back through this area as they migrate downstream as adults to a specific region of the Atlantic Ocean to spawn. Special attention has been given to American Eel management in recent years, due to their ecological and economic importance, and their declining numbers.

Our analysis of the information provided also suggests that the forested area on or adjacent to the project site contains Forest Interior Dwelling Bird habitat. Populations of many Forest Interior Dwelling Bird Species (FIDS) are declining in Maryland and throughout the eastern United States. The conservation of FIDS habitat is strongly encouraged by the Department of Natural Resources.

SITE SPECIFIC RESOURCE NOTES:

Rock Run (Use I) Potomac River (Use I) Chesapeake & Ohio Canal (Use I)

A nearby Maryland Biological Stream Survey (MBSS) station documents the following summary of findings for fish: American Eel, Blacknose Dace, Central Stoneroller, Creek Chubsucker, Cutlip Minnow, Fantail Darter, Green Sunfish, Greenside Darter, Longnose Dace, Redbreast Sunfish, Rosyside Dace, and White Sucker.

NHP mussels stations in the Potomac and C&O Canal document the following summary of findings: *Elliptio complanata* (Eastern Elliptio), *Elliptio producta, Lampsilis* species, and *Utterbackia imbecillis*.

The proposed project may be visible from the Potomac River which is a Maryland Scenic and Wild River; further coordination may need to be conducted with DNR as project planning and review continues.

Cabin John Creek (Use I) Thomas Branch (Use I) Bulls Run (Use I) Old Farm Creek (Use I)

Nearby Maryland Biological Stream Survey (MBSS) stations located on Cabin John Creek and Old Farm Creek document the following summary of findings for fish: American Eel, Blacknose Dace, Bluegill, Bluntnose Minnow, Central Stoneroller, Common Shiner, Creek Chub, Cutlip Minnow, Fantail Darter, Golden Shiner, Green Sunfish, Greenside Darter, Largemouth Bass, Longnose Dace, Northern Hogsucker, Potomac Sculpin, Redbreast Sunfish, Rock Bass, Rosyside Dace, Sea Lamprey, Shorthead Minnow, Silverjaw Minnow, Smallmouth Bass, Spotfin Shiner, Swallowtail Shiner, Tessellated Darter, and White Sucker.

Watts Branch (Use I) Muddy Branch (Use I)

MBSS Stations located on Watts Branch and Muddy Branch document the following summary of findings for fish: Blacknose Dace, Bluntnose Minnow, Central Stoneroller, Creek Chub, Fantail Darter, Green Sunfish, Greenside Darter, Longnose Dace, Pumpkinseed, Redbreast Sunfish, Rosyside Dace, Silverjaw Minnow, Tessellated Darter, White Sucker and Yellow Bullhead.

Rock Creek (Use I)

Unnamed Tributaries to Rock Creek (Use I)

Nearby Maryland Biological Stream Survey (MBSS) stations located on the Unnamed Tributary to Rock Creek and on Rock Creek document the following summary of findings for fish: American Eel, Blacknose Dace, Bluegill, Creek Chub, Cutlip Minnow, Fallfish, Green Sunfish, Longnose Dace, Northern Hogsucker, Pumpkinseed, Redbreast Sunfish, Satinfin Shiner, Spottail Shiner, Swallowtail Shiner, Tessellated Darter, White Sucker and Yellow Bullhead.

Sligo Creek (Use I)

Nearby MBSS stations located on Sligo Creek document the following summary of findings for fish: American Eel, Blacknose Dace, Bluegill, Creek Chub, Goldfish, Green Sunfish, Longnose Dace, and White Sucker.

Northwest Branch Anacostia (Use IV)

Northwest Branch of the Anacostia is stocked with adult trout during the spring season approximately in in the vicinity of the project location upstream of Maryland Route 410 to Norwood Road. Depending upon flow and in-stream conditions, stocked trout may be found near the project site. Nearby MBSS stations located on the Northwest Branch Anacostia document the following summary of findings for fish: Blacknose Dace, Bluntnose Minnow, Creek chub, Cutlip Minnow, Fantail Darter, Largemouth Bass, Longnose Dace, Margined Madtom, Northern Hogsucker, Redbreast Sunfish, Rosyside Dace, Satinfin Shiner, Spottail Shiner, Swallowtail Shiner, Tessellated Darter, and White Sucker.

There are records of *Cambarus acuminatus* (Acuminate Crayfish) located upstream and downstream of this project site. Crayfish are in Greatest Conservation Need. Species of greatest conservation need are those animals, both aquatic and terrestrial, which are at risk or are declining in Maryland. It is crucial that water quality and hydrology be maintained during all work at this site. We would like to emphasize the need to prevent any sediment or debris from reaching the creek at this location.

Paint Branch (Use III)

Unnamed Tributary to Paint Branch (Use I)

A nearby Maryland Biological Stream Survey (MBSS) station documents the following summary of findings for fish: American Eel, Blacknose Dace, Blue Ridge Sculpin, Bluegill, Creek Chub, Cutlip Minnow, Fallfish, Green Sunfish, Largemouth Bass, Longnose Dace, Margined Madtom, Northern Hogsucker, Redbreast Sunfish, Rosyside Dace, Satinfin Shiner, Sea Lamprey, Spottail Shiner, Swallowtail Shiner, Tessellated Darter, and White Sucker.

Paint Branch is a designated natural trout stream containing wild naturally reproducing Brown Trout that are mostly found in the upper section from East Randolph Road upstream and headwater tributaries including Good Hope and Gum Springs tributaries. Although not surveyed recently, Central Region Freshwater Fisheries staff found Brown Trout below Route 29 and below Route 95 in the past. The project location could potentially have Brown Trout year round but due to warmer stream temperatures during the summer, likely would be inhabited by Brown Trout during the warmer periods of the year. No evidence of spawning in the lower Paint Branch has been documented as most natural reproduction occurs in the Good Hope tributary and the upper Paint Branch above Fairland Road. Trout are a high priority species for protection and restoration because of widespread declines (e.g. water temp, habitat degradation, competition from exotics) throughout its native range. So while not federal or state listed, DNR recommends conservation measures to avoid and minimize trout impacts, and may be unlikely to grant waivers to stream closures.

There are records of Crayfish located nearby this project site, which are in Greatest Conservation Need. Species of greatest conservation need are those animals, both aquatic and terrestrial, which are at risk or are declining in Maryland. It is crucial that water quality and hydrology be maintained during all work at this site. We would like to emphasize the need to prevent any sediment or debris from reaching the creek at this location.

Little Paint Branch (Use I)

A nearby Maryland Biological Stream Survey (MBSS) station documents the following summary of findings for fish: American Eel, Blacknose Dace, Bluegill, Common Shiner, Creek Chub, Cutlip Minnow, Eastern Mudminnow, Fallfish, Largemouth Bass, Longnose Dace, Northern Hogfish, Pumpkinseed, Redbreast Sunfish, Satinfin Shiner, Spottail Shiner, Swallowtail Shiner, Tessellated Darter, White Sucker, and Yellow Bullhead.

Indian Creek (Use I) Brier Ditch and UTs to Brier Ditch (Use I) Beaverdam Creek and UTs to Beaverdam Creek (Use I) Cattail Branch (Use I)

In perennial stream reaches in this general vicinity, communities of several fish species can typically be found. Upstream and downstream MBSS stations document the following summary of findings for fish: American Eel, Blacknose Dace, Bluegill, Bluespotted Sunfish, Brown Bullhead, Chain Pickerel, Creek Chubsucker, Creek Chub, Cutlip Minnow, Eastern Mosquitofish, Eastern Mudminnow, Fallfish, Golden Shiner, Goldfish, Green Sunfish, Largemouth Bass, Least Brook Lamprey, Longnose Dace, Mummichog, Pumpkinseed, Redbreast Sunfish, Rosyside Dace, Sea Lamprey, Swallowtail Darter, Tesselated Darter, White Sucker, and Yellow Bullhead.

Indian Creek is designated as Tier II High Quality Waters upstream of this project area, demonstrating that both benthic and fish data for this stream segment is significantly higher than the standard. Any impacts requiring a permit may trigger an antidegradation review.

Bald Hill Branch (Use I)

Western Branch of Patuxent (Use I)

In perennial stream reaches in this general vicinity, communities of several fish species can typically be found. Upstream and downstream MBSS stations on Bald Hill Branch document the following summary of

findings for fish: American Brook Lamprey, American Eel, Black Crappie, Bluegill, Bluespotted Sunfish, Chain Pickerel, Creek Chubsucker, Eastern Mosquitofish, Eastern Mudminnow, Fallfish, Gizzard Shad, Glassy Darter, Green Sunfish, Largemouth Bass, Least Brook Lamprey, Margined Madtom, Pumpkinseed, Redbreast Sunfish, Redfin Pickerel, Rosyside dace, Satinfin Shiner, Sea Lamprey, Swallowtail, Tessellated Darter, White Sucker, Yellow bullhead, and Yellow Perch. The mussel, Elliptio complanata (Eastern Elliptio), has been documented downstream of the project area.

MBSS stations on the Western Branch of the Patuxent document the following summary of findings for fish: American Eel, Blacknose Dace, Bluegill, Creek Chub, Creek Chubsucker, Cutlip Minnow, Eastern Mosquitofish, Fallfish, Golden Shiner, Green Sunfish, Pumpkinseed, Redbreast Sunfish, Rosyside Dace, Satinfin Shiner, Swallowtail Shiner, Tessellated Darter, White Sucker, and yellow Bullhead.

Bald Hill Branch is designated as Tier II High Quality Waters in this project area, demonstrating that both benthic and fish data for this stream segment is significantly higher than the standard. Any impacts requiring a permit may trigger an antidegradation review.

Unnamed Tributaries to Henson Creek (Use I)

MBSS stations on the Henson Creek and its unnamed tributaries document the following summary of findings for fish: American Eel, Banded Killifish, Blacknose Dace, Bluegill, Central Stoneroller, Creek Chub, Creek Chubsucker, Eastern Mudminnow, Green Sunfish, Longnose Dace, Mummichog, Redbreast Sunfish, Rosyside Dace, Satinfin Shiner, Swallowtail Shiner, Tessellated Darter, and White Sucker.

ADDITIONAL COMMENTS ON BMPS:

Stream crossings, including culvert pipes and instream riprap, should not result in the blockage of passage for aquatic life. At least one culvert should be depressed at least one foot below stream invert, and a low flow channel should be provided through riprap structures.

To minimize solar heating of surface waters, the Department of Natural Resources encourages that infiltration, vegetation, or other design elements that encourage temperature regulation be incorporated into stormwater facility designs located in Use III and Use IV watersheds.

To minimize impact to water quality, DNR requests that runoff from bridge scuppers be diverted and possibly treated to not directly enter the waterway

Existing riparian vegetation in the area of the stream channel should be preserved as much as possible to maintain aquatic habitat and provide shading to the stream. Areas designated for the access of equipment and for the removal or disposal of material should avoid impacts to the stream and associated riparian vegetation. Any temporarily disturbed areas should be restored and re-vegetated. The use of concrete or grouting required to conduct repairs should be managed to assure curing processes do not impact the stream or modify stream PH.

The project area may be within or adjacent to mapped wetland areas, impacts from the use of heavy equipment, disposal of excavated material, or other construction activities should be avoided to the extent possible. When there is no reasonable alternative to the adverse effects on wetlands or other aquatic or

terrestrial habitat, the applicant shall be required to provide measures to mitigate, replace, or minimize the loss of habitat.

The fisheries resources in the above area should be adequately protected by the instream work restrictions referenced above, stringent sediment and erosion control methods, and other Best Management Practices typically used for protection of stream resources.

MD DNR, Environmental Review signature

Guen Gibzen

Gwen Gibson

DATE: January 10, 2019



United States Department of the Interior

FISH AND WILDLIFE SERVICE Chesapeake Bay Ecological Services Field Office 177 Admiral Cochrane Drive Annapolis, MD 21401-7307 Phone: (410) 573-4599 Fax: (410) 266-9127 <u>http://www.fws.gov/chesapeakebay/</u> http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html



July 11, 2018

In Reply Refer To: Consultation Code: 05E2CB00-2018-SLI-1540 Event Code: 05E2CB00-2018-E-03365 Project Name: I-495 and I-270 Managed Lanes Study

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/ eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive Annapolis, MD 21401-7307 (410) 573-4599

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Virginia Ecological Services Field Office

6669 Short Lane Gloucester, VA 23061-4410 (804) 693-6694

Project Summary

Consultation Code:	05E2CB00-2018-SLI-1540
Event Code:	05E2CB00-2018-E-03365
Project Name:	I-495 and I-270 Managed Lanes Study
Project Type:	TRANSPORTATION
Project Description:	Environmental Impact Statements (EIS) and Record of Decision (ROD) for the Traffic Relief Plan: I-495 and I-270 Managed Lanes Study in compliance with the National Environmental Policy Act (NEPA) process. The study limits include I-495 (Capital Beltway) in Montgomery and Prince George's Counties, Maryland, near the American Legion Bridge (ALB) in Virginia to near the Woodrow Wilson Bridge approximately at MD 210, and I-270 from I-495 to I-370, including the east and west spurs along I-270.

Project Location:

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/place/38.976551115377056N76.87217305679863W</u>



Counties: Montgomery, MD | Prince George's, MD | Fairfax, VA

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to <u>NWI wetlands</u> and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local <u>U.S. Army Corps of Engineers District</u>.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- <u>PEM1Fh</u>
- <u>PEM1/SS1Fh</u>
- <u>PEM1Ch</u>
- <u>PEM5Ax</u>
- <u>PEM1A</u>
- <u>PEM1E</u>
- <u>PEM1/SS1A</u>
- <u>PEM1/SS1C</u>
- <u>PEM5A</u>

FRESHWATER FORESTED/SHRUB WETLAND

- <u>PFO1A</u>
- <u>PFO1/EM1F</u>
- <u>PFO1Ax</u>
- <u>PFO1C</u>
- <u>PSS1C</u>
- <u>PSS1A</u>
- <u>PSS1Ah</u>
- PFO1/EM5Ax
- <u>PFO1E</u>
- <u>PSS1Cx</u>
- <u>PSS1/EM5A</u>

FRESHWATER POND

- <u>PABHx</u>
- <u>PABHh</u>
- <u>PUBFx</u>

- <u>PUBFh</u>
- <u>PUBHh</u>
- <u>PUBHx</u>
- <u>PUSCx</u>

LAKE

- <u>L1UBHh</u>
- <u>L1UBHx</u>

RIVERINE

- <u>R4SBC</u>
- <u>R5UBH</u>
- <u>R2UBH</u>
- <u>R3UBH</u>
- R2UBHx
- <u>R2USC</u>



United States Department of the Interior

FISH AND WILDLIFE SERVICE Virginia Ecological Services Field Office 6669 Short Lane Gloucester, VA 23061-4410 Phone: (804) 693-6694 Fax: (804) 693-9032 http://www.fws.gov/northeast/virginiafield/



July 11, 2018

In Reply Refer To: Consultation Code: 05E2VA00-2018-SLI-4358 Event Code: 05E2VA00-2018-E-09962 Project Name: I-495 and I-270 Managed Lanes Study

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/ eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/correntBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office

6669 Short Lane Gloucester, VA 23061-4410 (804) 693-6694

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive Annapolis, MD 21401-7307 (410) 573-4599

Project Summary

Consultation Code:	05E2VA00-2018-SLI-4358
Event Code:	05E2VA00-2018-E-09962
Project Name:	I-495 and I-270 Managed Lanes Study
Project Type:	TRANSPORTATION
Project Description:	Environmental Impact Statements (EIS) and Record of Decision (ROD) for the Traffic Relief Plan: I-495 and I-270 Managed Lanes Study in compliance with the National Environmental Policy Act (NEPA) process. The study limits include I-495 (Capital Beltway) in Montgomery and Prince George's Counties, Maryland, near the American Legion Bridge (ALB) in Virginia to near the Woodrow Wilson Bridge approximately at MD 210, and I-270 from I-495 to I-370, including the east and west spurs along I-270.

Project Location:

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/place/38.976551115377056N76.87217305679863W</u>



Counties: Montgomery, MD | Prince George's, MD | Fairfax, VA

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis	Threatened
No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/9045</u>	
Species prome. <u>https://ecos.tws.gov/cep/species/2045</u>	
Clams	
NAME	STATUS

Yellow Lance Elliptio lanceolata

No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/4511</u>

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Threatened

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Christina Simini

Subject:

FW: I-495 & I-270 Managed Lanes Study in Maryland and Virginia; Request for Information

From: Brian D Hopper - NOAA Federal <<u>brian.d.hopper@noaa.gov</u>>
Sent: Thursday, August 9, 2018 7:47 AM
To: Caryn Brookman <<u>CBrookman@sha.state.md.us</u>>
Cc: Kristy Beard - NOAA Federal <<u>kristy.beard@noaa.gov</u>>; Maddy Sigrist <<u>msigrist@rkk.com</u>>; Erron Ramsey
<<u>eramsey@rkk.com</u>>
Subject: Re: I-495 & I-270 Managed Lanes Study in Maryland and Virginia; Request for Information

Hi Caryn,

Atlantic and shortnose sturgeon are present in the Potomac River. The New York Bight, Chesapeake Bay, South Atlantic and Carolina DPS of Atlantic sturgeon are endangered; the Gulf of Maine DPS is threatened. Shortnose sturgeon are endangered throughout their range.

However, after reviewing the study area involved with this proposed project, we have concluded that no federally listed or proposed threatened or endangered species under our jurisdiction will be exposed to any direct or indirect effects of the action. Based on this, we do not believe a consultation in accordance with section 7 of the Endangered Species Act is necessary. Should project plans change or new information become available that changes the basis for this determination, further coordination should be pursued. If you have any questions regarding these comments, please contact me (410-573-4592; brian.d.hopper@noaa.gov). Please be aware that we have recently provided guidance and tools on our website (http://www.greateratlantic.fisheries.noaa.gov/protected/section7/) to assist action agencies with their description of the action and analysis of effects to support their determination.

Regards, -Brian

On Mon, Aug 6, 2018 at 7:15 AM, Caryn Brookman < CBrookman@sha.state.md.us> wrote:

Good morning Kristy,

Thank you for the information you provided regarding fish species and habitat in the Potomac. This is really helpful information.

Brian,

Following up on our initial request, we would like to know if there are any federally listed threatened or endangered species under NMFS jurisdiction in the reach of the Potomac within our study area (near the American Legion Bridge). Please let me know if you need any additional information from us.

Thank you,

Caryn

From: Kristy Beard - NOAA Federal <<u>kristy.beard@noaa.gov</u>>
Sent: Friday, July 27, 2018 1:28 PM
To: Caryn Brookman <<u>CBrookman@sha.state.md.us</u>>
Cc: Maddy Sigrist <<u>msigrist@rkk.com</u>; eramsey@rkk.com; Brian D Hopper <<u>brian.d.hopper@noaa.gov</u>>
Subject: Re: I-495 & I-270 Managed Lanes Study in Maryland and Virginia; Request for Information

Hi Caryn,

We have reviewed the information you provided and we offer the following preliminary comments pursuant to the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act:

The Potomac River and its tributaries provide habitat for a wide variety of NOAA trust resources. It serves as migratory pathways and nursery, forage, and spawning area for anadromous fish including American shad, alewife, and blueback herring. Efforts

should be made to avoid and minimize adverse effects to the aquatic environment, particularly related to the release of suspended sediment in the waterway.

We generally make the following recommendations to minimize impacts to anadromous fish spawning habitat:

1. Ensure that fish passage is maintained at the site and no new blockage is created. This includes making sure that there is not a change in water velocity that would prevent fish from passing.

2. Restore any temporary impacts to bottom habitat to existing conditions to prevent long term changes to spawning habitat.

3. Restrict in-water work during anadromous fish spawning, from February 15 through June 15.

The project does not fall within essential fish habitat, so our interests are limited to impacts on anadromous fish, which are prey for Federally managed species.

Brian Hopper (copied here) can answer any questions you have about threatened or endangered species under NMFS jurisdiction.

Please let me know if you have questions.

Kristy

On Mon, Jul 16, 2018 at 7:35 AM, Caryn Brookman <<u>CBrookman@sha.state.md.us</u>> wrote:

Good morning Mary:

Please find attached a letter requesting information on threatened or endangered species within the study area corridor boundary for the I-495 & I-270 Managed Lanes Study in Fairfax County Virginia and Montgomery and Prince George's Counties, Maryland. A map is also attached for your information. Please let me know If you require any additional information.

Thank you,

Caryn



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--

Kristy Beard Marine Habitat Resource Specialist Habitat Conservation Division

NOAA Fisheries <u>177 Admiral Cochrane Drive</u> <u>Annapolis, MD 21401</u> <u>410</u>-573-4542

http://www.nmfs.noaa.gov/

Brian D. Hopper Protected Resources Division NOAA Fisheries Greater Atlantic Regional Fisheries Office 177 Admiral Cochrane Dr. Annapolis, MD 21401 (410) 573-4592 <u>Brian.D.Hopper@noaa.gov</u> http://www.greateratlantic.fisheries.noaa.gov/



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July 17, 2018

MEMO To: Gwen Gibson, IPR

From: Lori Byrne, WHS

RE: Environmental Review for I-270/I-495 Managed Lane Study - AW073A11 Montgomery & Prince George's Counties

The Wildlife and Heritage Service has determined that there are the following areas of concern in regard to potential impacts to rare, threatened or endangered species, in the study corridor that you have provided:

In the area of the project route crossing of the Potomac River, there are records for these RT&E species occurring within close proximity where they may be directly impacted by this project:

Scientific Name	Common Name	State Status
Rumex altissimus	Tall Dock	Endangered
Paspalum fluitans	Horse-tail Paspalum	Endangered
Matelea obliqua	Climbing Milkweed	Endangered
Baptisia australis	Blue Wild Indigo	Threatened
Coreopsis tripteris	Tall Tickseed	Endangered
Phacelia covillei	Buttercup Scorpionweed	Endangered

Near Sellman Road there is a meadow habitat within a powerline right-of-way that is known to support occurrences of state-listed threatened Sundial Lupine (*Lupinus perennis*) and state-listed endangered Long's Rush (*Juncus longii*). The Lupine occurs in open sandy soils within the powerline corridor and the Long's Rush is found in seepage areas in the same corridor.

Just south of the intersection of Powder Mill Road with I-95, there are wetlands associated with Little Paint Branch that are designated in state regulations as NTWSSCs, and are regulated by MDE, due in part to the presence of these species: Long's Rush, state-listed threatened Long-stalk Greenbrier (*Smilax pseudochina*) and state rare Pink Milkwort (*Polygala incarnata*). Impacts to this wetland should be avoided as much as possible.

Where the project route crosses Little Paint Branch in the area of Cherry Hill, there are records for the statelisted threatened American Brook Lamprey (*Lethenteron appendix*) and the Acuminate Crayfish (*Cambarus acuminatus*), a species with In Need of Conservation status in Maryland. Maintaining good water quality and hydrology is important to these species.

Adjacent to the Greenbelt Metro Station, a stream system associated with Indian Creek supports a population of state-listed endangered Trailing Stitchwort (*Stellaria alsine*). Impacts to the floodplain should be avoided and all appropriate BMPs for sediment and erosion control should be stringently enforced.

Page 2

On the northeast side of the project route where Indian Creek crosses there are records for state rare Laura's Clubtail (*Stylurus laurae*) and state-listed threatened Selys' Sundragon (*Helocordulia selysii*) occurring downstream in Beaverdam Creek where the wetland is designated as a NTWSSC. These odonate species have an aquatic larval stage that is very susceptible to changes in water quality.

Where the project route overlaps Bald Hill Branch, there are records for these species in close proximity to the project route, downstream in Western Branch. Maintaining good water quality and hydrology is important to these species, especially the fish.

Scientific Name	Common Name	State Status
Arundinaria tecta	Switch Cane	Rare
Lethenteron appendix	American Brook Lamprey	Threatened
Etheostoma vitreum	Glassy Darter	Threatened
Percina notogramma	Stripeback Darter	Endangered

Thank you for the opportunity to review and comment. We look forward to further coordination as project details become available. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

ER# 2018.0981.pg/mo



September 11, 2018

MEMO To: Gwen Gibson, IPR

From: Lori Byrne, WHS

RE: Follow-Up to Environmental Review for I-270/I-495 Managed Lane Study - AW073A11 Montgomery & Prince George's Counties

Regarding the need for RT&E species surveys, please see the additional comments after each section. The Wildlife and Heritage Service has determined that there are the following areas of concern in regard to potential impacts to rare, threatened or endangered species, in the study corridor that you have provided:

In the area of the project route crossing of the Potomac River, there are records for these RT&E species occurring within close proximity where they may be directly impacted by this project. We recommend that surveys for these species be conducted in areas of appropriate habitat that may fall within proposed limits-of-disturbance for this project.

<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>
Rumex altissimus	Tall Dock	Endangered
Paspalum fluitans	Horse-tail Paspalum	Endangered
Matelea obliqua	Climbing Milkweed	Endangered
Baptisia australis	Blue Wild Indigo	Threatened
Coreopsis tripteris	Tall Tickseed	Endangered
Phacelia covillei	Buttercup Scorpionweed	Endangered
Based on a compilation of Mar	yland records, habitat info and	flowering/fruiting info for these species is described as:
Rumex altissimus Polygonacea	ae (Smartweed Family)	
Habitat: Frequently flooded zon	nes along rivers in sandy/grave	lly alluvium; also forested wetlands in muck soils.
Flw: May-Jun (July); Fr: Aug.		
Paspalum fluitans Poaceae (G	rass Family)	
Habitat: Floodplain seeps and p	pools in muck soils; seasonally	exposed rocky stream channels.
Flw/Fr: late Aug-Sept (Oct).		
Matelea obliqua Apocynaceae	(Dogbane Family)	
Habitat: Bedrock scour and terr	race woodlands in rich alluviur	n, upland forests, barrens, glades, clearings, and roadsides
over limestone or shale substra	tes.	
Flw: Jun-Jul; Fr: Sept.		
Baptisia australis Fabaceae (Le	egume Family)	
Habitat: Prairie-like scour bars	, depositional bars, rocky alluv	ial flats.
Flw: May; Fr: late Jun-Aug.		
Coreopsis tripteris Asteraceae	(Aster Family)	
Habitat: Bedrock scour bars an	d riverside prairies, in rich allu	vium.
Flw: Sept; Fr: Sept-Oct.		
Phacelia covillei Boraginaceae	(Borage Family)	
Habitat: Rich floodplain and te		upland woods.
-		

Page 2

Near Sellman Road there is a meadow habitat within a powerline right-of-way that is known to support occurrences of state-listed threatened Sundial Lupine (*Lupinus perennis*) and state-listed endangered Long's Rush (*Juncus longii*). The Lupine occurs in open sandy soils within the powerline corridor and the Long's Rush is found in seepage areas in the same corridor. If either of these suitable habitats occurs in proposed limits-of-disturbance for this project, we recommend that surveys be conducted for these species. Based on a compilation of Maryland records, habitat info and flowering/fruiting info for these species is described as: *Lupinus perennis* Fabaceae (Legume Family)

Habitat: Dry sandy soils of inland dunes and sand ridge woodlands, sandy powerline meadows, dry rocky slopes and outcrops.

Flw: May-early Jun; Fr: late Jun-early Jul. *Juncus longii* Juncaceae (Rush Family) Habitat: Open-canopied seepage wetlands, roadside seeps, powerlines.

Just south of the intersection of Powder Mill Road with I-95, there are wetlands associated with Little Paint Branch that are designated in state regulations as NTWSSCs, and are regulated by MDE, due in part to the presence of these species: Long's Rush, state-listed threatened Long-stalk Greenbrier (*Smilax pseudochina*) and state rare Pink Milkwort (*Polygala incarnata*). Impacts to this wetland should be avoided as much as possible. If impacts to this NTWSSC are unavoidable, we may ask for the extent of these populations to be delineated so that impacts can be evaluated.

Where the project route crosses Little Paint Branch in the area of Cherry Hill, there are records for the state-listed threatened American Brook Lamprey (*Lethenteron appendix*) and the Acuminate Crayfish (*Cambarus acuminatus*), a species with In Need of Conservation status in Maryland. Maintaining good water quality and hydrology is important to these species. We would not recommend surveys for these aquatic species, but instead would want to emphasize the need for stringent sediment and erosion control during all work in this area.

Adjacent to the Greenbelt Metro Station, a stream system associated with Indian Creek supports a population of state-listed endangered Trailing Stitchwort (*Stellaria alsine*). Impacts to the floodplain should be avoided and all appropriate BMPs for sediment and erosion control should be stringently enforced. Recent surveys have indicated that this population still exists within the braided stream floodplain to the southwest of I-95/495, therefore we would not recommend more surveys, but instead would want to emphasize the need for stringent sediment and erosion control during all work in this area.

On the northeast side of the project route where Indian Creek crosses there are records for state rare Laura's Clubtail (*Stylurus laurae*) and state-listed threatened Selys' Sundragon (*Helocordulia selysii*) occurring downstream in Beaverdam Creek where the wetland is designated as a NTWSSC. These odonate species have an aquatic larval stage that is very susceptible to changes in water quality. We would not recommend surveys for these aquatic species, but would want to emphasize the need for stringent sediment and erosion control during all work in this area.

Where the project route overlaps Bald Hill Branch, there are records for these species in close proximity to the project route, downstream in Western Branch. Maintaining good water quality and hydrology is important to these species. We would not recommend surveys for these aquatic species, but would want to emphasize the need for stringent sediment and erosion control during all work in this area.

Scientific Name	Common Name	State Status
Arundinaria tecta	Switch Cane	Rare
Lethenteron appendix	American Brook Lamprey	Threatened
Etheostoma vitreum	Glassy Darter	Threatened
Percina notogramma	Stripeback Darter	Endangered

Thank you for the opportunity to review and comment. We look forward to further coordination as project details become available. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

ER#	2018.0981x.pg/mo
Cc:	K. McCarthy, DNR

O NUMBER	GROUP NAME	SCIENTIFIC NAME	COMMON NAME	GLOBAL RANK	STATE RANK FEDERAL PROTECTION STATUS	STATE PROTECTION STATUS	ASSOCIATED CONSERVATION SITE NAM
	3 Invertebrate Animal	Stygobromus pizzinii	Pizzini's Amphipod	G3G4	S1S2		
	5 Vascular Plant	Cirsium altissimum	Tall Thistle	G5	S1		
	2 Invertebrate Animal	Stygobromus pizzinii	Pizzini's Amphipod	G3G4	S1S2		
	9 Invertebrate Animal	Sphinx franckii	Franck's Sphinx	G4G5	5253		POTOMAC GORGE
	2 Vascular Plant	Echinocystis lobata	Wild cucumber	G5	SH		
	4 Invertebrate Animal	Stygobromus pizzinii	Pizzini's Amphipod	G3G4	5152		POTOMAC GORGE
	3 Vascular Plant	Silene nivea	Snowy Campion	G4?	S1		POTOMAC GORGE
	5 Vascular Plant	Cuscuta polygonorum	Smartweed Dodder	G5	S1		
	2 Vascular Plant	Rhododendron arborescens	Sweet azalea	G4G5	S2		POTOMAC GORGE
		Acer rubrum - Fraxinus (pennsylvanica, americana) /	Piedmont / Northern Coastal Plain Basic Seepage				
	5 Terrestrial Natural Community	Lindera benzoin / Symplocarpus foetidus Forest	Swamp	G4G5	S2?		POTOMAC GORGE
	1 Vascular Plant	Valeriana pauciflora	Pink valerian	G4	S1		POTOMAC GORGE
		Acer (nigrum, saccharum) - Tilia americana / Asimina					
		triloba / Jeffersonia diphylla - Caulophyllum	Central Appalachian / Piedmont Basic Mesic Forest				
	1 Terrestrial Natural Community	thalictroides Forest	(Twinleaf - Blue Cohosh Type)	G4G5	S4		POTOMAC GORGE
		Fagus grandifolia - Quercus (alba, rubra) - Liriodendron					
		tulipifera / (Ilex opaca) / Polystichum acrostichoides	Northern Coastal Plain / Piedmont Mesic Mixed				
	6 Terrestrial Natural Community	Forest	Hardwood Forest	G5	S5		POTOMAC GORGE
		Fagus grandifolia - Liriodendron tulipifera - Carya		8			
		cordiformis / Lindera benzoin / Podophyllum peltatum					
	5 Terrestrial Natural Community	Forest	Coastal Plain / Outer Piedmont Basic Mesic Forest	G4?	\$3		POTOMAC GORGE
		Platanus occidentalis - Acer negundo - Juglans nigra /					
	4 Terrestrial Natural Community	Asimina triloba / Mertensia virginica Forest	Piedmont / Central Appalachian Rich Floodplain Forest	G4	\$3\$4		POTOMAC GORGE
		Acer (saccharum, nigrum) - Tilia americana / Staphylea					
		trifolia / Dryopteris marginalis - (Impatiens pallida)	Central Appalachian / Piedmont Low-Elevation Rich				
	1 Terrestrial Natural Community	Forest	Boulderfield Forest	G3G4	\$2\$3		POTOMAC GORGE
	1 Vascular Plant	Arabis patens	Spreading rock cress	G3	S1		POTOMAC GORGE
	1 Invertebrate Animal	Stygobromus pizzinii	Pizzini's Amphipod	G3G4	S1S2		
		Tsuga canadensis - Fagus grandifolia - Quercus					
	2 Terrestrial Natural Community	(montana, alba) Forest	Piedmont / Coastal Plain Hemlock - Hardwood Forest	G2G3	S1		POTOMAC GORGE
	0 Invertebrate Animal	Bombus (Bombus) affinis	Rusty-patched Bumblebee	G1	S1 LE		
	9 Vascular Plant	Rorippa sessiliflora	Stalkless yellow cress	G5	S2		POTOMAC GORGE
	2 Vascular Plant	Lipocarpha micrantha	Small-flower halfchaff sedge	G5	S2		POTOMAC GORGE
	3 Vascular Plant	Senecio suaveolens	Sweet-scented Indian-plantain	G4	S2		POTOMAC GORGE
	1 Terrestrial Natural Community	Justicia americana Herbaceous Vegetation	Water-Willow Rocky Bar and Shore	G4G5	S4		POTOMAC GORGE
	2 Vascular Plant	Sida hermaphrodita	Virginia sida	G3	S1		POTOMAC GORGE
	1 Vascular Plant	Enemion biternatum	False Rue-anemone	G5	S1		POTOMAC GORGE
	2 Vascular Plant	Maianthemum stellatum	Starry Solomon's-plume	G5	\$1\$2		POTOMAC GORGE
	4 Aquatic Natural Community	NP-Middle Potomac-Catoctin Second Order Stream	NP-Middle Potomac-Catoctin Second Order Stream	G2?	S2?		POTOMAC RIVER - YELLOW FALLS SCU
	5 Vertebrate Animal	Glyptemys insculpta	Wood Turtle	G3	S2	LT	POTOMAC GORGE
	7 Vascular Plant	Eryngium yuccifolium var. yuccifolium	Northern rattlesnake-master	G5T5	S2		POTOMAC GORGE
	3 Vascular Plant	Orthilia secunda	One-sided shinleaf	G5	SH		
	2 Vascular Plant	Phacelia covillei	Coville's phacelia	G3	S1		POTOMAC GORGE
	3 Invertebrate Animal		Midland Clubtail	G5	S2		POTOMAC RIVER - YELLOW FALLS SCU
	2 Vertebrate Animal	Glyptemys insculpta	Wood Turtle	G3	S2	LT	POTOMAC GORGE
	6 Vascular Plant	Cerastium velutinum var. velutinum	Field chickweed	G5T4?	\$1\$2		POTOMAC GORGE
	2 Vascular Plant	Erythronium albidum	White trout lily	G5	S2		POTOMAC GORGE
	1 Invertebrate Animal	Stygobromus sextarius	Capital area groundwater amphipod	G1	S1		POTOMAC GORGE
		Quercus montana - Quercus rubra / Hamamelis	Central Appalachian Dry-Mesic Chestnut Oak - Northern				
	2 Terrestrial Natural Community	virginiana Forest	Red Oak Forest	G5	S4		POTOMAC GORGE
		Platanus occidentalis - Acer saccharinum - Ulmus					
		americana - Fraxinus pennsylvanica / Boehmeria	Piedmont / Central Appalachian Bedrock Floodplain				
	1 Terrestrial Natural Community	cylindrica - Carex emoryi Woodland	Scour Woodland	G2?	S1		POTOMAC GORGE
		Platanus occidentalis - Betula nigra - Salix (caroliniana,	Piedmont / Central Appalachian Sycamore - River Birch	8			
	3 Terrestrial Natural Community	nigra) / Apocynum sibiricum Woodland	Scour Woodland	G4G5	\$3		POTOMAC GORGE
	1 Vascular Plant	Spartina pectinata	Freshwater Cordgrass	G5	S2		POTOMAC GORGE
	1 Vascular Plant	Matteuccia struthiopteris var. pensylvanica	Ostrich Fern	G5T5	S1		POTOMAC GORGE
	1 Vascular Plant	Solidago racemosa	Sticky Goldenrod	G5T3?	S1		POTOMAC GORGE
	3 Vascular Plant	Boechera dentata	Short's rock cress	G5	S1		POTOMAC GORGE
ONSERVATION SITE NAME	BIODIVERSITY RANK	LEGAL STATUS					
OTOMAC RIVER - YELLOW FALLS SCU	B3	NL					
OTOMAC GORGE	B1	SL					

From:	Li, Ray
To:	Caryn Brookman
Cc:	Trevor Clark; Mar, Jeanette (FHWA)
Subject:	Re: [EXTERNAL] One Federal Decision: Request for Review of Draft Permitting Timetable
Date:	Friday, January 11, 2019 3:10:14 PM

Hi Caryn -

Here are draft comments related to the Endangered Species Act and Draft Permitting Timetable for I-495 / I-270 Managed Lanes Study. Please accept these as draft and not official FWS comments since I haven't been able to get management input on this during the partial government shutdown.

There are two federally listed species under FWS jurisdiction that may be present within the project area:

- Yellow lance (= federal threatened) we have records of yellow lance occurring in the Potomac River above and below the project area. Our office is
 continuing work with resource partners in MD and VA to confirm yellow lance records and to update the species' IPaC Area of Influence within the
 Potomac River. Depending on the updated Area of Influence and construction activities proposed at the I-495 crossing(s) over the Potomac River, a mussel
 survey and/or conservation measures may be helpful to avoid and minimize adverse effects to yellow lance. We're hoping to update the yellow lance's IPaC
 Area of Influence within the next couple months.
- VA portions of the project area is within the Northern long-eared bat's (NLEB; = federal threatened) range and there may be suitable roosting habitat in
 trees and Potomac River bridges. We are coordinating with our VA field office to determine if the project may affect NLEB and if so, whether a TOYR or
 the FHWA Programmatic Section 7 Biological Opinion (https://www.fws.gov/midwest/endangered/section7/fhwa/index.html) might be suitable
 approach(es) to reduce likelihood of adverse affects to NLEB.

In addition to the listed species, there are 5 species proposed for federal listing that may occur near the project area. As we continue to gather information through the Species Status Assessment process, I will screen species location and distribution information to identify species that may occur within the project's action area.

• Tidewater amphipod - expected decision date: Sept 2019

- · Brook floater expected decision date: Sept 2019
- Green floater expected decision date: Sept 2021
- Monarch butterfly expected decision date: June 2019
- Yellow banded bumblebee expected decision date: Sept 2019

FWS has 2 other permitting programs in addition to ESA. I doubt either will become permitting issues for this project and so sending these to you as an FYI:

- Bald and Golden Eagle Protection Act (BGEPA) bald eagles are documented to roost and/or nest near the project area. We suggest you visit the following
 websites to determine if bald eagles are present within your project area: Center for Conservation Biology's eagle roost mapping portal
 (https://ccbbirds.org/maps/#eagleroosts), and the Maryland Bird Conservation Partnership's bald eagle nest monitoring program map
 (https://marylandbirds.org/bald-eagle-nest-monitoring/). If bald eagles are present, implementing recommendations in the National Bald Eagle Management
 Guidelines (https://www.fws.gov/northeast/ecologicalservices/eaglenationalguide.html) may help to avoid take. If you are unable to minimize or avoid take,
 then a bald eagle incidental take permit from FWS may be required.
- Migratory Bird Treaty Act (MBTA) FWS recently issued updated policy guidance on the MBTA, and we no longer consider incidental take to be
 prohibited by MBTA. MBTA's prohibition on take only apply when the purpose of an action is to purposefully take migratory birds, eggs, or nests.

Thanks, and have a great weekend, Ray

Raymond Li Biologist / Transportation Liaison U.S. Fish and Wildlife Service Chesapeake Bay Field Office 177 Admiral Cochrane Drive Annapolis, MD 21401

Mobile: 202-236-1713 Office: 410-573-4522

On Fri, Jan 4, 2019 at 10:08 AM Li, Ray <<u>ray_li@fws.gov</u>> wrote: Hi Caryn -

FYI, I'm working through the shutdown / furlough since my position is funded by SHA agreement, and so I will be able to get you comments by Jan 15. Cheers, Ray

Raymond Li Biologist / Transportation Liaison U.S. Fish and Wildlife Service Chesapeake Bay Field Office 177 Admiral Cochrane Drive Annapolis, MD 21401

Mobile: 202-236-1713 Office: 410-573-4522

On Wed, Jan 2, 2019 at 9:43 AM Caryn Brookman <<u>CBrookman@sha.state.md.us</u>> wrote:

Dear Cooperating and Participating Agencies:

On behalf of the Federal Highway Administration (FHWA), as lead federal agency for the I-495 & I-270 Managed Lanes Study, MDOT SHA hereby submits the draft Permitting Timetable for your review. Per the 2018 Memorandum of Understanding (MOU) *Implementing the One Federal Decision under Executive Order 13807*, the lead federal agency in consultation with the local project sponsor, cooperating and participating agencies will develop a Permitting Timetable that identifies actions and approvals for applicable environmental reviews and authorizations. A list of potential permits was discussed at the October IAWG meeting and have been individually coordinated with the applicable cooperating agencies with permitting authority.

We respectfully request review of the attached Permitting Timetable by the cooperating and participating agencies within 10 business days or by January 15th. Please provide comments in writing or, for cooperating agencies with permitting authority that do not have any comments, please provide acceptance in writing (email for comments or acceptance is fine).
We understand the Permitting Timetable may need to be updated or modified as additional consultation occurs. We anticipate reviewing the Permitting Timetable and modifying as necessary on a quarterly basis.
Regards,
Caryn
Governor Hogan is committed to outstanding customer service. Tell us how we are doing. Click here.
Image: Maryland now features 511 traveler information! Call 511 or visit: www.md511.org
Please consider the environment before printing this email

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United States Department of the Interior

FISH AND WILDLIFE SERVICE



Chesapeake Bay Field Office 177 Admiral Cochrane Drive Annapolis, Maryland 21401 http://www.fws.gov/chesapeakebay

July 18, 2019

Caryn J.G. Brookman Environmental Program Manager Maryland Department of Transportation State Highway Administration I-495 & I-270 P3 Office 707 North Calvert Street, Mail Stop P-601 Baltimore, MD 21202

Re: Indiana bat and northern long-eared bat coordination for the I-495 & I-270 Managed Lanes Study in Montgomery and Prince George's Counties, Maryland

Dear Ms. Brookman:

The U.S. Fish and Wildlife Service (Service) has reviewed all of the project information provided to us via the <u>I-495 & I-270 P3 Program website</u>, Information for Planning and Consultation (IPaC) system, and email regarding the I-495 & I-270 Managed Lanes Study. The comments provided below are in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

The following two programmatic consultations can be used to streamline the Endangered Species Act (ESA) consultation process when transportation projects may affect the threatened northern long-eared bat (*Myotis septentrionalis*, NLEB): 1) the Programmatic Biological Opinion (BO) for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat, dated May 20, 2016, and 2) the Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions, dated January 5, 2016. The Programmatic BO for Transportation Projects also addresses the endangered Indiana bat (*Myotis sodalis*).

The Service has reviewed the Programmatic BO for Transportation Projects and the Programmatic BO on Final 4(d) Rule for the NLEB to see if one or both of these Programmatic BOs can be used for ESA Section 7(a)(2) compliance for the I-495 & I-270 Managed Lanes Study. Section 7(a)(2) requires Federal agencies to consult with the Service to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat.

The Service has determined that the I-495 & I-270 Managed Lanes Study falls outside of the scope of the Programmatic BO for Transportation Projects because the maximum acreage



anticipated for any given project addressed in the Programmatic BO is approximately 20 acres of suitable habitat (generally per 5-mile section of road); the I-495 & I-270 Managed Lanes Study estimates approximately 76.2 acres of trees cleared per 5-mile section of road according to an email message from Maddy Sigrist of RK&K dated July 10, 2019.

Given that Dr. W. Mark Ford and Sabrina Deeley of Virginia Tech found Indiana bats while conducting bat population surveys within the project area between August 2017 and August 2018 by acoustic and/or mist-netting sampling techniques and also during 2016-2017 bat survey efforts, the Service recommends surveys (mist-netting, radio-tracking, emergence and bridge) be conducted in the I-495 & I-270 Managed Lanes Study project corridor to determine if Indiana bat are utilizing summer habitat within the project corridor.

Conducting Indiana bat surveys will let the Service know if conservation measures need to be implemented to avoid adverse effects to the Indiana bat. If adverse effects to the Indiana bat cannot be addressed, formal consultation will be needed to meet the requirements of Section 7(a)(2) of the ESA.

While forest clearing may affect NLEB, the Service has determined that the Programmatic BO on Final 4(d) Rule for the NLEB can be used for ESA Section 7(a)(2) compliance for NLEB. The Service recommends that the State Highway Administration (SHA) complete the Northern Long-Eared Bat (NLEB) Consultation and 4(d) Rule Consistency Determination Key within IPaC as soon as possible.

Conducting surveys (mist-netting, radio-tracking, emergence, and bridge) will further the conservation of the NLEB as stated in Section 7(a)(1) of the ESA. Conservation recommendations are discretionary Federal agency activities intended to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service developed the following conservation measures for all Federal agencies to consider if their actions may affect the NLEB:

1. Perform NLEB surveys according to the most recent Range-wide Indiana Bat/NLEB Summer Survey Guidelines. Benefits from agencies voluntarily performing NLEB surveys include:

a. Surveys will help Federal agencies meet their responsibilities under section 7(a)(1) of the Act. The Service and partners will use the survey data to better understand habitat use and distribution of NLEBs, track the status of the species, evaluate threats and impacts, and develop effective conservation and recovery actions. Active participation of federal agencies in survey efforts will lead to a more effective conservation strategy for the NLEB.

b. Should the Service reclassify the species as endangered in the future, an agency with a good understanding of how the species uses habitat based on surveys within its action areas could inform greater flexibility under section 7(a)(2) of the Act. Such information could facilitate an expedited consultation and incidental take statement that may, for example, exempt taking associated with tree removal during the active season, but outside of the pup season, in known occupied habitat.

If the State Highway Administration (SHA) is interested in conducting surveys to help carry out conservation of the NLEB under Section 7(a)(1) of the Endangered Species Act, our office would be happy to discuss this further. The Service is available to work with the SHA and its contractor(s) to develop a study plan for all recommended survey phases (mist-netting, radio-tracking, emergence, and bridge) for NLEB in addition to the surveys required for Indiana bat. The summer mist-netting season is from May 15 through August 15 of 2019. Should SHA choose to do bat surveys this year, the Service can work with SHA as soon as possible to insure that the bat surveys are completed by August 15, 2019.

We appreciate the opportunity to provide information relevant to threatened and endangered fish and wildlife resources. If you have any questions or concerns regarding this letter, please contact Trevor Clark of my Endangered Species staff at (410) 573-4527 or by email at Trevor_Clark@fws.gov.

Sincerely,

Genevieve LaRouche Field Supervisor

Matthew J. Strickler Secretary of Natural Resources

Clyde E. Cristman Director



COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz Deputy Director of Administration and Finance

Russell W. Baxter Deputy Director of Dam Safety & Floodplain Management and Soil & Water Conservation

Thomas L. Smith Deputy Director of Operations

July 31, 2019

Catherine Cruz-Ortiz Rummel, Klepper & Kahl, LLP 2600 Fair Lakes Circle, Suite 300 Fairfax, VA 22033

Re: 14168.26, I-495 and I-270 Managed Lanes Study

Dear Ms. Cruz-Ortiz:

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 Potomac Gorge Conservation Site is located within the project site. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The Potomac Gorge Conservation Site has been given a biodiversity significance ranking of B1, which represents a site of outstanding significance. The natural heritage resources of concern at this site are:

Starry Solomon's-plume	G5/S1S2/NL/NL
Coville's phacelia	G3/S1/NL/NL
Midland Clubtail	G5/S2/NL/NL
Short's rock cress	G5/S1/NL/NL
Snowy Campion	G4?/S1/NL/NL
-Elevation Rich Boulderfield Forest	G3G4/S2S3/NL/NL
Mesic Forest	G4?/ S3/NL/NL
	Coville's phacelia Midland Clubtail Short's rock cress

In addition, Tall Thistle (*Cirsium altissimum*, G5/S1/NL/NL), Wild cucumber (*Echinocystis lobata*, G5/SH/NL/NL), Smartweed Dodder (*Cuscuta polygonorum*, G5/S1/NL/NL), Northern rattlesnake-master (*Eryngium yuccifolium var. yuccifolium*, G5T5/S2/NL/NL), One-sided shinleaf (*Orthilia secunda*, G5/SH/NL/NL) and Pizzini's Amphipod (*Stygobromus pizzinii*, G3G4/S1S2/NL/NL) have been historically documented within the project site.

600 East Main Street, 24th Floor | Richmond, Virginia 23219 | 804-786-6124

State Parks • Soil and Water Conservation • Outdoor Recreation Planning Natural Heritage • Dam Safety and Floodplain Management • Land Conservation Furthermore, according to a DCR biologist, there is potential for the Northern Virginia Well amphipod (*Stygobromus phreaticus*, G1/S1/SOC/NL) and other *Stygobromus* amphipod species to occur within the project site.

By limiting the project footprint as much as possible, DCR recommends avoidance of documented occurrences of natural heritage resources including along the steep bluff on the eastern side in Virginia. Due to the potential for this site to support additional populations of natural heritage resources, DCR also recommends an inventory for the resources within areas proposed for disturbance including stormwater management ponds and equipment staging areas. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

DCR-Division of Natural Heritage biologists are qualified and available to conduct inventories for rare, threatened, and endangered species. Please contact Anne Chazal, Natural Heritage Chief Biologist, at <u>anne.chazal@dcr.virginia.gov</u> or 804-786-9014 to discuss arrangements for fieldwork.

In addition, the proposed project will fragment an Ecological Core C4 as identified in the Virginia Natural Landscape Assessment (<u>https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla</u>), one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection.

Ecological Cores are areas of unfragmented natural cover with at least 100 acres of interior that provide habitat for a wide range of species, from interior-dependent forest species to habitat generalists, as well as species that utilize marsh, dune, and beach habitats. Cores also provide benefits in terms of open space, recreation, water quality (including drinking water protection and erosion prevention), and air quality (including carbon sequestration and oxygen production), along with the many associated economic benefits of these functions. The cores are ranked from C1 to C5 (C5 being the least ecologically relevant) using many prioritization criteria, such as the proportions of sensitive habitats of natural heritage resources they contain.

Fragmentation occurs when a large, contiguous block of natural cover is dissected by development, and other forms of permanent conversion, into one or more smaller patches. Habitat fragmentation results in biogeographic changes that disrupt species interactions and ecosystem processes, reducing biodiversity and habitat quality due to limited recolonization, increased predation and egg parasitism, and increased invasion by weedy species.

Therefore minimizing fragmentation is a key mitigation measure that will preserve the natural patterns and connectivity of habitats that are key components of biodiversity. The deleterious effects of fragmentation can be reduced by minimizing edge in remaining fragments; by retaining natural corridors that allow movement between fragments; and by designing the intervening landscape to minimize its hostility to native wildlife (natural cover versus lawns).

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

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit a completed order form and project map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

A fee of \$150.00 has been assessed for the service of providing this information. Please find attached an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, **DCR** - **Division of Natural Heritage, 600 East Main Street, 24th Floor, Richmond, VA 23219.** Payment is due within thirty days of the invoice date. <u>Please note the change of address for remittance of payment as of July 1, 2013.</u> Late payment may result in the suspension of project review service for future projects.

The Virginia Department of Game and Inland Fisheries (VDGIF) 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 <u>http://vafwis.org/fwis/</u> or contact Ernie Aschenbach at 804-367-2733 or <u>Ernie.Aschenbach@dgif.virginia.gov</u>.

Should you have any questions or concerns, please contact me at 804-225-2429. Thank you for the opportunity to comment on this project.

Sincerely,

Tyle Meade

Tyler Meader Natural Heritage Locality Liaison

CC: Troy Andersen, USFWS

U.S. Department of Homeland Security

United States Coast Guard



Commander United States Coast Guard Fifth Coast Guard District 431 Crawford Street Portsmouth, VA. 23704-5004 Staff Symbol: dpb Phone: (757) 398-6422 Fax: (757) 398-6334 Email: <u>Martin.A.Bridges@uscg.mil</u>

16591 23 SEP 2019

Ms. Lisa Choplin, DBIA Maryland Department of Transportation State Highway Administration 707 North Calvert Street Mailstop P-601 Baltimore, MD 21202

Dear Ms. Choplin:

Coast Guard review of your proposed project as provided in an email dated July 18, 2019, from Mr. Jason D. Cosler with Whitman, Requardt & Associates, LLP, on behalf of the Maryland Department of Transportation State Highway Administration, is complete.

Based on the documentation provided and our research, it is determined that a Coast Guard bridge permit will not be required for the highway fixed bridge, I-495 (American Legion) Bridge over Potomac River, at 38.969175, -77.179736, in Bethesda, MD.

The project will be placed in our Coast Guard Authorization Act of 1982 exemption category for the location and structure described above and **is valid for five years from the date of this letter**. The Coast Guard Authorization Act of 1982 exempts bridge projects from Coast Guard Bridge permits when the bridge project crosses non-tidal waters which are not used, susceptible to use in their natural condition, or susceptible to use by reasonable improvement as a means to transport interstate commerce. The following conditions apply to this determination:

- a. If the construction project on the above bridge does not commence within this time, you must contact this office for reaffirmation of this determination.
- b. Future bridge projects along the above waterway will have to be independently evaluated before they may be considered for placement in the Coast Guard Authorization Act of 1982 exemption category. This includes modification, replacement and removal of the above bridge.

In addition, the requirement to display navigational lighting at the aforementioned bridge is waived as per Title 33 Code of Federal Regulations, Part 118.40(b). This waiver may be rescinded at any time in the future should nighttime navigation through the proposed bridge be increased to a level determined by the District Commander to warrant lighting.

16591 23 SEP 2019

The fact that a Coast Guard bridge permit is not required does not relieve you of the responsibility for compliance with the requirements of any other Federal, State, or local agency who may have jurisdiction over any aspect of the project.

 $E_{\rm TEV}=-E$

If you have any further questions, please contact Mr. Marty Bridges at the above listed address or telephone number.

Sincerely,

HAL R. PITTS Bridge Program Manager By direction

Copy: Mr. Jason D. Cosler, Whitman, Requardt & Associates, LLP CG Sector Maryland-National Capitol Region, Waterways Management U. S. Army Corps of Engineers, Baltimore District



United States Department of the Interior

FISH AND WILDLIFE SERVICE Chesapeake Bay Ecological Services Field Office 177 Admiral Cochrane Drive Annapolis, MD 21401-7307 Phone: (410) 573-4599 Fax: (410) 266-9127 <u>http://www.fws.gov/chesapeakebay/</u> http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html



October 24, 2019

In Reply Refer To: Consultation Code: 05E2CB00-2019-SLI-1184 Event Code: 05E2CB00-2020-E-00279 Project Name: I-495/I-270 Managed Lanes Study

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/ eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/correntBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive Annapolis, MD 21401-7307 (410) 573-4599

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Virginia Ecological Services Field Office

6669 Short Lane Gloucester, VA 23061-4410 (804) 693-6694

Project Summary

Consultation Code:	05E2CB00-2019-SLI-1184
Event Code:	05E2CB00-2020-E-00279
Project Name:	I-495/I-270 Managed Lanes Study
Project Type:	TRANSPORTATION
Project Description:	The purpose of the study is to develop a travel demand management solution that addresses congestion, improves trip reliability on I-495 and I-270 within the study limits and enhances existing and planned multimodal mobility and connectivity. The study area encompasses I-495 from just south of the George Washington Memorial Parkway in Virginia to west of MD 5 and along I-270 from the west and east spurs to I-370, in both Prince George's and Montgomery counties. Currently, the study includes seven alternatives that would widen I-495 and I-270 by two to four lanes to support additional managed lanes and assumes full replacement of the American Legion Bridge. Direct access ramps to the managed lanes are proposed to be provided at several interchanges throughout the corridors.

Project Location:

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/place/38.97094096355009N77.17911402779382W</u>



Counties: Montgomery, MD | Prince George's, MD | Fairfax, VA

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i>	Threatened
No critical habitat has been designated for this species.	
This species only needs to be considered under the following conditions:	
 Projects with a federal nexus that have tree clearing = to or > 15 acres: 1. REQUEST A 	
SPECIES LIST 2. NEXT STEP: EVALUATE DETERMINATION KEYS 3. SELECT	
EVALUATE under the Northern Long-Eared Bat (NLEB) Consultation and 4(d) Rule	
Consistency key	
Species profile: <u>https://ecos.fws.gov/ecp/species/9045</u>	

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to <u>NWI wetlands</u> and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local <u>U.S. Army Corps of</u> <u>Engineers District</u>.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- <u>PEM1/SS1Fh</u>
- <u>PEM1Fh</u>
- <u>PEM5Ax</u>
- <u>PEM1A</u>
- <u>PEM1E</u>
- <u>PEM1/SS1A</u>
- <u>PEM5A</u>

FRESHWATER FORESTED/SHRUB WETLAND

- <u>PFO1A</u>
- <u>PFO1C</u>
- <u>PSS1C</u>
- <u>PFO1/EM5Ax</u>
- <u>PFO1E</u>
- <u>PFO1Ax</u>
- PSS1Cx

FRESHWATER POND

- <u>PABHx</u>
- <u>PUBFh</u>
- <u>PUBHh</u>
- <u>PUBHx</u>
- <u>PUSCx</u>

LAKE

- <u>L1UBHh</u>
- <u>L1UBHx</u>

RIVERINE

- <u>R3UBH</u>
- <u>R4SBC</u>
- <u>R5UBH</u>
- <u>R2UBH</u>
- <u>R2UBHx</u>
- <u>R2USC</u>



United States Department of the Interior

FISH AND WILDLIFE SERVICE Virginia Ecological Services Field Office 6669 Short Lane Gloucester, VA 23061-4410 Phone: (804) 693-6694 Fax: (804) 693-9032 http://www.fws.gov/northeast/virginiafield/



In Reply Refer To: Consultation Code: 05E2VA00-2019-SLI-3335 Event Code: 05E2VA00-2020-E-01073 Project Name: I-495/I-270 Managed Lanes Study October 24, 2019

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/ eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office

6669 Short Lane Gloucester, VA 23061-4410 (804) 693-6694

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive Annapolis, MD 21401-7307 (410) 573-4599

Project Summary

Consultation Code:	05E2VA00-2019-SLI-3335
Event Code:	05E2VA00-2020-E-01073
Project Name:	I-495/I-270 Managed Lanes Study
Project Type:	TRANSPORTATION
Project Description:	The purpose of the study is to develop a travel demand management solution that addresses congestion, improves trip reliability on I-495 and I-270 within the study limits and enhances existing and planned multimodal mobility and connectivity. The study area encompasses I-495 from just south of the George Washington Memorial Parkway in Virginia to west of MD 5 and along I-270 from the west and east spurs to I-370, in both Prince George's and Montgomery counties. Currently, the study includes seven alternatives that would widen I-495 and I-270 by two to four lanes to support additional managed lanes and assumes full replacement of the American Legion Bridge. Direct access ramps to the managed lanes are proposed to be provided at several interchanges throughout the corridors.

Project Location:

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/place/38.97094096355009N77.17911402779382W</u>



Counties: Montgomery, MD | Prince George's, MD | Fairfax, VA

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species.	Threaten
Species profile: <u>https://ecos.fws.gov/ecp/species/9045</u>	

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

ed

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

breeding, roosting and foraging behavior, they could occur in the project corridor study boundary.

<u>Contingency Plan If the Programmatic Biological Opinion of Final 4(d) Rule on NLEB</u> <u>Were to Be Overturned</u>

The current MLS bat study workplan for NLEB, which includes voluntary acoustic presence/absence surveys followed by mist netting and radio tracking, will provide the appropriate information necessary to determine if this proposed project can be completed with the informal section 7 consultation process or if formal section 7 consultation will be required to complete this project if the status of the species changes.

We appreciate the opportunity to provide information relevant to threatened and endangered fish and wildlife resources. If you have any questions or concerns regarding this letter, please contact Trevor Clark of my Endangered Species staff at (410) 573-4527 or by email at Trevor_Clark@fws.gov.

Sincerely,

Genevieve LaRouche Field Supervisor

cc: Jeanette Mar, Environmental Program Manager, FHWA Jitesh Parikh, Project Delivery/Environment Team Leader, FHWA

Christina Simini

Subject:

FW: Bald eagle nests

From: Lori Byrne -DNR- <lori.byrne@maryland.gov>
Sent: Friday, February 28, 2020 10:15 AM
To: Gwendolyn Gibson -DNR- <gwendolyn.gibson@maryland.gov>
Cc: Maddy Sigrist <msigrist@rkk.com>; Justin Reel <jreel@rkk.com>
Subject: Re: Bald eagle nests

Hi Gwen,

We no longer track bald eagle nests in Maryland. While this species is no longer listed by the State of Maryland, it is protected under the federal Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c). We generally defer to the National Bald Eagle Management Guidelines, which can be found online at www.fws.gov/northeast/ecologicalservices/eaglenationalguide.html.

Thanks. Lori



On Fri, Feb 28, 2020 at 9:39 AM Gwendolyn Gibson -DNR- <<u>gwendolyn.gibson@maryland.gov</u>> wrote:

Hi Lori,

The I495-I270 Managed Lane study team has inquired if DNR tracks the locations of bald eagle nests? If so, can we provide information on their locations for their study?

Justin and Maddy with the study team are included on this email. So feel free to "reply all". Thanks, Gwen

Sent from my iPhone

April 1, 2020

Caryn J.G. Brookman Environmental Program Manager Maryland Department of Transportation State Highway Administration I-495 & I-270 Public-Private Partnership (P3) Office 707 North Calvert Street, Mail Stop P-601 Baltimore, MD 21202

RE: I-495/I-270 Managed Lanes Study Coordination Summary, Correction to the Record and Final 4(d) Rule Contingency Plan

Dear Ms. Brookman:

The U.S. Fish and Wildlife Service (Service) has reviewed your letter dated March 16, 2020 regarding the I-495/I-270 Managed Lanes Study Coordination Summary, Correction to the Record and Final 4(d) Rule Contingency Plan. The comments provided below are in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Coordination Summary

The following language is suggested for the Service's concurrence on the Maryland Department of Transportation's (MDOT) Coordination Summary (the revised text is in bold).

The first sentence in paragraph one needs to be corrected to read, "The results of the USFWS Virginia Field Office official species list in July 2018 indicated the potential presence of the northern long-eared bat (*Myotis septentrionalis*) (NLEB), a federally listed threatened species **and the yellow lance** (*Elliptio lanceolate*) **a federally listed threatened species.**"

The first sentence in paragraph two should state, "These included 1) the Programmatic Biological Opinion (BO) for Transportation Projects in the Range of the Indiana Bat and Northern Long-eared Bat, **currently dated February 2018 due to revisions**, and 2) the Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions, dated January 5, 2016.

The third sentence in paragraph three should state, "However **the following** "conservation measures" in the Final 4(d) Rule must be followed: **Incidental take resulting from tree**

removal is prohibited if it: (1) occurs within a 0.25 mile (0.4 kilometer) radius of known northern long-eared bat hibernacula; or (2) cuts or destroys known occupied maternity roost trees, or any other trees within a 150-foot (45-meter) radius from the known maternity tree during the pup season (June 1 through July 31)."

The fourth sentence in paragraph three should state, "Based on the data collected by researchers at Virginia Tech over the previous **three** summers, the USFWS recommended that MDOT SHA conduct surveys to determine if IB's are utilizing summer habitat within the corridor study boundary."

The final sentence in paragraph three should state, "These studies which include mist-netting, radio-tracking, visual bridge surveys, and emergence bridge surveys would qualify as "conservation measures" under Section 7(a)(l) of the ESA for the NLEB and are recommended for the IB to let the USFWS know if conservation measures need to be implemented to avoid adverse effects to the IB."

The first sentence in paragraph five should state, "The IPaC reviews for the Virginia and Chesapeake Bay Field Offices were re-run on **August 14, 2019**."

The third sentence in paragraph five should state, "To apply "conservation measures" **under Section 7(a)(l) of the ESA for the NLEB**, MDOT SHA proposes acoustic presence/absence surveys within the corridor study boundary and informational mist netting and radio tracking in areas with positive acoustic identification of rare threatened and endangered bat species.

Request for Correction to the Record from MDOT

The Virginia Tech bat surveys did not identify Indiana bats (*Myotis sodalis*) within the MLS corridor study boundary, however the Virginia Tech bat surveys detected Indiana bats in 2016-2017 by acoustic detection 0.23 miles from the corridor study boundary near Swainson Island in Cabin John, Maryland, 0.54 miles from the corridor study boundary in Greenbelt Park (National Park) in Greenbelt, Maryland, and 1.17 miles from the corridor study boundary in Suitland Bog Park in Hillcrest Heights, Maryland; and in 2018 by acoustic detection 1.52 miles from the corridor study boundary within Rock Creek National Park in Washington, DC.

Upon emergence from the hibernacula in the spring, females seek suitable habitat for maternity colonies. Suitable summer habitat for the Indiana bat consists of a wide variety of forested/wooded habitats where they roost, forage, and travel (e.g., fencerows, riparian forests, or other wooded corridors). Suitable roost trees include a wide variety of tree species (generally ≥5 inches dbh) with suitable structure (e.g., presence of cracks, crevices, or peeling bark).

Summer home ranges include both roosting and foraging habitat and travel/commuting areas between those habitats. Observed home ranges for individual bats associated with Indiana bat maternity colonies consist of hundreds of acres, therefore, even though surveys did not detect Indiana bat in the project's corridor study boundary, they were detected nearby and based on

breeding, roosting and foraging behavior, they could occur in the project corridor study boundary.

<u>Contingency Plan If the Programmatic Biological Opinion of Final 4(d) Rule on NLEB</u> <u>Were to Be Overturned</u>

The current MLS bat study workplan for NLEB, which includes voluntary acoustic presence/absence surveys followed by mist netting and radio tracking, will provide the appropriate information necessary to determine if this proposed project can be completed with the informal section 7 consultation process or if formal section 7 consultation will be required to complete this project if the status of the species changes.

We appreciate the opportunity to provide information relevant to threatened and endangered fish and wildlife resources. If you have any questions or concerns regarding this letter, please contact Trevor Clark of my Endangered Species staff at (410) 573-4527 or by email at Trevor_Clark@fws.gov.

Sincerely,

Genevieve LaRouche Field Supervisor

cc: Jeanette Mar, Environmental Program Manager, FHWA Jitesh Parikh, Project Delivery/Environment Team Leader, FHWA

From:	<u>Clark, Trevor</u>
То:	Ryan Leiberher
Cc:	Jenny Saville; Justin Reel; Maddy Sigrist; Stacy Talmadge (Consultant); Caryn Brookman; Thompson, Julie; Guy,
	Chris; Li, Ray
Subject:	I-495/I-270: Managed Lanes Study (COVID-19 virus (SARS CoV-2) and North American bats)
Date:	Friday, April 10, 2020 1:00:28 PM
Importance:	High

Hi Ryan,

Please temporarily postpone mist-netting surveys and radio telemetry for the I-495/I-270: Managed Lanes Study due to the potential risks of humans transmitting the COVID-19 virus (SARS CoV-2) to North American bats. Acoustic bat surveys can still be conducted. When we receive additional guidance on this issue, we will forward it to you. Please contact me if you have any questions. Thanks Ryan.

Trevor Clark Fish and Wildlife Biologist U.S. Fish and Wildlife Service Chesapeake Bay Ecological Services Field Office Endangered and Threatened Species Branch 177 Admiral Cochrane Drive Annapolis, Maryland 21401 Telephone: (410) 573-4527 Fax: (410) 269-0832 Email: trevor_clark@fws.gov

From:	<u>Clark, Trevor</u>
То:	Maddy Sigrist
Cc:	Koppie, Craig; Li, Ray
Subject:	I-495/I-270 Managed Lanes Study bald eagle and peregrine falcon comments
Date:	Wednesday, May 13, 2020 11:45:09 AM

Hi Maddy,

This is in response to your request for information about bald eagle (*Haliatuus leucocephalus*) nests locations in Maryland that may be located near the action area of the I-495 & I-270 Managed Lanes Study. We also address your concerns regarding protection measures for peregrine falcons (*Falco peregrinus*) during improvements to the I-495 American Legion Bridge which is also part of this same Study. The Service offers these comments under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d) and Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*).

Bald eagle

Bald eagle nest surveys were annually conducted by Maryland DNR but ended with the last comprehensive efforts in 2004. Recently, the Maryland Bird Conservation Partnership established a Bald Eagle Nest Monitoring Program with the support of volunteers to monitor nests and collect information (<https://marylandbirds.org/bald-eagle-nest-monitoring>). These data are entered into an electronic database and used by the U.S. Fish and Wildlife Service's Chesapeake Bay Field Office (Service) to make determinations on project impacts that may impact eagle nests. A recent database search resulted in no bald eagle nests within the I-495 & I-270 Managed Lanes Study corridor study boundary. The closest nests were found in Prince George's County near the I-495/ Woodrow Wilson Memorial Bridge, and one at the Washington DC-Maryland border, over eight miles away. Bald Eagle populations are expanding in the Chesapeake Bay region. It is possible that additional nest pairs may utilize natural habitat patches of highway right-of-ways in coming years. We recommend that Maryland State Highway Administration (MD SHA) contact the Service when construction is starting to confirm that the situation has not changed.

Peregrine falcon

Peregrine falcons began nesting at the American Legion Bridge in 2007 (USFWS. C. Koppie, 2007 MD Peregrine Falcon Annual Nest Survey). When MD SHA initiated a contract for bridge painting and maintenance it became apparent that nesting attempts would be unsuccessful. Soon after, MD SHA formed a partnership with the Service and Maryland Department of Natural Resources to protect and promote more favorable conditions for nesting falcons on the Bridge. Through this partnership MD SHA constructed and installed a nest box platform to ensure long term protection for nesting peregrine falcons on the bridge. The falcon pair has been successfully using the nest box for 12 consecutive years (USFWS. Koppie, C.A, 2019 MD Peregrine Falcon Nest Survey).

The upcoming project for improvements to lanes of the American Legion Bridge will most likely disturb the resident peregrine falcons. For this reason the Service is recommending

that the MD SHA remove the existing peregrine falcon nest box just prior to nesting season when construction is scheduled to begin. The pair will likely attempt to find a new nest location on the bridge which may or may not be successful. The Service expects disruption for one or more nesting seasons, due to long term construction activities. Once construction activities are mostly complete near the former nest site, we recommend that the partnership reinstall the nest box.

If you have any questions or concerns regarding this email, please contact Craig Koppie at (410) 573-4534 or by email at Craig_Koppie@fws.gov; or Trevor Clark at (410) 573-4527 or by email at Trevor_Clark@fws.gov.

Trevor Clark Fish and Wildlife Biologist U.S. Fish and Wildlife Service Chesapeake Bay Ecological Services Field Office Endangered and Threatened Species Branch 177 Admiral Cochrane Drive Annapolis, Maryland 21401 Telephone: (410) 573-4527 Fax: (410) 269-0832 Email: <u>trevor_clark@fws.gov</u>



United States Department of the Interior

FISH AND WILDLIFE SERVICE Chesapeake Bay Ecological Services Field Office 177 Admiral Cochrane Drive Annapolis, MD 21401-7307 Phone: (410) 573-4599 Fax: (410) 266-9127 <u>http://www.fws.gov/chesapeakebay/</u> http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html



September 22, 2020

In Reply Refer To: Consultation Code: 05E2CB00-2019-SLI-1184 Event Code: 05E2CB00-2020-E-05156 Project Name: I-495/I-270 Managed Lanes Study

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/ eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/correntBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive Annapolis, MD 21401-7307 (410) 573-4599

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Virginia Ecological Services Field Office

6669 Short Lane Gloucester, VA 23061-4410 (804) 693-6694

Project Summary

Consultation Code:	05E2CB00-2019-SLI-1184
Event Code:	05E2CB00-2020-E-05156
Project Name:	I-495/I-270 Managed Lanes Study
Project Type:	TRANSPORTATION
Project Description:	The purpose of the study is to develop a travel demand management solution that addresses congestion, improves trip reliability on I-495 and I-270 within the study limits and enhances existing and planned multimodal mobility and connectivity. The study area encompasses I-495 from just south of the George Washington Memorial Parkway in Virginia to west of MD 5 and along I-270 from the west and east spurs to I-370, in both Prince George's and Montgomery counties. Currently, the study includes seven alternatives that would widen I-495 and I-270 by two to four lanes to support additional managed lanes and assumes full replacement of the American Legion Bridge. Direct access ramps to the managed lanes are proposed to be provided at several interchanges throughout the corridors.

Project Location:

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/place/38.97094096355009N77.17911402779382W</u>



Counties: Montgomery, MD | Prince George's, MD | Fairfax, VA

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i>	Threatened
No critical habitat has been designated for this species.	
This species only needs to be considered under the following conditions:	
 Projects with a federal nexus that have tree clearing = to or > 15 acres: 1. REQUEST A 	
SPECIES LIST 2. NEXT STEP: EVALUATE DETERMINATION KEYS 3. SELECT	
EVALUATE under the Northern Long-Eared Bat (NLEB) Consultation and 4(d) Rule	
Consistency key	
Species profile: <u>https://ecos.fws.gov/ecp/species/9045</u>	

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to <u>NWI wetlands</u> and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local <u>U.S. Army Corps of</u> <u>Engineers District</u>.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- <u>PEM1A</u>
- <u>PEM1E</u>
- <u>PEM1/SS1A</u>
- <u>PEM1/SS1Fh</u>
- <u>PEM1Fh</u>
- <u>PEM5A</u>
- <u>PEM5Ax</u>

FRESHWATER FORESTED/SHRUB WETLAND

- <u>PFO1A</u>
- <u>PFO1E</u>
- <u>PFO1Ax</u>
- <u>PFO1C</u>
- <u>PSS1Cx</u>
- <u>PFO1/EM5Ax</u>
- <u>PSS1C</u>

FRESHWATER POND

- <u>PUBHh</u>
- <u>PUBHx</u>
- <u>PABHx</u>
- <u>PUBFh</u>
- PUSCx

LAKE

- <u>L1UBHx</u>
- <u>L1UBHh</u>

RIVERINE

- <u>R2UBH</u>
- <u>R3UBH</u>
- <u>R4SBC</u>
- <u>R5UBH</u>
- <u>R2UBHx</u>
- <u>R2USC</u>



United States Department of the Interior

FISH AND WILDLIFE SERVICE Virginia Ecological Services Field Office 6669 Short Lane Gloucester, VA 23061-4410 Phone: (804) 693-6694 Fax: (804) 693-9032 http://www.fws.gov/northeast/virginiafield/



In Reply Refer To: Consultation Code: 05E2VA00-2019-SLI-3335 Event Code: 05E2VA00-2020-E-17421 Project Name: I-495/I-270 Managed Lanes Study September 22, 2020

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/ eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office

6669 Short Lane Gloucester, VA 23061-4410 (804) 693-6694

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive Annapolis, MD 21401-7307 (410) 573-4599

Project Summary

Consultation Code:	05E2VA00-2019-SLI-3335
Event Code:	05E2VA00-2020-E-17421
Project Name:	I-495/I-270 Managed Lanes Study
Project Type:	TRANSPORTATION
Project Description:	The purpose of the study is to develop a travel demand management solution that addresses congestion, improves trip reliability on I-495 and I-270 within the study limits and enhances existing and planned multimodal mobility and connectivity. The study area encompasses I-495 from just south of the George Washington Memorial Parkway in Virginia to west of MD 5 and along I-270 from the west and east spurs to I-370, in both Prince George's and Montgomery counties. Currently, the study includes seven alternatives that would widen I-495 and I-270 by two to four lanes to support additional managed lanes and assumes full replacement of the American Legion Bridge. Direct access ramps to the managed lanes are proposed to be provided at several interchanges throughout the corridors.

Project Location:

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/place/38.97094096355009N77.17911402779382W</u>



Counties: Montgomery, MD | Prince George's, MD | Fairfax, VA

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis	Threatened
No critical habitat has been designated for this species.	
Species profile: <u>https://ecos.fws.gov/ecp/species/9045</u>	

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.



United States Department of the Interior

FISH AND WILDLIFE SERVICE Assistant Regional Director-Ecological Services 5600 American Blvd. West Bloomington, MN 55437-1458 Phone: (612) 713-5350 Fax: (612) 713-5292



In Reply Refer To: Consultation Code: 05E2VA00-2019-TA-3335 Consultation Code: 05E2CB00-2019-TA-1184 Event Code: 05E2CB00-2020-E-05153 Project Name: I-495/I-270 Managed Lanes Study September 22, 2020

Subject: Verification letter for the 'I-495/I-270 Managed Lanes Study' project under the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions.

Dear Christina Simini:

The U.S. Fish and Wildlife Service (Service) received on September 22, 2020 your effects determination for the 'I-495/I-270 Managed Lanes Study' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. This IPaC key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's January 5, 2016, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from "take"^[1] prohibitions applicable to the northern long-eared bat under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the northern long-eared bat; however, any take that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under ESA Section 7(a)(2) with respect to the northern long-eared bat.

Please report to our office any changes to the information about the Action that you submitted in IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

If the Action may affect other federally listed species besides the northern long-eared bat, a proposed species, and/or designated critical habitat, additional consultation between you and this Service office is required. If the Action may disturb bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act is recommended.

^[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

I-495/I-270 Managed Lanes Study

2. Description

The following description was provided for the project 'I-495/I-270 Managed Lanes Study':

The purpose of the study is to develop a travel demand management solution that addresses congestion, improves trip reliability on I-495 and I-270 within the study limits and enhances existing and planned multimodal mobility and connectivity. The study area encompasses I-495 from just south of the George Washington Memorial Parkway in Virginia to west of MD 5 and along I-270 from the west and east spurs to I-370, in both Prince George's and Montgomery counties. Currently, the study includes seven alternatives that would widen I-495 and I-270 by two to four lanes to support additional managed lanes and assumes full replacement of the American Legion Bridge. Direct access ramps to the managed lanes are proposed to be provided at several interchanges throughout the corridors.

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/</u> <u>maps/place/38.97094096355009N77.17911402779382W</u>



Determination Key Result

This Federal Action may affect the northern long-eared bat in a manner consistent with the description of activities addressed by the Service's PBO dated January 5, 2016. Any taking that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o). Therefore, the PBO satisfies your responsibilities for this Action under ESA Section 7(a)(2) relative to the northern long-eared bat.

Determination Key Description: Northern Long-eared Bat 4(d) Rule

This key was last updated in IPaC on May 15, 2017. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for Federal actions is to assist determinations as to whether proposed actions are consistent with those analyzed in the Service's PBO dated January 5, 2016.

Federal actions that may cause prohibited take of northern long-eared bats, affect ESA-listed species other than the northern long-eared bat, or affect any designated critical habitat, require ESA Section 7(a)(2) consultation in addition to the use of this key. Federal actions that may affect species proposed for listing or critical habitat proposed for designation may require a conference under ESA Section 7(a)(4).

Determination Key Result

This project may affect the threatened Northern long-eared bat; therefore, consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.) is required. However, based on the information you provided, this project may rely on the Service's January 5, 2016, *Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions* to fulfill its Section 7(a)(2) consultation obligation.

Qualification Interview

- 1. Is the action authorized, funded, or being carried out by a Federal agency? *Yes*
- Have you determined that the proposed action will have "no effect" on the northern longeared bat? (If you are unsure select "No") No
- 3. Will your activity purposefully **Take** northern long-eared bats? *No*
- 4. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?

Automatically answered No

5. Have you contacted the appropriate agency to determine if your project is near a known hibernaculum or maternity roost tree?

Location information for northern long-eared bat hibernacula is generally kept in state Natural Heritage Inventory databases – the availability of this data varies state-by-state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited. A web page with links to state Natural Heritage Inventory databases and other sources of information on the locations of northern longeared bat roost trees and hibernacula is available at <u>www.fws.gov/midwest/endangered/</u> <u>mammals/nleb/nhisites.html.</u>

Yes

- 6. Will the action affect a cave or mine where northern long-eared bats are known to hibernate (i.e., hibernaculum) or could it alter the entrance or the environment (physical or other alteration) of a hibernaculum? *No*
- 7. Will the action involve Tree Removal? *Yes*
- 8. Will the action only remove hazardous trees for the protection of human life or property? *No*
- 9. Will the action remove trees within 0.25 miles of a known northern long-eared bat hibernaculum at any time of year? No
- 10. Will the action remove a known occupied northern long-eared bat maternity roost tree or any trees within 150 feet of a known occupied maternity roost tree from June 1 through July 31?

No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion: *1500*

2. If known, estimated acres of forest conversion from April 1 to October 31 *0*

3. If known, estimated acres of forest conversion from June 1 to July 31 *0*

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31 *0*

6. If known, estimated acres of timber harvest from June 1 to July 31 *0*

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

October 1, 2020

Ms. Lisa B. Choplin, DBIA Maryland Department of Transportation State Highway Administration I-495 and I-270 P3 Office 707 North Calvert Street Mail Stop P-601 Baltimore, Maryland 21202 Via email: mls-nepa-p3@mdot.maryland.gov

RE: Draft Environmental Impact Statement and Draft Section 4(f) Evaluation, I-495 & I-270 Managed Lanes Study, Federal Highway Administration, Fairfax County (DEQ 20-103F)

Dear Ms. Choplin:

The Commonwealth of Virginia has completed its review of the above-referenced document. The Department of Environmental Quality is responsible for coordinating Virginia's review of federal environmental documents submitted under the National Environmental Policy Act (NEPA) and responding to appropriate federal officials on behalf of the Commonwealth. DEQ is also responsible for coordinating Virginia's review of federal consistency documents submitted pursuant to the Coastal Zone Management Act (CZMA) and providing the state's response. This is in response to the June 2020 Draft Environment Impact Statement (DEIS) (received July 9, 2020) for the above-referenced project. The focus of this response to the 0.4-mile portion of the project in Virginia. The following agencies and locality participated in the review of this proposal:

Department of Environmental Quality Department of Wildlife Resources Department of Conservation and Recreation Marine Resources Commission Department of Health Department of Historic Resources Department of Transportation Fairfax County

In addition, the Northern Virginia Regional Commission was invited to comment on the proposal.

PROJECT DESCRIPTION

The Federal Highway Administration (FHWA), as the Lead Federal Agency, and Maryland Department of Transportation State Highway Administration (MDOT-SHA), as the Local Project Sponsor, have prepared a Draft Environmental Impact Statement (DEIS) under the National Environmental Policy Act (NEPA) for the I-495 and I-270 Managed Lanes Study (Study). The Study is the first element of the broader I-495 and I-270 Public-Private Partnership (P3) Program. The Study considers alternatives to address roadway congestion within the 48-mile Study area from I-495 south of the George Washington Memorial Parkway in Fairfax County, Virginia, including improvements to the American Legion Bridge over the Potomac River, to west of Maryland (MD) Route 5, and along I-270 from I-495 to north of I-370, including the East and West I-270 Spurs. I-495 and I-270 in Maryland are the two most heavily traveled freeways in Maryland, each with an Average Annual Daily Traffic (AADT) volume up to 260,000 vehicles per day in 2018. The purpose of Study is to develop a travel demand management solution that addresses congestion, improves trip reliability, and enhances existing and planned multimodal mobility and connectivity. The DEIS provides a comparative analysis between the No Build Alternative and six Build Alternatives;

- <u>Alternative 1</u>: No Build.
- <u>Alternative 8</u>: Two-Lane, Express Toll Lane (ETL) managed Lanes Network on I-495 and One-ETL and One-Lane High Occupancy Vehicle (HOV) Managed Lane on I-270.
- <u>Alternative 9</u>: Two-Lane, High Occupancy Toll (HOT) Managed Lanes Network on both I-495 & I-270.
- <u>Alternative 9 Modified (9M)</u>: Two-Lane, HOT Managed Lanes Network on west and east side of I-495 and on I-270; One-Lane HOT Managed Lane on top side of I-495.
- <u>Alternative 10</u>: Two-Lane, ETL Managed Lanes Network on I-495 & I-270 plus One-Lane HOV Managed Lane on I-270 only.
- <u>Alternative 13B</u>: Two-Lane, HOT Managed Lanes Network on I-495; HOT Managed, Reversible Lane Network on I-270.
- <u>Alternative 13C</u>: Two-Lane, ETL Managed Lanes Network on I-495, ETL Managed, Reversible Lane Network and One-Lane HOV Managed Lane on I-270.

The Preferred Alternative will be identified in the Final Environmental Impact Statement (FEIS) which will focus on any additional analysis and refinements of the data and will respond to substantive comments received on the DEIS.

ENVIRONMENTAL IMPACTS AND MITIGATION

1. Surface Waters and Wetlands. According to the DEIS (page 4-88), within Virginia, the corridor study boundary crosses the Middle Potomac watersheds, comprised of the Bull Neck Run, Scotts Run, Dead Run, Turkey Run, and Pimmit Run subwatersheds. All

Build Alternatives would affect surface waters, surface water quality, and watershed characteristics in the corridor study boundary due to direct and indirect impacts to ephemeral, intermittent, and perennial stream channels and increases in impervious surface in their watersheds. Impacts associated with the use of the road after construction are mainly based on the potential for contamination of surface waters by runoff and from new impervious roadway surfaces.

On August 12, 2020, DEQ notified MDOT-SHA that is was unable to determine the extent of jurisdictional waters that would be impacted in Virginia. Supplemental information provided by MDOT-SHA on September 18, 2020, indicate that the Build Alternatives in Virginia have identical impacts. The Build Alternatives would impact a total of 0.05 acres of wetland and 3,349 linear feet of stream in Virginia. The mitigation requirement for each Build Alternative would be 0.10 acres of wetland mitigation and 729 linear feet of riverine mitigation in the Middle Potomac-Catoctin watershed. Mitigation will be met by purchasing bank credits. Bank credit purchases will be described in the Final Compensatory Mitigation Plan (CMP) to be prepared in support of the Final Environmental Impact Statement.

1(a) Agency Jurisdiction.

(i) Department of Environmental Quality

The State Water Control Board promulgates Virginia's water regulations covering a variety of permits to include the <u>Virginia Pollutant Discharge Elimination System Permit</u> regulating point source discharges to surface waters, Virginia Pollution Abatement Permit regulating sewage sludge, storage and land application of biosolids, industrial wastes (sludge and wastewater), municipal wastewater, and animal wastes, the <u>Surface and Groundwater Withdrawal Permit</u>, and the <u>Virginia Water Protection (VWP) Permit</u> regulating impacts to streams, wetlands, and other surface waters. The VWP permit is a state permit which governs wetlands, surface water, and surface water withdrawals and impoundments. It also serves as §401 certification of the federal Clean Water Act §404 permits for dredge and fill activities in waters of the U.S. The VWP Permit Program is under the Office of Wetlands and Stream Protection, within the DEQ Division of Water Permitting. In addition to central office staff that review and issue VWP permits for transportation and water withdrawal projects, the six DEQ regional offices perform permit application reviews and issue permits for the covered activities:

- Clean Water Act, §401;
- Section 404(b)(i) Guidelines Mitigation Memorandum of Agreement (2/90);
- State Water Control Law, Virginia Code section 62.1-44.15:20 et seq.; and
- State Water Control Regulations, 9 VAC 25-210-10.

(ii) Virginia Marine Resources Commission

The Virginia Marine Resources Commission (VMRC) regulates encroachments in, on or

over state-owned subaqueous beds as well as tidal wetlands pursuant to Virginia Code §28.2-1200 through 1400. For nontidal waterways, VMRC states that it has been the policy of the Habitat Management Division to exert jurisdiction only over the beds of perennial streams where the upstream drainage area is 5 square miles or greater. The beds of such waterways are considered public below the ordinary high water line.

1(b) Agency Findings.

(i) Virginia Department of Environmental Quality

The VWP Permit program at the DEQ Office of Wetlands and Stream Protection (OWSP) finds that the Build Alternatives may require either VWP Individual Permit or General Permit coverage.

(ii) Virginia Marine Resources Commission

VMRC has no comments on the proposal.

1(c) Requirements. FHWA must submit a Joint Permit Application (JPA) in accordance with form instructions for further evaluation and final permit need determination by DEQ. FHWA must coordinate with DEQ-OWSP prior to the implementation of the preferred alternative. The JPA should be submitted to VMRC which serves as the clearinghouse for review by DEQ, VMRC, local wetlands board and the U.S. Army Corps of Engineers (Corps).

1(d) Recommendations. DEQ offers the following recommendations:

- 1. Wetland and stream impacts should be avoided and minimized to the maximum extent practicable.
- 2. If the scope of the project changes, additional review will be necessary by one or more offices in the Commonwealth's Secretariat of Natural Resources and/or the Corps.
- 3. At a minimum, any required compensation for impacts to State Waters, including the compensation for permanent conversion of forested wetlands to emergent wetlands, should be in accordance with all applicable state regulations and laws. Consider mitigating impacts to forested or converted wetlands by establishing new forested wetlands within the impacted watershed.
- 4. Any temporary impacts to surface waters associated with this project should be restored to pre-existing conditions.
- 5. No activity may substantially disrupt the movement of aquatic life indigenous to the water body, including those species, which normally migrate through the area, unless the primary purpose of the activity is to impound water. Culverts placed in streams must be installed to maintain low flow conditions. No activity may cause more than minimal adverse effect on navigation.

Furthermore the activity must not impede the passage of normal or expected high flows and the structure or discharge must withstand expected high flows.

- 6. Erosion and sedimentation controls should be designed in accordance with the *Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.* These controls should be placed prior to clearing and grading and maintained in good working order to minimize impacts to state waters. These controls should remain in place until the area is stabilized and should then be removed. Any exposed slopes and streambanks should be stabilized immediately upon completion of work in each permitted area. All denuded areas should be properly stabilized in accordance with the *Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.*
- 7. No machinery may enter surface waters, unless authorized by a Virginia Water Protection individual permit, general permit, or general permit coverage.
- 8. Heavy equipment in temporarily impacted surface waters should be placed on mats, geotextile fabric, or other suitable material, to minimize soil disturbance to the maximum extent practicable. Equipment and materials should be removed immediately upon completion of work.
- 9. Activities should be conducted in accordance with any Time-of-Year restriction(s) as recommended by the Department of Wildlife Resources, the Department of Conservation and Recreation, or the Virginia Marine Resources Commission. The permittee should retain a copy of the agency correspondence concerning the Time-of-Year restriction(s), or the lack thereof, for the duration of the construction phase of the project.
- 10. All construction, construction access, and demolition activities associated with this project should be accomplished in a manner that minimizes construction materials or waste materials from entering surface waters, unless authorized by a VWP individual permit, general permit, or general permit coverage. Wet, excess, or waste concrete should be prohibited from entering surface waters.
- 11. Herbicides used in or around any surface water should be approved for aquatic use by the United States Environmental Protection Agency (EPA) or the U.S. Fish & Wildlife Service. These herbicides should be applied according to label directions by a licensed herbicide applicator. A nonpetroleum based surfactant should be used in or around any surface waters.

2. Erosion and Sediment Control and Stormwater Management. According to the DEIS (page 4-92), the Study will be required to adhere to erosion and sediment control requirements during construction. Water quality would be protected by implementing stringent erosion and sediment control plans with best management practices (BMPs) appropriate to protect water quality during construction activities. Post-construction stormwater management and compliance with total maximum daily loads (TMDLs) will be accounted for in the stormwater design and water quality monitoring to comply with required permits. Post-construction stormwater management and compliance with total maximum daily loads (TMDLs) will be accounted for in the stormwater design and water quality monitoring to comply with required permits.

2(a) Agency Jurisdiction. The DEQ <u>Office of Stormwater Management (OSWM)</u> administers the following laws and regulations governing construction activities:

- Virginia Erosion and Sediment Control (ECS) Law (§ 62.1-44.15:51 *et seq.*) and Regulations (9 VAC 25-840);
- Virginia Stormwater Management Act (§ 62.1-44.15:24 et seq.);
- Virginia Stormwater Management Program (VSMP) regulation (9 VAC 25-870); and
- 2014 General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Construction Activities (9 VAC 25-880).

In addition, DEQ is responsible for the Virginia Stormwater Management Program (VSMP) General Permit for Stormwater Discharges from Construction Activities related to Municipal Separate Storm Sewer Systems (MS4s) and construction activities for the control of stormwater discharges from MS4s and land disturbing activities under the Virginia Stormwater Management Program (9 VAC 25-890-40).

2(b) Requirements.

(i) Erosion and Sediment Control and Stormwater Management Plans

The FHWA and its authorized agents conducting regulated land-disturbing activities on private and public lands in the state must comply with *VESCL&R* and *VSWML&R*, including coverage under the general permit for stormwater discharge from construction activities, and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act-Section 313, federal consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, borrow areas, soil stockpiles, and related land-disturbing activities that result in the total land disturbance of equal to or greater than 2,500 square feet in Chesapeake Bay Preservation Area would be regulated by *VESCL&R*. Accordingly, the FHWA must prepare and implement an erosion and sediment control (ESC) plan to ensure compliance with state law and regulations. The ESC plan must be submitted to the DEQ Northern Regional Office (NRO) for review for compliance.

Land-disturbing activities that result in the total land disturbance of equal to or greater than 2,500 square feet in a Chesapeake Bay Preservation Area would be regulated by *VSWML&R*. Accordingly, the FHWA must prepare and implement a Stormwater Management (SWM) plans to ensure compliance with state law and regulations. The SWM plans must be submitted to DEQ-NRO for review for compliance.

The FHWA is ultimately responsible for achieving project compliance through oversight of on-site contractors, regular field inspection, prompt action against non-compliant sites, and other mechanisms consistent with agency policy. [Reference: VESCL 62.1-44.15 *et seq.*]

(ii) General VPDES Permit for Discharges of Stormwater from Construction Activities (VAR10)

The operator or owner of a construction project involving land-disturbing activities equal to or greater than one acre is required to register for coverage under the VAR10 permit and develop a project-specific stormwater pollution prevention plan. Construction activities requiring registration also include land disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan of development will collectively disturb equal to or greater than one acre. The SWPPP must be prepared prior to submission of the registration statement for coverage under the <u>Construction General Permit</u> and the SWPPP must address water quality and quantity in accordance with the *VSMP Permit Regulations*. [Reference: Virginia Stormwater Management *Act* 62.1-§44.15 *et seq.*] *VSMP Permit Regulations* 9 VAC 25-870-10 *et seq.*].

2(c) Recommendations. DEQ-NRO recommends the use of permeable paving for parking areas and walkways where appropriate, and denuded areas should be promptly revegetated following construction work.

3. Chesapeake Bay Preservation Areas. The DEIS does not include information and analysis of the potential impacts of the Build Alternatives on Chesapeake Bay Preservation Areas under the Virginia Chesapeake Bay Preservation Act.

3(a) Agency Jurisdiction. The <u>DEQ Office of Watersheds and Local Government</u> <u>Assistance Programs (OWLGAP)</u> administers the Chesapeake Bay Preservation Act (Virginia Code §62.1-44.15:67 *et seq.*) and *Chesapeake Bay Preservation Area Designation and Management Regulations* (9 VAC 25-830-10 *et seq.*). Each Tidewater locality must adopt a program based on the Bay Act and *Regulations*. The Bay Act and *Regulations* recognize local government responsibility for land use decisions and are designed to establish a framework for compliance without dictating precisely what local programs must look like. Local governments have flexibility to develop water quality preservation programs that reflect unique local characteristics and embody other community goals. Such flexibility also facilitates innovative and creative approaches in achieving program objectives. The regulations address nonpoint source pollution by identifying and protecting certain lands called Chesapeake Bay Preservation Areas. The regulations use a resource-based approach that recognizes differences between various land forms and treats them differently.

3(b) Chesapeake Bay Preservation Areas. DEQ-OWLGAP notes that, in Fairfax County, the areas protected by the Bay Act, as locally implemented, require conformance with performance criteria. These areas include RPAs and Resource Management Areas (RMAs) as designated by the local government. RPAs include:

• tidal wetlands;

- certain non-tidal wetlands;
- tidal shores; and
- a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow.

RMAs, which require less stringent performance criteria, include those areas of the county not included in the RPAs.

3(c) Agency Findings. DEQ-OWLGAP notes that 9 VAC-25-830-150.B.1 of the *Regulations* conditionally exempts the "construction, installation, operation, and maintenance" of public roads (in this case I-495 as it runs through Fairfax County, from the interchange with the George Washington Memorial Parkway to the Virginia-Maryland border).

3(d) Requirements. The conditions of the exemption are that the construction, installation, operation, and maintenance of public roads in Virginia must be conducted in accordance with:

- regulations promulgated pursuant to the Erosion and Sediment Control Law and the Virginia Stormwater Management Act, including the submission of an Erosion and Sediment Control Plan and a Stormwater Management Plan approved by DEQ, or local water quality protection criteria at least as stringent as the state requirements; and
- the optimization of the road alignment and design to prevent or otherwise minimize (1) encroachment into locally-designated Resource Protection Areas and (2) adverse effects on water quality.

3(e) Conclusion. DEQ-OWLGAP concludes that the Build Alternative in Fairfax County would be consistent with the Bay Act and *Regulations* provided FHWA adheres to the above requirements.

4. Air Pollution Control. The DEIS (page 4-61) finds that modelling results demonstrate that the worst-case interchanges and intersections for each Build Alternative and the No Build Alternative, using very conservative assumptions, would not cause or contribute to a violation of the carbon monoxide (CO) National Ambient Air Quality Standards (NAAQS) within the study corridor. Mobile Source Air Toxics (MSATs) emissions are expected to remain the same or slightly decrease for all Build Alternatives when compared to the No Build condition for 2040. In addition, all MSATs pollutant emissions are expected to significantly decline in the Opening Year (2025) and Design Year (2040) when compared to existing conditions. In general, greenhouse gas (GHG) emissions are expected to increase for all Build Alternatives when compared to the No Build condition is not anticipated to last more than five years in any single location, construction impacts are considered to be temporary. All required construction-related permits would be obtained from the Maryland Department of the Environment (MDE) prior to construction.

4(a) Agency Jurisdiction. The <u>DEQ Air Division</u>, on behalf of the State Air Pollution Control Board, is responsible for developing regulations that implement Virginia's Air Pollution Control Law (Virginia Code §10.1-1300 *et seq.*). DEQ is charged with carrying out mandates of the state law and related regulations as well as Virginia's federal obligations under the Clean Air Act as amended in 1990. The objective is to protect and enhance public health and quality of life through control and mitigation of air pollution. The division ensures the safety and quality of air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state and federal agencies to plan and implement strategies to protect Virginia's air quality. The appropriate DEQ regional office is directly responsible for the issuance of necessary permits to construct and operate all stationary sources in the region as well as monitoring emissions from these sources for compliance.

The Air Division regulates emissions of air pollutants from industries and facilities and implements programs designed to ensure that Virginia meets national air quality standards. The most common regulations associated with major State projects are:

•	Open burning:	9 VAC 5-130 et seq.
٠	Fugitive dust control:	9 VAC 5-50-60 et seq.
•	Permits for fuel-burning equipment:	9 VAC 5-80-1100 et seq.

4(b) Agency Findings. According to the DEQ Air Division, the Study in Virginia is located in a designated ozone nonattainment area and an emission control area for the control of oxides of nitrogen (NO_x) and volatile organic compounds (VOCs).

4(c) Recommendation. The FHWA should take all reasonable precautions to limit emissions of NO_x and VOCs, principally by controlling or limiting the burning of fossil fuels.

4(d) Requirements.

(i) Fugitive Dust

During construction, fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-50-60 *et seq.* of the *Regulations for the Control and Abatement of Air Pollution*. These precautions include, but are not limited to, the following:

- Use, where possible, of water or chemicals for dust control;
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

(ii) Asphalt Paving

In accordance with 9 VAC 5-45-780, there are limitations on the use of "cut-back" (liquefied asphalt cement, blended with petroleum solvents) that may apply to paving activities associated with the project. Moreover, there are time-of-year restrictions on its use during the months of April through October in VOC emission control areas.

(iii) Open Burning

If project activities include the open burning of construction material or the use of special incineration devices, this activity must meet the requirements under 9 VAC 5-130 *et seq.* of the *Regulations* for open burning, and may require a permit. The *Regulations* provide for, but do not require, the local adoption of a model ordinance concerning open burning. The applicant should contact Fairfax County fire officials to determine what local requirements, if any, exist.

5. Solid and Hazardous Wastes and Hazardous Materials. According to the DEIS (page 4-72), the environmental investigation and field reconnaissance of the hazardous materials investigation area resulted in the identification of 501 sites of concern. Prior to acquisition of right-of-way and construction, Preliminary Site Investigations (PSIs) would be conducted to further investigate properties within and in the vicinity of the final limits of disturbances (LODs) that have a high potential for mitigation contaminated materials exposed during construction activities.

5(a) Agency Jurisdiction. On behalf of the Virginia Waste Management Board, the DEQ Division of Land Protection and Revitalization (DEQ-DLPR) is responsible for carrying out the mandates of the Virginia Waste Management Act (Virginia Code §10.1-1400 *et seq.*), as well as meeting Virginia's federal obligations under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response Compensation Liability Act (CERCLA), commonly known as Superfund. DEQ-DLPR also administers laws and regulations on behalf of the State Water Control Board governing Petroleum Storage Tanks (Virginia Code §62.1-44.34:8 *et seq.*), including Aboveground Storage Tanks (9 VAC 25-580 *et seq.* and 9 VAC 25-580-370 *et seq.*), also known as 'Virginia Tank Regulations', and § 62.1-44.34:14 *et seq.* which covers oil spills.

Virginia:

- Virginia Waste Management Act, Virginia Code § 10.1-1400 et seq.
- Virginia Solid Waste Management Regulations, 9 VAC 20-81 (9 VAC 20-81-620 applies to asbestos-containing materials)
- Virginia Hazardous Waste Management Regulations, 9 VAC 20-60 (9 VAC 20-60-261 applies to lead-based paints)
- Virginia Regulations for the Transportation of Hazardous Materials, 9 VAC 20-110.

Federal:

- Resource Conservation and Recovery Act, 42 U.S. Code sections 6901 et seq.
- U.S. Department of Transportation Rules for Transportation of Hazardous Materials, 49 Code of Federal Regulations, Part 107
- Applicable rules contained in Title 40, Code of Federal Regulations.

5(b) Agency Findings. DEQ-DLPR conducted a search of the project area in Virginia of solid and hazardous waste databases (including petroleum releases) to identify waste sites in close proximity (200-foot radius) to the LOD. The search did not identify any waste sites within the project area which might impact the Build Alternatives.

5(c) Requirements.

(i) Solid and Hazardous Waste Management

Any soil, sediment or groundwater that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable federal, state, and local laws and regulations. All construction waste must be characterized in accordance with the *Virginia Hazardous Waste Management Regulations* prior to management at an appropriate facility.

(ii) Petroleum Contamination

If evidence of a petroleum release is discovered during construction, it must be reported to DEQ-NRO in accordance with Virginia Code § 62.1-44.34.8 through 9 and 9 VAC 25-580-10 *et seq*. Petroleum-contaminated soils and groundwater that is generated during project implementation must be characterized and disposed of properly.

(iii) Petroleum Storage Tanks

The installation and operation of regulated petroleum ASTs or USTs must be conducted in accordance with 9 VAC 25-91-10 *et seq.* and/or 9 VAC 25-580-10 *et seq.* Furthermore, the installation and use of ASTs with a capacity of greater than 660 gallons for temporary fuel storage (>120 days) during construction must follow the requirements in 9 VAC 25-91-10 *et seq.*

(iv) Asbestos-Containing Materials and Lead-Based Paint

All structures being demolished or removed should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP) prior to demolition. If ACM or LBP are found, in addition to the federal waste-related regulations mentioned above, State regulations 9 VAC 20-81-620 (ACM) and 9 VAC 20-60-261 (LBP) must be followed.

Questions may be directed to at the DEQ-NRO, Richard Doucette at (703) 583-3800 or <u>richard.doucette@deq.virginia.gov</u>.

5(d) Recommendation. DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

For additional questions or further information regarding waste comments, contact DEQ-DLPR, Carlos Martinez at (804) 698-4575 or <u>carlos.martinez@deq.virginia.gov</u>.

6. Pesticides and Herbicides. DEQ recommends that the use of herbicides or pesticides for construction or landscape maintenance should be in accordance with the principles of integrated pest management. The least toxic pesticides that are effective in controlling the target species should be used to the extent feasible. Contact the Department of Agriculture and Consumer Services at (804) 786-3501 for more information.

7. Natural Heritage Resources. According to the DEIS (page 4-115), coordination with the Virginia Department of Conservation and Recreation (DCR) indicated that the corridor study boundary overlaps the Potomac Gorge Conservation Site. The list of the natural heritage resources known to occur within the Potomac Gorge Conservation site includes several state-listed rare plant and invertebrate fauna. While not protected under state or federal laws, these species are tracked by the state because they are vulnerable to becoming state threatened or endangered. Coordination with DCR will continue and targeted plant species surveys within the corridor study boundary are planned for 2020 and the results will be presented in the Final EIS.

7(a) Agency Jurisdiction.

(i) <u>The Virginia Department of Conservation and Recreation's (DCR) Division of</u> <u>Natural Heritage (DNH)</u>.

DNH's mission is conserving Virginia's biodiversity through inventory, protection and stewardship. The Virginia Natural Area Preserves Act (Virginia Code §10.1-209 through 217), authorizes DCR to maintain a statewide database for conservation planning and project review, protect land for the conservation of biodiversity, and protect and ecologically manage the natural heritage resources of Virginia (the habitats of rare, threatened and endangered species, significant natural communities, geologic sites, and other natural features).

(ii) The Virginia Department of Agriculture and Consumer Services (VDACS).

The Endangered Plant and Insect Species Act of 1979 (Virginia Code Chapter 39 §3.1-1020 through 1030) authorizes VDACS to conserve, protect and manage endangered and threatened species of plants and insects. Under a Memorandum of Agreement established between VDACS and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species.

7(b) Agency Findings.

(i) Potomac Gorge Conservation Site

According to the information currently in DCR files, the Potomac Gorge Conservation Site is located within the Study in Virginia. The Potomac Gorge Conservation Site has been given a biodiversity significance ranking of B1, which represents a site of outstanding significance. The natural heritage resources of concern at this site are:

Maianthemum stellatum	Starry Solomon's-plume	G5/S1S2/NL/NL	
Phacelia covillei	Coville's phacelia	G3/S1/NL/NL	
Gomphus fraternus	Midland Clubtail	G5/S2/NL/NL	
Boechera dentata	Short's rock cress	G5/S1/NL/NL	
Silene nivea	Snowy Campion	G4?/S1/NL/NL	
Central Appalachian/Pied	G3G4/S2S3/NL/NL		
Boulderfield Forest			
Coastal Plain/Outer Piedr	G4?/ S3/NL/NL		

See DCR-DNH comments attached for more detailed information on these resources.

(ii) Additional Listed Species

DCR-DNH finds the following listed species have been historically documented within the Virginia portion of the Study:

Tall Thistle	Cirsium altissimum	G5/S1/NL/NL
Wild cucumber	Echinocystis lobate	G5/SH/NL/NL
Smartweed Dodder	Cuscuta polygonorum	G5/S1/NL/NL
Northern rattlesnake-master	Eryngium yuccifolium var. yuccifolium	G5T5/S2/NL/NL
One-sided shinleaf	Orthilia secunda	G5/SH/NL/NL
Pizzini's Amphipod	Stygobromus pizzinii	G3G4/S1S2/NL/NL

Furthermore, DCR biologists find that there is potential for the Northern Virginia Well amphipod (*Stygobromus phreaticus*, G1/S1/SOC/NL) and other *Stygobromus* amphipod species to occur within the Study area.

(iii) Ecological Cores

DCR-DNH finds that the proposed project will fragment an Ecological Core C4 as identified in the <u>Virginia Natural Landscape Assessment</u>, one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection.

Ecological Cores are areas of unfragmented natural cover with at least 100 acres of interior that provide habitat for a wide range of species, from interior-dependent forest species to habitat generalists, as well as species that utilize marsh, dune, and beach habitats. Cores also provide benefits in terms of open space, recreation, water quality (including drinking water protection and erosion prevention), and air quality (including carbon sequestration and oxygen production), along with the many associated economic benefits of these functions. The cores are ranked from C1 to C5 (C5 being the least ecologically relevant) using many prioritization criteria, such as the proportions of sensitive habitats of natural heritage resources they contain. See detailed DCR-DNH comments attached for additional information.

(iv) State-listed Plant and Insect Species

DCR-DNH finds that the activity will not affect any documented state-listed plants or insects at the site.

(v) State Natural Area Preserves

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

(vi) Rare, Threatened and Endangered Plant Species Surveys

DCR received the summary of rare, threatened and endangered (RTE) plant species surveys conducted to date in the Potomac River Gorge area by MDOT-SHA. DCR looks forward to reviewing the full report on the survey findings and further coordination per the DEIS (page 4-116), to minimize impacts to natural heritage resources.

7(c) Recommendations.

(i) Avoidance of Natural Heritage Resources

DCR recommends avoidance of documented occurrences of natural heritage resources by limiting the project footprint as much as possible, including along the steep bluff on the eastern side in Virginia.

(ii) Natural Heritage Resources Inventory

Due to the potential of the Study area in Virginia to support additional populations of natural heritage resources that are not included in a RTE plant survey, DCR recommends an inventory for these resources within areas proposed for disturbance including stormwater management ponds and equipment staging areas. With the survey results DCR can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources. DCR-DNH biologists are qualified and available to conduct inventories for rare, threatened, and endangered species.

(iii) Ecological Cores

Minimizing fragmentation is a key mitigation measure that will preserve the natural patterns and connectivity of habitats that are key components of biodiversity. DCR-DNH recommends efforts to minimize edge in remaining fragments, retain natural corridors that allow movement between fragments and designing the intervening landscape to minimize its hostility to native wildlife (natural cover versus lawns).

(iv) Natural Heritage Resources Database Update

Contact DCR-DNH to secure updated information on natural heritage resources if the scope of the project changes or six months pass before the project is implemented, since new and updated information is continually added to the Biotics Data System.

8. Wildlife Resources and Protected Species. According to the DEIS (page 4-110), the Virginia Department of Agriculture and Consumer Services (VDACS), Virginia Department of Game and Inland Fisheries, and DCR cooperate in the protection of Virginia's state- and federally-listed threatened and endangered species. Threatened and endangered wildlife species are protected under the Virginia Endangered Species Act of 1972 (Chapter 5 Wildlife and Fish Laws; Va. Code Ann., § 29.1-563 through 570).

8(a) Agency Jurisdiction. The <u>Virginia Department of Wildlife Resources (DWR)</u>

(formerly the Department of Game and Inland Fisheries), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state- or federally-listed endangered or threatened species, but excluding listed insects (Virginia Code, Title 29.1). DWR is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S. Code §661 *et seq.*) and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DWR determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce or compensate for those impacts. For more information, see the DWR website at <u>www.dwr.virginia.gov</u>.

8(b) Agency Findings. DWR documents the state-listed endangered Little brown bat

and Tri-colored bat, and the state-listed threatened Wood turtle from the project area. Turkey Run, a tributary of the Potomac River that is located to the east of this project site and crosses George Washington Memorial Parkway, has been designated a Threatened and Endangered Species Water due to the presence the Wood turtle. In addition, the Potomac River has been designated a Confirmed Anadromous Fish Use Area.

8(c) Recommendations.

(i) Little Brown Bat and Tri-Colored Bat

DWR recommends that the Final EIS consider potential impacts upon these species. In addition, FHWA should adhere to a time-of-year restriction on tree removal and timbering from April 1 through October 31 in areas of suitable roosting habitat (forest) or that such areas be assessed or surveyed for roosting sites. The assessments should be provided to DWR for further review.

(ii) Wood Turtle

DWR recommends that the Final EIS address the potential presence of the Wood turtle and its habitat within the project area. In addition, DWR recommends the following for the protection of the Wood turtle:

- Adhere to a time-of-year restriction for instream work from October 1 through March 31 of any year.
- Adhere to a time of year restriction from April 1 through September 30 of any year for work in uplands within 900 feet of a stream.
- Preserve at least 300 feet of undisturbed naturally vegetated buffer along the stream.

Additional information on the <u>Wood Turtle</u> may be found online on the DWR website.

DWR recommends that a formal habitat assessment be performed by a qualified biologist which clearly depicts, via narrative and photographic description, all stream and upland habitats along the tributary to Stony Run. The habitat assessment should be made available to DWR for review. Upon review, DWR will make final comments regarding protection of the Wood turtle associated with this project.

DWR recommends that, prior to construction, contractors should be made aware of the possibility of encountering Wood turtle on site and become familiar with its appearance, status and life history. Attached is an appropriate information sheet/field observation form for distribution to contractors. If Wood turtles are encountered and are in jeopardy during construction, remove them from immediate harm. If there is staff on site with an appropriate Threatened and Endangered Species Scientific Collection Permit, relocate

encountered Wood turtles to suitable habitat, preferably within the nearest perennial stream. Relocations should be reported to DWR.

(iii) Potomac River

DWR recommends the implementation of the following measures for proposed instream work.

- Adhere to a time-of-year restriction from February 15 through June 30 of any year.
- Conduct instream activities during low or no-flow conditions.
- Use non-erodible cofferdams or turbidity curtains to isolate the construction area.
- Block no more than 50% of the streamflow at any given time (minimal overlap of construction footprint notwithstanding).
- Stockpile excavated material in a manner that prevents reentry into the stream.
- Restore original streambed and streambank contours.
- Revegetate barren areas with native vegetation.
- Implement strict erosion and sediment control measures.
- Designed and perform instream work in a manner that minimizes impacts upon natural streamflow and movement of resident aquatic species.
- Use a dam and pump-around for as limited a time as possible and return water to the stream free of sediment and excess turbidity.
- Use matting made from natural/organic materials such as coir fiber, jute, and/or burlap to minimize potential wildlife entanglements resulting from use of synthetic/plastic erosion and sediment control matting.
- Install concrete (e.g. Tremie method, grout bags, and poured concrete) "in the dry," allowing all concrete to harden and cure prior to contact with open water to minimize harm to the aquatic environment and organisms.
- Construct stream crossings via clear-span bridges due to the future maintenance costs associated with culverts and the loss of riparian and aquatic habitat. If this is not possible, countersink culverts below the streambed at least 6 inches or use bottomless culverts to allow passage of aquatic organisms.
- Install floodplain culverts to carry bankfull discharges.

(iv) General Protection of Wildlife Resources

DGIF offers the following recommendations to minimize overall impacts to wildlife and natural resources from the construction of linear road projects.

- Avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable.
- Maintain naturally vegetated buffers of at least 100 feet in width around wetlands and on both sides of perennial and intermittent streams, where practicable.
- Conduct significant tree removal and ground clearing activities outside of the

primary songbird nesting season of March 15 through August 15.

- Implement and maintain appropriate erosion and sediment controls throughout project construction and site restoration.
- Use matting made from natural organic materials such as coir fiber, jute, and/or burlap to minimize potential wildlife entanglements resulting from use of synthetic/plastic erosion and sediment control matting.

DWR understands that adherence to these general recommendations may be infeasible in some situations. DWR is available to work with FHWA to develop project-specific measures as necessary to minimize project impacts upon wildlife resources.

9. Historic and Archeological Resources. The DEIS (page 4-49) finds that in Virginia, the George Washington Memorial Parkway would be adversely affected by expansion of the American Legion Bridge within the park boundaries, causing increased visual and physical intrusion into the setting of the park, resulting in diminishment of setting and possibly landscape design and materials. In addition, MDOT-SHA evaluated a number of recorded precontact archaeological sites within the George Washington Memorial Parkway property in Virginia (DEIS, page 4-54). MDOT-SHA has determined that the majority of the investigated sites together constitute a NRHP-eligible archaeological district of related resources. The Virginia Department of Historic Resources (DHR) did not concur with characterizing the resources as an archaeological district and recommends four of the five sites individually eligible for listing on the NRHP (Sites 44FX0374, 44FX0379, 44FX0381 and 44FX0389). MDOT-SHA, National Park Service and DHR are continuing consultation on eligibility, treatment, and effects determinations regarding these resources.

9(a) Agency Jurisdiction. The Virginia Department of Historic Resources (DHR) conducts reviews of both federal and state projects to determine their effect on historic properties. Under the federal process, DHR is the State Historic Preservation Office, and ensures that federal undertakings-including licenses, permits, or funding-comply with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulation at 36 CFR Part 800. Section 106 requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. For state projects or activities on state lands, DHR is afforded an opportunity to review and comment on (1) the demolition of state property; (2) major state projects requiring an EIR; (3) archaeological investigations on state-controlled land; (4) projects that involve a landmark listed in the Virginia Landmarks Register; (5) the sale or lease of surplus state property; (6) exploration and recovery of underwater historic properties; and (7) excavation or removal of archaeological or historic features from caves. Please see DHR's website for more information about applicable state and federal laws and how to submit an application for review: http://www.dhr.virginia.gov/StateStewardship/Index.htm.

9(b) Agency Findings. DHR concurs that the FHWA is currently consulting with DHR on this undertaking pursuant to Section 106 of the National Historic Preservation Act, as

amended, and its implementing regulation 36 CFR Part 800. DHR anticipates this consultation will continue.

9(c) Requirement. FHWA must to continue to consult with DHR under Section 106.

10. Recreational Resources. According to the DEIS (page 4-98), the only forest resources within the corridor study boundary in Virginia are on NPS property and Scott's Run Nature Preserve, owned by Fairfax County Park Authority. Park Use Permits would require coordination and application with the Fairfax County Park Authority for construction within parkland, including removal of trees and vegetation. In addition, the DEIS (page 4-101) asserts that mitigation for any impacts to these forests would require specific coordination with NPS and DCR.

10(a) Agency Jurisdiction. DCR's Division of Planning and Recreational Resources (DPRR) administers the Virginia Scenic Rivers (Virginia Code § 10.1-200), Virginia Byways (Virginia Code §33.2-405 through 33.2-408), and state trails programs (Virginia Code §10.1-204) and is responsible for developing the Virginia Outdoors Plan (VOP), the state's comprehensive outdoor recreation and open space plan (Virginia Code §10.1-200). The VOP recognizes the importance of scenery to Virginians and many of the top ten activities are water based.

10(b) Agency Findings. DCR-DPRR concurs that the Scotts Run Nature Preserve is adjacent to the Study corridor and could be impacted by the project. The park is protected in perpetuity under § 6(f) (3) of the Land and Water Conservation Fund (LWCF) Act. 36 CFR § 59.3 states that "§ 6 (f) (3) of the LWCF is the cornerstone of federal compliance efforts to ensure that the federal investments in LWCF assistance are being maintained in public outdoor recreation use. This section of the Act assures that once an area has been funded with LWCF assistance, it is continually maintained in public recreation use unless NPS approves substitution property of reasonably equivalent usefulness and location and of at least equal fair market value."

10(c) Requirement. No property acquired or developed with assistance under § 6(f) (3) shall be converted to other than public outdoor recreation uses without the approval of the Secretary of the Interior. Accordingly, FHWA must also coordinate with DCR-DPRR to confirm that the project will not impact Scotts Run Nature Preserve.

11. Public Water Supply. According to the DEIS (page 4-89), all Build Alternatives would affect surface waters, surface water quality, and watershed characteristics in the corridor study boundary due to direct and indirect impacts to ephemeral, intermittent, and perennial stream channels and increases in impervious surface in their watersheds. However, drinking water impacts are not anticipated (DEIS, page 4-94).

11(a) Agency Jurisdiction. The <u>Virginia Department of Health (VDH) Office of</u> <u>Drinking Water (ODW)</u> reviews projects for the potential to impact public drinking water sources (groundwater wells, springs and surface water intakes). VDH administers both federal and state laws governing waterworks operation.

11(b) Agency Findings. VDH-ODW concurs that in Virginia, there are no public groundwater wells within a 1-mile radius of the project site, no surface water intakes located within a 5-mile radius, and the project corridor is not within the watershed of any public surface water intakes.

11(c) Conclusion. VDH-ODW concludes that there are no apparent impacts on public drinking water sources due to this proposal.

For additional information, contact VDH-ODW, Arlene Fields Warren at (804) 864-7781 or <u>arlene.warren@vdh.virginia.gov</u>.

12. Floodplain Management. According to the DEIS (page 4-95), Fairfax County Floodplain Regulations are more stringent than the federal minimum requirements of the National Flood Insurance Program. Activities within their floodplains may require written approval from the Fairfax County Department of Public Works and Environmental Services, or a Special Exception approval issued by the Board of Supervisors. Floodplain approvals will be obtained by the appropriate jurisdiction. The Study will meet floodplain requirements.

12(a) Agency Jurisdiction. The DCR Division of Dam Safety and Floodplain

Management (DSFM) is the lead coordinating agency for the Commonwealth's floodplain management program and the National Flood Insurance Program (Executive Oder 45). The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA), and communities who elect to participate in this voluntary program manage and enforce the program on the local level through that community's local floodplain ordinance. Each local floodplain ordinance must comply with the minimum standards of the NFIP, outlined in 44 CFR 60.3; however, local communities may adopt more restrictive requirements in their local floodplain ordinance, such as regulating the 0.2% annual chance flood zone (shaded Zone X).

12(b) Requirements. All development within a Special Flood Hazard Area (SFHA) or floodplain, as shown on the locality's Flood Insurance Rate Map (FIRM), must be permitted and comply with the requirements of the local floodplain ordinance. Projects conducted by federal agencies within the SFHA must comply with federal Executive Order 11988: Floodplain Management.

DCR's Floodplain Management Program does not have regulatory authority for projects in the SFHA. The FHWA must contact the local floodplain administrator for an official floodplain determination and comply with the community's local floodplain ordinance, including receiving a local permit. Failure to comply with the local floodplain ordinance could result in enforcement action from the locality. The FHWA is encouraged to reach out to the local floodplain administrator to ensure compliance with the local floodplain ordinance. **12(c) Recommendations.** DCR recommends the FHWA access the <u>Virginia Flood</u> <u>Risk Information System (VFRIS)</u>. Local floodplain administrator contact information may be found on DCR's <u>Local Floodplain Management Directory</u>.

For additional information, contact DCR-DSFM, Kristin Owen at (804) 786-2886 or <u>kristin.owen@dcr.virginia.gov</u>.

13. Transportation Impacts. The DEIS (page ES-2) states that the Virginia Department of Transportation is a Cooperating Agency for the Study.

13(a) Agency Jurisdiction. The <u>Virginia Department of Transportation (VDOT)</u> provides comments pertaining to potential impacts to existing and future transportation systems.

13(b) Agency Findings. VDOT has been closely coordinating MDOT-SHA with regard to the I-495 Northern Extension (NEXT) of the Capital Beltway Express Lanes project, to ensure that the two independent projects are properly coordinated.

For additional information, contact VDOT, Rahul Trivedi, P.E. at (703) 259-2308 or <u>rahul.trivedi@vdot.virginia.gov</u>.

14. Local Review.

14(a) Agency Jurisdiction. DEQ invites the chief administrative officer of every locality in which a project is proposed to be located to comment on environmental documents the Department receives. The purpose of the distribution is to enable the locality to evaluate the proposed project for environmental impact, consistency with the locality's comprehensive plan, local ordinances adopted pursuant to applicable law and to provide the locality with an opportunity to comment. DEQ distributes the reports to localities, solicits their comments and considers their responses in substantially the same manner as the department solicits and receives comments from state agencies.

14(b) Agency Findings. The Fairfax County Department of Planning and Development (DPD) notes that the DEIS includes a Community Effects Assessment (CEA) for various community areas along the study area, including portions of the McLean community. These areas were identified primarily as either residential or park properties. The CEA Analysis Area Community is bordered roughly by the Potomac River to the north; Chain Bridge and Chain Bridge Road to the east; Georgetown Pike and Old Dominion Drive (Route 738) to the south; and Georgetown Pike (Route 193) and Difficult Run to the west. This is the southwestern-most community in the project analysis area and the only community located outside of Maryland.

Within the McLean CEA analysis area, a total of 14.4 acres would be taken for highway right-of-way, including 12.2 acres of the George Washington Memorial Parkway, of

which 9.3 acres would be impacted tree canopy.

Fairfax DPD's response to the DEIS includes a summary of information previously provided to VDOT for its I-495 Express Lanes Northern Extension Environmental Assessment, and an environmental analysis that includes policy guidance addressing Roadway Design, Cultural Resources, Ecological Resources, Forest Resources, and Traffic Noise Impacts. Most sections include a comments and recommendations subsection. The information is extensive and will not be repeated here. However, see Fairfax DPD's response (attached) for details.

14(c) Recommendations. In general, Fairfax DPD notes that transportation system components are expected to be consistent with environmental, land use, social, and economic goals. Each component is to be thoughtfully designed and sensitively integrated into the community fabric. Open space, ecological resources, heritage sites, parks, trails, and stream corridors are all critical components of the community that each transportation proposal is to consider.

To address the environmental objectives of the Comprehensive Plan and avoid undue impacts to community resources, Fairfax DPD staff recommends the following:

- Avoidance or minimization of impacts to properties that are located on the National Register of Historic Places, including the George Washington Memorial Parkway and Georgetown Pike.
- Avoidance or minimization of impacts to the two properties on the Fairfax County Inventory of Historic Sites (Beaufort Park and Shiloh Baptist Church).
- Assessment, minimization, avoidance, and mitigation of the direct and indirect impacts to the three properties identified in the Virginia Outdoors Plan.
- Optimization of road alignments and designs to prevent or otherwise minimize encroachment in Resource Protection Areas (RPAs) and adverse effects on water quality.
- Strict adherence to local stormwater management requirements to the maximum extent practicable for the project, per IIM-LD-195.12.
- The use of linear stormwater controls to address water quality and quantity requirements.
- Pursuit of mitigation opportunities within the county and which rely on Fairfax County's approved watershed management plans as guides for any project mitigation. The FHWA should partner with the county to select local stream restoration and constructed wetland projects.
- An evaluation of "legacy" issues and impacts from previous highway-related work, particularly inadequacies of previous stormwater facility installations, planting efforts, and runoff impacts on local stream geomorphology, including erosion. The cumulative impacts of existing deficiencies and proposed actions should be assessed and mitigated.
- Assessment of the impacts to Dead Run, Scotts Run, and Turkey Run and the downstream impacts to the Potomac River.

- Performance of ecological resource surveys for each of these stream corridors, the Scotts Run Nature Preserve, and the George Washington Memorial Parkway.
- Assessment of the environmental services and the economic, social, and health benefits of the urban forest that would be lost due to the clearing associated with this project, as well as compensation for these impacts.
- Reforestation of all disturbed areas with commitments to compensation, soil rebuilding, and the restoration of native plant communities.
- Integration of invasives control throughout the project area.
- Clarification of the current status of and expectations regarding noise mitigation, to include potential barrier locations and design details.

For additional information regarding the county's comments, contact Fairfax DPD, Joseph Gorney at (703) 324-1380 or joseph.gorney@fairfaxcounty.gov.

15. Pollution Prevention. DEQ advocates that principles of pollution prevention and sustainability be used in all construction projects as well as in facility operations. Effective siting, planning, and on-site BMPs will help to ensure that environmental impacts are minimized. However, pollution prevention and sustainability techniques also include decisions related to construction materials, design, and operational procedures that will facilitate the reduction of wastes at the source.

15(a) Recommendations. We have several pollution prevention recommendations that may be helpful in the construction and operation of this project:

- Consider development of an effective Environmental Management System (EMS). An effective EMS will ensure that the proposed facility is committed to minimizing its environmental impacts, setting environmental goals, and achieving improvements in its environmental performance. DEQ offers EMS development assistance and it recognizes facilities with effective Environmental Management Systems through its Virginia Environmental Excellence Program (VEEP). VEEP provides recognition, annual permit fee discounts, and the possibility for alternative compliance methods.
- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts.
- Consider contractors' commitment to the environment (such as an EMS) when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.
- Integrate pollution prevention techniques into the facility maintenance and operation. Maintenance facilities should be designed with sufficient and suitable space to allow for effective inventory control and preventative maintenance.

DEQ's Office of Pollution Prevention provides information and technical assistance relating to pollution prevention techniques and EMS. For more information, contact

DEQ's Office of Pollution Prevention, Meghann Quinn at (804) 698-4021 or <u>meghann.quinn@deq.virginia.gov</u>.

REGULATORY AND COORDINATION NEEDS

1. Surface Waters and Wetlands. Surface water and wetland impacts associated with the Preferred Alternative may require VWP Permit authorization from DEQ pursuant to Virginia Code §62.1-44.15:20. A Joint Permit Application may be obtained from and submitted to the VMRC which serves as a clearinghouse for the joint permitting process involving the VMRC, DEQ, Corps, and local wetlands boards. For additional information and coordination, contact DEQ-OWSP, Michelle Henicheck at (804) 698-4007 or <u>michelle.henicheck@deq.virginia.gov</u>.

2. Erosion and Sediment Control and Stormwater Management.

2(a) Erosion and Sediment Control and Stormwater Management. Construction in Virginia must comply with the Virginia Erosion and Sediment Control Law (Virginia Code § 62.1-44.15:61) and *Regulations* (9 VAC 25-840-30 *et seq*.) and Stormwater Management Law (Virginia Code § 62.1-44.15:31) and *Regulations* (9 VAC 25-870-210 *et seq*.) as administered by DEQ. Activities that disturb 2,500 square feet or more in CBPAs would be regulated by *VESCL&R* and *VSWML&R*. Erosion and sediment control, and stormwater management requirements should be coordinated with DEQ-NRO, Kelly Vanover at (804) 837-1073 or kelly.vanover@deq.virginia.gov.

2(b) General Permit for Stormwater Discharges from Construction Activities (VAR10). For land-disturbing activities of equal to or greater than one acre, the applicant is required to apply for registration coverage under the Virginia Stormwater Management Program General Permit for Discharges of Stormwater from Construction Activities (9 VAC 25-880-1 *et seq.*). Specific questions regarding the Stormwater Management Program requirements should be directed to DEQ-NRO, Kelly Vanover at (804) 837-1073 or <u>kelly.vanover@deq.virginia.gov</u>.

3. Chesapeake Bay Preservation Areas. Construction must comply with the requirements of the Bay Act (Virginia Code §§ 62.1-44.15:67 through 62.1-44.15:78) and *Regulations* (9 VAC 25-830-10 *et seq.*) as administered by DEQ. The construction, installation, operation, and maintenance of public roads in RPA are conditionally exempt under 9 VAC-25-830-150.B.1 of the *Regulations*. For additional information and coordination, contact the DEQ-OWLGAP, Daniel Moore at (804) 698-4520 or daniel.moore@deq.virginia.gov.

4. Air Quality Regulations. The Proposed Alternatives are subject to air regulations administered by DEQ. The following sections of the Code of Virginia and Virginia Administrative Code are applicable:

• asphalt paving operations (9 VAC 5-45-780 et seq.);

- fugitive dust and emissions control (9 VAC 5-50-60 et seq.); and
- open burning restrictions (9 VAC 5-130).

Contact Fairfax County fire officials for information on any local requirements pertaining to open burning. For more information and coordination contact DEQ-NRO, Justin Wilkinson at (703) 583-3820 or justin.wilkinson@deq.virginia.gov.

5. Solid and Hazardous Wastes. All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations. For additional information concerning location and availability of suitable waste management facilities in the project area or if free product, discolored soils, or other evidence of contaminated soils are encountered, contact DEQ-NRO, Richard Doucette at (703) 583-3813 or <u>richard.doucette@deq.virginia.gov</u>.

5(a) Asbestos-Containing Material. The owner or operator of a demolition activity, prior to the commencement of the activity, is responsible to thoroughly inspect affected structures for the presence of asbestos, including Category I and Category II nonfriable asbestos containing material (ACM). Upon classification as friable or non-friable, all waste ACM shall be disposed of in accordance with the Virginia Solid Waste Management Regulations (9 VAC 20-80-640), and transported in accordance with the Virginia regulations governing Transportation of Hazardous Materials (9 VAC 20-110-10 et seq.). Contact the DEQ-NRO, Richard Doucette at (703) 583-3813 or richard.doucette@deq.virginia.gov and the Department of Labor and Industry, Doug Wiggins (540) 562-3580 ext. 131 for additional information.

5(b) Lead-Based Paint. Construction must comply with the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) regulations, and with the Virginia Lead-Based Paint Activities Rules and Regulations. For additional information regarding these requirements contact the Department of Professional and Occupational Regulation at (804) 367-8500.

5(c) Petroleum Contamination. In accordance with Virginia Code §§ 62.1-44.34.8 through 9 and 9 VAC 25-580-10 *et seq.*, site activities involving excavation or disturbance of petroleum contaminated soils and or groundwater must be reported to DEQ-NRO, Randy Chapman at (703) 583-3816 or <u>randy.chapman@deq.virginia.gov</u>.

5(d) Petroleum Storage Tank Compliance and Inspection. The installation and use of an AST of greater than 660 gallons for temporary fuel storage of more than 120 days must comply with the requirements in 9 VAC 25-91-10 *et seq.* Contact DEQ-NRO, Riaz Syed at (703) 583-3915 or <u>riaz.syed@deq.virginia.gov</u>.

6. Natural Heritage Resources.

6(a) Natural Heritage Resources Inventory. Contact Natural Heritage Chief Biologist, Anne Chazal at (804) 786-9014 or <u>anne.chazal@dcr.virginia.gov</u>, to discuss conducting

a natural heritage resources survey within areas proposed for disturbance, including stormwater management ponds and equipment staging areas. With the survey results DCR can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

6(b) Ecological Cores. Additional information on minimizing the deleterious effects of fragmentation of the ecological core may be obtained by contacting DCR-DNH, Rene Hypes at (804) 371-2708 or <u>rene.hypes@dcr.virginia.gov</u>.

6(c) Natural Heritage Resources Update. Contact DCR-DNH, Rene Hypes at (804) 371-2708 or <u>rene.hypes@dcr.virginia.gov</u>, to secure updated information on natural heritage resources if the scope of the project changes and/or six months pass before the project is implemented, since new and updated information is continually added to the Biotics Data System.

7. Wildlife Resources and Protected Species.

7(a) Wood Turtle. Contact DWR's Herpetologist, John (J.D.) Kleopfer at (804) 829-6703 or john.kleopfer@dwr.virginia.gov to further discuss a formal habitat assessment at all stream and upland habitats along the tributary to Stony Run. The habitat assessment should reference ESSLog#40764 and be made available to DWR for review. In addition, Wood Turtle relocations should be reported to DWR, J.D. Kleopfer, and Wood Turtle observation forms should be faxed to (804) 829-6788.

7(b) General Protection of Wildlife Resources. Contact DWR, Amy Ewing at (804) 367-2211 or amy.ewing@dwr.virginia.gov for the development of project-specific measures to minimize project impacts upon wildlife resources.

8. Historic and Archaeological Resources. The FHWA must continue to consult with DHR under Section 106 NHPA. For additional information and coordination, contact DHR, Marc Holma at (804) 482-6090 or <u>marc.holma@dhr.virginia.gov</u>.

9. Recreational Resources. Under § 6(f) (3) of the Land and Water Conservation Fund Act, no property acquired or developed with assistance under LWCFA shall be converted to other than public outdoor recreation uses without the approval of the Secretary of the Interior. This also includes coordination with DCR-DPRR to confirm that the project will not impact Scotts Run Nature Preserve. Contact DCR-DPRR, Kristal McKelvey at or <u>kristal.mckelvey@dcr.virginia.gov</u>, for further information and coordination.

10. Floodplain Management. The Preferred Alternative must be implemented in compliance with Fairfax County's local floodplain ordinance. Local floodplain administrator contact information may be found on DCR's <u>Local Floodplain</u> <u>Management Directory</u>.

11. Federal Consistency under the CZMA. Pursuant to the Coastal Zone Management Act (CZMA) of 1972, as amended, FHWA is required to determine the consistency of its activities affecting Virginia's coastal resources or coastal uses with the Virginia Coastal Zone Management (CZM) Program (see section 307(c)(1) of the *Act* and 15 CFR Part 930, Subpart C, section 930.34). This involves an analysis of the activities in light of the <u>enforceable policies</u> of the Virginia CZM Program, and the submission of a consistency determination reflecting that analysis and committing the FHWA to comply with the enforceable policies. In addition, we encourage FHWA to consider the <u>Advisory Policies</u> of the Virginia CZM Program. Section 930.39 gives content requirements for the consistency determination, or you may also find guidance in DEQ's <u>Federal Consistency Information Package</u> on the agency's website.

Thank you for the opportunity to review the Draft Environmental Impact Statement for the I-495 & I-270 Managed Lanes Study in Fairfax County. Detailed comments of reviewing agencies are attached for your review. Please contact me at (804) 698-4204 or John Fisher at (804) 698-4339 for clarification of these comments.

Sincerely,

Bete Raf

Bettina Rayfield, Program Manager Environmental Impact Review and Long-Range Priorities

Enclosures

Ec: Amy Ewing, DWR Robbie Rhur, DCR Arleen Warren, VDH Mark Eversole, VMRC Roger Kirchen, DHR Heather Williams, VDOT Denise James, Fairfax County Robert Lazaro, NVRC



Re: NEW PROJECT FHWA I-495 and I-270 Managed Lanes Study, DEQ #20-103F

1 message

Holland, Benjamin <benjamin.holland@deq.virginia.gov> To: John Fisher <John.Fisher@deq.virginia.gov> Wed, Jul 15, 2020 at 3:33 PM

Northern Regional Office comments regarding the draft EIR for I-495 and I-270 Managed Lane Study, *DEQ* #20-103F, are as follows:

<u>Land Protection Division</u> – The project manager is reminded that if any solid or hazardous waste is generated/encountered during construction, the project manager would follow applicable federal, state, and local regulations for their disposal.

<u>Air Compliance/Permitting</u> - The project manager is reminded that during the construction phases that occur with this project; the project is subject to the Fugitive Dust/Fugitive Emissions Rule 9 VAC 5-50-60 through 9 VAC 5-50-120. In addition, should any open burning or use of special incineration devices be employed in the disposal of land clearing debris during demolition and construction, the operation would be subject to the Open Burning Regulation 9 VAC 5-130-10 through 9 VAC 5-130-60 and 9 VAC 5-130-100.

<u>Virginia Water Protection Permit (VWPP) Program</u> – The project manager is reminded that a VWP permit from DEQ may be required should impacts to surface waters be necessary. DEQ VWP staff recommends that the avoidance and minimization of surface water impacts to the maximum extent practicable as well as coordination with the US Army Corps of Engineers. Upon receipt of a Joint Permit Application for the proposed surface water impacts, DEQ VWP Permit staff will review the proposed project in accordance with the VWP permit program regulations and current VWP permit program guidance. VWPP staff reserve the right to provide comment upon receipt of a permit application requesting authorization to impact state surface waters, and at such time that a wetland delineation has been conducted and associated jurisdiction determination made by the U.S. Army Corps of Engineers.

Erosion and Sediment Control, Storm Water Management – DEQ has regulatory authority for the Virginia Pollutant Discharge Elimination System (VPDES) programs related to municipal separate storm sewer systems (MS4s) and construction activities. Erosion and sediment control measures are addressed in local ordinances and State regulations. Additional information is available at http://www.deq.virginia.gov/Programs/Water/ StormwaterManagement.aspx. Non-point source pollution resulting from this project should be minimized by using effective erosion and sediment control practices and structures. Consideration should also be given to using permeable paving for parking areas and walkways where appropriate, and denuded areas should be promptly revegetated following construction work. If the total land disturbance exceeds 10,000 square feet, an erosion and sediment control plan will be required. Some localities also require an E&S plan for disturbances less than 10,000 square feet. A stormwater management plan may also be required. For any land disturbing activities equal to one acre or more, you are required to apply for coverage under the VPDES General Permit for Discharges of Storm Water from Construction Activities. The Virginia Stormwater Management Permit Authority may be DEQ or the locality.



Re: NEW PROJECT FHWA I-495 and I-270 Managed Lanes Study, DEQ #20-103F

1 message

Gavan, Lawrence <larry.gavan@deq.virginia.gov> To: "Fisher, John" <john.fisher@deq.virginia.gov> Mon, Jul 13, 2020 at 3:33 PM

(a) Agency Jurisdiction. The Department of Environmental Quality (DEQ) administers the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R) and Virginia Stormwater Management Law and Regulations (VSWML&R).

(b) Erosion and Sediment Control and Stormwater Management Plans. The Applicant and its authorized agents conducting regulated land-disturbing activities on private and public lands in the state must comply with VESCL&R and VSWML&R, including coverage under the general permit for stormwater discharge from construction activities, and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act-Section 313, federal consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, borrow areas, soil stockpiles, and related land-disturbing activities that result in the total land disturbance of equal to or greater than 10,000 square feet (2,500 square feet in Chesapeake Bay Preservation Area) would be regulated by VESCL&R. Accordingly, the Applicant must prepare and implement an erosion and sediment control (ESC) plan to ensure compliance with state law and regulations. Land-disturbing activities that result in the total land disturbance of equal to or greater than 1 acre (2,500 square feet in Chesapeake Bay Preservation Area) would be regulated by VSWML&R. Accordingly, the Applicant must prepare and implement a Stormwater Management (SWM) plan to ensure compliance with state law and regulations. The ESC/SWM plan is submitted to the DEQ Regional Office that serves the area where the project is located for review for compliance. The Applicant is ultimately responsible for achieving project compliance through oversight of on-site contractors, regular field inspection, prompt action against non-compliant sites, and other mechanisms consistent with agency policy. [Reference: VESCL 62.1-44.15 et seq.]

(c) General Permit for Stormwater Discharges from Construction Activities (VAR10). DEQ is responsible for the issuance, denial, revocation, termination and enforcement of the Virginia Stormwater Management Program (VSMP) General Permit for Stormwater Discharges from Construction Activities related to municipal separate storm sewer systems (MS4s) and construction activities for the control of stormwater discharges from MS4s and land disturbing activities under the Virginia Stormwater Management Program.

The owner or operator of projects involving land-disturbing activities of equal to or greater than 1 acre is required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project-specific Stormwater Pollution Prevention Plan. Construction activities requiring registration also include land disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan of development will collectively disturb equal to or greater than one acre The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the *VSMP Permit Regulations*. General information and registration forms for the General Permit are available at: http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/VSMPPermits/ConstructionGeneralPermit.aspx

[Reference: Virginia Stormwater Management Act 62.1-44.15 et seq.; VSMP Permit Regulations *9*VAC25-880 *et seq.*]



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 1111 East Main Street, Suite 1400, Richmond, VA 23219 Mailing address: P.O. Box 1105, Richmond, Virginia 23218 www.deq.virginia.gov

Matthew J. Strickler Secretary of Natural Resources David K. Paylor Director

(804) 698-4000 1-800-592-5482

MEMORANDUM

TO: John Fisher, DEQ Office of Environmental Impact Review

FROM: Daniel Moore, DEQ Principal Environmental Planner

DATE: July 10, 2020

SUBJECT: DEQ #20-103F USDOT/FHWA: I-495 Managed Lanes Study – Fairfax County

We have reviewed the Draft EIS documents for the above project and offer the following comments regarding consistency with the provisions of the *Chesapeake Bay Preservation Area Designation and Management Regulations* (Regulations).

In Fairfax County, the areas protected by the Chesapeake Bay Preservation Act (CBPA), as locally implemented, require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) as designated by the local governments. RPAs include tidal wetlands, certain non-tidal wetlands, and tidal shores. RPAs also include a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. RMAs, which require less stringent performance criteria than RPAs, include all areas of Fairfax County not included in the RPA.

Section 9VAC-25-830-150.B.1 of the Regulations exempts the "construction, installation, operation, and maintenance" of public roads (in this case I-495 as it runs through Fairfax County, from the interchange with the George Washington Memorial Parkway to the Virginia-Maryland border) provided such construction, installation, operation, and maintenance is conducted in accordance with regulations promulgated pursuant to the *Erosion and Sediment Control Law* and the *Virginia Stormwater Management Act*, including submission of an erosion and sediment control plan and a stormwater management plan approved by the Department of Environmental Quality, or local water quality protection criteria at least as stringent as the above state requirements. The exemption of public roads is further conditioned on the optimization of the road alignment and design to prevent or otherwise minimize encroachment into the RPA and adverse effects on water quality.

Provided adherence to the above requirements, that section of the proposed activity located in Fairfax County would be consistent with the *Chesapeake Bay Preservation Act* and the Regulations.

MEMORANDUM

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY WATER DIVISION

то:	John Fisher
FROM:	Michelle Henicheck Michelle Henicheck Office of Wetlands and Stream Protection
DATE:	September 29, 2020
SUBJECT:	Draft Environmental Impact Statement Project Sponsor: USDOT/Federal Highway Administration Project Title: I-495 and I-270 Managed Lanes Study Location: Fairfax County Project Number: DEQ #20-103F

The DEQ's Office of Wetlands and Stream Protection (OWSP) has reviewed the draft Environmental Impact Statement (EIS) concerning the above-referenced project.

The 1-495 & 1-270 Managed Lanes Study (MLS) is the first element of the broader 1-495 & 1-270 Public-Private Partnership (P3) Program. This Study is considering alternatives that address roadway congestion within the specific study. <u>A small 0.4 mile portion of this project is located</u> in Virginia on I-495 from the George Washington Memorial Parkway interchange to the <u>Virginia/Maryland border</u>. The Western Terminus on 1-495, 0.4 miles south of George Washington Memorial Parkway interchange; allows outer loop mainline improvements that are carried to the George Washington Memorial Parkway to be merged and transitioned into the existing mainline lanes without causing congestion due to lane drops and merges. The managed lanes would connect directly into the proposed extension of the Virginia Express Lanes.

A range of 15 Preliminary Alternatives was identified based on previous, relevant studies and planning documents, and input received during the NEPA scoping process from the public and from Federal, state, and local regulatory agencies.

In Virginia, the Build Alternatives (Alt8, Alt9, Alt9M, Alt10, Alt13B, and Alt13C) are identical and have identical impacts. The Build Alternatives would impact a total of 0.05 acres of wetland and 3,349 linear feet of stream. Impacts to wetlands and waterways resources in Virginia, as reported in the DEIS Appendix L – Natural Resources Technical Report, are detailed in the tables below:

Feature ID	Classification	Potential Impact (Same for all Build Alternatives: Alt8 Alt9, Alt9B, Alt10, Alt13B, Alt13C)	
		Square Feet (SF)	Acres (Ac)
22BBB	PFO	No impact	
22TT	PFO	2,021	0.05

Potential Wetland Impact in Virginia

TOTAL	PFO	2,021	0.05

Potential Waterway Impacts in Virginia
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Feature ID	Classification	Impact (Same for all build alternatives: Alt8, Alt9, Alt9B, Alt10, Alt13B, Alt13C)	
		Linear Feet (LF)	Square Feet (SF)
22AAA	Perennial	339	10,664
22AAA_C	Perennial	491	981
22SS	Perennial	97	2,060
22UU	Intermittent	543	10,481
22VV	Ephemeral	371	7,102
22WW	Intermittent	64	2,703
22WW_C	Intermittent	272	1,360
22XX	Intermittent	No impact	
22ZZ	Perennial	97	2,060
22ZZ_C	Perennial	1,075	6,513
	TOTAL	3,349	43,924

In Virginia, the mitigation requirement for each Build Alternative would be 0.10 acres of wetland mitigation and 729 linear feet of riverine mitigation in the Middle Potomac-Catoctin watershed. The Virginia mitigation requirement of 0.10 wetland mitigation credits and 729 riverine mitigation credits will be met by purchasing bank credits.

Recommendations and Potential Permits

DEQ offers the following recommendations:

- 1. Wetland and stream impacts should be avoided and minimized to the maximum extent practicable.
- 2. If the scope of the project changes, additional review will be necessary by one or more offices in the Commonwealth's Secretariat of Natural Resources and/or the Corps.
- 3. At a minimum, any required compensation for impacts to State Waters, including the compensation for permanent conversion of forested wetlands to emergent wetlands, should be in accordance with all applicable state regulations and laws. Consider mitigating impacts to forested or converted wetlands by establishing new forested wetlands within the impacted watershed.
- 4. Any temporary impacts to surface waters associated with this project should be restored to preexisting conditions.
- 5. No activity may substantially disrupt the movement of aquatic life indigenous to the water body, including those species, which normally migrate through the area, unless the primary purpose of

the activity is to impound water. Culverts placed in streams must be installed to maintain low flow conditions. No activity may cause more than minimal adverse effect on navigation. Furthermore the activity must not impede the passage of normal or expected high flows and the structure or discharge must withstand expected high flows.

- 6. Erosion and sedimentation controls should be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992. These controls should be placed prior to clearing and grading and maintained in good working order to minimize impacts to state waters. These controls should remain in place until the area is stabilized and should then be removed. Any exposed slopes and streambanks should be stabilized immediately upon completion of work in each permitted area. All denuded areas should be properly stabilized in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.
- 7. No machinery may enter surface waters, unless authorized by a Virginia Water Protection (VWP) individual permit, general permit, or general permit coverage.
- 8. Heavy equipment in temporarily impacted surface waters should be placed on mats, geotextile fabric, or other suitable material, to minimize soil disturbance to the maximum extent practicable. Equipment and materials should be removed immediately upon completion of work.
- 9. Activities should be conducted in accordance with any Time-of-Year restriction(s) as recommended by the Department of Game and Inland Fisheries, the Department of Conservation and Recreation, or the Virginia Marine Resources Commission. The permittee should retain a copy of the agency correspondence concerning the Time-of-Year restriction(s), or the lack thereof, for the duration of the construction phase of the project.
- 10. All construction, construction access, and demolition activities associated with this project should be accomplished in a manner that minimizes construction materials or waste materials from entering surface waters, unless authorized by a Virginia Water Protection (VWP) individual permit, general permit, or general permit coverage. Wet, excess, or waste concrete should be prohibited from entering surface waters.
- 11. Herbicides used in or around any surface water should be approved for aquatic use by the United States Environmental Protection Agency (EPA) or the U.S. Fish & Wildlife Service. These herbicides should be applied according to label directions by a licensed herbicide applicator. A non-petroleum based surfactant should be used in or around any surface waters.

Permits:

Based on DEQ's review of the supplemental information provided by Caryn Brookman with Brookman Consultants, dated September 18, 2020, the proposed project <u>may</u> require a Virginia Water Protection (VWP) individual permit or general permit coverage. The applicant may submit a Joint Permit Application (JPA) in accordance with form instructions for further evaluation and final permit need determination by DEQ.

DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

TO: John Fisher

We thank **OEIR** for providing DEQ-AIR an opportunity to review the following project:

Document Type: Draft Environmental Impact Statement Project Sponsor: USDOT/Federal Highway Administration Project Title: I-495 and I-270 Managed Lanes Study Location: Fairfax County Project Number: DEQ #20-103F

Accordingly, I am providing following comments for consideration.

PROJECT LOCATION: X OZONE NON ATTAINMENT AND EMISSION CONTROL AREA FOR NOX & VOC

REGULATORY REQUIREMENTSMAY BE APPLICABLE TO: X

CONSTRUCTION OPERATION

STATE AIR POLLUTION CONTROL BOARD REGULATIONS THAT MAY APPLY:

- 1. 🔲 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 E STAGE I
- 2. 9 VAC 5-45-760 et seq. Asphalt Paving operations
- 3. X 9 VAC 5-130 et seq. Open Burning
- 4. X 9 VAC 5-50-60 et seq. Fugitive Dust Emissions
- 5. 9 VAC 5-50-130 et seq. Odorous Emissions; Applicable to
- 6. 9 VAC 5-60-300 et seq. Standards of Performance for Toxic Pollutants
- 7. 9 VAC 5-50-400 Subpart_____, Standards of Performance for New Stationary Sources, designates standards of performance for the______
- 8. 9 VAC 5-80-1100 et seq. of the regulations Permits for Stationary Sources
- 9. 9 VAC 5-80-1605 et seq. Of the regulations Major or Modified Sources located in PSD areas. This rule may be applicable to the ______
- 10. 9 VAC 5-80-2000 et seq. of the regulations New and modified sources located in non-attainment areas
- 11. 9 VAC 5-80-800 et seq. Of the regulations State Operating Permits. This rule may be applicable to ______

COMMENTS SPECIFIC TO THE PROJECT:

All precautions are necessary to restrict the emissions of volatile organic compounds (VOC) and oxides of nitrogen (NO_x) during construction.

Ks. Saunt

(Kotur S. Narasimhan) Office of Air Data Analysis

DATE: July 16, 2020



MEMORANDUM

- TO: John Fisher, DEQ/EIR Environmental Program Planner
- FROM: Carlos A. Martinez, Division of Land Protection & Revitalization Review Coordinator
- DATE: August 11, 2020
- COPIES: Sanjay Thirunagari, Division of Land Protection & Revitalization Review Manager; file
- SUBJECT: Environmental Impact Review: 20-103F I-495 and I-270 Managed Lanes Study in McLean, Virginia.

The Division of Land Protection & Revitalization (DLPR) has completed its review of the USDOT/Federal Highway Administration's July 10, 2020 EIR for I-495 and I-270 Managed Lanes Study in McLean, Virginia.

DLPR staff conducted a search (200 ft. radius) of the project area of solid and hazardous waste databases (including petroleum releases) to identify waste sites in close proximity to the project area. DLPR search did not identify any waste sites within the project area which might impact the project.

DLPR staff has reviewed the submittal and offers the following comments:

Hazardous Waste/RCRA Facilities – none in close proximity to the project areas.

<u>CERCLA Sites</u> – none in close proximity to the project areas.

Formerly Used Defense Sites (FUDS) – none in close proximity to the project areas.

<u>Solid Waste</u> – none in close proximity to the project areas.

Virginia Remediation Program (VRP) – none in close proximity to the project areas.

<u>Petroleum Releases</u> – none in close proximity to the project areas.

PROJECT SPECIFIC COMMENTS

None

GENERAL COMMENTS

Soil, Sediment, Groundwater, and Waste Management

Any soil, sediment or groundwater that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-81); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous Materials, 49 CFR Part 107.

Pollution Prevention – Reuse - Recycling

Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

If you have any questions or need further information, please contact Carlos A. Martinez by phone at (804) 698-4575 or email <u>carlos.martinez@deq.virginia.gov</u>.



RE: NEW PROJECT FHWA I-495 and I-270 Managed Lanes Study, DEQ #20-103F

1 message

Mark Eversole <mark.eversole@mrc.virginia.gov> To: "Fisher, John" <john.fisher@deq.virginia.gov> Mon, Sep 14, 2020 at 1:31 PM

No sir, not on this one.

Thanks, Mark

From: Fisher, John <john.fisher@deq.virginia.gov>
Sent: Monday, September 14, 2020 1:23 PM
To: Mark Eversole <mark.eversole@mrc.virginia.gov>
Subject: Fwd: NEW PROJECT FHWA I-495 and I-270 Managed Lanes Study, DEQ #20-103F

Hi Mark:

Any comments on this one?

John

John E. Fisher Virginia Department of Environmental Quality Division of Environmental Enhancement Office of Environmental Impact Review 1111 East Main Street, Suite 1400 Richmond, Virginia 23219 (804) 698-4339 john.fisher@deq.virginia.gov

For program updates and public notices please subscribe to Constant Contact

Matthew J. Strickler Secretary of Natural Resources

Clyde E. Cristman *Director*



Rochelle Altholz Deputy Director of Administration and Finance

Russell W. Baxter Deputy Director of Dam Safety & Floodplain Management and Soil & Water Conservation

Thomas L. Smith Deputy Director of Operations

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

MEMORANDUM

DATE: August 10, 2020

TO: John Fisher, DEQ

FROM: Roberta Rhur, Environmental Impact Review Coordinator

SUBJECT: DEQ 20-103F, FHA, I-495 AND I-270 MANAGED LANES STUDY

Division of Planning and Recreation Resources

The Department of Conservation and Recreation (DCR), Division of Planning and Recreational Resources (PRR), develops the *Virginia Outdoors Plan* and coordinates a broad range of recreational and environmental programs throughout Virginia. These include the Virginia Scenic Rivers program; Trails, Greenways, and Blueways; Virginia State Park Master Planning and State Park Design and Construction.

According to the information currently in our files, Scotts Run Nature Preserve is adjacent to the project location and could be impacted by the project. This park is protected in perpetuity by section 6(f) (3) of the Land and Water Conservation Fund Act. Federal Regulations 36 CFR § 59.3 states that: "Section 6 (f) (3) of the Land & Water Conservation Fund Act is the cornerstone of Federal compliance efforts to ensure that the Federal investments in L&WCF assistance are being maintained in public outdoor recreation use. This section of the Act assures that once an area has been funded with L&WCF assistance, it is continually maintained in public recreation use unless NPS approves substitution property of reasonably equivalent usefulness and location and of at least equal fair market value." No property acquired or developed with assistance under this section shall without approval of the Secretary [of the Interior] be converted to other than public outdoor recreation uses.

Please contact Kristal McKelvey at <u>Kristal.mckelvey@dcr.virginia.gov</u> for further information or to confirm that the project will not impact the park.

Division of Natural Heritage

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 Potomac Gorge Conservation Site is located within the project site. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The Potomac Gorge Conservation Site has been given a biodiversity significance ranking of B1, which represents a site of outstanding significance. The natural heritage resources of concern at this site are:

Maianthemum stellatum	Starry Solomon's-plume	G5/S1S2/NL/NL	
Phacelia covillei	Coville's phacelia	G3/S1/NL/NL	
Gomphus fraternus	Midland Clubtail	G5/S2/NL/NL	
Boechera dentata	Short's rock cress	G5/S1/NL/NL	
Silene nivea	Snowy Campion	G4?/S1/NL/NL	
Central Appalachian / Piedmont Low	G3G4/S2S3/NL/NL		
Coastal Plain / Outer Piedmont Basic Mesic Forest G4?/ S3/NL/NL			

In addition, Tall Thistle (*Cirsium altissimum*, G5/S1/NL/NL), Wild cucumber (*Echinocystis lobata*, G5/SH/NL/NL), Smartweed Dodder (*Cuscuta polygonorum*, G5/S1/NL/NL), Northern rattlesnake-master (*Eryngium yuccifolium var. yuccifolium*, G5T5/S2/NL/NL), One-sided shinleaf (*Orthilia secunda*, G5/SH/NL/NL) and Pizzini's Amphipod (*Stygobromus pizzinii*, G3G4/S1S2/NL/NL) have been historically documented within the project site.

Furthermore, according to a DCR biologist, there is potential for the Northern Virginia Well amphipod (*Stygobromus phreaticus*, G1/S1/SOC/NL) and other *Stygobromus* amphipod species to occur within the project site.

DCR recommends avoidance of documented occurrences of natural heritage resources by limiting the project footprint as much as possible including along the steep bluff on the eastern side in Virginia.

DCR has received the summary of rare, threatened and endangered (RTE) plant species surveys conducted thus far in the Potomac River Gorge area by Maryland Department of Transportation-State Highway Administration. DCR looks forward to reviewing the full report on the survey findings and further coordination as stated on page 4-116 of the Draft Environmental Impact Statement to minimize the impact to natural heritage resources.

Due to the potential for this site to support additional populations of natural heritage resources that are not included in an RTE plant survey, DCR recommends an inventory for these resources within areas proposed for disturbance including stormwater management ponds and equipment staging areas. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources. DCRDivision of Natural Heritage biologists are qualified and available to conduct inventories for rare, threatened, and endangered species. Please contact Anne Chazal, Natural Heritage Chief Biologist, at <u>anne.chazal@dcr.virginia.gov</u> or 804-786-9014 to discuss arrangements for fieldwork.

In addition, the proposed project will fragment an Ecological Core C4 as identified in the Virginia Natural Landscape Assessment (<u>https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla</u>), one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection.

Ecological Cores are areas of unfragmented natural cover with at least 100 acres of interior that provide habitat for a wide range of species, from interior-dependent forest species to habitat generalists, as well as species that utilize marsh, dune, and beach habitats. Cores also provide benefits in terms of open space, recreation, water quality (including drinking water protection and erosion prevention), and air quality

(including carbon sequestration and oxygen production), along with the many associated economic benefits of these functions. The cores are ranked from C1 to C5 (C5 being the least ecologically relevant) using many prioritization criteria, such as the proportions of sensitive habitats of natural heritage resources they contain.

Fragmentation occurs when a large, contiguous block of natural cover is dissected by development, and other forms of permanent conversion, into one or more smaller patches. Habitat fragmentation results in biogeographic changes that disrupt species interactions and ecosystem processes, reducing biodiversity and habitat quality due to limited recolonization, increased predation and egg parasitism, and increased invasion by weedy species.

Therefore minimizing fragmentation is a key mitigation measure that will preserve the natural patterns and connectivity of habitats that are key components of biodiversity. The deleterious effects of fragmentation can be reduced by minimizing edge in remaining fragments; by retaining natural corridors that allow movement between fragments; and by designing the intervening landscape to minimize its hostility to native wildlife (natural cover versus lawns).

There are no 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 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 re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Wildlife Resources (VDWR) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain be accessed information not documented in this letter. Their database mav from https://vafwis.dgif.virginia.gov/fwis/ Ernie Aschenbach 804-367-2733 or contact at or Ernie.Aschenbach@dwr.virginia.gov.

Division of Dam Safety and Floodplain Management

Floodplain Management Program:

The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA), and communities who elect to participate in this voluntary program manage and enforce the program on the local level through that community's local floodplain ordinance. Each local floodplain ordinance must comply with the minimum standards of the NFIP, outlined in 44 CFR 60.3; however, local communities may adopt more restrictive requirements in their local floodplain ordinance, such as regulating the 0.2% annual chance flood zone (Shaded X Zone).

All development within a Special Flood Hazard Area (SFHA), as shown on the locality's Flood Insurance Rate Map (FIRM), must be permitted and comply with the requirements of the local floodplain ordinance.

a. Pursuant to 44 CFR 59.2(b), local floodplain ordinances are required as part of a locality's participation in the National Flood Insurance Program(NFIP). For localities that participate in the program, all development within a special flood hazard area must comply with the locally adopted floodplain management ordinance and be permitted by the community. NFIP participation, as well as local contact

information, for Virginia communities is available as part of the Local Floodplain Management Directory, available on <u>DCR's website</u>.

State Agency Projects Only

<u>Executive Order 45</u>, signed by Governor Northam and effective on November 15, 2019, establishes mandatory standards for development of state-owned properties in Flood-Prone Areas, which include Special Flood Hazard Areas, Shaded X Zones, and the Sea Level Rise Inundation Area. These standards shall apply to all state agencies.

- 1. Development in Special Flood Hazard Areas and Shaded X Zones
 - A. All development, including buildings, on state-owned property shall comply with the locallyadopted floodplain management ordinance of the community in which the state-owned property is located and any flood-related standards identified in the Virginia Uniform Statewide Building Code.
 - B. If any state-owned property is located in a community that does not participate in the NFIP, all development, including buildings, on such state-owned property shall comply with the NFIP requirements as defined in 44 CFR §§ 60.3, 60.4, and 60.5 and any flood-related standards identified in the Virginia Uniform Statewide Building Code.
 - (1) These projects shall be submitted to the Department of General Services (DGS), for review and approval.
 - (2) DGS shall not approve any project until the State NFIP Coordinator has reviewed and approved the application for NFIP compliance.
 - (3) DGS shall provide a written determination on project requests to the applicant and the State NFIP Coordinator. The State NFIP Coordinator shall maintain all documentation associated with the project in perpetuity.
 - C. No new state-owned buildings, or buildings constructed on state-owned property, shall be constructed, reconstructed, purchased, or acquired by the Commonwealth within a Special Flood Hazard Area or Shaded X Zone in any community unless a variance is granted by the Director of DGS, as outlined in this Order.

The following definitions are from Executive Order 45:

Development for NFIP purposes is defined in 44 CFR § 59.1 as "Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials."

The Special Flood Hazard Area may also be referred to as the 1% annual chance floodplain or the 100year floodplain, as identified on the effective Flood Insurance Rate Map and Flood Insurance Study. This includes the following flood zones: A, AO, AH, AE, A99, AR, AR/AE, AR/AO, AR/AH, AR/A, VO, VE, or V.

The Shaded X Zone may also be referred to as the 0.2% annual chance floodplain or the 500- year floodplain, as identified on the effective Flood Insurance Rate Map and Flood Insurance Study.

The Sea Level Rise Inundation Area referenced in this Order shall be mapped based on the National Oceanic and Atmospheric Administration Intermediate-High scenario curve for 2100, last updated in 2017, and is intended to denote the maximum inland boundary of anticipated sea level rise.

"State agency" shall mean all entities in the executive branch, including agencies, offices, authorities, commissions, departments, and all institutions of higher education.

"Reconstructed" means a building that has been substantially damaged or substantially improved, as defined by the NFIP and the Virginia Uniform Statewide Building Code.

Federal Agency Projects Only

Projects conducted by federal agencies within the SFHA must comply with federal Executive Order 11988: Floodplain Management.

DCR's Floodplain Management Program does not have regulatory authority for projects in the SFHA. The applicant/developer must reach out to the local floodplain administrator for an official floodplain determination and comply with the community's local floodplain ordinance, including receiving a local permit. Failure to comply with the local floodplain ordinance could result in enforcement action from the locality. For state projects, DCR recommends that compliance documentation be provided prior to the project being funded. For federal projects, the applicant/developer is encouraged reach out to the local floodplain administrator and comply with the community's local floodplain ordinance.

To find flood zone information, use the Virginia Flood Risk Information System (VFRIS): <u>www.dcr.virginia.gov/vfris</u>

To find community NFIP participation and local floodplain administrator contact information, use DCR's Local Floodplain Management Directory: <u>www.dcr.virginia.gov/dam-safety-and-floodplains/floodplain-directory</u>

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.



ESSLog# 40764_20-103F_ManagedLanesStudy_DWR_AME20200812

1 message

Ewing, Amy <amy.ewing@dwr.virginia.gov> Wed, Aug 12, 2020 at 11:25 AM To: John Fisher <john.fisher@deq.virginia.gov> Cc: John Kleopfer <john.kleopfer@dwr.virginia.gov>, Richard Reynolds <rick.reynolds@dwr.virginia.gov>

John,

We have reviewed the Virginia portion of the subject project that proposes upgrades to miles of interstate in Northern Virginia and Maryland. We document state Endangered Little Brown Bats and state Endangered Tri-colored Bats from the project area. We recommend that he EIS consider potential impacts upon these species. We typically recommend adherence to a time of year restriction on tree removal and timbering from April 1 through October 31 in areas of suitable roosting habitat (forest) or that such areas be assessed or surveyed for roosting sites and that such assessments be provided to us for further review.

We also document state Threatened Wood Turtles from the project area. Turkey Run, a tributary of the Potomac River that is located to the east of this project site and crosses George Washington Memorial Parkway has been designated a Threatened and Endangered Species Water due to the presence of this species. We recommend that EIS address the potential presence of Wood Turtles and their habitats within the project area. Our typical recommendations for the protection of Wood Turtles and their habitats associated with construction activities are the following. If presence is determined, these and/or other measures may be recommended:

<u>Standard recommendations for protection of Wood Turtles associated with construction activities</u>: We recommend that all instream work adhere to a time of year restriction from October 1 through March 31 of any year. We recommend that any work in uplands within 900 ft of the stream adhere to a time of year restriction from April 1 through September 30 of any year. In addition, we recommend preservation of an at least 300-ft undisturbed naturally vegetated buffer along the stream.

<u>Habitat Assessment (formal)</u>: The habitat assessment should be performed by a qualified biologist and should clearly depict, via narrative and photographic description, all stream and upland habitats along the tributary to Stony Run located on site. This habitat assessment should be made available to Amy Ewing in DWR's Headquarters office in Henrico and John (JD) Kleopfer in DWR's Charles City office for review. The habitat assessment and associated correspondence should reference the five-digit ESSLog# in the subject line of this email. Upon review of the habitat assessment, we will make final comments regarding protection of Wood Turtles associated with this project.

<u>Education of contractors</u>: We recommend that prior to the commencement of work all contractors associated with work at this site be made aware of the possibility of encountering Wood Turtles on site and become familiar with their appearance, status and life history. An appropriate information sheet / field observation form to distribute to contractors and employees is attached. If any Wood Turtles are encountered and are in jeopardy during the development or construction of this project, remove them from immediate harm and call DWR's Herpetologist, John (J.D.) Kleopfer at 804-829-6703. If staff on site hold an appropriate Threatened and Endangered Species Scientific Collection Permit, this staff member may relocate Wood Turtles out of harm's way and into suitable habitat, preferably within the nearest perennial stream. Any relocations should be reported to J.D. Kleopfer and the wood turtle observation form should be completed and faxed to JD at 804-829-6788.

Further information about wood turtles can be found online at: https://www.DWR.virginia. gov/wildlife/information/wood-turtle/

The Potomac River has been designated a Confirmed Anadromous Fish Use Area. If instream work in this river is necessary, we recommend that such work adhere to a time of year restriction from February 15 through June 30 of any year.

We recommend conducting any in-stream activities during low or no-flow conditions, using non-erodible cofferdams or turbidity curtains to isolate the construction area, blocking no more than 50% of the streamflow at any given time (minimal overlap of construction footprint notwithstanding), stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas with native vegetation, and implementing strict erosion and sediment control measures. We recommend that instream work be designed and performed in a manner that minimizes impacts upon natural streamflow and movement of resident aquatic species. If a dam and pump-around must be used, we recommend it be used for as limited a time as possible and that water returned to the stream be free of sediment and excess turbidity. To minimize potential wildlife entanglements resulting from use of synthetic/plastic erosion and sediment control matting, we recommend use of matting made from natural/organic materials such as coir fiber, jute, and/or burlap. To minimize harm to the aquatic environment and its residents resulting from use of the Tremie method to install concrete, installation of grout bags, and traditional pouring of concrete, we recommend that such activities occur only in the dry, allowing all concrete to harden and cure prior to contact with open water. Due to future maintenance costs associated with culverts, and the loss of riparian and aquatic habitat, we prefer stream crossings to be constructed via clear-span bridges. However, if this is not possible, we recommend countersinking any culverts below the streambed at least 6 inches, or the use of bottomless culverts, to allow passage of aquatic organisms. We also recommend the installation of floodplain culverts to carry bankfull discharges.

To minimize the adverse impacts of linear utility/road project development on wildlife resources, we offer the following general recommendations: avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable; maintain naturally vegetated buffers of at least 100 feet in width around wetlands and on both sides of perennial and intermittent streams, where practicable; conduct significant tree removal and ground clearing activities outside of the primary songbird nesting season of March 15 through August 15; and, implement and maintain appropriate erosion and sediment controls throughout project construction and site restoration. To minimize potential wildlife entanglements resulting from use of synthetic/plastic erosion and sediment control matting, we recommend use of matting made from natural/organic materials such as coir fiber, jute, and/or burlap. We understand that adherence to these general recommendations may be infeasible in some situations. We are happy to work with the applicant to develop project-specific measures as necessary to minimize project impacts upon the Commonwealth's wildlife resources.

This project is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding protection of these resources.

Thanks, Amy



Amy Martin Ewing

Environmental Services Biologist Manager, Wildlife Information P 804.367.2211 Virginia Department of Wildlife Resources CONSERVE. CONNECT. PROTECT. A 7870 Villa Park Drive, P.O. Box 90778, Henrico, VA 23228 www.VirginiaWildlife.gov

2 attachments

₩OTU_INfoSheet_DWR20200805.pdf 629K

B WOTU_FieldObsForm_20200805.pdf



Wood Turtle: Glyptemys insculpta State Threatened

Field Observation Form

August 5, 2020

Note: The Wood Turtle is a protected species in Virginia. It is unlawful to harm, collect, possess and/or disturb these animals without a permit. Wood Turtles found within a project area uplands during construction should be moved out of immediate harm's way. Only appropriately permitting staff may move Wood Turtles to locations out of the project area, within the same watershed, approximately ¼ to ½ mile downstream of their original location. To apply for a permit please contact Shirl Dressler at 804-367-6913. If you encounter a Wood Turtle, please provide the information requested below and mail or FAX this form to:

> Virginia Department of Wildlife Resources Attn: John Kleopfer 3801 J.T. Memorial Highway Charles City, Virginia 23030 FAX 804-829-6788

If possible, send digital photos to: <u>John.Kleopfer@dwr.virginia.gov</u>

Distribution: Wood Turtles are found primarily in the northeastern United States and parts of southeastern Canada, reaching the southern limit of its range in northern Virginia. In Virginia, it has been documented in Warren, Rockingham, Shenandoah, Frederick, Loudoun, Fairfax, Clark, and Page counties.

Species Description: Wood Turtles are a semi-aquatic turtle usually found in or near streams, but not in ponds, reservoirs, or lakes. The shell length of an adult Wood Turtle can reach 9 inches. The plastron (bottom-half of the shell) is NOT hinged and the carapace (top-half of the shell) is flattened. The legs and tail are usually reddish to orange in color. Females are sometimes less colorful.

Wood Turtles may be confused with Eastern Box Turtles (*Terrapene carolina carolina*). Eastern Box Turtles are mainly terrestrial and only seldom are found in water. Eastern Box Turtles have a high domed shell with a hinged plastron which allows for it to completely enclose itself. The shell length of an adult Eastern Box Turtle is rarely over 5 inches. See the following page for images and detailed descriptions of Wood Turtles and Eastern Box Turtles.

Your name: ______

TE Collection Permit#, if applicable:_____

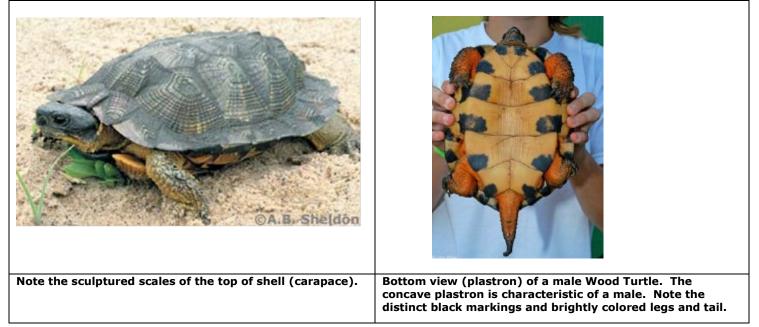
Your address:_____

Your phone number (optional): _____

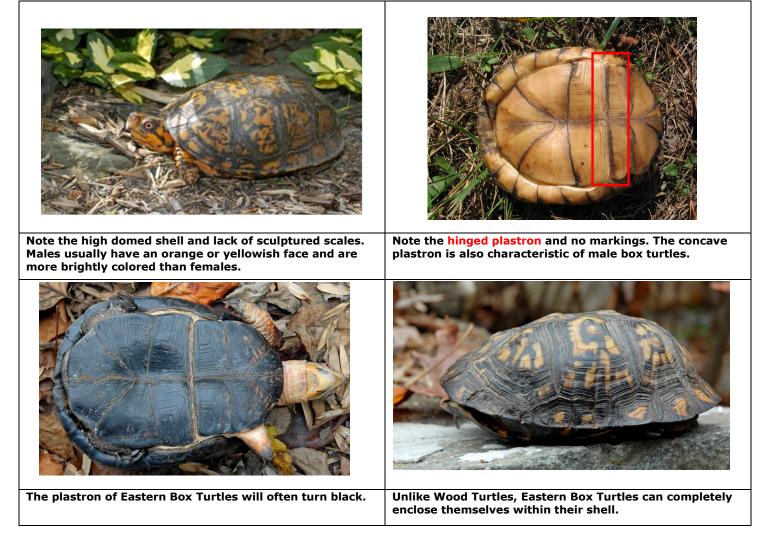
Location of observation (GPS coordinates, nearest stream):_____

Comments: ______

WOOD TURTLE



EASTERN BOX TURTLE





Wood Turtle: *Glyptemys insculpta* State Threatened



Note the sculptured scales of the top of shell (carapace).

Wood turtles are medium-sized (6-9" adult shell length) semi-terrestrial turtles found in streams or in riparian uplands on norther/northwestern Virginia. Their dull brown upper shell is very rough, and each section of the shell reflects growth rings that form an irregular



Bottom view (plastron) of a male Wood Turtle. The concaved plastron is characteristic of a male.

pyramid. There is great variation in this trait, however, and the upper shell of older turtles may appear smooth. The bottom shell is yellow with black marginal blotches. Wood turtles have a black head, and dark brown extremities with characteristic yellow to burnt-orange skin patches on the neck and leg sockets.

Wood Turtles overwinter instream in deep pools with sandy bottoms and under submerged roots, branches, or logs. During warmer months, they wander the uplands mate-seeking, nesting, and foraging. In Virginia, females typically lay clutches of 7-14 eggs. Hatchlings typically emerge from June through August.

The wood turtle eats both animal and plant food items, including berries, herbs, algae, moss, fungi, grass, insects, mollusks, earthworms, dead fish, tadpoles, newborn mice and other turtles' eggs. It will forage on the ground, in the water, in herbaceous vegetation, and on logs.

If you have any questions concerning Wood Turtles, please contact John Kleopfer, Virginia Department of Wildlife Resources, at 804-829-6703 or John.Kleopfer@dwr.virginia.gov.

The Wood Turtle is a protected species in Virginia. It is unlawful to HARM, COLLECT, OR POSSESS THESE TURTLES unless one is permitted to do so.

To apply for a permit please contact Shirl Dressler at 804-367-6913.



I-495 and I-270 Managed Lanes Study, Fairfax Co. (DHR 2018-0251/DEQ 20-103F)

1 message

Holma, Marc <marc.holma@dhr.virginia.gov> To: John Fisher <john.fisher@deq.virginia.gov> Tue, Jul 14, 2020 at 9:08 AM

John,

Please accept this email as DHR's response to DEQ's request for our review and comment on the above referenced project. The FHWA is currently consulting with DHR on this undertaking pursuant to Section 106 of the National Historic Preservation Act, as amended, and its implementing regulation 36 CFR Part 800. We anticipate this consultation will continue and request DEQ remind FHWA of its responsibility to engage DHR on this undertaking as the SHPO. Sincerely, Marc

Marc

Marc Holma Architectural Historian Division of Review and Compliance (804) 482-6090 marc.holma@dhr.virginia.gov



Re: NEW PROJECT FHWA I-495 and I-270 Managed Lanes Study, DEQ #20-103F

1 message

Warren, Arlene <arlene.warren@vdh.virginia.gov> To: John Fisher <john.fisher@deq.virginia.gov> Cc: rr Environmental Impact Review <eir@deq.virginia.gov> Mon, Jul 27, 2020 at 3:00 PM

Project Name: I-495 and I-270 Managed Lanes Study Project #: 20-103 F UPC #: N/A Location: Fairfax Co.

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to **public drinking water sources** (groundwater wells, springs, and surface water intakes). Potential impacts on public water distribution systems or sanitary sewage collection systems **must be verified by the local utility**.

There are no public groundwater wells within a 1-mile radius of the project site.

There are no surface water intakes located within a 5-mile radius of the project site.

The project is not within the watershed of any public surface water intakes.

There are no apparent impacts on public drinking water sources due to this project.

Virginia Department of Health – Office of Drinking Water appreciates the opportunity to provide comments. If you have any questions, please let me know.

Best Regards,

Arlene Fields Warren GIS Program Support Technician Office of Drinking Water Virginia Department of Health 109 Governor Street Richmond, VA 23219 (804) 864-7781



NEW PROJECT FHWA I-495 and I-270 Managed Lanes Study, DEQ #20-103F

1 message

Rahul Trivedi <Rahul.Trivedi@vdot.virginia.gov>

Mon, Aug 17, 2020 at 10:26 AM

To: john.fisher@deq.virginia.gov Cc: Susan Shaw <susan.shaw@vdot.virginia.gov>, Norman Whitaker <norman.whitaker@vdot.virginia.gov>, Abraham Lerner <abraham.lerner@vdot.virginia.gov>, Robert losco <robert.iosco@vdot.virginia.gov>

VDOT has reviewed the subject report and offers the following comments:

Thank you for providing the Virginia Department of Transportation (VDOT) with an opportunity to comment on the *I-495/I-270 Managed Lanes Study - Draft Environmental Impact Statement (DEIS)* /*Draft Section 4(f) Evaluation (July 2020)*. For your information, please be advised that VDOT has been closely coordinating issues for its I-495 NEXT (Northern Extension of Capital Beltway Express Lanes) project with the Maryland Department of Transportation (MDOT)/State Highway Administration (SHA) to ensure that the two independent projects are properly coordinated regardless of the outcome of their current NEPA process.

Thanks again and let me know if you have any questions.

Rahul

Rahul A. Trivedi, P.E. Assistant Director, Transportation Planning Virginia Department of Transportation Office: 703.259.2308 Virginia Department of Environmental Quality Office of Environmental Impact Review ATTN: Mr. John Fisher P.O. Box 1105 Richmond, Virginia 23218 John.Fisher@deq.virginia.gov

RE: Draft Environmental Impact Statement (EIS) I-495 and I-270 Managed Lanes Study Fairfax County Project Number: DEQ #20-103F USDOT/Federal Highway Administration

Dear Mr. Fisher:

This memorandum provides comments from the Department of Planning and Development (DPD) regarding the I-495 & 1-270 Managed Lanes Study.

DESCRIPTION OF THE PROJECT

LOCATION & SCOPE

The 1-495 & 1-270 Managed Lanes Study is the first element of a broader I-495 and I-270 Public Private Partnership (P3) Program. The study is considering alternatives to address roadway congestion within the study scope of 48 miles of I-495 from south of the George Washington Memorial Parkway in Fairfax County, including the rebuilding of the American Legion Bridge over the Potomac River, to west of MD 5, and along I-270 from I-495 to north of I-370, including the East and West I-270 Spurs.

Within Fairfax County, the Study extends along I-495, beginning 0.4 miles south of George Washington Memorial Parkway, and extending to the Potomac River. The construction would incorporate mainline connections between I-495 and the George Washington Memorial Parkway. Managed lanes would connect directly into the proposed extension of the Virginia Express Lanes.

All build alternatives include the full replacement of the American Legion Bridge, which is nearly 60 years old, with a new, wider bridge. The new bridge would be constructed in phases to maintain the same number of existing lanes at all times and would be rebuilt in the same location.

ALTERNATIVES

Seven alternatives were considered in the Draft EIS:

- Alternative 1: No Build.
- Alternative 5: One High-Occupancy Toll (HOT) Managed Lane Network.
- Alternative 8: Two Express Toll Lane (ETL) Managed Lanes Network on I-495 and one ETL and one High-Occupancy Vehicle (HOV) Lane Network on I-270.
- Alternative 9: Two HOT Managed Lanes Network.
- Alternative 10: Two ETL Managed Lanes Network on I-495 and I-270 and Retain one HOV Lane on I-270 only.
- Alternative 13B: Two HOT Managed Lanes Network on I-495 and two Reversible HOT Managed Lanes Network on I-270.
- Alternative 13C: Two ETL Managed Lanes Network on I-495 and two Reversible ETL Managed Lanes Network on I-270, and retention of one HOV Lane on I-270 only.

COMMUNITY EFFECTS ASSESSMENT

The Draft EIS included a Community Effects Assessment (CEA) for various community areas along the study area, including portions of the McLean community. These areas were identified primarily as either residential or park properties. The CEA Analysis Area Community is bordered roughly by the Potomac River to the north; Chain Bridge and Chain Bridge Road to the east; Georgetown Pike and Old Dominion Drive (Route 738) to the south; and Georgetown Pike (Route 193) and Difficult Run to the west. This is the southwestern-most community in the project analysis area and the only community located outside of Maryland.

Within the McLean CEA analysis area, a total of 14.4 acres would be taken for highway right-ofway, including 12.2 acres of the George Washington Memorial Parkway, of which 9.3 acres would be impacted tree canopy.

PREVIOUSLY PROVIDED INFORMATION

Fairfax County previously provided input regarding the I-495 Express Lanes Northern Extension Environmental Assessment. The Virginia Department of Transportation is proposing to extend the I-495 Express Lanes for approximately three miles from the I-495 and Dulles Toll Road Interchange to the vicinity of the American Legion Memorial Bridge.

As was done for similar roadway projects impacting large tracts of land, the Department of Planning and Development prepared a series of maps for the entire length of the project area within Fairfax County, identifying ecological and cultural resources and other land use information for areas within 600 feet of the proposed project boundaries. Maps included:

- Fairfax County Comprehensive Plan base land use designations and Development Centers.
- Current zoning applications.
- Fairfax County Planning Geography, Inventory of Historic Sites, and Historic Overlay Districts.
- Fairfax County floodplains, Resource Protection Areas (RPAs), Agricultural and Forestal Districts, and Environmental Quality Corridors (EQCs).

• Aerial coverage of Fairfax County floodplains, RPAs, Agricultural and Forestal Districts, and EQCs.

ENVIRONMENTAL ANALYSIS

POLICY GUIDANCE FOR ROADWAY DESIGN

County transportation policies support environmental goals and policies. Transportation facilities within the county are to "minimize community disruption and adverse environmental impacts." More specifically, transportation facilities are to be planned and designed "to minimize adverse impacts on Environmental Quality Corridors (EQCs), Resource Protection Areas (RPAs), other environmental resources, and heritage resources." Additionally, transportation facilities are to be planned and designed to "minimize and mitigate adverse impacts to residents and neighborhoods." Recognizing the long-term effects of roadway construction and the creation of extensive amounts of impervious surfaces, county policies call for the minimization of "adverse impacts of storm water runoff from transportation facilities and services" and the use of "innovative techniques and technologies to manage storm water run-off from transportation facilities." Finally, given the importance of transportation facilities in serving our communities, "best practices for walkable communities, pedestrian and bicycle planning, quality of life, and ecological preservation" are to be applied to all transportation, Amended through 3-20-2018, Pages 9-10).

Specific comments regarding these policies are provided below.

CULTURAL RESOURCES

The Draft EIS, Section 4(f) of the USDOT Act of 1966, as amended (49 U.S.C. 303(c)), stipulates that the USDOT, including the FHWA, cannot approve the use of land from a publicly-owned park, recreation area, wildlife or waterfowl refuge, or public or private historic site unless the following conditions apply:

- FHWA determines that there is no feasible and prudent avoidance alternative to the use of land from the property, and the action includes all possible planning to minimize harm to the property resulting from such use (23 CFR §774.3(a)(1) and (2)); or
- FHWA determines that the use of the Section 4(f) properties, including any measures to minimize harm committed to by the applicant, will have a de minimis impact on the property (23 CFR §774.3(b)).

A total of 111 Section 4(f) properties were identified within the corridor study boundary including public parks, recreation areas, and historic sites. Of the 111 Section 4(f) properties, 68 would have a Section 4(f) use (impact).

On March 13, 2020, maps and comments were made available to the Virginia Department of Transportation by the Fairfax County Department of Planning and Development, including the previously noted maps of Fairfax County Planning Geography, Inventory of Historic Sites, and Historic Overlay Districts, related to the I-495 Express Lanes Project. In addition to these

comments and maps, the following comments discuss impacts to the following heritage resources:

- Georgetown Pike.
- The northern section of George Washington Memorial Parkway, running 9.7 miles from Arlington Memorial Bridge to the Capital Beltway in Virginia.
- Beaufort Park located at 7303 Peter Place and within a 600-foot I-495 Express Lanes project buffer.
- Shiloh Baptist Church in Dranesville, located at 8310 Turning Leaf Lane and adjacent to the 600-foot I-495 Express Lanes project buffer.

Within Fairfax County the proposed project would have substantial impacts on both the George Washington Memorial Parkway and Georgetown Pike. Both roadways are listed on the National Register of Historic Places, the Virginia Landmarks Register, and the Fairfax County Inventory of Historic Sites. In addition, both roadways are designated by the Virginia Department of Transportation as Scenic Roads.

George Washington Memorial Parkway

The northern section of the George Washington Memorial Parkway runs 9.7 miles from the Arlington Memorial Bridge to the Capital Beltway in Virginia. It was constructed from 1930-1965. A byway is patterned as *"formally or informally designed connectors within a system of predetermined destinations that include parks and monuments."*¹ Its nature as a byway encouraged a recreational motorist use, and the federal government outlined parkway design guidelines in 1935, which included:

- A limit to non-commercial, recreational traffic
- Avoidance of unsightly road developments
- Wider-than-average right-of-way to provide a buffer from abutting property
- No frontage or access rights, to encourage the preservation of natural scenery
- Preference for a new site, to avoid already congested and built-up areas
- To best access native scenery
- Elimination of major grade crossings
- Well-distanced entrance and exit points to reduce traffic interruptions and increase safety²

Development along the immediate roadway has been limited and has preserved the scenic, historic, and environmental aspects that characterize the significance of the highway.

Georgetown Pike

The Georgetown Pike was constructed between 1813 and 1827 to connect the Georgetown Markets in Washington, D.C. to the agricultural interests in Leesburg and further west. The roadway is significant as a transportation turnpike, but is also significant in its construction method, which was an adapted French method called "Tresaguet." This method excavated the roadbed, had two layers of compacted stones, and was crowned in the center to improve drainage

¹ George Washington Memorial Parkway National Register nomination,

https://catalog.archives.gov/id/117691695.

²Ibid.

and wear. Resources from its construction dating from 1813 are visible and accessible and maintain their historic integrity. The original roadbed has been altered. The nomination and significance are only for the VDOT maintained right-of-way, which varies from 50-60 feet. Georgetown Pike became Virginia's first scenic and historic byway in 1973.³

Other Historic Sites

Two additional sites may be impacted by the proposed the I-495 project. Both sites are in proximity to the proposed I-495 project. Depending on the scope and height of modifications, the project could negatively impact the viewshed of these two properties.

Beaufort Park, identified on the Fairfax County Inventory of Historic Sites, is located at 7303 Peter Place and at tax map number 021-3 ((26)) 10. This property is located within the 600-foot project buffer associated with the I-495 Express Lanes Project and could be impacted by any alteration to the interchange at Georgetown Pike. The residence on Beaufort Park was constructed in 1940, but there was a Georgetown Pike Toll Gate and potentially a rifle pit from the Civil War located on the original property before it was subdivided in the 1980s. The property was owned by Eugene and Lille Lou Rietzke, who founded Capital Radio Engineering Institute, which was acquired by McGraw Hill.⁴ Archaeology has also been conducted on the site.

Shiloh Baptist Church in Dranesville, also identified on the Fairfax County Inventory of Historic Sites, is located adjacent to the 600-foot buffer associated with the I-495 Express Lanes Project. The church is located at 8310 Turning Leaf Lane and tax map number 029-1 ((1)) 58C. The original church was constructed in 1887 and reconstructed in 1928 after a fire.⁵ The church served members of the Odricks Corner, a freed black community established by Cyrus Carter and Alfred Odricks.⁶

Virginia Outdoors Plan

The Virginia Outdoors Plan (VOP), produced by the Virginia Department of Conservation and Recreation (VDCR) is the state's comprehensive plan for land conservation, outdoor recreation, and open-space planning. Prior to initiating any project, consideration is to be given to the proximity of a project site to recreational resources identified in the VOP. The George Washington Memorial Parkway (managed by the National Park Service), the Scotts Run Nature Preserve (managed by the Fairfax County Park Authority), and a private 4.6-acre property owned by the Langley Club are all identified in the VOP.

³ "Georgetown Pike: Fairfax county Inventory of Historic Sites Report," Fairfax County Dept of Planning and Development, 2019.

⁴ "Beaufort Park: Fairfax county Inventory of Historic Sites Report," Fairfax County Department of Planning and Development, 2019.

⁵ "Shiloh Baptist Church (Dranesville): Fairfax county Inventory of Historic Sites Report," Fairfax County Department of Planning and Development, 2019.

⁶ Netherton, Nan. <u>Fairfax County, Virginia: A History.</u> Fairfax County Board of Supervisors, 1992, 452.

Comments & Recommendations

- For the properties that are located on the National Register of Historic Places (George Washington Memorial Parkway and Georgetown Pike), negative physical or visual impacts that may result as part of the related and cumulative I-495 projects should be avoided and minimized. Any impacts must be mitigated appropriately.
- For the two properties on the Fairfax County Inventory of Historic Sites (Beaufort Park and Shiloh Baptist Church), negative physical or visual impact should also be avoided and minimized. Given that these properties have not been evaluated for eligibility for the National Register of Historic Places, staff recommends that further research be completed. Staff also recommends that the Fairfax County Park Authority Archaeological Collections Branch be consulted to analyze any archaeological impact within the cumulative study areas of the related I-495 projects.
- Direct and indirect impacts to the three properties identified in the Virginia Outdoors Plan should be assessed, minimized or avoided, and appropriately mitigated, if applicable.

ECOLOGICAL RESOURCES

County Environmental Policies

The Environment Element of the Policy Plan states that the protection and restoration of the ecological integrity of streams is expected in Fairfax County. In order to minimize the impacts that new development and redevelopment projects may have on county streams, the Comprehensive Plan encourages the protection of stream channels, buffer areas along stream channels, and commitments to the restoration of degraded stream channels and riparian buffer areas. (Fairfax County Comprehensive Plan, 2017 Edition, Policy Plan, Environment, Amended through 3-14-2017, Pages 7-9).

Additionally, policies state that stormwater design for all stormwater facilities should be closely coordinated with county staff to avoid degradation of impacted streams. The county anticipates the implementation of "best management practices to reduce runoff pollution and other impacts. Preferred practices include: those which recharge groundwater when such recharge will not degrade groundwater quality; those which preserve as much undisturbed open space as possible; and, those which contribute to ecological diversity by the creation of wetlands or other habitat enhancing BMPs, consistent with state guidelines and regulations." (Fairfax County Comprehensive Plan, 2017 Edition, Policy Plan, Environment, Amended through 3-14-2017, Page 9).

Draft EIS Information

The Draft EIS includes some general discussion related to water quality (DEIS, Pages 4-90 through 4-91):

- Impacts to surface water quality may occur during construction, which could include physical disturbances or alterations, accidental spills, and sediment releases.
- Large areas of soil may be exposed during construction. Soils can be severely eroded by wind and rain when the vegetation and naturally occurring soil stabilizers are removed. Erosion of these exposed soils can considerably increase the sediment load to receiving waters and adversely affect aquatic life.

- The removal of trees and other riparian buffer vegetation can greatly reduce the buffering of nutrients and other materials and allow unfiltered water to directly enter a stream channel.
- Impacts associated with the use of the road after construction are mainly based on the potential for contamination of surface waters by runoff and from new impervious roadway surfaces. The most common heavy metal contaminants are lead, aluminum, iron, cadmium, copper, manganese, titanium, nickel, zinc, and boron. Most of these contaminants are related to gasoline additives and highway maintenance. Other sources of metals include mobilization by excavation, vehicle wear, combustion of petroleum products, historical fuel additives, and catalytic-converter emissions.
- Deicing compounds that are used during the winter for highway maintenance pose a threat to water quality. Chlorides from deicing salts can cause acute and chronic toxicity in fish, macroinvertebrates, and plants.
- Organic pollutants, including dioxins and PCBs (Polychlorinated Biphenyls), have been found in higher concentrations along roadways. Sources of these compounds include runoff derived from exhaust, fuel, lubricants, and asphalt. These organic pollutants are known to accumulate in concentrations that can cause mortality and affect growth and reproduction in aquatic organisms.

Comments & Recommendations

- Streams in the area include Dead Run, Scotts Run, Turkey Run, and the Potomac River. The project analysis should assess impacts to Dead Run, Scotts Run, and Turkey Run and the downstream impacts to the Potomac River. Analysis should incorporate information from recent storm events, to include frequency, duration, and intensity of these events. Additionally, ecological resource surveys should be performed for each of these stream corridors, the Scotts Run Nature Preserve, and the George Washington Memorial Parkway. Assessment of project impacts should be considered and coordinated with impacted jurisdictions prior to the finalization of projects designs.
- Staff notes that the requirements of the Chesapeake Bay Preservation Ordinance would apply to the project. While public roads are considered "exempt," that exemption is conditioned on the optimization of the road alignment and design to prevent or otherwise minimize encroachment in Resource Protection Areas (RPAs) and adverse effects on water quality.
- Additionally, VDOT Location and Design Division Instructional and Informational Memorandum IIM-LD-195.12 (see Attachment 1) provides direction regarding stormwater management requirements for VDOT projects. Section 4.1 of this memorandum notes that, "When requested by a locality's VSMP Authority, MOT projects located in jurisdictions that have adopted more stringent stormwater management (SWM) technical criteria than that required by the VSMP Regulations shall be designed, to the largest extent practicable, to meet the locality's more stringent criteria."
- On March 19, 2019, the Fairfax County Board of Supervisors voted to request that all current projects under design and future VDOT projects located in Fairfax County meet the county's local stormwater management regulations. On July 17, 2019, Fairfax County formally requested the same (see Attachment 2). IIM-LD-195.12 directs that, if it is found that our more stringent local stormwater management requirements are not practicable, VDOT will implement the requirements to the maximum extent practicable and provide documentation to the county demonstrating that the technical requirements are not practicable.

- Given that the proposed project would entail the creation of extensive areas of impervious cover, a primary consideration is the impact to county streams. In light of these issues and this guidance, staff recommends strict adherence to local stormwater management requirements to the maximum extent practicable for the project, per IIM-LD-195.12.
- The use of linear stormwater controls to address water quality and quantity requirements is strongly recommended, given that control of the rainwater runoff at its source would provide the greatest water quality and stream protection results. Alternatives include dry swales, subsurface chamber storage, gravel galleries, and oversized pipes, with manufactured filtering devices at the outfall of these facilities. Such an approach would limit the project footprint, avoid heavily wooded and steep slope areas, preserve ecologically valuable land, and reduce environmental impacts to floodplains and streams.
- The purchase of off-site nutrient credits for stream and wetlands impacts would not address the intent of county polices. Off-site credits do not provide protections for streams and other water bodies within Fairfax County. Therefore, staff recommends that mitigation opportunities be pursued within the county consistent with Fairfax County's approved watershed management plans. VDOT should partner with the county to select local stream restoration and constructed wetland projects to support improved water quality and habitat in our local waterways.
- In light of existing "legacy" issues and impacts from previous related highway work, including runoff impacts, the cumulative impacts of existing deficiencies and proposed actions should be assessed and mitigated.

Overall, for all proposed facilities, staff recommends the avoidance of significant ecological resources to the maximum extent feasible; incorporation of linear stormwater controls into facility designs to address stormwater requirements while minimizing the disturbance of ecological resources and open spaces; incorporation of ecological enhancements into any stormwater facility designs to replace the ecological functionality of disturbed areas; integration of stream protection measures; minimization of adverse impacts to downstream waterways, infrastructure, and property; assessment of the cumulative impact of multiple outfalls directed into a stream in the same general vicinity; incorporation of natural channel design where applicable; incorporation of constructed wetlands as an alternative to the traditional pond designs; adherence to current pollutant removal criteria; restoration and monitoring of disturbed areas; and assessment and mitigation of previous corridor actions and associated impacts to area resources.

FOREST RESOURCES

Forest Resources Policies

The Comprehensive Plan anticipates that new development will include an urban forestry program and be designed in a manner that retains and restores meaningful amounts of tree cover, consistent with planned land use and good silvicultural practices. Good quality vegetation should be preserved and enhanced and lost vegetation restored through replanting. (Fairfax County Comprehensive Plan, 2017 Edition, Policy Plan, Environment, Amended through 3-14-2017, Pages 17-18).

Impacts to Tree Canopy

Forest resources within the corridor study area within Fairfax County include those within the National Park Service (NPS) property (George Washington Memorial Parkway) and the Scotts Run Nature Preserve. The Draft EIS states that mitigation to these forests would require coordination with the NPS and the Virginia Department of Conservation and Recreation (VDCR).

In addition to tree removal, adverse impacts to forested land would include disturbance to critical root zones (CRZ), damage to tree crowns, soil compaction, and changes to drainage patterns and soil moisture due to grading. Sunscald and windthrow could also occur along newly exposed edges of retained forested areas, as trees previously sheltered from these elements may have difficulty adjusting to sun and wind. Vegetated areas could also suffer from increased roadway runoff from expanded impervious surfaces. Increased runoff could result in additional erosion and sedimentation from areas disturbed during construction and could carry increased pollutants from roadways. Disturbed area areas are also more vulnerable to the introduction of invasive plant species. Any of these adverse impacts could result in additional tree loss beyond the clearing associated with construction activities.

Comments & Recommendations

- <u>Ecological Services</u>: The Draft EIS states that all affected property owners would be compensated for the fair market value of all land acquired for the construction of the preferred Build Alternative. Such an approach would not necessarily consider the environmental services and the economic, social, and health benefits of the urban forest that would be lost due to the clearing associated with this project. Loss of the services and benefits provided by these trees could reduce the property values of those properties affected by the construction and operation of the additional lanes. Environmental services can be quantified using the i-Tree software developed by the U.S. Forest Service. Additionally, an analysis of real estate values would provide insight into changes in property values within impacted areas. These considerations should be explored in the interest of more complete compensation for adverse impacts to affect properties.
- Reforestation: Unavoidable clearing of forested areas in Maryland would be subject to • replacement planting under the Maryland Reforestation Law. However, in Virginia, negotiation with owners of affected lands would be necessary to address reforestation of cleared areas in order to restore cleared areas affected by the project as nearly as possible to the character existing before tree removal. Additionally, to help replace lost tree canopy, tree planting should take place in areas that were unforested prior to grading where buffering capacity and viewsheds could be improved. Compensation should be provided for the environmental services and benefits previously provided. Areas cleared for temporary uses such as material storage, staging, and stormwater and sediment control, are likely to be significantly degraded and unsuitable for planting without dedicated and comprehensive remedial actions. Tree planting should be incorporated extensively into the project design for all disturbed areas, including firm commitments to soil remediation for all planting areas. To ensure the viability of the proposed plantings, staff recommends a commitment to tree protection, to include adequate supervision during construction, to ensure that tree protection measures are implemented as planned. Additionally, staff recommends that all development plans avoid the following: significant changes to elevations (both "cut" and "fill" operations);

changes to water flow; and excavation within the critical root zones of all trees to be protected. Additionally, staff recommends a commitment to planting schemes featuring indigenous trees, shrubs, perennial grasses and grass-like plants, and forbs for each planting area. Only indigenous species should be used in seed mixes with a high percentage of warm season grasses. For all new planting areas, in which existing pavement is to be removed, and for staging areas staff recommends a commitment to soil rebuilding, which would help ensure the viability of the proposed plantings. Extended warranties should be enforced for all planting areas. Overall, forested areas should be restored, replaced, and mitigated to the fullest extent practicable.

• <u>Invasives Control</u>: Of significant concern is the introduction and spread of invasive species in areas disturbed by construction activities or in areas previously disturbed throughout the corridor but not properly restored. Control of invasive species should be fully integrated into all planting activities and throughout the project area. Invasive species should be suppressed and eliminated to allow the regeneration of native plant communities and the restoration of all degraded and disturbed areas, both for the considered project and for previous actions within the highway corridors.

Together, these measures would minimize impacts to property owners and ecological resources, increase the viability of the existing tree cover, increase the habitat value of the project, and promote water infiltration, consistent with the intent of the Comprehensive Plan.

TRAFFIC NOISE IMPACTS

New development is expected to protect people from unhealthful levels of transportation noise. "New development should not expose people in their homes, or other noise sensitive environments, to noise in excess of DNL 45 dBA [decibels, A-weighted], or to noise in excess of 65 dBA in the outdoor recreation areas of homes." (Fairfax County Comprehensive Plan, 2017 Edition, Policy Plan, Environment, Amended through 3-14-2017, Pages 11-12). Staff notes that 63 dBA is the noise level in which speech interference generally begins.

An analysis of the noise impacts of the highway construction within Virginia were not considered as part of the Draft EIS. Noise Abatement for the portion of the study area within Virginia is to be evaluated in coordination with VDOT and in compliance with the VDOT Highway Traffic Noise Impact Analysis Guidance Manual. The results of this evaluation would be included in the Final EIS.

To determine the degree of impact, VDOT has previously used the Noise Abatement Criteria (NAC) for various land use categories. The NAC for residential areas, parks, trails, playgrounds, and historic properties used by VDOT is 67 dBA. Decisions on whether to provide noise abatement along project corridors generally consider the feasibility of a design and the overall cost weighted against the benefit.

Comments and Recommendations

• Given the lack of information regarding noise impacts, staff was unable to assess the efficacy, location, and visual impacts of traffic noise mitigation measures. Staff recommends that VDOT clarify the current status and expectations regarding noise mitigation, to include potential barrier locations and design details. Staff recommends that any proposed noise

mitigation consider aesthetics, tree buffer plantings, and the efficacy of the noise abatement treatments.

SUMMARY

Transportation system components are expected to be consistent with environmental, land use, social, and economic goals. Each component is to be thoughtfully designed and sensitively integrated into the community fabric. Open space, ecological resources, heritage sites, parks, trails, and stream corridors are all critical components of the community that each transportation proposal is to consider.

To address the environmental objectives of the Comprehensive Plan and avoid undue impacts to community resources, staff recommends the following:

- Avoidance or minimization of impacts to properties that are located on the National Register of Historic Places, including the George Washington Memorial Parkway and Georgetown Pike.
- Avoidance or minimization of impacts to the two properties on the Fairfax County Inventory of Historic Sites (Beaufort Park and Shiloh Baptist Church).
- Assessment, minimization, avoidance, and mitigation of the direct and indirect impacts to the three properties identified in the Virginia Outdoors Plan.
- Optimization of road alignments and designs to prevent or otherwise minimize encroachment in Resource Protection Areas (RPAs) and adverse effects on water quality.
- Strict adherence to local stormwater management requirements to the maximum extent practicable for the project, per IIM-LD-195.12.
- The use of linear stormwater controls to address water quality and quantity requirements.
- Pursuit of mitigation opportunities within the county and which rely on Fairfax County's approved watershed management plans as guides for any project mitigation. VDOT should partner with the county to select local stream restoration and constructed wetland projects.
- An evaluation of "legacy" issues and impacts from previous highway-related work, particularly inadequacies of previous stormwater facility installations, planting efforts, and runoff impacts on local stream geomorphology, including erosion. The cumulative impacts of existing deficiencies and proposed actions should be assessed and mitigated.
- Assessment of the impacts to Dead Run, Scotts Run, and Turkey Run and the downstream impacts to the Potomac River.
- Performance of ecological resource surveys for each of these stream corridors, the Scotts Run Nature Preserve, and the George Washington Memorial Parkway.
- Assessment of the environmental services and the economic, social, and health benefits of the urban forest that would be lost due to the clearing associated with this project, as well as compensation for these impacts.
- Reforestation of all disturbed areas with commitments to compensation, soil rebuilding, and the restoration of native plant communities.
- Integration of invasives control throughout the project area.
- Clarification of the current status of and expectations regarding noise mitigation, to include potential barrier locations and design details.

Thank you for the opportunity to comment on this project. If you have any questions regarding these comments, please contact Joseph Gorney at 703-324-1380 or joseph.gorney@fairfaxcounty.gov.

Sincerely,

Jeanna H Donnelf

Leanna H. O'Donnell, AICP, Director, Planning Division Department of Planning and Development

cc: Board of Supervisors
Bryan Hill, County Executive
Rachel Flynn, Deputy County Executive (Planning + Development)
Barbara Byron, Director, DPD
Tom Biesiadny, Director, FCDOT
Denise James, Chief, Environment & Development Review Branch (EDRB), Planning
Division (PD), DPD
Laura Arseneau, Chief, Heritage Resources and Plan Development Branch, PD, DPD
Joseph Gorney, Senior Environmental Planner, EDRB, PD, DPD
Catherine Torgersen, Stormwater Planning Division, DPWES
Hugh Whitehead, Urban Forest Management Division, DPWES
Andrew Galusha, Fairfax County Park Authority

Attachments:

- 1. IIM-LD-195.12; Requirements for Erosion and Sediment Control and Stormwater Management Plans for VDOT Projects
- 2. Fairfax County Request for VDOT Projects to Meet Local Stormwater Management Requirements (July 17, 2019)

LHO: JCG

LOCATION AND DESIGN DIVISION

INSTRUCTIONAL AND INFORMATIONAL MEMORANDUM

GENERAL SUBJECT: Virginia Stormwater Management Program	NUMBER: IIM-LD-195.12	
SPECIFIC SUBJECT: Requirements for Erosion & Sediment Control and Stormwater Management Plans for VDOT Projects	DATE: July 19, 2019	
	SUPERSEDES: IIM-LD-195.11	
State Location	Susan H. Keen, P.E. State Location and Design Engineer Approved July 19, 2019	

Changes are shaded.

CURRENT REVISION

Renamed Scenario's 3 & 4 and revised information in Scenario 5 detail.

EFFECTIVE DATE

Unless identified otherwise within this IIM, the information contained in this IIM is effective upon receipt.

1.0 PROGRAM PURPOSE AND NEED

1.1 VDOT's Stormwater Management Program

The Virginia Stormwater Management Act, the VSMP Regulations, the Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Discharges of Stormwater from Construction Activities (the Construction Permit) and the VPDES Individual Permit for Discharge of Stormwater from Municipal Separate Storm Sewer System (Permit No. VA0092975) require that VDOT implement a stormwater management (SWM) Program that protects the quality and quantity of state waters from the potential harm of unmanaged stormwater runoff resulting from land-disturbing activities. This IIM addresses the application of these regulatory requirements as they relate to development of Post-Construction Stormwater Management Plans for VDOT land- disturbing activities.

Other elements of VDOT's SWM Program are addressed by the VDOT Drainage Manual and current editions of other IIMs, including:

- IIM-LD-242 which addresses the application of the VPDES General Permit for Discharges of Stormwater from Construction Activities to VDOT (Regulated Land Disturbing Activities (RLDAs);
- IIM-LD-243 which addresses signing and sealing of plans and documents including Erosion and Sediment Control (ESC)/SWM Plans and construction record drawings;
- IIM-LD-251 which addresses the purchase of nutrient credits to address postconstruction water quality reduction requirements for VDOT land-disturbing activities associated with construction projects.
- IIM-LD-258 which addresses stormwater requirements for non-VDOT projects.

2.0 PROGRAM ADMINISTRATION

2.1 Administration of VDOT's ESC and SWM Standards and Specifications

VDOT's Annual ESC and SWM Standards and Specifications shall apply to all plan design, construction and maintenance activities administered by VDOT and performed either by its internal workforce or contracted to external entities, where such activities are regulated by the VESC and VSMP Law and Regulations.

VDOT's Annual ESC and SWM Standards and Specifications are a compilation of all VDOT documents related to the design, construction, inspection and maintenance of ESC measures, Pollution Prevention (P2) practices and post-development Best Management Practices (BMP) including, but not limited to, all or a portion of the following:

- Road & Bridge Standards
- Road & Bridge Specifications, Supplemental Specifications and Special Provisions
- IIMs
- Drainage Manual
- Pollution Prevention Field Guide for Construction Activities
- Road Design Manual
- Maintenance Division's BMP Inspection and Maintenance Manuals

VDOT's Annual ESC and SWM Standards and Specifications are housed in an online electronic database which includes both the current and previous versions of the standards and specifications. The database is dynamic and items within the database may be added to, deleted or revised at any time to reflect changes or updates to VDOT's ESC and SWM Program.

Approval to use any portions of VDOT's Annual ESC and SWM Standards and Specifications, including this IIM, on non-VDOT projects/land-disturbing activities (e.g. Locality Administered Projects and Land Use Permit projects - see section 3.2 of this IIM for definition of non-VDOT projects/land-disturbing activities) shall be secured from the respective VESCP/VSMP Authority. For non-VDOT projects, the Authority means an authority approved by the State Water Control Board to operate a VESCP or VSMP, and can include the Virginia Department of Environmental Quality (DEQ), a locality, federal entity, another state entity, or linear projects subject to annual standards and specifications. Any approval to use portions of VDOT's Annual ESC and SWM Standards and Specifications, will presumably be part of the VSMP/VESCP Authorities overall plan approval process.

2.2 Approval of VDOT's ESC and SWM Standards and Specifications

VDOT secures an annual approval of its ESC and SWM Standards and Specifications from DEQ. By this approval, DEQ authorizes VDOT to administer its ESC and SWM Program in accordance with the Annual ESC and SWM Standards and Specifications on all regulated land disturbance activities performed by VDOT's internal workforce or contracted by VDOT to external entities.

During any inspections of VDOT land-disturbing activities by DEQ, EPA, or other such regulatory agency, compliance with VDOT's Annual ESC and SWM Standards and Specifications (and all parts thereof) will be expected.

3.0 DETERMINING A REGULATED LAND-DISTURBING ACTIVITY

3.1 VDOT Regulated Land-Disturbing Activities

The SWM and ESC requirements are applicable to all land-disturbing activities where one acre or greater (2,500 square feet or greater in a designated CBPA) of land is disturbed, unless otherwise exempted. ESC requirements apply to all project which disturb greater than or equal to 10,000 square feet (2,500 square feet or greater in a designated CBPA), unless otherwise exempted. See Section 3.3 of this IIM for discussion on the exemption for routine maintenance operations.

The VSMP Regulations and application of this IIM shall apply to all VDOT regulated land-disturbing activities, both construction and maintenance, administered by VDOT and performed either by its internal workforce or contracted to external entities, including those developed/constructed under, the Design/Build (DB) process and the Capital Outlay Program. PPTA/P3 projects are a special case and, while requiring consistency with VDOT standards and specifications, are often considered by DEQ to be "non-VDOT" projects for the purposes of permit issuance and ESC and SWM Plan review and approval. PPTA/P3 entities should consider that projects may be required to meet the local technical and administrative requirements and to secure permits from the applicable VSMP and VESCP Authorities, while at the same time maintaining consistency with the VDOT standards, specifications and contract provisions related to SWM and ESC.

Provisions for VDOT SWM Program administration including plan design, review and approval are further discussed in IIM-LD-242 and Chapter 11 of the VDOT Drainage Manual.

3.2 Non-VDOT Regulated Land-Disturbing Activities

Requirements for non-VDOT projects are referenced in IIM-LD-258.

3.3 Routine Maintenance Activities

Routine maintenance is defined as those activities performed to maintain the original line and grade, hydraulic capacity or original construction of the project.

Routine maintenance activities are exempt from the Virginia Stormwater Management Act, the attending VSMP Regulations, and the VPDES Construction General Permit requirements regardless of the amount of land disturbance. The routine maintenance exemption does not apply to the ESC Program. See Chapter 10 of the VDOT Drainage Manual for more information on ESC Plan requirements.

Operations and Maintenance Activities:

Such activities include, but are not limited to: ditch cleaning operations, pipe replacement or rehabilitation operations, bridge deck replacement and the normal operational procedures for maintaining the travel surface of unpaved/gravel roadways (i.e., dragging, blading, grading, etc.). Facilities that support the routine maintenance activity (e.g., disposal areas for surplus dirt, borrow pits, or staging areas) are not considered a part of the routine maintenance operation and, therefore, are not covered under the routine maintenance activity exemption.

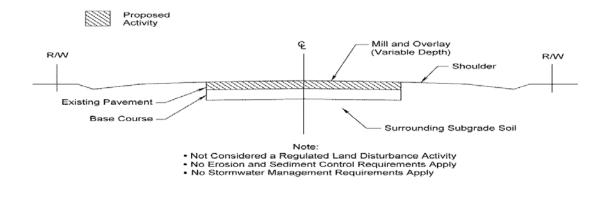
For any maintenance activity being classified as routine, proper documentation of original conditions must be kept on file at the District office. Documentation of original conditions can be in the form of old plans, photographs or other such documents depicting the original line and grade, hydraulic capacity, or original construction or purpose of the facility. Written and signed statements from those that know the history of the facility can also serve as documentation of the original conditions.

Roadway Construction and Maintenance Activities:

Scenario 1: Mill and Overlay ONLY (with no changes to geometrics)

In accordance with EPA's 2004 Q&A on the NPDES stormwater program, re-paving is not regulated under the storm water program unless one or more acres of underlying and/or surrounding soil are cleared, graded or excavated as part of the re-paving operation.

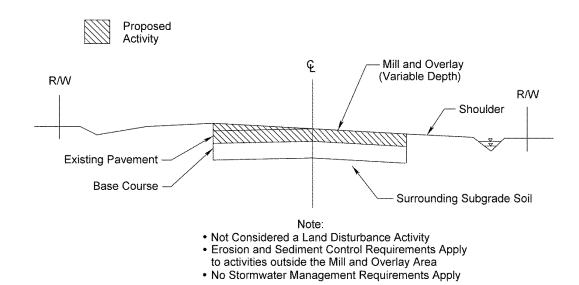
The removal and replacement of an existing pavement structure within the same footprint that DOES NOT EXPOSE the subgrade, such as mill and overlay, IS NOT a land disturbing activity under ESC or SWM. The area of such existing pavement would not be included with the other land disturbance areas of the project for the purposes of determining the applicability of the VSMP Regulations and the VPDES General Construction Permit.



Scenario 2: Mill and Overlay ONLY (with changes to geometrics)

In accordance with EPA's 2004 Q&A on the NPDES stormwater program, re-paving is not regulated under the storm water program unless one or more acres of underlying and/or surrounding soil are cleared, graded or excavated as part of the re-paving operation.

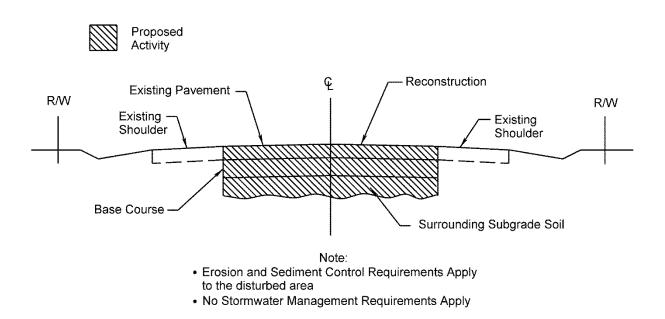
The removal and replacement of an existing pavement structure within the same footprint that DOES NOT EXPOSE the subgrade, such as mill and overlay, IS NOT a land disturbing activity under ESC or SWM. The area of such existing pavement would not be included with the other land disturbance areas of the project for the purposes of determining the applicability of the VSMP Regulations and the VPDES General Construction Permit. However, the project must take into consideration the potential changes in site hydrology for the affected conveyances, and they must be evaluated and be in accordance with the VDOT Drainage Manual.



Scenario 3: Full Depth Reconstruction of Travel Lane (within the existing footprint)

In accordance with EPA's 2004 Q&A on the NPDES stormwater program, if the surrounding soil is cleared, graded or excavated, the operation is a land disturbing activity. However, as presented in this example it meets the definition in the Virginia Stormwater Management Act's exemption for routine maintenance as defined under §62.1-44.15:34.C.7.

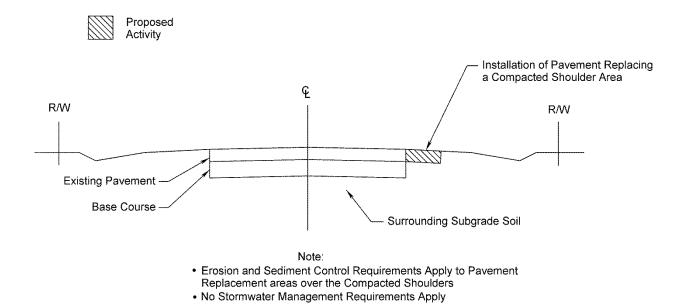
The removal and replacement of an existing pavement structure within the same footprint that DOES EXPOSE the subgrade IS considered a land disturbing activity; however it meets the definition of routine maintenance. Therefore, the area of such existing pavement would be included with the other land disturbance areas of the project for the purposes of determining the applicability of ESC regulations and requirements, but it would be exempt from the VSMP Regulations and the VPDES general Construction Permit.



Scenario 4: Shoulder Reconstruction Within the Existing Footprint

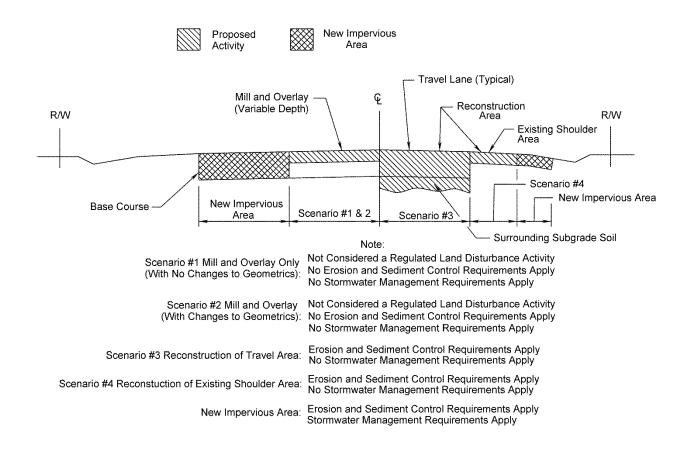
In accordance with EPA's 2004 Q&A on the NPDES stormwater program, if the surrounding soil is cleared, graded or excavated, the operation is a land disturbing activity. However, as presented in this example it meets the definition in the Virginia Stormwater Management Act's exemption for routine maintenance as defined under §62.1-44.15:34.C.7.

Shoulder Reconstruction Within the Existing Footprint, such as Safety Improvement Projects, that include paving of an existing shoulder with a compacted or impervious surface and reestablishment of existing associated ditches <u>shall be deemed routine</u> <u>maintenance</u>. Therefore, the area of such existing pavement would be included with the other land disturbance areas of the project for the purposes of determining the applicability of ESC regulations and requirements, but it would be exempt from the VSMP Regulations and the VPDES general Construction Permit. Note: this would not include paving an existing compacted shoulder to create an additional lane. If the paving effort includes increasing the post-development impervious acreage from the pre-development acreage, the increase should be identified as redevelopment under the VSMP regulations.



Scenario 5: Combination of scenarios (i.e. combination of scenarios 1 through 4)

For projects that will have a combinations of scenarios, the DHE shall coordinate the application of such combination with the State MS4 Engineer and DEQ. The coordination shall include the necessary documentation to illustrate how the different scenarios will be addressed in each case.



Where there is any question as to the application of the routine maintenance definition to a land disturbing activity, the appropriate District Hydraulics Engineer should be consulted along with DEQ.

4.0 APPLICATION OF TECHNICAL CRITERIA

4.1 Applicable Technical Criteria

Part II of the VSMP Regulations (9VAC25-870-40 et. seq.) provides administrative and technical criteria for regulated land-disturbing activities.

Part IIB (9VAC25-870-62 et. seq.) contains the "new" technical criteria that include the Runoff Reduction methodology (for determining compliance with water quality requirements) and the Energy Balance Equation (for determining compliance with stream channel erosion requirements). Part IIB technical criteria are applicable to all projects unless the project qualifies for application of Part IIC.

Part IIC (9VAC25-870-93 et. seq.) contains the "old" technical criteria that include the Performance/Technology-Based methodology (for determining compliance with water quality requirements) and MS19 criteria (for determining compliance with stream channel flooding and erosion requirements). Part IIC technical criteria are only applicable if the project qualifies for grandfathering as discussed below.

Design criteria and engineering methodologies to comply with either Part IIB or IIC of the technical criteria in the VSMP Regulations can be found Chapter 11 of the VDOT Drainage Manual.

When requested by a locality's VSMP Authority, VDOT projects located in jurisdictions that have adopted more stringent SWM technical criteria than that required by the VSMP Regulations shall be designed, to the largest extent practicable, to meet the locality's more stringent criteria. For any requests to be considered, the VSMP Authority's more stringent criteria must: 1.) have been adopted pursuant to the Virginia Stormwater Management Act; 2.) the request is made in writing; and 3.) such requests are received prior to the completion of the project's plans for use in the public involvement phase of the project (or other such phase where no public involvement process is required). If it is found that the more stringent local SWM requirements are not practicable for the VDOT project, it will be the responsibility of the SWM Plan Designer to implement the requirements to the maximum extent practicable and to demonstrate to the that VSMP Authority's that the technical requirements are not practicable. Documentation shall be kept with the SWM Plan. Early coordination should occur between the SWM Plan Designer and the local VSMP Authority, in order to identify any such potential requirements or requests.

4.2 Grandfathering

Part II of the VSMP Regulations (9VAC 25-870-48) provides provisions for locality, state and federal projects to be grandfathered under Part IIC provided certain conditions are met. For the purposes of grandfathering VDOT projects, the project shall be considered grandfathered by the VSMP authority and shall be subjected to the Part IIC technical criteria provided the project that can demonstrate an obligation of local, state or federal funding, in whole or in part, prior to July 1, 2012, or the department has approved a SWM Plan prior to this date; a state VPDES permit has not been issued prior to July 1, 2014 and a land disturbance did not commence prior to July 1, 2014.

Any project that is considering utilization of the grandfathering provision shall be evaluated and documented by the District Hydraulics Engineer. The documentation shall clearly demonstrate an obligation of funds prior to July 1, 2012.

When evaluating a project for application of the Grandfathering provision, consideration should be given as to when the project will be advertised and when construction activities will begin. If the project will not begin construction activities prior to July 1, 2019, the project should be designed in accordance with the Part IIB (or the "new") technical criteria. Land disturbing activities grandfathered under subsections A and B of the regulations shall remain subject to the Part II C technical criteria for one additional state permit cycle. After such time, portions of the project not under construction shall become subject to any new technical criteria adopted by the board.

This written evaluation and determination shall be coordinated with the State MS4 Engineer and DEQ. Upon DEQ approval, the status of a project/activity with regards to the grandfathering provision shall be documented using the appropriate note(s) in Section IV of the SWPPP General Information Sheets. If multiple UPCs exist for the project, each UPC should be evaluated separately to determine the extents or segments of the project that qualify for grandfathering. Portions of a project not under construction by July 1, 2019 will become subject to the new technical criteria adopted by the board.

In cases where governmental bonding or public debt financing has been issued for a project prior to July 1, 2012 such project shall be subjected to the Part IIC technical criteria (no limit to grandfathering period specified in regulation).

Projects eligible for grandfathering may still use Part IIB of the technical criteria. However, in doing so, the design details and pollutant removal efficiency of the BMPs shall be in accordance with the information on DEQ's BMP Clearinghouse website or identified on VDOT's approved BMP Standards and Special Provisions.

4.3 Phasing of Construction Project and Associated SWPPP

This section applies to all VDOT projects which will run design and construction in tandem efforts, including D/B projects which are on an expedited delivery schedule.

Where a project will be constructed in phases, the SWPPP shall include an ESC Plan, a SWM Plan, and P2 Plan for each phase that includes the scope and extent of land-disturbing proposed for that phase. The SWPPP for the individual phases will be self-sustaining and not incur a deficit in post construction SWM design requirements requiring mitigation on successive phases. These minimum requirements must be satisfied prior to VPDES permit registration.

The initial SWPPP shall cover, at a minimum, the following items:

- Preliminary construction plans (30-50% complete) documenting the limits of construction and work to be performed;
- ESC Plan for initial phase based upon the existing conditions and work needed for clearing and grubbing, maintenance of traffic, and proposed upland grading;
- Pollution Prevention (P2) Plan for initial phase; and
- Post-Construction SWM including required documentation and calculations, location of all outfalls, identification and description with the water quantity and quality requirements, a topographical site map, and a narrative describing the existing and proposed site conditions.

The initial SWPPP shall contain all required plan content addressed in the VPDES Construction Permit, Stormwater Management Regulations and Erosion and Sediment Control Regulations.

4.4 Selection of Manufactured Treatment Devices (MTDs) and Underground BMPs

In selecting proprietary stormwater systems (MTDs or Underground BMPs), designers and VDOT should strive to design and specify the system that provides the best value to VDOT, considering a variety of factors. Designers should evaluate and compare traditional/conventional Stormwater Management Facilities ("SWM Facilities" - detention, extended detention, filtration systems and infiltration systems) and the proposed underground or manufactured systems to ascertain if the overall value to VDOT is better. This evaluation should include a comparison of capital costs (land, materials and labor), as well as anticipated long-term operation and maintenance costs over the life cycle of the MTD or underground SWM Facilities in comparison to conventional, non-proprietary SWM Facilities alternatives open to the ground surface. When the total life cycle cost for a conventional SWM Facilities alternative is less than for a MTD or underground SWM Facilities, consideration must be given to use of the conventional system, even if the capital costs are higher, unless acquisition of additional R/W or easements are expected to delay the overall project schedule.

If an MTD or underground SWM Facilities determined to be the most appropriate solution, the plans and specifications should identify the minimum performance criterion that the system is expected to meet. Performance criteria may include geometric, hydraulic, materials, operation and maintenance, and water quality characteristics. These performance criteria become the basis for specification and procurement. Specific proprietary systems should not be specified. All products should be selected from the Approved Products List (when feasible) and any water quality performance characteristics (e.g. efficiency, allowable flow rates, etc.) shall be as approved by DEQ.

5.0 EXCEPTIONS FROM TECHNICAL CRITERIA

For those land-disturbing activities where it is determined that water quality requirements cannot be totally achieved utilizing onsite BMPs and/or offsite options (see Chapter 11 of the VDOT Drainage Manual), an exception from the portions of the technical criteria unachievable (e.g., relief from the improvement factor of Energy Balance Equation) may be considered and granted by DEQ provided that VDOT coordinates with DEQ and submits a written exception request. The designer or project manager should coordinate consideration of any exceptions directly the DHE. If deemed warranted or necessary, the DHE will assist in documenting the request for exception. This effort shall be documented in accordance with VDOT's Annual Standards and Specifications, including the completion and submittal of LD-445G form, coordinated by the DHE to the State MS4 Engineer and DEQ.

The request shall include documentation of the need for the exception. The documentation shall describe all means and methods evaluated for meeting the water quality/quantity requirements and the reasons why specific means or methods were determined not feasible. The documentation shall also state

that the exception being requested is the minimum necessary to afford relief. Economic hardship alone is not sufficient reason to request an exception.

Any approved exception is to be documented and included in the SWPPP for the project/activity. The appropriate SWPPP General Information Sheet notes are to include the date the exception was approved, by whom it was approved and the nature of the exception (e.g., increased reliance on nutrient credits to _____ lbs. in exceedance of the 25% allowable off site). This same information should be noted and included with other registration information when applying for coverage under the VPDES Construction Permit.

6.0 REVIEW AND APPROVAL OF ESC PLANS

See Section 10.2.2.1 of the VDOT Drainage Manual for certification requirements and review and approval of ESC Plans.

7.0 MAINTENANCE CONSIDERATIONS

Requirements for maintenance of SWM Facilities, the schedule for inspection, maintenance operations, and the identification of persons responsible for the maintenance is addressed in the VDOT Maintenance Division's BMP Inspection and Maintenance Manuals. The long-term operations and maintenance requirements for any SWM Facility shall be considered during SWM Plan development. The applicable inspection and maintenance section of each manual shall be noted using the appropriate note(s) in Section IV of the SWPPP General Information Sheets.

8.0 RECORDKEEPING AND REPORTING

8.1 SWPPP General Information Sheets

The VPDES MS4 and Construction Permits require VDOT to annually report information to DEQ such as the location, type, acres treated and the affected receiving waters of all SWM Facilities (BMPs) installed.

8.2 LD-445D and LD-458 Submittals

BMP information is to be recorded on the SWPPP General Information Sheets and reported through the VPDES Permit Termination Notice Form LD-445D. See the current IIM-LD-242 and Chapter 10 of the VDOT Drainage Manual for additional information.

The LD-458 Surplus Tracking Form will be used to collect any additional phosphorus credit generated by a specific project that could be applied to the TMDL Action Plan in a specific watershed. This form is to be submitted to the State MS4 Engineer for coordination with the Environmental Division.

8.3 Construction Record Drawings

Construction record drawings are required for all permanent SWM Facilities, including approved shop drawings for MTDs, and shall be appropriately signed and sealed by a person registered in the Commonwealth of Virginia as a professional architect, engineer, land surveyor or landscape architect and qualified in the responsible administration of the BMP construction. Construction record documentation shall be provided for all permanent SWM Facilities. The registered professional shall certify that all SWM Facilities have been constructed and made functional in accordance with the SWM Plan. The form LD-445D shall be used to document this certification process. The official record drawings for the project include both the plan drawings and record drawing survey.

Any changes to the proposed SWM Plan or BMPs necessitated during the construction phase of the project, that affects the proposed construction details or the BMP design information shown in the construction plans or documentation, shall be coordinated by the VDOT construction manager with the appropriate VDOT District Hydraulics Engineer. If as-built documentation for permanent SWM Facilities deviates from the approved plans, the Area Construction Engineer should request a review by the District Hydraulics Engineer to determine if modifications to the facility are needed prior to acceptance. As-built documentation should be submitted as early as possible but no less than 30 days prior to expected acceptance. Significant deviation from the approved drawings may delay project acceptance. The record set of construction plans and the BMP information tables in the construction plans or documentation are to be formally revised to reflect any authorized/approved changes to the proposed SWM Plan and/or the proposed BMP construction details. All plan revisions shall be completed in accordance with the VDOT Road Design Manual and the VDOT Construction Division's IIM-CD-2013-12.01, signed and sealed in accordance with Department's sealing and signing policy IIM-LD-243 and filed with the record set of construction plans maintained in the VDOT ProjectWise Plan File Room.

Inspection forms specific to the BMP type(s) should be used to document the construction/installation process. A final inspection for SWM Facilities/BMPs shall be conducted by the VDOT construction manager, the Area Construction Engineer (ACE), the VDOT DHE, the VDOT Maintenance Division Infrastructure Manager (or designee), and the NPDES Coordinator (or their designees). The inspection shall be conducted prior to final project acceptance to identify any required corrective actions, allowing the contractor to perform these corrective actions. The final inspections should be conducted as early as practicable to allow time for corrective actions. Reinspection may be required after receipt of the as-built documentation.

8.4 Transfer of VDOT Responsibility to Others

The footprint occupied by a BMP, that is installed as part of a VDOT project and is part of VDOT's post-construction SWM Plan, may be utilized for other land use and development, provided that all VSMP requirements are transferred to another entity (e.g. developer or locality). An example project would be where a private developer intends to utilize the area occupied by the BMP for parking spaces to service a shopping center. Prior to the transfer of land and elimination of the BMP, the entity shall demonstrate certain conditions have been met:

1. The entity (e.g. developer or locality) shall provide the applicable District Hydraulics Engineer a conceptual plan of how they are going to account for VDOT's SWM requirements;

- Upon approval from the District Hydraulics Engineer, the entity shall provide an executed agreement stating the SWM requirements are to be transferred to the entity in perpetuity. This agreement shall not preclude any requirements of the VSMP Authority including an executed maintenance agreement for the replacement BMP(s);
- Demonstrate to the District Hydraulics Engineer that all VSMP requirements will be transferred to another entity (e.g. developer or locality) to the satisfaction of the applicable VSMP Authority. The SWM Plan and maintenance agreement that is submitted to the VSMP Authority for review and approval must include the post-construction SWM requirements that are currently being satisfied by the existing BMP;
- 4. Replacement BMPs have been constructed and made operational prior to removal of VDOT's BMP and transfer of land; and
- 5. All maintenance agreements with the applicable VSMP Authority have been executed and recorded to carry with the land.

It is important to note that the release of an existing VDOT easement requires a separate VDOT Property Management disposal process. Compensation for the release of easement rights will be required and easements will be conveyed by quitclaim deed. Easement releases should be coordinated with the Property Management Program Manager, 1401 East Broad Street, Richmond, VA. 23219.



COMMONWEALTH OF VIRGINIA County of Fairfax BOARD OF SUPERVISORS

SHARON BULOVA CHAIRMAN SUITE 530 12000 GOVERNMENT CENTER PKWY FAIRFAX, VIRGINIA 22035-0071

> TELEPHONE: 703/324-2321 FAX: 703/324-3955 TTY: 711

chairman@fairfaxcounty.gov

JUL 1 7 2019 Secretary Shannon Valentine Virginia Department of Transportation P.O. Box 1475 Richmond, VA 23218

Reference: Fairfax County Request for VDOT Projects to Meet Local Stormwater Management Requirements

Dear Secretary Valentine:

Fairfax County recognizes the critical importance of transportation projects to our community and continues to support the Commonwealth's efforts to advance multi-modal mobility in the region to improve our quality of life. We also know that transportation projects add significant impervious area to the Chesapeake Bay's and Fairfax County's watersheds and have significant negative impacts on water quality. Fairfax County would like to partner with the Virginia Department of Transportation (VDOT) to develop solutions to the stormwater management issues associated with transportation projects.

We reviewed VDOT Location and Design Division Instructional and Informational Memorandum IIM-LD-195.10 regarding stormwater management requirements for VDOT projects. Section 4.1 of this memorandum (starting on sheet 6) notes that, "When requested by a locality's VSMP Authority, VDOT projects located in jurisdictions that have adopted more stringent stormwater management (SWM) technical criteria than that required by the VSMP Regulations shall be designed, to the largest extent practicable, to meet the locality's more stringent criteria."

Fairfax County's Stormwater Management Ordinance provides the technical criteria for regulated land-disturbing activities in Fairfax County. The criteria are provided in Article 5 of Chapter 124 of Fairfax County's Code of Ordinances, available at: https://library.municode.com/va/fairfax_county/codes/code_of_ordinances

We believe these criteria are more stringent than Parts II B and II C of the Virginia Stormwater Management Program (VSMP) Regulations. Therefore, on March 19, 2019, the Fairfax County Board of Supervisors voted to, and now formally requests that all current projects under design for use in the public involvement phase and future VDOT projects located in Fairfax County meet the County's local stormwater management regulations. Per IIM-LD-195.10, if it is found that our more stringent local stormwater management requirements are not attainable, VDOT should implement requirements to the maximum extent practicable and provide documentation to the County demonstrating that the technical requirements are not fully feasible. Additionally, Fairfax County requests that all stormwater management facilities designed to meet local Secretary Shannon Valentine

Request for VDOT Projects to Meet Local Stormwater Management Requirements Page 2 of 2

stormwater management regulations be constructed, inspected, and maintained by VDOT and that the state provide sufficient funding to VDOT to adequately fulfill these needs.

VDOT and Fairfax County are both municipal separate storm sewer system (MS4) permit entities and share the same stormwater management objectives. Fairfax County wishes to partner with VDOT on efforts to find innovative ways to address stormwater management within the right-of-way and directly downstream to meet our mutual MS4 and Chesapeake Bay total maximum daily load (TMDL) goals.

Sincerely,

cc:

Aulisca

Sharon Bulova Chairman Fairfax County Board of Supervisors

Ann Jennings, Deputy Secretary of Natural Resources for the Chesapeake Bay David K. Paylor, Director, Virginia Department of Environmental Quality
Bryan J. Hill, Fairfax, County Executive
Rachel Flynn, Deputy County Executive
Randolph W. Bartlett, Director, Department of Public Works and Environmental Services (DPWES)
Bill Hicks, Director, Land Development Services
Tom Biesiadny, Director, Fairfax County Department of Transportation
Craig Carinci, Director, DPWES, Stormwater Planning Division
Chad Crawford, Director, DPWES, Maintenance and Stormwater Mangement Division
Brian Keightley, Director, DPWES, Urban Forest Management Division November 5, 2020

Operations Division

Ms. Caryn Brookman Environmental Program Manager I-495 & I-270 P3 Office 707 North Calvert Street, P-601 Baltimore, Maryland 21202

Dear Ms. Brookman:

This is in reference to your October 21, 2020 email requesting clarification of information required in the evaluation of Department of Army (DA) authorization for **CENAB-OPR-MN (MDOT SHA/I-495 I-270 Managed Lane Study) 2018-02152-M15.** The three areas of concern identified in your email are discussed below.

1. Comment: USACE to confirm the 404 permit would include the entire 48 miles with "conditions" to only allow Phase I to move forward for construction (again, assuming a more detailed level of hydraulic analysis on Phase 1 culverts). The permit would include special provisions for future construction that would be dependent on additional hydraulic analysis in areas outside of Phase 1.

Corps response: The Corps ability to evaluate and authorize a proposed project is contingent upon receiving information on all project impacts to waters of the U.S. The Corps can evaluate the entire 48 mile transportation project. However, fundamental to permitting the entire project, the Corps requires basic information on impacts to all waters of the U.S., including jurisdictional wetlands, for the complete project. The information required for each impact area includes: location, limit of disturbance (LOD), estimated quantity of impacts (areal extent in square feet/linear feet), and type of impact (e.g., fill, culvert, stormwater management pond, stream restoration or stabilization, etc.). Specifically, for culvert augmentation and stormwater management, at a minimum, we would require the location, LOD, estimated quantity of impacts, and conceptual structures (if known) impacting waters of the U.S., including any required stabilization measures; riprap; stormwater management ponds; etc.).

Therefore, the phased construction approach to a corridor permit would only work provided there is sufficient level of basic detail about proposed impacts throughout the entire 48 mile corridor (Note: see below regarding the Corps response to the suggested use of "surrogate" information). Once we have basic information on all project impacts, a permit decision can be rendered for the entire project. The DA permit could then be structured, through special conditions, to allow project construction to proceed in phases upon receipt, review, and approval of appropriate construction drawings for a particular project phase. For design-build projects, worst-case analysis for aquatic impacts are typically submitted by an applicant to avoid underestimating the proposed impacts, and additional avoidance and minimization is conducted through the subsequent review and final approval. Finally, the phased construction approach for a DA authorization is contingent upon the applicant receiving all other applicable approvals including Section 401 Water Quality Certification (WQC).

Should the applicant be unable to submit basic impact information for the complete project, the Corps is open to a discussion of a permit decision for Phase I of the project only. This approach may allow Federal Highway Administration (FHWA) and SHA to provide the necessary detailed impact analysis for Phase I of the project without significant deviation from the current project schedule. Section 401 WQC would also only be required for the appropriate phase of the project being authorized. This approach would defer detailed analysis of future phases' features (e.g., culverts, stormwater management, mitigation) for future permitting. The OFD NEPA document could be modified to reflect this approach.

2. Comment: MDE to confirm whether 401 Water Quality Certification could be in line with the USACE's authorization, using the same assumptions above (More detailed analysis on culverts within the Phase 1 limits only, applying similar assumptions outside of Phase 1)

Corps response: The Corps ability to issue an authorization for the entire proposed project is in part dependent upon 401 water quality certification (WQC). The Corps will defer to MDE concerning this response.

3. Comment: USACE and MDE to provide direction on whether "surrogate" information on locations of jurisdictional streams and wetlands, in lieu of full delineations, could be used. This would include all readily available information.

Corps response: The Corps is willing to consider the use of readily available information sources such as GIS or remote sensing information for the preliminary location of jurisdictional streams and wetlands in lieu of full determinations for the quantification of proposed impacts associated with augmented culverts and off-site stormwater management. The Corps requests additional information on the proposed information sources. Please submit a proposal to the Corps for our consideration, including a proposed approach to field verify the surrogate information prior to detailed design.

Please recognize at this point in the project evaluation, additional proposed impact information will require SHA/FHWA to update the Joint Federal/State Permit Application and One Federal Decision (OFD) NEPA document. Further, as a result of additional project impacts, the Corps will likely need to issue a supplemental public notice. In this regard, please submit a list of adjacent property owners (name/address) for all new impact areas.

Thank you for this opportunity to clarify permitting issues associated with the proposed project. We look forward to our planned conference call on November 9, 2020. The Corps recognizes the importance of this discussion to the project schedule, and we remained fully committed to working with FHWA and SHA. Should you have any questions concerning this matter, please contact me or call Mr. Jack Dinne of my staff at (410) 962-6005.

Sincerely,

Joseph P. DaVia Chief, Maryland North Section

Cc (via email): Ms. Heather Nelson, MDE, (hnelson@maryland.gov) Ms. Jeanette Mar, FHWA, (jeanette.mar@fhwa.dot.gov)

To identify how we can better serve you, we need your help. Please take the time to fill out our customer service survey at: <u>http://www.nab.usace.army.mil/Missions/Regulatory.aspx</u> November 5, 2020

Ms. Caryn J G Brookman I-495 & I-270 P3 Office 601 N. Calvert Street Baltimore, Maryland 21202

Mailing Address: 707 North Calvert Street, Mailstop P-601 Baltimore, MD 21202

i)

Re: I-495 & I-270 Managed Lanes Study (SHA FMIS No. AW073A11), Culvert Augmentation and Permitting

Dear Ms. Brookman:

The Maryland Department of the Environment, Wetlands and Waterways Program ("the Department") has reviewed your requests regarding: 1) Permitting of the entire 48 mile corridor versus a phased approach; 2) timing of a Water Quality Certification based on the permitting the entire corridor versus a phased approach; and 3) use of surrogate information over traditional wetland delineation for areas outside the current Limits of Disturbance (LOD). Let me assure you that we will make use of available flexibilities to the extent allowed by our regulations and laws; we share common interest in ensuring that the permitting actions associated with this project are decided in a timely manner and meet legal requirements. We both want to ensure that we are able to successfully defend any possible challenges to these actions. Below are point-by-point responses for your consideration:

- The Department, in conjunction with the U.S. Army Corps of Engineers, has reviewed the various relevant regulations related to processing a project of this magnitude including MDE's regulations, *Executive Order (EO) 13807 Federal One Decision*, and the *Clean Water Act Section 401 Certification Final Rule*, etc. Based on the review of its regulations and consideration of the EO and Section 401 of the Clean Water Act, the Department has determined that the current level of information provided at this time would not allow for permitting of the entire 48 mile corridor for the I-495 & I-270 Managed Lanes (MLS) Study. The following information is necessary to move forward with potential authorization of a corridor wide permit:
 - a) A reasonable estimate of the total project impacts including:
 - An LOD in the location of impacts related to augmented culverts resulting from compliance with 378 requirements, which includes;
 - (1) Determination of flood risks and channel stability under the Code of Maryland Regulations (COMAR) 26.17.04.06B(4), 26.17.04.06B(5), and 26.17.04.11B(6);
 - (2) A list of adjacent property owners;
 - (3) Applicable wetland delineations.
 - ii) Locations of new off-site stormwater management, including;

- (1) A list of adjacent property owners;
- (2) Applicable wetland delineations.
- iii) Locations of new stream and wetland mitigation sites if permanent impacts will occur.
- iv) Locations of mitigation for the National Park Service if permanent impacts will occur.b) Additional information as requested in the Department's comment letter dated June 5, 2020.
- 2) Issuing the Water Quality Certification (WQC) for the entire corridor is problematic based on the current amount of information available. For example, all of the same information required in #1 above is also included as necessary information for consideration of a WQC. Issuance of a Water Quality Certification for the entire 48-mile corridor would require that the project be able to demonstrate compliance with Maryland's water quality standards and the lack of sufficient information as contained in this letter minimally needs to be provided. As another example, a request for WQC shall include the location and frequency of discharge at a particular location or as may occur from the project. It would be difficult for a requester to be able to provide this information when the location and number of culvert augmentations is unknown. Furthermore, in consideration of the administrative procedures and timing requirements of applicable laws and regulations per Section 401 of the Clean Water Act, serious consideration should be taken regarding EO 13807 Section XIII regarding exceptions.
- 3) Additional information is required regarding the use of surrogate wetland and stream delineation information. Please describe the type and source of information that would be used, and where surrogate information would be applied.

In addition to the information above, an additional MDE public notice for the Joint Permit Application will likely be required to include property owners adjacent to impacts related to augmented culverts, new off-site stormwater locations, and new off-site stream and wetland mitigation locations if permanent impacts are proposed. We look forward to continued coordination regarding the timeline of the project.

If you need any further information or assistance, please do not hesitate to contact Amanda Sigillito by telephone at (410) 537-3766 or by email at <u>Amanda.Sigillito@maryland.gov</u>.

Sincerely,

Josher Also

Heather L. Nelson, Acting Manager Wetlands and Waterways Program

cc: Joseph DaVia, U.S. Army Corps of Engineers

January 13, 2021

Gregory Murrill Division Administrator U.S. Department of Transportation Federal Highway Administration Maryland Division 31 Hopkins Plaza, Suite 1520 Baltimore, Maryland 21201

Re: "No effect" determination for the Indiana bat and 4(d) Rule coverage for the northern longeared bat for the I-495 & I-270 Managed Lanes Study in Montgomery and Prince George's Counties in Maryland and Fairfax County in Virginia

Dear Mr. Murrill:

The U.S. Fish and Wildlife Service (Service) has reviewed the following documents pertaining to this project: your letter dated November 6, 2020; updated species list dated September 22, 2020; verification letter dated September 22, 2020 addressing the January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions; October 2019 Draft Bridge Survey Report; November 2020 Draft Additional Bridge Survey Report; and the December 16, 2020 Threatened and Endangered Bat Habitat Assessment and Acoustic Survey Report.

The Service has evaluated the potential effects of this project to the endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*). The comments provided below are in accordance with Section 7 of the Endangered Species Act (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

The purpose of the study is to develop a travel demand management solution that addresses congestion, improves trip reliability on I-495 and I-270 within the study limits, and enhances existing and planned multimodal mobility and connectivity. The study area encompasses I-495 from just south of the George Washington Memorial Parkway in Virginia to west of MD 5 and along I-270 from the west and east spurs to I-370, in both Prince George's and Montgomery Counties, Maryland. Currently, the study includes six alternatives that would widen I-495 and I-270 by two to four lanes to support additional managed lanes and assumes full replacement of the American Legion Bridge. Direct access ramps to the managed lanes are proposed to be provided at several interchanges throughout the corridors.

According to the October 2019 Draft Bridge Survey Report prepared by Coastal Resources, Inc., there was no visual evidence of use of the bridges by the northern long-eared bat or the Indiana bat. In addition, the report included results of bat emergence surveys conducted at the American Legion Bridge and the bridge over Northwest Branch on August 12 and August 13, 2019, respectively. Emergence surveys were conducted because of the high vertical clearance of both bridges and the wide expanse of the American Legion Bridge over the Potomac River. Small and larger bats were observed flying beneath or near each bridge, but no bats were definitively confirmed exiting the bridge structures. The Service concurs with the findings and conclusion of this report, that there was no evidence of use of the bridges for roosting by the two species.

According to the November 2020 Draft Additional Bridge Survey Report prepared by Coastal Resources, Inc., six new bridge sites were surveyed and "based on the results of the visual assessment, there was no evidence of use of the bridges by the northern long-eared bat or the Indiana bat." The Service concurs with the findings and conclusion of this report that there was no evidence of use of the bridges for roosting by the two species.

According to the December 16, 2020 Threatened and Endangered Bat Habitat Assessment and Acoustic Survey Report, the acoustic survey resulted in the recording of 54,700 bat calls at 70 sites. Three of these sites had calls identified as northern long-eared bats. These three sites are located along the northern section of I-495 (Capital Beltway) in Bethesda, Silver Spring, and Adelphi, Maryland. No Indiana bats were recorded during the acoustic survey. As part of the habitat assessment, no potential hibernacula were identified within the study area. Potential roost trees were not identified as part of this survey. The Service concurs with the findings and conclusion of this report that three sites had northern long-eared bat calls and no Indiana bats were recorded during the acoustic survey as the biological assessment for the purposes of Section 7 consultation.

The Federal Highway Administration (FHWA) voluntarily included the northern long-eared bat in the 2020 acoustic survey under Section 7(a)(1) of the ESA. Section 7(a)(1) requires Federal agencies to use their authorities to further the conservation of listed species. Mist-netting and radio-tracking were not included in the 2020 survey because the Service and Maryland Department of Natural Resources did not allow handling of live bats for scientific purposes due to the potential risks of humans transmitting the COVID-19 virus (SARS CoV-2) to North American bats.

This project as proposed will have "no effect" on the federally endangered Indiana bat because, according to the October 2019 Draft Bridge Survey Report and November 2020 Draft Additional Bridge Survey Report, there was no visual evidence of use of the bridges by the Indiana bat and the December 16, 2020 Threatened and Endangered Bat Habitat Assessment and Acoustic Survey Report states no Indiana bats were recorded during the acoustic survey.

This project as proposed is covered by the Service's January 5, 2016, Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take

Prohibitions due to the fact that the study area where forest clearing will occur does not have known maternity roost trees or hibernacula. Therefore, this project is "not likely to adversely affect" the northern long-eared bat.

According to the November 6, 2020 letter from the FHWA, the FHWA and the Maryland Department of Transportation's State Highway Administration are voluntarily committing to a time of year restriction under Section 7(a)(1) of the ESA from May 1 through July 31 of any year for tree clearing within the three positive, 3-mile acoustic detection buffers for the northern long-eared bat located in Bethesda, Silver Spring, and Adelphi, Maryland within the study corridors.

Except for occasional transient individuals, no other federally proposed or listed threatened or endangered species are known to exist within the project area. Should project plans change or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

We appreciate the opportunity to provide information relevant to threatened and endangered fish and wildlife resources. This Endangered Species Act determination does not exempt this project from obtaining all permits and approvals that may be required by other state or Federal agencies. If you have any questions or concerns regarding this letter, please contact Trevor Clark of my Endangered Species staff at (410) 573-4527 or by email at <u>Trevor Clark@fws.gov</u>.

Sincerely,

Genevieve LaRouche Field Supervisor

cc: Ms. Lisa Choplin, Director, P3 Project Director Ms. Caryn Brookman, MDOT SHA, Environmental Program Manager

Christina Simini

Subject:

FW: I-495 & I-270 Managed Lanes Study - RTE Plan Survey Report

From: Gwendolyn Gibson -DNR- <gwendolyn.gibson@maryland.gov>

Sent: Friday, July 23, 2021 3:33 PM

To: Stacy Talmadge (Consultant) <<u>STalmadge.consultant@mdot.maryland.gov</u>>

Cc: <u>Ray_Li@fws.gov</u>; Clark, Trevor <<u>trevor_clark@fws.gov</u>>; Stidham, Tammy <<u>Tammy_Stidham@nps.gov</u>>;

laurel_hammig@nps.gov; robbie.rhur@dcr.virginia.gov; lori.byrne@maryland.gov; Mar, Jeanette (FHWA)

<<u>Jeanette.Mar@dot.gov</u>>; Parikh, Jitesh (FHWA) <<u>Jitesh.Parikh@dot.gov</u>>; Perez, Keilyn (FHWA)

<<u>Keilyn.Perez@dot.gov</u>>; <u>megan.cogburn@dot.gov</u>; Caryn Brookman (Consultant)

<<u>CBrookman.consultant@mdot.maryland.gov</u>>; <u>kkahl@rkk.com</u>; <u>eramsey@rkk.com</u>; David Thomas (Consultant) <<u>DThomas6.consultant@mdot.maryland.gov</u>>; Katharine McCarthy -DNR- <<u>katharine.mccarthy@maryland.gov</u>>; **Subject:** Re: I-495 & I-270 Managed Lanes Study - RTE Plan Survey Report

Hello Stacy,

Thank you for the call today.

Natural Heritage accepts the findings of the rare plant survey dated November 2020 and has no further comments on this report. We look forward to working with you further regarding the geotechnical boring locations. Thanks,

Gwen



<u>Click here</u> to complete a three question customer experience survey.

On Mon, Dec 7, 2020 at 8:31 AM Stacy Talmadge (Consultant) <<u>STalmadge.consultant@mdot.maryland.gov</u>> wrote:

Good morning,

Please see the attached for the report on the Rare, Threatened, and Endangered Plant Survey conducted for a portion of the Corridor Study Boundary of the Managed Lanes Study per agency comments received.

If you have any questions or want to discuss the findings further once you've had a chance to review the document, please let MDOT SHA and FHWA know and we can arrange to discuss further.

Thank you,

Stacy.

MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION	Stacy Talmadge Environmental Program Support I-495 & I-270 P3 Office
I-495 & I-270 P3 Office	
601 North Calvert Street	Email: <u>stalmadge@mdot.maryland.gov</u>
Baltimore, MD 21202	Office: 410.637.3349
	www.roads.maryland.gov
Mailing Address	<u>www.495-270-P3.com</u>
707 North Calvert Street P-601	
Baltimore, MD 21202	495 PROGRAM 270

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Christina Simini

Subject:

RE: I-495 & I-270 Managed Lanes Study- Wild and Scenic River Coordination

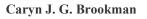
From: Caryn Brookman (Consultant) <<u>CBrookman.consultant@mdot.maryland.gov</u>>
Sent: Friday, March 11, 2022 10:38 AM
To: Andrew D. Mengel <<u>andrew.mengel@maryland.gov</u>>
Cc: gwendolyn.gibson <<u>gwendolyn.gibson@maryland.gov</u>>; Erron Ramsey <<u>eramsey@rkk.com</u>>; Stacy Talmadge
(Consultant) <<u>STalmadge.consultant@mdot.maryland.gov</u>>; Walter Miller (Consultant)
<<u>WMiller3.consultant@mdot.maryland.gov</u>>; Don MacLean (Consultant)
<<u>DMacLean1.consultant@mdot.maryland.gov</u>>; Karen Kahl <<u>kkahl@rkk.com</u>>
Subject: Re: I-495 & I-270 Managed Lanes Study- Wild and Scenic River Coordination

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Andrew,

Thank you for your response. Yes, please share the renderings with the scenic review board. However, it should be noted that we are still in the NEPA process and design will not commence until after the Record of Decision is approved which is anticipated this summer. We have committed to continuing coordination with DNR and the scenic river board as design proceeds.

Caryn





Environmental Program Manager

Office 410-637-3335 Other 410-252-7870

Email <u>cbrookman@mdot.maryland.gov</u>

Office Address 601 N. Calvert Street | Baltimore, MD 21202

Mailing Address 707 North Calvert Street,

P-601 | Baltimore MD 21202

From: Andrew D. Mengel -DNR- <<u>andrew.mengel@maryland.gov</u>>

Sent: Friday, March 11, 2022 10:22 AM

To: Caryn Brookman (Consultant) < <u>CBrookman.consultant@mdot.maryland.gov</u>>

Cc: gwendolyn.gibson <<u>gwendolyn.gibson@maryland.gov</u>>; Erron Ramsey <<u>eramsey@rkk.com</u>>; Stacy Talmadge

(Consultant) <<u>STalmadge.consultant@mdot.maryland.gov</u>>; Walter Miller (Consultant)

<<u>WMiller3.consultant@mdot.maryland.gov</u>>; Don MacLean (Consultant)

<<u>DMacLean1.consultant@mdot.maryland.gov</u>>; kkahl <<u>kkahl@rkk.com</u>> **Subject:** Re: I-495 & I-270 Managed Lanes Study- Wild and Scenic River Coordination

Hi Caryn,

Thank you for the update. We would like to share these renderings with the scenic river board (Potomac Riverkeeper Network) to solicit comments for DNR's Scenic and Wild Rivers program review. Please let me know if that is acceptable.

On Mon, Feb 14, 2022 at 11:36 AM Caryn Brookman (Consultant) <<u>CBrookman.consultant@mdot.maryland.gov</u>> wrote:

Good morning Andrew,

I am reaching out to provide you with an update on the I-495 & I-270 Managed Lanes Study (MLS) and continue coordination with MDNR regarding Maryland's Scenic and Wild Rivers. This Study was initiated in 2018 in compliance with the National Environmental Policy Act (NEPA). MDOT SHA and the Federal Highway Administration (FHWA) are the co-lead agencies.

To provide some background, a Supplemental Draft Environmental Impact Statement (SDEIS) was published on October 1, 2021 and was prepared to consider new information relative to the Preferred Alternative, Alternative 9 - Phase 1 South. The Preferred Alternative includes a two-lane, High Occupancy Toll (HOT) managed lanes network on I-495 and I-270 within the limits of Phase 1 South only. On I-495, the Preferred Alternative consists of adding two, new HOT managed lanes in each direction from the George Washington Memorial Parkway to west of MD 187. On I-270, the Preferred Alternative consists of converting the one existing HOV lane in each direction to a HOT managed lane and adding one new HOT managed lane in each direction on I-270 from I-495 to north of I-370 and on the I-270 east and west spurs. There is no action, or no improvements included at this time on I-495 east of the I-270 east spur to MD 5. Along I-270, the existing collector-distributor (C-D) lanes from Montrose Road to I-370 would be removed as part of the proposed improvements. The managed lanes would be separated from the general purpose lanes using flexible delineators placed within a buffer. Transit buses and HOV 3+ vehicles would be permitted to use the managed lanes toll-free.

The Preferred Alternative includes the full replacement of the American Legion Bridge (ALB) over the Potomac River with a new, wider bridge (not widening of the existing bridge) to accommodate the two HOT lanes in each direction. As you know, the Potomac River in Maryland is a state listed Scenic and Wild River. The existing bridge is nearly 60 years old and would need to be replaced sometime over the next decade regardless of this Study. The new bridge would be constructed in phases to maintain the same number of existing lanes during peak periods during construction. The new bridge will be replaced in the same existing location.

MDOT SHA and FHWA are currently working towards a Final Environmental Impact Statement (FEIS) for publication in Spring 2022. The FEIS will present the final analyses completed for the Preferred Alternative, design refinements since the SDEIS, as well as responses to comments on the DEIS and SDEIS. The FEIS includes the results of the final analyses of environmental impacts based on extensive avoidance and minimization efforts and presents final mitigation and commitments for unavoidable impacts.

As part of the FEIS and in support of coordination with the National Park Service (NPS), MDOT SHA has prepared a series of renderings of the three NPS park properties impacted by the Preferred Alternative: George Washington Memorial Parkway, C&O Canal National Historical Park and Clara Barton Parkway. Each of these resources flank the Potomac River shorelines that the American Legion Bridge connects. The package of preliminary renderings is attached to this email. Extensive and regular coordination with NPS has continued since the DEIS to evaluate ways to avoid, minimize and mitigate for impacts to NPS owned parkland and environmental resources within those parks. Based on this extensive coordination, total impact to NPS parkland was reduced by over 12 acres since the DEIS.

As shown in the renderings, the reconstructed ALB will include a shared use path to a provide bicycle and pedestrian connection between Virginia and Maryland. In response to public comments received on the SDEIS, MDOT SHA and FHWA continue to coordinate with NPS on a shared use path connection from the ALB directly to the C&O Canal towpath. Many

public comments were received by both the lead agencies and NPS supporting the direct connection to the C&O Canal towpath. A direct connection to the C&O Canal towpath, as well as the *three shared use path options* connecting to Mac Arthur Boulevard presented in the SDEIS are all still under consideration. All 4 options are accounted for in the Preferred Alternative limits of disturbance; however the direct connection option results in fewer NPS property and natural resource impacts. Prior to publication of the FEIS, the preferred option by NPS will be incorporated into the preliminary design and impact analyses.

We understand the MDNR's interest, under Maryland's Scenic and Wild Rivers Program, in the aesthetics of the bridge. The rendering on page 13 provides a view of the Potomac River and the reconstructed ALB. The ultimate aesthetics of the bridge will not be determined until final design by the State's P3 Developer, in consultation with stakeholders and interested parties. MDOT SHA will continue to coordinate with the MDNR Scenic and Wild Rivers Program in final design. We welcome any comments or questions you may have at this time as we progress toward the FEIS.

Thank you,

Caryn

	Caryn J. G. Brookman			
3 biller signame halfgage "belt in tertar and vanis claim tail tertain parts in and a statut	Environmental Program Manager			
	Office 410-637-3335 Other 410-252-7870			
	Email <u>cbrookman@mdot.maryland.gov</u>			
	Office Address 601 N. Calvert Street Baltimore, MD 21202			
	Mailing Address 707 North Calvert Street,			
	P-601 Baltimore MD 21202			
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Andrew Mengel Land Acquisition and Planning Department of Natural Resources 580 Taylor Ave., E-4 Annapolis, Maryland 21401 *andrew.mengel@maryland.gov* 443-569-2827 Website | Facebook | Twitter

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APPENDIX O: SAMPLED FISH TABLE



Creation		Televence	Watershed ²					
Species	Scientific Name ¹	Tolerance	FCMPW	PR/RR	CJC	RC	WB	MB
American eel ⁴	Anguilla rostrata		Х		Х	Х	х	
Black crappie	Pomoxis nigromaculatus				Х			
Blacknose dace	Rhinichthys atratulus	Т	Х	Х	Х	Х	Х	Х
Blue Ridge sculpin	Cottus caeruleomentum	I					Х	
Bluegill	Lepomis macrochirus	Т	Х	Х	Х	Х	Х	Х
Bluntnose minnow	Pimephales notatus	Т			Х	Х	Х	Х
Brown bullhead	Ameiurus nebulosus	Т					Х	Х
Central stoneroller	Campostoma anomalum	I			Х		Х	Х
Common shiner	Luxilus cornutus	I			Х		Х	
Creek chub	Semotilus atromaculatus	Т	Х	Х	Х	Х	Х	Х
Cutlip minnow	Exoglossum maxillingua			Х		Х	Х	
Eastern silvery minnow	Hybognathus regius				Х			
Eastern mosquitofish	Gambusia holbrooki		Х		Х	Х	Х	
Fallfish	Semotilus corporalis	I				Х		
Fantail darter	Etheostoma flabellare			Х	Х		Х	Х
Fathead minnow	Pimephales promelas				Х			
Golden shiner	Notemigonus crysoleucas	Т			Х			
Goldfish	Carassius auratus				Х	Х		
Green sunfish	Lepomis cyanellus	Т		Х	Х	Х	Х	Х
Greenside darter	Etheostoma blennioides				Х		Х	
Largemouth bass	Mictopterus salmoides	Т		Х	Х		Х	Х
Lepomis sp. ³	Lepomis sp.				Х		Х	
Longnose dace	Rhinichthys cataractae			Х	Х	Х	Х	Х
Mummichog	Fundulus heteroclitus							Х
Northern hogsucker	Hypentelium nigricans	I				Х		
Potomac sculpin	Cottus girardi				Х		Х	Х
Pumpkinseed	Lepomis gibbosus	Т	Х		Х	Х	Х	Х
Redbreast sunfish	Lepomis auritus				Х	Х	Х	Х
River chub	Nocomis micropogon	I			Х			
Rosyside dace Clinostomus funduloi				Х	Х		Х	Х
Satinfin shiner Cyprinella analosta		I			Х	Х		
Sea lamprey ⁴ <i>Petromyzon marinus</i>		I			Х	Х		
Silverjaw minnow Ericymba buccata					Х	Х	Х	Х
Smallmouth bass	Micropterus dolomieu				Х			
Spotfin shiner	Cyprinella spiloptera	I			Х	Х		
Spottail shiner	Notropis hudsonius	I			Х	Х		

Fish Species Sampled within the Vicinity of the Preferred Alternative



Species	Scientific Name ¹	Tolerance	Watershed ²					
Species			FCMPW	PR/RR	CJC	RC	WB	MB
Swallowtail shiner	Notropis procne				Х	Х	Х	
Tessellated darter	Etheostoma olmstedi	Т		Х	Х	Х	Х	Х
White sucker Catostomus commersonii		Т	Х	Х	Х	Х	Х	Х
Yellow bullhead Ameiurus natalis			Х		Х	Х	Х	Х
Total Number of Species:			8	11	33	23	25	19

¹I = intolerant, T = tolerant

²FCMPW = Fairfax County Middle Potomac Watersheds, PR/RR = Potomac River/Rock Run, CJC = Cabin John Creek, RC = Rock Creek, WB = Watts Branch, MB = Muddy Branch

³Lepomis sp. was not considered a unique species

⁴indicates that species is considered diadromous or semi-diadromous

Sources: MCDEP database, MBSS database, and FCDPWES data



APPENDIX P: RARE, THREATENED, AND ENDANGERED BAT BRIDGE AND ACOUSTIC SURVEYS AND WOOD TURTLE SURVEY

Bridge Survey Report for the Northern Long-Eared Bat (*Myotis septentrionalis*) and Indiana Bat (*Myotis sodalis*)

I-495 & I-270 Managed Lanes Study Montgomery and Prince George's County, Maryland & Fairfax County, Virginia

Prepared for: Maryland Department of Transportation State Highway Administration

> Under Contract to: Rummel Klepper & Kahl



October 2019

Prepared by:



25 Old Solomons Island Road, Annapolis, Maryland 21401 Phone: (410) 956-9000 Fax: (410) 956-0566

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- Appendix D Bridge Survey Photo Log
- Appendix E Bat Evidence Photo Log
- Appendix F Bat Emergence Data Forms

Introduction

The Maryland Department of Transportation-State Highway Administration (MDOT-SHA) and Federal Highway Administration (FHWA) have initiated a highway improvements study of the I-495 and I-270 corridors. This study, referred to as the I-495 & I-270 Managed Lanes Study (MLS), is evaluating potential transportation improvements to portions of the I-495 and I-270 corridors in Montgomery and Prince George's Counties, Maryland, and Fairfax County, Virginia . As part of the environmental review process for the MLS, coordination was initiated with state and federal regulatory agencies regarding the potential presence of listed rare, threatened, or endangered (RTE) species within the corridor study boundary (CSB). The CSB is shown in Figure 1 – Location Map. To assess the potential presence of federally listed threatened or endangered species, the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) tool was accessed online by MDOT-SHA on July 11, 2018. Because the CSB spans both Maryland and Virginia, the environmental review process was carried out through both the Chesapeake Bay Field Office and the Virginia Field Office of the USFWS. The review from the Chesapeake Bay Field Office indicated no threatened, endangered, or candidate species present within the Maryland portion of the CSB. The Virginia Field Office indicated the potential presence of the Northern Long-eared Bat (Myotis septentrionalis) (NLEB), a federally listed threatened species, within the Virginia portion of the CSB.

In early 2019, the USFWS learned of recent detections of both NLEB and Indiana bat (*Myotis sodalis*) (IB) near the CSB during bat population surveys on National Park Service (NPS) lands in the Metropolitan Washington D.C. area by researchers from Virginia Tech. The project team was also given permission to use the Virginia Tech NPS bat survey data for this study. **Figure 2** shows the locations of NLEB and IB detections in relation to the CSB as provided by the NPS bat study (Deeley et al. *in review*). As a result of these data gathered from the NPS bat study, the USFWS became concerned that the replacement of the American Legion Bridge over the Potomac River could potentially impact these protected bats.

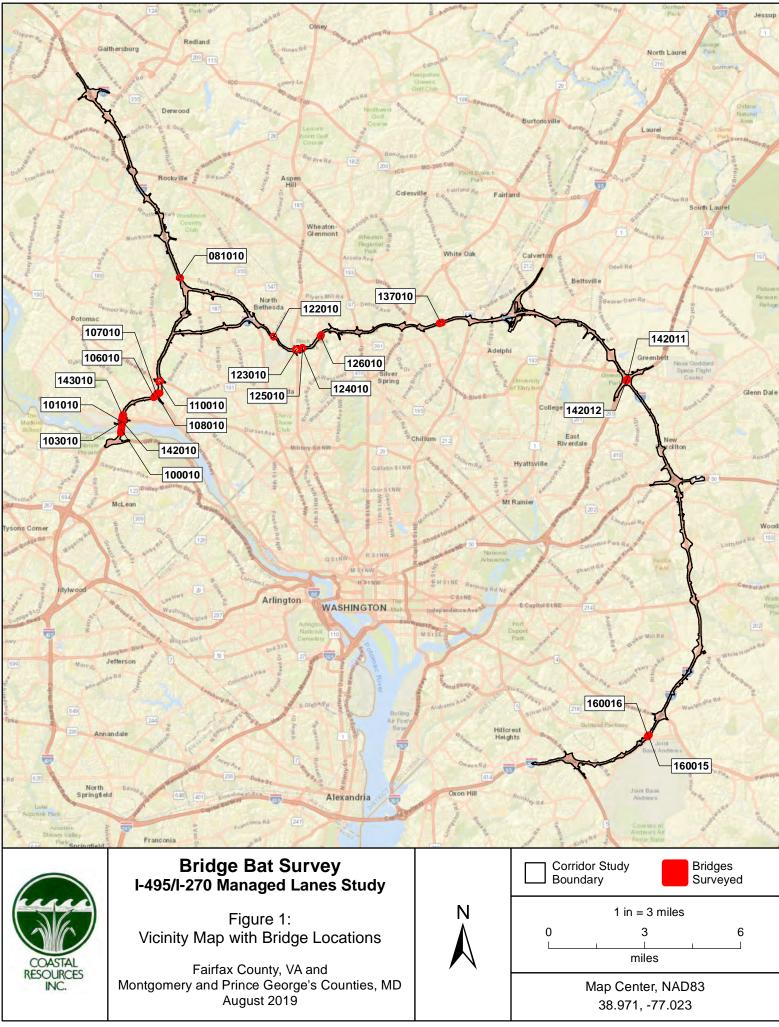
The IB is a federally listed endangered species. As a result, the USFWS met with MDOT-SHA and FHWA on March 25, 2019 to further discuss project coordination efforts regarding the NLEB and IB. On July 18, 2019, the USFWS submitted a letter to the MDOT-SHA providing comments on the IPaC Section 7 coordination for the two federally-listed bat species. The USFWS letter specifies two potential Endangered Species Act (ESA) consultation pathways that can be used when transportation projects may affect the NLEB or IB. These include 1) the Programmatic Biological Opinion (BO) for Transportation Projects in the Range of the Indiana Bat and Northern Long-eared Bat, dated December 15, 2016, and 2) the Programmatic BO on Final 4(d) Rule for the Northern Long-eared Bat and Activities Excepted from Take Prohibitions, dated January 5, 2016. Either of these two BOs could be used to help facilitate ESA Section 7(a)(2) compliance for the I-495 & I-270 Managed Lanes Study. Section 7(a)(2) requires federal agencies to consult with the USFWS to ensure that they are not undertaking, funding, permitting, or authorizing actions

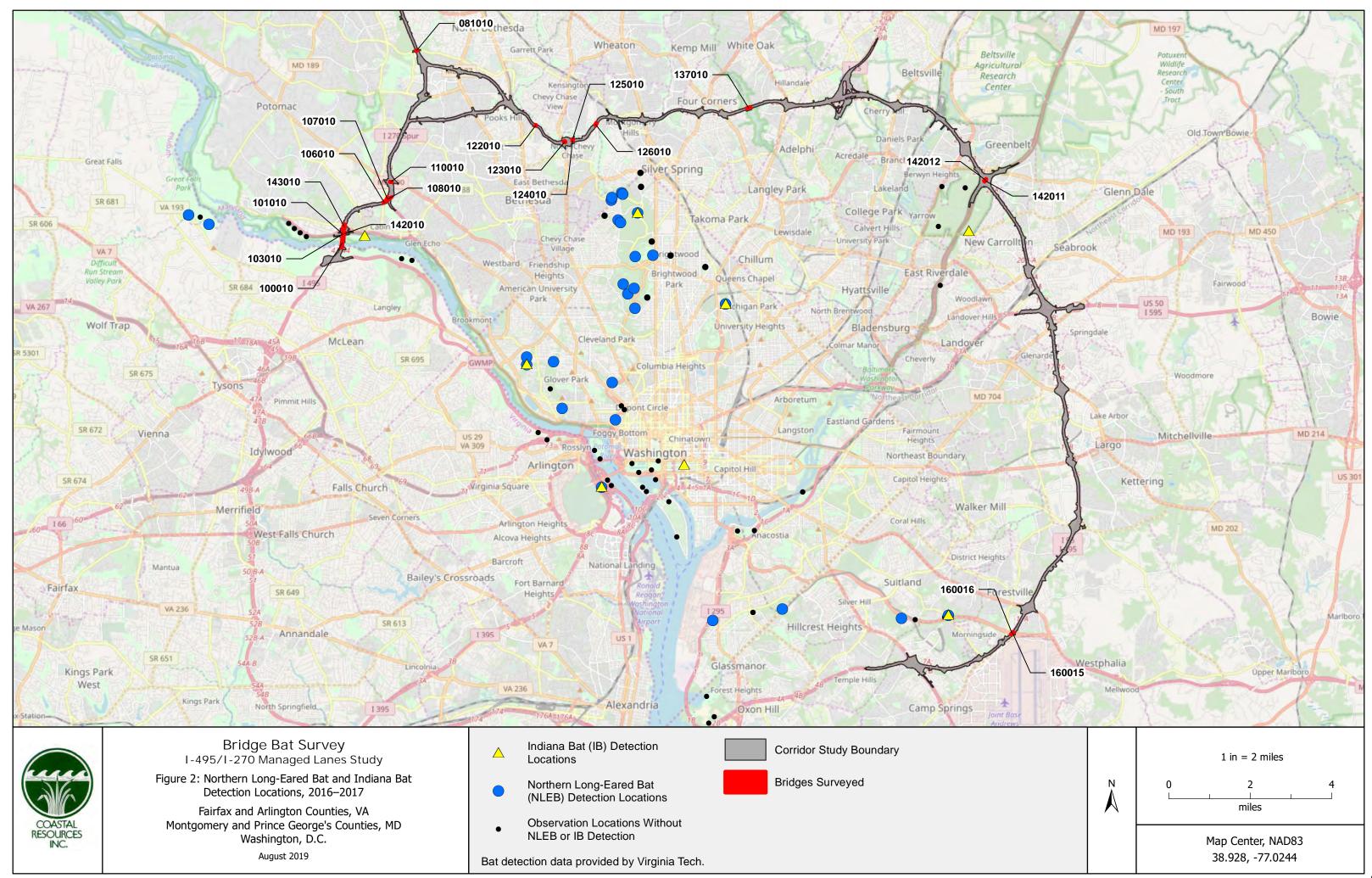
likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat.

According to the July 18, 2019 USFWS letter to MDOT-SHA, the study would not qualify under the Programmatic BO for Transportation Projects referenced above because the study proposes to clear more than 20 acres of suitable habitat within any given five-mile section of roadway. The letter states that the study would qualify under the Programmatic BO on Final 4(d) Rule for the NLEB even though forest clearing may affect NLEB. However, based on the data collected by researchers at Virginia Tech over the previous two summers, the USFWS recommended surveys be conducted in the I-495 & I-270 Managed Lanes Study project corridor to determine if IB are utilizing summer habitat within the study corridor.

A follow-up meeting between the MDOT-SHA, FHWA, and USFWS was held on July 26, 2019 to further discuss potential bat survey activities and to finalize an acceptable survey approach. It was determined that insufficient time was available to conduct trapping surveys within the acceptable window of May 15 to August 15 in 2019. However, it was decided that bat surveys of bridges, both visual and emergence, adjacent to suitable forest habitat could be conducted prior to the August 15 deadline. Suitable forest habitat includes areas of contiguous forest meeting the definition of forest interior dwelling bird species (FIDS¹) habitat, in proximity to a water resource, or adjacent to areas where NLEB and IB were detected by the Virginia Tech researchers. A preliminary list of bridges to be surveyed was presented to the USFWS for approval at the July 26, 2019 meeting. After the meeting, the USFWS revised the list to include a few additional bridges. The USFWS also accepted the proposed approach to conduct bat emergence surveys at the American Legion Bridge and the bridge over Northwest Branch, because these two bridges are too tall to visually assess. All agency correspondence, including results of the IPaC tool, agency letters, and meeting minutes are included in Appendix A. This report summarizes the results of the bridge bat assessments, including both visual and emergence surveys. Trapping and acoustic studies will be conducted separately during the survey window in 2020.

¹ FIDS habitat is described as forests at least 50 acres in size with 10 or more acres of forest interior habitat (i.e., forest greater than 300 feet from the nearest forest edge) or riparian forests at least 50 acres in size with an average total width of at least 300 feet.





Methodology

Visual Bat Surveys of Bridges

Following the July 26, 2019 meeting with the USFWS, 14 bridges plus associated ramps were identified for inclusion in diurnal bridge surveys for the presence of day-roosting bats or evidence (e.g., guano or urine staining) of night roosting bats. The 14 bridges and associated ramps surveyed are listed in **Table 1** along with approximate bridge lengths, widths, vertical clearances, and other relevant information. The federal bridge identification numbers have been shortened to just the last six digits for simplicity. Bridges and associated ramps that had at least one common abutment were assessed together; these structure dimensions are included on the same row of the table. Those ramps with completely independent abutments were treated as a separate bridge structure and are shown as a separate row in the table.

Field maps on an aerial base image were prepared that highlighted each of the 14 selected bridges and associated ramps to be surveyed (**Appendix B**). Equipment used in the visual assessments and for safety included high powered spotlights, binoculars, digital cameras, hardhats, high visibility vests, a Trimble Global Positioning System (GPS) to record the location of any bats found during the surveys, and USFWS Bridge/Structure Assessment Forms for recording all survey data.

Systematic visual surveys of bridges were conducted during daylight hours between August 5 and August 12, 2019. Each bridge structure survey was carried out by two surveyors. Surfaces beneath the bridges were assessed across their entire span from the junction of each abutment with the bridge deck. Inspections included visual surveys of all abutments, decks, piers, and other structures associated with each bridge. Suitable roosting habitat for bats on bridge structures includes cracks or crevices formed from spalling concrete, junctions of the bridge abutment with the bridge deck, expansion joints, and other cave-like areas associated with bridges. Surveys for the presence of day roosting bats typically began at each abutment with surveyors shining bright spotlights into dark spaces across the entire width of each bridge. The assessment then extended along the bridge deck and included each bridge pier and cap across each bridge width and length, focusing greatest attention on spaces generally less than two inches in width. In addition to looking for the visual presence of day roosting bats, evidence of bats was also assessed by listening for high pitched squeaking sounds of day roosting bats and searching for guano or urine staining or odor that may indicate use by day or night roosting bats.

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Federal Bridge ID ¹	Bridge Name/Location	Structure Length (Ft)	Deck Width (Ft)	Min. Vertical Clearance ² (Ft)	Comments
100010	American Legion Br. over Potomac River	1,443	138	64	Assessed land portion of bridges only
101010/ 142010	Clara Barton Pkwy EB	361/ 439	158/ 28	20/ 14	Includes ramp from I- 495 NB to Clara Barton Pkwy WB
104010/ 143010	McArthur Blvd/Clara Barton Pkwy WB	607/ 336	150/ 28	13/ 16	Includes ramp from I- 495 SB to Clara Barton Pkwy WB
103010	Clara Barton Pkwy WB Ramp	220	28	14	Clara Barton Pkwy to I- 495 SB
106010	Seven Locks Road	155	156	16	I-495 over Seven Locks Road
108010	Cabin John Branch/Cabin John Pkwy EB	354	156	36	Crosses both the road and stream
107010	Ramp from Cabin John Pkwy to SB I495	294	28	22	Crosses Cabin John Branch
109010	I-495 NB Ramp to River Road EB	205	28	14	Crosses ramp from Cabin John Pkwy to I- 495 NB
110010	River Road	314	101	16	River Road over I-495
081010	Tuckerman Lane	103	193	15	I-270 over Tuckerman Lane
122010	Cedar Lane	107	164	14	I-495 over Cedar Lane
123010	Connecticut Avenue	226	173	18	I-495 over Connecticut Avenue
124010	Kensington Pkwy	131	163	14	I-495 over Kensington Pkwy
125010	Outer Loop Ramp to MD 185	134	43	20	Crosses Kensington Pkwy
126010	Rock Creek/Stoney Brook Drive	379	153	14	I-495 over Rock Creek & Stoney Brook Drive
137010	Northwest Branch	506	126	95	I-495 over Northwest Branch
142012/	MD 295 SB/	241/	60/	15/	Two spans over I 405
142011	MD 295 NB	253	59	21	Two spans over I-495
160015/	Suitland Pkwy	392/	59/	14/	Two spans of I-495 over
160016		387	59	14	Suitland Pkwy

Table 1. I-495 & I-270 Managed Lanes Study bridges assessed for bat presence.

¹Last 6 digits of Federal Bridge Structure Number ²Vertical clearance refers to the minimum vertical underclearance of the bridge over a roadway or waterbody

As noted above, FHWA/State DOT/FRA Bridge/Structure Assessment Forms (FHWA/FRA. 2018, Appendix D) were completed for each bridge or bridge/ramp combination as listed in **Table 1**. Data collected included associated waterbody (if applicable), federal structure ID, date and time of inspection, names of inspectors, county, and any documented evidence of the presence of bats. The forms also provide a checklist of types of potential bat roosting habitat present for each bridge, including:

- All vertical crevices sealed at the top that are 0.5-1.25" wide and ≥ 4 " deep
- All crevices >12" deep and not sealed
- All expansion joints
- Spaces between concrete end walls and the bridge deck

Completed data forms are included in **Appendix C**. Photographs were also taken of each assessed bridge, including shots looking at each bridge abutment and from each bridge abutment toward the bridge piers. These are included in a photographic log in **Appendix D**. Other representative photographs were taken of suitable crevices or expansion joints as appropriate. Photographic documentation was also provided for any observed bats or bat evidence, such as guano or staining. Photographs of the evidence of roosting bats are included in a separate photographic log included in **Appendix E**.

Bat Emergence Surveys of Bridges

The USFWS was concerned that a visual bridge assessment alone would not be sufficient to determine the potential presence of roosting bats for the American Legion Bridge and the bridge over Northwest Branch, because of the high vertical clearance of both bridges and the wide expanse of the American Legion Bridge over the Potomac River. For these two bridges, the USFWS agreed that a dusk emergence survey could be completed to potentially document bats exiting roost sites on the bridges.

The first attempt to conduct an emergence survey at the American Legion Bridge was made on August 6, 2019. However, a strong thunderstorm hit the area just prior to the start of the survey causing the survey to be postponed. The American Legion Bridge emergence survey was conducted the following week on August 12, 2019. The emergence survey of the Northwest Branch bridge was conducted on August 13, 2019. The emergence survey protocol was adopted from Appendix E of the User's Guide for the Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat (USFWS et al. 2019). Surveys were conducted by two teams of biologists stationed beneath the bridges on opposite sides of the Potomac River and Northwest Branch, with each bridge being surveyed on successive evenings. Surveys were conducted from one half hour before sunset and continued until one hour after sunset or until it was too dark to see. Surveyors on either side of the waterbodies positioned themselves such that one was closer to the bridge abutments and the other closer to the waterbody. Surveyors also tried to position themselves so that emerging bats would be silhouetted against the sky as they emerged. Both surveys were carried out under favorable weather conditions, including temperatures above 50°F, wind speeds less than nine miles per hour, and no rain. Bat emergence data were recorded on USFWS Bat

Emergence Survey Datasheets. Recorded data included survey start and end times, time of local sunset, and timed observations of numbers of bats seen emerging. Other pertinent notes were also recorded on the datasheets. Completed bat emergence datasheets are included in **Appendix F**.

Results and Discussion

During the visual bridge assessments, three bridges were found to have evidence of bat use; however, there was no visual evidence of use of the bridges by the NLEB or the IB. Five big brown bats (*Eptesicus fuscus*) were observed solitarily roosting in five separate gaps between the pier caps of the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010) (See Photos 1-4 in **Appendix E**). The small amount of guano found below each of the cracks with roosting bats (Photos 5-7, **Appendix E**) indicates that this is not likely a permanent or high frequency roosting location. This bridge shared several of the characteristics of bridges that are used as roosts by bats: the roosts were concrete, located between 10 and 20 feet off the ground, had vertical cracks that were more than 12 inches in depth, and were located near a contiguous tract of forest and water resources. The gaps between pier caps that the bats were using as roosts were about one to two inches wide and more than 12 inches in depth. Not all cracks were sealed at the top but were still protected from the elements by the bridge deck.

A small amount of bat guano, likely from a larger species (not *Myotis*), was observed underneath the American Legion Bridge (100010) during the emergence surveys (see below) on the Maryland side of the Potomac River. The guano was observed under vertical cracks in bridge piers that were about 25 feet high, one nearest the Potomac River and the other on the next set of piers landward (Photo 13 in **Appendix E**). The minute amount of guano indicates that these are not common roosting areas for bats and may be used as a night roost or temporary day roost. Additionally, a small amount of, what is likely older bat guano (Photos 11 & 12 in **Appendix E**), was observed under the south side of the Seven Locks Road bridge (106010) below the crack where the abutment and bridge deck join. All observed guano appeared to be from a larger bat species like the big brown bat.

Bats are more likely to be found roosting on bridges constructed of concrete that have vertical, sealed crevices approximately 0.5 to 1.25 inches wide, more than 12 inches deep, more than 10 feet from the ground, and have low traffic volume (Keeley and Tuttle 1999, Hendricks et. al 2005, Bektas et al. 2018). Of the 14 structures and associated ramps surveyed, most had metal I-beams and decking. While all bridges had concrete abutments, cracks from flaking concrete and the gap at the junction of the bridge deck and abutment were very low to the ground, less than four feet in most cases. Most of the bridges surveyed had some areas with cracked or sealed crevices in concrete structures that could provide suitable roosting habitat for bats. However, potential limitations of these bridges as favorable roosts for bats are the degree of shelter from the elements, the height of ground clearance, intensity of disturbance from vehicular or human traffic both above and under the bridge, stability of thermal regimes, and protection from predators.

Bridges with crevices that are not sealed or that are completely sealed are unlikely to be used as a roost for bats. Metal structures generally do not provide as much thermal buffering as concrete structures (Civjan 2017, Erickson et al. 2002, Kaarakka 2017). Bridges with concrete abutments

that can be accessed by potential predators, such as snakes and raccoons, are also unlikely to provide suitable roost habitat. Several of the surveyed bridges had evidence of snakes and raccoons.

The visual survey was limited to areas that could be safely or practically accessed. Most pier caps and expansion joints or cracks over pier caps could not be surveyed because they could not be accessed. Some areas at the bridge abutments could not be accessed because they were in hard to reach areas or other structures such as pipes or flakes of broken concrete obstructed the view. Many bridges had wood and metal platforms under the decks that precluded view of I-beams, under-deck, and pier-cap and expansion joint surfaces. The Northwest Branch bridge was difficult to survey because of its height. Most girder surfaces could not be seen, and portions of the west abutment could not be safely surveyed because of its height and the vertical exposure of the abutment slope. The Eastbound Clara Barton Parkway (101010/142010) and the Suitland Parkway (160015/160016) bridges could not be surveyed because they were under construction.

Bat Emergence Surveys of Bridges

The American Legion Bridge emergence survey began at 1937 hours, a half-hour before sunset, and ended at 2107 hours. All surveyors were positioned under or next to the bridge where bats could be seen with a silhouetted view. On the Virginia side of the Potomac River, the first bat was observed flying at 2015 hours. At 2041 hours, three bats of at least two different species, as evidenced by different body shapes and sizes, were observed at the same time on the Virginia side of the Potomac River. Bats were continuously observed until approximately 2045 hours. The last bat on the Virginia side was observed by flashlight at 2058 hours. On the Maryland side of the bridge, the first bats were observed flying near the bridge at 2030 hours. Two bats were observed near a bridge pier that had crevices where bat guano were discovered; however, the bats were not seen departing the crevices. Bat activity continued near the bridge until about 2030 hours. Bat activity over the Potomac River was not observed from either side. While bats were observed flying under and around the bridge deck, abutments, and piers, surveyors were unable to positively confirm that bats emerged from any part of the bridge structure.

The emergence survey of the Northwest Branch bridge began a half-hour before sunset at 1936 hours and ended once it was too dark to see any bats flying at 2037 hours. Because of the narrow, deep valley and adjacent dense forest spanned by this bridge, only a small area of sky could be observed from any position under or next to the bridge. Most of the field of view was of the valley slopes that made observing a bat silhouette unlikely and the area became dark very soon after sunset. The first bat was observed at 2003 hours and most activity was observed between 2010 hours and 2025 hours, with bats flying around girders and underneath the bridge deck. At 2014 hours, three bats were observed at the same time. By 2040 hours, observed activity had died down. Around 2006 hours, one bat did appear to drop down from bridge girders on the west side of the bridge, but surveyors cannot say with certainty that bats were observed exiting the structure.

Conclusions

Between August 5 and August 12, 2019, two teams of surveyors assessed 14 bridge structures and associated ramp bridges within the I-495 & I-270 Managed Lanes Study corridor. Two bridges, including the Clara Barton Parkway Eastbound bridge and Suitland Parkway bridge were under construction and were boarded up beneath the decks. Assessed bridges were those that occurred within 1,000 feet of suitable bat habitat or were near locations where either NLEB or IB were detected during a study by researchers from Virginia Tech. While suitable bat roosting habitat features were present on most bridges, most did not combine all necessary habitat variables. Bat guano was found beneath the American Legion Bridge on the Maryland side of the Potomac River, the McArthur Boulevard/Clara Barton Parkway Westbound bridge, and the bridge over Seven Locks Road. Based on the results of the visual assessment, there was no evidence of use of the bridges by the northern long-eared bat or the Indiana bat. However, five big brown bats, not state or federally listed, were found day-roosting singly within gaps between pier caps of the bridge over the McArthur Boulevard/Clara Barton Parkway Westbound bridge. All five roosting bats were in locations with a vertical clearance of at least 10 feet with forested habitat adjacent to the bridge. All had small amounts of guano on the ground beneath them suggesting that these were not extensively used roosts.

On August 12 and August 13, 2019 respectively, bat emergence surveys were conducted beneath the American Legion Bridge and the bridge over Northwest Branch. Small and larger bats were observed flying beneath or near each bridge, but no bats were definitively confirmed exiting the bridge structures.

Based on suitable conditions for bridge roosting reported in the literature and evidence of roosting bats from this study, CSB bridges that support or could support roosting bats include the American Legion Bridge, Clara Barton Parkway Eastbound bridge (not surveyed due to construction, but with conditions similar to the McArthur Boulevard/Clara Barton Parkway Westbound bridge, Seven Locks Road bridge, and Northwest Branch bridge. Prior to construction, follow up surveys of these bridges should be conducted to determine the potential presence of roosting bats, or time of year restrictions should be imposed to initiate construction when bats would be hibernating away from the project area.

To further determine the potential presence of NLEB or IB within the CSB, additional studies are being planned for spring and summer of 2020. These studies may include acoustic and/or trapping of bats along the CSB. Coordination with the USFWS and researchers from Virginia Tech regarding these studies is ongoing.

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Appendix A Agency Correspondence



United States Department of the Interior

FISH AND WILDLIFE SERVICE Chesapeake Bay Ecological Services Field Office 177 Admiral Cochrane Drive Annapolis, MD 21401-7307 Phone: (410) 573-4599 Fax: (410) 266-9127 <u>http://www.fws.gov/chesapeakebay/</u> http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html



July 11, 2018

In Reply Refer To: Consultation Code: 05E2CB00-2018-SLI-1540 Event Code: 05E2CB00-2018-E-03365 Project Name: I-495 and I-270 Managed Lanes Study

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

2

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/ eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/corre

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive Annapolis, MD 21401-7307 (410) 573-4599

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Virginia Ecological Services Field Office

6669 Short Lane Gloucester, VA 23061-4410 (804) 693-6694

Project Summary

Consultation Code:	05E2CB00-2018-SLI-1540
Event Code:	05E2CB00-2018-E-03365
Project Name:	I-495 and I-270 Managed Lanes Study
Project Type:	TRANSPORTATION
Project Description:	Environmental Impact Statements (EIS) and Record of Decision (ROD) for the Traffic Relief Plan: I-495 and I-270 Managed Lanes Study in compliance with the National Environmental Policy Act (NEPA) process. The study limits include I-495 (Capital Beltway) in Montgomery and Prince George's Counties, Maryland, near the American Legion Bridge (ALB) in Virginia to near the Woodrow Wilson Bridge approximately at MD 210, and I-270 from I-495 to I-370, including the east and west spurs along I-270.

Project Location:

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/place/38.976551115377056N76.87217305679863W</u>



Counties: Montgomery, MD | Prince George's, MD | Fairfax, VA

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to <u>NWI wetlands</u> and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local <u>U.S. Army Corps of Engineers District</u>.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- <u>PEM1Fh</u>
- <u>PEM1/SS1Fh</u>
- <u>PEM1Ch</u>
- <u>PEM5Ax</u>
- <u>PEM1A</u>
- <u>PEM1E</u>
- <u>PEM1/SS1A</u>
- <u>PEM1/SS1C</u>
- <u>PEM5A</u>

FRESHWATER FORESTED/SHRUB WETLAND

- <u>PFO1A</u>
- <u>PFO1/EM1F</u>
- <u>PFO1Ax</u>
- <u>PFO1C</u>
- <u>PSS1C</u>
- <u>PSS1A</u>
- <u>PSS1Ah</u>
- PFO1/EM5Ax
- <u>PFO1E</u>
- <u>PSS1Cx</u>
- <u>PSS1/EM5A</u>

FRESHWATER POND

- PABHx
- <u>PABHh</u>
- <u>PUBFx</u>

2

- <u>PUBFh</u>
- <u>PUBHh</u>
- <u>PUBHx</u>
- <u>PUSCx</u>

LAKE

- <u>L1UBHh</u>
- <u>L1UBHx</u>

RIVERINE

- <u>R4SBC</u>
- <u>R5UBH</u>
- <u>R2UBH</u>
- <u>R3UBH</u>
- <u>R2UBHx</u>
- <u>R2USC</u>



United States Department of the Interior

FISH AND WILDLIFE SERVICE Virginia Ecological Services Field Office 6669 Short Lane Gloucester, VA 23061-4410 Phone: (804) 693-6694 Fax: (804) 693-9032 http://www.fws.gov/northeast/virginiafield/



July 11, 2018

In Reply Refer To: Consultation Code: 05E2VA00-2018-SLI-4358 Event Code: 05E2VA00-2018-E-09962 Project Name: I-495 and I-270 Managed Lanes Study

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered

species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/ eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/correntBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office

6669 Short Lane Gloucester, VA 23061-4410 (804) 693-6694

This project's location is within the jurisdiction of multiple offices. Expect additional species list documents from the following office, and expect that the species and critical habitats in each document reflect only those that fall in the office's jurisdiction:

Chesapeake Bay Ecological Services Field Office

177 Admiral Cochrane Drive Annapolis, MD 21401-7307 (410) 573-4599

Project Summary

Consultation Code:	05E2VA00-2018-SLI-4358
Event Code:	05E2VA00-2018-E-09962
Project Name:	I-495 and I-270 Managed Lanes Study
Project Type:	TRANSPORTATION
Project Description:	Environmental Impact Statements (EIS) and Record of Decision (ROD) for the Traffic Relief Plan: I-495 and I-270 Managed Lanes Study in compliance with the National Environmental Policy Act (NEPA) process. The study limits include I-495 (Capital Beltway) in Montgomery and Prince George's Counties, Maryland, near the American Legion Bridge (ALB) in Virginia to near the Woodrow Wilson Bridge approximately at MD 210, and I-270 from I-495 to I-370, including the east and west spurs along I-270.

Project Location:

Approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/place/38.976551115377056N76.87217305679863W</u>



Counties: Montgomery, MD | Prince George's, MD | Fairfax, VA

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species.	Threatened
Species profile: <u>https://ecos.fws.gov/ecp/species/9045</u>	
Clams	
NAME	STATUS

Yellow Lance Elliptio lanceolata

No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/4511</u>

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Threatened

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.



Northern Long-Eared Bat Survey Options Meeting I-495 & I-270 Managed Lanes Study MDOT SHA P3 Program Office Conference Room 10 June 18, 2019 @ 1:00 PM

Handouts: Agenda, NLEB Proposed Survey Approach Draft, FIDS layer determination flow chart **A/V**: Online map displaying bridge structures, potential FIDS habitat, MDNR FIDS habitat, widest potential LOD, and contiguous forest of 15 acres or more

A meeting was conducted on June 18, 2019 with representatives of the US Fish and Wildlife Services (USFWS) to expand on a conference call conducted several months prior. The meeting focused on the northern long-eared bat (NLEB) survey approaches and permit process necessary for the I-495 & I-270 Managed Lanes Study. A summary of the topics discussed at the meeting follows.

Ray Li stated that Maryland USFWS and Virginia USFWS offices agreed that Maryland USFWS will take the lead on NLEB protocol, then discuss information with Virginia USFWS. Since this is a contentious project with strong ecological implications and political ties, the protocol for documenting federally listed species must be carefully followed. Future risk can be minimized by following specific procedure now. Ray presented three options for Section 7 Consultation:

- 1. 4D rule: Submit a short form (2 pages) and if no response received in 30 days, project is OK to proceed (Note: will not apply to this project).
- 2. Programmatic Biological Opinion: Must perform surveys or assume NLEB populations are present; follow all time of year restrictions; FHWA needs to commit to conservation measures (Note: this will likely be the strategy for this project, if the Programmatic applies).
- 3. Formal Biological Opinion: Most expensive, more detailed, and least risk.

Ray noted that USFWS is a participating agency, not a concurring agency for the Managed Lanes Study.

The NEPA Team presented the online maps to demonstrate the location of known detection locations, FIDS layers, bridge structures in need of modification/replacement within 1,000 ft of potential FIDS habitat, and contiguous forest of at least 15 acres. Maddy Sigrist and David Smith briefly explained the process of developing a refined FIDS layer.

- The American Legion Bridge (ALB), Northwest Branch bridge, and Rock Creek were viewed and discussed at length and other bridge structures were briefly discussed. Tree clearing impacts surrounding the ALB are minimized because it is being replaced on its current alignment. However, this area is of concern because the Programmatic Biological Opinion limits the LOD to 300-feet from the road edge, and the LOD surpasses this limit in one constructability bump-out adjacent to the ALB. Justin asked if it's possible to treat the ALB separately from the rest of the project, with the majority of the project under the Programmatic Agreement and the ALB under a Biological Opinion. Ray was unsure whether the ALB area would be able to be treated separately, but he agreed to look into this possibility.
- David explained that 16 bridges are slated for modification/replacement, but that a total of 8 bridges were surrounded by suitable NLEB habitat and proposed for bridge survey.



Ray asked whether the project is following the Section 4(f) process.

• Justin Reel confirmed that the project will file the Section 4(f) evaluation os concurrent with the NEPA process.

Ray asked whether the NPS will require their own NEPA report for the project.

• Erron Ramsey responded that ideally the NPS will adopt the Record of Decision, but this needs to be confirmed between FHWA and NPS.

David presented the possible survey techniques that could be performed within the scope of the project. These techniques include:

- Bridge Bat Guano Survey
- Bridge Bat Roost Departure Survey
- Bat Acoustics Survey
- NLEB Maternity Roost Tree Habitat Assessment

David and Ray discussed which technique may be most appropriate to apply to the project since there is a tight timeline and the project would prefer to avoid tree clearing time of year restrictions in some areas if possible.

- It was determined that the guano survey should be conducted and if some bridges are determined to be inaccessible, then visual surveys would be necessary.
- The 16 bridge locations identified within 1000-feet of FIDS habitat were reviewed on-screen.
- Trevor asked that a map of each of the 16 bridge locations be provided with justification for why it was or was not proposed for survey so that the USFWS can determine which bridges will require survey.
- David noted that survey data of NLEB detections is available from Dr. Mark Ford at Virginia Tech via his graduate student Sabrina Deeley's study. David was not sure what year the acoustic survey was conducted, but thought it was from the 2016/17 survey year. He agreed to check into this date and confirm his findings with to the group.
 - Update: Dr. Ford periodically provides survey data to USFWS and performed stationary acoustic monitoring over multiple nights according to USFWS protocols. The survey was conducted during summer active periods of 2016 and 2017. The data will be submitted to NPS and published later this year.
- David and Ray noted that acoustic surveys may produce false positives and that netting is the most accurate way to confirm presence of NLEB. May want to conduct net surveys in specific areas where detections have been recorded.
- The group reviewed the NLEB positive detection locations provided by Sabrina Deeley. There were no positive detections within the Managed Lane Study corridor study boundary, however there were detections within approximately 0.25 miles at Greenbelt Park, 1 mile at Henson Creek Park, and 0.3 miles at Clara Barton Parkway.
- Trevor Clark noted that the tree clearing time of year restriction is June 1 through July 31. Advance tree clearing may be a possibility for the project if NLEB are detected or are assumed to be present in areas with tight timelines.
- Bridges cannot be built under these time of year restrictions because construction will take years and cannot be delayed or phased. David suggested that one solution to bridge





construction is starting the construction outside the roosting timeframe, therefore bats would be deterred from using the bridge as a roost. Ray was open to this idea.

USFWS asked if GIS files could be shared with them. Erron Ramsey responded that MDOT SHA P3 Upper Management will not allow electronic versions of the LOD files to be shared at this time.

Action Items:

- David will follow-up with Dr. Mark Ford's lab regarding data collection timeframe, protocols used, and whether they will share/publish the data.
 - Update: Dr. Ford periodically provides survey data to USFWS and performed stationary acoustic monitoring over multiple nights according to USFWS protocols. The survey was conducted during summer active periods of 2016 and 2017. The data will be submitted to NPS and published later this year.
- The NEPA Team will create a package of bridge structure snapshots that will include the \geq layers presented on the A/V display in this meeting and all 16 bridge structures that require modification/replacement within 1,000 ft of potential FIDS habitat. David will provide rationales for either discarding bridge structures as a concern or identifying structures that require further study for NLEB habitat.
- After USFWS receives the bridge structure package, they will suggest the survey approaches \geq that should be implemented for the project and determine whether a Programmatic Biological Opinion is appropriate for the project.
- \geq Ray will follow-up with Sheri Cowarn with the Endangered Species Program at USFWS on the approach to documenting NLEB on this project. Ray will also look into whether the size of the project requires a Formal Biological Opinion.
- \geq RK&K will follow-up with constructability team and determine the reasoning for the extended LOD at American Legion Bridge.

Attendees:

Name	Agency	Email
Maddy Sigrist	NEPA Team	msigrist@rkk.com
Christina Simini	NEPA Team	csimini@rkk.com
Justin Reel	NEPA Team	jreel@rkk.com
Greg O'Hare	NEPA Team	gohare@rkk.com
Erron Ramsey	NEPA Team	eramsey@rkk.com
Ray Li	USFWS	ray_li@fws.gov
Trevor Clark	USFWS	trevor_clark@fws.gov
Stacy Talmadge	NEPA Team	stalmadge@mdot.maryland.gov





United States Department of the Interior

FISH AND WILDLIFE SERVICE



Chesapeake Bay Field Office 177 Admiral Cochrane Drive Annapolis, Maryland 21401 http://www.fws.gov/chesapeakebay

July 18, 2019

Caryn J.G. Brookman Environmental Program Manager Maryland Department of Transportation State Highway Administration I-495 & I-270 P3 Office 707 North Calvert Street, Mail Stop P-601 Baltimore, MD 21202

Re: Indiana bat and northern long-eared bat coordination for the I-495 & I-270 Managed Lanes Study in Montgomery and Prince George's Counties, Maryland

Dear Ms. Brookman:

The U.S. Fish and Wildlife Service (Service) has reviewed all of the project information provided to us via the <u>I-495 & I-270 P3 Program website</u>, Information for Planning and Consultation (IPaC) system, and email regarding the I-495 & I-270 Managed Lanes Study. The comments provided below are in accordance with Section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

The following two programmatic consultations can be used to streamline the Endangered Species Act (ESA) consultation process when transportation projects may affect the threatened northern long-eared bat (*Myotis septentrionalis*, NLEB): 1) the Programmatic Biological Opinion (BO) for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat, dated May 20, 2016, and 2) the Programmatic Biological Opinion on Final 4(d) Rule for the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions, dated January 5, 2016. The Programmatic BO for Transportation Projects also addresses the endangered Indiana bat (*Myotis sodalis*).

The Service has reviewed the Programmatic BO for Transportation Projects and the Programmatic BO on Final 4(d) Rule for the NLEB to see if one or both of these Programmatic BOs can be used for ESA Section 7(a)(2) compliance for the I-495 & I-270 Managed Lanes Study. Section 7(a)(2) requires Federal agencies to consult with the Service to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat.

The Service has determined that the I-495 & I-270 Managed Lanes Study falls outside of the scope of the Programmatic BO for Transportation Projects because the maximum acreage



anticipated for any given project addressed in the Programmatic BO is approximately 20 acres of suitable habitat (generally per 5-mile section of road); the I-495 & I-270 Managed Lanes Study estimates approximately 76.2 acres of trees cleared per 5-mile section of road according to an email message from Maddy Sigrist of RK&K dated July 10, 2019.

Given that Dr. W. Mark Ford and Sabrina Deeley of Virginia Tech found Indiana bats while conducting bat population surveys within the project area between August 2017 and August 2018 by acoustic and/or mist-netting sampling techniques and also during 2016-2017 bat survey efforts, the Service recommends surveys (mist-netting, radio-tracking, emergence and bridge) be conducted in the I-495 & I-270 Managed Lanes Study project corridor to determine if Indiana bat are utilizing summer habitat within the project corridor.

Conducting Indiana bat surveys will let the Service know if conservation measures need to be implemented to avoid adverse effects to the Indiana bat. If adverse effects to the Indiana bat cannot be addressed, formal consultation will be needed to meet the requirements of Section 7(a)(2) of the ESA.

While forest clearing may affect NLEB, the Service has determined that the Programmatic BO on Final 4(d) Rule for the NLEB can be used for ESA Section 7(a)(2) compliance for NLEB. The Service recommends that the State Highway Administration (SHA) complete the Northern Long-Eared Bat (NLEB) Consultation and 4(d) Rule Consistency Determination Key within IPaC as soon as possible.

Conducting surveys (mist-netting, radio-tracking, emergence, and bridge) will further the conservation of the NLEB as stated in Section 7(a)(1) of the ESA. Conservation recommendations are discretionary Federal agency activities intended to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service developed the following conservation measures for all Federal agencies to consider if their actions may affect the NLEB:

1. Perform NLEB surveys according to the most recent Range-wide Indiana Bat/NLEB Summer Survey Guidelines. Benefits from agencies voluntarily performing NLEB surveys include:

a. Surveys will help Federal agencies meet their responsibilities under section 7(a)(1) of the Act. The Service and partners will use the survey data to better understand habitat use and distribution of NLEBs, track the status of the species, evaluate threats and impacts, and develop effective conservation and recovery actions. Active participation of federal agencies in survey efforts will lead to a more effective conservation strategy for the NLEB.

b. Should the Service reclassify the species as endangered in the future, an agency with a good understanding of how the species uses habitat based on surveys within its action areas could inform greater flexibility under section 7(a)(2) of the Act. Such information could facilitate an expedited consultation and incidental take statement that may, for example, exempt taking associated with tree removal during the active season, but outside of the pup season, in known occupied habitat.

If the State Highway Administration (SHA) is interested in conducting surveys to help carry out conservation of the NLEB under Section 7(a)(1) of the Endangered Species Act, our office would be happy to discuss this further. The Service is available to work with the SHA and its contractor(s) to develop a study plan for all recommended survey phases (mist-netting, radio-tracking, emergence, and bridge) for NLEB in addition to the surveys required for Indiana bat. The summer mist-netting season is from May 15 through August 15 of 2019. Should SHA choose to do bat surveys this year, the Service can work with SHA as soon as possible to insure that the bat surveys are completed by August 15, 2019.

We appreciate the opportunity to provide information relevant to threatened and endangered fish and wildlife resources. If you have any questions or concerns regarding this letter, please contact Trevor Clark of my Endangered Species staff at (410) 573-4527 or by email at Trevor_Clark@fws.gov.

Sincerely,

Genevieve LaRouche Field Supervisor



Northern Long-Eared Bat Coordination Meeting I-495 & I-270 Managed Lanes Study MDOT SHA P3 Program Office Conference Room 20 July 26, 2019 @ 1:00 PM

Handouts: Agenda, Letter from USFWS to Caryn Brookman dated July 18, 2019, Maps of bridges within 1000' of potential FIDS habitat and proposal for survey

A/V: Online map displaying bridge structures, potential FIDS habitat, corridor study boundary, Northern Long Eared Bat (NLEB) positive detection sites, Indiana bat positive detection sites, areas within Alts 9/10/13B/13C that are > 300-feet from the existing edge of pavement, and contiguous forest of 15 acres or more

A meeting was conducted on July 26, 2019 with representatives of the US Fish and Wildlife Service (USFWS) to discuss the letter received from USFWS dated July 18, 2019 and its recommendations.

- 1. Introductions
- 2. Review of USFWS letter dated 7/18/19:
 - Need to thoroughly consider the probability of the Indiana Bat and NLEB occurring within the corridor study boundary. New information regarding Indiana bat detections near MLS corridor study boundary. 3 acoustic calls detected by Dr. Ford's team from VA Tech.
 - NLEB is a federally threatened species 4(d) Rule applies. The 4(d) rule is designed to protect the bat while minimizing regulatory requirements for landowners, land managers, government agencies and others within the species' range. There is a formal and an informal process.
 - Indiana Bat is a federally endangered species Section 7 applies.
- 3. USFWS recommends (not requires) additional surveys for NLEB within the study area. According to the final 4(d) rule for the northern long-eared bat, in areas of the country impacted by white-nose syndrome (this includes Maryland), incidental take is prohibited if tree removal activities occur within a quarter-mile of a hibernaculum or from activities that cut down or destroy known, occupied maternity roost trees, or any other trees within 150 feet of that maternity roost tree, during the pup-rearing season which is June 1 through July 31 (Federal Register/Vol. 81, No. 9/ Thursday, January 14, 2016/Rules and Regulations).
- 4. Indiana bat is endangered not as much flexibility.
 - Ford's acoustic data includes three positive detections for Indiana Bat near the corridor study boundary.
 - Want better information for presence/distribution data
 - Because Dr. Ford's group did thorough NPS surveys, suggest that it would be a good idea to compliment Ford's surveys outside of the areas already looked at to determine where Indiana Bats are occurring.



- o Follow-up with mist netting to identify roost trees
 - Dr. Ford's team follows USFWS Summer Survey Guide protocol
 - Recommend survey intervals every kilometer typically, but project is urban enough not to be that thorough; more targeted survey areas appropriate.
- o If identified by acoustic survey, then follow-up with mist netting
- Do habitat survey first? The USFWS Summer Guidelines define habitat broadly.
 Forest assessment within 15-acre contiguous forest areas? Some type of screening
 LIDAR data to determine tree sizes?
- For NPS land, coordinate with Dr. Ford's team and use their data.
- These Indiana bat detections could be false positives, but have to go through the process.
- o Can do some background work to see where surveys may be needed.
- o For NPS lands, USFWS will get Dr. Ford's protocols
- Ray Li will think more about where to survey.
- "Range-Wide Indiana Bat Guidelines Appendix F Linear Projects" gives insight into where to survey. Survey timeframe May 15 through August 15, 2020.
- What if the Indiana Bat is found within the LOD? What if roost trees are identified within LOD?
 - Time of year restriction May 1 to July 31 for no tree clearing within identified areas for Indiana Bat (informally)
 - A lot of flexibility between formal/informal
- o 2019 survey season is nearly complete: May 15 through August 15.
- o December 2020 FEIS/ROD due
- o Dr. Ford has not captured any Indiana Bats as far as Ray Li knows
- o Would need to try to protect known roost trees and a buffer around them.
- o Trevor Clark will look into requirements for tree clearing buffer.
- o Is there a disturbance buffer versus a tree clearing buffer? i.e., noise?
 - Ambient noise; make a good justification that new construction would not exceed ambient levels.
 - What is the buffer for a roost tree?
 - No known Indiana bat roost trees in Maryland.
- Outside of NPS property, we should come up with a site-specific survey plan: ALB, Rock Creek near Beltway, Greenbelt Park, Suitland Parkway?
 - 1. Coordinate with Dr. Ford's team
 - 2. Screening for suitable habitat
 - 3. Determine survey areas
 - 4. Perform 2020 survey
 - 5. Follow informal consultation TOYR? Reforestation if impact roost trees?
- 5. Bridge Survey recommended, not required.
 - Good voluntary conservation measure
 - Mapped bridge locations within 1000' of potential FIDS habitat
 - USFWS will review the bridge locations and let the project team know which bridges to survey by Wednesday, 7/31.
 - USFWS wants bridge survey to be completed by 8/15/19.



- 0 David Smith will complete bridge survey by 8/15/19. Will complete dusk emergence surveys around the ALB and NW Branch bridges.
- 6. IPaC assisted consultation still needed. Project team will complete IPaC after bridge surveys completed in August.
- 7. Need to schedule a follow-up meeting to determine sites for survey; site-specific survey protocol; and results of the bridge surveys.

Action Items:

- 1. USFWS will provide list of bridges to survey by Wednesday, 7/31/19.
- 2. David Smith and team will complete bridge and emergence surveys by 8/15/19.
- 3. Trevor Clark will determine the protective buffer around roost trees for tree clearing.
- 4. MLS Project Team will complete IPaC in August/September 2019.
- 5. USFWS will determine habitat assessment protocol.
- 6. Caryn Brookman will schedule a follow-up meeting to determine sites for survey, site-specific survey protocol, and the results of the bridge survey.
- 7. Project team will conduct 2020 surveys after further coordination with USFWS.

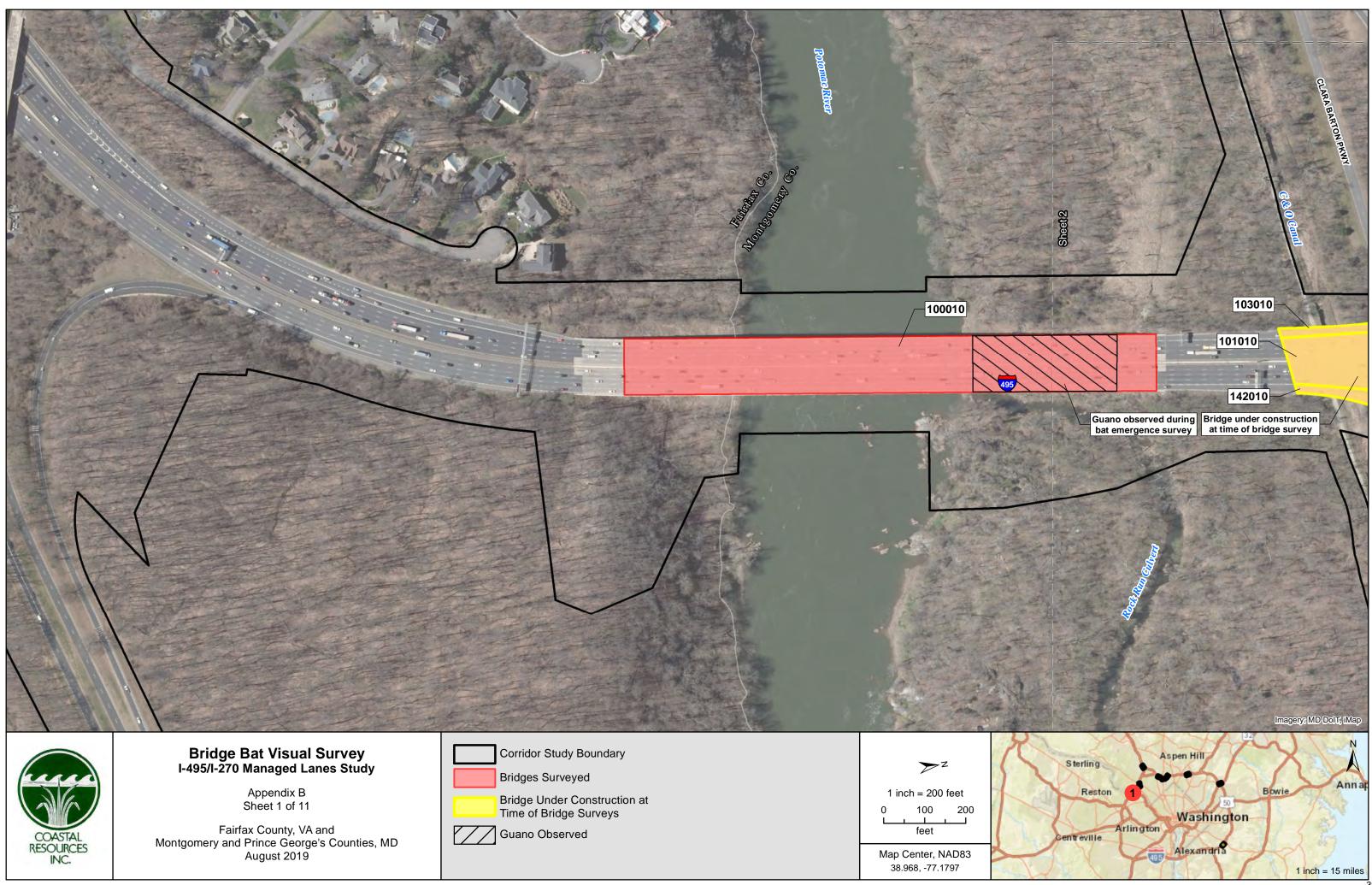
Attendees:

Name	Agency	Email
Caryn Brookman	GEC	CBrookman@mdot.maryland.gov
Jeanette Mar	FHWA	Jeanette.Mar@dot.gov
Ray Li	USFWS	ray_li@fws.gov
Trevor Clark	USFWS	trevor_clark@fws.gov
Maddy Sigrist	NEPA Team	msigrist@rkk.com
Justin Reel	NEPA Team	jreel@rkk.com
Scott Schifflett	GEC	sshifflett@atcsplc.com
Erron Ramsey	NEPA Team	eramsey@rkk.com
Stacy Talmadge	GEC	STalmadge@mdot.maryland.gov
Pam McNicholas	GEC	pam.mcnicholas@wsp.com
David Smith	NEPA Team	dsmith@cri.biz

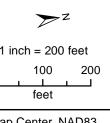


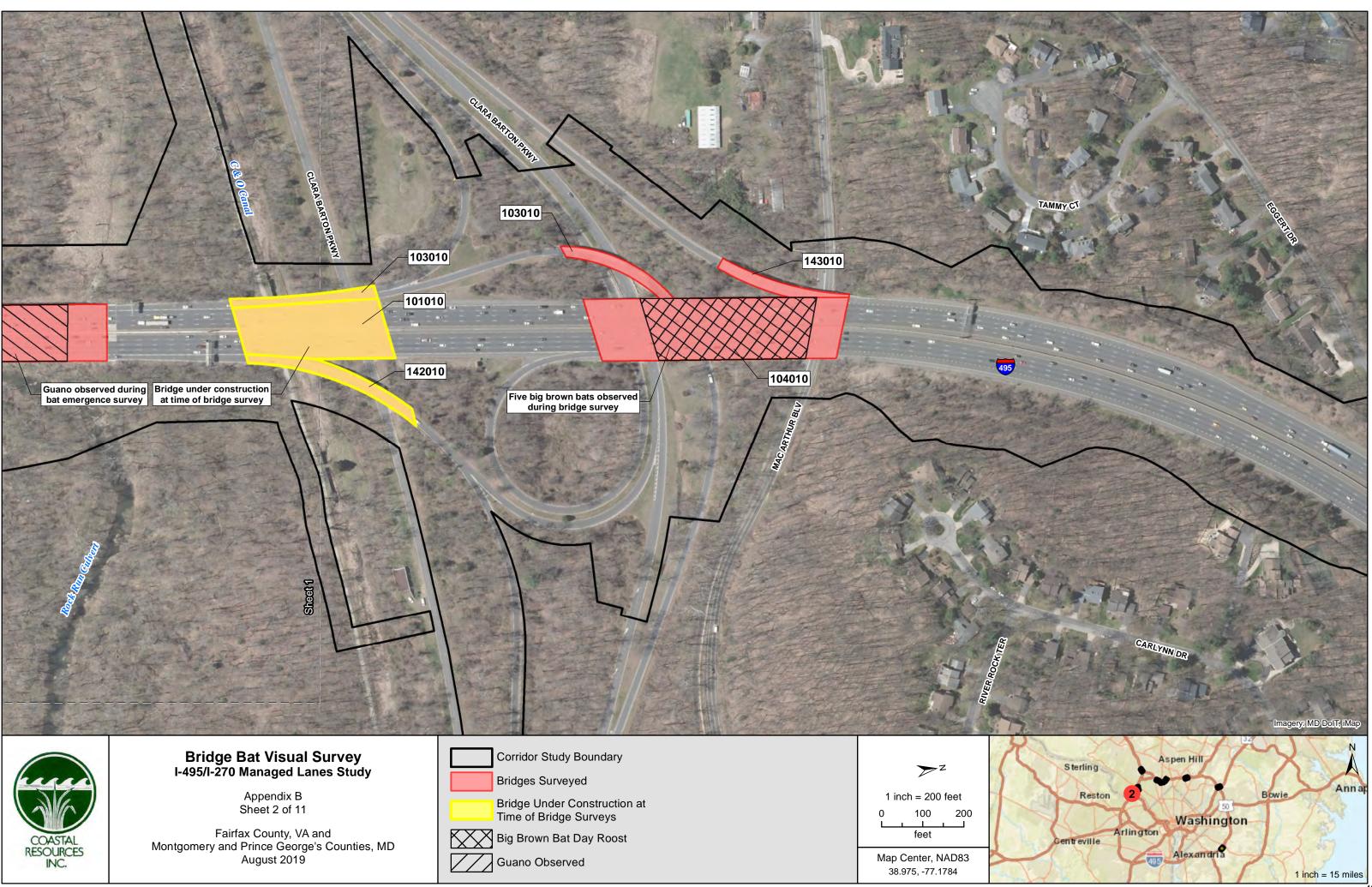


Appendix B Bridge Bat Visual Survey Maps



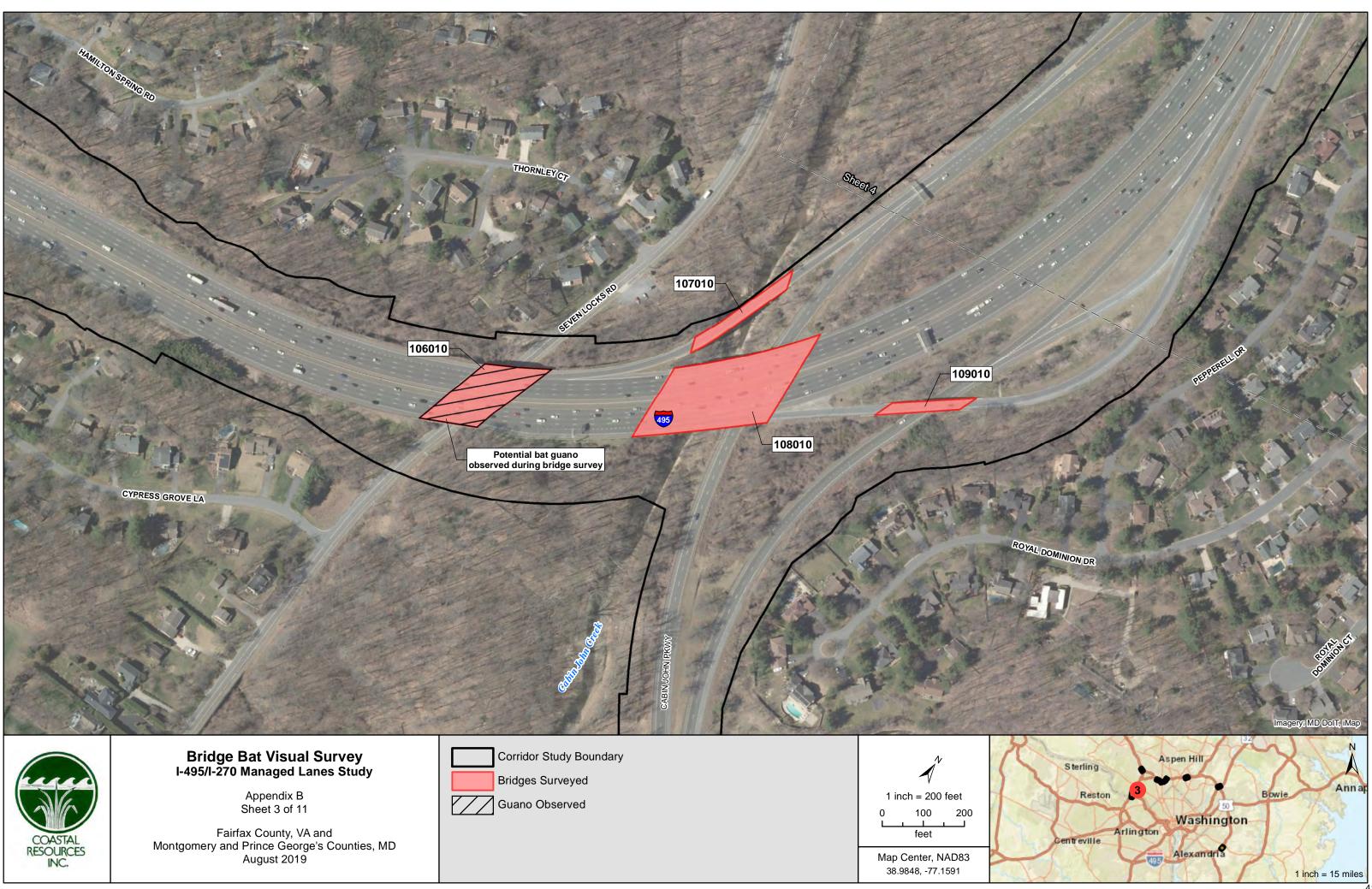




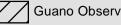






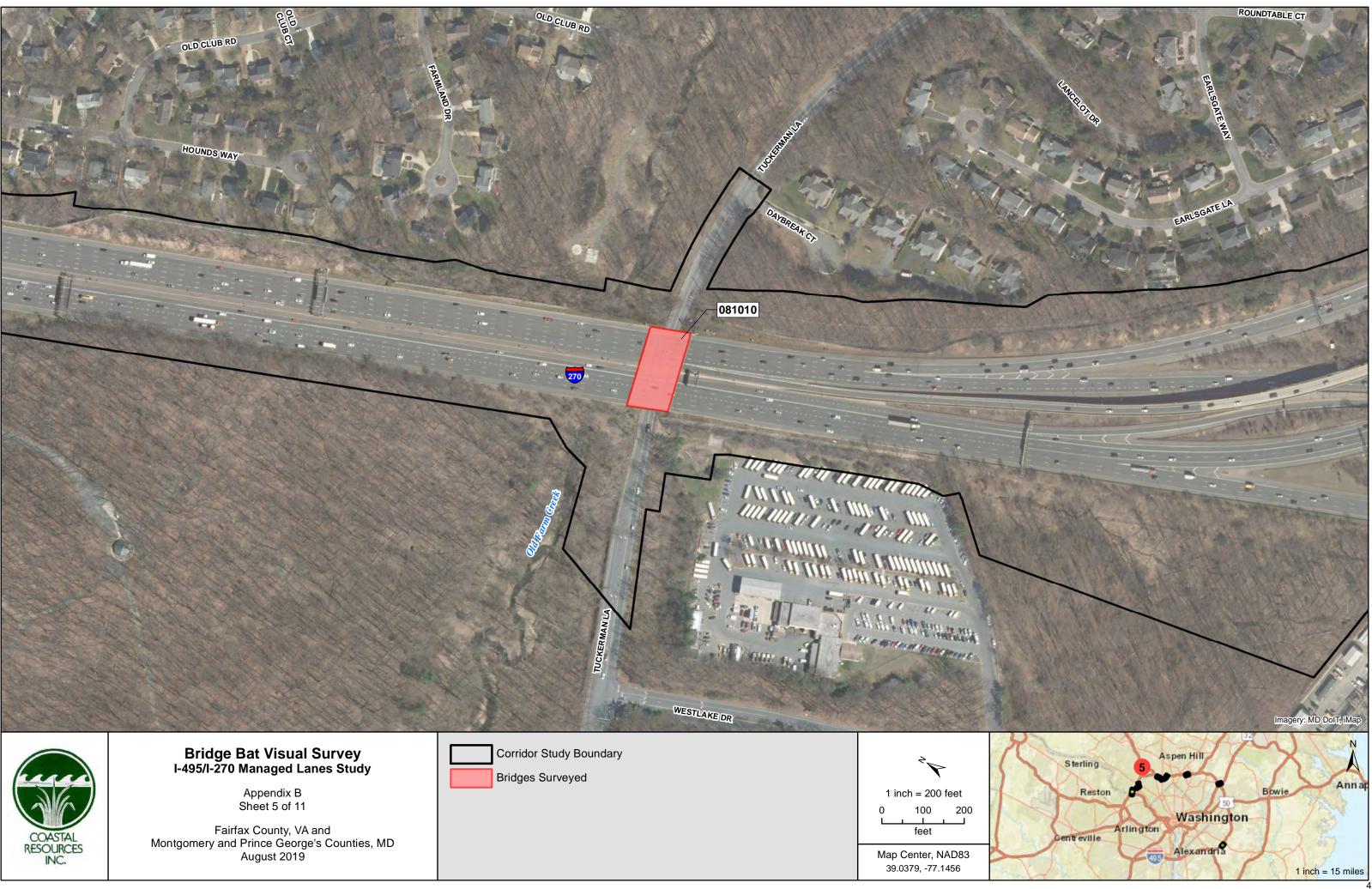






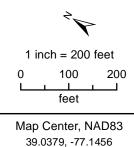








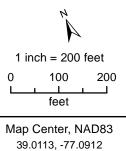


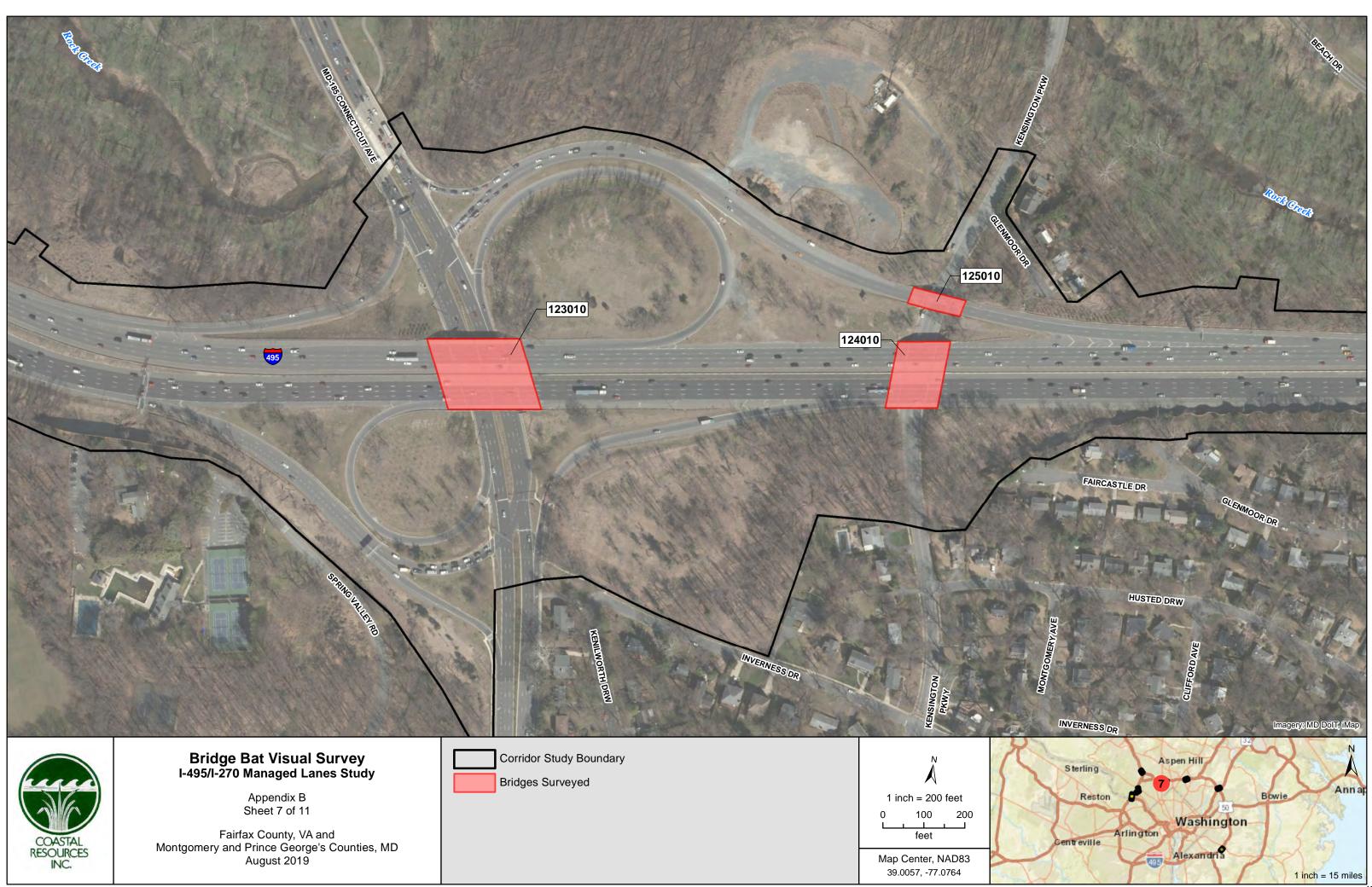




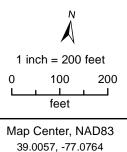


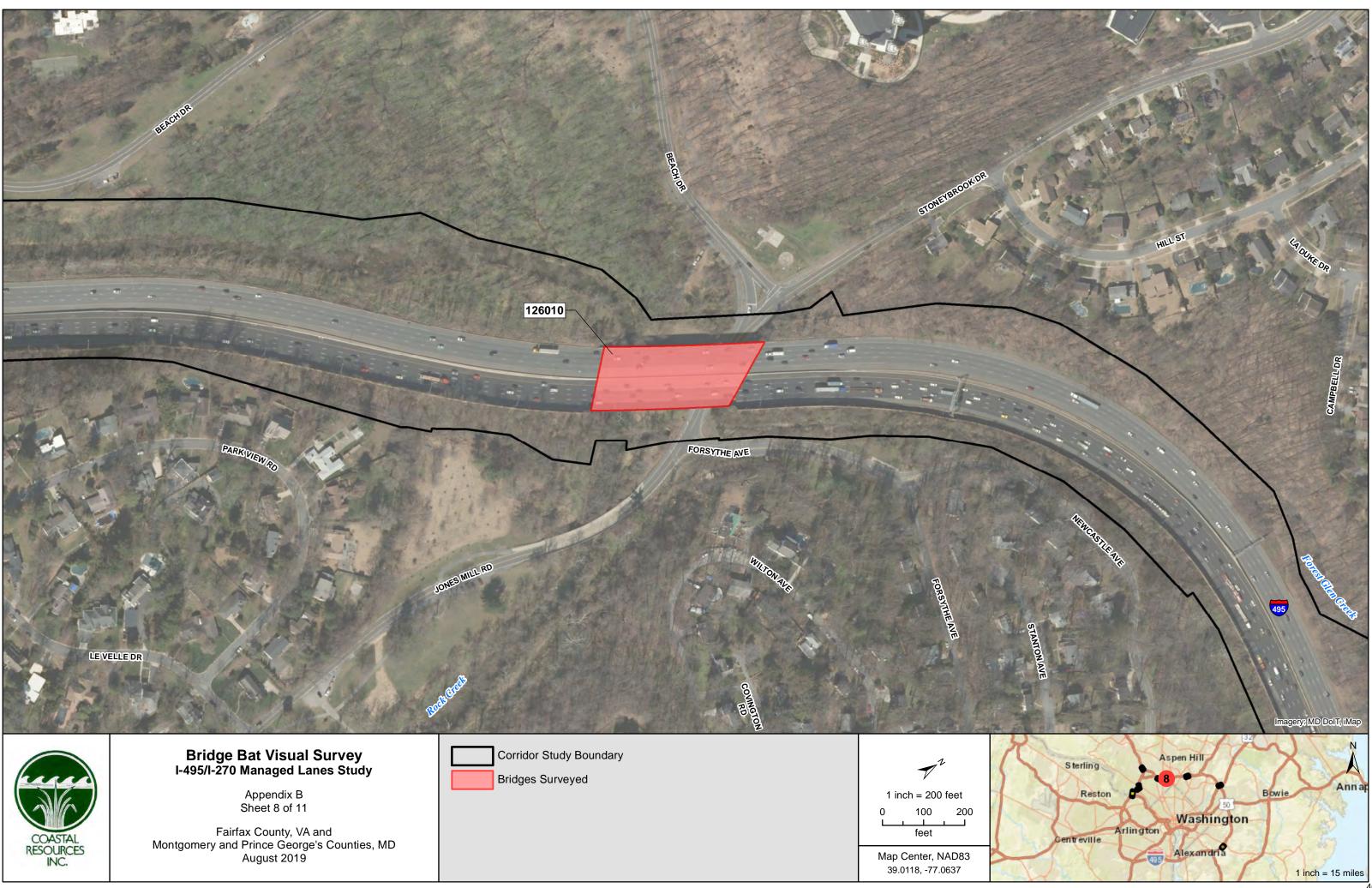




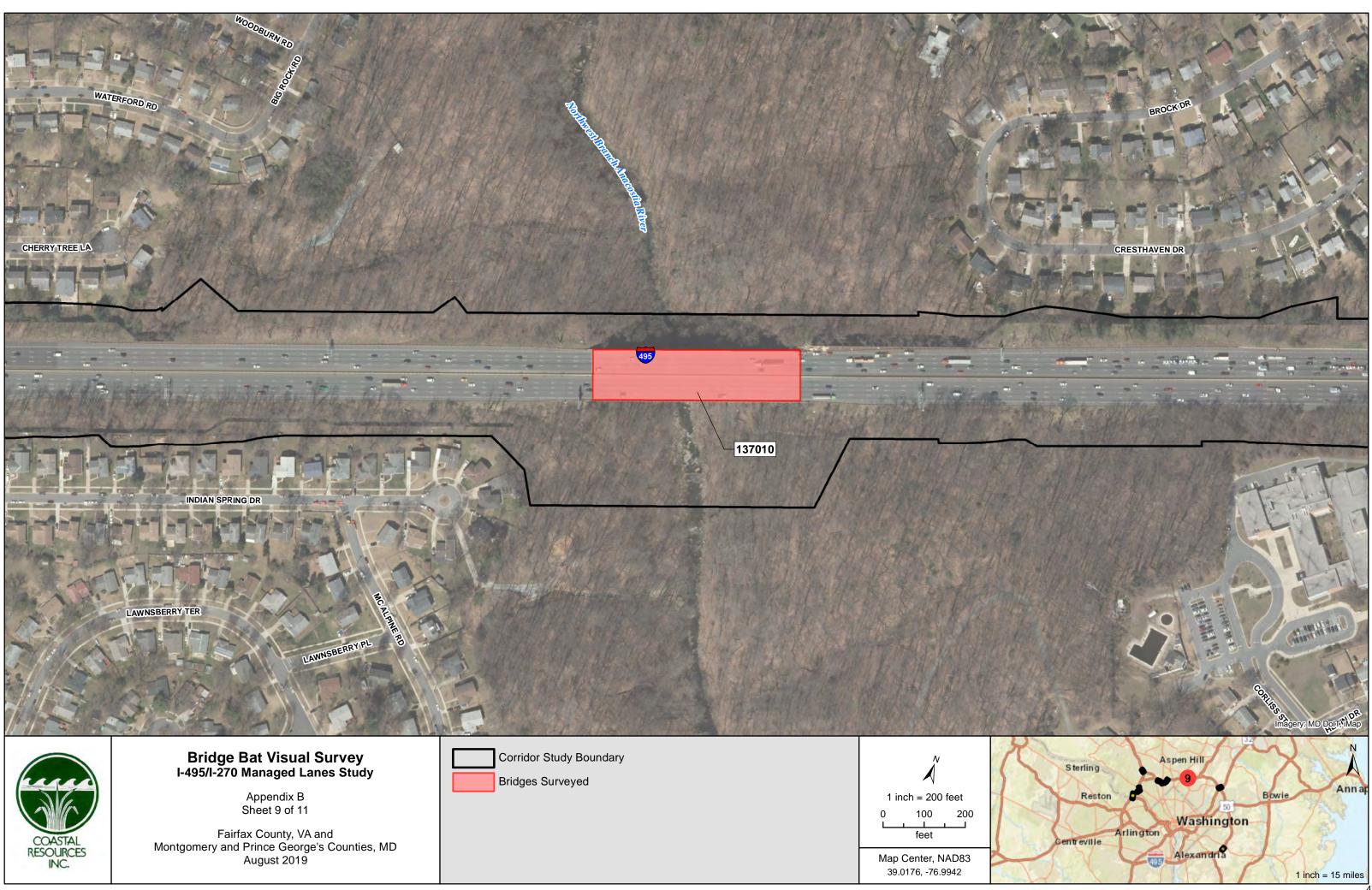




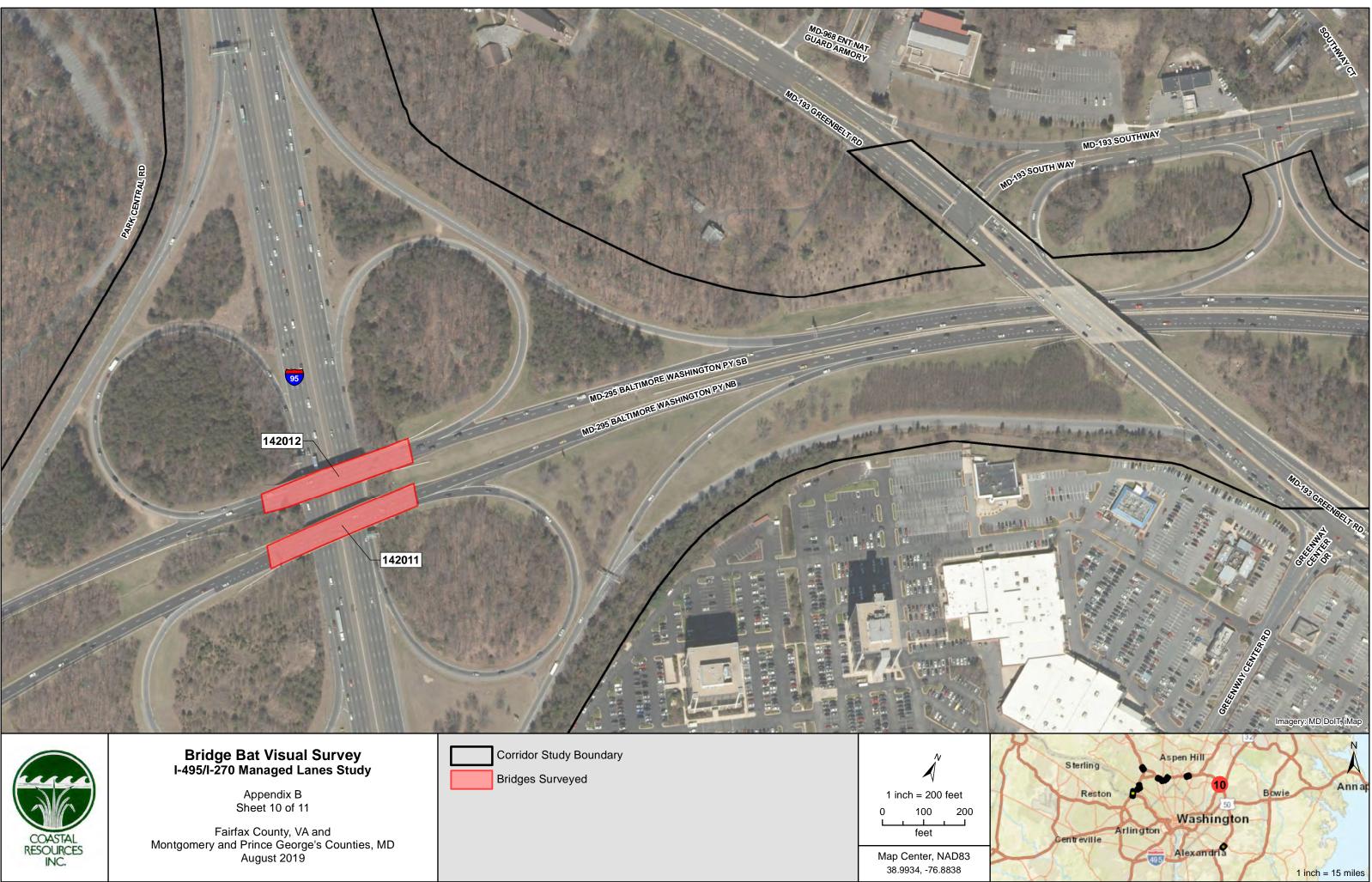




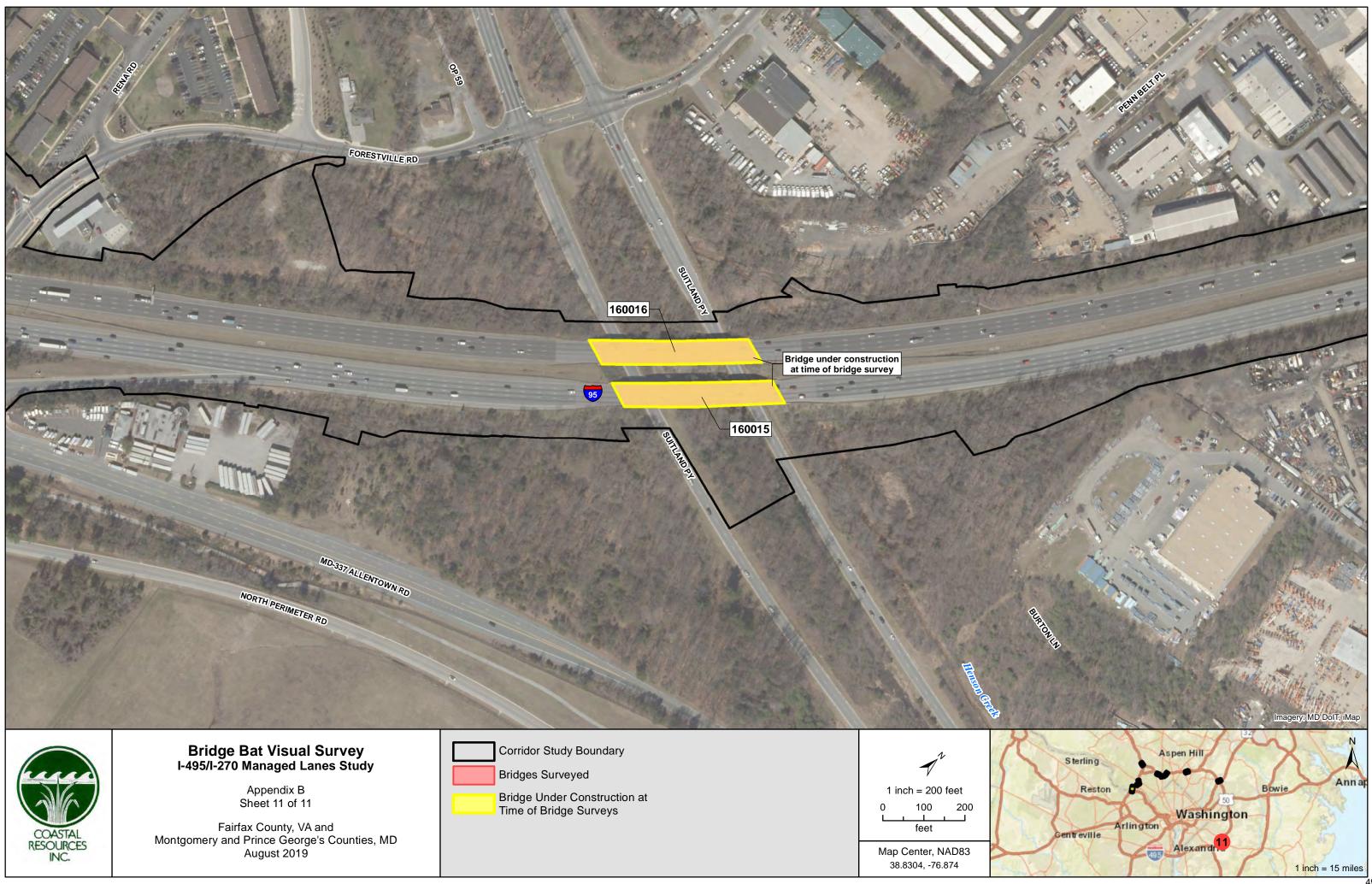














Appendix C Bridge Survey Data Forms

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat. DOS AL US TO

DOT Project #	1.25.34	Water Body		Date/Time of Ins	pection	\sim_{\pm}	Within 1,000	Ift of suitable bat habitat	(circle
		lotomac	River	6 Aug 2019	1030		one)	Yes No	
Route	County		Federal Structur	re ID	American	egil	on Bridge	South Abstment	
I-195	Fairy	Fax, VA	100010)					

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. 🗆 Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Bridges		Culverts/Other Structures	Summary Info (circle all t	Summary Info (circle all that apply)				
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep		Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None		
All crevices >12" deep & not sealed	V,	Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent		
All guardrails	NA							
All expansion joints				_		- 		
Spaces between concrete end walls and the bridge deck								

Vertical surfaces on concrete I-	alla		
beams	NIT		

Evidence of Bats (Circle all that apply) Presence of one or more indicators is sufficient evidence that bats may be using the structure.

Visual (e.g. survey, thermal, emergent etc.)

- Live __number seen
- Dead __number seen

Guano Odor Y/N

Photo documentation Y/N

Staining definitively from bats Photo documentation Y/N

Photo documentation Y/N

Audible

Assessment Conducted By: _	DR3, K3, 5	Signature(s): _	Prost Smill) ~
District Environmental Use C	Only: Date Received by	District Environmental Mana	ager:	

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
- 2. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has coordinated with the USFWS. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
- 3. Any questions should be directed to the District Environmental Manager.

Vertical cracks at south abot must cand bridge deck, but excessive noise = Vibration. Minor crevices on bridge piers best opportunity. Photo I looking at piers crevices. Photo 2 boking Nat piers. Photo 3 looking 5. at 5 abot must.

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle			
	Potoma River	5 Aug. 2019 / 0840	one) Ves No			

Route	County	Federal Structure ID			D . /) 1/	11.1.1
I-495	Montenenusy	- 100010	American	Legion	Bridge	Nos th	Abotment

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas inspected (Check all that apply)

Bridges		Culverts/Other Structures	Summary Info (circle all that apply)					
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	1	Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None		
All crevices >12" deep & not sealed	N/A	Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent		
All guardrails	NA		- Rei	_				
All expansion joints	/							
Spaces between concrete end walls and the bridge deck	NIA		-		-			

Vertical surfaces on concrete I-	111		
beams	MA		

Evidence of Bats (Circle all that apply) Presence of one or more indicators is sufficient evidence that bats may be using the structure. None

Visual (e.g. survey, thermal, emergent etc.)	Guano	Staining definitively from bats
 Livenumber seen 	Odor Y/N	Photo documentation Y/N
 Deadnumber seen 	Photo documer	
Addible	p at abot m loop. Js 4 m King at pi	unt at Juck connection. there I looking at gap between imisa - Photo 8 26 looking at abotiment Deck inct. Photo F ics cracks, Accomisa-Photo 5-8 pier cracks.
Assessment Conducted By: DB3, JS,	KS, AC	_ Signature(s):
District Environmental Use Only: Date Rec	eived by District En	vironmental Manager:

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
- 2. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has coordinated with the USFWS. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
- 3. Any questions should be directed to the District Environmental Manager.

Concreti Duck between inner and outer loops w/ possible gap on Vertical Surface. No cridence of staining or guand boild up beneath bridge, Mouse feces descrud fiers on N. bomk Potomac River w/ cracks up high on side Nalls creating great For bats. Bat guaro Found beneath these cracks during emergence 301VM3 on 12 Aug 2019.

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

			DRJ, AU, MU, KJ
DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle
	N/A	5 Aug 2019 10 932	one)
L		- 011	No

Route	County	Federal Structure ID	
I-495	Montgomust	104010,103010, MAZO10	Clara Baston Parkney Eastbound, including I-19.
	,		Ramp to Clara Barton PKWY WB & Ramp from CBP to I-1955E

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Bridges	Culverts/Other Structures		Summary Info (circle all that apply)				
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	W/A	Crevices, rough surfaces or imperfections in concrete		Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed	NIA	Spaces between walls, ceiling joists		Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NIA			6			
All expansion joints	1 //						
Spaces between concrete end walls and the bridge deck	NIA		Y413				

Evidence of Bats (Circle all that apply) Pre		
Evidence of Bats (Circle all that apply) Pre		
	esence of one of more indica	tors is sufficient evidence that bats may be using the structure.
None		
Visual (e.g. survey, thermal, emergent etc.	.) Guano	Staining definitively from bats
 Livenumber seen 	Odor Y/N	Photo documentation Y/N
• Deadnumber seen	Photo documentation	Y/N
Photo documentation Y/N	1 1 7 .11	the labor Juck #2/orky Wat Son
na-Photo I Looking up at al	outment end wall	vin connection to bridge deck, #2 Looking Wat Sa.
Audible Photo 3 pokin v Pat	metal plates, fl	ofo + looking south at moral plates.
	IVI Ar.	
Assessment Conducted By: DK3,2	Sig	nature(s):
District Environmental Use Only: Date R	eceived by District Environm	Contal Manager:

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
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- 3. Any guestions should be directed to the District Environmental Manager.

Bridge under Tepair; scaffolding and motel glates exected benuch bridge. Distorbance inkely precludes 250 by bats.

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle
	N/A	12 Aug 2019, 1513	one) Yes
		,	No

Route	County	Federal Structure ID	
I-495	MO	104010, 143010	I-495 Mainline over Clasa Barton PKWY WB and
			MCALL, BLD & SB T495 Ramp to WB (Lasa Baston PKWY

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. \Box Please submit to the U.S. Fish and Wildlife Service.

Areas inspected (Check all that apply)

Bridges		Culverts/Other Structures	Summary Info (circle all t	Summary Info (circle all that apply)			
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep		Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None	
All crevices >12" deep & not sealed		Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent	
All guardrails	WA				2		
All expansion joints		P					
Spaces between concrete end walls and the bridge deck							

ertical surfaces on concrete I-	.II A	275		
eams	NIA			

Visual (e.g. survey, thermal, emergent etc.) Guano Staining defi	nitively from bats
Live number seen 5 Odor Y/N Photo docum	nentation Y/N
Deadnumber seen Photo documentation Y/N	1 have been build build
Photo documentation V/N Single big brown bat ob 545 VW in 1-1,5" gap be Audible PKHY Westbourn From T-495 5. Bound. Small Scattering of be photo 4-6,100King up at bat, in Crwice. Photos 7,11-13 bat feels. Fer Where bat Foosting. Single big brown bats also obs. on A more Pick of Assessment Conducted By: Dowid 5 Www. Why Signature(s): Winnt. C. District Environmental Use Only: Date Received by District Environmental Manager:	tween bridge piers at rump to Claim derton t feces on rock's below there bat observed. Photo 14-16 044-all shot looking Nat bridge ap gaps on out's part of N bound I-195 Photo 20 Photo 20 Ph

DOT Bat Assessment Form Instructions

None

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
- 2. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has coordinated with the USFWS. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
- 3. Any questions should be directed to the District Environmental Manager.

1 ana IN am b. Ya m ang na JW -Last Revised M

- 58

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle
	N/A	12 Aug. 2019, 1730	one) Yes No

Reveloped allo 1000 Roma Desthering Class haste			Federal Structure ID	County	Route
Tomp 10 103010 bound I.495	n PKWY to South-	Ramp From Westbound Clasa Baston	103010	MO	Ramp to 13135

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Bridges		Culverts/Other Structures		Summary Info (circle all that apply)			
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep		Crevices, rough surfaces or imperfections in concrete		Human disturbance or traffic under bridge/in culvert or at the structure	High	Low (None
All crevices >12" deep & not sealed		Spaces between walls, ceiling joists		Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NA	8 15				~	
All expansion joints	<u> </u>		ela A.				
Spaces between concrete end walls and the bridge deck		1			-		

Vertical surfaces on concrete I-	.)/1	2	
beams	MA		

Evidence of Bats (Circle all that apply) Presence of one or more indicators is sufficient evidence that bats may be using the structure.

Visual (e.g. survey, thermal, emergent etc.)

- Live __number seen
- Dead ___number seen
- Photo documentation Y/N

Odor Y/N

Photo documentation Y/N

Guano

Staining definitively from bats Photo documentation Y/N

Audible

8				
Assessment Conducted By: _	David Smith	Signature(s):	Hant Culls	_
District Environmental Use O	Inly: Date Received by District Er	vironmental Manag	jer:	Mana

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
- 2. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has coordinated with the USFWS. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
- 3. Any questions should be directed to the District Environmental Manager.

looking 5. at 5. abutiment. No gaps at south abutiment deck, Photo 23 looking D. at piers. Photo 24 looking N. nmt: Nabutment also scaled at deck.

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle
1	Seven Locks Ram)	5 Aug 2019, 1015	one)
L			No

Route	County	Federal Structure ID	
I-195	MO	106010	Seven Locks Road

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Bridges		Culverts/Other Structures	Summary Info (circle all t	Summary info (circle all that apply)				
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep		Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None		
All crevices >12" deep & not sealed	\checkmark	Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent		
All guardrails	NIA							
All expansion joints								
Spaces between concrete end walls and the bridge deck	\checkmark			~				

Vertical surfaces on concrete I-	110			
beams	~/M			

Evidence of Bats (Circle all that apply) Presence of one or more indicators is sufficient evidence that bats may be using the structure. None

Visual (e.g. survey, thermal, emergent etc.)

• Live __number seen

Dead __number seen

Photo documentation Y/N

Audible

Guano Odor Y/N Photo documentation Y/N

Staining definitively from bats Photo documentation Y/N

Assessment Conducted By: DR5, AC	Signature(s):	
District Environmental Use Only: Date Received by Distri		
District environmental use Unit: Date Received by Distri		

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
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- 3. Any questions should be directed to the District Environmental Manager

Ac cancel hodo 9 Looking up at junct. of abutumit and bridge deck at holes in Form sealer. Photo 10-11 Looking method at crack along concrete beam betw., inner loop & outer loop. Photo 12 looking south at souther abuting. Photo 13-14 Looking at gaps in N abutumit. Photo 15 & 16 looking at cracks in concrete support betw/ inner Photo 13-14 Looking at gaps in N abutumit. Photo 15 & 16 looking at cracks in concrete support betw/ inner soutes loops. Photo 17-18 foss. bat feces. Photo 19-22 looking up into space betw/ abut ment and deck behind form sealer where feces found beneath. Photo 23 Looking 5 at bridge piers. Photo 24 looking N. at N. abutumit.

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Bo Calbin	ody John Branch	Date/Time of Inspect 5 Aug 2019		Within 1,000ft o one)	Yes	nabitat (circle	
Route	County	Federal Structure	ID .	I-495 Mainline	aler Cal	No	PKINE] Cabi
I-195	NIO	10801	D	John Branch	ora caro	19 20 10		

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Bridges		Culverts/Other Structures	Summary Info (circle all	that apply)	Ϋ́.	
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep		Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High (Low	None
All crevices >12" deep & not sealed		Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NA					
All expansion joints	1	9	a Mar 2			
Spaces between concrete end walls and the bridge deck			200 1920			

Vertical surfaces on concrete I-	A					
vidence of Bats (Circle all that apply) Pre	sence of one or more	e indicators is suffici	ent evidence that bats may	be using the structu	ure.	
one						
sual (e.g. survey, thermal, emergent etc.) Guano	1)	Staining definitively fr	om bats		
Livenumber seen	Odor Y/N		Photo documentation	Y/N		
 Deadnumber seen 	Photo docume	ntation Y/N				
noto documentation Y/N						
udible				21.		
	4		\bigcap n n n	0		
Amount Conducted Bur DRS	Ar.	Signature(s):	Chief M			
Assessment Conducted By:			- The second			

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
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crevice on Nabotiment A looking Sat picos. abitint Some abotm. Thoto ata N na Photo 100 King S M.

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle
	Cabin John Branch	5 Aug 2019, 1315	one) Yes No

Route	County	Federal Structure ID	Ramp From Cabin John	PKWY to	Southbound
F 795	MD.	107010	Kamp from Cabin Nohn T. 191	1147 10	500 100000
			L 15		

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

ant - -

Bridges	с.	Culverts/Other Structures	Summary Info (circle all that apply)			
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed	V	Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	N/A					
All expansion joints					<u> </u>	
Spaces between concrete end walls and the bridge deck		i t leg				

Vertical surfaces on concrete I-		10 -				8	
beams	N	IR		2			£.

Evidence of Bats (Circle all that apply) Presence of one or more indicators is sufficient evidence that bats may be using the structure. None ,

Visual (e.g. survey, thermal, emergent etc.)

- Live number seen
- Dead __number seen •

Odor Y/N

Photo documentation Y/N

Guano

Staining definitively from bats Photo documentation Y/N

Photo documentation Y/N

Audible

				\bigcap	01	
Assessment Conducted By:	DP5	,AC	Signature(s):	Hand	th	
District Environmental Use O	nly: Date Re	ceived by Distri	ct Environmental Mana	ger:		

DOT Bat Assessment Form Instructions

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- 3. Any questions should be directed to the District Environmental Manager.

HOFIZONTAL gap at top of abotiments, Photo-51 Looking 5 at 5 abotim. Noto 52 looking N at Piers. Rhoto 53 Looking 5 at piers. Photo 54 Noto 54 looking N at Piers. Rhoto 53 Looking 5 at Piers. Photo 54 Noto 54 looking N at Nabotim.

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project	:# \	Water Body	Date/Time of Insp	Date/Time of Inspection		Within 1,000ft of suitable bat habitat (circle		habitat (circle
		NIA	3 Aug 2019	1410 -	S. 1	one)	Yes	
				10-1			No	A PREAM
Route	County	Federal Structur	e ID	0		r 101	1 - 10:	1 - 4
1-496	Na	10901	D		from A Road	los thebou	nd 1-493	to Eastbo

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Bridges	이 것 같	Culverts/Other Structures		Summary Info (circle all that apply)			
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete		Human disturbance or traffic under bridge/in culvert or at the structure	High	low	None
All crevices >12" deep & not sealed	7	Spaces between walls, ceiling joists		Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NA		H				
All expansion joints	1		<i>1</i> .	1993 1993 - 1997			
Spaces between concrete end walls and the bridge deck					_		

67

1622 - E				
Vertical surfaces on concrete I- beams	NIA			
vidence of Bats (Circle all that app	bly) Presence of one or mor	re indicators is sufficient evidence t	hat bats may be using the s	structure.
None				
/isual (e.g. survey, thermal, emerge	ent etc.) Guano	Staining	definitively from bats	
 Livenumber seen 	Odor Y/N	Photo do	ocumentation Y/N	
 Deadnumber seen 	Photo docum	entation Y/N		
Photo documentation Y/N				
Audible				
		\sim		
~	DI A.		1-11	201
Assessment Conducted By:	DF7, HC	Signature(s):	Anth	
District Environmental Use Only:	Date Received by District F	nvironmental Manager:		
JISTICE FILL CHILDENGE OSE OTHY.	Date necented by District L	in the officient of the final office of the second se	AND A REAL PROPERTY AND A REAL PROPERTY AND A REAL PROPERTY AND A REAL PROPERTY AND	

DOT Bat Assessment Form Instructions

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Jack junct. Photo 39-40 looking up at gafs on Sabet. The forthe 42 looking Sat abut. (3). DRS phone #1 3. Any questions should be directed to the District/Environmental Manager. orking pl ooking Sat Piers. DOKING

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle
	NA	5 Aug 2019 1300	one)
			No

Route	County	Federal Structure ID	1 4
I-495	MO	110010	-

River Road OVER I-195

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Bridges		Culverts/Other Structures	Summary Info (circle all t	Summary Info (circle all that apply)			
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None	
All crevices >12" deep & not sealed		Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent	
All guardrails	NA						
All expansion joints	1		14 a a		1		
Spaces between concrete end walls and the bridge deck			 		0		

Vertical surfaces on concrete I-			
vidence of Bats (Circle all that annly) Presen	ce of one or more indicators is suffi	cient evidence that bats may be using the struct	ure
one of bars (encie an that apply) (resen			
isual (e.g. survey, thermal, emergent etc.)	Guano	Staining definitively from bats	
Livenumber seen	Odor Y/N	Photo documentation Y/N	
 Deadnumber seen 	Photo documentation Y/N		
hoto documentation Y/N			
Audible			

				0-	A A-	N		
Assessment Conducted By:	DR3.1	10	Signature(s):	Waget	Ant	h		
District Environmental Use (Dnlv: Date Rece	ived by District En	vironmental Mana	ager:				
District Environmental ose (Mily Dute Nece	ived by District En	in on the field in that is	-Belli	Matter word on a			

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
- 2. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has coordinated with the USFWS. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
- 3. Any questions should be directed to the District Environmental Manager.

70

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circ		
	NIA	5 Aug 2019, 1220	one) Yes		
			No		

Route	County	Federal Structure ID
I-270	MD	081010

I-270 Mainline over Tuckerman Lane

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Bridges		Culverts/Other Structures	Summary Info (circle all	Summary Info (circle all that apply)			
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	/	Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None	
All crevices >12" deep & not sealed		Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent	
All guardrails	NA						
All expansion joints		R					
Spaces between concrete end walls and the bridge deck							

Vertical surfaces on concrete I-	NIA		
beams	10/17		

Evidence of Bats (Circle all that apply) Presence of one or more indicators is sufficient evidence that bats may be using the structure.

Visual (e.g. survey, thermal, emergent etc.)

- Live __number seen
- Dead __number seen

Odor Y/N

Photo documentation Y/N

Guano

Staining definitively from bats Photo documentation Y/N

Photo documentation Y/N

Audible

Assessment Conducted By:	DR5	, AC	Signature(s):
District Environmental Use O	nly: Date R	Received by [District Environmental Manager:

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
- 2. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has coordinated with the USFWS. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
- 3. Any questions should be directed to the District Environmental Manager.

bodu abu no tos into ,15 U. 10ac

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle
	NIA	08/05/19 1030	one) Yes
	7 - 4		No

Route	County	Federal Structure ID	
I-495	Martgomery	122010	

I-195 Mainline over Cedar Lane

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Bridges		Culverts/Other Structures	Summary Info (circle all t	hat apply)	¥	- <u></u> -
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	~	Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed	V	Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NA					
All expansion joints						
Spaces between concrete end walls and the bridge deck	~		(4 			

Vertical surfaces on concrete I-				
beams	NA			

Evidence of Bats (Circle all that apply) Presence of one or more indicators is sufficient evidence that bats may be using the structure.

Visual (e.g. survey, thermal, emergent etc.)

- Live __number seen
- Dead __number seen

Photo documentation Y/N

Guano

Odor Y/N

Staining definitively from bats Photo documentation Y/N

Photo documentation Y/N

Audible

		\bigcirc	$ \land /$	1	
Assessment Conducted By: Jennifer Saville	Signature(s):	h	T	M	
District Environmental Use Only: Date Received by District En	vironmental Mana	ger:			

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
- 2. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has coordinated with the USFWS. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
- 3. Any questions should be directed to the District Environmental Manager.

- Bridge Freshly painted - Found 2 large snake sheds ~5ft Black Racer + Ratsnake

Photos: 10-E. Abutment looking up at CTACK where deck meets wall. 11- Facing E. abutment Wall 12 - From E. abutment looking at abutment well 13 - From W. abutment facing W. Piers 14 - From W. abutment facing W. abutment Wall

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle
		08/05/2019 1300	one) Yes No

Route	County	Federal Structure ID	
I-495	Montgomery	123010	

I-495 Mainline over Connecticut Avenue (MD185)

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas inspected (Check all that apply)

Bridges		Culverts/Other Structures	Summary Info (circle all th	at apply)		
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	/	Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed	\checkmark	Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NA					
All expansion joints						
Spaces between concrete end walls and the bridge deck	V					

Vertical surfaces on concrete I-

Evidence of Bats (Circle all that apply) Presence of one or more indicators is sufficient evidence that bats may be using the structure.

Visual (e.g. survey, thermal, emergent etc.)

- Live __number seen
- Dead number seen •

Photo documentation Y/N

None

Photo documentation Y/N

Guano

Odor Y/N

Staining definitively from bats Photo documentation Y/N

there is no crack

1312-From E. abutment facing W @ Piers

1320a-Facing W. abutment 1320b - From W. abutment facing E. at pikes

Photos:

Audible	p. p.	
Assessment Conducted By: Jennifer Saville	Signature(s):	
District Environmental Use Only: Date Received by District Environmental Use Only: Date Received	nvironmental Manager:	

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
- 2. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has coordinated with the USFWS. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
- 3. Any questions should be directed to the District Environmental Manager.

- Black Rubber (gasket?) btw bridge duck + abut wall, so - Bridge Freshly painted - Wood ducking below bridge covers expansion joints

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat. TS VS

DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle
		08/05/19 1130	one) Yes No

nty	Federal Structure ID	
Haomeru	124010	
1	tgomery	toomery 12to10

I-495 Mainline over Kensington Road

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Areas inspected (Check all that appl	y)		A	6	1 · A	-		
Mutal + Wood deckin	19 march	r bridge obscure vi	ews of I beams + 1	xpanslor	Jants			
Bridges		Culverts/Other Structures	Summary Info (circle all t	Summary Info (circle all that apply)				
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	V	Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None		
All crevices >12" deep & not sealed	V	Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent		
All guardrails	NA							
All expansion joints				-				
Spaces between concrete end walls and the bridge deck	V							

Vertical surfaces on concrete I-	1/A		
beams	$/$ \times 7		

Evidence of Bats (Circle all that apply) Presence of one or more indicators is sufficient evidence that bats may be using the structure.

Visual (e.g. survey, thermal, emergent etc.)

- Live __number seen
- Dead __number seen

Odor Y/N

Photo documentation Y/N

Guano

Staining definitively from bats Photo documentation Y/N

Photo documentation Y/N

Audible

None

		\cap	MI	
Assessment Conducted By: <u>Jennifer</u> Saulle	_ Signature(s): _	Am	P C	
District Environmental Use Only: Date Received by District Envi	ironmental Mana	ger:		

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
- 2. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has coordinated with the USFWS. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
- 3. Any questions should be directed to the District Environmental Manager.

it Endence of raccons abet Can see light bow crack/creasses where about wall + decking meet on both sides large joints throat bottom of strue. (can see cars throi) Photos: 15 - Looking at E. aboutment. 140 - From Eaboutment looking W at Piers 140 - From Eaboutment looking W at Piers KS phone - From W aboutment (2) W aboutment KS Phome - From Wabutment looking E at Pius

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle
		08/05/19 1147	one) Yes No

Route	County	Federal Structure ID	3 ₁ - 1
I-495	Martgomery	125010	

I-495 Outer Loop Ramp to MD 185

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Bridges	20 X	Culverts/Other Structures	Summary Info (circle all t	Summary info (circle all that apply)			
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep		Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None	
All crevices >12" deep & not sealed	V	Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent	
All guardrails	NA						
All expansion joints	WA						
Spaces between concrete end walls and the bridge deck							

Vertical surfaces on concrete I-	. 11	1.2	
beams	NA		

Evidence of Bats (Circle all that apply) Presence of one or more indicators is sufficient evidence that bats may be using the structure. None

Visual (e.g. survey, thermal, emergent etc.)

Live __number seen

Dead number seen •

Guano

Odor Y/N Photo documentation Y/N Staining definitively from bats Photo documentation Y/N

Photo documentation Y/N

Audible

Assessment Conducted By: Jennifal Saville	Signature(s):	
District Environmental Use Only: Date Received by Distric	ct Environmental Manager:	

DOT Bat Assessment Form Instructions

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- 2. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has coordinated with the USFWS. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
- Any questions should be directed to the District Environmental Manager.

- Metal + wood decking below bridge deck obscure view of I beams + wpansion joints Photos: 1147a - Facing E abutment from E abutment 1147b - Facing W at firs from E abutment KS Phone - Facing W abutment from W abutment KS Phone - Facing E at firs from W abutment Last Revised June 2017

80

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project # W	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle
-	Rock Cruk	08/05/19 1230 08/06/19 1150	one) Yes No

Route	County	Federal Structure ID	1.2
I-495	Montapmery	126010	
			2.2.8

Rock Creek / Stoney Brook Drive

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Bridges		Culverts/Other Structures	Summary Info (circle all that apply)				
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None	
All crevices >12" deep & not sealed		Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent	
All guardrails	NA						
All expansion joints	~						
Spaces between concrete end walls and the bridge deck	\checkmark				<u> </u>		

Vertical surfaces on concrete I- beams		
Evidence of Bats (Circle all that apply) Presen	ce of one or more indicators is suffic	ient evidence that bats may be using the structure.
Visual (e.g. survey, thermal, emergent etc.)	Guano	Staining definitively from bats
 Livenumber seen 	Odor Y/N	Photo documentation Y/N
Deadnumber seen	Photo documentation Y/N	12 200 sel Alertingent. Top of W Abutimes
Photo documentation Y/N		6 Aug 2019 W Abutiment: Top of W Abutimen subbis mat Couring most of gap to bridge deck openings in corners adjacent to I - beams.
		FUBBLY most COVERING PROST of gray to bridge been
Audible		openings in concess to facent to a country.
Assessment Conducted By: Jenn Fer	Sanle Den Signature(s): _	Mill a heart forth
District Environmental Use Only: Date Rece	ived by District Environmental Mana	ger:

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
- 2. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has coordinated with the USFWS. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
- 3. Any guestions should be directed to the District Environmental Manager.

Wood dicking indurbridge obscures view of nutal I beams + expansion joints E Abut mut: Need waders to access Eabert be of stream, to deep for Knew boots · Wabut - Rubber (gaskit?) between bridge deck + abot wall seals potential crevice Photos 5 Aug 2019 1224a - From E abutment looking at E abutment 1224b - From E abutment looking up at rubber gasket 1231 - From E abutment looking we at rubber gasket 1231 - From E abutment looking w at piers Photos 6 Aug 2019: 4 - Looking w. at w abutment S. cooking at corner O gap on abutment wall Last Revised June 2017

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle
	North west Branch Anacostia River	08/05/19 1400/WAbut Eabut 1300	one) Yes No

County	Federal Structure ID	
Montannery	137010	
	County Montamery	CountyFederal Structure IDMontanneru137010

Northwest Branch

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Bridges		Culverts/Other Structures	Summary Info (circle all t	Summary Info (circle all that apply)			
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep		Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None	
All crevices >12" deep & not sealed		Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent	K
All guardrails	NA						
All expansion joints						<u> </u>	0
Spaces between concrete end walls and the bridge deck			10 72				R

Vertical surfaces on concrete I-	A / A			
beams	NA			

Evidence of Bats (Circle all that apply) Presence of one or more indicators is sufficient evidence that bats may be using the structure. None

Visual (e.g. survey, thermal, emergent etc.)

- Live ___number seen •
- Dead number seen •

Guano Odor Y/N

Photo documentation Y/N

Staining definitively from bats Photo documentation Y/N

Photo documentation Y/N

Audible

Assessment Conducted By: Signature(s): District Environmental Use Only: Date Received by District Environmental Manager:

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
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 $5 A v_3 2 p | q + 3_4 A p q uestions should be directed to the District Environmental Manager.$

- Wabut too nigh to throughly Survey Photos 5 Aug 2019: Facing E piers from Wabutment - Wabut too nigh to throughly Survey Photos 5 Aug 2019: Facing E piers from Wabutment - Wabut too nigh to throughly Survey Photos 5 Aug 2019: 6- Gap between inner and outer loop - Photos 6 Aug 2019: 6- Gap between inner and outer loops - Looking E at E abutment - Looking up and West at Under girder - Sposting habitat. The gap between inner and outer loops 6 Aug 2019 E Abutment E abutment at deck u/0.25" gaps in places. Fin aseas of good sposting habitat. The gap between inner and outer loops to" W/o fram filling. No evidence of bats. Last Revised June⁷2017

APPENDIX D: Bridge/Structure Assessment Form

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Body \mathcal{N}/\mathcal{A}	Date/Time of Inspec	•
	3	a dag	No
Route	County	Federal Structure ID	

1-495	PG	142012/142011	MD 295

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas inspected (Check all that apply)

Bridges		Culverts/Other Structures	Summary Info (circle al	Summary Info (circle all that apply)			
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	/	Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None	
All crevices >12" deep & not sealed		Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent	
All guardrails	NA						
All expansion joints							
Spaces between concrete end walls and the bridge deck		4					

Last Revised May 31, 2017

Vertical surfaces on concrete I-			
19 M 12 3			
Evidence of Bats (Circle all that apply) Presen	ce of one or more indicators is suffi	cient evidence that bats may be using the sti	ructure.
None			÷
Visual (e.g. survey, thermal, emergent etc.)	Guano	Staining definitively from bats	
• Livenumber seen	Odor Y/N	Photo documentation Y/N	
 Deadnumber seen 	Photo documentation Y/N		
Photo documentation Y/N			
Audible			
		$() \cap P = \alpha$	
Assessment Conducted By: DR5, KS, 5	Signature(s):	Jan Lunth	
District Environmental Use Only: Date Recei	ved by District Environmental Mana	ager:	

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
- 2. Any bridge/structure suspected of providing habitat for any species of bat will be removed from work schedules until such time that the DOT has coordinated with the USFWS. Additional studies may be undertaken by the DOT to determine what species may be utilizing each structure identified as supporting bats prior to allowing any work to proceed.
- 3. Any questions should be directed to the District Environmental Manager. looking S. at Pius. - thoto 9 In cracks i'm las 13 ling udy n Bourds 00 100 King a 15 Last Revised June 2017

APPENDIX D: Bridge/Structure Assessment Form

This form will be completed and submitted to the District Environmental Manager by the Contractor prior to conducting any work below the deck surface either from the underside; from activities above that bore down to the underside; from activities that could impact expansion joints; from deck removal on bridges; or from structure demolition for bridges/structures within 1000 feet of suitable bat habitat.

DOT Project #	Water Body	Date/Time of Inspection	Within 1,000ft of suitable bat habitat (circle
	N/A	6 Aug 2019, 1500	one) Yes No

Route	County	Federal Structure ID
I-193	PG	160015/160016

Suitland Parkway

If the bridge/structure is 1,000 feet or more from suitable bat habitat (e.g., an urban or agricultural area without suitable foraging habitat or corridors linking the bridge to suitable foraging habitat), check box and STOP HERE. No assessment required. Please submit to the U.S. Fish and Wildlife Service.

Areas Inspected (Check all that apply)

Bridges	Culverts/Other Structures	Summary Info (circle all t	Summary Info (circle all that apply)			
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None	
All crevices >12" deep & not sealed	Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent	
All guardrails						
All expansion joints		20				
Spaces between concrete end walls and the bridge deck		gi ar a e				

Last Revised May 31, 2017

Vertical surfaces on concrete I-				
beams		-	~	

Evidence of Bats (Circle all that apply) Presence of one or more indicators is sufficient evidence that bats may be using the structure. None

Visual (e.g. survey, thermal, emergent etc.)

- Live number seen
- Dead number seen •

Photo documentation Y/N

Guano

Odor Y/N

Staining definitively from bats Photo documentation Y/N

Photo documentation Y/N

Audible

				\bigcap	· · · · ·
Assessment Conducted By:	DK,	(5,5P	Signature(s):	Parit I th	
District Environmental Use	Only: Date R	eceived by Distri	ct Environmental Manage	er:	

DOT Bat Assessment Form Instructions

- 1. Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges, regardless of whether assessments have been conducted in the past.
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- 3. Any questions should be directed to the District Environmental Manager.

Photo 18 looking Nat construction. Photo 19 looking at 5 t of NBOUND I-495.

Last Revised June 2017



Appendix D Bridge Survey Photo Log



Photo 1: American Legion Bridge North (100010) - Looking north at abutment



Photo 2: American Legion Bridge North (100010) – Looking at cracks in pier



Photo 3: American Legion Bridge North (100010) – Looking at cracks in pier



Photo 4: American Legion Bridge North (100010) – Looking at cracks in pier



Photo 5: American Legion Bridge North (100010) – Looking at abutment/deck connection



Photo 6: American Legion Bridge North (100010) – Looking at gap in concrete between inner and outer loops



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Photo 9: American Legion Bridge South (100010) – Looking at cracks in piers



Photo 10: Clara Barton Parkway East (101010/142010) - Looking south at metal plates



Photo 11: Clara Barton Parkway East (101010/142010) - Looking west at metal plates



Photo 12: Clara Barton Parkway East (101010/142010) – Looking at abutment connection to bridge deck



Photo 13: McArthur Blvd/Clara Barton Pkwy West (104010/143010) – Looking at north abutment



Photo 14: McArthur Blvd/Clara Barton Pkwy West (104010/143010) – Looking north at pier cap gaps with bats



Photo 15: McArthur Blvd/Clara Barton Pkwy West (104010/143010) – Looking north at piers & decks



Photo 16: McArthur Blvd/Clara Barton Pkwy West (104010/143010) – Looking south at piers & decks



Photo 17: McArthur Blvd/Clara Barton Pkwy West (104010/143010) – Looking at south abutment



Photo 18: McArthur Blvd/Clara Barton Pkwy West (104010) - Looking up at bat in crevice



Photo 19: McArthur Blvd/Clara Barton Pkwy West (104010) – Looking up at bat roosting in pier cap gap



Photo 20: McArthur Blvd/Clara Barton Pkwy West (104010) – Looking north at bridge pier, bat roosting location



Photo 21: Clara Barton Pkwy West (103010) - Looking at north abutment



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Photo 26: Seven Locks Road (106010) – Looking into space between abutment and deck above where possible bat guano was found



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Photo 36: Ramp to southbound I-495 (107010) – Looking at south abutment



Photo 37: Ramp to southbound I-495 (107010) – Looking north at piers



Photo 38: Northbound ramp to River Road (109010) – Looking at north abutment



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Photo 42: Northbound ramp to River Road (109010) – Looking at gaps on south abutment



Photo 43: River Road (110010) – Looking at west abutment



Photo 44: River Road (110010) - Looking east at piers



Photo 45: River Road (110010) – Looking at east abutment



Photo 46: River Road (110010) - Looking west at piers



Photo 47: River Road (110010) – Looking at crack along west abutment



Photo 48: Tuckerman Lane (081010) – Looking at north abutment



Photo 49: Tuckerman Lane (081010) – Looking south from north abutment

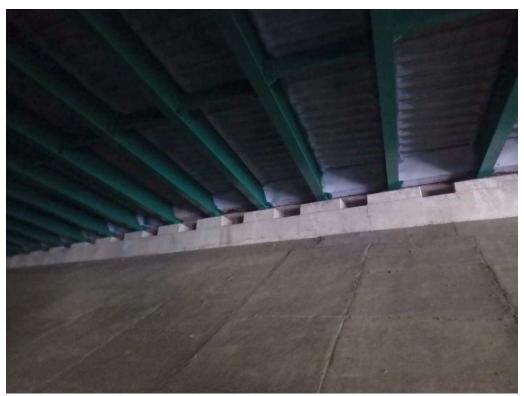


Photo 50: Tuckerman Lane (081010) – Looking at south abutment



Photo 51: Tuckerman Lane (081010) – Looking north from south abutment



Photo 52: Tuckerman Lane (081010) – Looking at cracks in abutment slope



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Photo 60: Connecticut Avenue (123010) – Looking east at piers (8/5/2019)



Photo 61: Connecticut Avenue (123010) - Looking at east abutment



Photo 62: Connecticut Avenue (123010) – Looking west at piers



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Photo 64: Kensington Parkway (124010) - Looking east at piers



Photo 65: Kensington Parkway (124010) – Looking at east abutment



Photo 66: Kensington Parkway (124010) – Looking west at piers



Photo 67: Kensington Parkway Ramp (125010) – Looking at west abutment



Photo 68: Kensington Parkway Ramp (125010) - Looking east at piers



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Photo 75: Northwest Branch (137010) – Looking at west abutment



Photo 76: Northwest Branch (137010) – Looking east at bridge piers and girders

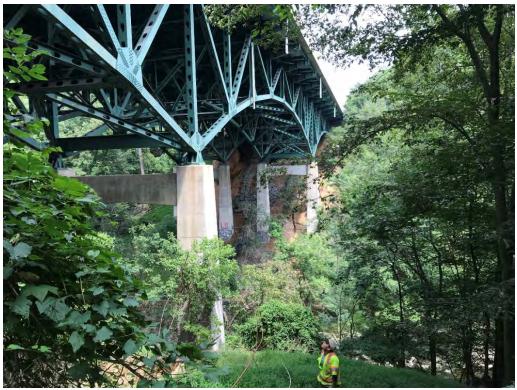


Photo 77: Northwest Branch (137010) – Looking east at bridge across river



Photo 78: Northwest Branch (137010) - Looking at east abutment



Photo 79: Northwest Branch (137010) - Looking west at bridge piers and girders



Photo 80: Northwest Branch (137010) – Looking at gap in deck between inner and outer loops



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Photo 82: MD-295 Northbound (142011) – Looking south at piers



Photo 83: MD-295 Northbound (142011) - Looking at south abutment



Photo 84: MD-295 Northbound (142011) - Looking north at piers



Photo 85: MD-295 Southbound (142012) - Looking at north abutment



Photo 86: MD-295 Southbound (142012) - Looking south at piers



Photo 87: MD-295 Southbound (142012) - Looking south at abutment



Photo 88: MD-295 Southbound (142012) - Looking north at piers



Photo 89: Suitland Parkway (160016) - Looking at south abutment of southbound I-495



Photo 90: Suitland Parkway (160015) - Looking at south abutment of northbound I-495



Photo 91: Suitland Parkway (160015/160016) – Looking north at construction zone under I-495

Appendix E Bat Evidence Photo Log

Appendix E: Bat Evidence Photo Log

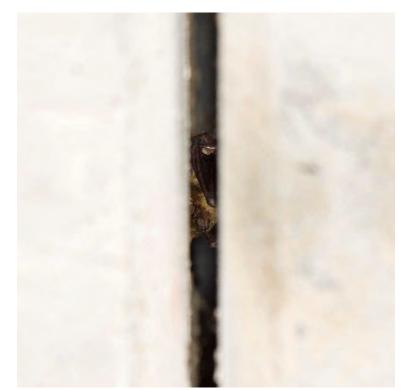


Photo 1. Big brown bat individual A found in gap between pier caps of the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).



Photo 2. Big brown bat individual B found in gap between pier caps of the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).

Appendix E: Bat Evidence Photo Log



Photo 3. Big brown bat individual C found in gap between pier caps of the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).



Photo 4. Big brown bat individual D found in gap between pier caps of the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).



Photo 5. Bat guano below gap between pier caps where bat is roosting in the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).



Photo 6. Bat guano below gap between pier caps where bat is roosting in the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).



Photo 7. Bat guano below gap between pier caps where bat is roosting in the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).



Photo 8. Reperesentative photo of gap between pier caps where bats were obseved roosting in the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).



Photo 9. View beneath bridge where bats were observed roosting between gaps in pier caps in the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).



Photo 10. CRI staff photographing bat roosting between pier cap gap in the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).



Photo 11: Bat guano observed under the south abutment of the Seven Locks Road Bridge (106010).



Photo 12: Bat guano found at the south abutment of the Seven Locks Road Bridge (106010).



Photo 13: Bat guano found on the Maryland side of the Potomac River under the American Legion Bridge (100010).

Appendix F Bat Emergence Data Forms

USFWS BAT EMERGENCE SURVI	EY DATASHEET
Date: 12 Avg 2019 Surveyor(s) Full Name: David Smit	h Shannon PUSSUll
State: <u>M</u> County: <u>M</u> Project Name: <u>I</u> Site Name/#: <u>Am, Legion BF</u> . Roost Name/#	495 MLS
Site Name/#: Am, Legion Br. Roost Name/#	Bat #:
Lat/Long or UTM of Koost:	
Description of Roost/Habitat Feature Surveyed: Large interst	ate bridge over the
Description of Roost/Habitat Feature Surveyed: Large interst Potomac River - North Side of river	
Bat Species Known to be using this Roost/Feature (if not known, lea	
Other Suspected Bat Species (explain):	
Weather Conditions during Survey (temperature, precipitation, wi	nd speed):
SIP, PTY. Cloudy, light winds	00.40
Stor F, PHy. Claudy, Jight Winds Survey Start Time: 1933 Time of Sunset: 2003	Survey End Time:
NOTE: Emergence surveys should begin ¹ / ₂ hour before sunset and continue	until at least one hour after sunset or until
it is otherwise too dark to see emerging bats. The surveyor(s) should position h	nim or herself so that emerging bats will be
silhouetted against the sky as they exit the roost. Tallies of emerging bats shou	
natural breaks in bat activity allow. Please ensure that surveyor(s) are close en	
exiting/returning bats, but not close enough to influence emergence (i.e., do no	
make unnecessary noise and/or conversation, and minimize use of lights other	than a small flashlight to record data, if
necessary). Do not shine a light on the roost tree crevice/cave/mine entrance it	sell as this may prevent or delay bats from

emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an

ultrasonic bat detect	or are strongly recomme	nded but not required.
Time	Number of Bats Leaving Roost*	Comments / Notes
2031	1-2	Flying near picts at edge of sives. Some picts contained suitable ropost crevices, but
		bats not observed leaving Crevices. Some bat guam observed beneath Crevices. Due bat observed flying near second set Divis from
		Tives, May have energy from crevice; guano on Dek benenth crevice
2931-2040	tID	Up to 10 bats observed flying near bridge. Unknown it bouts emerged from bridge.

Site Name/#:_____ Roost Name/#:_____

Time	Number of Bats Leaving Roost*	Comments / Notes
ж		
		e
	-	
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:		

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

USFWS BAT EMERGENCE SURVEY DATASHEET ____ Surveyor(s) Full Name: Jennit Date: 08/12/19 State: \/A County: **Project Name:** Site Name/#: ALB, VA Side Roost Name/# Bat #: Lat/Long or UTM of Roost: Description of Roost/Habitat Feature Surveyed: HIML + OVER POTOMAC RIVER Bat Species Known to be using this Roost/Feature (if not known, leave blank): **Other Suspected Bat Species (explain):** Weather Conditions during Survey (temperature, precipitation, wind speed): 85°, Sight preme (Beaufart 1), Mot Survey Start Time: 1987 Time of Sunset: 200 Survey End Cime: 21/7 NOTE: Emergence surveys should begin ½ hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an

ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
2015	1	I bat plum from vacinity of about
		observed bats continuously until 2047
2041		onw 3 bats @ one time, likely 2 diff.
		spp. Carlt tell if they came from
		Bridge the
2058		spotted 1 bat by plashlight

Site Name/#: ALB, VA Side Roost Name/#: _____

Time	Number of Bats Leaving Roost*	Comments / Notes
	Ċ.	
		(8)
	0	
Total Number of Bats Observed Emerging from the Roost/Feature During the Survey:		

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

Bats continuously circled around bridge piers on land, Did not see much activity over water Both observers located ~ 50pt from 2nd pier towards wat between 2nd + 3rd pier (closest to 1+20) ~ 50ft From 19 2nd pier

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 8/13/19 Surveyor(s) Full Name: David Smith, Jennifer Saville, Kevin Stohlaren, Ayranda Crue State: MD County: Matgomery Project Name: <u>I495/270 Managed Lanes</u> Stroly
State: MD County: Martgomery Project Name: I495/270 Managed Lanes Study
Site Name/#: NWB Ana casha_ Roost Name/# Bat #:
Lat/Long or UTM of Roost:
Description of Roost/Habitat Feature Surveyed: Bridge Abutments, piers, + bottom.
Bat Species Known to be using this Roost/Feature (if not known, leave blank):
Other Suspected Bat Species (explain):
Weather Conditions during Survey (temperature, precipitation, wind speed): 80°, VRY Slight blenk Beauton,), slighty averast, Run earlier in day
Survey Start Time: 1936 Time of Sunset: 2006 Survey End Time: 2037

NOTE: Emergence surveys should begin ½ hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes	11
2003		1st bat, Tricolor?	
2014		3 bats near bridge	
2030		3 bats near bridge Activity dies down	
L			
1			
· · · · · · · ·			
1	÷		

Site Name/#: NWB Ana lostia Brdg. Roost Name/#: _

Time	Number of Bats Leaving Roost*	Comments / Notes
	-	
<u> </u>		
	ė	
	2	
		(P)
		· · · · · · · · · · · · · · · · · · ·
3		
Total Number of		
Bats Observed Emerging from the Roost/Feature During the Survey:		

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

First bats observed ~2023. One appeared to drop down from bridge. Observed only 2-3 bats @ any given time bow 2003-20 Cipcling under bridge + near piers. Bats most active bow 2010 and 2025.

Difficult to see bridge completely b/c of dense Brest on hill slopes. Bridge expanse is short, but very high over deep valley

USFWS BAT EMERGENCE SURVEY DATASHEET

Date: 13 Aug 2019 Surveyor(s) Full Name: Devid Sm. 7	h la
State: MD County: MO _ Project Name: I-475	MIS
Site Name/#: No Branch Bride "Roost Name/#	Bat #:
Lat/Long or UTM of Roost:	
Description of Roost/Habitat Feature Surveyed:	
Bat Species Known to be using this Roost/Feature (if not known, leave blan	nk):
Other Suspected Bat Species (explain):	<u>, , , , , , , , , , , , , , , , , , , </u>
Weather Conditions during Survey (temperature, precipitation, wind spee	
SPET NUMID, PHM CLOY, CAM TO LIGHT W	ng - On plantas (
Survey Start Time: 1933 Time of Sunset: Dor Survey	End Time: do 3/

NOTE: Emergence surveys should begin ½ hour before sunset and continue until at least one hour after sunset or until it is otherwise too dark to see emerging bats. The surveyor(s) should position him or herself so that emerging bats will be silhouetted against the sky as they exit the roost. Tallies of emerging bats should be recorded every few minutes or as natural breaks in bat activity allow. Please ensure that surveyor(s) are close enough to the roost to observe all exiting/returning bats, but not close enough to influence emergence (i.e., do not stand directly beneath the roost and do not make unnecessary noise and/or conversation, and minimize use of lights other than a small flashlight to record data, if necessary). Do not shine a light on the roost tree crevice/cave/mine entrance itself as this may prevent or delay bats from emerging. If available, use of an infra-red, night vision, or thermal-imaging video camera or spotting scope and an ultrasonic bat detector are strongly recommended but not required.

Time	Number of Bats Leaving Roost*	Comments / Notes
2006	1	Append to drop of of bridge while
		NW Brichborg Wmost bridge piet.
		A.W. to be small bat.
2014	1	Foraging benuth pridge on While
		and Br.
2017	1	Larger but forging on US side bridge
0	1	W WW BE.

Site Name/#: _____ Roost Name/#: _____

Time	Number of Bats Leaving Roost*	Comments / Notes
TE		(4) (4)
·		7
	<u> </u>	
2		10)
Total Number of		
Bats Observed Emerging from the Roost/Feature		
During the Survey:	2	

* If any bats return to the roost during the survey, then they should be subtracted from the tally.

Describe Emergence: Did bats emerge simultaneously, fly off in the same direction, loiter, circle, disperse, etc. If a radio-tagged bat was roosting in the tree, at what time did it emerge?

Additional Bridge Survey Report for the Northern Long-Eared Bat (Myotis septentrionalis) and Indiana Bat (Myotis sodalis)

I-495 & I-270 Managed Lanes Study Montgomery and Prince George's Counties, Maryland & Fairfax County, Virginia

Prepared for: Maryland Department of Transportation State Highway Administration

> Under Contract to: Rummel Klepper & Kahl



November 2020

Prepared by:



25 Old Solomons Island Road, Annapolis, Maryland 21401 Phone: (410) 956-9000 Fax: (410) 956-0566

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- Appendix C Bridge Survey Photo Log
- Appendix D Bat Evidence Photo Log

Introduction

The Maryland Department of Transportation State Highway Administration (MDOT SHA) and Federal Highway Administration (FHWA) have initiated a highway improvements study of the I-495 and I-270 corridor. This study, referred to as the I-495 & I-270 Managed Lanes Study (MLS), is being conducted to address major traffic congestion problems within the National Capital Region. As part of the environmental review process for the MLS, coordination was initiated with state and federal regulatory agencies in 2018 regarding the potential presence of listed rare, threatened, or endangered (RTE) species within the corridor study boundary (CSB). The CSB is shown in **Figure 1 – Location Map**.

The initial coordination with the U.S. Fish and Wildlife Service (USFWS) and Maryland Department of Natural Resources (MDNR) resulted in informal consultation regarding the Northern Long-eared Bat (*Myotis septentrionalis*) (NLEB) and Indiana Bat (*Myotis sodalis*) (IB), two federally-listed bat species potentially occurring within the CSB. As part of this consultation, MDOT SHA conducted bridge surveys for the presence of roosting bats during the summer of 2019. Seventeen (17) bridge spans representing 15 road or stream crossings were surveyed between August 5th and August 12th for the presence of roosting bats. Bridges associated with two road crossings (Clara Barton Parkway Eastbound and Suitland Parkway) could not be surveyed because of ongoing construction. In addition to the bridge surveys, the USFWS recommended that bat emergence surveys be conducted at the American Legion Bridge and the bridge over Northwest Branch. The emergence surveys were conducted on August 12th and 13th, 2020. Roosting Big Brown Bats (*Eptesicus fuscus*) were found in bridge span crevices of the McArthur Boulevard/Clara Barton Parkway Westbound bridge during bridge surveys and bats were observed flying beneath both the American Legion Bridge and bridge over Northwest Branch during the emergence surveys.

The results of these surveys were presented to the regulatory agencies in a report submitted in October 2019. MDOT SHA then convened a meeting with the regulatory agencies on December 4, 2019 to discuss the results of the bridge and emergence surveys and to chart further suitable maternity roosting habitat assessments and presence/absence surveys. During this meeting, the USFWS requested that MDOT SHA conduct follow-up bridge surveys for bats at Clara Barton Parkway Eastbound and at Suitland Parkway that were unable to be surveyed during 2019 because of construction activities. They also requested that two additional bridges be surveyed, including the north and south spans of Kenilworth Avenue and the two spans of Greenbelt Road. Therefore, this report summarizes the results of the 2020 bridge bat assessments conducted for the MLS.

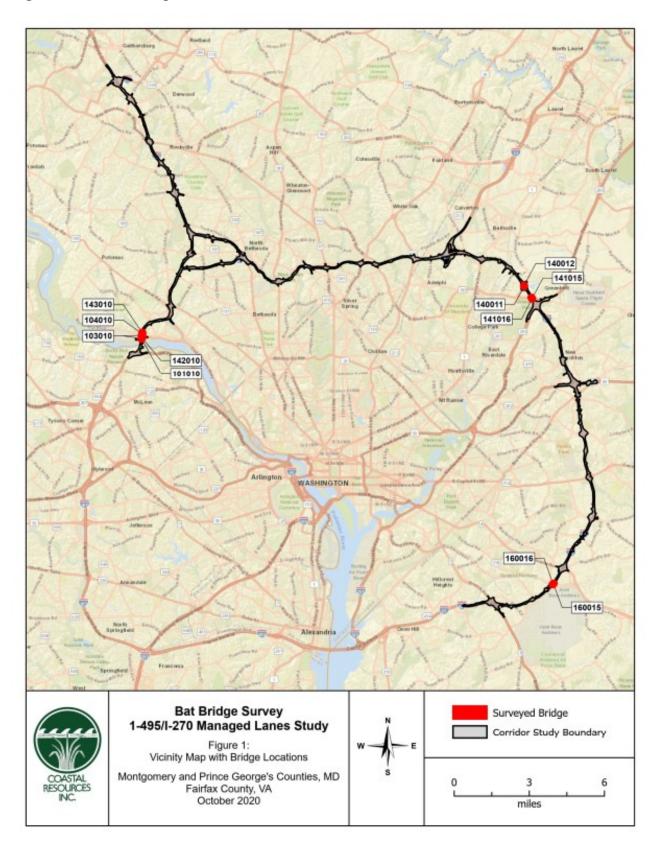


Figure 1. Location Map

Methodology

Eight (8) bridges plus their associated ramps were surveyed in 2020 for the presence of dayroosting bats or evidence (e.g., guano or urine staining) of night roosting bats. The eight (8) bridges and associated ramps surveyed are listed in **Table 1** along with approximate bridge lengths, widths, vertical clearances, and other relevant information. The McArthur Boulevard/Clara Barton Parkway Westbound bridge was re-surveyed this year because bats were found roosting under this bridge in gaps between pier caps during the 2019 surveys. The federal bridge identification numbers have been shortened to just the last six digits for simplicity. Bridges and associated ramps that had at least one common abutment were assessed together; these structure dimensions are included on the same row of the table. Those ramps with completely independent abutments were treated as a separate bridge structure and are shown as a separate row in the table.

Federal Bridge ID ¹	Bridge Name/Location	Structure Length (Ft)	Deck Width (Ft)	Min. Vertical Clearance ² (Ft)	Comments
101010/ 142010/ 103010	Clara Barton Pkwy EB	361/ 439/220	158/ 28/28	20/ 14/14	Includes ramp from I- 495 NB to Clara Barton Pkwy WB and Clara Barton Pkwy to I-495 SB
104010/ 143010	McArthur Blvd/Clara Barton Pkwy WB	607/ 336	150/ 28	13/ 16	Includes ramp from I- 495 SB to Clara Barton Pkwy WB
140011	Kenilworth Avenue N	293	55	15	Kenilworth Ave N over I-495
140012	Kenilworth Avenue S	301	55	18	Kenilworth Ave S over I-495
141016	Greenbelt Road	193	71	16	I-495 Inner Loop over Greenbelt Rd.
141015	Greenbelt Road	193	59	16	I-495 Outer Loop over Greenbelt Rd.
160016	Suitland Parkway	387	59	14	I-495 Inner Loop over Suitland Pkwy
160015	Suitland Parkway	392	59	14	I-495 Outer Loop over Suitland Pkwy

Table 1.	I-495	& I-270	Managed	Lanes Study	v bridges	assessed for	bat presence.

¹Last 6 digits of Federal Bridge Structure Number

²Vertical clearance refers to the minimum vertical underclearance of the bridge over a roadway or waterbody

Field maps on an aerial base image were prepared that highlighted each of the eight (8) selected bridges and associated ramps to be surveyed (**Appendix A**). Equipment used in the visual assessments and for safety included high powered spotlights, binoculars, digital cameras, hardhats, high visibility vests, and iPads with the Arc Collector application installed to record all survey data.

Systematic visual surveys of bridges were conducted during daylight hours on June 29, 2020. Each bridge structure survey was carried out by two surveyors. Surfaces beneath the bridges were assessed across their entire span from the junction of each abutment with the bridge deck. Inspections included visual surveys of all abutments, decks, piers, and other structures associated with each bridge. Suitable roosting habitat for bats on bridge structures includes cracks or crevices formed from spalling concrete, junctions of the bridge abutment with the bridge deck, expansion joints, and other cave-like areas associated with bridges. Surveys for the presence of day roosting bats typically began at each abutment with surveyors shining bright spotlights into dark spaces across the entire width of each bridge. The assessment then extended along the bridge deck and included each bridge pier and cap across each bridge width and length, focusing greatest attention on spaces generally less than two inches in width. In addition to looking for the visual presence of day roosting bats, evidence of bats was also assessed by listening for high pitched squeaking sounds of day roosting bats and searching for guano or urine staining or odor that may indicate use by day or night roosting bats.

As noted above, FHWA/State DOT/FRA Bridge/Structure Assessment Forms (FHWA/FRA, 2018, Appendix D) were completed in the Arc Collector application for each bridge or bridge/ramp combination as listed in **Table 1**. Data collected included associated waterbody or road crossing, federal structure ID, date and time of inspection, names of inspectors, county, and any documented evidence of the presence of bats. The forms also provide a checklist of types of potential bat roosting habitat present for each bridge, including:

- All vertical crevices sealed at the top that are 0.5-1.25" wide and ≥ 4 " deep
- All crevices >12" deep and not sealed
- All expansion joints
- Spaces between concrete end walls and the bridge deck

Completed data forms are included in **Appendix B**. Photographs were also taken of each assessed bridge, including shots looking at each bridge abutment and from each bridge abutment toward the bridge piers. These are included in a photographic log in **Appendix C**. Other representative photographs were taken of suitable crevices or expansion joints as appropriate. Photographic documentation was also provided for any observed bats or bat evidence, such as guano or staining. Photographs of the evidence of roosting bats are included in a separate photographic log included in **Appendix D**.

Results and Discussion

During the visual bridge assessments, one (1) bridge was found to have evidence of bat use – the same bridge as in 2019; however, there was no visual evidence of use of the bridges by the Northern Long-eared Bat or the Indiana Bat. Two (2) big brown bats were observed solitarily roosting in two (2) separate gaps between the pier caps of the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010) (See Photos 5-6 in **Appendix D**). The small amount of guano found below each of the cracks with roosting bats (Photos 1-4, **Appendix D**) indicates that this is not likely a permanent or high frequency roosting location. This bridge shared several of the characteristics of bridges that are used as roosts by bats: the roosts were concrete, located between 10 and 20 feet off the ground, had vertical cracks that were more than 12 inches in depth, and were located near a contiguous tract of forest and water resources. The gaps between pier caps that the bats were using as roosts were about one to two inches wide and more than 12 inches in depth. Some cracks were not sealed at the top, however, they were protected from the elements by the bridge deck.

Bats are more likely to be found roosting on bridges constructed of concrete that have vertical, sealed crevices approximately 0.5 to 1.25 inches wide, more than 12 inches deep, more than 10 feet from the ground, and have low traffic volumes (Keeley and Tuttle 1999, Hendricks et. al 2005, Bektas et al. 2018). Of the eight (8) structures and associated ramps surveyed, most had metal I-beams and decking. While all bridges had concrete abutments, most cracks from flaking concrete and the gap at the junction of the bridge deck and abutment were very low to the ground, less than four feet in most cases. Most of the bridges surveyed had some areas with cracked or sealed crevices in concrete structures that could provide suitable roosting habitat for bats. However, potential limitations of these bridges as favorable roosts for bats are the degree of shelter from the elements, the height of ground clearance, intensity of disturbance from vehicular or human traffic both above and under the bridge, stability of thermal regimes, and protection from predators.

Bridges with crevices that are not sealed or that are completely sealed are unlikely to be used as a roost for bats. Metal structures generally do not provide as much thermal buffering as concrete structures (Civjan 2017, Erickson et al. 2002, Kaarakka 2017). Bridges with concrete abutments that can be accessed by potential predators, such as snakes and raccoons, are also unlikely to provide suitable roost habitat. Several of the surveyed bridges had evidence of snakes and raccoons.

The visual survey was limited to areas that could be safely or practically accessed. Most pier caps and expansion joints or cracks over pier caps could not be surveyed because they could not be accessed. Some areas at the bridge abutments could not be accessed because they were in hard to reach areas or other structures such as pipes or flakes of broken concrete obstructed the view. Many bridges had wood and metal platforms under the decks that precluded view of I-beams, under-decking, and pier-cap and expansion joint surfaces. The Suitland Parkway bridges (160015/160016) were still under construction at the time of the survey; however, as noted above, it was possible to conduct the survey in 2020 unlike in 2019, because the undersides of the bridge spans were exposed. The Suitland Parkway bridges are similar to the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010) in both construction style and setting, so it

may be able to support roosting bats, though with ongoing construction it is less likely that bats would choose to roost on these bridge spans at least until after construction is complete.

Conclusions

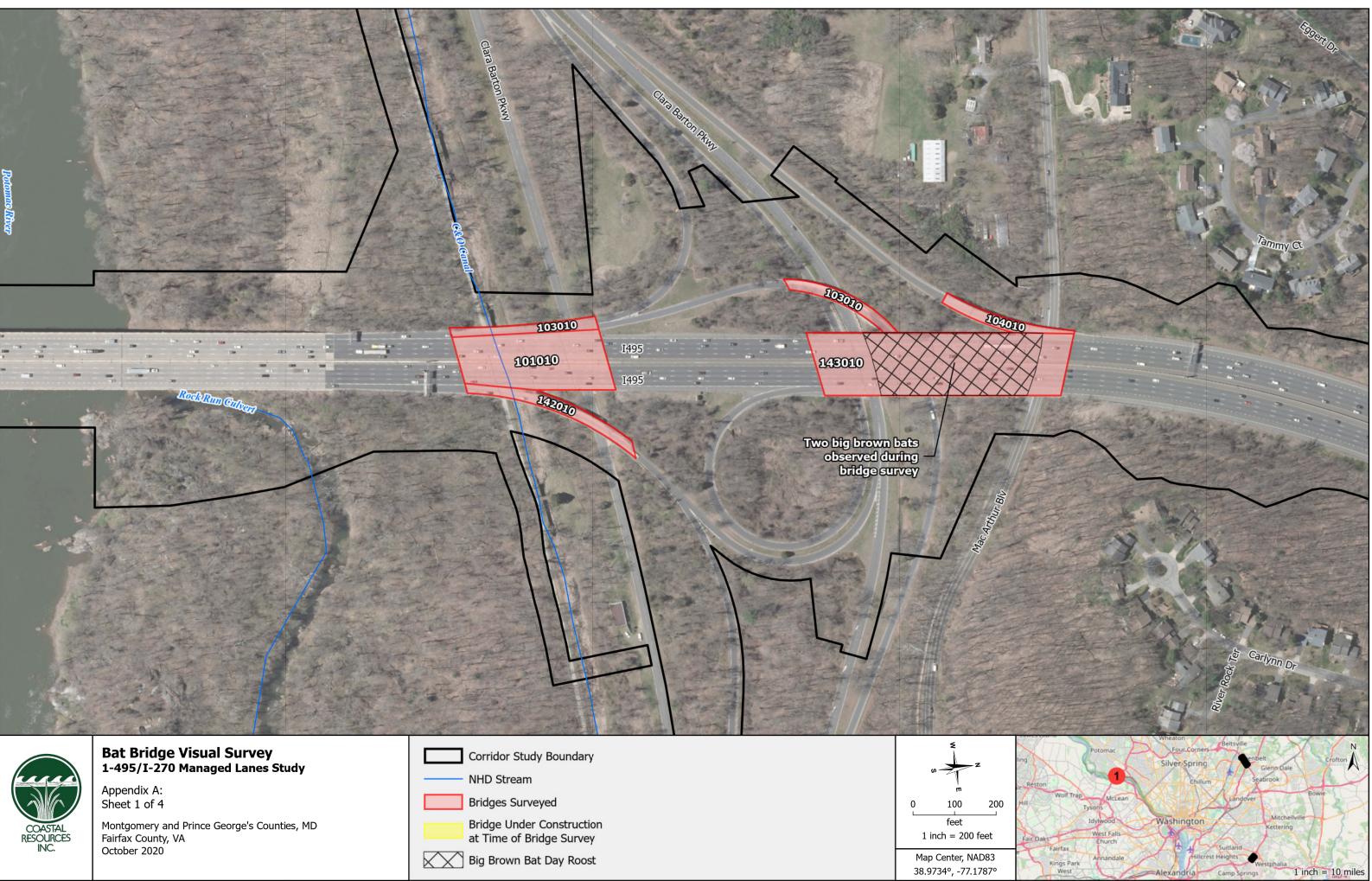
On June 29, 2020, two surveyors assessed eight (8) bridge structures and associated ramp bridges within the CSB. The Suitland Parkway bridges were under construction at the time of survey, but were still able to be assessed. Assessed bridges were those that occurred within 1,000 feet of suitable bat habitat or were near locations where either NLEB or IB were detected during a study by researchers from Virginia Tech. While suitable bat roosting habitat features were present on most bridges, most did not combine all necessary habitat variables. Bat guano was not found at any structure other than the McArthur Boulevard/Clara Barton Parkway Westbound bridge where bats were discovered roosting during the 2019 surveys. Based on the results of the visual assessment, there was no evidence of use of the bridges by the northern long-eared bat or the Indiana bat. However, two (2) Big Brown Bats, not state or federally listed, were found day-roosting singly within gaps between pier caps of the McArthur Boulevard/Clara Barton Parkway Westbound bridge. Both roosting bats were in locations with a vertical clearance of at least 10 feet and with forested habitat adjacent to the bridge. Both had small amounts of guano on the ground beneath them suggesting that these were not extensively used roosts.

Based on suitable conditions for bridge roosting reported in the literature and evidence of roosting bats from this study, CSB bridges that support or could support roosting bats include the McArthur Boulevard/Clara Barton Parkway Westbound bridge and the Suitland Parkway bridges. Prior to construction, follow-up surveys of these bridges should be conducted to determine the potential presence of roosting bats, or time of year restrictions should be imposed to initiate construction when bats would be hibernating away from the project area.

References

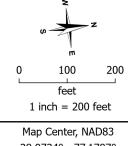
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Appendix A Bridge Bat Survey Maps







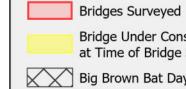




Bat Bridge Visual Survey 1-495/I-270 Managed Lanes Study

Appendix A: Sheet 2 of 4

Montgomery and Prince George's Counties, MD Fairfax County, VA October 2020

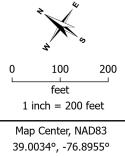


Bridge Under Construction at Time of Bridge Survey

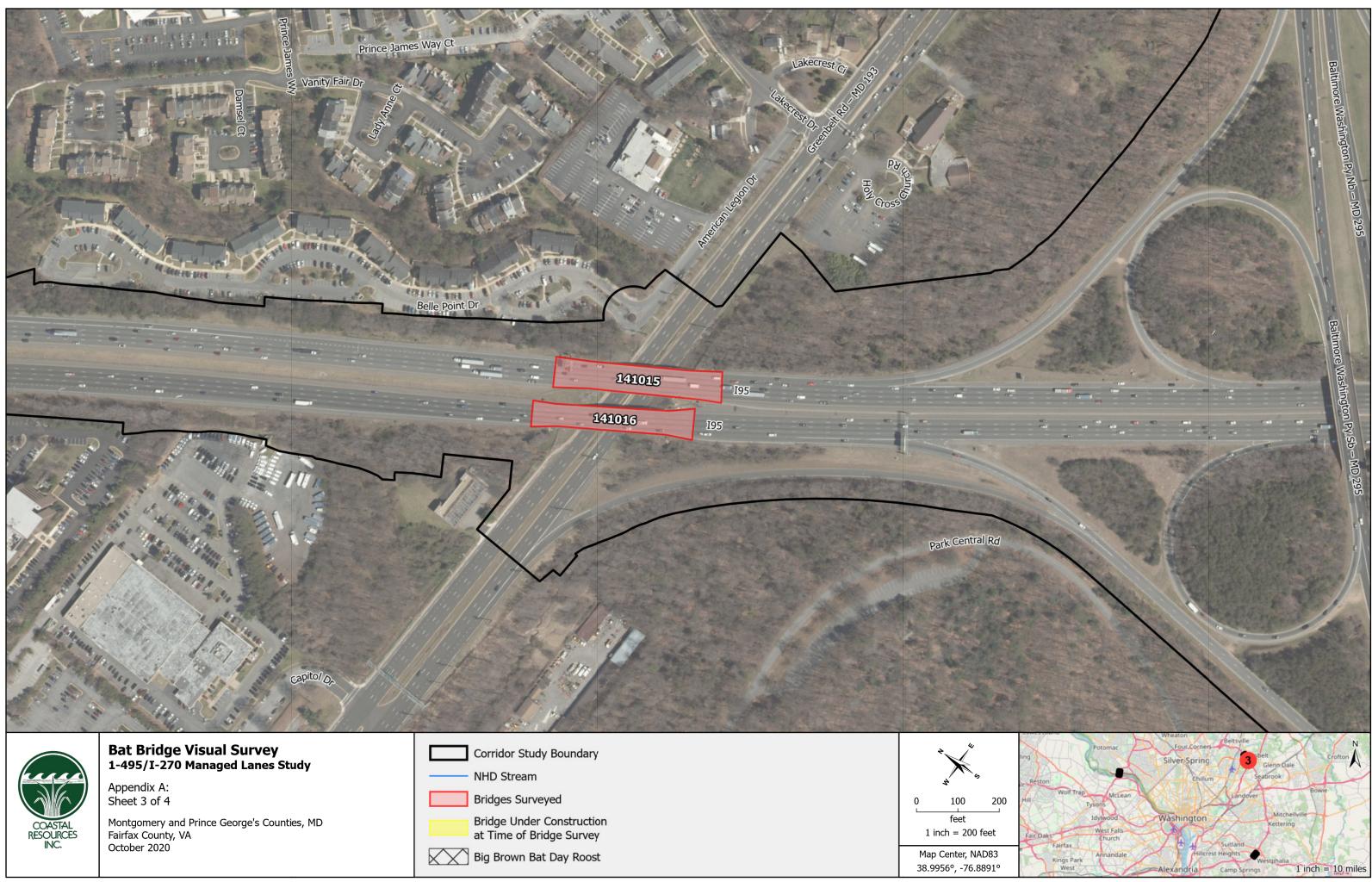
Corridor Study Boundary

NHD Stream

Big Brown Bat Day Roost



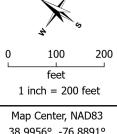


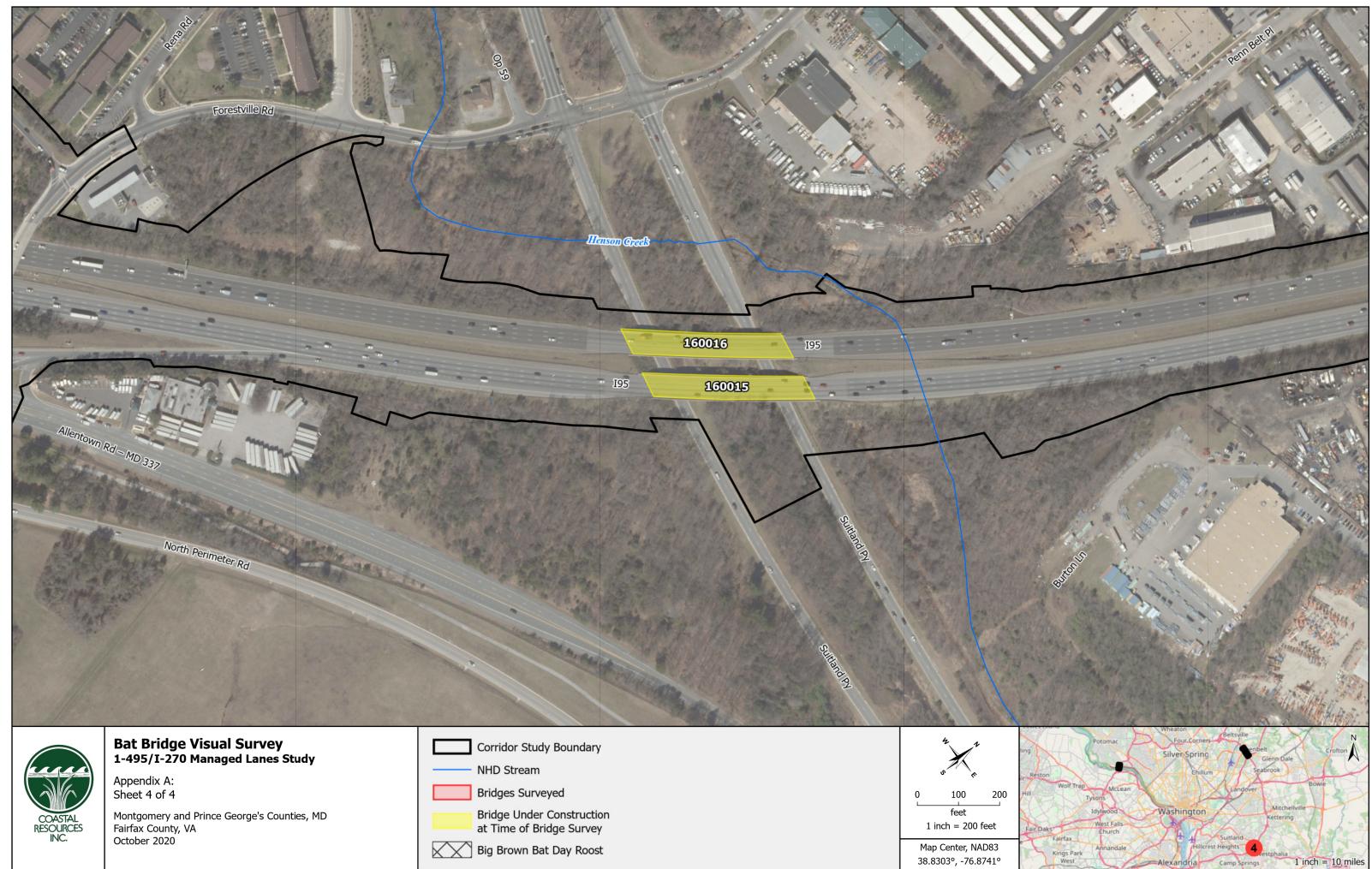






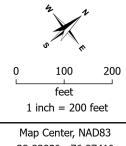












Appendix B Bridge Survey Data Forms

DOT Project #	Water Body/Road	Assessment Conducted By	Date/Time of Inspection		
	C&O Canal & Clara Barton Pkwy	J. Saville, K. Stohlgren	6/29/2020 10:30		

		Federal	Bat Indicators (Check all that apply. Presence of one or more indicators is sufficient evidence that bats ma the structure.)							
Route:	ID:		Visual	Sound	Droppings	Staining	Notes: (e.g., number & species of bats, if known. Include the results of thermal, emergent, or presence/absence summer survey)			
I-495 S. Abut. & Span	Montgomery	101010	N	Ν	N	N				
I-495 N. Abut. & Span	Montgomery	101010	Ν	Ν	N	N				

Bridges		Culverts/Other Structures	Summary In	fo (circle all tł	hat apply)	
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed	\checkmark	Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NA		Evidence of bats using bird nests, if present?	Yes	No	
All expansion joints	\checkmark	Additional Notes: Potential netting cooridor near see if there were bats or eviden		o tall to acc	ess, so could n	ot
Spaces between concrete end walls and the bridge deck	\checkmark	see in there were bats of eviden	.5.			
Vertical surfaces on concrete I- beams	NA					

DOT Project #	Water Body/Road	Assessment Conducted By	Date/Time of Inspection		
	C&O Canal & Clara Barton Pkwy	J. Saville, K. Stohlgren	6/29/2020 10:50		

		Federal	Bat Indica	Bat Indicators (Check all that apply. Presence of one or more indicators is sufficient evidence that bats may be usi the structure.)						
Route:	County: Structure ID:		Visual	Sound	Droppings	Staining	Notes: (e.g., number & species of bats, if known. Include the results of thermal, emergent, or presence/absence summer survey)			
I-495 N Off Ramp N. Abut. & Span	Montgomery	142010	N	Ν	N	N				

Bridges		Culverts/Other Structures		Summary Inf	fo (circle all th	nat apply)	
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete	Human disturbar traffic under brid culvert or at the	lge/in	High	Low	None
All crevices >12" deep & not sealed	\checkmark	Spaces between walls, ceiling joists	Possible corridor netting	rs for	None/poor	Marginal	Excellent
All guardrails	NA		Evidence of bats nests, if present	-	Yes	No	
All expansion joints	\checkmark	Additional Notes:					
Spaces between concrete end walls and the bridge deck	\mathbf{r}						
Vertical surfaces on concrete I- beams	NA						

DOT Project #	Water Body/Road	Assessment Conducted By	Date/Time of Inspection
	Clara Barton Pkwy & MacArthur Blvd	J. Saville, K. Stohlgren	6/29/2020 11:11

		Federal	Bat Indica	tors (Check	of one or more indicators is sufficient evidence that bats may be using the structure.)		
Route:	Route: County: Structu ID:		Visual	Sound	Droppings	Staining	Notes: (e.g., number & species of bats, if known. Include the results of thermal, emergent, or presence/absence summer survey)
I-495 S. Abut. & Span	Montgomery	143010/ 104010	N	Ν	N	N	
I-495 N. Abut. & Span	Montgomery	143010/ 104010	Y	Ν	Y	N	2 Big Brown Bats roosting in gaps between pier caps. Guano observed under several pier cap gaps as well as other locations

Bridges		Culverts/Other Structures	Summary In	fo (circle all tl	hat apply)	
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed	\checkmark	Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NA		Evidence of bats using bird nests, if present?	Yes	No	
All expansion joints	\checkmark	Additional Notes:				
Spaces between concrete end walls and the bridge deck	\checkmark					
Vertical surfaces on concrete I- beams	NA					

DOT Project #	Water Body/Road	Assessment Conducted By	Date/Time of Inspection
	Clara Barton Pkwy	J. Saville, K. Stohlgren	6/29/2020 11:21

	Federal				Bat Indicators (Check all that apply. Presence of one or more indicators is sufficient evidence that bats may be using the structure.)						
Route:	County: Structure ID:		Visual	Sound	Droppings	Staining	Notes: (e.g., number & species of bats, if known. Include the results of thermal, emergent, or presence/absence summer survey)				
CB Pkwy - I-495	Montgomery	103010									
S On Ramp	montgomery	100010	N	N	N	N					
S. Abut. & Span											
CB Pkwy - I-495	Montgomory	103010									
S On Ramp	Montgomery	103010	N	N	N	N					
N. Abut. & Span											

Bridges		Culverts/Other Structures	Summary In	fo (circle all th	nat apply)	
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed	\checkmark	Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NA		Evidence of bats using bird nests, if present?	Yes	No	
All expansion joints	\checkmark	Additional Notes:				
Spaces between concrete end walls and the bridge deck	\checkmark					
Vertical surfaces on concrete I- beams	NA					

DOT Project #	Water Body/Road	Assessment Conducted By	Date/Time of Inspection	
	MacArthur Blvd	J. Saville, K. Stohlgren	6/29/2020 11:09	

	Federal	Bat Indicators (Check all that apply. Presence of one or more indicators is sufficient evidence that bats may be using the structure.)							
Route:	County: Structure ID:	Visual	Sound	Droppings	Staining	Notes: (e.g., number & species of bats, if known. Include the results of thermal, emergent, or presence/absence summer survey)			
I-495 S Off Ramp S. Abut. & Span	Montgomery	143010	Ν	Ν	N	N			

Bridges		Culverts/Other Structures	Summary I	nfo (circle all t	hat apply)	
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete	Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed	\checkmark	Spaces between walls, ceiling joists	Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NA		Evidence of bats using bird nests, if present?	Yes	No	
All expansion joints	\checkmark	Additional Notes:	``````````````````````````````````````	·	·	
Spaces between concrete end walls and the bridge deck	\mathbf{r}					
Vertical surfaces on concrete I- beams	NA					

DOT Project #	Water Body/Road	Assessment Conducted By	Date/Time of Inspection	
	I-495	J. Saville, K. Stohlgren	6/29/2020 12:40	

	Federal				Bat Indicators (Check all that apply. Presence of one or more indicators is sufficient evidence that bats may be using the structure.)						
Route:	County: Structure ID:		Visual	Sound	Droppings	Staining	Notes: (e.g., number & species of bats, if known. Include the results of thermal, emergent, or presence/absence summer survey)				
Kenilworth Ave N SW Abut. & Span	Prince George's	140011	N	Ν	N	N					
Kenilworth Ave N NE Abut. & Span	Prince George's	140011	Ν	Ν	N	N					

Bridges		Culverts/Other Structures		Summary In	fo (circle all th	hat apply)	
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete		Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed	\checkmark	Spaces between walls, ceiling joists		Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NA			Evidence of bats using bird nests, if present?	Yes	No	
All expansion joints	\checkmark	Additional Notes: No gap between deck and abutr	nent.	<u> </u>			
Spaces between concrete end walls and the bridge deck	\checkmark						
Vertical surfaces on concrete I- beams	NA						

DOT Project #	Water Body/Road	Assessment Conducted By	Date/Time of Inspection
	I-495	J. Saville, K. Stohlgren	6/29/2020 12:36

	Federal				Bat Indicators (Check all that apply. Presence of one or more indicators is sufficient evidence that bats may be using the structure.)						
Route:	County: Structure ID:		Visual	Sound	Droppings	Staining	Notes: (e.g., number & species of bats, if known. Include the results of thermal, emergent, or presence/absence summer survey)				
Kenilworth Ave S SW Abut. & Span	Prince George's	140012	Ν	Ν	N	N					
Kenilworth Ave S NE Abut. & Span	Prince George's	140012	Ν	Ν	N	N					

Bridges		Culverts/Other Structures		Summary In	fo (circle all th	nat apply)	
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete		Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed	\checkmark	Spaces between walls, ceiling joists		Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NA			Evidence of bats using bird nests, if present?	Yes	No	
All expansion joints	\checkmark	Additional Notes: No gap between deck and abuti	ment. De	eck is < 3ft above ground at a	abutment		
Spaces between concrete end walls and the bridge deck	\checkmark						
Vertical surfaces on concrete I- beams	NA						

DOT Project #	Water Body/Road	Assessment Conducted By	Date/Time of Inspection
	Greenbelt Rd	J. Saville, K. Stohlgren	6/29/2020 13:14

		Federal	Bat Indica	Bat Indicators (Check all that apply. Presence of one or more indicators is sufficient evidence that bats may be using the structure.)						
Route:	County: Structure ID:		Visual	Sound	Droppings	Staining	Notes: (e.g., number & species of bats, if known. Include the results of thermal, emergent, or presence/absence summer survey)			
I-495 Inner N. Abut. & Span	Prince George's	141016	Ν	Ν	N	N				
I-495 Inner S. Abut. & Span	Prince George's	141016	Ν	Ν	N	N				

Bridges		Culverts/Other Structures		Summary In	fo (circle all th	hat apply)	
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete		Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed	\checkmark	Spaces between walls, ceiling joists		Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NA			Evidence of bats using bird nests, if present?	Yes	No	
All expansion joints	\checkmark	Additional Notes: No gap between deck and abuti	ment wa	ll on either side of bridge.			
Spaces between concrete end walls and the bridge deck	\checkmark						
Vertical surfaces on concrete I- beams	NA						

DOT Project #	Water Body/Road	Assessment Conducted By	Date/Time of Inspection
	Greenbelt Rd	J. Saville, K. Stohlgren	6/29/2020 13:03

		Federal	Bat Indica	Bat Indicators (Check all that apply. Presence of one or more indicators is sufficient evidence that bats may be usin the structure.)								
Route:	County: Structure ID:		Visual	Sound	Droppings	Staining	Notes: (e.g., number & species of bats, if known. Include the results of thermal, emergent, or presence/absence summer survey)					
I-495 Outer N. Abut. & Span	Prince George's	141015	N	Ν	N	N						
I-495 Outer S. Abut. & Span	Prince George's	141015	Ν	Ν	N	N						

Bridges		Culverts/Other Structures		Summary In	fo (circle all tł	hat apply)		
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete		Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None	
All crevices >12" deep & not sealed	\checkmark	Spaces between walls, ceiling joists		Possible corridors for netting	(None/poor	Marginal	Excellent	
All guardrails	NA			Evidence of bats using bird nests, if present?	Yes	No		
All expansion joints	\checkmark	Additional Notes: North abutment: wood cross bear		cure view of abutment-decl	c junction. So	outh abutment	:: No	
Spaces between concrete end walls and the bridge deck	\checkmark	gap between deck and abutment wall						
Vertical surfaces on concrete I- beams	NA							

DOT Project #	Water Body/Road	Assessment Conducted By	Date/Time of Inspection
	Suitland Pkwy	J. Saville, K. Stohlgren	6/29/2020 14:58

		Federal	Bat Indicators (Check all that apply. Presence of one or more indicators is sufficient evidence that bats may be using the structure.)						
Route:	County: Structure		Visual	Sound	Droppings	Staining	Notes: (e.g., number & species of bats, if known. Include the results of thermal, emergent, or presence/absence summer survey)		
I-495 Inner NE Abut. & Span	Prince George's	160016	Ν	Ν	N	N			
I-495 Inner SW Abut & Span.	Prince George's	160016	Ν	Ν	N	N			

Bridges		Culverts/Other Structures		Summary In	fo (circle all tl	hat apply)	
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete		Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed	\checkmark	Spaces between walls, ceiling joists		Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NA			Evidence of bats using bird nests, if present?	Yes	No	
All expansion joints	\checkmark	Additional Notes: Bridge under construction but	abutmen	ts open. Potential netting co	ooridor unde	er bridge.	
Spaces between concrete end walls and the bridge deck	\checkmark						
Vertical surfaces on concrete I- beams	NA						

DOT Project #	Water Body/Road	Assessment Conducted By	Date/Time of Inspection	
	Suitland Pkwy	J. Saville, K. Stohlgren	6/29/2020 15:15	

		Federal	Bat Indicators (Check all that apply. Presence of one or more indicators is sufficient evidence that bats may be using the structure.)						
Route:	Route: County: Struc		Visual	Sound	Droppings	Staining	Notes: (e.g., number & species of bats, if known. Include the results of thermal, emergent, or presence/absence summer survey)		
I-495 Outer NE Abut. & Span	Prince George's	160015	N	Ν	N	N			
I-495 Outer SW Abut & Span.	Prince George's	160015	Ν	Ν	N	Ν			

Bridges		Culverts/Other Structures		Summary In	fo (circle all tl	hat apply)	
All vertical crevices sealed at the top and 0.5-1.25" wide & ≥4" deep	\checkmark	Crevices, rough surfaces or imperfections in concrete		Human disturbance or traffic under bridge/in culvert or at the structure	High	Low	None
All crevices >12" deep & not sealed	\checkmark	Spaces between walls, ceiling joists		Possible corridors for netting	None/poor	Marginal	Excellent
All guardrails	NA			Evidence of bats using bird nests, if present?	Yes	No	
All expansion joints	\checkmark	Additional Notes: Bridge under construction but				utment. No spa	ice
Spaces between concrete end walls and the bridge deck	\checkmark	between abutment & deck. Po	lential ne				
Vertical surfaces on concrete I- beams	NA						



Photo 1: Clara Barton Parkway East Bridge (101010/142010/103010) - Looking at south abutment.

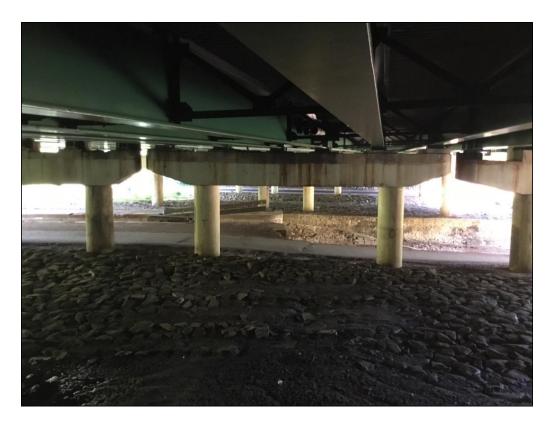


Photo 2: Clara Barton Parkway East Bridge East (101010/142010/103010) - Looking north at piers.

Appendix C – Bridge Survey Photo Log



Photo 3: Clara Barton Parkway East Bridge West Off Ramp (142010) - Looking at north abutment.



Photo 4: Clara Barton Parkway East Bridge West Off Ramp (142010) - Looking south at piers.



Photo 5: Clara Barton Parkway East Bridge (101010//103010) - Looking at north abutment.



Photo 6: Clara Barton Parkway East Bridge (101010/103010) - Looking south at piers.



Photo 7: Kenilworth Avenue North (140011) - Looking at southwest abutment.



Photo 8: Kenilworth Avenue North (140011) - Looking northeast at southwest abutment piers.



Photo 9: Kenilworth Avenue North (140011) - Looking northeast at piers.

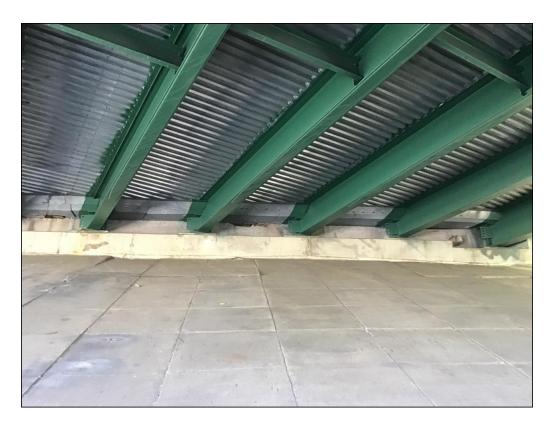


Photo 10: Kenilworth Avenue North (140011) - Looking at northeast abutment.



Photo 11: Kenilworth Avenue North (140011) - Looking southwest at piers.



Photo 12: Kenilworth Avenue South (140012) - Looking at southwest abutment.



Photo 13: Kenilworth Avenue South (140012) - Looking northeast at southwest abutment piers.



Photo 14: Kenilworth Avenue South (140012) - Looking northeast at piers.



Photo 15: Kenilworth Avenue South (140012) - Looking at northeast abutment.

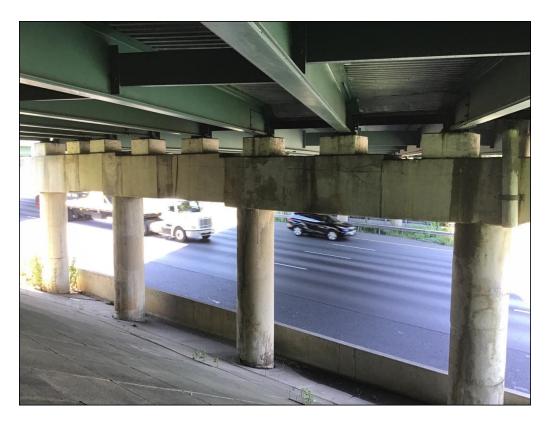


Photo 16: Kenilworth Avenue South (140012) - Looking southwest at piers.



Photo 17: Greenbelt Road Inner Loop (141016) - Looking at northwest abutment.



Photo 18: Greenbelt Road Inner Loop (141016) - Looking southeast at piers.



Photo 19: Greenbelt Road Inner Loop (141016) - Looking at southeast abutment.



Photo 20: Greenbelt Road Inner Loop (141016) - Looking northwest at piers.



Photo 21: Greenbelt Road Outer Loop (141015) - Looking at northwest abutment.



Photo 22: Greenbelt Road Outer Loop (141015) - Looking southeast at piers.



Photo 23: Greenbelt Road Outer Loop (141015) - Looking at southeast abutment.



Photo 24: Greenbelt Road Outer Loop (141015) - Wooden braces obscure view of and access to the northwest abutment wall.



Appendix C – Bridge Survey Photo Log

Photo 25: Greenbelt Road Outer Loop (141015) - Looking northwest at piers.



Photo 26: Suitland Parkway Inner Loop (160016) - Looking at northeast abutment.



Photo 27: Suitland Parkway Inner Loop (160016) - Looking southwest at piers. Gaps between pier caps may provide roosting locations for bats.



Photo 28: Suitland Parkway Inner Loop (160016) - Looking at southwest abutment.



Photo 29: Suitland Parkway Inner Loop (160016) - Looking northeast at piers. Gaps between pier caps may provide roosting locations for bats.



Photo 30: Suitland Parkway Outer Loop (160015) - Looking at northeast abutment.



Photo 31: Suitland Parkway Outer Loop (160015) - Looking southwest at piers. Gaps between pier caps may provide roosting locations for bats.

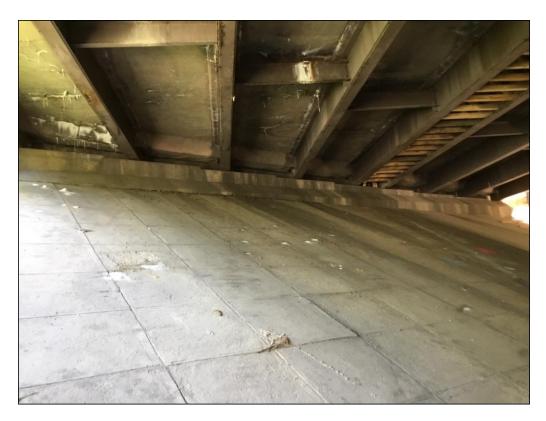


Photo 32: Suitland Parkway Outer Loop (160015) - Looking at southwest abutment.



Photo 33: Suitland Parkway Outer Loop (160015) - Looking northeast at piers. Gaps between pier caps may provide roosting locations for bats.

Appendix D Bat Evidence Photo Log

Appendix D – Bat Evidence Photo Log

Photo 1: Bat guano below gap between pier caps where bat is roosting in the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).



Photo 2: Bat guano below gap between pier caps where bat is roosting in the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).

Appendix D – Bat Evidence Photo Log



Photo 3: Bat guano below gap between pier caps where bat is roosting in the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).



Photo 4: Bat guano below gap between pier caps where bat is roosting in the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).

Appendix D – Bat Evidence Photo Log



Photo 5: Big brown bat individual AD found in gap between pier caps of the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).



Photo 6: Big brown bat individual B found in gap between pier caps of the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).

Appendix D – Bat Evidence Photo Log



Photo 7: Representative photo of gaps between pier caps where bats were obseved roosting in the McArthur Boulevard/Clara Barton Parkway Westbound bridge (104010/143010).



Threatened and Endangered Bat Habitat Assessment and Acoustic Survey Report

December 16, 2020



MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION



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1 INTRODUCTION

The Federal Highway Administration (FHWA), as the Lead Federal Agency, and the Maryland Department of Transportation State Highway Administration (MDOT SHA), as the Local Project Sponsor, are preparing an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) for the I-495 & I-270 Managed Lanes Study (MLS). The purpose of the MLS is to develop a travel demand management solution that addresses congestion and improves trip reliability on I-495 and I-270 within the Study limits and enhances existing and planned multi-modal mobility and connectivity (**Figure 1-1**).

As part of the MLS, six DEIS Build Alternatives (Alternatives 8, 9, 9M, 10, 13B, and 13C) are proposed and were presented in the DEIS. For further information on DEIS Build Alternatives see Chapter two of the DEIS, the MLS *Alternatives Technical Report* (ATR), and the MLS *Natural Resources Technical Report* (NRTR). The affected counties in Maryland include Montgomery and Prince George's and Fairfax County in Virginia.

The United States Fish and Wildlife Service (USFWS) Chesapeake Bay Field Office is the federal agency overseeing MLS compliance with Section 7 of the Endangered Species Act for federally listed threatened and endangered (T&E) bat species. Section 7 consultation is required when any action a federal agency carries out, funds, or authorizes may affect a listed endangered or threatened species.

The MLS study corridors are located within the Washington D.C. Metropolitan Area and include fragmented forested habitat. The Indiana bat (*Myotis sodalis*) is currently listed as Endangered in the state of Maryland both by the state and federally and falls under the jurisdiction of the USFWS and the Maryland Department of Natural Resources (MDNR). The Northern Long-Eared bat (*Myotis septentrionalis*) falls under the jurisdiction of the USFWS and MDNR and is currently listed as Threatened by both agencies. In Virginia, the Indiana bat is federally and state listed as Endangered and the Northern Long-Eared bat is federally and state-listed as Threatened.

FHWA and MDOT SHA have coordinated closely with the USFWS in 2019 and 2020 for informal MLS Section 7 Consultation. As part of this coordination, Rummel, Klepper, & Kahl (RK&K) completed *the I-495 & I-270 Managed Lanes Study Acoustic Surveys Technical Study Plan for Threatened and Endangered Bat Species*. The study plan (**Appendix A**) was approved by the USFWS on June 10, 2020 and was used as a framework to conduct habitat and acoustic surveys for threatened and endangered bat species within the study area in spring/summer 2020. The following report summarizes methodologies and results for the aforementioned surveys.





650 29

Silver Spring

Washington

eenbelt

50

Upper Marlboro

2 METHODOLOGY

I. Habitat Assessment

15

85

VIRGINIA Great Falls

267

29

7

Dulles Toll Road

50

Potomac

0

65

Bethesda

Arlington

A T&E bat habitat assessment evaluation of the MLS potential limits of disturbance (LOD) associated with the DEIS alternatives was performed by a USFWS Qualified Bat Surveyor (QBS) from RK&K. Due to the geographic location/urbanization of the study corridors, the potential for large tracts of suitable habitat was low. The following section outlines the main components of the proposed bat habitat assessment. **Appendix B** depicts the MLS study area. Habitat assessment data sheets are provided in **Appendix C**.



A. GIS Analysis

RK&K completed a Geographic Information System (GIS) desktop review of the MLS study corridors, identifying forested habitat components and forested areas 15-acres and larger. The GIS forest layer was developed based on desktop review of the Chesapeake Conservancy Conservation Innovation Center's High-Resolution Land Cover Data for tree canopy cover. In the Virginia portion of the corridor study boundary, the aerial extent of vegetation cover was identified using GIS data obtained from the Virginia Department of Forestry (VDOF) 2005 Virginia Forest Cover dataset. The desktop review was the first component of a multi-phased habitat assessment. The MLS is considered a linear project as it relates to the threatened and endangered (T&E) bat species survey protocols. Using this standard approach, total suitable summer habitat was determined by GIS desktop review, field evaluation and Appendix F (Linear Project Guidance) of the USFWS 2020 Survey Guidelines. Forest segments that were determined by desktop review to be suitable habitat were compiled for field evaluation.

B. Field Evaluation

The GIS desktop habitat evaluation was augmented by a field evaluation effort. The field evaluation effort associated with the bat habitat assessment verified preliminary desktop information collected regarding forest land and potential hibernacula. The forested components were qualitatively evaluated for potential use by threatened and endangered bat species. Based on best professional judgment and the evaluation of potential bat habitat by RK&K, forested components of the MLS LODs were classified into three forest habitat types (FHTs): Forest Habitat Type 1 (FHT 1), Forest Habitat Type 2 (FHT 2), and Forest Habitat Type 3 (FHT 3). The FHTs within the LODs are characterized by the following:

- FHT 1 is more likely to be used by threatened/endangered bat species for foraging, roosting, or for travel. These areas include suitable habitat for T&E bat species.
- FHT 2 is less likely to be used by threatened/endangered bat species for foraging, roosting, or for travel. These areas include suitable habitat for T&E bat species.
- FHT 3 is unlikely to be used by threatened/endangered bat species for foraging, roosting, or for travel. These areas do not include suitable habitat for T&E bat species

FHT-1 - This habitat type is more likely to be used as roosting, travel and foraging habitat by T&E bats due to its forest characteristics. This FHT typically includes a mixed-age deciduous hardwood forest with plenty of pole stage and mature hardwoods. The understory is open and has moderate to no shrub layer or a moderate understory with travel corridors and forage areas including trails, forest openings, and nearby waterways. Dominant tree species may include: live and dead or dying red maple (*Acer rubrum*), sugar maple (*A. saccharum*), shagbark hickory (*Carya ovata*), American beech (*Fagus grandifolia*), black cherry (*Prunus serotina*), white oak (*Quercus alba*), black locust (*Robinia pseudoacacia*), and willow (*Salix sp.*). Potential roost locations are plentiful in this FHT. Tree/snag physical location, bark condition, and topographic setting is more crucial to consideration as bat habitat than tree species within this habitat type.



FHT-2 - This habitat type is less likely to be used as roosting, travel, and foraging habitat by T&E bats due to its forest characteristics, however; FHT-2s still may be used by T&E bats in some capacity. The existing timber typically includes mixed-age deciduous hardwood sapling stage to immature timber but includes a moderate to dense shrub layer and the forest may be disturbed or manipulated. The understory includes a moderate to dense shrub layer, with few travel corridors, forage areas, and nearby waterways. Potential roost sites are not as readily available in this habitat type as in FHT-1. Dominant tree and shrub species identified within FHT-2 may include red maple, sugar maple, tree of heaven (*Ailanthus altissima*), hawthorn (*Crataegus* sp.), American beech, Norway spruce (*Picea abies*), black cherry, white oak, black locust and elm (*Ulmus* sp.). Understory would be dominated by spicebush (*Lindera benzoin*), honeysuckle (*Lonicera* spp.), multiflora rose (*Rosa multiflora*), blackberry (*Rubus* sp.), poison ivy (*Toxicodendron radicans*), and grape vine (*Vitis* sp.) or similar species. Tree/snag physical location, bark condition, and topographic setting is more crucial to consideration as bat habitat than tree species.

FHT-3 - This habitat type is unlikely to be used by T&E bats due to its forest characteristics. The existing timber includes deciduous hardwood sapling stage timber. The understory includes a dense shrub and vine layer and the forest is highly-disturbed, manipulated, and/or fragmented. Roost sites are not readily available, nor are travel corridors, forage areas, or nearby waterways. In these areas, common species identified included honeysuckle, multiflora rose, black locust, blackberry, sumac (*Rhus typhina*), poison ivy, and grape vine.

The classifications resulting from the habitat assessment were utilized to determine the total acoustic survey effort for the MLS. RK&K utilized FHT 1 and FHT 2 habitat area lengths when calculating the total suitable habitat length for the project. These results would determine the number of acoustic survey sites for the study area and acoustic survey sites were located in FHT 1 and 2 habitat areas.

In addition to habitat characterization, RK&K evaluated the study area for potential bat hibernacula. RK&K coordinated with field staff regarding MLS-specific field features previously identified within the LOD.

II. Acoustic Survey

As outlined within the approved study plan for the MLS project, an acoustic bat survey to determine presence/absence of T&E bat species within the study area was conducted during the 2020 Indiana bat survey season (May 15th-August 15th). Sampling was performed in accordance with the USFWS survey protocol, *Range-wide Indiana Bat Summer Survey Guidelines, 2020*. The MLS study corridors are located in the Washington D.C. Metropolitan Area, spanning 48-miles, including portions of Prince George's and Montgomery Counties in Maryland and Fairfax County in Virginia, and the MLS is considered "linear" as it relates to the USFWS *Indiana Bat Survey Protocols*. Each acoustic survey site was located within suitable forested habitat areas FHT-1 and FHT-2 and was surveyed using USFWS guidelines.

The level of effort for the acoustic survey was based on the USFWS 2020 Survey Guidelines. The USFWS guidance recommends a minimum of two detector nights of effort per 1 kilometer (0.6 mile) of suitable habitat. The results of the aforementioned habitat assessment determined the total number of acoustic survey sites for the MLS. Monitoring locations were selected by an RK&K qualified bat biologist for



likelihood of use and habitat characteristics most likely to provide clear, identifiable bat calls and are identified on the Bat Acoustic Survey Map in **Appendix A**. Monitoring locations are spatially distributed to maximize coverage of suitable habitat identified. Attempts were made to identify a potential survey location within each kilometer of suitable habitat. Preliminary review of the suitable habitat areas within the study area identified approximately 66 kilometers of suitable habitat. This resulted in a minimum of 132 detector nights of survey for the project and 66 detector locations. Survey site datasheets are included in **Appendix D** and a photographic log of detector locations is included in **Appendix E**.

The survey occurred during the 2020 Indiana bat survey season (May 15th-August 15th) and began in June, it continued until its conclusion in July 2020. RK&K provided survey crews of qualified biologists for the selection of survey locations and bat detector placement. The best acoustic survey locations were selected in the field based on best professional judgement by a USFWS approved Qualified Bat Surveyor (QBS). Detectors were placed in areas where bats would be expected to be foraging, traveling, or drinking. The *I-495 & I-270 Managed Lanes Study Draft Technical Study Plan - Acoustic Surveys - Threatened and Endangered Bat Species - Indiana bat (Myotis sodalis) and Northern long-eared bat (Myotis septentrionalis)* included survey site locations that were agreed upon with USFWS. All sites included minor field adjustments and some sites required significant field adjustments to maximize the potential for recording quality bat calls. All adjusted locations remained within the designated kilometer segments to adhere to USFWS spacing protocols. **Appendix I** provides GPS coordinates and site survey information.

Wildlife Acoustics SM4 passive acoustic monitoring devices were used to survey selected locations. Weatherproof omni-directional ultrasonic microphones were used in combination with the acoustic units. Microphones were mounted to the ends of aluminum or steel poles and were positioned atop iron rebar spikes for stability. The microphones were oriented parallel with the ground towards potential roosting habitat areas (i.e., forested areas) or potential foraging/travel habitat. All units were tested in the field for proper functionality prior to the start of the survey. Specifications for the unit settings are provided in **Appendix D**. During the survey, previous night data and verification of all unit settings were confirmed prior to deployment. If unexpected results were recorded, (minimal calls, no calls) the unit settings were confirmed, and the survey night was repeated. All unit settings and functionality were verified when units were moved to the next survey locations. All sites included minor field adjustments and some sites required significant field adjustments to maximize the potential for recording quality bat calls. All adjusted locations remained within the designated kilometer segments to adhere to USFWS spacing protocols. For any sites that displayed few or no calls, site weather conditions were reviewed, bat detector unit settings were verified, and survey nights were added. The following sites had added nights due to weather of detector malfunction: 3A, 8, 12, 13, 13A, 14, 15, 16, 18A, 26, X2, and X5.

Each acoustic survey location was surveyed at least twice over the course of the survey period. All recordings were completed in full-spectrum mode and the appropriate Kaleidoscope[®] Pro (Wildlife Acoustics, Inc.) acoustic identification software was used to provide verification on species identification per the USFWS 2020 Survey Guidelines. A USFWS/USGS approved version of Kaleidoscope[®] Pro, version 5.1.0, was chosen for the automated ID process. Qualitative call analysis (manual vetting) was conducted by a trained RK&K bat biologist to verify calls of potential T&E bat species.



To provide further clarification of the acoustic survey locations, the following bridge locations were surveyed via acoustic techniques for bats:

1) American Legion Bridge over the Potomac River;

- 2) I-495 Bridge over the NW Branch of the Anacostia River;
- 3) MacArthur Boulevard/Clara Barton Parkway Westbound bridge (due to guano presence); and
- 4) Seven Locks Road bridge (due to guano presence).

A. Bat Call Analysis

Bat call data was recorded in the field at 70 locations using Wildlife Acoustics SM4 passive acoustic monitoring devices and weatherproof omni-directional ultrasonic microphones in accordance with the USFWS survey protocol, *Range-wide Indiana Bat Summer Survey Guidelines, March 2020.* The acoustic monitoring devices record all bat calls, including those of the target species identified by USFWS and MDNR for the 2020 MLS Acoustic Bat Survey: Indiana bats (*Myotis sodalis*), Northern Long Eared Bats (*Myotis septentrionalis*), and small footed myotis (*Myotis leibii*), a Maryland state-listed Endangered species.

The recorded call data was downloaded daily and saved in site-specific folders. The call files were then processed using Kaleidoscope[®] Pro version 5.1.0 (Wildlife Acoustics, Inc.) acoustic identification software for automatic identification (ID). Each site's individual nightly recorded data was processed individually.

A trained RK&K biologist (Ryan Leiberher) then reviewed the automated ID results for each site and survey night. In this vetting process, all *Myotis* sp. calls ("*Myotis* vetting") were identified in the dataset and automated IDs of Indiana bats (*Myotis sodalis*), Northern Long-Eared Bats (*Myotis septentrionalis*), and the Little Brown bat (*Myotis lucifugus*) were noted. An Excel tracking spreadsheet was created identifying all survey locations with *Myotis* sp. bat calls, including *Myotis sodalis*, *Myotis lucifugus*, and *Myotis septentrionalis*. To aid in the vetting process a flowchart/ key was utilized and is included in **Appendix F**. The tracking sheets are provided in **Appendix G**. A trained RK&K biologist conducted a rigorous analysis of the P-value in combination with characteristic frequency (Fc) and characteristic slope (Sc) values on this focused *Myotis* dataset. *Myotis lucifugus* was included in the analysis due to bat call similarities with *Myotis sodalis*.

3 RESULTS

I. Habitat Assessment

Desktop and field habitat assessment identified 66 kilometers of linear distance with suitable T&E bat habitat. See **Appendix B** for depictions of the final habitat classifications for the MLS project.



II. Acoustic Survey

Acoustic survey was conducted at 70 detector locations for 142 detector nights, exceeding the minimum number survey nights and locations. See **Appendix B** for depictions of the final detector locations for the MLS project. During the survey 54,700 bat calls were recorded.

Presence Confirmation- P-Value Analysis

The Kaleidoscope[®] Pro software provides P-values as an output, which reflect how close a particular bat call is to the reference call for a particular species. USFWS protocol designates a P-value of 0.05 or less as an indicator of presence for T&E bat species in the analysis of automated bat calls using this identification software. Sites with P-values indicating presence are identified on the attached mapping (**Appendix B**) and accompanying spreadsheet (**Table 1**). Two acoustic survey sites, Sites 18 and 24A, have P-values indicating presence for the Northern Long-eared Bat, *Myotis septentrionalis*. A third site, Site X4, has a P-value of 0.06 and combined characteristic frequency (Fc) and characteristic slope (Sc) values that indicate presence of *Myotis septentrionalis*, in the opinion of RK&K biologists. Specific call information is provided in **Table 3**. No P-values indicating presence of the Indiana Bat, *Myotis sodalis*, or small footed *Myotis* (*Myotis leibii*) were identified for the project. Site analysis that resulted in P-values of 1 indicated absence of T&E species at those sites. More detailed data associated with the analysis is provided in **Appendix G**.

Table 1: Northern Long Eared Bat Presence

able 1			_		_											_	-	
DATE	AUTO ID*	PULSES	Fc	Sc	Dur	Fmax	Fmin	Fmean	TBC	Fk	Tk	\$1	Тс	Qual	FILES	Site	Night	Kaleidoscope P-value (MYSE/MYSO) ID Notes
							٧	Vildlife Acc	oustics KA	EIDOSCO	PE 5.1.0						100.27	
									Site 1	8								
7/9/2020	MYOSEP	12	37.846	5 170.53	3.178	60.827	35.046	44.589	140.191	42.205	1.898	401.96	2.7	4.1	15	1 18	1	0.008 MYSE
7/9/2020	MYOSEP	6	36.939	99.66	3.643	64.049	35.917	46.348	164.182	40.054	2.637	438.08	3.493	3 1.5	59	1 18	1	0.008 MYSE
									Site X	4								
6/19/2020	MYOSEP	8	35.676	5 241.74	3.519	68.986	32.785	45.287	104.557	42.504	1.89	531.3	2.994	1.2	29	1 14	2	0.0619461 MYSE
									Site 24	1A								
E /2 4 /2020	MYOSEP	F	35.126	5 193.82	2.464	1 53.087	32.781	40.507	86.29	40.52	1.268	472.62	2.141	1 14	12	1 244	2	0.0233266 MTSE

4 CONCLUSION

As outlined within the approved study plan for the MLS project, an acoustic bat survey to determine presence/absence of T&E bat species within the study area was conducted during the 2020 Indiana bat survey season (May 15th-August 15th). Sampling was performed in accordance with the USFWS survey protocol, *Range-wide Indiana Bat Summer Survey Guidelines, 2020*. The survey resulted in the recording of 54,700 bat calls at 70 sites. Three of these sites had calls identified as Northern Long eared bats (*Myotis septentrionalis*). No Indiana bats (*Myotis sodalis*) or small footed bats (*Myotis leibii*) were recorded during the acoustic survey using the aforementioned methods. No potential hibernacula were identified within the study area. Potential roost trees were not identified as part of this survey.

APPENDIX A- APPROVED STUDY PLAN

I-495 & I-270 Managed Lanes Study Final Technical Study Plan - Acoustic Surveys Threatened and Endangered Bat Species Indiana bat (*Myotis sodalis*) and Northern long-eared bat (*Myotis septentrionalis*)

INTRODUCTION

The following phased Study Plan presents threatened and endangered (T&E) bat species survey approaches for the I-495 & I-270 Managed Lanes Study (MLS). As part of the scope of services, Rummel, Klepper, & Kahl (RK&K) will require a final plan of study for the MLS upon receiving input from the United States Fish and Wildlife Service (USFWS).

The MLS is considered linear as it relates to the threatened and endangered (T&E) bat species survey protocols. The majority of the Project is located within the vicinity of Washington D.C. and includes fragmented forested habitat. The USFWS Chesapeake Bay Field Office is the lead agency overseeing T&E bat species for this project. The Indiana bat (*Myotis sodalis*) is currently listed as Endangered in the state of Maryland and falls under the jurisdiction of the USFWS and the Maryland Department of Natural Resources (MDNR). The northern long-eared bat (*Myotis septentrionalis*) is currently listed as Threatened by USFWS and MDNR.

TASK 1- HABITAT ASSESSMENT

Background

RK&K has completed a Geographic Information System (GIS) desktop review of the MLS area, identifying forested habitat components and forested areas 15 acres and larger. The GIS forest layer was developed based on desktop review of the Chesapeake Conservancy Conservation Innovation Center's High Resolution Land Cover Data for tree canopy cover. In the Virginia portion of the corridor study boundary, the aerial extent of vegetation cover was identified using GIS data obtained from the Virginia Department of Forestry (VDOF) 2005 Virginia Forest Cover dataset. The desktop review is the first component of a multi-phased habitat assessment. Using this standard approach, total suitable summer habitat will be determined by GIS desktop review, field evaluation and Appendix F (Linear Project Guidance) of the USFWS 2020 Survey Guidelines. Desktop determined forested segments of the project will be compiled and field evaluated for accuracy. The data collected will be complied and used to determine acoustic survey intensity outlined in Task 2 of the Study Plan. The following outlines the main components of the proposed bat habitat assessment.

Habitat Assessment

A threatened and endangered bat habitat assessment evaluation of the MLS potential limits of disturbance (LOD) associated with the DEIS alternatives is proposed and will be performed by a USFWS Qualified Bat Surveyor (QBS) from RK&K. Due to the geographic location/urbanization of the study corridor, the potential for large tracts of suitable habitat is unlikely. RK&K proposes that the results of Task 1 of the Study Plan be utilized to determine the level of survey effort in Task 2.

The field evaluation effort associated with the bat habitat assessment will verify preliminary desktop information collected regarding forest land and potential hibernacula. The forested components will be qualitatively evaluated for potential use by threatened and endangered bat species. Based on best professional judgment and the evaluation of potential bat habitat by RK&K, forested components of the MLS LODs will be classified into forest habitat types (FHTs): Forest Habitat Type 1 (FHT 1), Forest Habitat Type 2 (FHT 2), and Forest Habitat Type 3 (FHT 3). The FHTs within the LODs will be characterized by the following:

- **FHT 1** is more likely to be used by threatened/endangered bat species for foraging, roosting, or for travel. These areas include suitable habitat for T&E bat species.
- **FHT 2** is less likely to be used by threatened/endangered bat species for foraging, roosting, or for travel. These areas include suitable habitat for T&E bat species.
- **FHT 3** is unlikely to be used by threatened/endangered bat species for foraging, roosting, or for travel. These areas do not include suitable habitat for T&E bat species

FHT-1 - This habitat type is more likely to be used as roosting, travel and foraging habitat by T&E bats due to forest characteristics. This FHT typically includes a mixed-age deciduous hardwood forest with plenty of pole stage and mature hardwoods. The understory will be open and have moderate to no shrub layer or a moderate understory with travel corridors and forage areas including trails, forest openings, and nearby waterways. Dominant tree species may include, live and dead or dying red maple (*Acer rubrum*), sugar maple (*A. saccharum*), shagbark hickory (*Carya ovata*), American beech (*Fagus grandifolia*), black cherry (*Prunus serotina*), white oak (*Quercus alba*), black locust (*Robinia pseudoacacia*), and willow (*Salix* sp.). Potential roost locations will be plentiful in this FHT. Tree/snag

physical location, bark condition, and topographic setting is more crucial to consideration as bat habitat than tree species.

FHT-2 - This habitat type is less likely to be used as roosting, travel, and foraging habitat by T&E bats due to forest characteristics, however; FHT-2s still may be used by T&E bats in some capacity. The existing timber typically includes mixed-age deciduous hardwood sapling stage to immature timber but includes a moderate to dense shrub layer and the forest may be disturbed or manipulated. The understory includes a moderate to dense shrub layer, with few travel corridors, forage areas, and nearby waterways. Potential roost sites are not as readily available as in FHT-1. Dominant tree and shrub species identified within FHT-2 may include red maple, sugar maple, tree of heaven (*Ailanthus altissima*), hawthorn (*Crataegus* sp.), American beech, Norway spruce (*Picea abies*), black cherry, white oak, black locust and elm (*Ulmus* sp.). Understory would be dominated by spicebush (*Lindera benzoin*), honeysuckle (*Lonicera* spp.), multiflora rose (*Rosa multiflora*), blackberry (*Rubus* sp.), poison ivy (*Toxicodendron radicans*), and grape vine (*Vitis* sp.) or similar species. Tree/snag physical location, bark condition, and topographic setting is more crucial to consideration as bat habitat than tree species.

FHT-3 - This habitat type is unlikely to be used by T&E bats due to forest characteristics. The existing timber includes deciduous hardwood sapling stage timber. The understory includes a dense shrub and vine layer and the forest is highly disturbed, manipulated, and/or fragmented. Roost sites are not readily available, nor are travel corridors, forage areas, or nearby waterways. In these areas, common species identified included honeysuckle, multiflora rose, black locust, blackberry, sumac (*Rhus typhina*), poison ivy, and grape vine.

The classifications resulting from the Task 1 habitat assessment will be utilized to determine the total acoustic survey effort for the MLS. RK&K recommends that FHT 1 and FHT 2 habitat area lengths be utilized when calculating the total suitable habitat length for the project. These results would determine the number of acoustic survey sites for the study area and acoustic survey sites would be located in FHT 1 and 2 habitat areas.

In addition to habitat characterization, RK&K recommends the study area be assessed for potential bat hibernacula. RK&K will coordinate with field staff regarding MLS-specific field features previously identified within the LOD. Any information regarding potential bat hibernacula (natural cave openings,

mines, or voids) will be included as part of the final report for the MLS. Any hibernacula identified would need to be assessed as part of another field effort specific to bat hibernacula.

TASK 2- ACOUSTICS SURVEY

RK&K proposes to conduct an acoustic bat survey for the MLS. Acoustics is the presence/absence survey method that will be used for the I-495/I-270: Managed Lanes Study. Sampling will be performed in accordance with the USFWS survey protocol, Range-wide Indiana Bat Summer Survey Guidelines, 2020. The MLS study corridor is located in the Washington D.C. Metropolitan Area, spanning 48-miles, including portions of Prince George's and Montgomery Counties in Maryland and Fairfax County in Virginia, and is considered "linear" as it relates to the USFWS Indiana Bat Survey Protocols. Each acoustic survey site would be located within suitable forested habitat areas FHT-1 and FHT-2 and would be surveyed using USFWS guidelines.

USFWS currently identifies the acoustic survey as one of the preferred techniques for evaluating projects that have the potential to affect the Indiana and/or northern long-eared bats. Should an Indiana bat or northern long-eared bat call be identified, further USFWS coordination will be required.

The level of effort for the acoustic survey is based on the USFWS 2020 Survey Guidelines. The USFWS guidance recommends a minimum of two detector nights of effort per 1 kilometer (0.6 mile) of suitable habitat. The results of the aforementioned Habitat Assessment (Task 1) determined the total number of acoustic survey sites for the MLS. Monitoring locations were selected by an RK&K qualified bat biologist for likelihood of use and habitat characteristics most likely to provide clear, identifiable bat calls to the maximum extent practicable and are identified on preliminary project mapping. Monitoring locations are representative of the entire project area and are spatially distributed to maximize coverage of suitable habitat. Preliminary review of the suitable habitat areas within the project area have identified approximately 66 kilometers of suitable habitat. This will result in a minimum of 132 detector nights of survey for the project and approximately 66 detector locations.

The survey will occur during the 2020 Indiana bat survey season (May 15th-August 15th). The exact start date of the acoustic surveys is dependent on weather conditions, staff availability, and obtaining concurrence of this study plan from USFWS. Once the survey begins it will continue until its conclusion.

The survey is anticipated to be ongoing for approximately 4 weeks. Both USFWS and the appropriate state agencies will be informed in advance once the survey start date is determined. RK&K will provide survey crews of qualified biologists for the selection of survey locations and bat call analysis. Wildlife Acoustics SM4 passive acoustic monitoring devices will be used to survey selected locations. Weatherproof omni-directional ultrasonic microphones will be used in combination with the acoustic units. Microphones will be mounted to the ends of ten-foot aluminum or steel poles that will be positioned atop iron rebar spikes for stability. The microphones will be oriented parallel with the ground towards potential roosting habitat areas (i.e., forested areas) or potential foraging/travel habitat. Each acoustic survey location will be surveyed at least twice over the course of the entire survey. All recordings will be completed in full-spectrum mode and the appropriate Kaleidoscope® Pro (Wildlife Acoustics, Inc.) acoustic identification software will be used to provide verification on species identification per the USFWS 2020 Survey Guidelines. A USFWS/USGS approved version of Kaleidoscope® Pro will be chosen for the automated ID process. Currently, versions 4.2.0 & 5.1.0 are approved by USFWS/USG. Qualitative call analysis (manual vetting) will be conducted by a trained RK&K bat biologist to verify calls of potential T&E bat species.

In addition to the acoustic surveys outlined, RK&K proposes additional acoustic survey locations described in the following subsection.

TASK 3- ACOUSTIC SURVEY- Bridge Locations

Previous field assessments within the project area have determined that four bridge locations house existing bat populations. RK&K is recommending these locations be surveyed acoustically for T&E bat species in addition to the remaining forested portions of the project area. Suitable habitat areas anticipated will include these locations:

- 1) American Legion Bridge over the Potomac River; and
- 2) I-495 Bridge over the NW Branch of the Anacostia River
- 3) MacArthur Boulevard/Clara Barton Parkway Westbound bridge (due to guano presence)
- 4) Seven Locks Road bridge (due to guano presence)

RK&K personnel will conduct acoustic monitoring at the aforementioned bridges, to determine the presence or probable absence of the federally threatened northern long-eared bat and federally

endangered Indiana bat. Using this approach and based on existing site conditions, each bridge structure is being considered 1 kilometer of suitable habitat. Therefore, these bridge locations will add an additional 4 acoustic survey locations to the total number of survey locations.

The following four bridges need to be evaluated for bat use during the summer survey season which is from May 15 through August 15. Any of the following bridges that have bat use documented will be added to the acoustic survey using the aforementioned methods.

- Kenilworth Avenue over I-495
- Greenbelt Road under I-495
- Eastbound Clara Barton Parkway (101010/142010)
- Suitland Parkway (160015/160016)

MIST NETTING AND RADIO TELEMETRY

Mist netting surveys and radio telemetry were planned for this bat study but the U.S. Fish and Wildlife Service (Service) asked that we temporarily postpone mist-netting surveys and radio telemetry for the I-495/I-270: Managed Lanes Study due to the potential risks of humans transmitting the COVID-19 virus (SARS CoV-2) to North American bats. If Service guidance on the COVID-19 virus (SARS CoV-2) changes during the 2020 spring/summer survey season, mist netting surveys and radio telemetry will be conducted for the I-495/I-270: Managed Lanes Study under Section 7(a)(1) of the Endangered Species Act which requires Federal agencies to use their authorities to further the conservation of listed species.

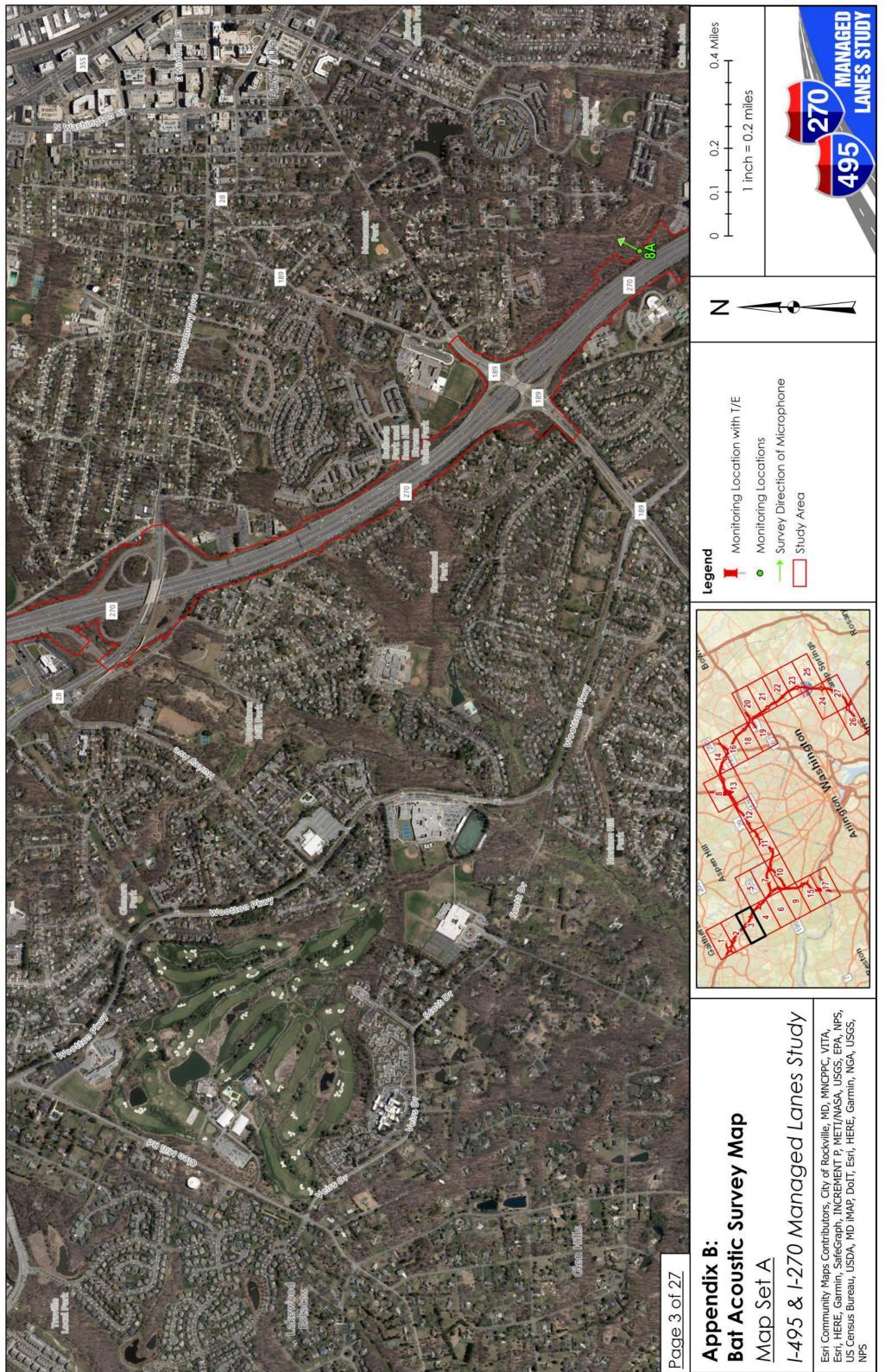
Reporting

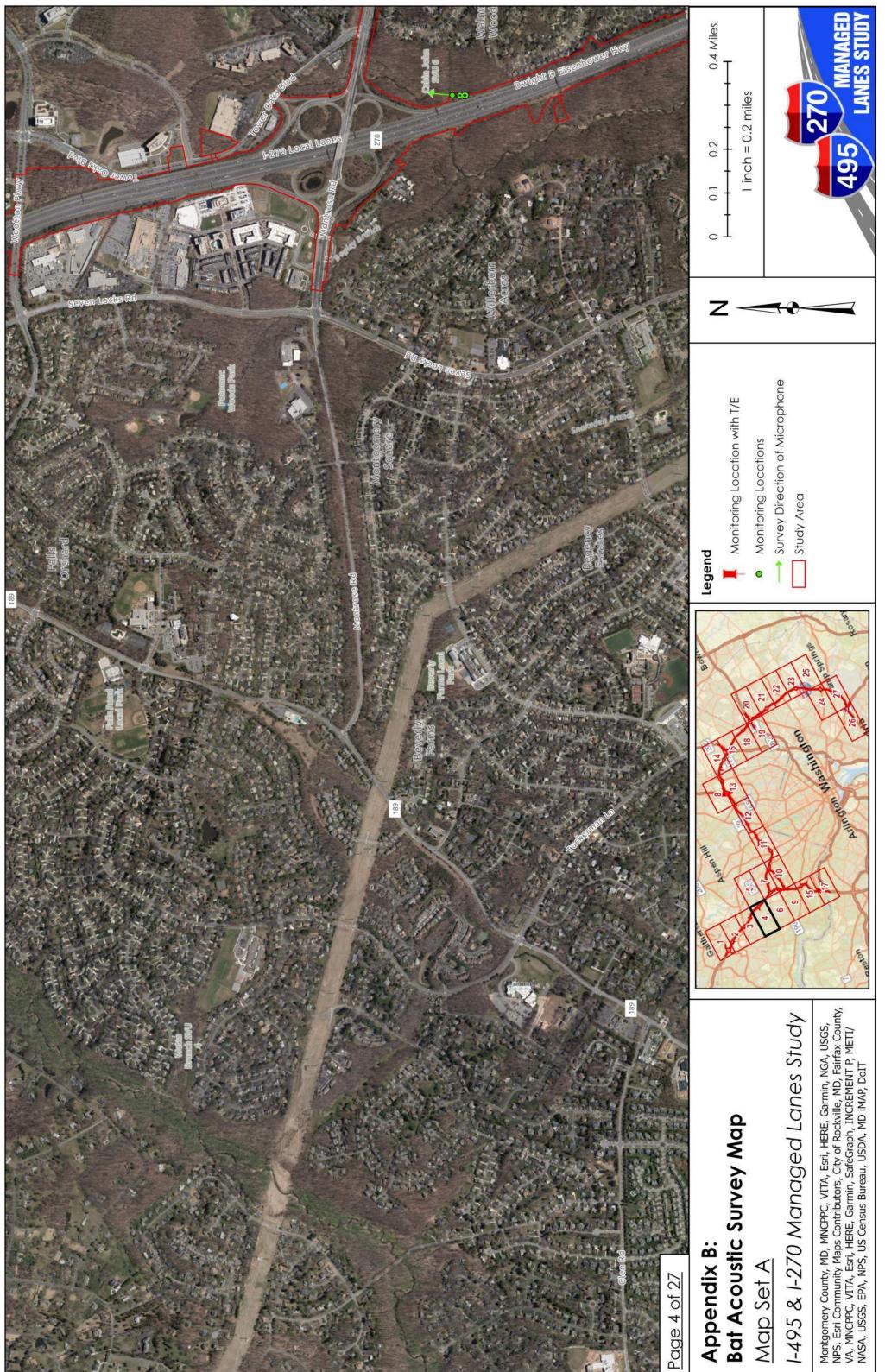
An electronic PDF copy of the survey report will be prepared and submitted to MDOT SHA, USFWS and MDNR. This report will include methodologies and results for Tasks 1 and 2 previously outlined. In addition, the USFWS Excel reporting table will be completed and uploaded.

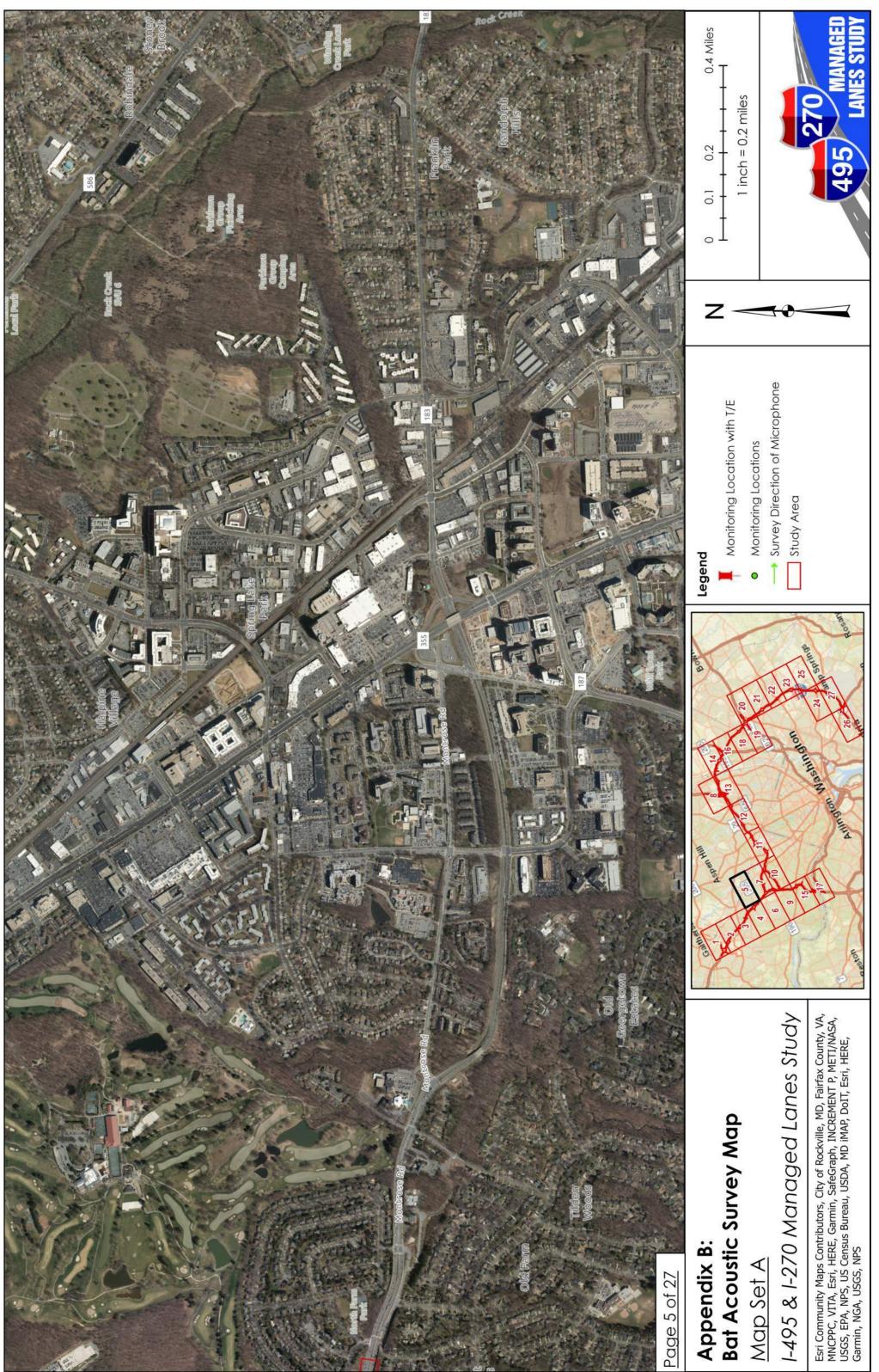
APPENDIX B- PROJECT MAPPING

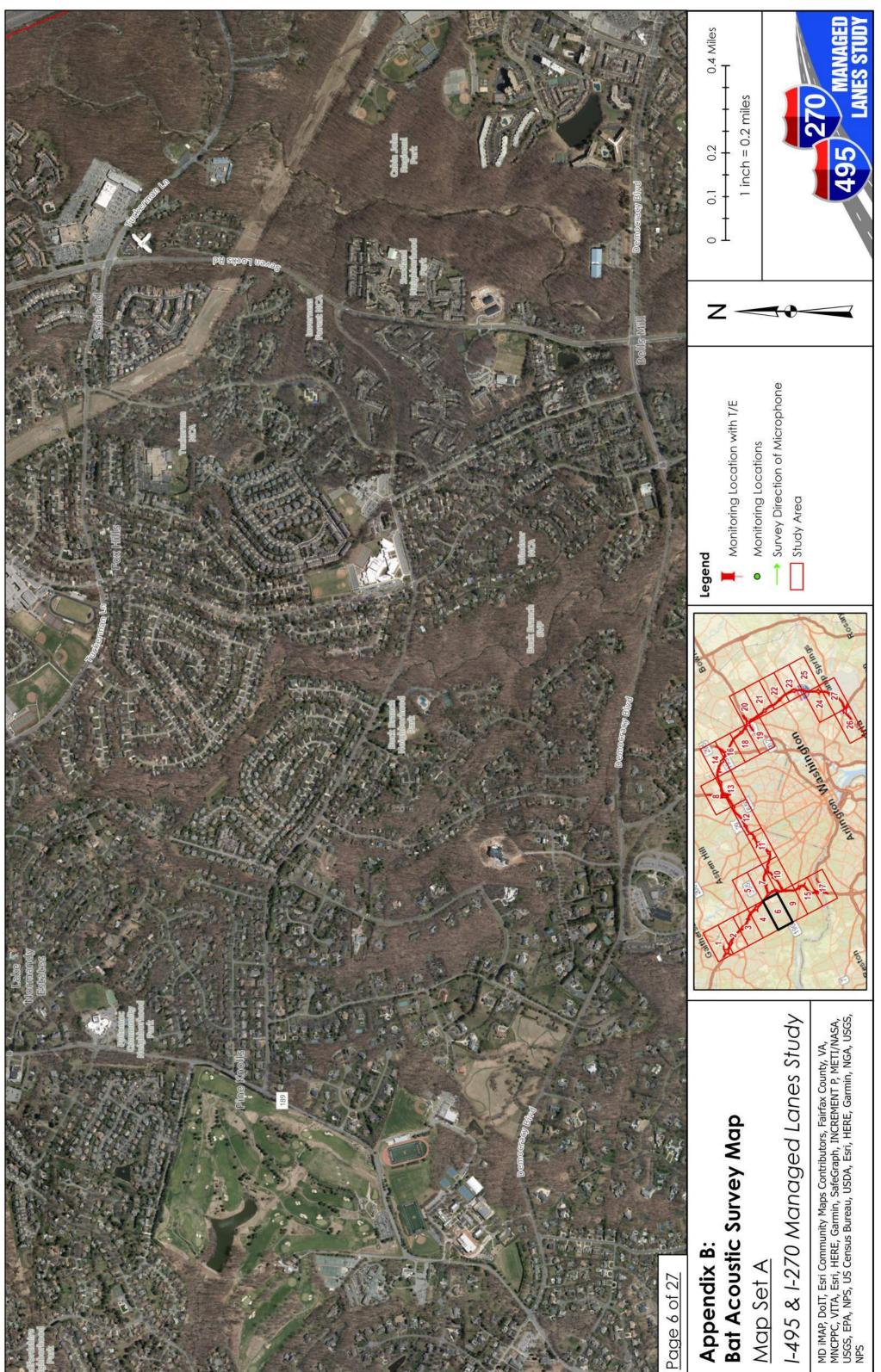


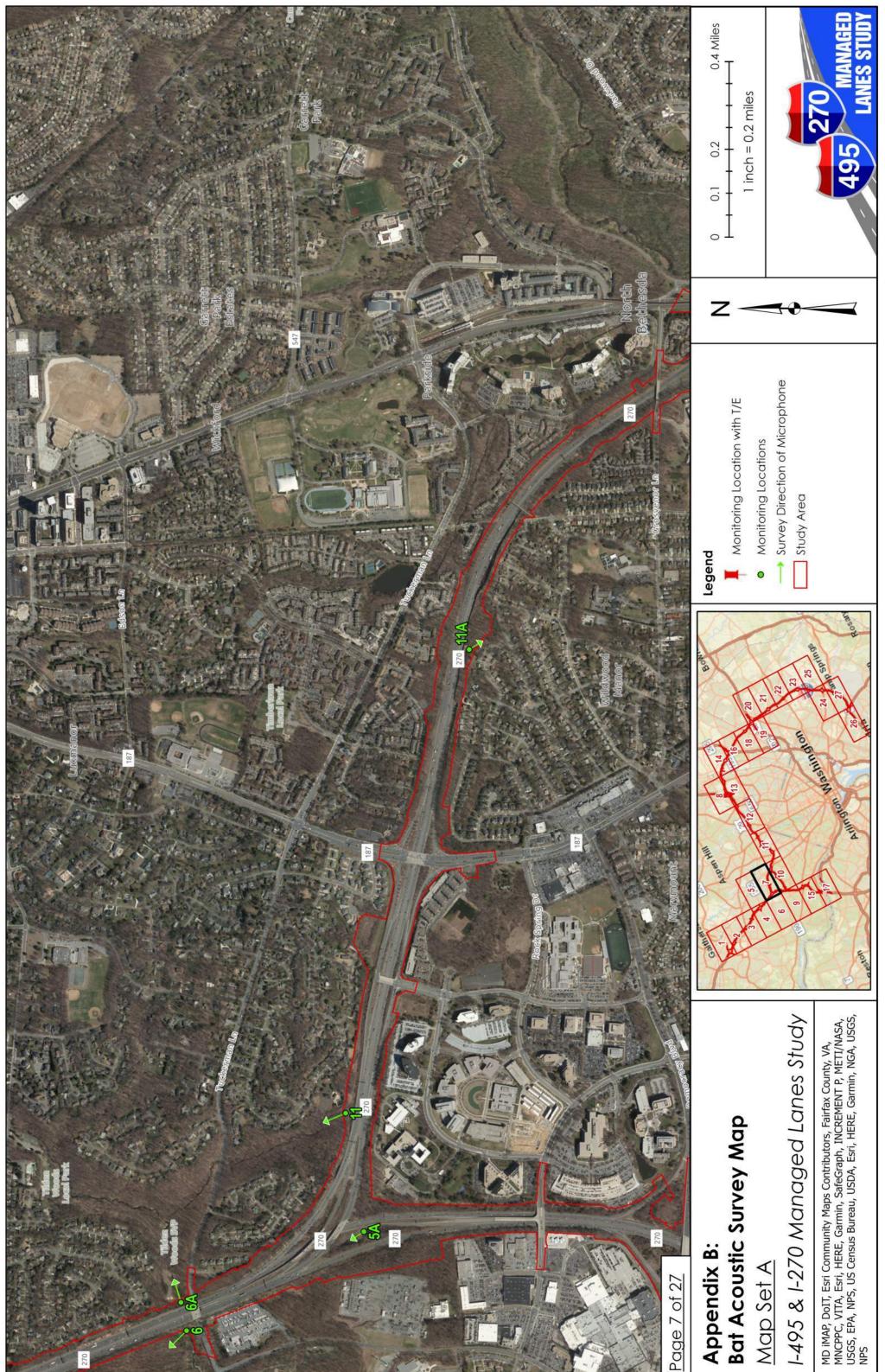


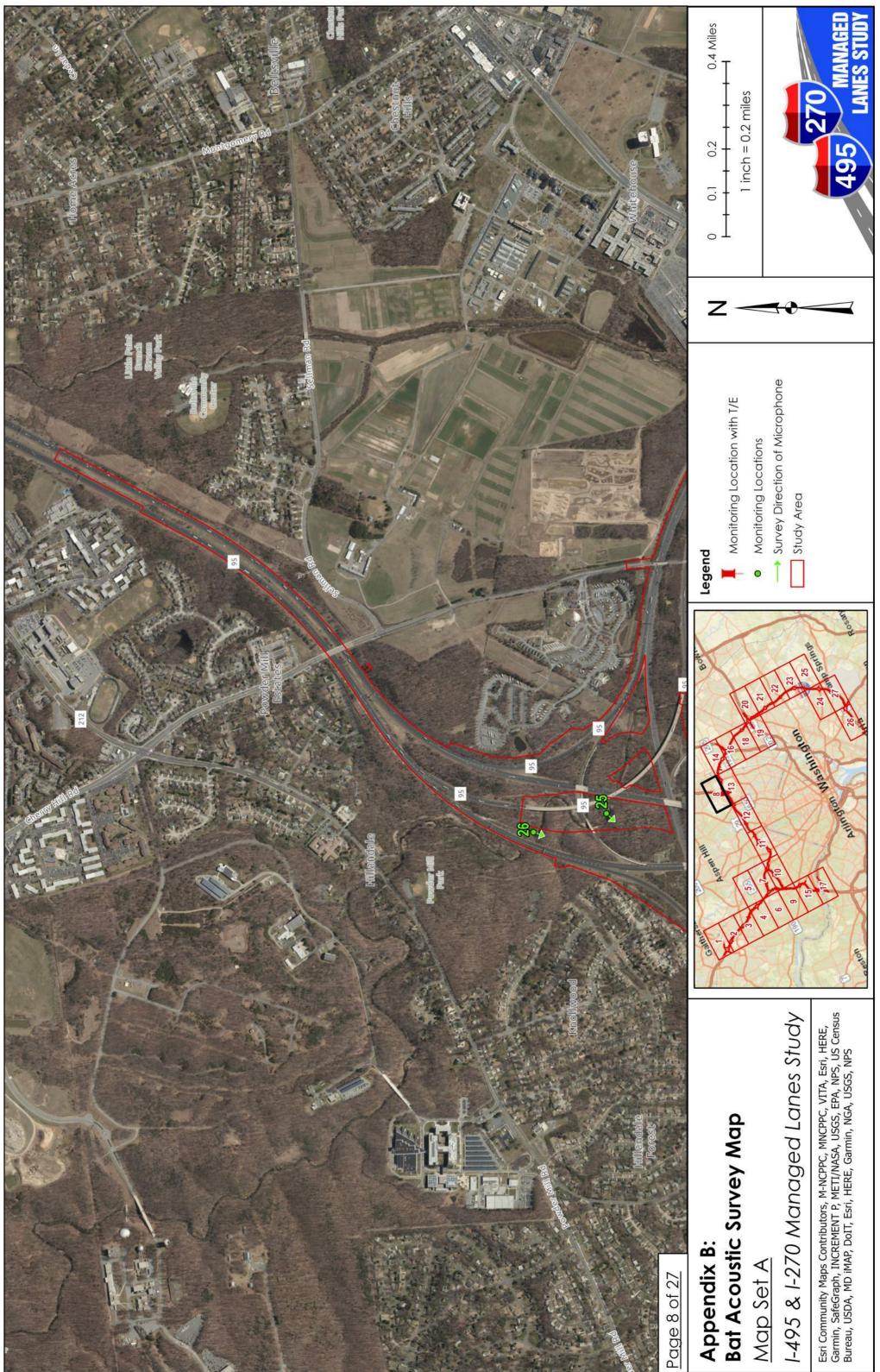


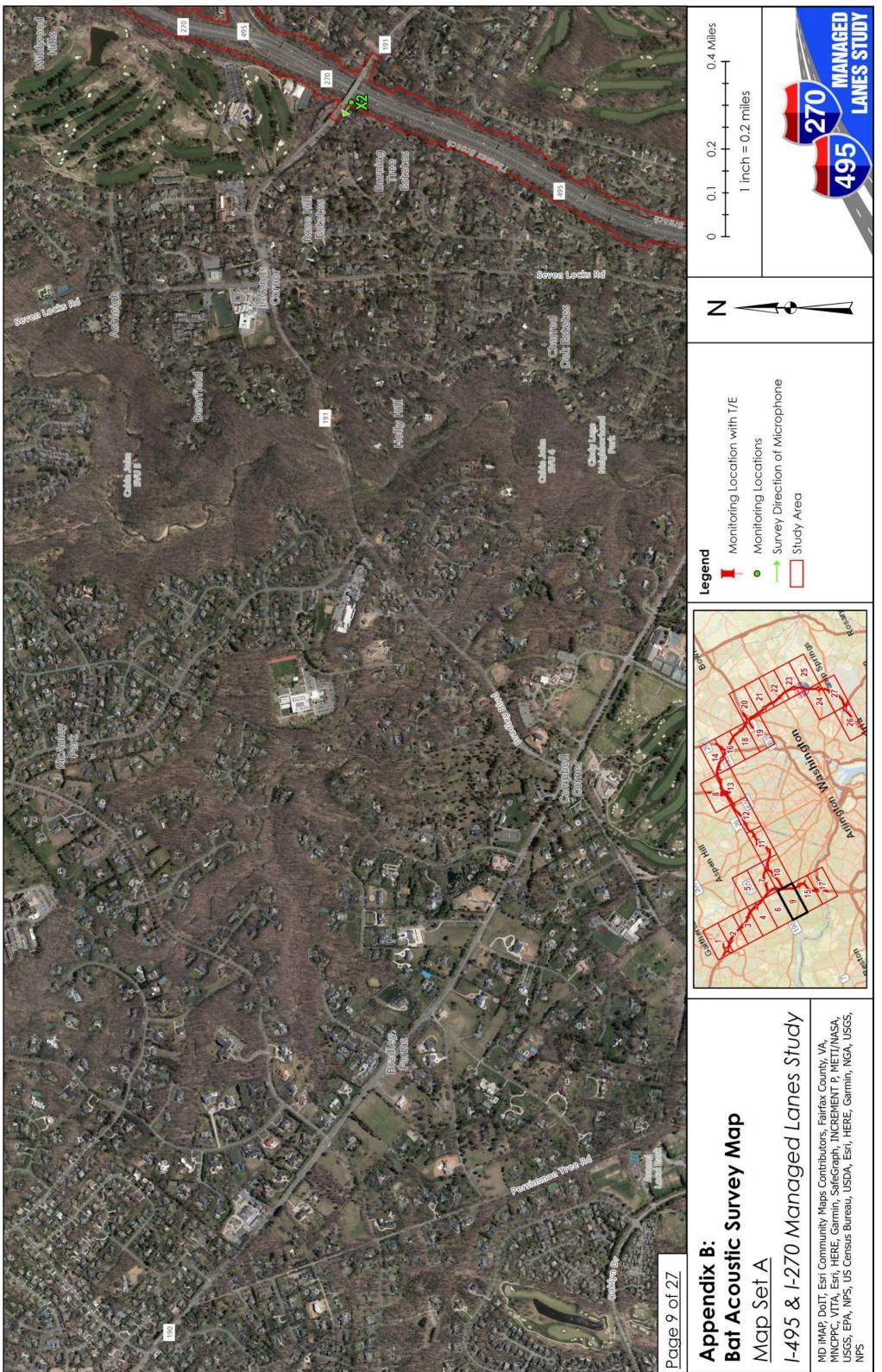


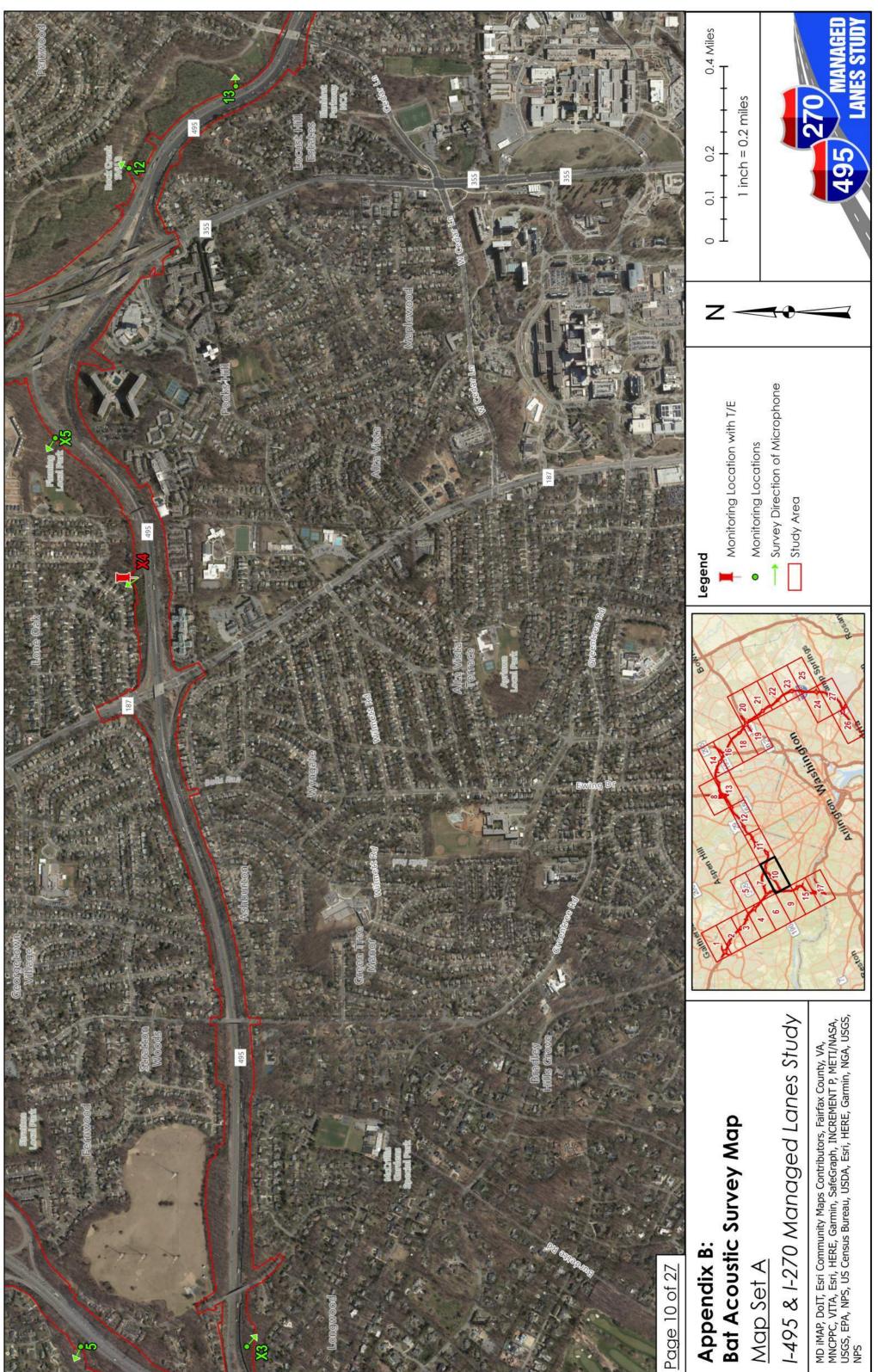


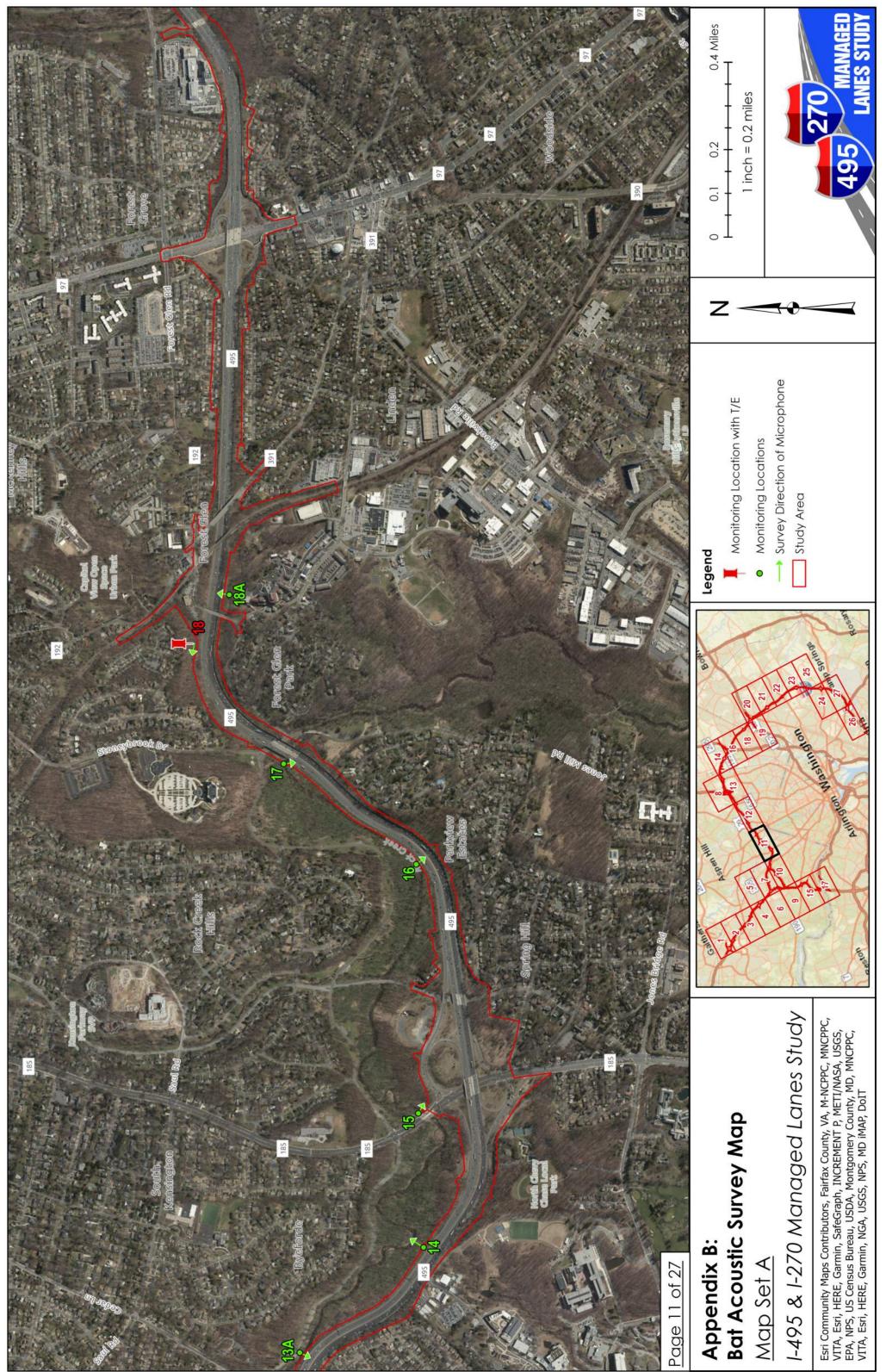


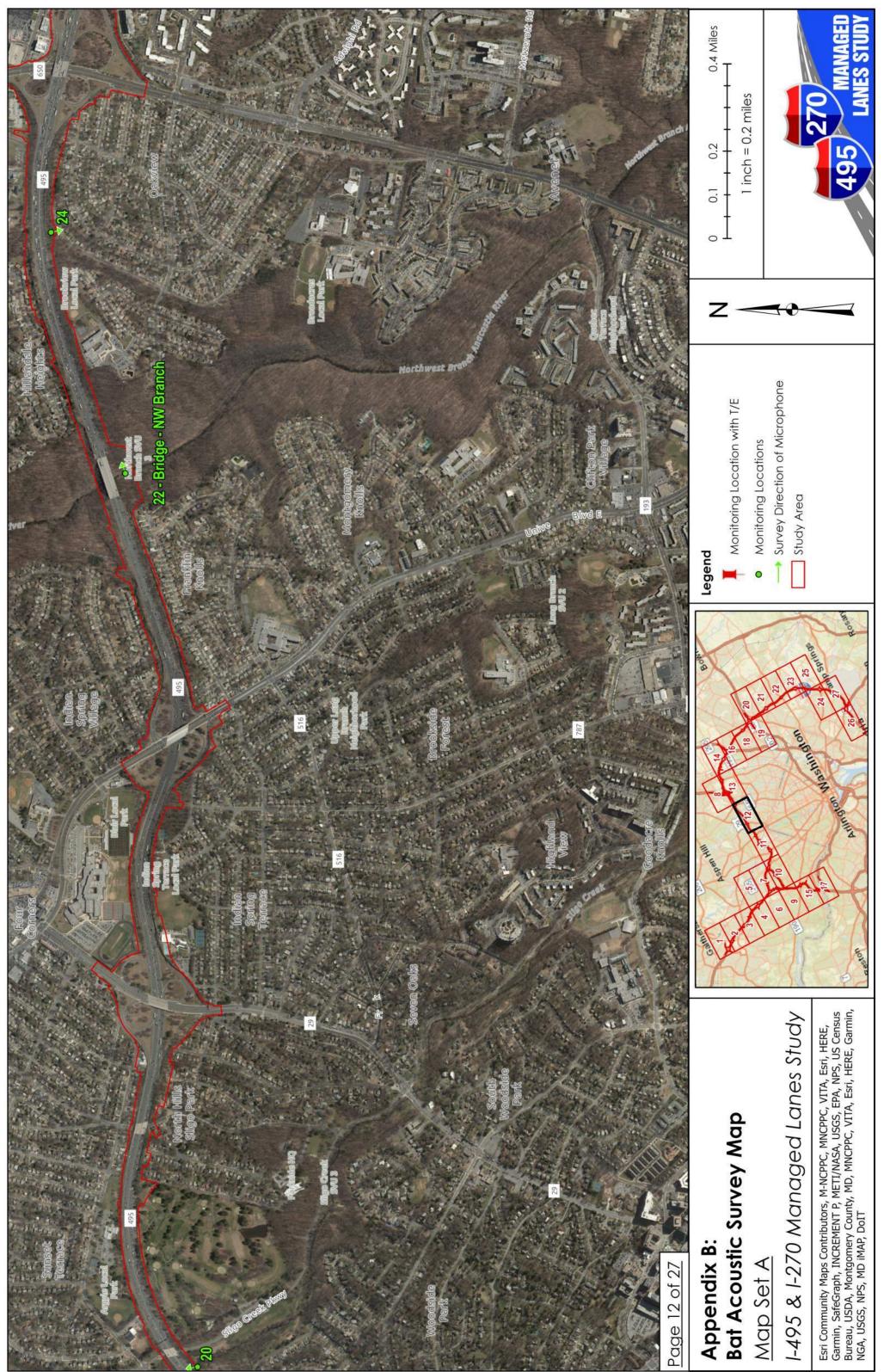


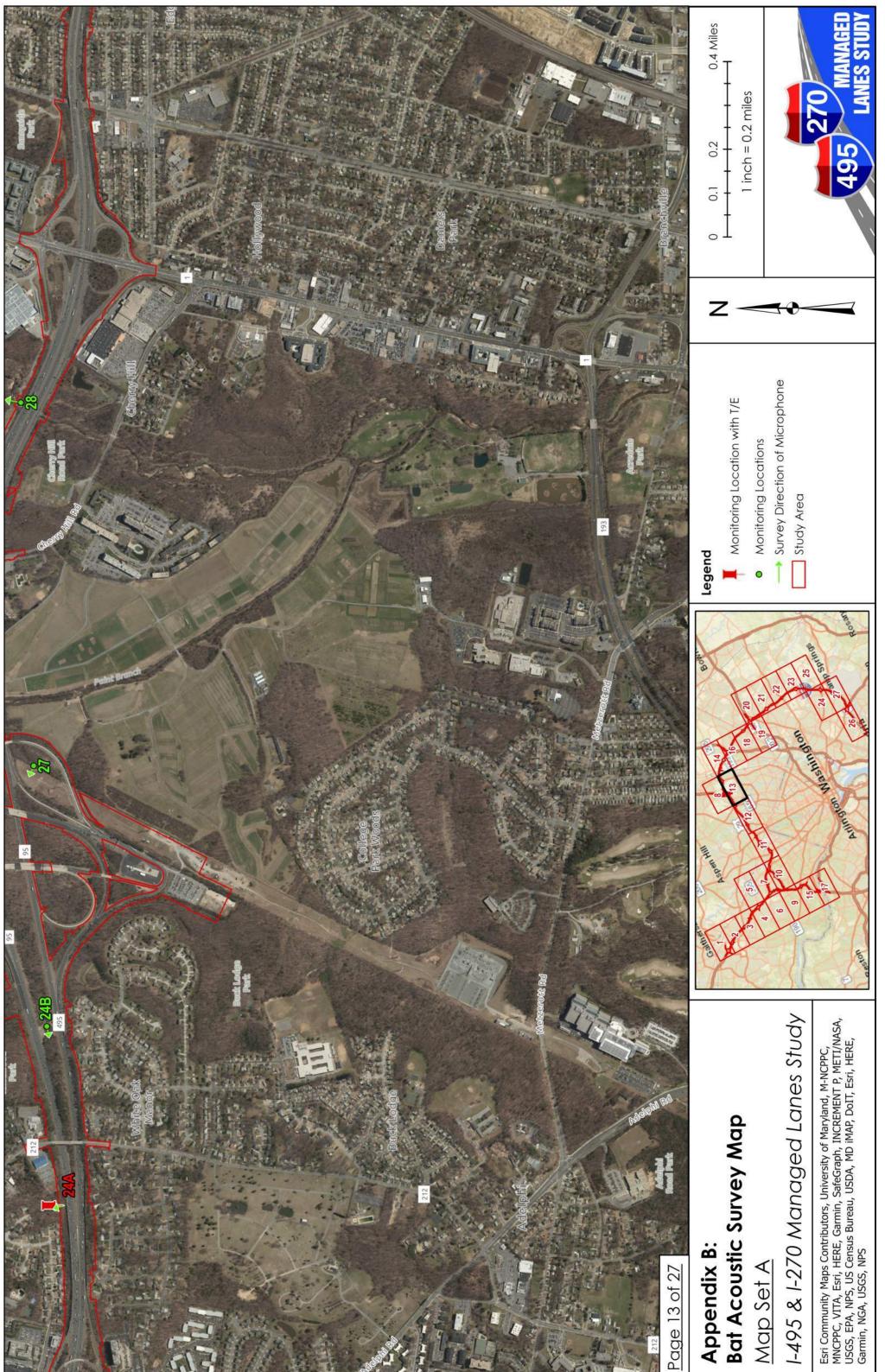


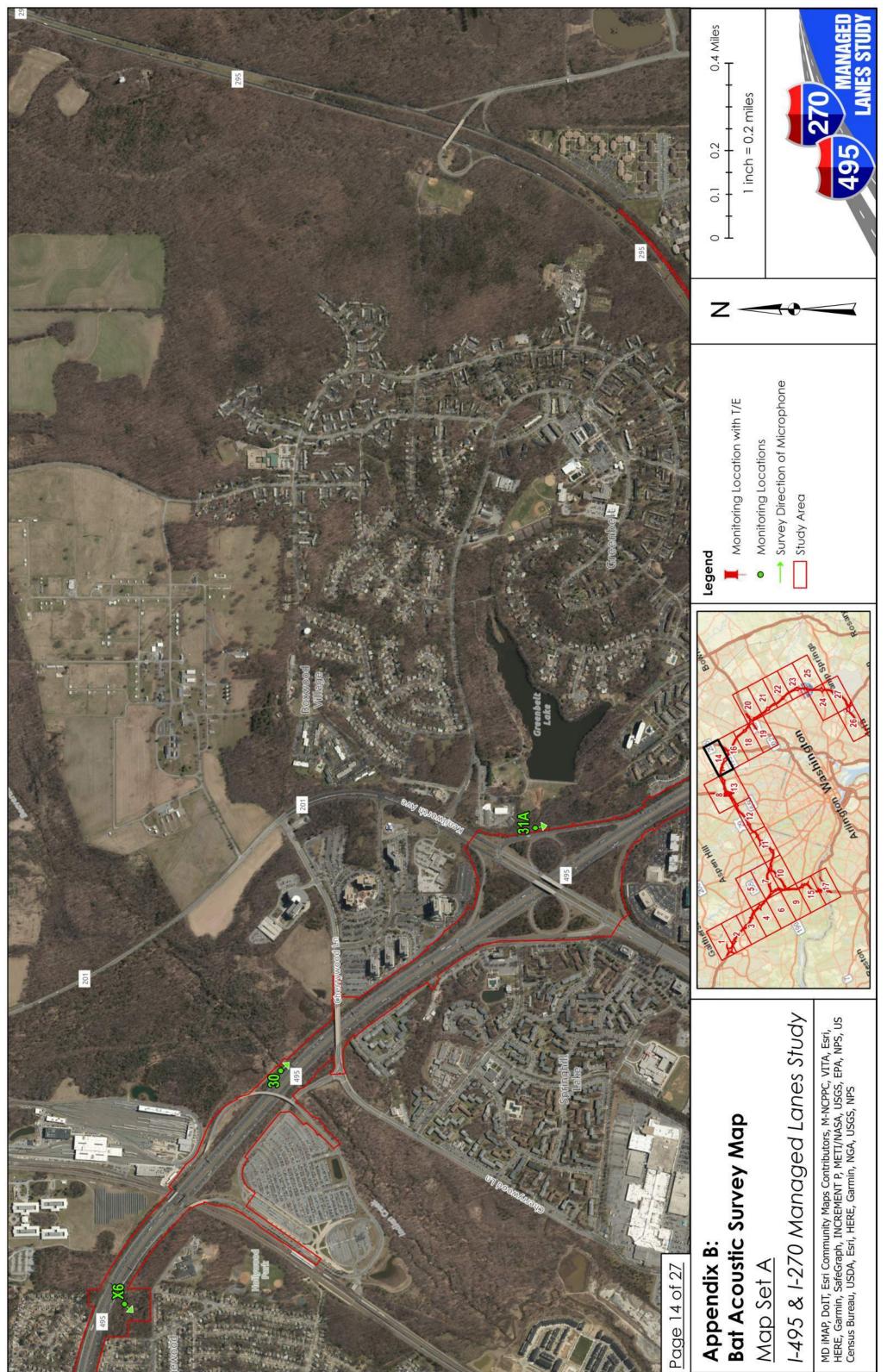


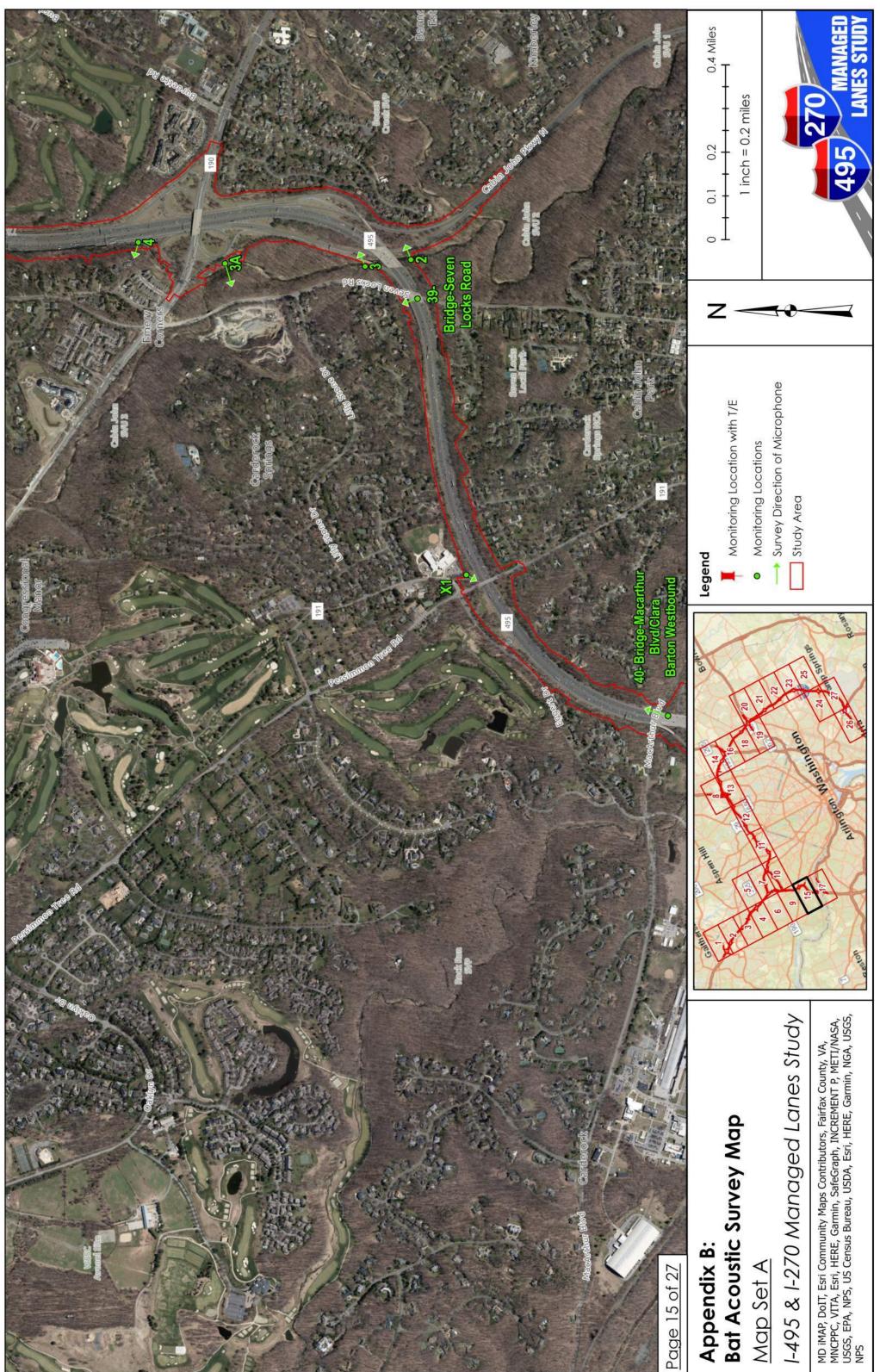


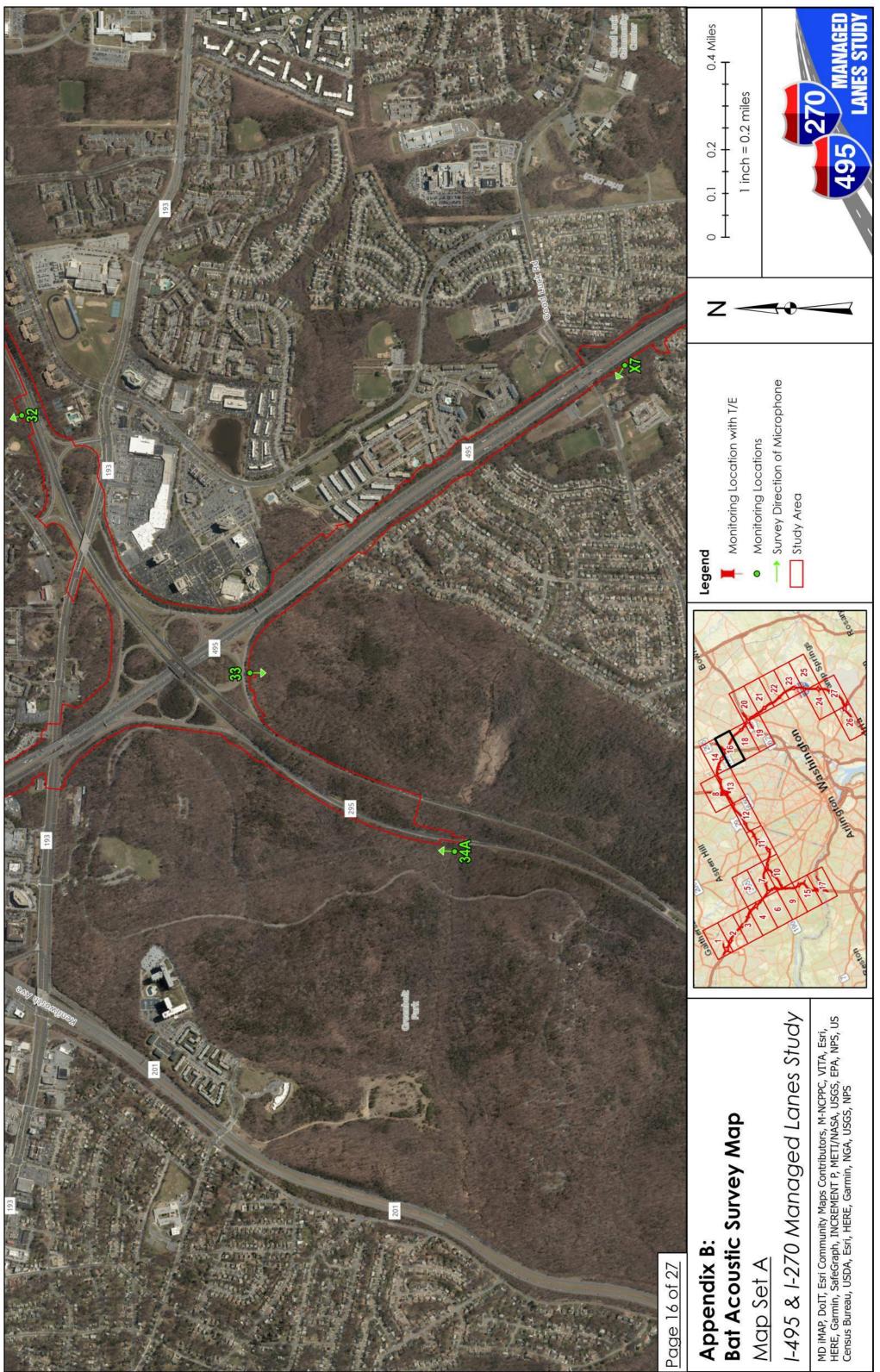


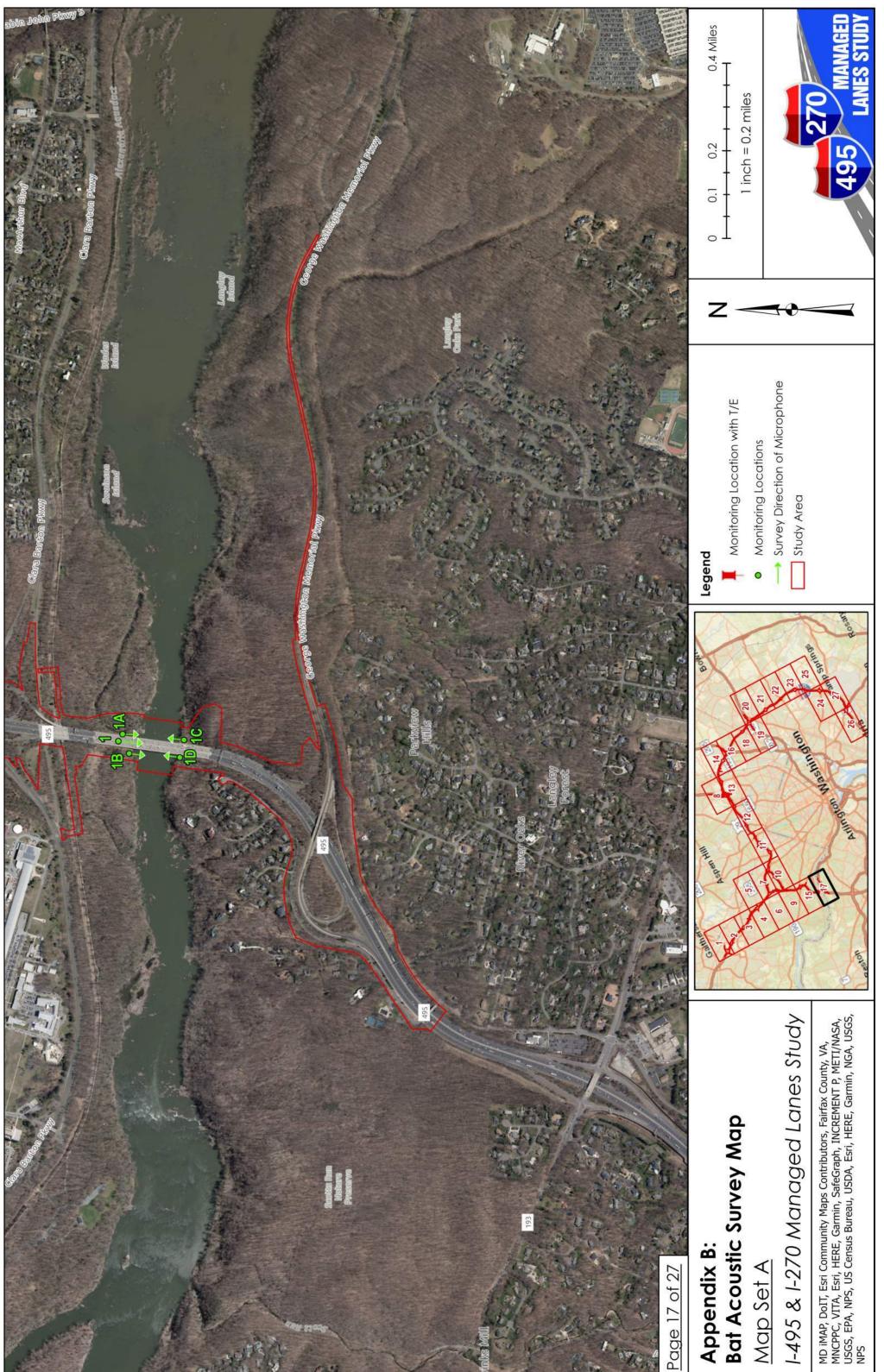


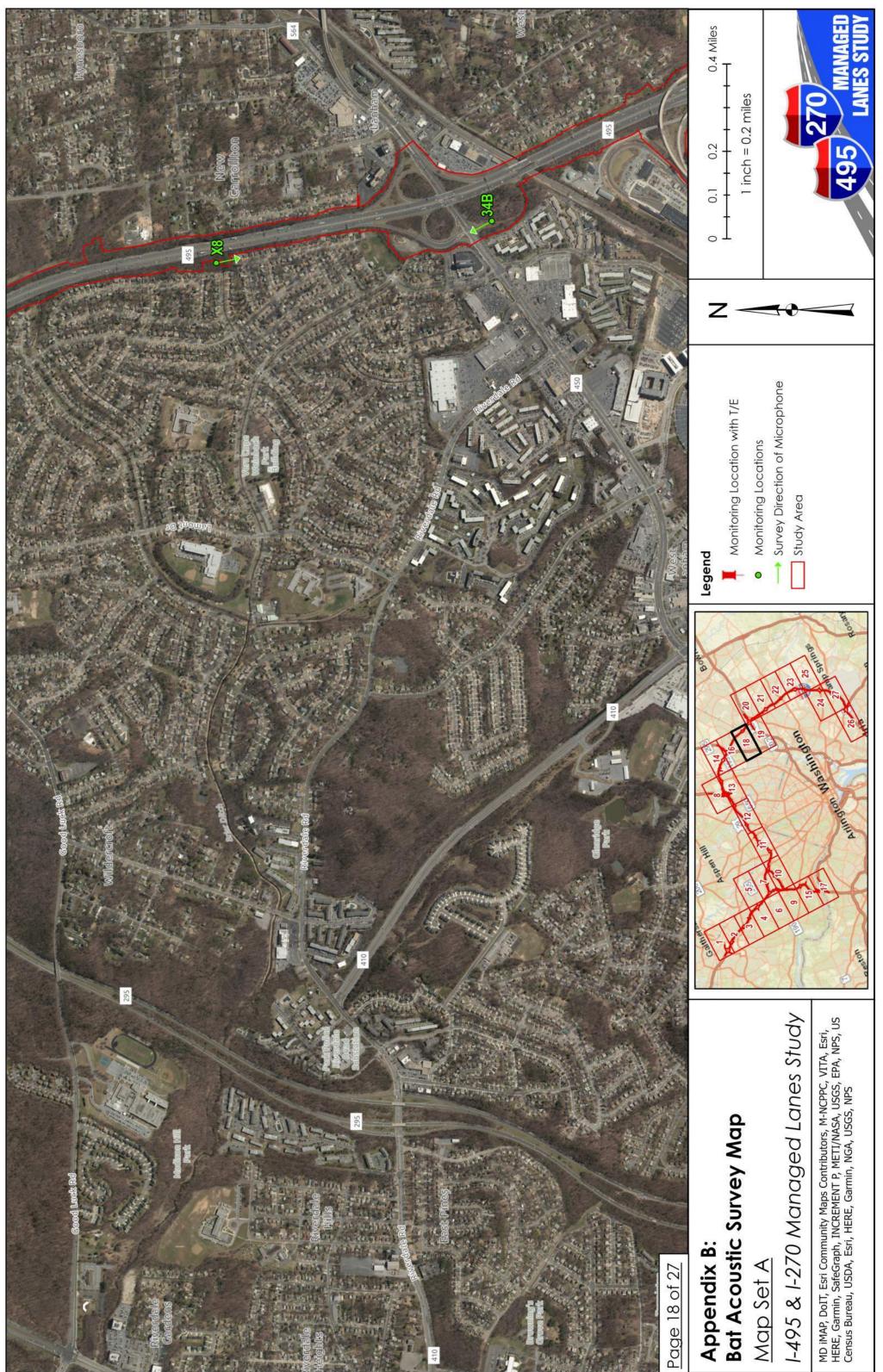


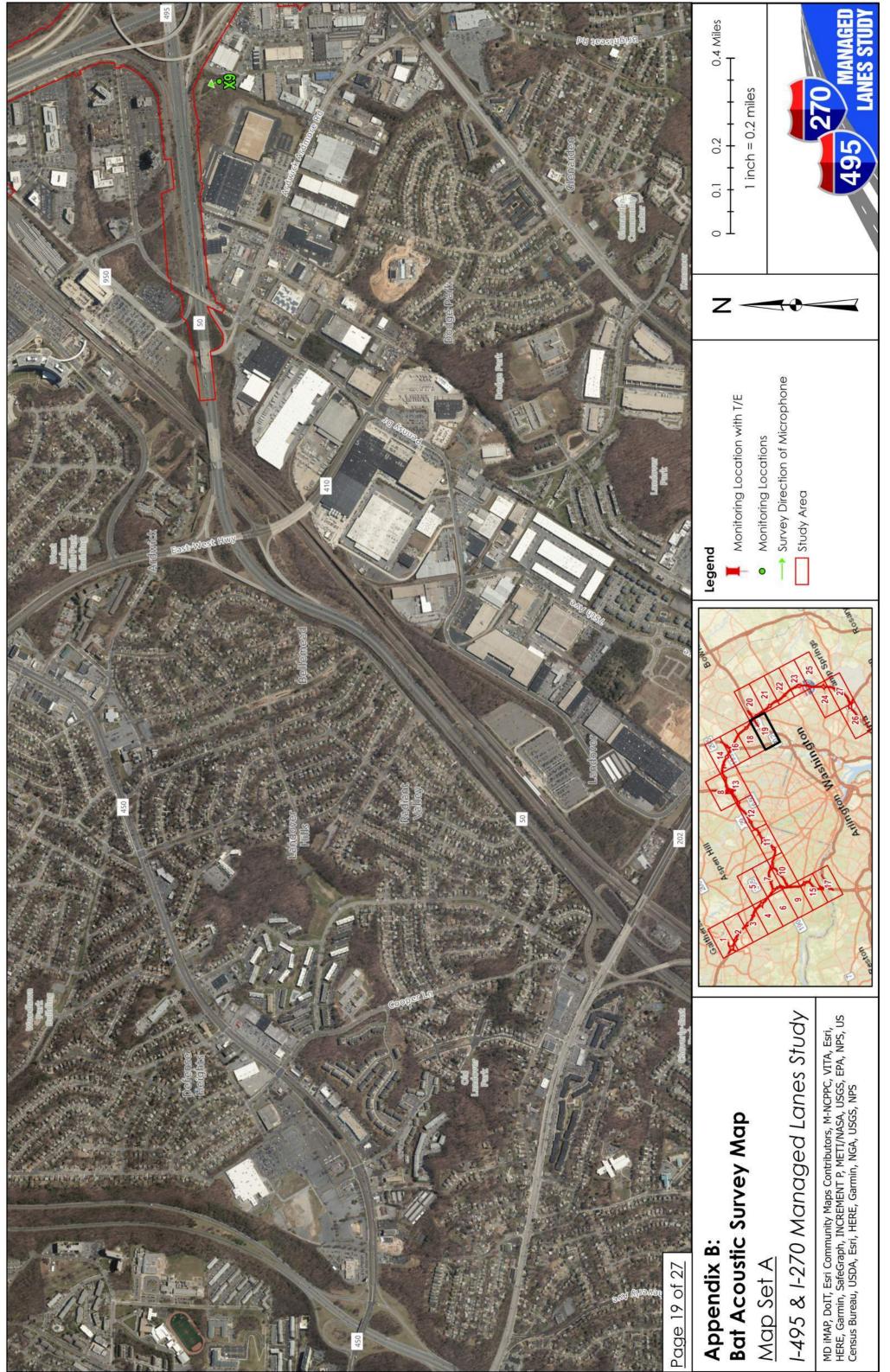


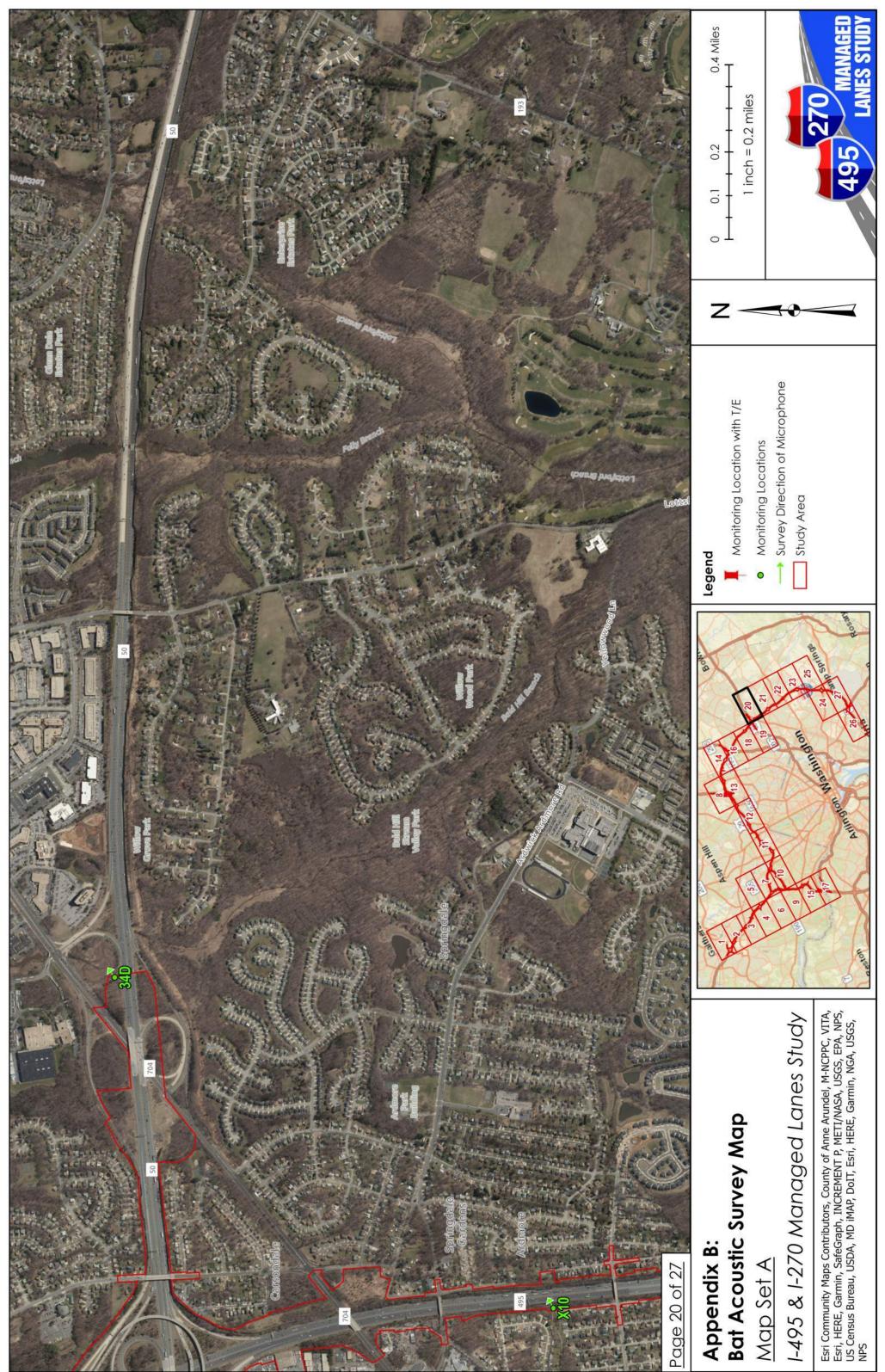


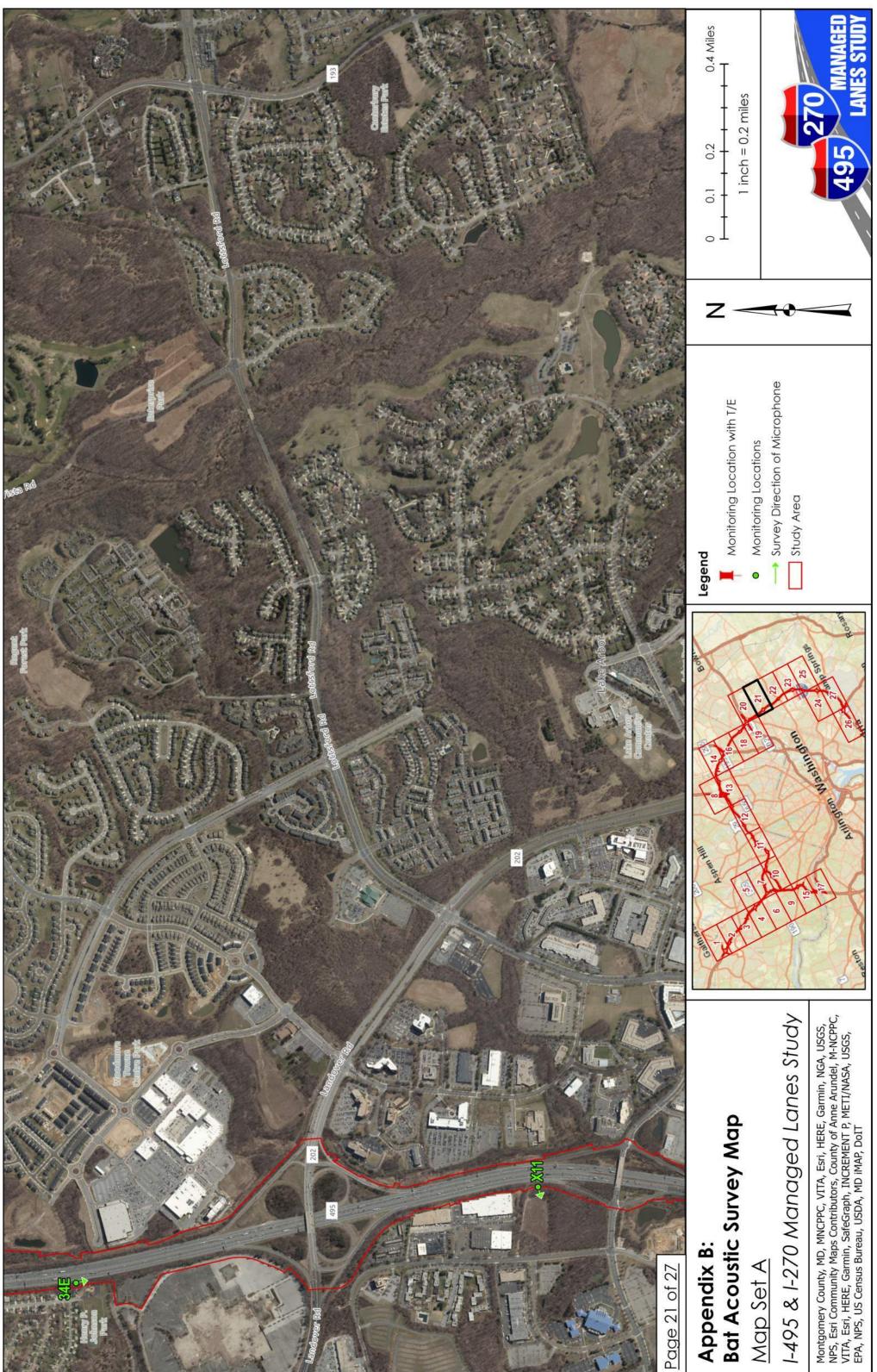


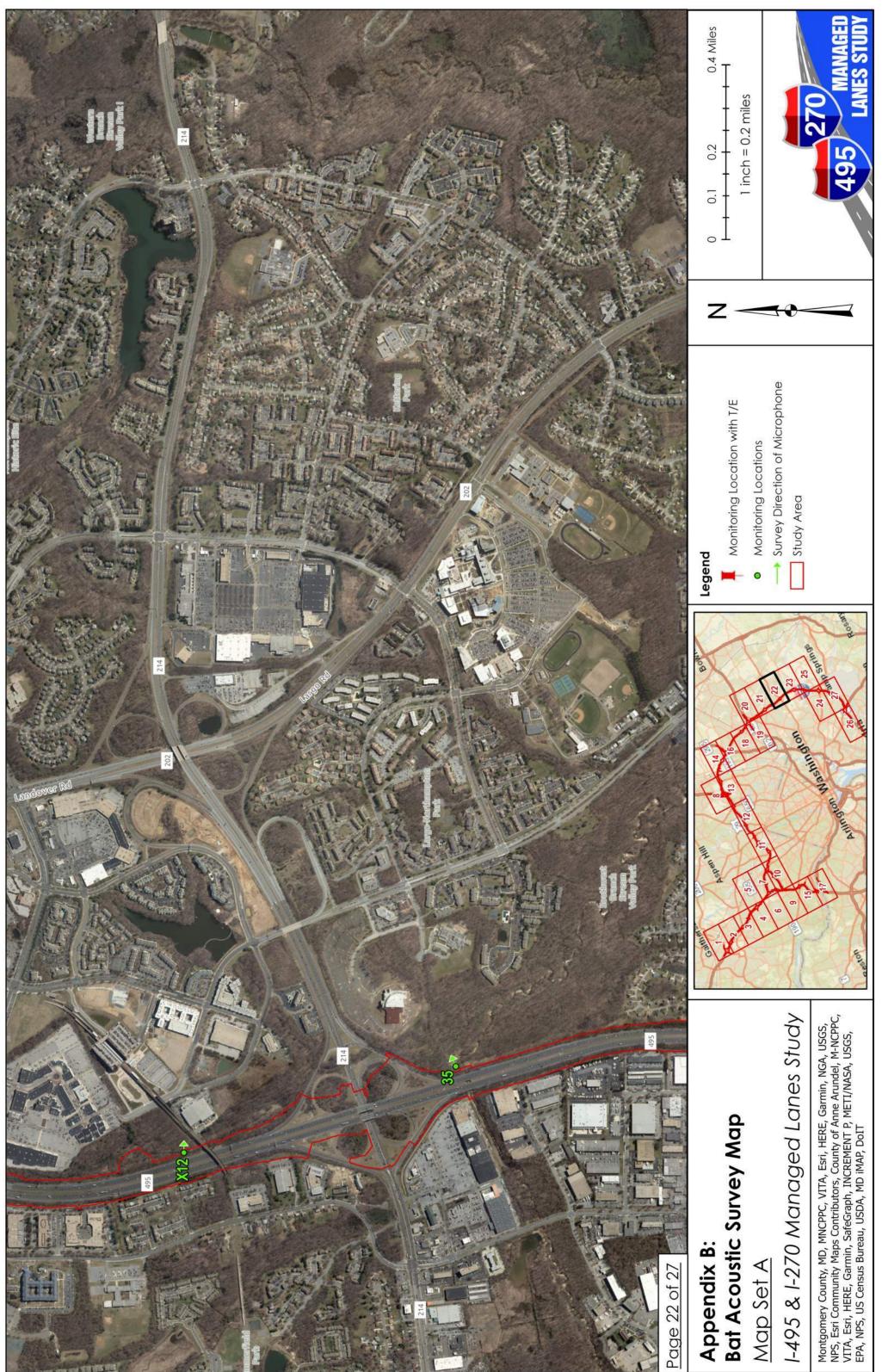


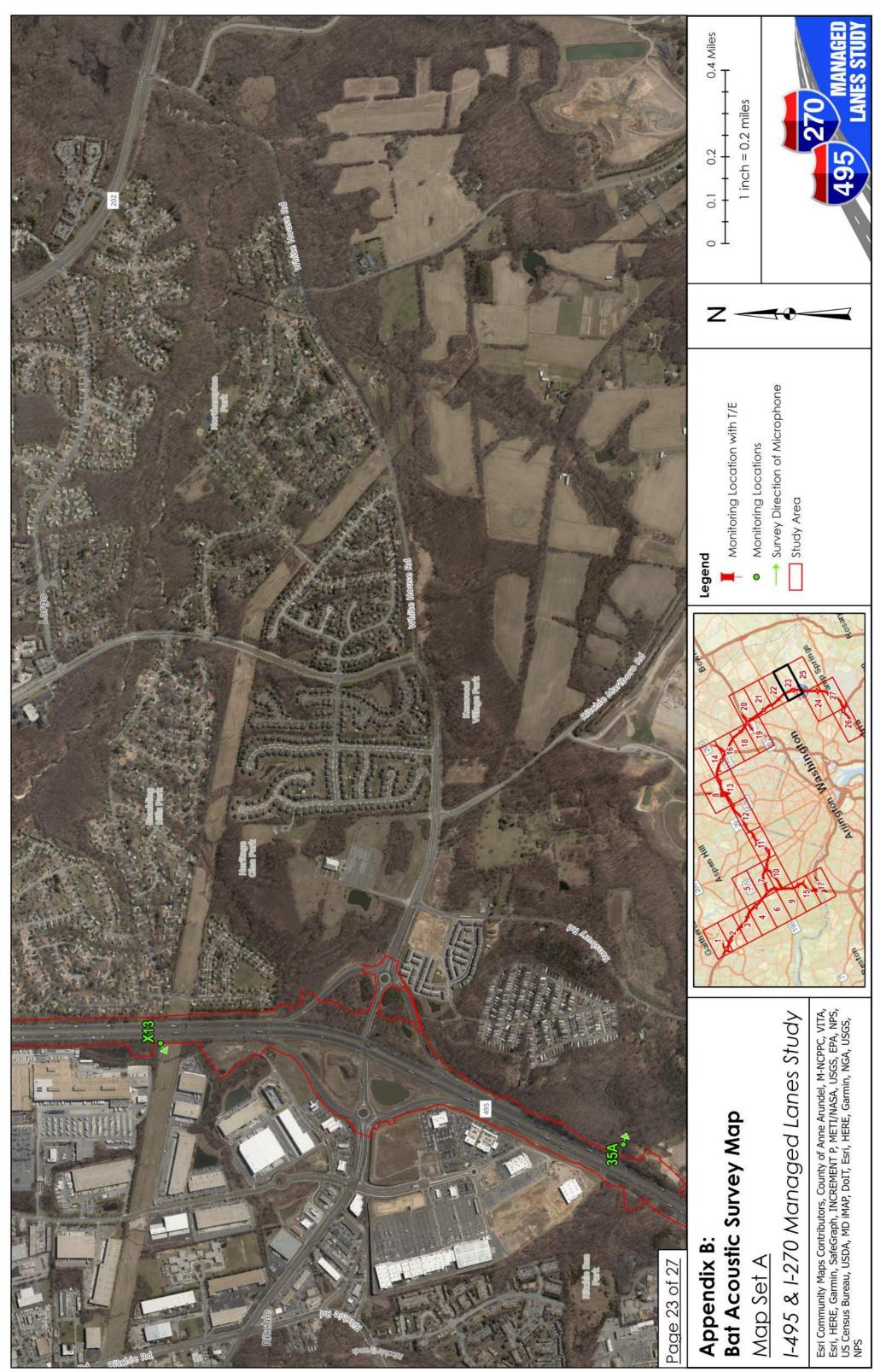


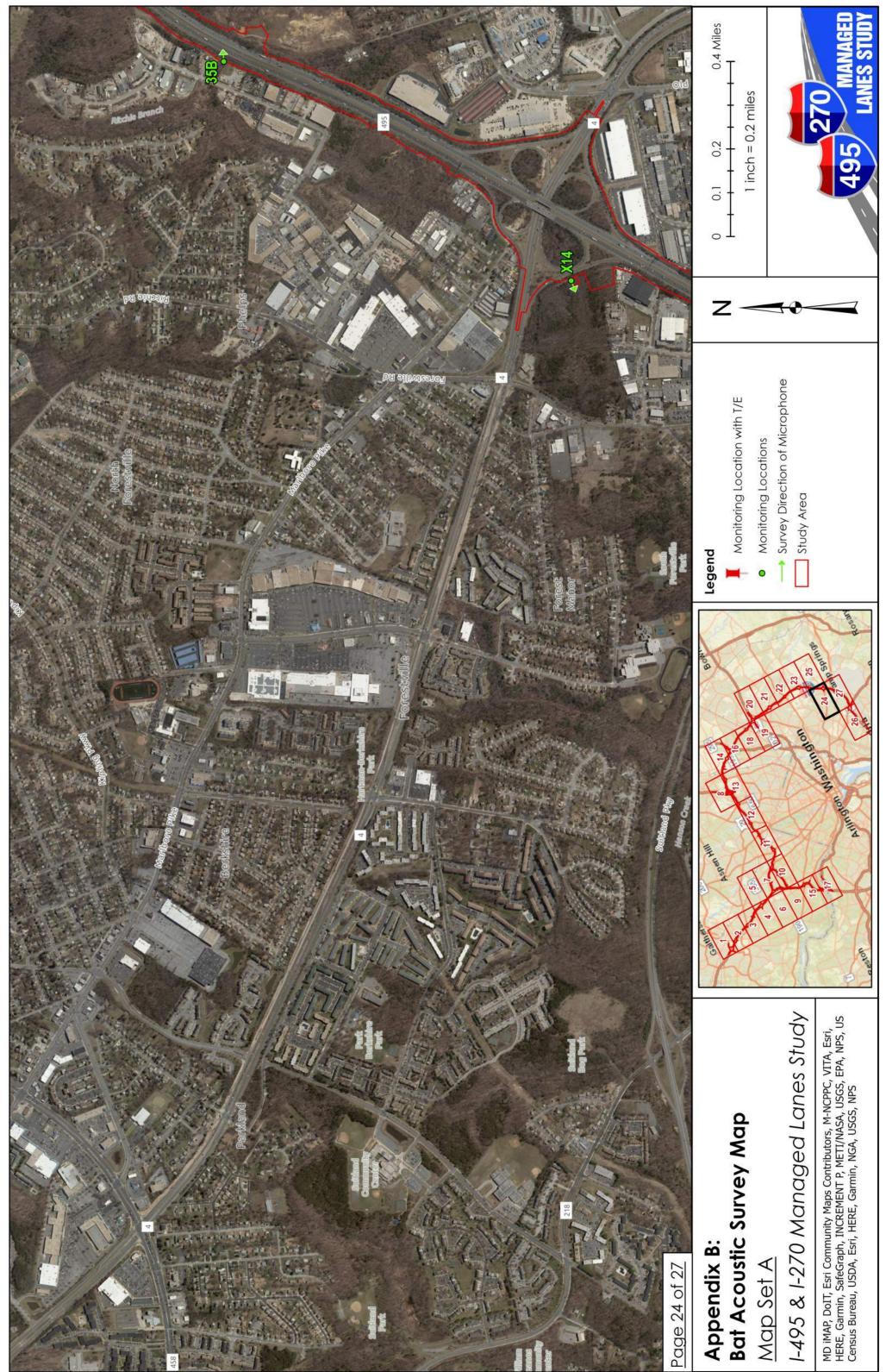




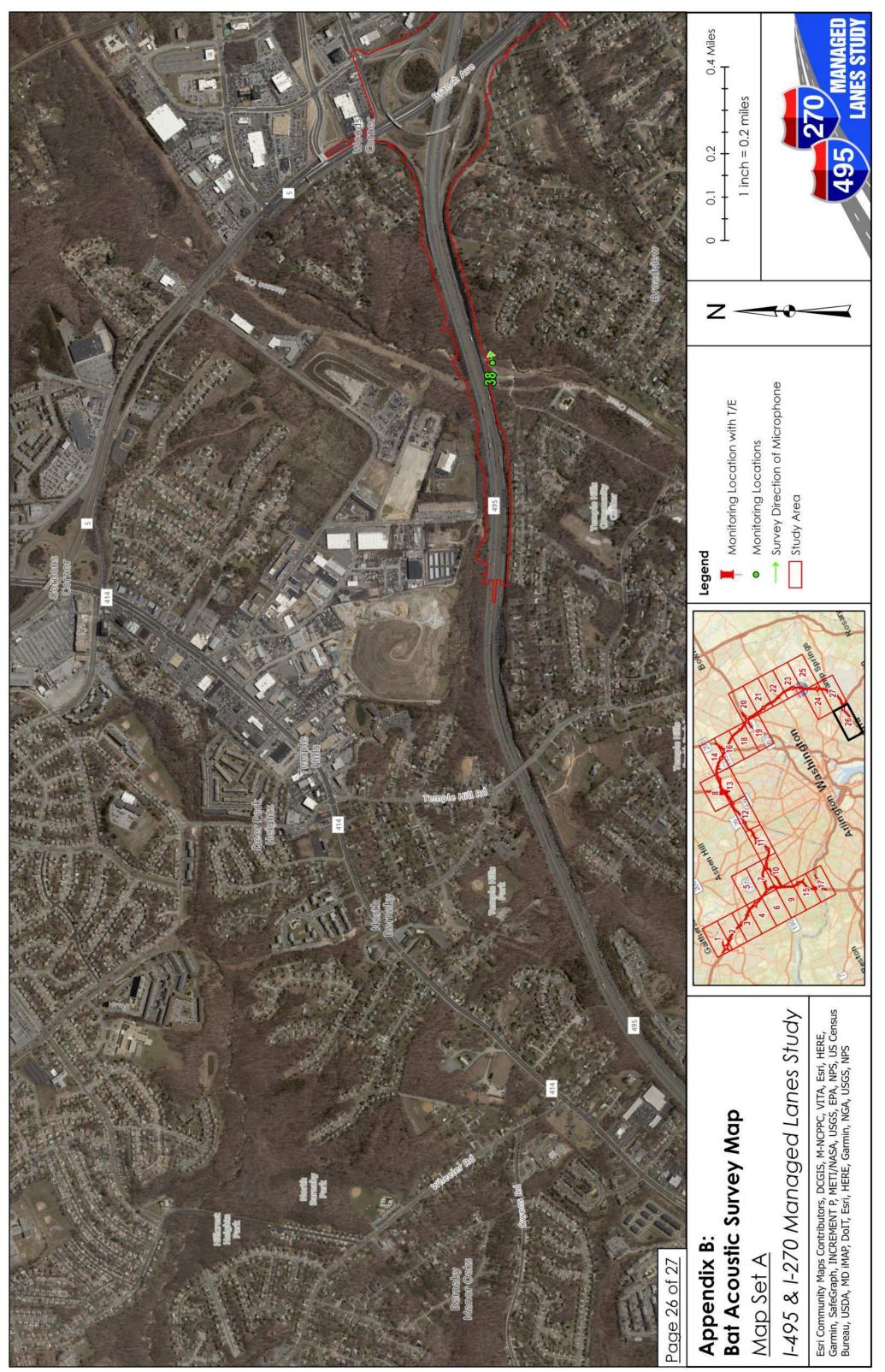


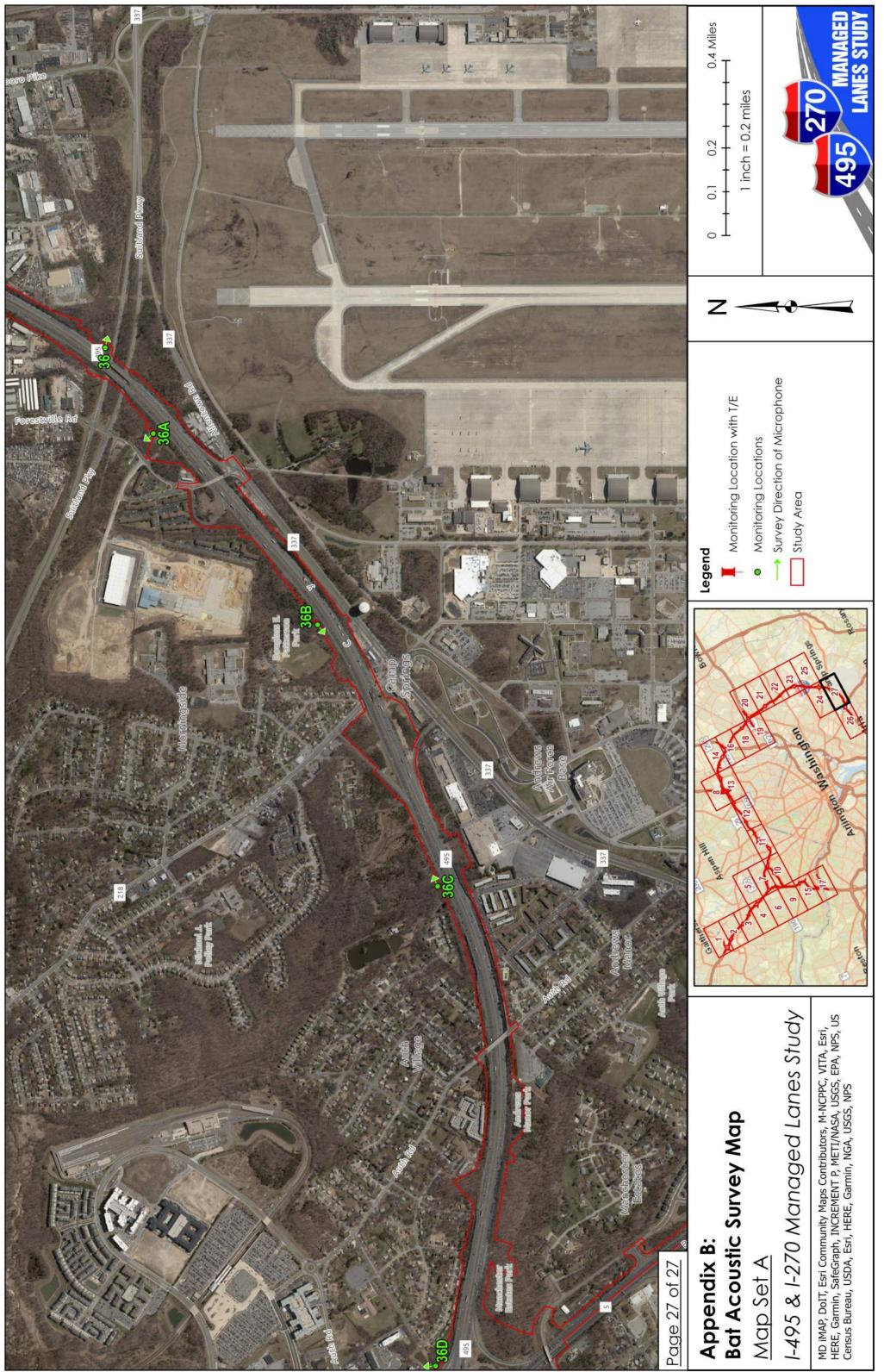


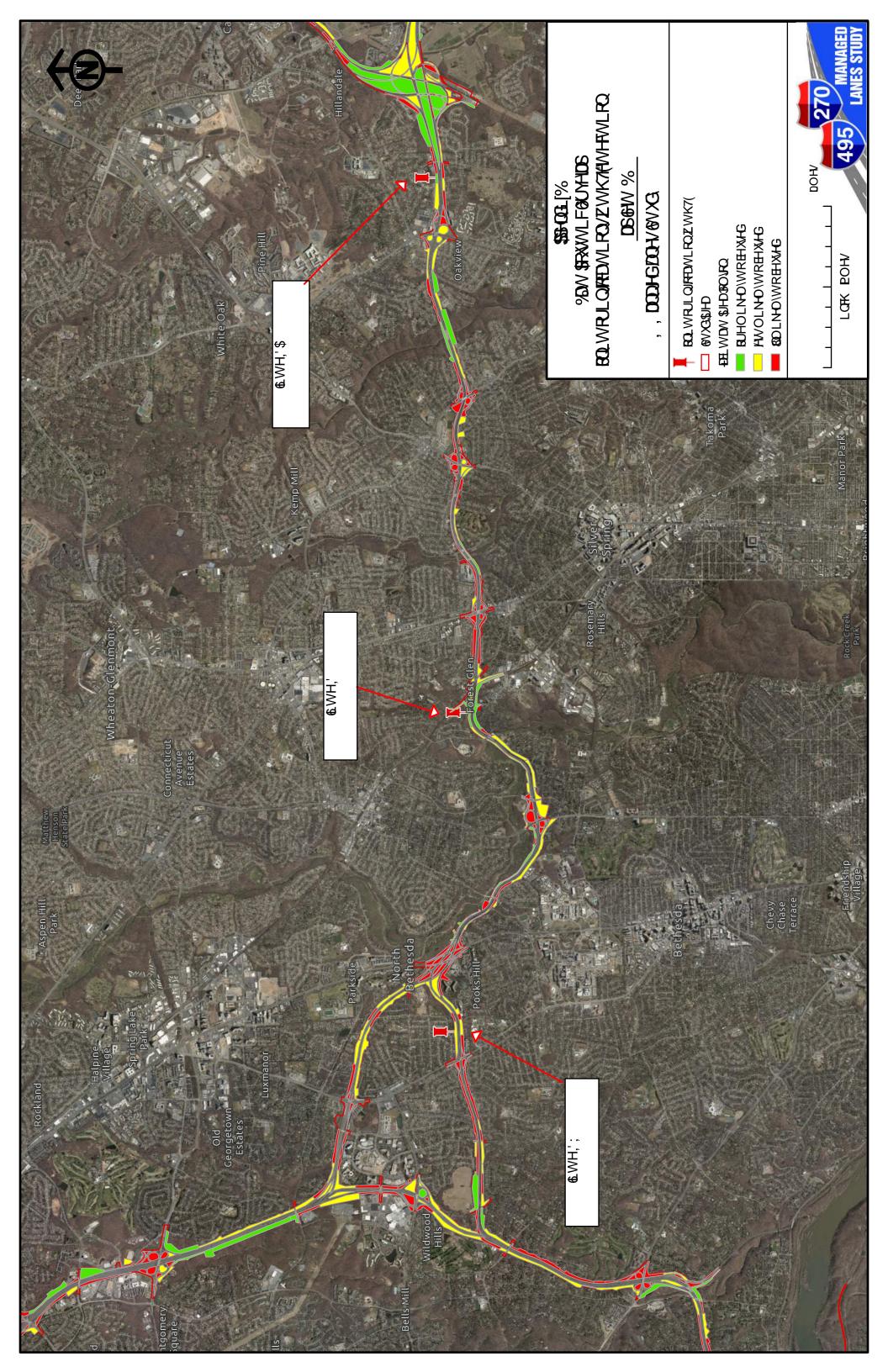


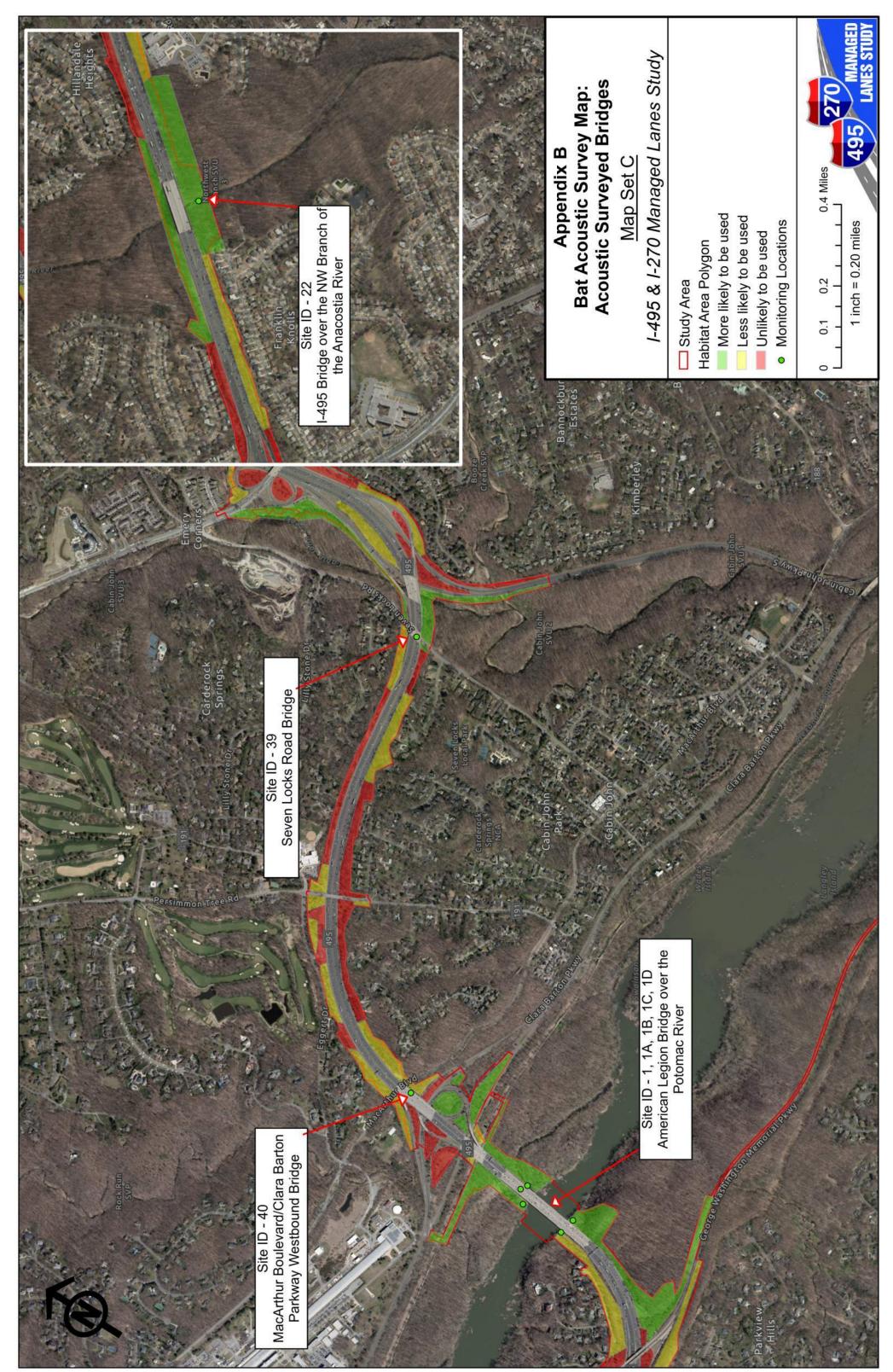












APPENDIX C- HABITAT ASSESSMENT DATA SHEETS

Project Name	I-495 & I-270 M	-495 & I-270 Managed Lanes Study	Date	6/15/2020-
Townshin/Bange/Section	Montgomery County	Monteomery Collinty Prince Georges Collinty	T	7/24/2020
I OWIISIIID/ Nalige/ Section		, FILLE GEOLGES COULLY	_	1 24/ 2020
Lat Long/UTM/Zone:	39.008393	39.0083938, -77.088533	Surveyor RCL	RCL, EYG, SLY
Brief Project Description				
The I-495 & I-270 Managed Lanes Study (MLS) project will address congestion from south of the	Lanes Study (MLS) proj	ect will address congestio	n from south of the	
American Legion Brige is Fairfax County, VA to east of Woodrow Wilson Bridge and on I-270 from	rfax County, VA to east	t of Woodrow Wilson Brid	ge and on I-270 from	
I-495 to I-370, including the east and west I-270 spurs. Bat habitat with the project area was	east and west I-270 sp	urs. Bat habitat with the p	roject area was	
classified into 3 categories, Forest Habitat Type (FHT) 1, 2, & 3. FHT 1 was the highest quality bat	orest Habitat Type (FF	HT) 1, 2, & 3. FHT 1 was the	e highest quality bat	
habitat identified. This data sheet summarizes Forest Habitat Type 1. Supplemental habitat Information is available with the included report.	sheet summarizes Fore the included report.	est Habitat Type 1. Supple	mental habitat	
	-			
Project Area				
1-1-1-1	Total Acres	Forest Acres	Open Acres	
Project	651.5	590.5	61	
Promoto Troo Bommul	Completely Cleared	Partially Cleared (will leave trees)	Preserve Acres - no clearing	
(ac)		famous annas	0	
Vegetation Cover Types	Γ			
Pre-Project		Post-Project		
Red maple, American sycamore, American beech, Green ash,	ore, American beech,	Green ash,		
White oak, Sweetgum, Black willow, Japanese stiltgrass, Rice	c willow, Japanese stilt		Final project clearing limits will determine post	le post
cut grass, Northern spicebush, False nettle, Highbush	ih, False nettle, Highbu		ypes.	
blueberry, Poison ivy				
Vegetation Cover Types				
Flight corridors to other forested areas?	ested areas?			
Yes, there are flight corridors to other forested areas.	s to other forested are	as.		
Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)	es (e.g. forested, grass	land, commercial or resid	ential development, wate	r sources)
Adjacent properties include forested areas, residential development, and roadside areas. There are serveral	forested areas, resider	ntial development, and roa	idside areas. There are ser	veral
או כמוווא נוומר דעון נווו טעצון נווכאכ וומטונמנא.	באב וומטונמנא.			

INDIANA BAT HABITAT ASSESSMENT DATASHEET - FHT1

Sample Site Description
Sample Site No. (s): 1A, 1B, 1C, 2, 3A, 6, 8, 8B, 12, 13, 13A, 14, 18, 18A, 22, 24, 24B, 25, 26, 31A, 32, 33
34A, 34D, 35, 35A, 36, 36A, 36B, 36C, 38, X3, X6, X7, X12, X14

Water Resources at Sample Site	mple Site			
Stream Type	Ephemeral	Intermittent	ent	Perennial
(# and length)	1 (157.21')	2 (359.72')	2')	28 (16,545.16')
Pools/Ponds	112 305 577 5	open a	and acce	Open and accessible to bats?
(# and size)	(זיכהכ׳דו) ד		Yes	S
Wetlands	Permanent	Seasonal	al	
(арргох. ас.)	3.87	ΥN		
Describe existing cond	Describe existing condition of water sources:			
A majority of the water	A majority of the water resources where the acoustic	coustic		
detectors were placed	detectors were placed ranged from high to moderate	derate		
quality resources. Man	quality resources. Many of the stream corridors were	s were		
open and suitable for bats.	oats.			

Forest Resources at Sample Site	mple Site		
Classics (Dansity)	Canopy (>50')	Midstory (20-50')	Midstory (20-50') Understory (<20')
ciosure/vensity	9	2	4
Dominant Species of	Dominant Species of Sycamrore, red maple, white oak, mixed red oaks, tulip poplar,	white oak, mixed red o	oaks, tulip poplar,
Mature Trees	sweetgum		
% Trees w/	~600/	/007~	~1 00/
Exfoliating Bark	%nc	40%	%NT_
Size Composition of	Small (3-8 in)	Med (9-15 in)	Large (>15 in)
Live Trees (%)	10%	30%	%09
No. of Suitable Snags	NA		

Is the habitat suitable for Indiana Bats?

Yes

Proximity to Public Land

What is the distance (mi) from the project area to forested public lands (e.g. national or state forests, national or state parks, conservation areas, wildlife management areas)? Distance to public lands ranges from 0 mi (several of the points are within forested public lands) and 0.25 mi.

Project Name	I-495 & I-270 Ma	1-495 & 1-270 Managed Lanes Study	Date	6/15/2020-
Township/Range/Section	Montgomery County	Montgomery County, Prince Georges County		7/24/2020
Lat Long/UTM/Zone:	39.008393	39.0083938, -77.088533	Surveyor	RCL, EYG, SLY
Brief Project Description				
The I-495 & I-270 Managed Lanes Study (MLS) project will address congestion from south of the	Lanes Study (MLS) proj	ect will address congestio	n from south of the	
American Legion Brige is Fairfax County, VA to east of Woodrow Wilson Bridge and on I-270 from	irfax County, VA to east	: of Woodrow Wilson Brid{	ge and on I-270 from	
I-495 to I-370, including the east and west I-270 spurs. Bat habitat with the project area was	east and west I-270 spi	urs. Bat habitat with the p	roject area was	
classified into 3 categories, Forest Habitat Type (FHT) 1, 2, & 3. FHT 2 was the marginal quality bat	Forest Habitat Type (FH	IT) 1, 2, & 3. FHT 2 was the	e marginal quality bat	
habitat identified. This data sheet summarizes Forest Habitat Type 2. Supplemental habitat information is available with the included report.	sheet summarizes Fore In the included report.	est Habitat Type 2. Supple	mental habitat	
	-			
Project Area	_			
	Total Acres	Forest Acres	Open Acres	
Project	780.8	674.8	102	
		Partially Cleared (will	Preserve Acres - no	
Proposed Tree Removal	Completely Cleared	leave trees)	clearing	
(ac)				
F O				_
vegetation cover Types				
Pre-Project		Post-Project		
Red maple, sweetgum, tulip poplar, Bradford pear, slippery	poplar, Bradford pear,	slippery		
elm, green ash, black cherry, common reed, skunk cabbage,	, common reed, skunk		Final project clearing limits will determine post	rmine post
poison ivy, northern spicebush, Virginia creeper, Southern arrow-wood Jananese honevenche broad-Jeaf rattail	usn, Virginia creeper, so avsuckle hroad-leaf cat		types.	
barrow-leaf cattail rice cut grass	- yauana, bi daa idal daa prass	(IIII)		
	000			
Vegetation Cover Types				
Flight corridors to other forested areas?	ested areas?			
Yes, there are flight corridors to other forested areas.	's to other forested are	as.		
Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)	es (e.g. forested, grassl	land, commercial or resid	ential development, v	vater sources)
Adjacent properties include forested areas, residential development, and roadside areas. There are serveral	forested areas, resider	ntial development, and ros	adside areas. There are	e serveral
streams that run through these habitats.	iese habitats.			
Proximity to Public Land				
What is the distance (mi) from the project area to forested public lands (e. g. national or state forests national	om the project area to	forested nublic lands (e.s	, national or state for	ests national
or state parks, conservation areas, wildlife management areas??	n areas, wildlife manag	ement areas)?		
No public lands exist within FHT2.	FHT2.			
	-			

INDIANA BAT HABITAT ASSESSMENT DATASHEET - FHT2

Description	sample Site No. (s): 4, 5, 5A, 6A, 10, 11, 11A, 34B, 34E, 35B, 36D, X1, X2, X4, X5, X8, X10, X11, X13
Sample Site Description	e Site No. (s): 4, 5,
Samp	Sampl

Water Resources at Sample Site	mple Site			
Stream Type	Ephemeral	Intermittent	nt	Perennial
(# and length)	5 (179.66')	30 (2,545.55')	5')	55 (10,785.33')
Pools/Ponds		Open ar	nd acces	Open and accessible to bats?
(# and size)	AN		Yes	S
Wetlands	Permanent	Seasonal		
(арргох. ас.)	2.23	NA		
Describe existing cond	Describe existing condition of water sources:			
A majority of the wate	A majority of the water resources where the acoustic	coustic		
detectors were placed	detectors were placed in moderate to low quality	ity		
resources. Concrete lin	resources. Concrete lined channels were rated marginal	marginal		
quality bat habitat.				

Forest Resources at Sample Site	mple Site		
Classical Descript	Canopy (>50')	Midstory (20-50')	Understory (<20')
ciosure/ defisity	4	4	5
Dominant Species of	Tulin nonlar successors	tooms had alaca hos	
Mature Trees	ו מווף הסטומו, פאכמוווטו כי ו כט ווומטוכי מווט פאככנצמווו	ובת ווומאובי מווח אמבבו	- Ruin
% Trees w/	~ 100/	/000~~	~1 00/
Exfoliating Bark	40%	%N7	%NT_
Size Composition of	Small (3-8 in)	Med (9-15 in)	Large (>15 in)
Live Trees (%)	30%	%09	40%
No. of Suitable Snags	NA		

Yes

Is the habitat suitable for Indiana Bats?

Project Name	1-495 & I-270 M	-495 & I-270 Managed Lanes Study	Date	6/15/2020-
Tourshin (Board (Contion		nuadea canco ocaa)		
I ownsnip/kange/section	INIONTGOMERY COUNTY	Montgomery County, Prince Georges County		1/24/2020
Lat Long/UTM/Zone:	39.008393	39.0083938, -77.088533	Surveyor	RCL, EYG, SLY
Rriaf Droiart Description	_			
The L-495 & L-270 Managed Lanes Study (MLS) project will address congestion from south of the American Legion Brige is Fairfax County, VA to east of Woodrow Wilson Bridge and on I-270 from L-495 +0.1-370, including the past and west L-270 source Bat habitat with the project area was	Lanes Study (MLS) proj rfax County, VA to east east and west 1-270 cm	ect will address congestio : of Woodrow Wilson Brid urs Rat hahitat with the r	in from south of the ge and on I-270 from vroiect area was	
dassified into 3 categories, Forest Habitat Type (FHT) 1, 2, & 3. FHT 1 was the low quality bat	Forest Habitat Type (FH	IT) 1, 2, & 3. FHT 1 was th	e low quality bat	
habitat identified. This data sheet summarizes Forest Habitat Type 3. Supplemental habitat information is available with the included report.	sheet summarizes Fore the included report.	sst Habitat Type 3. Supple	mental habitat	
Project Area				_
	Total Acres	Forest Acres	Open Acres	
Project	676.2	491.9	184.3	
		Partially Cleared (will	Preserve Acres - no	
Proposed Tree Removal (عد)	Completely Cleared	leave trees)	clearing	
Vegetation Cover Types				
Pre-Project		Post-Project		
Red maple, black locust, Virginia pine, Japanese stiltgrass, common green brier, grass sp.	ginia pine, Japanese stil sp.		Final project clearing limits will determine post project cover types.	rmine post
Vegetation Cover Types				
Flight corridors to other forested areas? Yes, there are flight corridors to other forested areas.	ested areas? s to other forested are	as.		
Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources) Adjacent properties include agricultural fields, residential developments, and public transportation facilities. Indian Creek run through Site 30.	es (e.g. forested, grass l agricultural fields, resi	and, commercial or resid dential developments, and	ential development, v d public transportatior	vater sources) i facilities. Indian

Cample Cite Decription			
Sample Site No. (s): 27, 30	_		
Water Resources at Sample Site	mple Site		
Stream Type	Ephemeral	Intermittent	Perennial
(# and length)	1 (422.43')	NA	1 (285.89')
Pools/Ponds	NIA	Open and acc	Open and accessible to bats?

Stream Type	Ephemeral	Intermittent	Perennial
(# and length)	1 (422.43')	NA	1 (285.89')
Pools/Ponds	VIN	Open and acce	Open and accessible to bats?
(# and size)	AN	λ	Yes
Wetlands	Permanent	Seasonal	
(approx. ac.)	NA	NA	
Describe existing cond	Describe existing condition of water sources:		_
The water resources the	The water resources that existed within the detection	tection	
areas of Site 27 and 30	areas of Site 27 and 30 were moderate to low quality	luality	
resources. Site 30 surve	resources. Site 30 surveyed Indian Creek, but under I-	nder I-	
495. Site 27 was an epł	495. Site 27 was an ephemeral channel, and considered a	nsidered a	
low quality habitat.			

Closure/Density Canol Dominant Species of Dead marks	Canopy (>50') 3	Midstory (20-50')	
	3		Understory (<20')
		4	5
	black locust	onin cining// bac touch docld olacm bod	
Mature Trees	י, אומרא וטרעאר,	מווח אוו צוווומ אוווב	
% Trees w/	76.07	~100/	780
Exfoliating Bark	%C7	70%	0.70
Size Composition of Small	Small (3-8 in)	Med (9-15 in)	Large (>15 in)
Live Trees (%)	10%	40%	%09
No. of Suitable Snags NA			

No

Proximity to Public Land What is the distance (mi) from the project area to forested public lands (e.g. national or state forests, national or state parks, conservation areas, wildlife management areas)? No public lands within proximity to the two sites.

APPENDIX D- SURVEY SITE DATA SHEETS

Bat Acoustic Survey Record
Site ID Number: State: M County: Mataomeru
Site Address: Nside American Legion Memorial Bridge
Site Owner: <u>National Park Service</u>
Site Lat./Long. Coordinates: <u>38.9699389</u> N, <u>77.1793766</u> W
Site Photo Number: 2137
Person(s) Who Selected Acoustic Site: EVG RCL
Person(s) who Deployed Detector: EX(1 RCL KIS
Night 1 -
Survey Date: 7 5 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 71620
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain; Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): farsled flood plain
Description of Habitat:
Forested flood plain of Potomac River and under the ALM Bridge.
Riparian area dominated by sycamore
Habitat Site Sketch (include north arrow):
n n n n n n n n n n n n n n n n n n n
A D SA LOR FARING 2410SW
V R CO adon
0 pertonnon 0 pertonnon 0 pertonnon
0 0 st 20 potennal facing 24105W

flow

 $\left(\right)$

ALM PRIDAC

Pita

Smm - U Inid Ir ectiona d-level Vegetation:	<u>ul</u>			<u></u>
d-level Vegetation:	• ••• <u>•</u>			
d-level Vegetation:	2			
d-level Vegetation:	2			<u> </u>
	<u> </u>	meters	~ (0.0	
or Other Obstruct	ion (apart fro	n veg. on ground): _	2180	meters
hone: <u>90</u> °	Vertical Orie	ntation of Micropho	one:°	
Il Spectrum; Zero	Crossing			
	.* *			
db	· · · · · · · · · · · · · · · · · · ·			
-}				
<i>b</i>				
6 KHZ				
MS INONE	v - 			
KHZ				
db				
8				
m : 155				
VE				
	hone: <u>90</u> ° HI Spectrum; Zero Clb A b KHZ	hone: 90° Vertical Orie III Spectrum; Zero Crossing -Clb A b b KHZ -MS NONE KHZ db S m : 155	hone: $\underline{90}$ · Vertical Orientation of Microphon III Spectrum; Zero Crossing $\underline{-Cb}$ \underline{A} $\underline{-Cb}$	hone: $\underline{90}^{\circ}$ Vertical Orientation of Microphone:° Ill Spectrum; Zero Crossing $\underline{-Cb}$ \underline{A} \underline{b}

Υ.

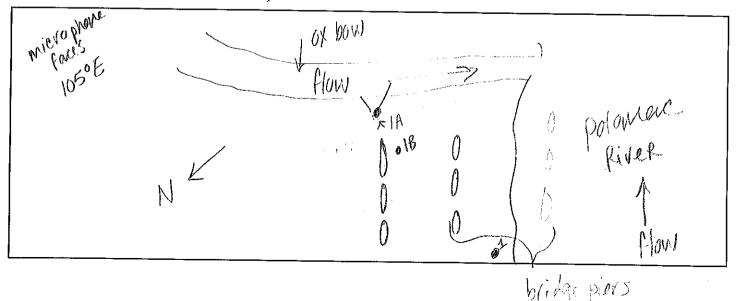
Bat Acoustic Survey Record
Site ID Number: 1A State: MD County: Montoomeration
Site Address: N. Side American Legion Memorial Bridge
Site Owner: <u>Mational Park Service</u>
Site Lat./Long. Coordinates: <u>38.9696807</u> N, <u>77.1789317</u> W
Site Photo Number: 2135
Person(s) Who Selected Acoustic Site: EVG RCL
Person(s) who Deployed Detector: EXA) US RCL
Night 1 -
Survey Date: <u>7/15/20</u>
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy;) Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>forested flood plain</u>

Description of Habitat:

Forested Flood plain of Potomac River. Lommatical by sycamore. Adjacent to ALM Bridge faring small

Habitat Site Sketch (include north arrow):



255

Detector Brand & Model:	: <u>songwetch smybat FS</u>	,
Detector brand & Model	odel:SMM -U2	
Microphone Brand & Mo		
	e: <u>Omnidivectional</u>	
Type of Weatherproofing		
Microphone Height Above	ve Ground-level Vegetation: <u>3</u> meters	
Distance from Nearest Ve	egetation or Other Obstruction (apart from veg. on ground):	<u>S</u> meters
Horizontal Orientation of	f Microphone: <u>90</u> ° Vertical Orientation of Microphone:	O
Calls Collected In (circle o	one): (Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	12010	
Data Division	NIA	
16k High Filter	010	
Sample Rate	256 KHZ	
Min/Max Duration	1.5 MS NONE	
Min Trigger Frequency	16 KHZ	
Trigger Level	1206	
Trigger Window	3 \$	
Max Length	00m: ISS	
Compression	NONE	

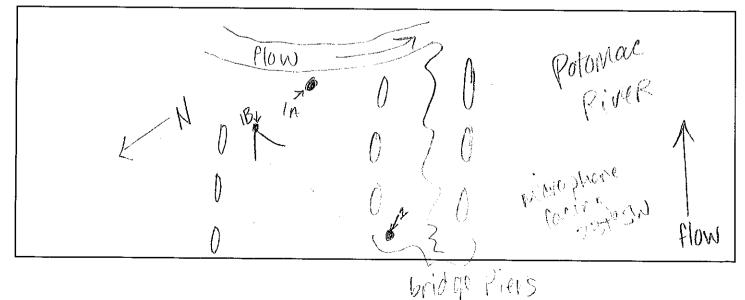
•

Bat Acoustic Survey Record
Site ID Number: 18 State: MD County: <u>MontGompy</u>
Site Address: N. side American Legion Memorial Bridge
Site Owner: National Park Service
Site Lat./Long. Coordinates: <u>38.9698511</u> N, <u>77.1798878</u> W
Site Photo Number: <u>& B(e</u>
Person(s) Who Selected Acoustic Site: EVG PCL
Person(s) who Deployed Detector: EVG RCLUS
Night 1 -
Survey Date: <u>+15/20</u>
Survey Start Time (military): 19:36 Survey End Time (military): 06:5(
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 716/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): Forested flood plain

Description of Habitat:

Forested floodplain of Potomac River + under Nside of ALM Bridge. Large flight corridors under bridge. Riparian Area dominated by sycamore.

Habitat Site Sketch (include north arrow):



Detector Brand & Model:	Sorrymoter SM4BAT FS
	del: <u>SMM-UZ</u>
Microphone Type:	- ommidure patonal
Type of Weatherproofing	NIA
	e Ground-level Vegetation: <u>5</u> meters
	getation or Other Obstruction (apart from veg. on ground): <u>~ 15</u> meters
Iorizontal Orientation of	Microphone: <u>40</u> ° Vertical Orientation of Microphone: <u>°</u>
Calls Collected In (circle o	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 010
Data Division	NIA
16k High Filter	(10)
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 db
Trigger Window	35
Max Length	OD m: 15 5
Compression	NONE

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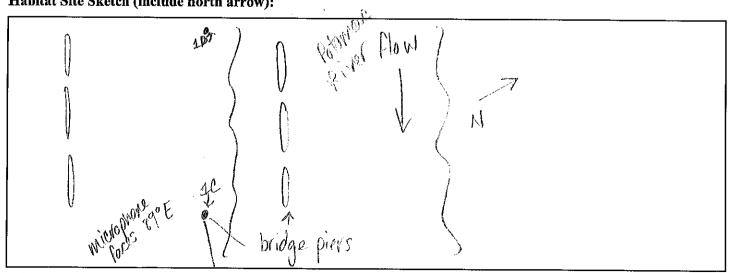
Bat Acoustic Survey Record

Site ID Number: <u>1C</u>	State: VA County: Fairfax	
Site Address: S. Side American Legion Men	Morrial Bridge	
Site Owner: National Park Schule	0	
Site Lat./Long. Coordinates: <u>38.9683540</u> N,	, <u>77.1793035 w</u>	
Site Photo Number: 2133	· · · ·	
Person(s) Who Selected Acoustic Site: EVA 13	RCL	
Person(s) who Deployed Detector: EL/(A / RCL	21	
	·	
Night 1 -		
Survey Date: 07/15/20		
Survey Start Time (military): <u>9:36</u> Survey	r End Time (military):06さらし	
General Weather (circle one): Clear; (Partly Cloudy;)	Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;	
Steady Rain; Thunderston	rms	
Night 2 -		
Survey Date: 07/16/20		
Survey Start Time (military): 19:36 Survey	Find Time (military):6:51	
General Weather (circle one): Clear; Partly Cloudy; M	Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;	
Steady Rain; Thunderstor	rms	

Habitat Type (e.g. forested stream, floodplain): fopested flood plain 1. **Description of Habitat:**

forested flood plain of Potomac River + under ALM Bridge. Area Dominated by sycamore. Facing Open, flat water

Habitat Site Sketch (include north arrow):



Detector Brand & Model:	songmeter smy	BATES			
	del: <u>SMM-VZ</u>				
Microphone Type	_ OMMIDIVEGTIONAL				
Type of Weatherproofing	NIA				
	e Ground-level Vegetation:				
Distance from Nearest Ve	getation or Other Obstruction	(apart from v	eg. on ground):	715	meters
Horizontal Orientation of	Microphone: <u>40</u> ° Ve	ertical Orienta	ution of Microphon		
Calls Collected In (circle of	me): Fuil Spectrum; Zero Cro	ssing			
Detector Settings:			_		
Sensitivity]		
Gain	12 db				
Data Division	NIA		_		
16k High Filter	ON				
Sample Rate	256KHZ				
Min/Max Duration	1.5 MS NONE				
Min Trigger Frequency	16 KHZ				
Trigger Level	12 db				
Trigger Window	35				
Max Length	D0 m : 15 5				
Compression	NONE				

Bat Acoustic Survey Record
Site ID Number: <u>1D</u> State: <u>VA</u> County: <u>Fairfar</u>
Site Address: S. Side A Merican Legion Memorial Bridge
Site Owner: NAHOMAL Park Service 0
Site Lat./Long. Coordinates: <u>38.9684908</u> N, <u>77.1801302</u> W
Site Photo Number: <u>9134</u>
Person(s) Who Selected Acoustic Site: EVG RCL
Person(s) who Deployed Detector: EXC ROL US
Night 1 -
Survey Date: <u>7/15/20</u>
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 716 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): <u>Poristed flood plain</u> Description of Habitat: On flood plain w/ microphane facing open flat water. Nearly anones founded and dominated by sycamore, Adjacent to bridge
Habitat Site Sketch (include north arrow):
10 Million Mil

Detector Brand & Model:	Songwetter SM4BAT FS
Microphone Brand & Mo	del:
Microphone Type:	oppinidirectional
Type of Weatherproofing	
	e Ground-level Vegetation: deters
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): $_$ $>$ $ $ $>$ $_$ meters
	Microphone: <u><u>90</u>° Vertical Orientation of Microphone: <u></u>°</u>
Calls Collected In (circle o	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 010
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS NONE
Min Trigger Frequency	16 KH2
Trigger Level	1200
Trigger Window	35
Max Length	00 M : 155
Compression	NONE

MANAGED LANE STUDY

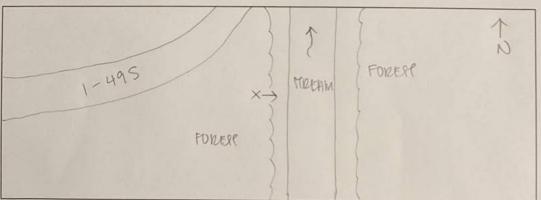
Bat Acoustic Survey Record

Bat Acoustic Survey Record
Site ID Number: 2 State: MD County: MO MODMON
Site Address: Approx 230 ft of interchange of NB 1-495 ; Cabin John RUWY
Site Owner: MDOT SHA
Site Lat./Long. Coordinates: <u>38.9839903</u> N, <u>-77.1588781</u> W
Site Photo Number: 1MGP DD98 - 0D991
Person(s) Who Selected Acoustic Site: EYG PCL
Person(s) who Deployed Detector: ELG PCL
Night 1 -
Survey Date: _6 7 2020
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one) Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date:6 [18] 2020
Survey Start Time (military):9:36_ Survey End Time (military):06:45
General Weather (circle one), Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Description of Habitat:

Edge of stream (cabin sonn creek).

Habitat Site Sketch (include north arrow):



Detector Brand & Model:	SONG METER	SMUBAT	
Microphone Brand & Model	SMM-UZ		
Microphone Type:	omnidirectiona	A	
Type of Weatherproofing:	NA		L. L.
Microphone Height Above G	round-level Vegetation:	3meters	
Distance from Nearest Veget	ation or Other Obstruction	a (apart from veg. on ground): < \	meters
Horizontal Orientation of Mi	crophone: <u>90</u> ° V	ertical Orientation of Microphone:°	
Calls Collected In (circle one)	: Full Spectrum; Zero Cr	ossing	
Detector Settings:			

Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	CAO
Sample Rate	256 1412
Min/Max Duration	1.5 MS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 db
Trigger Window	35
Max Length	OD M: 155
Compression	NONE

THE T

Bat Acoustic Survey Record

Site ID Number: 3 State: MD County: MONHDOMON
Site Address: ADDROX. 28D FT NE of INtermanac of Thomky G and Kuens Lock RO
Site Owner: MDUT SHIA
Site Lat./Long. Coordinates: <u>38. 9855 114</u> N, <u>77. 159 1773</u> W
Site Photo Number: 1MGAP 0096 - 0097
Person(s) Who Selected Acoustic Site: ENGIRCL
Person(s) who Deployed Detector: EUU PCL
Night 1 -
Survey Date: 06/17/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: Db 18 20
Survey Start Time (military): 19 36 Survey End Time (military): 06-45
General Weather (circle one): Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain; Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): <u>FOLOR</u> OF FIVE and

Description of Habitat:

Edge at stream Labin somm creek). With of invaline coverage

N X FORELL STREAM 1.495 FOREN

Detector Brand & Model:	SDNU METEL SINYBAT
Microphone Brand & Moo	lel: SMM - UZ
Microphone Type:	_ amnidirectional
Type of Weatherproofing:	
Microphone Height Above	Ground-level Vegetation: 3 meters
Distance from Nearest Veg	getation or Other Obstruction (apart from veg. on ground): meters
Horizontal Orientation of	
Calls Collected In (circle o	ne): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KH 2
Min/Max Duration	I.S MS NONE
Min Trigger Frequency	16KHZ
Trigger Level	12 010
Trigger Window	35
Max Length	00 m: 15 s
Compression	NOWE

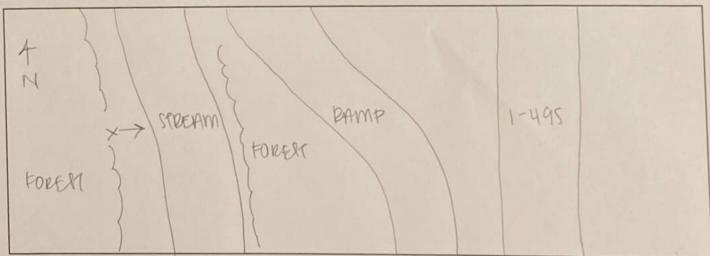
Bat Acoustic	Survey	Record
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Site ID Number: 34 State: MD County: Montgomeny
Site ID Number: 3A State: MD County Road to S& T-495
Site ID Number: 3A State: MD County: 100 Site Address: Approx. 0.12 mi SE of ramp from Ever Road to S& 1-495
Site Owner: ITTVDI STTFI
Site Lat./Long. Coordinates: <u>38.9901562</u> N, <u>-77.1590547</u> W
Site Photo Number: Map DIDD - 0101
Person(s) Who Selected Acoustic Site: EVALED
Person(s) who Deployed Detector: EVUIECL
Night 1 -
Survey Date: 06/FF/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06/18/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear) Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): FORERCED STREAM

Description of Habitat:

Foreffed stream located by ramp onto 1-495, ground could could could inval wer.



Detector Brand & Model:	SONN METER SMYB	AP	
Microphone Brand & Model:		1111	
and the second	omnidivectional		
Microphone Type:		-	
Type of Weatherproofing:	NA	-	
Microphone Height Above Gr		<u>S</u> meters	- 1
Distance from Nearest Vegeta	tion or Other Obstruction (ap	art from veg. on ground):	< meters

Horizontal Orientation of Microphone: Vertical Orientation of Microphone: _____º 0

Calls Collected In (circle one): Full Spectrum; Zero Crossing

Detector Settings:

Sensitivity	the second s
Gain	12 0.10
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 db
Trigger Window	35 .
Max Length	00 M : 155
Compression	NONE

Bat Acoustic Survey Record
Site ID Number: State: County: MONTGOMEN
Site Address: WB 1-495, approximately 0.17 min of intermanar with WB of
Site Owner: <u>MARNOWN</u> 'RIVEN RO
Site Lat./Long. Coordinates: 38.9930381 N, 77.1581627 W
Site Photo Number:
Person(s) Who Selected Acoustic Site: EVA, RCL
Person(s) who Deployed Detector: EVG, US
Night 1 -
Survey Date: 7 23 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: <u></u>
Survey Start Time (military): Survey End Time (military): Su
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): <u>forested Reparious and any to Algorith</u> Description of Habitat:
Vender Tragment between 1495 and Stream, Broom is convert lined maperoidal channel.
Habitat Site Sketch (include north arrow):

•	Sikeam	flaus ¿		
		**************************************	microphons faces	
	7-495			

	DEDADALLY SWALL RIAT TO
	Sungmeter SMY BAT FS
_	del:
Microphone Type:	: Omnidirectional
Fype of Weatherproofing	: N/A
Microphone Height Above	e Ground-level Vegetation: <u>3</u> meters
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): $\underline{<0.5}$ meters
Horizontal Orientation of	Microphone: <u>90</u> ° Vertical Orientation of Microphone:°
	one): (Full Spectrum?) Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	010
Sample Rate	256 KHZ
Min/Max Duration	15 ms NONE
Min Trigger Frequency	16 KHZ
Trigger Level	1200
Trigger Window	3 5
Max Length	00m: 155
Compression	NONE

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the second se

Site ID Number: 5 State: MD County: MDNHD OMEM
Site Address: SB 1-270, approx. D.4mi S of intermanar with EB Democracy BIND
Site Owner: MDUC SHA
Site Lat./Long. Coordinates: 39.0182653 N, -77.1471657 W
Site Photo Number:
Person(s) Who Selected Acoustic Site: ENUIREL
Person(s) who Deployed Detector: EUN Pel
Night 1 -
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06/16/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): FOREY

Description of Habitat:

TUNP POPlar forelt with a lot of invariver in the understory.

FOREM		
	. / /	\wedge
	FOREPE × 1-270	2
	TOTAL	

Detector Brand & Model: SONU METER SMYBAT
Microphone Brand & Model: SMM - UZ
Microphone Type: OMNIdirectional
Type of Weatherproofing:NIA
Microphone Height Above Ground-level Vegetation: <u>3</u> meters
Distance from Nearest Vegetation or Other Obstruction (apart from veg. on ground): ~ 6 meters
Horizontal Orientation of Microphone: <u>90</u> ° Vertical Orientation of Microphone:°
Calls Collected In (circle one): Full Spectrum; Zero Crossing
Detector Settings:

Sensitivity	
Gain	12db
Data Division	NIA
16k High Filter	ON
Sample Rate	2S6 KHZ
Min/Max Duration	1.5 MS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 db
Trigger Window	35
Max Length	00 M: 155
Compression	NONE

Bat A	coustic	Survey	Record
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Site ID Number: 5A State: MD County: Montgomeny
Site Address: Approx. 0.54 min of JCt of welting ten. and NB 1-270
Site Owner: MPDT SHA
Site Lat./Long. Coordinates: <u>39.0323193</u> N, <u>-71.1422349</u> W
Site Photo Number: 0082-0083
Person(s) Who Selected Acoustic Site: RCL EVE
Person(s) who Deployed Detector: RCL ENG
Night 1 -
Survey Date:
Survey Start Time (military): 19.36 Survey End Time (military): 06:45
General Weather (circle one); Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06 16 20
Survey Start Time (military): <u>0:36</u> Survey End Time (military): <u>06:48</u>
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): PEM + FORER

Description of Habitat:

Emergent namitat filled with cattail and forest located behind FEM A lot of invarives locetted in vierbaceous layer.

Habitat Site Sketch (include north arrow):

FORER

PEM 1-270 1-270 ×

Detector Brand & Model: SONDA METER SMUBAP
Microphone Brand & Model:
Microphone Type: DMNId Irectional
Type of Weatherproofing: NIA
Microphone Height Above Ground-level Vegetation: <u>3</u> meters
Distance from Nearest Vegetation or Other Obstruction (apart from veg. on ground): meters
Horizontal Orientation of Microphone: <u>90</u> • Vertical Orientation of Microphone: <u>°</u>
Calls Collected In (circle one): Full Spectrum; Zero Crossing
Detector Settings:

SITC SIA

Sensitivity	The second se
Gain	1206
Data Division	NIA
16k High Filter	ON
Sample Rate	2Sb KHZ
Min/Max Duration	ISMS INDINE
Min Trigger Frequency	16 KHZ
Trigger Level	12 db
Trigger Window	35
Max Length	00 M: 122
Compression	NONE

Bat Acoustic Survey Record
Site ID Number: 6A State: MD County: MONTADMENY
Site Address: NB 1-270, approx, 150ft N of Tucherman Lane
Site Owner: MDOT SHHA
Site Lat./Long. Coordinates: 39.0383612 N, -77.1452406w
Site Photo Number: 0088 - 0089
Person(s) Who Selected Acoustic Site: RCL EVG
Person(s) who Deployed Detector: RUEYA
Night 1 -
Survey Date: 06/15/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06/16/20
Survey Start Time (military): 19:36 Survey End Time (military): 06.45
General Weather (circle one): Chear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>EDME OF STREAM</u>

Description of Habitat:

FOREACED SCREAM DOMINATED BY STOAMONDER. INVASIVEL AND POISON WY DOMINATED.

}	FORER	42
<~ -270	X-7 BREEAM	
FOREFI		

		SHC 6A
Detector Brand & Model:	SONT METER SMYBAT	
Microphone Brand & Mo	del:	
Microphone Type	: _ DMNICLIVEETIONEL)	
Type of Weatherproofing	:NHA	
Microphone Height Abov	e Ground-level Vegetation:	meters
Distance from Nearest Ve	getation or Other Obstruction (apart from	n veg. on ground): meters
Horizontal Orientation of	Microphone: <u><u>90</u>° Vertical Orien</u>	ntation of Microphone:°
Calls Collected In (circle o	one): Full Spectrum; Zero Crossing	
Detector Settings:	\bigcirc	
Sensitivity	Carlos and the second second second second	
Gain	12 db	
Data Division	NIA	
16k High Filter	CIG	ange of the
Sample Rate	256 WHZ	Seeming Delaster pressed and Read
Min/Max Duration	1.5 ms NONE	
Min Trigger Frequency	16KHZ	
Trigger Level	1200	
	1-017	
Trigger Window	35	
Trigger Window Max Length	35 00M: 155	- And

Bat Acoustic Survey Recon	Bat	Acoust	tic	Survey	Recor
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Bat Acoustic Survey Record
Site ID Number: State: County: MOTHOUMENI
Site Address: SB 1-270, approx. 202 ft NW of jet of Duchenman Lane
Site Owner: MNOPPC
Site Lat/Long. Coordinates: 39.0381761 N, 77.1464503 W
Site Photo Number: 0090 - 0092
Person(s) Who Selected Acoustic Site:RCU EN G
Person(s) who Deployed Detector: EVA FCL
Night 1 -
Survey Date: 06 15 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06/16/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): FUODPUAIN
Description of Habitat:
FLOODPLIAIN OF SOCEAMM (OUD FARM OREEL)
(COLONNEIN COLONEIN COLON)
Habitat Site Sketch (include north arrow):
2/, /
FOREN
D / / N
FORER J
CTOEAM R

X 1-270

Detector Brand & Model	1: SONG METER	SMYBAT	10	
Microphone Brand & M	lodel:SMM-UZ		all and the second	
Microphone Typ	De: OWNIDIVECTION	nal		
Type of Weatherproofin	ng: NIA		Comin	
	ove Ground-level Vegetatio		meters	
Distance from Nearest V	Vegetation or Other Obstru	iction (apart fro	m veg. on ground):	meters
Horizontal Orientation	of Microphone: 90 °	Vertical Orio	entation of Microphone:	0
Calls Collected In (circl	le one): Full Spectrum; Ze	ro Crossing		
Detector Settings:				
Sensitivity	and the second second second	1		
Gain	12 db	The Louise		
Data Division	NIA			

16k High Filter

Trigger Level

Max Length

Compression

Trigger Window

Min/Max Duration

Min Trigger Frequency

Sample Rate

ON

256 KHZ

10 KHZ

DDM: 155

NONE

12 db

35

1,5 ms NONE

SHC 5

Bat Acoustic Survey Record

Site ID Number: 8 State: MD County: MONSGOMMAN
Site Address: NB 1-270, approx. O.I. Mi S Of ramp to EB montrole Rel
Site Owner: MOVHQUMLAY COUNTY
Site Lat./Long. Coordinates: 39.0526719 N, 77.1521895 W
Site Photo Number: 6768
Person(s) Who Selected Acoustic Site: <u>PCLEYA</u>
Person(s) who Deployed Detector: <u>KS/ENG</u>
Night 1 -
Survey Date: <u>-7/6/20</u>
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:5</u>
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Night 2 - Steady Rain; Thunderstorms - 7PM. CULOVICI UP THVOUGHOUT THE
Night 2 - NigVH
Survey Date: <u>7/7/20</u>
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>Jorested Stream</u> Description of Habitat:

Forest of sycan pre/red maple, lots of vines, adjacent stream. Still grass, bailbourg, infrase present. $\frac{1}{2}$

N ones) Streen X 495

Detector Brand & Model:	Songmeters SMYBATES
Microphone Brand & Moo	lel: SMM-V2
Microphone Type:	omnidirectional
Type of Weatherproofing:	NIA
Microphone Height Above	e Ground-level Vegetation: <u>~ 3</u> meters
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): meters
Horizontal Orientation of	
Calls Collected In (circle o	ne): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	011
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 dp
Trigger Window	35
Max Length	00 m: 15 5
Compression	NONE

Bat Acoustic Survey Record
Site ID Number: <u>8A</u> State: <u>MD</u> County: <u>MDNHQDMENY</u>
Site Address: NB1-270, approx. 0.25 min of junction when wootton PRWY
Site Owner: TOWER-DAWSON LLC
Site Lat./Long. Coordinates: 39.0698078 N, 77.1588597 W
Site Photo Number: 6769
Person(s) Who Selected Acoustic Site: RCL EYG
Person(s) who Deployed Detector: KS/EYG
Night 1 -
Survey Date: 7/6/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms ~7 PM Walled up throughout the
Night 2 - Mig Mi
Survey Date: 7770
Survey Start Time (military): 9:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): Forested Stream

Description of Habitat:

Forist of vied maple, sycamore. C. orbiculatus and T. redicance abundant view. Still grace downated ground cover.

Habitat Site Sketch (include north arrow):

<	Forest Energent	
	fores forest	
	119-	

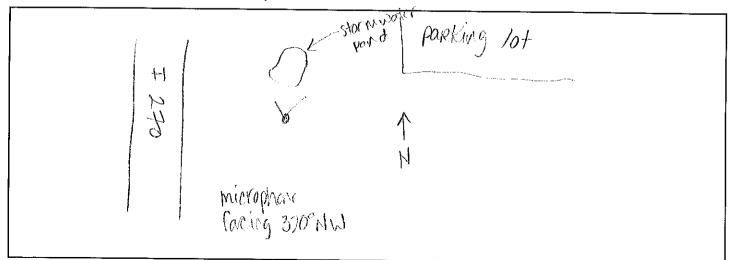
Detector Brand & Model:	song meters SMY	BIA-T 75
Microphone Brand & Mo	del: <u>Smm-UZ</u>	
Microphone Type	ommidirectional	_
Type of Weatherproofing	NIA	
	e Ground-level Vegetation: <u>~ 3</u>	
Distance from Nearest Ve	getation or Other Obstruction (apa	urt from veg. on ground): <u>~4,5</u> meters
Horizontal Orientation of	Microphone: <u>Mo</u> ° Vertic	al Orientation of Microphone:°
Calls Collected In (circle of	one): Full Spectrum; Zero Crossin	5
Detector Settings:	Conservation .	10 ¹
Sensitivity		Forest a 3DM
Gain	12010	
Data Division	NIA	Swed phone
16k High Filter	ON	5×0)
Sample Rate	256 KHZ	
Min/Max Duration	1.5 ms NONE	F
Min Trigger Frequency	16 KHZ	//
Trigger Level	12/16	
Trigger Window	35	
Max Length	00m; 15s	
Compression	NONE	

Bat Acoustic Survey Record

Site ID Number: 88 State: MD County: MONTADMAN
Site Address: NB1-270, approximately 410ft & of which Dr (Rockville Schior
Site Owner: CHY of ROCHVILLe Center Park
Site Lat./Long. Coordinates: <u>39.1003102</u> N, <u>77.1782183</u> W
Site Photo Number:
Person(s) Who Selected Acoustic Site: <u>EV6, RCL</u>
Person(s) who Deployed Detector: EXA, NS
Night 1 -
Survey Date: <u>7/22/20</u>
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms) Cleaved up WerMight
Night 2 -
Survey Date: 723 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>Detet</u> Description of Habitat:

Forested area adjacent to I-2.70 , somer care custon. Mature Decid. tues of several large white asks



Detector Brand & Model:	SONGINETRY SINGBAT FS
Microphone Brand & Mo	del: <u>SMM-UZ</u>
Microphone Type	: omnicircetional
Fype of Weatherproofing	: NA
Microphone Height Abov	e Ground-level Vegetation: <u>3</u> meters
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): $\underline{<0.5}$ meters
Horizontal Orientation of	Microphone: <u>90</u> ° Vertical Orientation of Microphone:°
	one): Rull Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 010
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	IS MS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	1200
Trigger Window	3 5
Max Length	00 m: 155
Compression	NONE

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Bat Acoustic Survey Record
Site ID Number: State: County: MOVHQ oWQAU
Site Address: Along SB 1-270, approximation 225 FINN ON ramp to WE 1-370
Site Owner: <u>CHU 01 Hammer hour</u>
Site Lat./Long. Coordinates: <u>39.1233939</u> N, <u>77.2007698</u> W
Site Photo Number: 01-02-
Person(s) Who Selected Acoustic Site: <u>EXA, ECL</u> Person(s) who Deployed Detector: <u>EXA, JS</u>
Person(s) who Deployed Detector: EUM, JS
Night 1 -
Survey Date: <u>7/25/20</u>
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 72620
Survey Start Time (military): 19:36 Survey End Time (military): 06-45
General Weather (circle one): Clear;) Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): forested Signan

Description of Habitat:

Decid Popested signifiant and virth to stream a peridential development.

ALKROM MON K to a microphone Facing 210°SW 1 1+7

Detector Brand & Model:	SONAMETEV_S	SMUBIAT E	3	<u> </u>	
Microphone Brand & Mo	del: <u> </u>	2			
	: ommidlive et lo				
Type of Weatherproofing			. 6. 		<u> </u>
Microphone Height Abov	e Ground-level Vegetatio	n: <u> </u>	meters		
Distance from Nearest Ve	getation or Other Obstru	ction (apart from	veg. on ground): _	> 6	meters
Horizontal Orientation of	Microphone: <u>90</u> °	Vertical Orient	ation of Micropho	1e:°	
Calls Collected In (circle of	one): Full Spectrum; Zer	o Crossing			
Detector Settings:					
Sensitivity					
Gain	12 (10				
Data Division	NIA				
16k High Filter	ON	-			
Sample Rate	256 KHZ		_		
Min/Max Duration	1.5 ms NON	gast baans baans			
Min Trigger Frequency	16 KH 2				
Trigger Level	12db				
Trigger Window	35				
Max Length	00 m : 155 .				
Compression	NONE				

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Bat Acoustic S	Survey	Record
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Site ID Number: State: MD County: MONHODMON
Site Address: APPNOX D.75 min w of intermange of old theoraetown red 3 WB 1-27
Site Owner: Hentage walk tomes corp.
Site Lat./Long. Coordinates: _39.0329337 N, - TT.1372166 W
Site Photo Number: 0086 - 0084
Person(s) Who Selected Acoustic Site: EVA KCL
Person(s) who Deployed Detector: Ella PCL
Night 1 -
Survey Date: 06 15 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): FORER

Description of Habitat:

FOREPL WITH SUCHMORES AND THUP POPULAR. HEAVY HERBACEOUS WHERE

PORER T X	42	
1-270		

	SHE II	
Detector Brand & Model	: SONDI METER SMYBAT	
licrophone Brand & M	odel: SMM -UZ	1917
	e: Omnidirectional	
ype of Weatherproofing	g: NIA	
	ve Ground-level Vegetation: <u>3</u> meters	
istance from Nearest Vo	egetation or Other Obstanting and and	
Iorizontal Orientation o	f Microphone: <u>90</u> • Vertical Orientation of Microphone: <u>°</u>	neters
Calls Collected In (circle	one): Full Spectrum; Zero Crossing	
Detector Settings:	Leto crossing	
Sensitivity		
Gain	12 410	
Data Division	NH	
16k High Filter	0H)	
Sample Rate		
Min/Max Duration	256 KH Z	
Min Trigger Frequency	IS MS NONE	
Trigger Level	16 KAZ	
Trigger Window	Izdle	
Max Length	35	
Compression	DDM: 155	
T	NONE	

Bat A	coustic	Survey	Record
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Site ID Number: State: County: Montgoment
Site Address: APDVOX. 0.6 mi = of interchange of NB old deorgetown ed and SB 1-
Site Owner: AUDINDE 3 GIVIFFITUITE
Site Lat./Long. Coordinates: 39.02.88 428 N, 77.1175406 W
Site Photo Number: 0106 - 0107
Person(s) Who Selected Acoustic Site:
Person(s) who Deployed Detector: 201410
Night 1 -
Survey Date: 06 (17 / 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:48
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06/18/20
Survey Start Time (military): 19:36 Survey End Time (military): 66:45
General Weather (circle one): Clear: Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): _______ STREAM BED .

Description of Habitat:

FOCERED SCREEPING WITH UNRELEVED BANKS. PERENNIAL TICLE TO ROCUL CLEER.

1-270 FONER FOREN. X

	SHE ILA
Detector Brand & Model: SONG METER SMUBAT	
Microphone Brand & Model: SM M - V 2	
Microphone Type: Ommidiveltional	a marter de
Type of Weatherproofing: NIA	
Microphone Height Above Ground-level Vegetation: 3 meters	a second and a second
Distance from Nearest Vegetation or Other Obstruction (apart from veg. on ground):3	meters
Horizontal Orientation of Microphone: <u><u><u></u></u><u><u></u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u>	meters
Calls Collected In (circle one): Full Spectrum, Zero Crossing	
Print and a special and a spec	

Detector	Settings:
----------	-----------

Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1. SMS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 00
Trigger Window	35
Max Length	00 m: 155
Compression	NONE

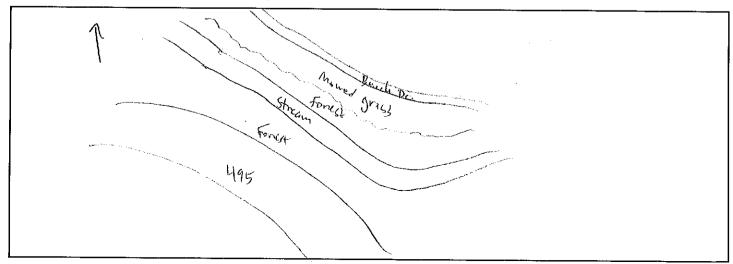
Bat Acoustic Survey Record

Site ID Number:] State: County: MOWHAD WARY
Site Address: APPROX. O. 3 MU OF INTERMANGE OF WIS 1-495 , NB EDGLUITLE PILL
Site Owner: MNCPPC
Site Lat./Long. Coordinates: <u>39.0167136</u> N, <u>77.0969136</u> W
Site Photo Number:
Person(s) Who Selected Acoustic Site: <u>PCL</u> EVA
Person(s) who Deployed Detector: KSEYG
Night 1 -
Survey Date: <u>7/6/20</u>
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms ~7PM. CLEARLE UP +WW UGMON-1-ML
Night 2 - WQM-1
Survey Date: 7/7/20
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:5</u>
General Weather (circle one) (Clear) Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>Greated Stream</u>

Description of Habitat:

Forest canopy consisting of black locust, black walnut, sycamore, and box elder. University of boxelder and honey suckle.



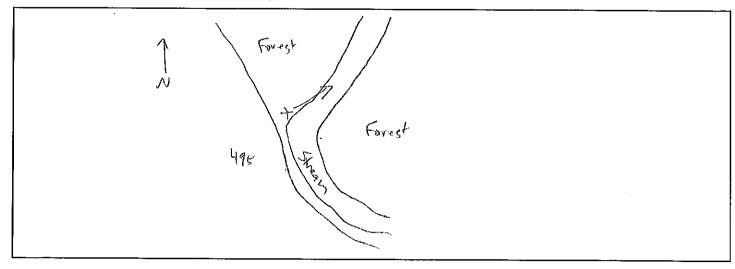
Detector Brand & Model:	SONG METER SMYBAT FS	
Microphone Brand & Mo	del: <u>SYNWI-UZ</u>	
Microphone Type:	: <u>omnichtreettonal</u>	
Type of Weatherproofing:	: NIA	
	e Ground-level Vegetation: meters	
Distance from Nearest Ve	egetation or Other Obstruction (apart from veg. on ground): $\5$ met	ters
Horizontal Orientation of	Microphone: <u>40</u> ° Vertical Orientation of Microphone:°	
Calls Collected In (circle of	one): Fall Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	1200	
Data Division	NIA	ĥ
16k High Filter	NON (NO	
Sample Rate	256 KHZ	
Min/Max Duration	1.5 MS NONE	
Min Trigger Frequency	16 KHZ brelde ~5 m	
Trigger Level	1200	
Trigger Window	35	
Max Length	OD M: 155	
Compression	NONE	

I-495 & I-270 Managed Lanes Study Bat Acoustic Survey Record

Site ID Number: State: County:MONHIDMEN
Site Address: approx. 0.21 wi Whi of junction of Callow UN & MB 1-495.
Site Owner: MNCPPC
Site Lat./Long. Coordinates: 39.0131702 N, 77.0934304 W
Site Photo Number: (577)
Person(s) Who Selected Acoustic Site: <u>PCL 1546</u>
Person(s) who Deployed Detector: KS, EYG
Night 1 -
Survey Date: 7/6/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms ~7PM CLEUVEL UP +WOUGMOUT +WE
Night 2 -
Survey Date: $\frac{7}{7}/\frac{7}{20}$
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one); Clear;) Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>forested Stream</u> Description of Habitat:

Forest dominated by black walnut with boxedder and sycamore. Privet, Ioneysuckle, porcellin berry, and stillgross dominant in understory.



Detector Brand & Model	: <u>Songmeter smi</u>	4BAT FS		
Microphone Brand & Mo	del: <u>SMM-V2</u>	·		·· ·· ·· ·· ·· ··
Microphone Type	: Omnidirectional			
Type of Weatherproofing	: NA			
Microphone Height Abov	e Ground-level Vegetation:	<u>~3_</u> ı	meters	-
Distance from Nearest Ve	getation or Other Obstruction	ı (apart from veg	, on ground): _	$\sim 3D$ meter
Horizontal Orientation of	Microphone: <u>90</u> ° V	ertical Orientati	on of Microphor	1e:°
Calls Collected In (circle	one): Full Spectrum; Zero Cro	ossing		
Detector Settings:	The starting of the start of th			
Sensitivity				
Gain	12 db			
Data Division	NIA			
16k High Filter	ON			
Sample Rate	256 KHZ			
Min/Max Duration	15 ms/NONE			
Min Trigger Frequency	16 KHZ			
Trigger Level	12 db			
Trigger Window	35			
Max Length	00m : 15 5			
Compression	NONE			

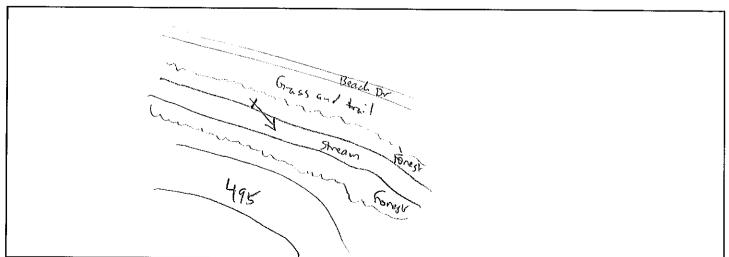
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Bat Acoustic Survey Record
Site ID Number: 13A State: MD County: MONTGOMEN
Site Address: APDYDX, O. 13 My E OF JUNCHION of cedar in and NB 1-495.
Site Owner: MNCPPC
Site Lat./Long. Coordinates: 39.0111447 N, 77.0894464 W
Site Photo Number:
Person(s) Who Selected Acoustic Site: RCL ENG
Person(s) who Deployed Detector: <u>45, EYG</u>
Night 1 - Survey Date: <u>7/6/20</u> Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:51</u>
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Night 2 - Steady Rain; Thunderstorms ~ 7 pm. Cleaved up two vg nout the Night.
Survey Date:
Survey Start Time (military):19:36 Survey End Time (military):06:5(
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>Forested Stream</u>

Description of Habitat:

Namous forested repartion area with breelder, silver maple, clieving and mulberry. Lots of grope rule and porecluleary.



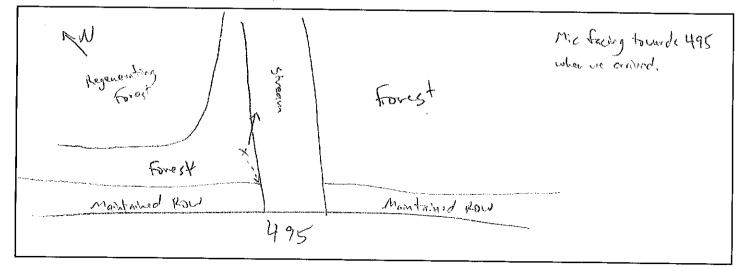
Detector Brand & Model:	: Songmeter SMUBAT FS	
Microphone Brand & Mo		,
Microphone Type	e: omnidirectional	
Type of Weatherproofing	s: NIA	- <u></u>
	ve Ground-level Vegetation: <u>~ 3</u> meters	
Distance from Nearest Ve	egetation or Other Obstruction (apart from veg. on ground): -10	meters
Horizontal Orientation of	f Microphone: <u>^{()</u> ° Vertical Orientation of Microphone:°	
Calls Collected In (circle of	one): Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	12 db	
Data Division	NIA	
16k High Filter	ON	
Sample Rate	256 KHZ	
Min/Max Duration	1.5 MS NONE	
Min Trigger Frequency	16 KHZ	
Trigger Level	1206	
Trigger Window	3 5	
Max Length	00m: 15s	
Compression	NONE	

Bat Acoustic Survey Record

Site ID Number: 14 State: MD County: MOHGOMEN
Site Address: APDYOX. D. 36 mi NW of INFERINANCE OF SB CONN. AVE and WE 1-495.
Site Owner: MNCPPC
Site Lat./Long. Coordinates: <u>39,0070708</u> N, <u>77,0849557</u> W
Site Photo Number: 6771
Person(s) Who Selected Acoustic Site: RCL EXA
Person(s) who Deployed Detector: KS, EYG
Night 1 - / /
Survey Date: 7/6/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms ~ 7PM, CLEAVER UP TWO UGNOUT THE
Night 2
Survey Date: $\frac{7}{7}$
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one); Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>Forested</u> Stream

Forest of Sycamore, Sack walnut, elm, and boxelder. Privet in the understong.



Detector Brand & Model:	SONGMETER SMYBAT FS
Microphone Brand & Mo	
Microphone Type	omnidureetional
Type of Weatherproofing	
Microphone Height Above	e Ground-level Vegetation: <u>3</u> meters
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): $- \frac{10}{10}$ m meters
Horizontal Orientation of	Microphone: <u>40</u> Vertical Orientation of Microphone:°
	one): Full Spectruph; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5 WS NONE
Min Trigger Frequency	16 KHZ

Trigger Level

Max Length

Compression

ł

Trigger Window

12. db

35

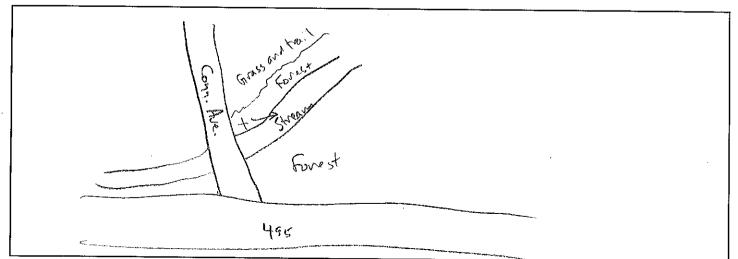
NONE

00m:155

Bat Acoustic Survey Record
Site ID Number: 15 State: MD County: MOWHOMMAN
Site Address: NB CONNECHCULA AVE, approx. O.16 Wil N of 1-495.
Site Owner: MNUPPC
Site Lat./Long. Coordinates: <u>39.0072428</u> N, <u>47.0792411</u> W
Site Photo Number:
Person(s) Who Selected Acoustic Site: <u>RCL EXA</u>
Person(s) who Deployed Detector: KS, EYG
Night 1 -
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms ~ 7PM, Cleaved up - Mroug wout
Night 2 the neg Wt
Survey Date: <u>-7/7/20</u>
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u><u><u>Grested</u></u> <u>Stream</u> Description of Habitat:</u>

Canopy of boxelder, Sycamore, and cottonwood. Underston, of Loneysuckle, porcelimberry, and Loxelder.



Detector Brand & Model:	Songweter SM4 BIAT FS	_
	del: <u>SMM-U2</u>	
	omnidirectional	
Type of Weatherproofing	NIA	
Microphone Height Abov	e Ground-level Vegetation: ~ Z meters	
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): 2250 meters	
Horizontal Orientation of	Microphone: <u><u></u> <u> </u></u>	
	one): Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	12 db	
Data Division	NIA	
16k High Filter	ON	
Sample Rate	256 KHZ	
Min/Max Duration	1.5 MS NONE	
Min Trigger Frequency	16 KHZ	
Trigger Level	12 db	

Trigger Window

Max Length

Compression

T

35

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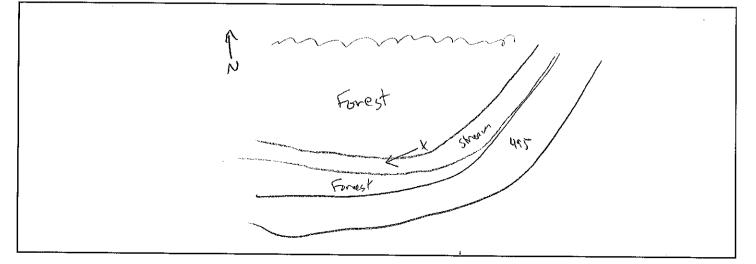
NONE

00m:155

Bat Acoustic Survey Record
Site ID Number: State: County: MOVHGOMENY
Site Address: IDB 1-495, 0.4 MIE OF INTEVENCINGE WITH KENEINGTON PKWY
Site Owner: <u>MNUPPC</u>
Site Lat./Long. Coordinates: <u>39.0074906</u> N, <u>77.068 4735</u> W
Site Photo Number: 6778
Person(s) Who Selected Acoustic Site: RCL EVG
Person(s) who Deployed Detector: KS, E/G
Night 1 -
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms ~7PM cleared up -two Ughous -the
Night 2 - nlgN+
Survey Date: <u>7/7/20</u>
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>Fredred Stream</u> Description of Habitat:

Borelder and sycamore dominant in the canopy. Porcelinberry and stilligrass dominant in herbaceous layer. Poison my abundant.



Detector Brand & Model: Song Meter SM4 BAT FS	<u> </u>
Microphone Brand & Model:	<u> </u>
Microphone Type: OMNIAIVertonal	
Type of Weatherproofing: WHA	
Microphone Height Above Ground-level Vegetation: 3 meters	
Distance from Nearest vegetation of Other Obstruction (apart from veg. on ground).	eters
Horizontal Orientation of Microphone: <u>Algon</u> Vertical Orientation of Microphone:°	
Calls Collected In (circle one): Full Spectrum; Zero Crossing	

Detector Settings:

Sensitivity	
Gain	12 d10
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	ISMS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	1200
Trigger Window	35
Max Length	00 m : 15 S
Compression	NONE

6xeller ~10 1

Bat Acoustic Survey Record		
Site ID Number: F State: MD County: MOVHGOWLENA		
Site Address: UNB 1-495, Approx. 340 ft of Winghom of Beeln Drive.		
Site Owner: MNCPPC		
Site Lat./Long. Coordinates: 39.0117261 N, 77.0643680 W		
Site Photo Number:		
Person(s) Who Selected Acoustic Site: EYE 55 RCL		
Person(s) who Deployed Detector: <u><u><u></u><u><u></u><u><u></u><u><u></u><u></u><u><u></u><u><u></u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u></u></u></u></u>		
Night 1 - Unit b		
Survey Date: 719/20		
Survey Start Time (military): 19:36 Survey End Time (military): 06:51		
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;		
Steady Rain; Thunderstorms		
Night 2 -		
Survey Date:		
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:51</u>		
General Weather (circle one); Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;		
Steady Rain; Thunderstorms		

Habitat Type (e.g. forested stream, floodplain): Flood plain Description of Habitat:

Flood plain forest on stream bruk. R-ca maple tonest w/ bush honeysuckle in understory Flood plain

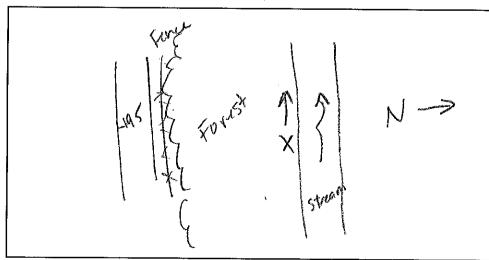
Stiam Forest Ν

	-
Detector Brand & Model	: BONG METER SMYBAT FS
Microphone Brand & Mo	odel: <u>SMM-U2</u>
Microphone Type	: <u>omnidirectional</u>
Type of Weatherproofing	: NIA
Microphone Height Abov	re Ground-level Vegetation: meters
Distance from Nearest Vo	egetation or Other Obstruction (apart from veg. on ground): $_\sim \varUpsilon$ meters
Horizontal Orientation o	f Microphone:° Vertical Orientation of Microphone:°
	one): Full Spectrum;) Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	0N
Sample Rate	256 KHZ
Min/Max Duration	1.5 ms/NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 db
Trigger Window	35
Max Length	00 m: 15 s
Compression	NONE

Bat Acoustic Survey Record
Site ID Number: 18 State: MD County: MONTANMENA
Site Address: WB 1-495, approx 580 ft N of Junchion with Under in.
Site Owner: MNCPPC
Site Lat./Long. Coordinates: <u>39,0146880</u> N, <u>17.0592498</u> W
Site Photo Number: 010 8
Person(s) Who Selected Acoustic Site: <u>EYG/RCL</u> Person(s) who Deployed Detector: <u>JS/SLY</u>
Person(s) who Deployed Detector:
Night 1 -
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 710 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear;) Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u><u><u>Forestcá</u></u> Stream</u>

Description of Habitat:



Detector Brand & Model:	SONG METER	5M4BAT	FS	
	del: SMM-UZ			
-	omnidirectional			
Type of Weatherproofing	NIA	<u> </u>		
	e Ground-level Vegetation: _	3	_ meters	
Distance from Nearest Ve	getation or Other Obstructio	n (apart from v	reg. on ground): 2	meters
Horizontal Orientation of	Microphone: <u>90</u> °	Vertical Orienta	tion of Microphone:°	
	one): Full Spectrum; Zero C			
Detector Settings:				
Sensitivity				
Gain	12 Clb			
Data Division	NIA			
16k High Filter	(AO			
Sample Rate	256 KHZ			
Min/Max Duration	I.SMS NONE			
Min Trigger Frequency	16KHZ			
Trigger Level	12 010			
Trigger Window	3 S			
Max Length	DD m: 155			
Compression	NONE			

¥.

MANAGED LANE STUDY

Bat Acoustic Survey Record

Bat Acoustic Survey Record
Site ID Number: 18 At State: MD County:
Site Address: Approximately 402 ft ME of JCH or Woodley AVE 3 Linden Lin.
Site Owner: NATIONAL PLACE SEMINARY
Site Lat./Long. Coordinates: <u>39.0135289</u> N, <u>77.0571915</u> W
Site Photo Number: 08 - 09
Person(s) Who Selected Acoustic Site: RCL/EYG1
Person(s) who Deployed Detector: <u>EVGJJS</u>
Night 1 -
Survey Date: <u>723</u>
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms Cleared out OVENNIGHT
Night 2 -
Survey Date: <u>+24</u>
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): <u>BRESTED STREAM</u> Description of Habitat:
Porested Riparian area adjacent to seminary +
Habitat Site Sketch (include north arrow):
mleraphone Facing 301% W

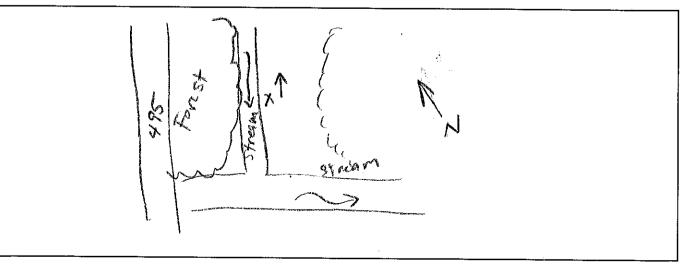
mlerophque Facing 301°NW 548900 Flow &	7 _N	
parking horage		

Detector Brand & Model:	SDNGMERCY SMUBAT FS	
	odel: <u>Smm-UZ</u>	
Microphone Type	: <u>Omvilaireltionai</u>	
Type of Weatherproofing	: NIA	
	re Ground-level Vegetation: <u>3</u> meters	
Distance from Nearest Ve	egetation or Other Obstruction (apart from veg. on ground): met	ers
Horizontal Orientation of	f Microphone: <u>40</u> ° Vertical Orientation of Microphone:°	
	one): Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	12 db	
Data Division	NIA	
16k High Filter	01)	
Sample Rate	256 KHZ	
Min/Max Duration	IS MS NONE	
Min Trigger Frequency	16 KHZ	
Trigger Level	12 db	
Trigger Window	35	
Max Length	DOM:155	
Compression	NONE	

Bat Acoustic Survey Record		
Site ID Number: 20 State: 40 County: Montgomeny		
Site Address: EB 1-495, ADDNOX, 300 ft W of SILGO CRELL PUNCY.		
Site Owner: MNCPPC		
Site Lat./Long. Coordinates: 39.0145896 N, 77.0319662 W		
Site Photo Number: 1776 - 1777		
Person(s) Who Selected Acoustic Site: EYG-/RCL		
Person(s) Who Selected Acoustic Site: <u>EYG-/RCL</u> Person(s) who Deployed Detector: <u>JS/SLY</u>		
Night 1 - Box HID		
Survey Date:		
Survey Start Time (military): 19:36 Survey End Time (military): 06.51		
General Weather (circle one): Clear; (Partly Cloudy) Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;		
Steady Rain; Thunderstorms		
Night 2 -		
Survey Date: <u>710 20</u>		
Survey Start Time (military): 19-36 Survey End Time (military): 06:51		
General Weather (circle one) Clear;) Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;		
Steady Rain; Thunderstorms		

Description of Habitat:

Open frondplain near channel ging into main stream



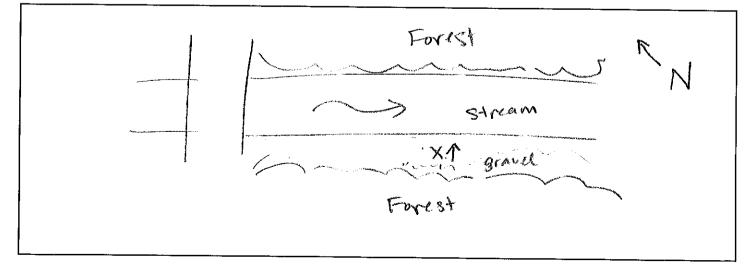
Detector Brand & Model:	SONG METER SMYBAT FS
	del: <u>SMM-UZ</u>
	: <u>ommidiveltional</u>
Type of Weatherproofing	: <u>N</u> A
Microphone Height Abov	e Ground-level Vegetation: <u>3</u> meters
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): meters
Horizontal Orientation of	Microphone: <u>90</u> ° Vertical Orientation of Microphone:°
Calls Collected In (circle of	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	1200
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 d'0
Trigger Window	33
Max Length	00 m: 15 5
Compression	NONE

Bat Acoustic Survey Record
Site ID Number: 22 State: MD County: MDVH q0 MUM
Site Address: EB 1-495, 250-Ft Sof Bridge of the NW BRINCH of AMALDITIA RINEN
Site Owner:
Site Lat./Long. Coordinates: <u>39.0169995</u> N, <u>76.9939044</u> W
Site Photo Number: 0109
Person(s) Who Selected Acoustic Site: EYG Rel
Person(s) who Deployed Detector:
Night 1 -
Survey Date: <u>7/9/20</u>
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): _______Floodplain.

Description of Habitat:

on gravel bar on bank of stream, Forest on edge



Detector Brand & Model:	SONN METER SMY BAT FS.
	del: <u>SMM-U2</u>
	omnidirectional
Type of Weatherproofing	
Microphone Height Above	e Ground-level Vegetation: <u>S</u> meters
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): <u>\sim 1Z</u> meters
Horizontal Orientation of	Microphone: <u>90</u> • Vertical Orientation of Microphone:°
Calls Collected In (circle d	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12010
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS/NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 db
Trigger Window	35
Max Length	00 m: 15 s

Compression

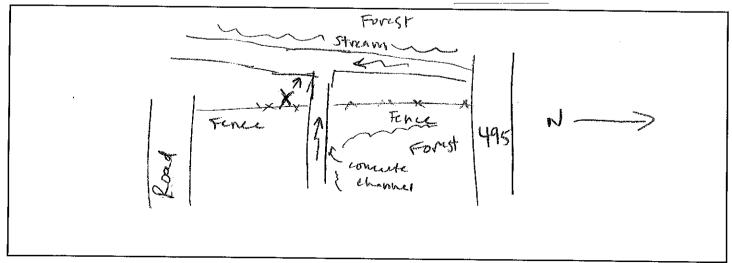
NONE

Bat Acoustic Survey Record
Site ID Number: 2-4 State: MO County: MUNHLOWLIN
Site Address: EB 1-495, approx. 0.45 min of intermange with New Hampsnive Ave.
Site Owner: MD0T SHA
Site Lat./Long. Coordinates: <u>39.0195291</u> N, 76.9833197 W
Site Photo Number: 1778 - 1779
Person(s) Who Selected Acoustic Site: RCL/ENC
Person(s) who Deployed Detector: <u>JS/SLY</u>
Night 1 - Unit #]
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 7 10 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): Edge of concrete channel **Description of Habitat:**

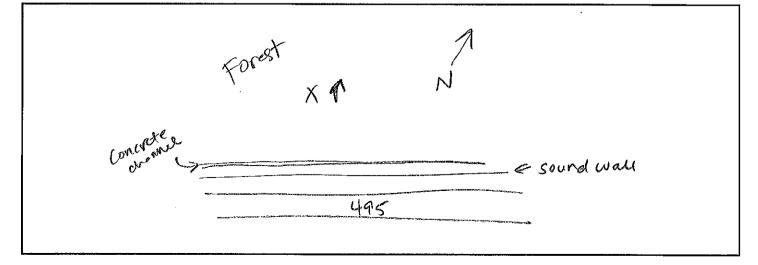
Disturbed forcit edge near while concute channel puels stream

Habitat Site Sketch (include north arrow):



Detector Brand & Model	: SONU METER SMYBAT FS
Microphone Brand & Mo	odel: <u>Smm-UZ</u>
Microphone Type	e: OMNIMIVECTIONAL
Type of Weatherproofing	
Microphone Height Abov	ve Ground-level Vegetation: <u>3</u> meters
Horizontal Orientation o	egetation or Other Obstruction (apart from veg. on ground): ~ 15 meters f Microphone: <u>9D</u> ° Vertical Orientation of Microphone: <u>°</u>
Calls Collected In (circle	one); Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12010
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS/NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 db
Trigger Window	3.5
Max Length	00 M: 15 5
Compression	alant

Bat Acoustic Survey Record
Site ID Number: <u>24A</u> State: <u>MD</u> County: <u>PMMC (LOYUC)</u>
Site Address: WB 1-495, approx, 0,19 W of which on with Riggs rel.
Site Owner: MDOTSHA
Site Lat./Long. Coordinates: <u>39.0189057</u> N, <u>76.9669088</u> W
Site Photo Number: 6752
Person(s) Who Selected Acoustic Site: EY 6/RCL Person(s) who Deployed Detector: EY 6/RCL
Person(s) who Deployed Detector: EYGIQU
Night 1 -
Survey Date: 6/22/20
Survey Start Time (military):19:36 Survey End Time (military):06:43
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms Lost Nigwt
Night 2 -
Survey Date: 6/2-3/20
Survey Start Time (military):9:36 Survey End Time (military):06:43
General Weather (circle one): Clear: Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): wpland forest Description of Habitat:
Chestnut/white oak forest. Few simulas in understory-low berbaceous Cover.
Habitat Site Sketch (include north arrow):



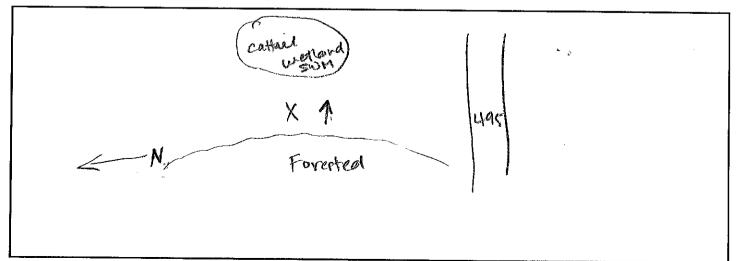
Detector Brand & Model:	1: <u>songmeter smubble</u> FS	
	odel: <u>SMM-U2</u>	
Microphone Type	e: ornnidivectional	
Type of Weatherproofing	g: NIA	
Microphone Height Abov	ve Ground-level Vegetation: <u>3</u> meters	
Distance from Nearest Ve	regetation or Other Obstruction (apart from veg. on ground): _ \sim 4 . S	meters
Horizontal Orientation of	of Microphone: <u>90</u> ° Vertical Orientation of Microphone:°	
Calls Collected In (circle of	one): Full Spectrym; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	12010	
Data Division	NIA	
16k High Filter	ON	
Sample Rate	256 KHZ	
Min/Max Duration	I.SMS NONE	
Min Trigger Frequency	16 KHZ	
Trigger Level	12 db	
Trigger Window	3 5	
Max Length	00 m : 15 5	
Compression	NONE	

Bat Acoustic Survey Record
Site ID Number: <u><u><u></u><u></u><u><u></u><u><u></u><u></u><u><u></u><u></u><u><u></u><u></u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u></u></u></u></u>
Site Address: Median of 1-495, approx 0.35 mi E of Riggs Road
Site Owner: MDOT SHIA
Site Lat./Long. Coordinates: <u>39.0195019</u> N, <u>76.9593368</u> W
Site Photo Number: 6753
Person(s) Who Selected Acoustic Site: <u>EYG/RCL</u>
Person(s) Who Selected Acoustic Site: <u>EYG/RCL</u> Person(s) who Deployed Detector: <u>EYG/RCL</u>
Night 1 -
Survey Date: 061220
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:43</u>
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain Thunderstorms Overnight & had summary +B file on card-left dlone
Survey Date: 06 23 20
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:43</u>
General Weather (circle one): Clear; Bartly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): 5WN wetland

Description of Habitat:

overlooking catteril SWM frature. Forestel edge.



Detector Brand & Model: <u>SONAWLACK SWIY BAT #8</u>
Aicrophone Brand & Model:SM_M V Z
Microphone Type:
Type of Weatherproofing: <u>NIA</u>
Aicrophone Height Above Ground-level Vegetation:3 meters
Distance from Nearest Vegetation or Other Obstruction (apart from veg. on ground): $_\sim60$ meters
Horizontal Orientation of Microphone: $\underline{Q0}^\circ$ Vertical Orientation of Microphone:°
Calls Collected In (circle one): Full Spectrum; Zero Crossing

Detector Settings:

Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5 ms NONE
Min Trigger Frequency	16 KAR
Trigger Level	12 010
Trigger Window	35
Max Length	00 m: 155
Compression	NONE

MANAGED LANE STUDY

Bat Acoustic Survey Record
Site ID Number: 25 State: MD County: Phild GROYGES
Site Address: Approx. 300 ft NW of intermange of 1-495 and SIS 1-95, NW guad
Site Owner: MDDT SHA
Site Lat./Long. Coordinates: 39.0242579 N, 76.9503155 W
Site Photo Number: 6755
Person(s) Who Selected Acoustic Site: EYG/RCL
Person(s) Who Selected Acoustic Site: EYG/RCL Person(s) who Deployed Detector: EYG/RCL
Night 1 -
Survey Date: 6123120
Survey Start Time (military): 19:36 Survey End Time (military): 06:43
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain, Thunderstorms) 6 ver night-
Night 2 -
Survey Date: 6/23/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:43
General Weather (circle one): Clear:) Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): Freshed Stream Description of Habitat:

Forest edge looking over streamiled maple r-turip poplar overstarg. Invasives in understory. (PAINC BRIANSCII)

Detector Brand & Model	: SONG METER SMY BAT FS
Microphone Brand & Mo	odel: <u>SMM-UZ</u>
Microphone Type	ornnidirectional
Fype of Weatherproofing	
Microphone Height Abov	ve Ground-level Vegetation: <u>3</u> meters
Distance from Nearest Ve	egetation or Other Obstruction (apart from veg. on ground): ~ 15 meters
Horizontal Orientation of	f Microphone: <u>40</u> ° Vertical Orientation of Microphone: <u></u> °
Calls Collected In (circle	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12010
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5MS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	1206
Trigger Window	35
Max Length	00m : ISS
Compression	NONE

MANAGED LANE STUDY

Bat Acoustic Survey Record

Site ID Number: 210 State: MD County: PVINCE GROUTCRS
Site Address: Interentinge of WB1-495 & SB 1-495, 0.07 min of ramp spile to
Site Owner: MDOT SHA Privil and Ride.
Site Lat./Long. Coordinates: 39.0266987 N, 76.9510646 W
Site Photo Number:6748
Person(s) Who Selected Acoustic Site: EYG/RU
Person(s) who Deployed Detector: EYG/RC
Night 1 -
Survey Date: $\frac{OOI 22100}{22100}$
Survey Start Time (military): 19:36 Survey End Time (military): 06:43
General Weather (circle one); Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Pain on night Steady Raing Thunderstorms Clear after storms last night
Night 2 - 0 F 6/22/20
Survey Date: 06 23 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:43
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): FOYESTO SIVER W

Description of Habitat:

Led maple + oak forest along stream - invasives in understory. Paint Branch stream valley.

Stram XA 49 y Forcit

Detector Brand & Model:	SONG METER SM4 BAT FS
	del:
Microphone Type	: omnidirectional
Fype of Weatherproofing	: NIA
Vicrophone Height Abov	e Ground-level Vegetation: <u>3</u> meters
Distance from Nearest Ve	egetation or Other Obstruction (apart from veg. on ground): <u>~ 1.5</u> meters
Horizontal Orientation of	Microphone: $\underline{q}\underline{0}^{\circ}$ Vertical Orientation of Microphone:°
Calls Collected In (circle)	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 dB
Data Division	AIN
16k High Filter	ON
Sample Rate	256KHZ
Min/Max Duration	1.5 ms/NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12.06
Trigger Window	3 S
Max Length	ODM: 155
Compression	NONE

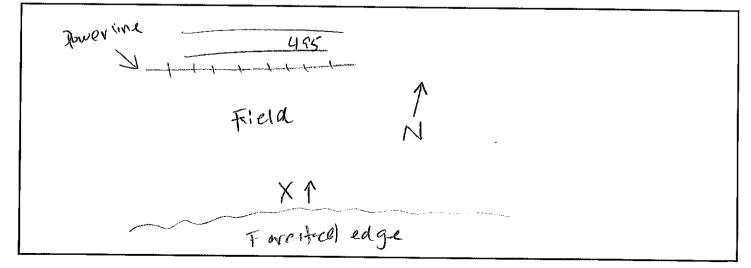
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Bat Acoustic Survey Record
Site ID Number: <u>A7</u> State: <u>MD</u> County: <u>PVINCE ELEDVOJES</u> .
Site Address: SEQUAD. of Interananal of NB 1-495 3 1-95, 0.11 Mi. SW of EXIT
Site Owner: MDOT SHA 25 B-A
Site Lat./Long. Coordinates: 39.0199257 N, 76.9482687 W
Site Photo Number: 6754
Person(s) Who Selected Acoustic Site: EYG PCL
Person(s) who Deployed Detector: EYG RCL
Night 1 - Survey Date: <u>422420</u> Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:43</u> General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain; Steady Rain; Thunderstorms) Humaltystorms last night Night 2 - Survey Date: <u>06/23/20</u> Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:43</u> General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain; Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>Open meadow</u> (utility Row) Description of Habitat:

Dpen meadow/ utility Row w/ grass + herbaceous species forened edge.



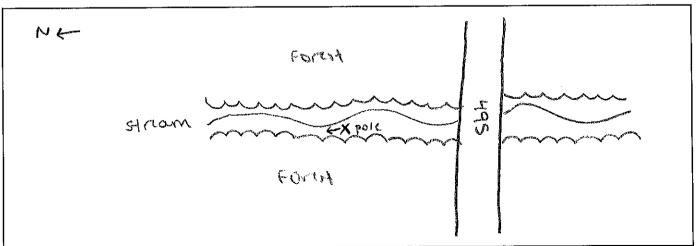
Detector Brand & Model:	song meter smy BAT #5
Microphone Brand & Mo	odel: <u>SMM-UZ</u>
	: ormidirectional
Type of Weatherproofing	: NIA
Microphone Height Abov	e Ground-level Vegetation:3 meters
Distance from Nearest Ve	egetation or Other Obstruction (apart from veg. on ground): <u>~ 60</u> meters
Horizontal Orientation of	f Microphone: <u>90</u> ° Vertical Orientation of Microphone:°
Calls Collected In (circle of	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS INDINE
Min Trigger Frequency	16KHZ
Trigger Level	1200
Trigger Window	35
Max Length	DO M : 15 S
Compression	NONE

Bat Acoustic Survey Record
Site ID Number: 29 State: MD_ County: PVMCL (1000005
Site Address: SB1-495, approx. 0.5 mi W & interchange with Baltimore the
Site Owner: MNOPPC
Site Lat./Long. Coordinates: <u>39.019328D</u> N, 76.933509D W
Site Photo Number: 2767-2768 (7/14/20)
Person(s) Who Selected Acoustic Site: RCL EVE1
Person(s) who Deployed Detector: <u>EYG</u> SP
Night 1 -
Survey Date: _7 13 2-0
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:51</u>
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): Forcitca stream

Description of Habitat:

Fornied stream that Flows under 495 bridge



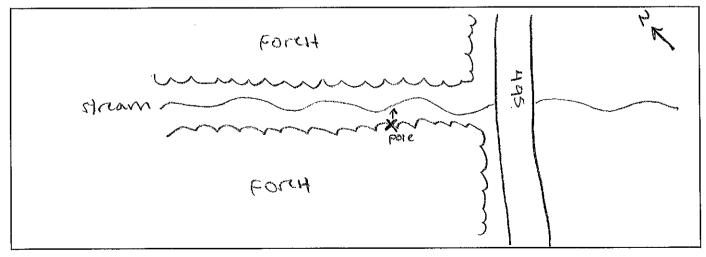
Detector Brand & Model	: <u>songmeter</u>	SMUBAT	FS	
Microphone Brand & Me	odel: <u>SMM-U2</u>			
Microphone Type	e: ommidweetional			
Type of Weatherproofing	s:_NA	1 <u></u>		
Microphone Height Abov	ve Ground-level Vegetation:	3	meters	
Distance from Nearest Ve	egetation or Other Obstruct	ion (apart from	veg. on ground):	<u>15</u> meters
Horizontal Orientation of	f Microphone: <u>90</u> °	Vertical Orient	ation of Microphone:	o
Calls Collected In (circle	one): Fuil Spectrum; Zero	Crossing		
Detector Settings:				
Sensitivity			7	
Gain	12 Clb		-	
Data Division	NIA	1. Ages		
16k High Filter	ON		-	
Sample Rate	2.56 KHZ			
Min/Max Duration	I.SMS NONE		-	
Min Trigger Frequency	16 KHZ			
Trigger Level	12 db			
Trigger Window	35			
Max Length	00 m : 15 5			
Compression	NONE		-	

Bat Acoustic Survey Record
Site ID Number: <u>30</u> State: <u>MD</u> County: <u>PYINU EROYORS</u>
Site Address: NB 1-495, approx, 0.23 mi NW of INTERCHONGE WITH Cherry Wood
Site Owner: MDOT SHIA
Site Lat./Long. Coordinates: <u>39.0117980</u> N, <u>76.9031779</u> W
Site Photo Number: 2758 (7/14/20)
Person(s) Who Selected Acoustic Site: EVG, RCL
Person(s) who Deployed Detector: <u>EYG, SP</u>
Night 1 -
Survey Date: 7/13/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: <u>7 14 20</u>
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): For cited Stream

Description of Habitat:

forcited stream along 495 overpall over channy



Detector Brand & Model	Songmeders Emubrat FS
	odel: <u>SMM-U2</u>
Microphone Type	: OMMIDIRECTIONAL
Type of Weatherproofing	: NIA
Microphone Height Abov	e Ground-level Vegetation: <u>3</u> meters
	egetation or Other Obstruction (apart from veg. on ground): <u>15</u> meters f Microphone: <u>90</u> ° Vertical Orientation of Microphone: <u>°</u>
Calls Collected In <i>(circle o</i> Detector Settings:	one): Full Spectrum; Zero Crossing
Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5 MB NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12db
Trigger Window	35
Max Length	oom: Iss
Compression	NONE

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Bat Acoustic Survey Record
Site ID Number: <u>31 A</u> State: <u>WD</u> County: <u>PriNCL ELEDVOLES</u>
Site Address: NB 1-495, approx. D.15 ml SF of JUNCHUM WHY 95 and Kenilword
Site Owner: MDOT SHIP
Site Lat./Long. Coordinates: <u>39.0021504</u> N, <u>76.8931140</u> W
Site Photo Number: 2756-2757 (7)14/20)
Person(s) Who Selected Acoustic Site: <u>RCL EY6</u>
Person(s) who Deployed Detector: <u>EYG, SP</u>
Night 1 -
Survey Date: 7 13 2.0
Survey Start Time (military): <u> 9:36</u> Survey End Time (military): <u>06:51</u>
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; (Intermittent Rain;)
Steady Rain; Thunderstorms
Night 2 -
Survey Date: $7 14 20$
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): <u>Forcifed Stream</u> Description of Habitat:
Forest along stream parallel to roadinary embankment (ramp)
Habitat Site Sketch (include north arrow):
x x x y y y y y y y y y y y y y y y y y

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Detector Brand & Model	: Song Meter SM 4 BAT	T FS
Microphone Brand & Mo	odel: <u>SMM-U2</u>	
Microphone Type	: omnializedional	
Type of Weatherproofing	: NIA	
Microphone Height Abov	e Ground-level Vegetation:	meters
Distance from Nearest Ve	getation or Other Obstruction (apart fro	om veg. on ground): <u>3</u> meters
Horizontal Orientation of	f Microphone: <u>40</u> ° Vertical Ori	entation of Microphone:°
Calls Collected In (circle of	one): Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	12 010	
Data Division	NIA	
16k High Filter	ON	
Sample Rate	256 KHZ	
Min/Max Duration	1.5 MS INONE	
Min Trigger Frequency	16 KH 2	
Trigger Level	12 00	
Trigger Window	35	
Max Length	DOM:155	
Compression	NONE	

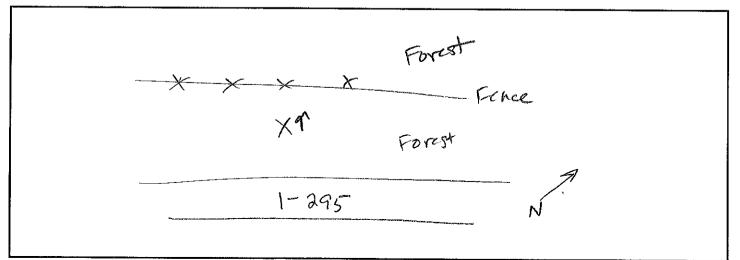
MANAGED LANE STUDY

Bat Acoustic Survey Record
Site ID Number: 32 State: MD County: PRINCE GED ECIES.
Site Address: Southbound 1-295, 0.17 miles east of ramp to southway.
Site Owner: MIDOR SHIA
Site Lat./Long. Coordinates: <u>38.9969177</u> N, <u>76.8753528</u> W
Site Photo Number: 6751
Person(s) Who Selected Acoustic Site: EYG/RCL Person(s) who Deployed Detector: EYG/RCL
Person(s) who Deployed Detector: <u>FYGIPCL</u>
Night 1 -
Survey Date: 00122-12-0
Survey Start Time (military): <u>19·36</u> Survey End Time (military): <u>06:43</u>
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms overvigut
Night 2 -
Survey Date: 66 23 20
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:43</u>
General Weather (circle one). Clear: Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): FOVRSEQ.

Description of Habitat:

Swelt Sum/red maple forest



Detector Brand & Model:	80NU METER SMYBAT FS
Microphone Brand & Mo	del: <u>SYNVN-U2</u>
Microphone Type	: ormidive Gronal
Type of Weatherproofing	: NIA
	e Ground-level Vegetation: <u> </u>
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): meters
Horizontal Orientation of	Microphone: <u><u><u></u><u></u><u><u></u><u><u></u><u></u><u></u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u></u></u>
Calls Collected In (circle of	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	1200
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1. SMS/NONE
Min Trigger Frequency	161472
Trigger Level	12 0.0
Trigger Window	3.3
Max Length	00 m: 15 s
Compression	NO DE-

Bat Acoustic Survey Record
Site ID Number: 33 State: MD County: PANCE GLORING'S
Site Address: Approx. 170++ 8 OF SULTNERN GUAR OF INTERIMINGE OF 1-495 and 1-295
Site Owner: <u>MDOT SHVA</u>
Site Lat./Long. Coordinates: 38.9893683 N, 76.8863156 W
Site Photo Number: 6759
Person(s) Who Selected Acoustic Site: EYG PCL
Person(s) Who Selected Acoustic Site: <u>EYG</u> <u>FCL</u> Person(s) who Deployed Detector: <u>EYG</u> <u>EYG</u> <u>ECL</u>
Night 1 -
Survey Date: 612220
Survey Start Time (military): 19:36 Survey End Time (military): 56:43
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rains Thunderstorms over wisht & outro Shis fall on
Night 2- Steady Rain Thunderstorms overnight + extra SHS file on Cavel - left ;+ alone
Survey Date: 6 23 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:43
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): Forested Stream
Description of Habitat:

led maple forest on both sides of stram

Forest Stream ~. Forest XT

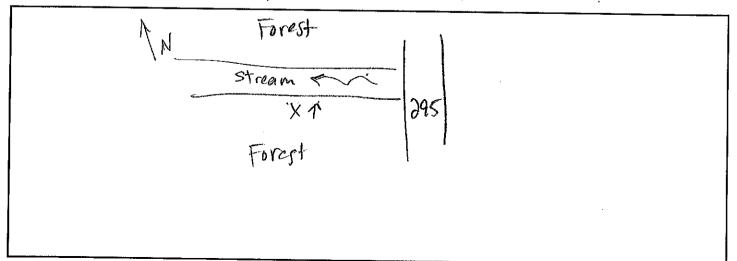
Detector Brand & Model:	Songmeter SMUBAT FS	
Microphone Brand & Mo	del:	<u> </u>
	: omnidirectional	
Type of Weatherproofing		
Microphone Height Abov	e Ground-level Vegetation: <u>3</u> meters	
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): $\underline{} < \underline{0}$, \underline{S} mete	rs
Horizontal Orientation of	Microphone: <u>40</u> ° Vertical Orientation of Microphone:°	
Calls Collected In (circle of	one): Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	12010	
Data Division	NIA	
16k High Filter	ON	
Sample Rate	256 KHZ	
Min/Max Duration	I.SMS NONE	
Min Trigger Frequency	16 KHZ	
Trigger Level	12 db	
Trigger Window	35	
Max Length	Dom: 155	
Compression	NONE	

MANAGED LANE STUDY

Habitat Type (e.g. forested stream, floodplain): Forested Stream

Description of Habitat:

Rich maple forest along stream, microstegiumin Understong



	SONG METER SM4 BAT 7-3	
Microphone Brand & Mo		
Microphone Type	omnidireexional	
Type of Weatherproofing	NIA	
Microphone Height Above Ground-level Vegetation: 3 meters		
Distance from Nearest Vegetation or Other Obstruction (apart from veg. on ground): _ \sim] meters		
Horizontal Orientation of		
Calls Collected In (circle o	one): Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	12 db	
Data Division	NIA	
16k High Filter	0 N	
Sample Rate	256 KHZ	
Min/Max Duration	1. SMS/NONE	
Min Trigger Frequency	16 KHZ	
Trigger Level	12 db	
Trigger Window	35	
Max Length	DDM: 155	
Compression	NONE	

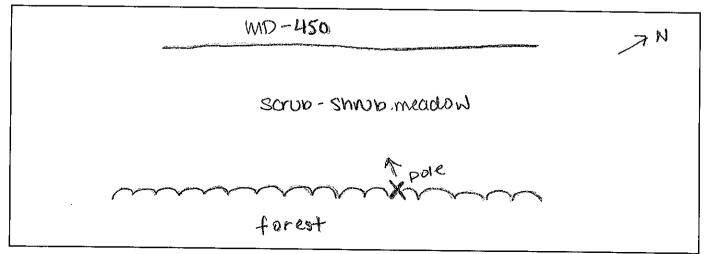
Bat Acoustic Survey Record

Site ID Number: <u>34B</u> State: <u>MD</u> County: <u>PRINCE GEORETES</u>
site Address: 730 ft southeast of the intersection of mD450 and 85th ave
Site Owner: MDDC SHA
Site Lat./Long. Coordinates: <u>38.9580307</u> N, <u>76.8670943</u> W
Site Photo Number: 6765^{\vee}
Person(s) Who Selected Acoustic Site: ENG, RCL
Person(s) who Deployed Detector:
Night 1 -
Survey Date: 06/24/2020
Survey Start Time (military): 19:36 Survey End Time (military): 06:43
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06/25/2020
Survey Start Time (military): 19:36 Survey End Time (military): 06:43
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): _SOND - Shoub mea dow

Description of Habitat:

SCIUD-Shub meadow bordened by red maple-forest adjacent to MD-450 (Annapons Road), schub-shub veggation consists of Bradford Pear and sweetgum (mostly = 20-ft nign).



Detector Brand & Model:	: SONG METER SMYBIAT ES
	odel: SMM-V2.
	e: omnidiveltional
Type of Weatherproofing	
• -	ve Ground-level Vegetation:3 meters
	egetation or Other Obstruction (apart from veg. on ground): 10 meters
Horizontal Orientation of	
	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	-
Gain	12 db
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5 ms/ NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 db
Trigger Window	35
Max Length	00m: KS
Compression	NONE-

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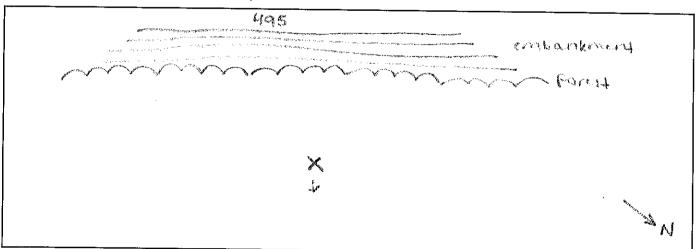
Bat Acoustic Survey Record

Site ID Number: <u>34C</u> Sta	te: MD County: PRINCE GEORGIES.
Site Address: NB Gattlen CHY DY and app	MDX. Q.17 Mis of Timber UN.
Site Owner: MVDT SHA	
Site Lat./Long. Coordinates: <u>38,9507169</u> N, <u>76</u>	,.8599584 w
Site Photo Number: 6764	
Person(s) Who Selected Acoustic Site: _ 赵佑, RCL	
Person(s) who Deployed Detector: <u>ESG NES</u>	
· · · · · ·	
Night 1 -	
Survey Date: 04 24 20	•
Survey Start Time (military): <u>19:36</u> Survey End	Time (military): 06:43
General Weather (circle one) Clear, Partly Cloudy; Most	ly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms	
Night 2 -	
Survey Date: 06 2.5 20	
Survey Start Time (military): 19:36 Survey End	Time (military): 06:43
General Weather (circle one): Clear; Partly Cloudy; Most	
Steady Rain; Thunderstorms	

Habitat Type (e.g. forested stream, floodplain): Forested

Description of Habitat:

swertquented more forest along 495 at toe of roadway embankment



Detector Brand & Model	: <u>songmeter smubat FS</u>
	odel: <u>SMM-V2</u>
Microphone Type	e: <u>omnidivectional</u>
Гуре of Weatherproofing	: NIA
Microphone Height Abov	re Ground-level Vegetation: <u>3</u> meters
Distance from Nearest Ve	egetation or Other Obstruction (apart from veg. on ground): meters
Horizontal Orientation o	f Microphone: Vertical Orientation of Microphone: °
Calls Collected In (circle	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	1200
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 db
Trigger Window	3 s
Max Length	00 m; 15 s
Compression	NONE

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Bat Acoustic Survey Record	
Site ID Number: 34D State: MD County: PRINCE GEORGIES	
Site Address: INtronainak of EB MUKUY HWY WB US-SD, approx 180 ++ N OF WB US-	50
Site Owner: MPO(SH1A	
Site Lat./Long. Coordinates: <u>38.9472771</u> N, <u>76.8412755</u> W	
Site Photo Number: 1763	
Person(s) Who Selected Acoustic Site: <u>EXCL</u>	
Person(s) who Deployed Detector:	
Night 1 -	
Survey Date: Ota 244 7-0	
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:43</u>	
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;	
Steady Rain; Thunderstorms	
Night 2 -	
Survey Date: 06/25/20	
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:43</u>	
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;	
Steady Rain; Thunderstorms	

Habitat Type (e.g. forested stream, floodplain): Scaub-Shaub walland (PSS)

Description of Habitat:

sweetquint 1 ground sectore watcound adjacent to 495 reading 1 (mbankmint

N German	1	
F * 5 5		495
• 	1	
	×	En Contra Ant

Detector Brand & Model:	_ songmeter ami	JBAT FS			
Microphone Brand & Mo	del: <u>ŠMM-VZ</u>			<u> </u>	10
Microphone Type	: omnidirectionell	<u></u>			
Type of Weatherproofing					
Microphone Height Abov	e Ground-level Vegetation: _	3	_ meters		
Distance from Nearest Ve	getation or Other Obstructio	n (apart from v	eg. on ground): _	150	meters
Horizontal Orientation of	Microphone: <u>CO</u> ° V	ertical Orienta	tion of Microphor	ne:°	
	one): Full Spectrum; Zero Ci	rossing			
Detector Settings:					
Sensitivity]		
Gain	1200				,
Data Division	NIA				
16k High Filter	ON	•			
Sample Rate	256 KHZ				
Min/Max Duration	I.S MS NONE				
Min Trigger Frequency	16 KHZ				
Trigger Level	1200				
Trigger Window	35	·			
Max Length	DDm: 15 s		_		
Compression	NONE				

Bat Acoustic Survey Record

Site ID Number: <u>346</u> S	tate: MD (County: PEIN	CE EVEDRAVES
Site Address: <u>ApprOX. 0.7 With of Withrun</u>			
Site Owner: MDDS SHA KOW			
Site Lat./Long. Coordinates: 38, 9250450 N, 3	16.8542824	W	
Site Photo Number: <u>6789-6760</u>			
Person(s) Who Selected Acoustic Site: EVG , PCL	:		
Person(s) who Deployed Detector: <u>FL(G, NLB</u>			
Night 1 -			
Survey Date: 06/24/20			
Survey Start Time (military): <u> 9:36</u> Survey E	nd Time (military)	: 06:43	
General Weather (circle one) Clear.) Partly Cloudy; Mc	stly Cloudy; Clou	dy; Drizzle; Iı	ntermittent Rain;
Steady Rain; Thunderstorm			
Night 2 -			
Survey Date:			
Survey Start Time (military): 19:36 Survey En	ad Time (military)	: 06:43	_
General Weather (circle one). Clear, Partly Cloudy; Mo	stly Cloudy; Clou	dy; Drizzle; Ir	ntermittent Rain;
Steady Rain; Thunderstorm:	S		

Habitat Type (e.g. forested stream, floodplain): Faculted stream

Description of Habitat:

Oaklancequin for it abuilting was candidall, bisceled by channel and parallely 445

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	and a start start start
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	KA A A A A A A A A A A A A A A A A A A
	Rudenhall playarand

Detector Brand & Model:	80ngmeter SMUBATES
	del:
	: DMNICIVEETIONCE
Microphone Height Abov	e Ground-level Vegetation: <u>3</u> meters (groups) state advector
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): meters
Horizontal Orientation of	Microphone: <u><u>90</u> Vertical Orientation of Microphone: <u></u></u>
Calls Collected In (circle	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	IZdb
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 00
Trigger Window	35
Max Length	00m:15s
Compression	NONE



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$\sum_{i=1}^{N} \sum_{j=1}^{N} e^{i \frac{1}{2} \sum_{j=1}$:

Bat Acoustic Survey Record
Site ID Number: 35 State: MD County: MINCL HEDYGES
Site Address: <u>approx. 220-Ft E of 1-495</u> , 0.3 mi 8 of interchange wi control five
Site Owner: MNCPPC
Site Lat./Long. Coordinates: 38,8891460 N, 76.8451591 W
Site Photo Number: 2763-2769 (7/19/20)
Person(s) Who Selected Acoustic Site: <u>RCLEYG</u>
Person(s) who Deployed Detector: <u>EYGSP</u>
Night 1 -
Survey Date:
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:51</u>
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; (Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: _7/14/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): PEM

Description of Habitat:

PEM bordered by Forest along 495 with adjacent stram

→ 2	Pein K
	FOLDT ?(5)]

Detector Brand & Model	SONG METER SMYBAT FS	
Microphone Brand & Mo	del: <u>SMM-U2</u>	•
Microphone Type	: omnidive ctional	-
Type of Weatherproofing	· NIA	
Microphone Height Abov	e Ground-level Vegetation: <u>3</u> meters	-
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): 30 meters	
Horizontal Orientation of	Microphone: <u>40</u> • Vertical Orientation of Microphone:•	
	one): Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	12 db	
Data Division	NIA	
16k High Filter	ON	
Sample Rate	256 KHZ	
Min/Max Duration	1.5 MS NONE	
Min Trigger Frequency	16 KHZ	
Trigger Level	12 db	
Trigger Window	35	
Max Length	00 m: 155	
Compression	NONE	

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Bat Acoustic Survey Record

Site ID Number: 35A State: MD County: PNN & ELOVALS
Site ID Number: <u>35A</u> State: VVV County: <u>111100 (1011)</u>
Site Address: <u>Approx. 330 FFE of NB1-495</u> 0.60 mi SOF WHEVEWANGE with RHEMUL
Site Owner: CIKEI PARENERSHIP
Site Owner: <u>CREETHEUSERS</u> , <u>38. 8602SII N, 16.8483737</u> w
Site Photo Number: 2701-2702
Person(s) Who Selected Acoustic Site: RCUENE
Person(s) who Deployed Detector: <u>EY()</u> SP
Night 1 -
Survey Date: <u>7/13/20</u>
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; (Intermittent Rain;)
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 7/14/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
Survey Start Time (minitary) North Cloudy: Cloudy: Drizzle: Intermittent Rain;
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

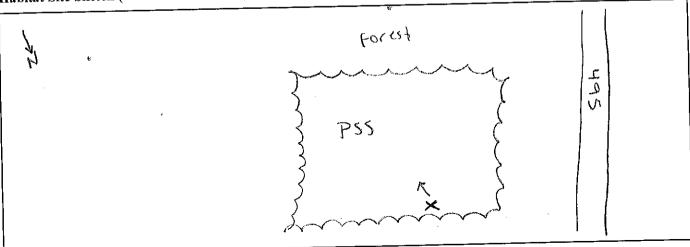
Habitat Type (e.g. forested stream, floodplain): <u>Scrub-shrub walland (1755)</u>

Description of Habitat:

PSS surrounded by Forth along 495

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Detector Brand & Mode	1: <u>Songmaler smy biat ps</u>
	lodel:
Microphone Typ	e: Omidirectional
Type of Weatherproofin	g: <u>NIA</u>
Microphone Height Abo	ve Ground-level Vegetation: 3 meters
Distance from Nearest V	egetation or Other Obstruction (apart from veg. on ground):10 meters
Horizontal Orientation o	f Microphone: <u>90</u> Vertical Orientation of Microphone: <u>0</u>
Calls Collected In (circle	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS INONE
Min Trigger Frequency	16 KHZ
Trigger Level	1200
Trigger Window	35
Max Length	DOM: 155
Compression	NONE

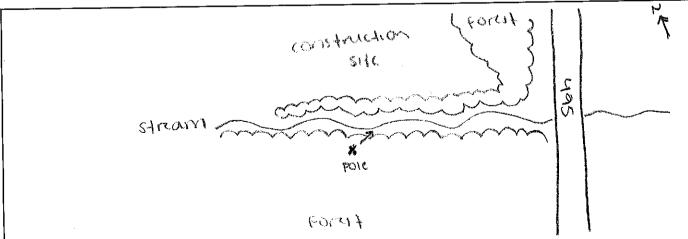
Bat Acoustic Survey Record

Site ID Number: 35 B State: MD County: Prive Eleorges.
Site Address: <u>APPINX</u> , IZDFT E OF I-495, 1.02 MU NOF INTERMANAE WHA Site Owner: MOOP SHA PENNSYIVANIA AVE
Site Lat./Long. Coordinates: <u>38.8502778</u> N, <u>76.8605187</u> W Site Photo Number: <u>2759-2760(7)14120)</u> Person(s) Who Selected Acoustic Site: <u>ENG RCC</u> Person(s) who Deployed Detector: <u>EYG SP</u>
Night 1 - Survey Date: <u>7 13 20</u> Survey Start Time (military): <u>9:36</u> Survey End Time (military): <u>06:51</u> General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain; Steady Rain; Thunderstorms
Night 2 - Survey Date: <u>7 14 20</u> Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:51</u> General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain; Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): Forthed strawn

Description of Habitat:

Forcified stream with adjacent construction site, stream muns under 495



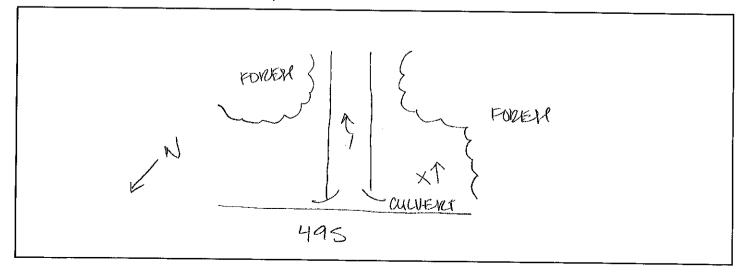
Detector Brand & Mode	1: <u>Songmeter SM4BAT FS</u>	
	odel: <u>8MM-02</u>	
Microphone Typ	e: . omnidirectional	
Type of Weatherproofin	g: NIA	
Microphone Height Abo	ve Ground-level Vegetation:3 meters	
Distance from Nearest V	egetation or Other Obstruction (apart from veg. on ground):	ters
Horizontal Orientation o	f Microphone: <u>40</u> • Vertical Orientation of Microphone: <u>•</u>	
	one): Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	12 db	
Data Division	NIA	
16k High Filter	CAO	
Sample Rate	256 KHZ	
Min/Max Duration	1.5 MS INDINE	
Min Trigger Frequency	16 KHZ	
Trigger Level	12 db	
Trigger Window	35	
Max Length	00m:155	
Compression	NONE	

Bat Acoustic Survey R	lecord

Site ID Number: 36 State: MD County: WING HOVORS
Site Address: APPHOX. 133 FIN OF WB SULFIGING PKENY and 250 FH INE- OF INNCHION
Site Owner: MDUT SHW WHN 1-495.
Site Lat./Long. Coordinates: <u>38.8308140</u> N, <u>76.8728547</u> W
Site Photo Number:
Person(s) Who Selected Acoustic Site: <u>RCUEYA</u>
Person(s) who Deployed Detector: EYM SLY
Night 1 -
Survey Date: 06 29 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06/30/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear;) Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): OPEN WETNAND ADJAUCHT TO FOMEH Description of Habitat:

EDUE OF OPEN WETWAND NEAR CULVERT UNDER 495. VIRGINIA PINE, SWEETUMIN, WIMON OPPH FORCEM ON EDUE.



Detector Brand & Model: _	SONG METER SMYBAT FS
Microphone Brand & Mode	el:Smm-U2
Microphone Type:	ominidivectional
Type of Weatherproofing:	NIA
	Ground-level Vegetation: meters
Distance from Nearest Vege	etation or Other Obstruction (apart from veg. on ground): $2 > 1.5$ meters
	Microphone: <u><u>q</u>0 ° Vertical Orientation of Microphone: <u></u>°</u>
Calls Collected In (circle on	ne): Full Spectrum, Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	ON
Sample Rate	256 Ktlz
Min/Max Duration	1.5 MS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	1200
Trigger Window	3 S

00 m 15 5 NONE

Max Length Compression

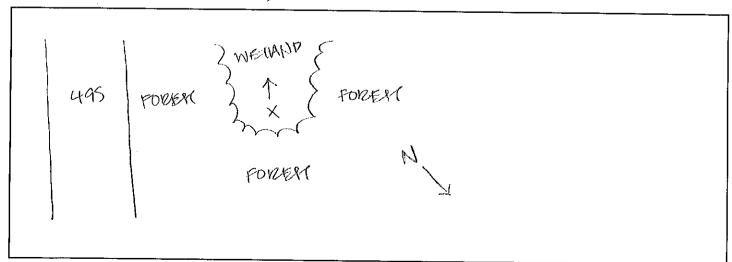
:

Bat Acoustic Survey Record	
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Site ID Number: 36A State: MD County: PYIMCE GROVIES
Site ID Number:
Site Owner: PRINCE EVENERE'S COUNTY FOURTVILLE RO
Site Lat./Long. Coordinates: <u>38. 8292151</u> N, <u>76.8764998</u> W
Site Photo Number: 06
Person(s) Who Selected Acoustic Site:
Person(s) who Deployed Detector: ENG SU
Night 1 -
Survey Date: 06 29 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06/30/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one) Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Description of Habitat:

PALLISTELLIE EMERGENT WELLIAND WITH FOREN ON ELACH SIDE.

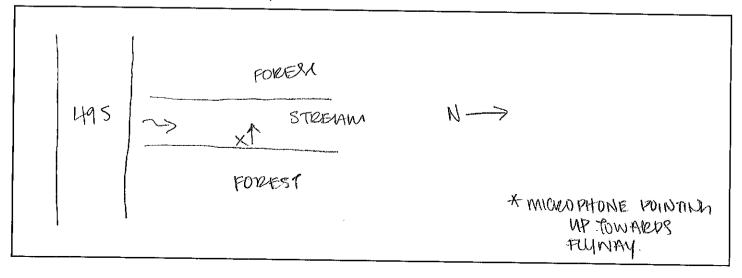


Detector Brand & Model:	SONA METER SMYBAT FS
Microphone Brand & Mo	del: <u>SMM-UZ</u>
Microphone Type	= <u>ornidirectional</u>
Type of Weatherproofing	NIA
Microphone Height Above	e Ground-level Vegetation: <u>3</u> meters
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): $-\sim 15$ meters
	Microphone: <u>90</u> Vertical Orientation of Microphone:°
Calls Collected In (circle o	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	I.SMS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	1200
Trigger Window	3 5
Max Length	00m:155
Compression	NONE

Bat Acoustic Survey Record
Site ID Number: 36 B State: MD County: PYINCE Clear Of A
Site Address: Approx. 130 ft N of SB 1-495 and 0.26 min of junction with sulliand
Site Owner: WDDT SHIA
Site Lat./Long. Coordinates: 38.8237684 N, 76.8846077 W
Site Photo Number:04 - 05
Person(s) Who Selected Acoustic Site:
Person(s) who Deployed Detector: EXA 1504
Night 1 -
Survey Date: 06/29/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear? Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06/30/20
Survey Start Time (military):19:36 Survey End Time (military):06:45
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>STEEAW WEAVEL BAVE</u> Description of Habitat:

SWEETBNYI SWEETGUM PPO - HIGH DUATITLY WETWAND IN NNPERSORY



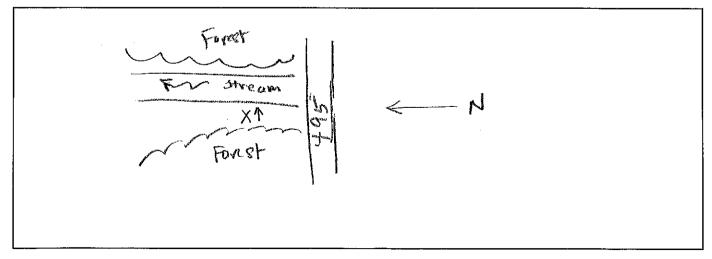
Detector Brand & Model	SONIA METER SMYBAT FS
	odel: SMM-UZ
-	: <u>ommidive estimal</u>
Type of Weatherproofing	: NIA
	re Ground-level Vegetation: ~ 1.5 meters
Distance from Nearest Ve	egetation or Other Obstruction (apart from veg. on ground): ~ 0.5 meters
Horizontal Orientation of	f Microphone: <u>90</u> ° Vertical Orientation of Microphone:°
	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 db
Dete Division	

	1200
Data Division	NIA
16k High Filter	010
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 db
Trigger Window	35
Max Length	ODM: 155
Compression	None.

Bat Acoustic Survey Record
Site ID Number: <u>36C</u> State: <u>HD</u> County: <u>PINCE Elenvoes</u>
Site Address: <u>APPNUX</u> . 0.12 mi E of Watton AVE CUI-de-sac
Site Owner: BIRUSO FAYE
Site Lat./Long. Coordinates: <u>38.8198D34</u> N, <u>76.8957216</u> W
Site Photo Number: 03
Person(s) Who Selected Acoustic Site: EYG/RCL
Person(s) who Deployed Detector: <u>EY6-15L4</u> # 2
Night 1 -
Survey Date: 6129 20
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>D6:45</u>
General Weather (circle one) Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: <u>10/30/20</u>
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:45</u>
General Weather (circle one): Clear: Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): Edge of Stream

Description of Habitat:



Detector Brand & Model	BUNG METER SMYBAT FS	
Microphone Brand & Mo	odel: SMM-UZ	<u></u>
Microphone Type	e: <u>omnidiveltional</u>	
Type of Weatherproofing	g: NIA	
Microphone Height Abov	ve Ground-level Vegetation: <u>3</u> meters	
Distance from Nearest Ve	egetation or Other Obstruction (apart from veg. on ground): met	ers
Horizontal Orientation of	f Microphone: <u>90</u> ° Vertical Orientation of Microphone:°	
Calls Collected In (circle	one): Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	12 db	
Data Division	NIA	i
16k High Filter	ON	
Sample Rate	2Sb KHZ	
Min/Max Duration	1.5ms/ NONE	
Min Trigger Frequency	16 KHZ	
Trigger Level	1206	
Trigger Window	38	
Max Length	00m:155	
Compression	NONE	

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Bat Acoustic Survey Record	
Site ID Number: 36D State: MD County: MNGC Eleorates.	
Site Address: ADDNOX. 145 E OF MIMP FROM NB 1-495 to AUTURONO.	
Site Owner: MDOT SHIA	
Site Lat./Long. Coordinates: <u>38.8198695</u> N, <u>76.9160706</u> W	
Site Photo Number: 02	
Person(s) Who Selected Acoustic Site:	
Person(s) Who Selected Acoustic Site: <u>EYG RCL</u> Person(s) who Deployed Detector: <u>EYG SUY</u> #10	
Night 1 - Survey Date: <u>613912.5</u> Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:45</u> General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain; Steady Rain; Thunderstorms Night 2 - Survey Date: <u>6130120</u> Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:45</u> General Weather (circle one): Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain; Steady Rain; Thunderstorms	

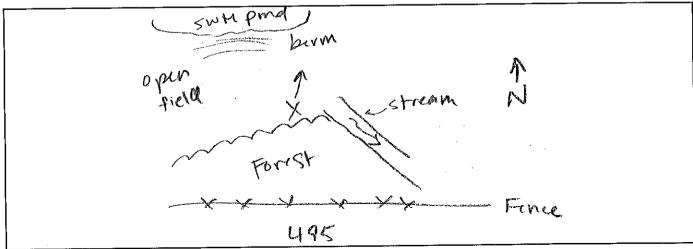
Habitat Type (e.g. forested stream, floodplain): Forest edge

Description of Habitat:

Edge of frest near both SWM pined + stream

Habitat Site Sketch (include north arrow):

.



Detector Brand & Mode	el: SONG METER SM 4 BAT FS	
Microphone Brand & M	Iodel: <u>SMM-U2</u>	
Microphone Typ	pe: DMNIdirectional	
Type of Weatherproofing	ng:NIA	
Microphone Height Abov	ove Ground-level Vegetation: <u>3</u> meters	
Distance from Nearest V	/egetation or Other Obstruction (apart from veg. on ground): \sim 5	meters
Horizontal Orientation o	of Microphone: <u><u><u></u><u></u><u><u></u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u></u>	
Calls Collected In (circle	e one): Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	IZdb	
Data Division	NIA	
16k High Filter	ON	
Sample Rate	256 KHZ	
Min/Max Duration	1.5MS/NONE	
Min Trigger Frequency	16 KHZ	
Trigger Level	12 db	
Trigger Window	35	
Max Length	ODM: ISS	
Compression	NONE	

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MANAGED LANE STUDY
Bat Acoustic Survey Record
Site ID Number: 38 State: MD County: PYINCE GEOVIED.
Site Address: HENSON Strelim Valley RIM, approx 218 Ft S OF NB 1-495, 0.12 Mi W OF
Site Owner: MNCPPC KUL-CL - SOC
Site Lat./Long. Coordinates: 38.8180222 N, 76.9312426 W #9 did not south 0
Site Lat./Long. Coordinates: <u>30.0100 CCL</u> N, <u>70.75/2926</u> # #9 did not Say "Refreshing cants" Site Photo Number: <u>01 - EVG phone</u> but did have recorded
Person(s) Who Selected Acoustic Site: <u>EXE/RCL</u> data
Person(s) who Deployed Detector: EY6-18LY
, <i>O</i>
Night 1 -
Survey Date: 6129 7.0
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 10/30/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): Forested stream

Description of Habitat:

1

Red maple / Sweetgum forest along stream

forest stream 495 XA forest

	SONG METER SM 4BAT FS
Microphone Brand & Mo	del:SMM - U2
Microphone Type	: <u>ommaireetional</u>
Type of Weatherproofing	: NIA
	e Ground-level Vegetation: meters
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground):() meters
Horizontal Orientation of	
Calls Collected In (circle	one): Full Spectrum, Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	NO
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS NONE
Min Trigger Frequency	16KHZ
Trigger Level	12 010
Trigger Window	35
Max Length	ODM: 155
Compression	NONE.

.

Bat Acoustic Survey Record

Bat Acoustic Survey Record
Site ID Number: 39-BNdge to Plenhods Rel State: MD County: Montgomeny
Site Address: Withed part bridge to Ruch will ROad
Site Owner: WIDOT SHIA
Site Lat./Long. Coordinates: 38.9837666 N, -77.1605604 W
Site Photo Number: 0093 - 0095
Person(s) Who Selected Acoustic Site: Rel YEUG
Person(s) who Deployed Detector: RUIEUG
Night 1 -
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): <u>b6: US</u>
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): FOUEU Description of Habitat:
peurce weated on stope of forest ideated part, seven were evad
Bridge to.
Habitat Site Sketch (include north arrow):
1-270 N T
1-495
x = 2
FOREST.

		SILE 39
Detector Brand & Model:	SONG METER SMYBAT	
Microphone Brand & Mo		
	omvidirectional	
Type of Weatherproofing:		and the second se
Type of weather proofing.	e Ground-level Vegetation:	meters
Microphone Height Above	getation or Other Obstruction (apart from	weg on ground): <
Distance from Nearest Ve	getation or Other Obstruction (apart from	ation of Micronhone:
	Microphone: <u>90</u> • Vertical Orient	ation of wherephone.
Calls Collected In (circle o	one): Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	1200	
Data Division	NIA	The register of the second second
16k High Filter	610	The state of the section of the sect
Sample Rate	2S6 KHZ	the set of
Min/Max Duration	1.5 MS VONE	The state of the s
Min Trigger Frequency		-
	16 Kt/Z	- And
Trigger Level	12db	
Trigger Window	35	
Max Length	DD M : IS S	
Compression	NONE	
	and the second second second	

Bat Acoustic Survey Record
Site ID Number: <u>40</u> State: <u>MD</u> County: <u>Montagon ava</u> Site Address: <u>West-bound Clava Barton Parknay Exit Ranp to I-4958</u>
Site Address: Westbound Clana Barton Parkanan Exit Rano to I-4955
Site Owner: MDOT SHA
Site Lat./Long. Coordinates: 39,975/152 N, -77.1775419 W & from Google
Site Photo Number: 2138
Person(s) Who Selected Acoustic Site: EVA RCL
Person(s) who Deployed Detector: EVALUS
Night 1 -
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>forested</u> Description of Habitat:

Forested median night to Clara Barkton King/ Mc Arthur Blod bridge

Microphane Facing 1490 SE AMPA BARION TRUI Amerikan Legion Memorial Bridge WB Claro αp[#] Defector Macarthur Blud $\sqrt{}$

Detector Brand & Model:	Songmeter SM4BIAT FS	
Microphone Brand & Mo	odel: <u>Smm-U2</u>	
	: omnichreemanal	
Type of Weatherproofing	: NIA	
Microphone Height Abov	ve Ground-level Vegetation: <u>3</u> meters	
Distance from Nearest Ve	egetation or Other Obstruction (apart from veg. on ground): ~ 15 met	ers
Horizontal Orientation of	f Microphone:° Vertical Orientation of Microphone:°	
Calls Collected In (circle of	one): Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	12 db	
Data Division	NIA	
16k High Filter	00	
Sample Rate	256 KHZ	
Min/Max Duration	1.5 MS NONE	
Min Trigger Frequency	16 KHZ	
Trigger Level	12 010	
Trigger Window	3 5	
Max Length	00 m : 15 5	
Compression	NONE	

Bat Acoustic Survey Record
Site ID Number: XI State: MD County: Montgomera
Site Address: 7401 Persimmon Tree Ln, Bethesda, MD 20817 J O
Site Owner: BOART OF CAUCATION.
Site Lat./Long. Coordinates: <u>38.9821323</u> N, <u>77.1722735</u> W
Site Photo Number: 2139
Person(s) Who Selected Acoustic Site: EVC, RCL
Person(s) who Deployed Detector: EY(1, JS
Night 1 -
Survey Date: <u>7/15/20</u>
Survey Start Time (military):Survey End Time (military):6:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): forested fragment

J

Description of Habitat:

Forested fragment between roads. Heavily virued area.

FIND SCHOOL HU JOB SCHOOL JUL HU JOB Microphone Facing Persintinon. Tree Rd
--

Detector Drand & Model	songmeter	SMURAT	ŦS		
Detector Branu & Mouel:		<u></u>			
Microphone Brand & Mo	del: <u>SMM-U2</u>	<u> </u>			·
	: omnidirectio	nal			
Type of Weatherproofing	: NIA		<u></u>		
Microphone Height Abov	e Ground-level Vegetation	: 3	meters		
Distance from Nearest Ve	getation or Other Obstruc	tion (apart fror:	n veg. on grou	nd): <u>~ 2</u>	meters
Horizontal Orientation of	Microphone: <u>90</u> °	Vertical Orie	ntation of Mic	rophone:°	
Calls Collected In (circle)	one): Full Spectrum; Zero) Crossing			
Detector Settings:					
Sensitivity					
Gain	1200				
Data Division	NIA				
16k High Filter	ON				
Sample Rate	256 KHZ				
Min/Max Duration	1.5 ms NONE	74 14 14			
Min Trigger Frequency	16 KHZ				
Trigger Level	12db				
Trigger Window	35				
Max Length	DOM: ISS				

00m: 155

NONE

Compression

3

.

Bat Acoustic Survey Record	urvey Record	Sı	Acoustic	Bat	
----------------------------	--------------	----	----------	-----	--

Site ID Number: X2 State: MAD County: MONTADMUM
Site Address: Approximately 120-ft NW OF WB 1-495, 130-ft N OF Bradley BIVA.
Site Owner: MDOT SHHA
Site Lat./Long. Coordinates: <u>39.0097112</u> N, <u>77.1520670</u> W
Site Photo Number: D7
Person(s) Who Selected Acoustic Site: EYU, RCL
Person(s) who Deployed Detector: ENG, JS
Night 1 -
Survey Date:
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms cleared out overhight
Night 2 -
Survey Date: 07/24/20
Survey Start Time (military): 19:35 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): <u>forested wanan avea wexto concrete uned</u>
Description of Habitat:

Foreneck area. which	1-495	ond	CONCULK	imed	sive ann.	A 10+	of invarives,

NJ 7-	BRADVEY BWD	STREAWN. MICHOPMONE Wales 259° W FORESC.
	-	1-493

Detector Brand & I	Model: SDNUMBACK SMYBQH FS
Microphone Brand	& Model:
Microphone	e Type: <u>OMNIAIVELAIONAL</u>
Type of Weatherpr	oofing: NA
	t Above Ground-level Vegetation: <u>3</u> meters
Distance from Near	rest Vegetation or Other Obstruction (apart from veg. on ground): -1.5 meters
Horizontal Orienta	tion of Microphone: <u>90</u> ° Vertical Orientation of Microphone: <u></u> °
Calls Collected In ((circle one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	

12 010
NIA
01
256 KHZ
1.5 ms NONE
16 KH 2
12 db
3 s
00m: 155
NONE

	Bat Acoustic Survey Record
Site ID Number	er: X3 State: MD County: Montalomony 500 17 NOAN OF 10NG WOOD DV, 17D FT SOUTH VT 1-495 E.
Site Address: _	500 If noran of long wood DV, MO A South of 1-4-13 C.
Site Owner:	WIDULSTIA
Site Lat./Long.	. Coordinates: 39.0127360N, -71.1471336W
Site Photo Nun	mber: 0102 - 0103
Person(s) Who	Selected Acoustic Site: <u>RUJEUM</u>
Person(s) who	Deployed Detector: RCL JEVG
NT 141	
Night 1 -	06/17/20
Survey Date:	Time (military): 19:36 Survey End Time (military): 06:45
Survey Start 1	her (circle one): Clear) Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
General weath	Steady Rain; Thunderstorms
NI-LAO	Steady Rani, Thunderstorms
Night 2 -	06/18/20
Survey Date: _	Time (military): 19:36 Survey End Time (military): D6:45
Survey Start 1	her (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
General weath	Steady Rain; Thunderstorms
	E A LAND BOOMENEN EWEKEN ERVERAND FUDDRIATIN.

Habitat Type (e.g. forested stream, floodplain): <u>FOULENED MULETANN</u> FOULAND. Description of Habitat:

FORENED SCREEPING ROMINAGED BY SUGAMORER . UNDERSCORY CONCISIONING SENSITIVE FERCIS AND PASSE NETTLE

1-495	1-495			
×	FORER	2		
SCREAM				
	FORER.			

				0.00	
Detector Brand & Model:	SONG METER	SM 4 BHT			
Microphone Brand & Mo					
Microphone Type	: DMNIdireeti	onal			Marsh Clark
Type of Weatherproofing	NIA	WIT CHAN	and the second		
Microphone Height Abov	e Ground-level Vegetation:	3	meters	series filly	-
Distance from Nearest Ve	getation or Other Obstruct	ion (apart fron	veg. on ground):	23	meters
Horizontal Orientation of	Microphone: 90 °	Vertical Orien	ntation of Microp	hone: °	mit wait with
	one): Full Spectrum; Zero			ning manage	
Detector Settings:		Ű			
Sensitivity					
Gain	La dia				
Data Division	NIA				
16k High Filter	010	10 28 18 180	- do The		
Sample Rate	256 KHZ		That Sty		
Min/Max Duration	1.5 MS MINE	10000000	and a stand to be a stand		
Min Trigger Frequency	16 KHZ				
	IN WHIC				

12 db

00 m: 15 5

NONE

35

Trigger Level

Max Length

Compression

Trigger Window

CHP V3

Bat Acoustic Survey Record
Site ID Number: X5 State: MD County: MUNIGOMIN
Site Address: ADDNOY. D. I Will S OF MENIAUN ST and 150 ft w up 1-495.
Site Owner: MNCPPC
Site Lat./Long. Coordinates: <u>39.0191599</u> N, <u>71.1084357</u> W
Site Photo Number: 677-D
Person(s) Who Selected Acoustic Site: RCL EYA
Person(s) who Deployed Detector:KS_EY6
Night 1 -
Survey Date: <u>7620</u>
Survey Start Time (military): [9: 3] Survey End Time (military): [06:5]
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms ~7 PM, CLEAVE & UP -MUDOUG NOW-1 the
Night 2 - V\\QV\1
Survey Date: 7/7/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:51
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>Forested Stream</u> Description of Habitat:

Forest consisting of beech, elm, red maple, and fulliptice. Sparse understany with spicebush, Very little herbicsons.

	NA
Sorest Steams Forest	
×))	
495	

Detector Brand & Model:	songmeters smy	BATTS	
Microphone Brand & Mo			
	ommidirectional		
Type of Weatherproofing:			<u> </u>
	Ground-level Vegetation:~	<u> </u>	
Distance from Nearest Ve	petation or Other Obstruction (ap	oart from veg. on ground):	meters
Horizontal Orientation of	Microphone: 90 ° Vertic	cal Orientation of Microphone:°	
Colls Collected In (circle)	ne): Full Spectrum, Zero Crossir		
Detector Settings:			
Sensitivity	······		
Gain	12 db		
Data Division	NIA		
16k High Filter	ON		
Sample Rate	256 KAZ		
Min/Max Duration	1.5 MS NONE		
Min Trigger Frequency	16 KH Z		
Trigger Level	12010	· · · · · · · · · · · · · · · · · · ·	
Trigger Window	35		
Max Length	00m:155		
Compression	NONE		

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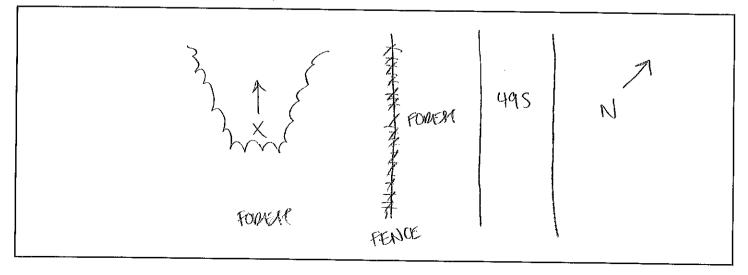
MANAGED LANE STUDY

Bat Acoustic Survey Record

Site ID Number: Xb State: MP County: PRINCE GEORGIES
Site Address: WCATED 0.13 MI NE OF THE INTERTION OF NIAGARD PI and Eligenbod
Site Owner: POUSH CUIBOF COLLEGE PAPEL.
Site Lat./Long. Coordinates: 39.0170009 N, 76.9131012 W
Site Photo Number: Don + Nave photo when side up, We photo of side whe taken.
Person(s) Who Selected Acoustic Site: <u>PCLJEV(1</u>
Person(s) who Deployed Detector: EXA 1 SLY
Night 1 -
Survey Date: 06 29 20
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:45</u>
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06 30 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear?) Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>FOREST OPENINM</u> Description of Habitat:

FOREPLED HABILINT OPENINGN INTO EDGE. BEECH - OAK FORELL WITH OPEN UNDERPLOYED.



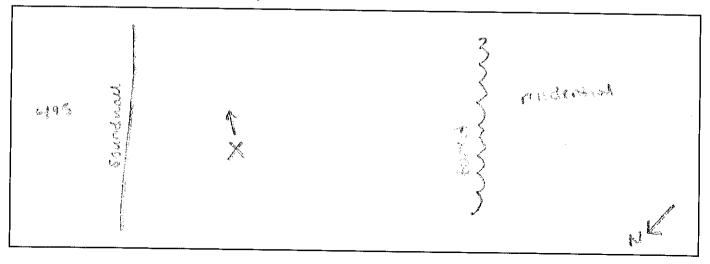
Detector Brand & Model:	SONG METER SMUBATES
Microphone Brand & Mo	del: <u>SMM-U2</u>
Microphone Type	e orminidivectional
Type of Weatherproofing	NIA
Microphone Height Abov	e Ground-level Vegetation:3 meters
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): ~ 9 meters
Horizontal Orientation of	Microphone: <u>40</u> • Vertical Orientation of Microphone: <u></u> •
Calls Collected In (circle of	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 Clb
Data Division	NIA
16k High Filter	0 N
Sample Rate	256 KHZ
Min/Max Duration	1.5 ms NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 db
Trigger Window	35
Max Length	OD YVI: 155
Compression	NONE

Bat Acoustic Survey Record
Site ID Number: X7 State: Mb County: PY MCL CHORORS.
Site Address: Weeked within poncia prost pain and approx. O.I mis of fluod were Rd.
Site Owner:
Site Lat./Long. Coordinates: 38,9769094 N, 76.8732676 W
Site Photo Number: ひヿ ひヿ
Person(s) Who Selected Acoustic Site: RCLEVA
Person(s) who Deployed Detector: EYG NILB
8
Night 1 -
Survey Date: 06 24 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:43
General Weather (circle one): Clear) Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 0.6 2.5 20
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>05:43</u>
General Weather (circle one) (Clear:) Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): ______

Description of Habitat:

mixed ook forms adjacent to 495 soundman. Denie vinus, moderate myassin.



Dataatan Brand & Madel	SONG METER SM 4 BIAT FS
Detector brand & model.	SYDM=D2
Microphone Brand & Mo	odel: <u>SMM-U2</u>
	: <u>omnidirectional</u>
Type of Weatherproofing	:NIA
Microphone Height Abov	re Ground-level Vegetation: meters
Distance from Nearest Ve	egetation or Other Obstruction (apart from veg. on ground): meters
Horizontal Orientation of	f Microphone: <u>90</u> ° Vertical Orientation of Microphone: <u></u> °
	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 db
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12010
Trigger Window	35
Max Length	070 m: 155
Compression	NONE

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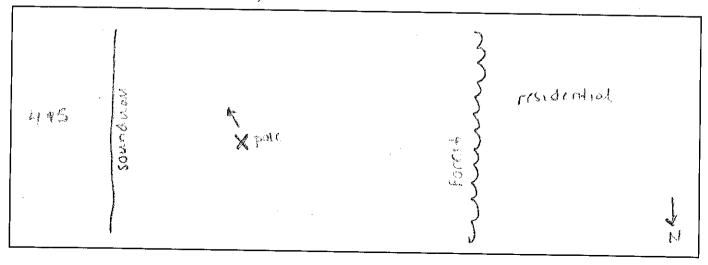
Site ID Number: X8 State: MAD County: DalotA HADra 69
Site Address: Approx. 0.03 mil E Of POWNATAN Stand well of 1-4955.
Site Owner: STRONG COWER ADONG CHURCH OF AMERICAA
Site Lat./Long. Coordinates: 38.9671736 N, 76.868838D W
Site Photo Number:6766
Person(s) Who Selected Acoustic Site: RCL EXG
Person(s) who Deployed Detector:
Night 1 - Survey Date: <u>06/24/20</u> Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:43</u>
General Weather (circle one) Clear, Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06 25 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:43
General Weather (circle one). Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain):

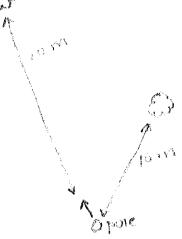
Description of Habitat:

. 12

surrespondented image forth adjacent on 495 surrespond. w vine and invasion de la



Detector Brand & Model:	SONG METER SMY BAT FS	
Microphone Brand & Mo		
Microphone Type	: <u>owniducetional</u>	
Type of Weatherproofing	: <u>N(A</u>	<u> </u>
Microphone Height Above	e Ground-level Vegetation:2 meters	
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground):	_ meters
Horizontal Orientation of	f Microphone: <u>40</u> ° Vertical Orientation of Microphone: <u></u> °	
Calls Collected In (circle of	one): Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	12 db	
Data Division	NIA	
16k High Filter	010	
Sample Rate	2SbKHZ	
Min/Max Duration	I. SMS NONE	
Min Trigger Frequency	16 KHZ	
Trigger Level	12 db	
Trigger Window	35	
Max Length	00 m: 155	
Compression	NONE	



MANAGED LANE STUDY

Raf	Acoustic	SHEVAN	Dogord
Dat	Acoustic	SULVEY	Necoru

Site ID Number: <u>X9</u> State: <u>MD</u> County: <u>PYWUL EICOVORS</u>
Site Address: Approximately 0.9 mi novin of wonwood pl and 0.24 mi SW of the 1-495
Site Owner:VERENC CORPORATION and and US SO INformation
Site Lat./Long. Coordinates: 38.9437563 N, 76.8614146 W
Site Photo Number: D
Person(s) Who Selected Acoustic Site: RCULENC
Person(s) who Deployed Detector: EXA SLY
Night 1 -
Survey Date: 06/29/2020
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one); Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date:06/30/2020
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): <u>EPUE OF OPEN FLEUP</u>

Description of Habitat:

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FORESCED EDGE OVERLOOMING OPEN FLEID FAUNTI SWM POND

	495		K	
FORESC	POND	FORLER	N	

Detector Brand & Model:	SUNG METER SMYBAT FS
Microphone Brand & Mo	odel: <u>SMM-UZ</u>
	: Omnidive etional
Type of Weatherproofing	: NIA
Microphone Height Abov	re Ground-level Vegetation: meters
Distance from Nearest Ve	egetation or Other Obstruction (apart from veg. on ground): meters
Horizontal Orientation of	f Microphone: <u>0</u> • Vertical Orientation of Microphone: <u>°</u>
Calls Collected In (circle of	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 010
Data Division	NIA
16k High Filter	ON
Sample Rate	256 KHZ
Min/Max Duration	1. 5 MSINONE
Min Trigger Frequency	16 KHZ
Trigger Level	12010
Trigger Window	35
Max Length	ODWN: 155
Compression	NONE

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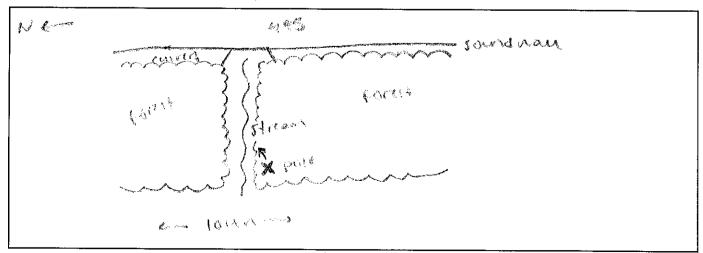
Bat Acoustic Survey Record

Site ID Number: X10 State: MD County: P21NCE CHEORPHES
Site Address: Appnux 360 At E OF AMADON Dr and 150 At W OF 1-495 S
Site Owner: PRINCE GEORGIES COUNTY
Site Lat./Long. Coordinates: <u>38.9327161</u> N, <u>76.8553913</u> W
Site Photo Number:6761 - 6762
Person(s) Who Selected Acoustic Site: EVG, KCL
Person(s) who Deployed Detector: EVGINUB
Night 1 -
Survey Date: 06/24/20
Survey Start Time (military): 19:36 Survey End Time (military): 06:43
General Weather (circle one) Cleary Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06 25 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:43
General Weather (circle one) (Clear;)Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms

Habitat Type (e.g. forested stream, floodplain): forthed Stream

Description of Habitat:

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surcequentied maple loak forced abuilting 495. Perinnal channel longer forces forces
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Detector Brand & Model	Songnalder SMUBAT	FS
Microphone Brand & Mo	del: <u>SMN - U2</u>	
Microphone Type	: omnidirectional	
Type of Weatherproofing	: NIA	
	e Ground-level Vegetation: 3	meters [*]
	getation or Other Obstruction (apart from	n veg. on ground): <u>\</u> meters
Horizontal Orientation of	Microphone: <u>90</u> ° Vertical Orier	ntation of Microphone:°
	one): Full Spectrum; Zero Crossing	
Detector Settings:		
Sensitivity		
Gain	1200	
Data Division	NIA	
16k High Filter	ON	
Sample Rate	256 KHZ	
Min/Max Duration	IS MS NONE	
Min Trigger Frequency	16 KHZ	
Trigger Level	12010	
Trigger Window	35	
Max Length	00 m : 15 s	
Compression	NONE	

et Norder and the states,

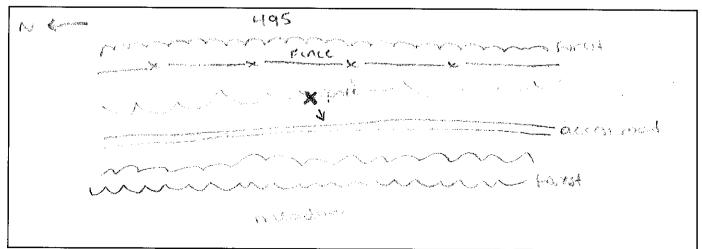
Bat Acoustic Survey Record

slat
RØ

Habitat Type (e.g. forested stream, floodplain): <u>Forest</u>

Description of Habitat:

Forest along 495 with motor vaire utility areas round easting Anomaia (113 Lospic FORMA)



	SUNGMEACH SMYE	SAT #S	
Microphone Brand & Mo	del: <u>SMM-U2</u>		<u> </u>
Microphone Type:	omnidirectional	_	
Type of Weatherproofing:	_NIA		,,
Microphone Height Above	e Ground-level Vegetation:	3 meters 1012 geound 1949	
Distance from Nearest Ve	getation or Other Obstruction (apa	art from veg. on ground):	meters (Arec)
Horizontal Orientation of	Microphone: <u>40</u> ° Vertic	al Orientation of Microphone:°	
Calls Collected In (circle of	ne): Full Spectrum; Zero Crossing		
Detector Settings:			
Sensitivity			
Gain	1206		、
Data Division	NIA		
16k High Filter	ON		
Sample Rate	256 KHZ		
Min/Max Duration	I.SMS (NONE		
Min Trigger Frequency	16 442		
Trigger Level	12db		
Trigger Window	3 S		
Max Length	OD M 155		
Compression	NONE.		

.

Bat Acoustic Survey Record
Site ID Number: X12 State: MD County: PNNCL ELEDVILES
Site Address: Approx. O. A wi w of Harry S Thurnan Dr N and E OF 1-495 N
Site Owner: TVSONS TOWER
Site Lat./Long. Coordinates: <u>38 8982092</u> N, <u>76 8488343</u> W
Site Photo Number: 2765-2766 (7/14/20)
Person(s) Who Selected Acoustic Site: RCL/EVA
Person(s) who Deployed Detector: <u>EYG</u> SP
Night 1 -
Survey Date: <u>-1 13 20</u>
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:51</u>
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; (Intermittent Rain;)
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 714 20
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:51</u>
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
9.
Habitat Type (e.g. forested stream, floodplain): Forched Stream
Description of Habitat:

Foruted stream running parauli to 495

24 24 24 24 26 10 10 10 10 10 10 10 10 10 10
--

Microphone Brand & Model: SVNM-U2 Microphone Type: DVMV1(d)Y(l (d)	
Type of Weatherproofing: N(A) Microphone Height Above Ground-level Vegetation: 3 meters Distance from Nearest Vegetation or Other Obstruction (apart from veg. on ground): 4	
Type of Weatherproofing:	
Distance from Nearest Vegetation or Other Obstruction (apart from veg. on ground):	
A.2	
A.2	meters
vertical of remaining of the second of the s	
Calls Collected In (circle one): Full Spectrum; Zero Crossing	
Detector Settings:	
Sensitivity	
Gain 12 OND	
Data Division NIA	
16k High Filter ON	
Sample Rate 256 KHZ	
Min/Max Duration 1.5 MSI NONE	
Min Trigger Frequency 16 KHZ	
Trigger Level 12 db	
Trigger Window 3.S	
Max Length $00 m \cdot 155$	
Compression NONE	

Bat Acoustic Survey Record
Site ID Number: X13 State: MD County: PVINCL PICOTORS
Site Address: West of 1-495 sputh and approx 0.5 min TE of Hampton POML BIUD
Site Owner:
Site Lat./Long. Coordinates: <u>38.8757646</u> N, <u>76.8442927</u> W
Site Photo Number: 6756
Person(s) Who Selected Acoustic Site: RCL, EVG
Person(s) who Deployed Detector: <u>EVU, NUB</u>
Night 1 -
Survey Date:06 24 20
Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:43</u>
General Weather (circle one); Clear;) Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06/25/20
Survey Date: <u>06/25/20</u> Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:43</u>
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain;
Steady Rain; Thunderstorms
Habitat Type (e.g. forested stream, floodplain): Meadow/ addite Cast March
Description of Habitat:
Surveyoung Forest with heavy viner and invasion along 495, borders

a category I whiling concertification

stream h	warmanner N
(main and a second a	
Shi i Cy be series 1	

: SONGMETER SMUBAT FS	
lodel: <u>SMM-U2</u>	
e: omvidirectional	
g: NIA	
ve Ground-level Vegetation: <u> </u>	
egetation or Other Obstruction (apart from veg. on groun	d): <u>> 30 </u> meters
of Microphone: <u>()</u> • Vertical Orientation of Micr	ophone:°
one): Full Spectrum; Zero Crossing	
1200	
NIA	
ON	
256 KHZ	
1.5 MS NONE	
16 KHZ	
1200	
	odel:SMM-U2: e:OMMAINELATIONAL g:N1A re Ground-level Vegetation:

Trigger Window

Max Length

Compression

35

NONE

00 m: 15 5

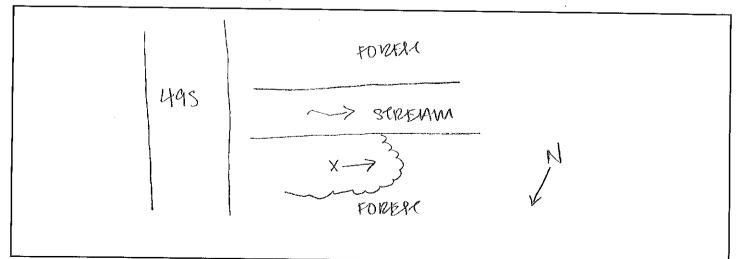
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MANAGED LANE STUDY

. Bat Acoustic Survey Record
Site ID Number:
Site Address: 0.03 min of off-rump from PCNMSYlvania AVE ONTO 1-4955
Site Owner: DOUMUAS DEALELOPIMENT
Site Lat./Long. Coordinates: <u>38.8388062</u> N, 76.8699503 W
Site Photo Number:
Person(s) Who Selected Acoustic Site:RCLLENG
Person(s) who Deployed Detector: EVG/SU
Night 1 - Survey Date: <u>06</u> <u>29</u> <u>20</u> Survey Start Time (military): <u>19:36</u> Survey End Time (military): <u>06:48</u> General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain; Steady Rain; Thunderstorms
Night 2 -
Survey Date: 06 30 20
Survey Start Time (military): 19:36 Survey End Time (military): 06:45
General Weather (circle one): Clear; Partly Cloudy; Mostly Cloudy; Cloudy; Drizzle; Intermittent Rain; Steady Rain; Thunderstorms
$S_{1} \in \mathcal{GS}^{(I)}$

Habitat Type (e.g. forested stream, floodplain): OPEN FOREST ADDALENT TO OPEN FOREST. Description of Habitat:

TOKETLED STREAMIN HABTCHIL, SWEIGUM FOREN WITH MILLANN WIDELEARDY



Detector Brand & Model:	SONG METER SMUBAT FS
	del:
-	Dhundurectional
Type of Weatherproofing	: <u>N</u> [A
Microphone Height Above	e Ground-level Vegetation: meters
Distance from Nearest Ve	getation or Other Obstruction (apart from veg. on ground): <u>\simb</u> meters
Horizontal Orientation of	Microphone: <u>90</u> ° Vertical Orientation of Microphone:°
Calls Collected In (circle of	one): Full Spectrum; Zero Crossing
Detector Settings:	
Sensitivity	
Gain	12 06
Data Division	NA
16k High Filter	IN
Sample Rate	256 KHZ
Min/Max Duration	1.5 MS NONE
Min Trigger Frequency	16 KHZ
Trigger Level	12 db
Trigger Window	35
Max Length	00 m: 153
Compression	NONE

.

APPENDIX E- PHOTOGRAPHIC LOG



Acoustic Location - 1



Acoustic Location - 1A



Acoustic Location - 1B



Acoustic Location – 1C





Acoustic Location - 2

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Acoustic Location – 3



Acoustic Location – 3A

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Acoustic Location - 4



Acoustic Location - 5

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Acoustic Location - 5A



Acoustic Location - 6

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Acoustic Location – 8





Acoustic Location - 8B

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Acoustic Location - 11

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Acoustic Location - 11A



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Acoustic Location – 13



Acoustic Location - 13A

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Acoustic Location – 14





Acoustic Location - 16



Acoustic Location - 17

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Acoustic Location - 18A

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Acoustic Location – 22

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Acoustic Location - 24



Acoustic Location – 24A

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Acoustic Location - 24B



Acoustic Location – 25

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Acoustic Location - 26



Acoustic Location – 27

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Acoustic Location – 29



Acoustic Location – 30

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Acoustic Location – 31A

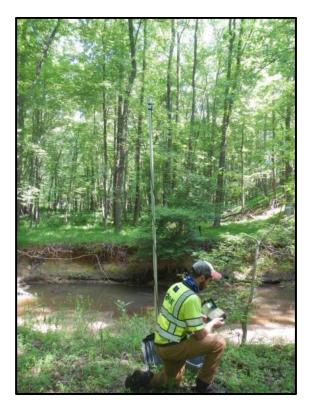


Acoustic Location – 32

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Acoustic Location – 33



Acoustic Location – 34A

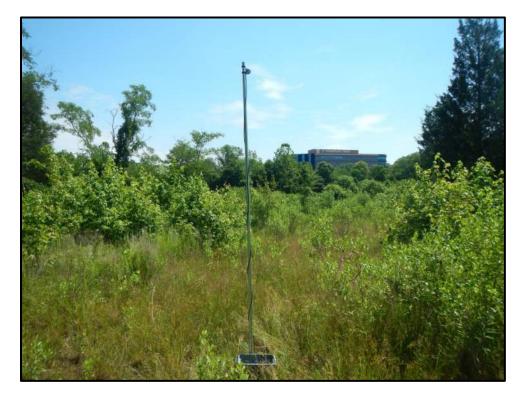
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Acoustic Location – 34B



Acoustic Location – 34C



Acoustic Location – 34D



Acoustic Location – 34E



Acoustic Location – 35



Acoustic Location – 35A



Acoustic Location – 35B



Acoustic Location – 36

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Acoustic Location – 36A



Acoustic Location – 36B

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Acoustic Location – 36C

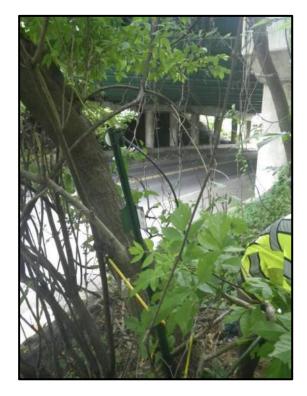


Acoustic Location – 36D

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Acoustic Location - 38



Acoustic Location - 39 (Bridge - Seven Locks Road)



Acoustic Location - 40



Acoustic Location - X1

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Acoustic Location – X2



Acoustic Location – X3

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Acoustic Location - X4



Acoustic Location – X5

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Acoustic Location - X6



Acoustic Location – X7



Acoustic Location - X8



Acoustic Location – X9



Acoustic Location – X10



Acoustic Location - X11



Acoustic Location – X12



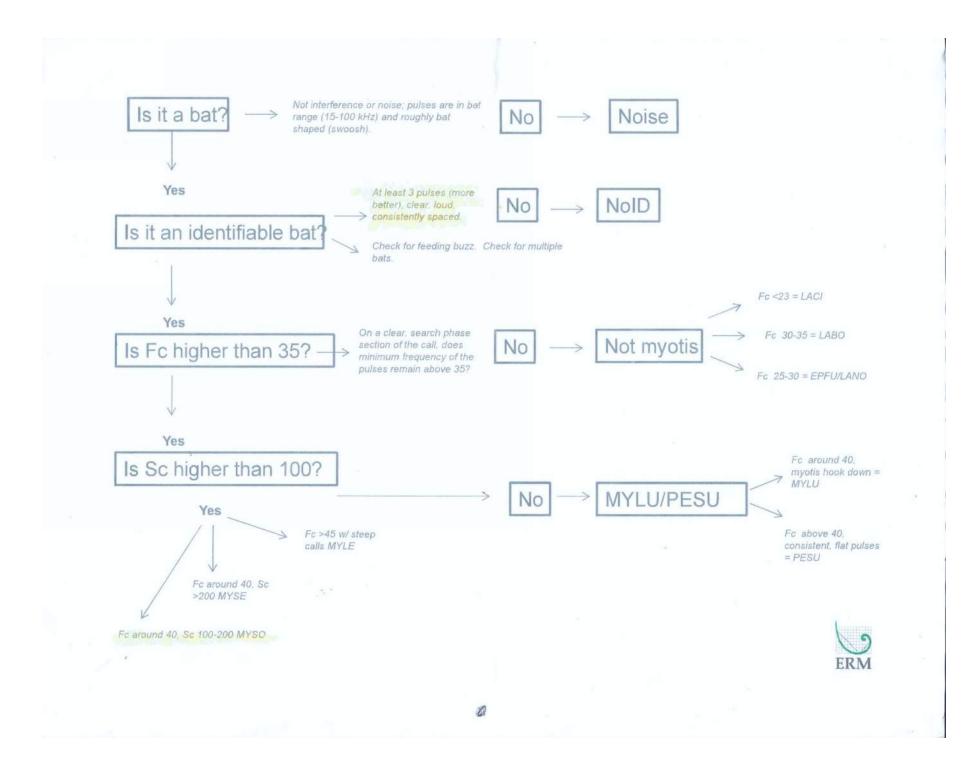
Acoustic Location – X13

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Acoustic Location - X14

APPENDIX F- ERM VETTING KEY



APPENDIX G- MYOTIS VETTING TABLES

Myotis V	etting App	pendix G-1							
Acoustic Location (PM)	Detector nights	# Detectors	Field Complete	Kpro Call Analysis KALEIDOSCOPE 5.1.0		Auto ID Manual Vetting Needed	Notes		Not
,				Night 1	Night 2	Night 1		Night 2	
1	2	1	x	x	x	X - MYLU	No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no MYSO	X - MYLU	No MY
1A	2	. 1	x	х	х	X- MYLU, MYSO	No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no MYSO. ID'd MYSO call only had 2 pulses, 3 required.	X- MYLU, MYSC	D MY
1B	2	1	x	х	x	X-MYLU	No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no MYSO	X- MYLU	Sc
1C	2	1	x	х	x	X-MYLU	No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no MYSO	X-MYLU	No MY
							No Sc values are higher than 100, this rules out MYSO for all the calls. P-values		No
1D	2		x	X	X	X-MYLU	also indicate no MYSO	X-MYLU	MY
2	2	1	x	Х	Х	X-MYLU	Sc values are higher than 100. P-values also indicate no MYSO No Sc values are higher than 100, this rules out MYSO for all the calls. P-values	NA	No
3	2	. 1	x	х	x	X- MYLU	also indicate no MYSO	x-MYLU	MY
							No Sc values are higher than 100, this rules out MYSO for all the calls. P-values		No
3A	2	1	X	х	X	X- MYLU	also indicate no MYSO	x-MYLU	MY
4	2	1	x	х	x	X-MYLU	One call has 108 Sc however, only 2 pulses in the call sequecnce, 3 required. P- value does not indicate MYSO.	X-MYLU	No MY
5	2		x	х	x	x-MYLU	No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no MYSO	x-MYLU	No MY
5A	2		X	Х	Х	NA		NA	+
6	2		x	X	X	X- MYSO	P-value suggests No, but Fc/Sc suggest yes.	MYSE	N2-
6A	2		X	X	X	X-MYLU	1 Sc value is higher than 100. P-values also indicate no MYSO	X-MYLU	No
8	2	1	X	X	Х	X-MYLU	P values do not indicate MYSO. No Sc values are higher than 100, this rules out MYSO for all the calls. P-values	NA	No
8A	2	. 1	x	x	x	X-MYLU	also indicate no MYSO	X-MYLU	MY
8B	2	1	x	х	x	X-MYLU MYSO	MYLU-Fc of 47.4, too high for MYSO. MYSO- Sc too low-12.85 for MYSO. Sc should be higher than 100 for MYSO.	NA	
9	2	2 1	x	Х	Х	NA	No Sevelues are higher than 100, this rules out MVSO for all the calls. Divalues	X-MYLU	No No
11	2	1	v	v	v	X-MYLU	No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no MYSO	X-MYLU	MY
11 11A	2		x	^ X	X	NA		X-MYLU	P va
117	2		x	X	X	NA		NA	
13	2		x	X	X	NA		NA	-
13A	2	1	. x	х	х	NA		X - MYLU	No
14	2	. 1	. x	х	х	NA		X - MYLUC	Fc t
15	2	1	x	Х	Х	NA		X - MYLU	No
16	2	1	X	Х	Х	NA		X - MYLU	No
17 18	2		x x	X X	X	X - MYLU X - MYLU, MYSE	P values do not indicate MYSO. MYSE- P value, 0.008, presence assumed. MYLU review for MYSO	X - MYLU X - MYLU	P va
18A	2		x	X(N2)	X(N3)	X - MYLU	No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no MYSO	NA	
10/1		<u> </u>	N	////2/	7(113)		No Sc values are higher than 100, this rules out MYSO for all the calls. P-values		No
20	2	2 1	x	Х	х	X - MYLU	also indicate no MYSO No Sc values are higher than 100, this rules out MYSO for all the calls. P-values	X - MYLU	MY: No
22	2	1	x	х	х	X - MYLU	also indicate no MYSO	X - MYLU	MY
24	2		. x	х	х	NA		NA	
24A	2	1	x	X	x	x-MYLU	No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no MYSO	X- MYSE	P va
24B	2		x	х	х	NA		NA	
		<u> </u>			1		No Sc values are higher than 100, this rules out MYSO for all the calls. P-values	1	No
25	2	1	x	х	х	x-MYLU	also indicate no MYSO	x-MYLU	MY
26	_			V	V		No Sc values are higher than 100, this rules out MYSO for all the calls. P-values	× NA)/111	No
26	2	1 1	. X	٨	Х	x-MYLU	also indicate no MYSO	x-MYLU	MY

otes	Manual Vetting Complete	TE Species
o Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no YSO	x	No
YSO-minimal pulses(3), P value of 1.	x	No
c values are higher than 100, potential MYSO P-value 1 doesn't indicate MYSO.	х	No
o Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no		N
YSO o Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	х	No
YSO	v	No
	x	No
o Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	^	
YSO	x	No
o Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no		
YSO	х	No
o Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	1	1
YSO	x	No
o Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no		
YSO	х	No
	х	No
2-Fc too low for both calls(33.7&35.2) Sc too low for both calls (145.2&171) P-value suggests Pres.	. x	No
o Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	х	No
	х	No
o Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no		
YSO	х	No
	х	No
Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	х	No
o Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no		
YSO	X	No
values do not indicate MYSO.	x	No
	x	No
Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	x x	No No
too high(47.7) for MYSO, Sc too low(139.1) for MYSE. P-values do not indicate either species.	x	No
o Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	x	No
Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	x	No
values do not indicate MYSO.		
Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	х	YES
	x	No
o Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no		
YSO	х	No
Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no		
YSO	х	No
		No
value indicates presence, 0.023. Sc Value supports MYSE, Fc value a little low, but MYSE assumed.	х	Yes
	х	No
o Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no		. .
YSO	х	No
o Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no		Ne
YSO	х	No

						No Sc values are higher than 100, this rules out MYSO for all the calls. P-values				
77	2	1	v	v	x-MYLU	also indicate no MYSO	NA		v	No
27	2	1 X	^	^		No Sc values are higher than 100, this rules out MYSO for all the calls. P-values	NA		<u> </u>	No
29	2	1	x	x	X-MYLU		X-MVIII MVSF	MYLU-Sc values rule out MYSO, along with P-value. MYSE- Ss too low for MYSE.	v	No
25	2	1 ^	~	~	A-IVITEO	Sc values warrant a second look for one call, Sc value within range of MYSO, but P-				
30	2	1 x	x	x	X-MYLU	value 1.	NA		x	No
31A	2	1 x	X	X	NA		NA		×	No
32	2	1 x	x	X	NA		MYLU	P values do not indicate MYSO.		No
33	2	1 x	X	X	NA		MYLU	No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	×	No
34A	2	1 x	X	X	X-MYLU	Some calls meeting MYSO Fc/ Sc requirements but P values do not indicate MYSO	X- MYSO	Some calls meeting MYSO Fc/ Sc requirements but P values do not indicate MYSO	×	No
						No Sc values are higher than 100, this rules out MYSO for all the calls. P-values				
34B	2	1 x	х	х	X-MYLU	also indicate no MYSO	NA		x	No
34C	2	1 x	Х	X	X-MYLU/MYSO		X-MYSO	Some calls meeting MYSO Fc/ Sc requirements but P values do not indicate MYSO	x	No
34D	2	1 x	X	X	NA		MYLU	No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	x	No
-						No Sc values are higher than 100, this rules out MYSO for all the calls. P-values				_
84E	2	1 x	х	х	X-MYLU	also indicate no MYSO	NA		x	No
35	2	1 x	х	Х	NA		X-MYLU	Sc values warrant a second look for one call	x	No
85A	2	1 x	х	Х	NA		NA		x	No
			1			No Sc values are higher than 100, this rules out MYSO for all the calls. P-values		No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	+	
35B	2	1 x	х	х	X-MYLU	-	X-MYLU	MYSO	x	No
			1			No Sc values are higher than 100, this rules out MYSO for all the calls. P-values			+	
36	2	1 x	х	х	X-MYLU	also indicate no MYSO	NA		x	No
36A	2	1 x	Х	Х	NA		NA		x	No
						No Sc values are higher than 100, this rules out MYSO for all the calls. P-values				
86B	2	1 x	х	х	X-MYLU	also indicate no MYSO	NA		x	No
						No Sc values are higher than 100, this rules out MYSO for all the calls. P-values		No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no		
36C	2	1 x	х	х	X-MYLU	also indicate no MYSO	X-MYLU	MYSO	x	No
36D	2	1 x	Х	Х	NA		NA		x	No
						No Sc values are higher than 100, this rules out MYSO for all the calls. P-values		No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no		
38	2	1 x	х	х	X-MYLU	also indicate no MYSO	X-MYLU	MYSO	x	No
39	2	1 x	Х	Х	NA		NA		х	No
10	2	1 x	Х	Х	NA	NA	NA		х	No
						No Sc values are higher than 100, this rules out MYSO for all the calls. P-values		No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no		
(1	2	1 x	Х	Х	X-MYLU		X-MYLU	MYSO	х	No
						No Sc values are higher than 100, this rules out MYSO for all the calls. P-values				
X2	2	1 x	X(N2)	X(N3)	X-MYLU	also indicate no MYSO	X-MYLU	Some calls meeting MYSO Fc/ Sc requirements but P values do not indicate MYSO	х	No
(3	2	1 x	Х	Х	NA		NA		х	No
< 4	2	1 x	Х	Х	NA		X- MYSE	Fc/Sc match MYSE	x	Yes
K 5	2	1 x	Х	Х	X-MYLU/MYSE	MYSE P value- pres, Fc values (36.8 & 34.6) do not support MYSE Pres.	X-MYLU	Sc values warrant a second look for calls-MYSO; P values do not indicate MYSO.	х	No
(6	2	1 x	х	X	X-MYLU/MYSE	P values do not indicate MYSE. Sc value too low for MYSE.	X-MYLU	No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	х	No
(7	2	1 x	х	Х	X-MYLU	No calls with pulse minimum(3) with Sc over 100	NA		x	No
						1 call with pulse minimum(3) with Sc over 100,Sc values warrant a second look for				
(8	2	1 x	х	Х	X-MYLU	one call, P values do not indicate MYSO	NA		x	No
(9	2	1 x	Х	Х	NA		X-MYLU	No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	x	No
10	2	1 x	Х	Х	X-MYSE,MYLU	MYSE-P value indicates pres however, Sc/Fc values do not support this.	X-MYLU	Sc values warrant a second look for 3 calls. P value does not support pres of MYSO.	x	No
			1			No Sc values are higher than 100, this rules out MYSO for all the calls. P-values		No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no		
11	2	1 x	Х	Х	X-MYLU	also indicate no MYSO	X-MYLU	MYSO	x	No
12	2	1 x	Х	Х	X-MYLU,MYSE		X-MYLU	No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no	x	No
						No Sc values are higher than 100, this rules out MYSO for all the calls. P-values		No Sc values are higher than 100, this rules out MYSO for all the calls. P-values also indicate no		
(13	2	1 x	Х	Х	X-MYLU	also indicate no MYSO	X-MYLU	MYSO	x	No
X14	2	1 x	Х	Х	X-MYSE	MYSE-P value indicates pres however, Sc/Fc values do not support this.	NA			
			1							
	142								_	
	1 I				n-value of 0.05 has l	been set as the threshold for assessing software accuracy with p-values ≤0.05 indicati	ng a species is lil	kely present and p-values >0.05 indicating probable absence.		1
	132 detector nig									

Myotis Vetti	ing Worksh	Appendix G-	2																					
																				К	aleidoscope			
																					P-value			
DATE	TIME	DATE-12	AUTO ID*	PULSES MA	TCHING MA	TCH RATIOMARGIN ALTERNATE ALTERNATE	Fc S	ic I	Dur	_		mean	ТВС	Fk Tk	(S1 1	Гс C	lual FILES	Site	Night (I	MYSE/MYSO ID Notes			Vetted ID
										Wildlif			OSCOPE 5.	1.0										
Site 18																								
7/9/2020	20:56:54		MYOSEP	12	7	0.583 0.10817 MYOSOD	37.846	170.53	3.178	60.827	35.046	44.589	140.191	42.205	1.898	401.96	2.71	4.15	1 18	1	0.008 MYSE			MYSE
7/9/2020	22:23:23	7/9/2020	MYOSEP	6	3	0.5 0.14473 MYOLUC MYOSOD	36.939	99.66	3.643	64.049	35.917	46.348	164.182	40.054	2.637	438.08	3.493	1.59	1 18	1	0.008 MYSE			MYSE
											9	Site 29												
7/15/2020	4:32:33	7/14/2020	MYOSEP	5	2	0.4 0.13215	35.712	141.02	2.53	47.424	34.128	39.467	68.6	40.271	1.123	313.72	2.257	1.01	1 29	2	0.144 MYSE	Sc too low	for MYSE	LABO
											S	ite 34C												
6/25/2020	1:50:59	6/24/2020	MYOLUC	72	24	0.333 0.14196 MYOSOD LASBOR	41.158	103.06	2.976	58.985	40.595	46.577	151.403	44.87	1.723	416.05	2.843	14.77	1 34C	1	0.829909 MYSO?			MYSO requirements. MYLU
6/25/2020	0:09:15	6/24/2020		87	19	0.218 0.113 MYOSOD	40.011	117.03	2.995	59.12	39.264	45.829	167.609	43.879	1.733	387.32	2.845	18.9	1 34C	1	0.829909 MYSO?			not show presence. MYLU
6/25/2020	2:22:03	6/24/2020		41	17	0.415 0.15719 MYOSOD LASBOR	41.29	101.46	2.981	58.921	40.502	46.441	139.241	44.533	1.741	403.63	2.766	9.5	1 34C	1	0.829909 MYSO?	Likely MYL	J Calls	MYLU
6/25/2020	5:05:11	6/24/2020		51	11	0.216 0.12467 MYOSOD LASBOR	41.693	105.24	3.044	61.001	41.036	47.56		45.475	1.858	384.79	2.915	11.12	1 34C	1	0.829909 MYSO?			MYLU
6/25/2020	0:00:53	6/24/2020		21	8	0.381 0.15658 MYOSOD LASBOR	40.376	106.82	2.988	58.171	39.943	45.846		43.869	1.761	434.83	2.867	4.43	1 34C	1	0.829909 MYSO?			MYLU
6/25/2020	2:21:30	6/24/2020		24	8	0.333 0.12591 MYOSOD	41.168	118.63	3.001	62.197	40.65	47.638		45.052	1.855	440.68	2.899	5.81	1 34C	1	0.829909 MYSO?			MYLU
6/24/2020	21:58:16	6/24/2020		53	8	0.151 0.10614 MYOSOD LASBOR	40.368	109.23	3.098	59.135	39.984	46.216		43.982	1.857	403.9	2.995	11.16	1 34C	1	0.829909 MYSO?	ļļ		MYLU
6/25/2020	0:32:50	6/24/2020		54	8	0.148 0.09261 MYOSOD	41.239	116.29	2.621	56.909	40.695	46.139		44.844	1.475	360.08	2.47	11.93	1 34C	1	0.829909 MYSO?			MYLU
6/25/2020	0:32:50	6/24/2020		54	8	0.148 0.09261 MYOSOD	41.239	116.29	2.621	56.909	40.695	46.139		44.844	1.475	360.08	2.47	11.93	1 34C	1	0.829909 MYSO?			MYLU
6/25/2020	0:32:50	6/24/2020		54	8	0.148 0.09261 MYOSOD	41.239	116.29	2.621	56.909	40.695	46.139		44.844	1.475	360.08	2.47	11.93	1 34C	1	0.829909 MYSO?			MYLU
6/24/2020	21:46:32	6/24/2020		16	5	0.313 0.12229 MYOSOD	40.255	117.36	3.023	57.96	39.249	45.706		45.198	1.561	404.56	2.844	3.95	1 34C	1	0.829909 MYSO?			MYLU
6/24/2020	21:42:24	6/24/2020		27	5	0.185 0.12899 MYOSOD LASBOR	40.041	102.71	2.999	57.312	39.543	45.564		43.557	1.74	282.5	2.891	6.11	1 34C	1	0.829909 MYSO?			MYLU
6/24/2020	21:59:46	6/24/2020		10	4	0.4 0.19465 MYOSOD LASBOR	40.668	107.07	2.79	55.88	40.067	45.534		44.554	1.503	282.9	2.641	1.76	1 34C	1	0.829909 MYSO?			MYLU
6/24/2020	21:48:48	6/24/2020		11	4	0.364 0.19055 LASBOR MYOSOD	41.08	123.17	3.266	61.982	40.473	47.311	370.649	45.888	1.777	461.75	3.053	2.58	1 34C	1	0.829909 MYSO?			MYLU
6/24/2020	21:42:52	6/24/2020		13	4	0.308 0.13897 MYOSOD LASBOR	40.328	111.35	3.337	60.581	39.848	46.494		44.41	1.797	371.97	3.116	3.67	1 34C	1	0.829909 MYSO?			MYLU
6/24/2020	21:47:37	6/24/2020		14	4	0.286 0.17358 MYOSOD	40.327	125.15	2.889	58.768	39.998	46.471	399.22	44.905	1.601	365.58	2.816	3.64	1 34C	1	0.829909 MYSO?			MYLU
6/24/2020	21:50:08	6/24/2020		14	4	0.286 0.17866 MYOSOD LASBOR	39.153	100.95	3.226	56.002	38.837	44.474		42.738	1.88	381.11	3.132	2.4	1 34C	1	0.829909 MYSO? 0.829909 MYSO?			MYLU
6/24/2020	22:00:57	6/24/2020 6/24/2020		15 20	4	0.267 0.18936 MYOSOD 0.2 0.09966	40.894 38.956	118.02	3.315 2.924	61.866 56.488	40.044 38.686	46.877 44.679	292.523 190.048	45.069 42.076	1.822	305.86	3.071 2.813	2.89	1 34C	1	0.829909 MYSO?			MYLU MYLU
6/24/2020 6/24/2020	21:39:42			12	4	0.25 0.13744 MYOSOD LASBOR	30.950	113.64	3.252	59 982	39,006	44.079		42.078	1.795 1.951	423.08 448.65	2.015	2 94	1 34C	1	0.829909 MYSO?			MYLU
6/24/2020				12	2	0.214 0.16933 MYOSOD LASBOR	41.131	125.29	2.526	55.185	40.655	+5.505	354.925	43.966	1.494	448.03	2.384	2.94	1 34C	1	0.829909 MYSO?			MYLU
6/24/2020	21:54:54			26	12	0.462 0.13085 MYOLUC LASBOR	40.197	104.5	2.320	55.57	39.73	44.962		43.900	1.559	381.61	2.667	6.46	1 34C	1	0.829909 MYSO?			MYLU
6/25/2020	0:09:50			20	12	0.5 0.13141 MYOLUC	40.554	113.71	2.863	58.799	40.254	46.427		44.581	1.666	485.21	2.813	4.65	1 34C	1	0.829909 MYSO?			MYLU
6/25/2020	0:19:50			6	3	0.5 0.21649 MYOLUC	40.174	111.13	2.163	51.697	40.108	44.107		44.271	0.988	346.7	2.015	1.25	1 34C	1	0.829909 MYSO?			MYLU
6/24/2020	21:52:12			5	2	0.4 0.13011 MYOLUC	40.84	138.62	2.412	56.989	40.598		382.408	45.258	1.222	421.98	2.313	1.18	1 34C	1	0.829909 MYSO?			MYLU
6/25/2020	22:03:58			30	10	0.333 0.13303 MYOSOD LASBOR	40.811	105.79	2.608	55.615	40.562	45.535		44.671	1.416	431.83	2.513	6.65	1 34C	2		Many calls	here meet	MYSO requirements. MYLU
6/25/2020	21:59:56			32	6	0.188 0.08534 MYOSOD	37.165	109.48	2.738	53.766	36.51	42.055		39.962	1.654	454.15	2.593	7.1	1 34C	2	0.4403029 MYSO?			not show presence. MYLU
6/25/2020	21:23:38			14	4	0.286 0.1205 LASBOR	38.982	109.86	2.934	55.62	38.675	44.079		43.043	1.637	418.23	2.854	3.2	1 34C	2	0.4403029 MYSO?			MYLU
	23:28:29			20	4	0.2 0.07877 MYOSOD LASBOR	41.114	113.18	2.613	56.005	40.591		220.868	44.942	1.385	388.28	2.466	4.37	1 34C	2	0.4403029 MYSO?			MYLU
6/25/2020	21:56:18			3	1	0.333 0.11274 MYOSOD MYOSEP	39.563	132.32	2.283	53.515	39.373	44.475		43.557	1.287	399.96	2.248	1.08	1 34C	2	0.4403029 MYSO?			MYLU
6/26/2020	0:41:28			18	11	0.611 0.19744 MYOLUC	41.875	120.61	2.593	57.278	40.775	46.327		46.174	1.268	402.42	2.366	3.63	1 34C	2	0.4403029 MYSO?			MYLU
6/26/2020		6/25/2020		6	5	0.833 0.24118 MYOLUC	40.756	136.99	2.807	63.956	40.685	47.676		46.272	1.458		2.791	1.24	1 34C	2	0.4403029 MYSO?			MYLU
		. ,										Site X4				-	-							
6/19/2020	2:39:46	6/18/2020	MYOSEP	8	5	0.625 0.1786	35.676	241.74	3.519	68.986	32.785	45.287	104.557	42.504	1.89	531.3	2.994	1.29	1 X4	2	0.0619461 MYSE	P-value ver	y close to C	0.05, Presence Assum MYSE
-,,0		-,,0																						tent with MYSE
											S	ite 24A							1 1					
6/24/2020	4:26:21	6/23/2020	MYOSEP	6	4	0.667 0.22812	35.126	193.82	2.464	53.087	32.781	40.507	86.29	40.52	1.268	472.62	2.141	1.42	1 24A	2	0.0233266 MYSE			MYSE
-,,		-,,0		-																				
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APPENDIX H- RESUMES



RYAN LEIBERHER

SENIOR BIOLOGIST PROJECT MANAGER

Education

BS/ Environmental Biology/Edinboro University / 2000 AS/ Wildlife Technology/ Penn State University / 1998

Years of Experience 20+

Areas of Expertise Natural Resources Departmental Management Threatened / Endangered Species Wetlands & Watercourses Permitting NEPA

Registration/Certification USFWS Certified/ Approved Bat Surveyor Region 5

Professional Societies/Affiliates Pennsylvania Chapter of the Wildlife Society NEBWG-North Eastern Bat working Group

Specialized Training 2017- ERM/Wildlife Acoustics- Bat Acoustics Training Course 2004- Bat Conservation International Workshop Acoustical Monitoring Bat Training 2001- Bat Conservation

International Workshop 2000- Present: Continual Infield bat training with the PGC Mr. Leiberher has more than 20 years of professional experience as a natural resources biologist. His project work has required multi-office interactions and coordination with regional and national clients. He has been involved in many projects for oil and gas, transportation, infrastructure, commercial, industrial and residential development that have required strong client working relationships. Mr. Leiberher has experience interacting with federal and state agencies on a variety of natural resources topics including Threatened and Endangered Species surveys. He has experience with the Endangered Species Act (ESA) and the Section 7 consultation process associated with projects affecting the Indiana bat and other bat species in the northeast.

Mr. Leiberher has experience writing various wildlife survey reports, wetland identification and delineation reports, environmental assessment forms, joint permit applications, general permits and is familiar with the 404/105 process. In addition, he has excellent working relationships with various state and federal agencies.

T&E Bat Experience

Responsible for the coordination and implementation of many T&E bat species surveys. Specific tasks include: mist netting, acoustics, harp trapping, habitat assessment, radio telemetry, hibernacula surveys, expert peer review, agency coordination, conducts T&E bat surveying training, and conducts T&E bat presentations (public and private). He has experience identifying all bat species known to occur in the northeastern US.

Wildlife Biologist – Various Confidential Clients, Pennsylvania, New York, West Virginia, Maryland, Virginia, New Jersey: Indiana Bat (*Myotis sodalis*) and Northern Long Eared bat (*Myotis septentrionalis*): Assessments

Lead T&E bat surveyor for numerous projects- responsible for the identification of potential T&E bat habitat, management plans, study plans, habitat conservation plans, and state and federal agency coordination.

Lead Biologist – Shell Appalachia Falcon Pipeline Project, West Virginia: Acoustic Bat Survey

Responsible for the location and identification of the T&E Bat Habitat, the creation of a study plan following USFWS protocol and acoustic surveys conducted at the site. Conducted acoustical call analysis using Kaleidoscope Pro Software in additional to manual call vetting.

Lead Biologist – Dupont Nursery Properties Project, Waynesboro, Virginia: Acoustic Bat Survey

Responsible for the location and identification of the T&E Bat Habitat, a habitat assessment, the creation of a study plan following USFWS protocol and acoustic surveys conducted at the site. Conducted acoustical call analysis using Kaleidoscope Pro Software in additional to manual call vetting.

Project Manager / Lead Biologist – Waste Management Landfill Expansion Project, Rochester, New York: Acoustic Bat Survey

Responsible for the location and identification of the T&E Bat Habitat, the creation of a study plan following USFWS protocol and acoustic surveys conducted at the site. Conducted acoustical call analysis using Kaleidoscope Pro Software in additional to manual call vetting.



Responsible for bat habitat assessment, the creation of a study plan, and implementation of the study plan for a for a bridge replacement project that impacted a large bat colony. The project involved a bat identification, location and exclusion effort for a high density bat colony underneath a bridge crossing long boat pass.

Lead Biologist - Cabot Oil and Gas Project, Susquehanna County, PA: Indiana Bat (*Myotis sodalis*) Mist Net Survey

Lead USFWS Indiana bat surveyor for the project and worked in conjunction with URS Corporation, the prime consultant on the project, responsible for the identification of Indiana bat habitat, the creation of a study plan, and implementation of the study plan.

Lead Biologist – EQT Sunrise Project, Wetzel and Doddridge County, WV and Greene County, PA: Indiana Bat (*Myotis sodalis*) Mist Net Survey

Mr. Leiberher was responsible for the identification of Indiana bat habitat, the creation of a study plan, and implementation of the study plan. URS Corporation, the prime consultant on the project, was responsible for conducting Indiana bat mist netting surveys working in conjunction with ESI Corporation.

Lead Biologist - Indiana Bat Survey - Monfayette Transportation Project, Allegheny County, PA

Responsible for preliminary and detailed mine opening surveys as well as mist netting surveys. Mine opening suitability was determined using Pennsylvania Game Commission, "Criteria for determining whether abandoned coal mines provide potentially suitable bat habitat." Detailed harp trap surveys were conducted upon completion of the preliminary surveys.

Lead Biologist - Natrium Project, Marshall County, WV: Indiana Bat (Myotis sodalis) Mist Net Survey

Mr. Leiberher was responsible for the identification of Indiana bat habitat, the creation of a study plan, and implementation of the study plan and conducted the Indiana bat mist netting surveys, and agency coordination for the project.

Project Manager / Biologist- Knight Road Bat Bridge (PENNDOT), Montgomery County, PA: Indiana Bat (*Myotis sodalis*) Maternity Colony Survey

Responsible for agency coordination, the creation of a study plan, and implementation of the study plan for a for a bridge replacement project that impacted a bat maternity colony. The project involved a trapping effort for a high density maternity roost colony underneath a bridge. The effort consisted of an emergence count followed by an extensive harp trapping within the entire bridge span in order to estimate bat population size and species distribution.

Lead Biologist / Instructor - Indiana Bat Regulatory Training – PENNDOT Training Course

Responsible for the creation and presentation of a regulatory training program specific to the Indiana bat. This program included information related to Indiana bat Biology and the Indiana bat related to the regulatory process.

Lead Biologist - Indiana Bat Expert Peer Reviewer - S.R. 22 Blair County, PA

Acted as a professional reviewer of the ESA Section 7 Biological Assessment for the project, created to comply with the requirements of the ESA.

Lead Biologist - Indiana Bat Surveys – South Valley Parkway Project, Luzerne County, PA

Responsible for the location and identification of Indiana bat habitat, the creation of a study plan, and implementation of the study plan including detailed habitat assessments, preliminary survey plans, and coordination with the USFWS for the project, also responsible for preliminary and detailed mine opening surveys as well as mist netting surveys for the project.

Wildlife Biologist - Route 15 Project, Tioga County, PA

Responsible for the location and identification of the Indiana Bat Habitat and the creation of a study plan following USFWS protocol and Indiana bat mist netting surveys, also responsible for studies concerning the Osprey, Great Blue Heron, and Vernal Pool Habitat.

Lead Biologist / Aquatic Resource Assistant Central Susquehanna Valley Transportation Improvement Project, Snyder County, PA - Indiana Bat Survey

Conducted Indiana bat surveys including mist netting and mine opening surveys, including harp trapping, and internal mine opening assessment for the Indiana bat and other bat species, responsible for locating the habitat of the Eastern Spadefoot Toad in the project area, assisted in FGM stream work in the project area, and assisted in location and identification of the Rough Green Snake and its habitat.



Project Manager / Lead Biologist - Indiana Bat Habitat Assessment and Bat habitat Management plan Creation and Implementation- Gettysburg Commons Project, Gettysburg PA

Responsible for the location and identification of Indiana bat habitat, creation of a habitat management plan, and implementation of the management plan for the project. Worked closely with USFWS PA FO to develop management plan details.

Lead Biologist - Scranton Lackawanna Industrial Building Company (SLIBCO), Lackawanna County, PA: Indiana Bat (*Myotis sodalis*) Mist Net/Hibernacula Survey

Responsible for the identification of Indiana bat habitat, the creation of a study plan, and implementation of the study plan. Conducted summer habitat mist net surveys as well as fall hibernacula emergence trapping associated with the project in Lackawanna County, PA.

Lead Biologist- State Route 2 Widening Project (WVDOT), Jefferson County, WV: Indiana Bat (*Myotis sodalis*) Mist Net Survey

Responsible for the identification of Indiana bat habitat, the creation of a study plan, and implementation of the study plan. Conducted an extensive mist net survey for the Route 2 road widening project for the West Virginia Department of Transportation.

Project Manager / Lead Biologist - Development Authority of the North Country Expansion Project, Rodman, New York: Indiana Bat Survey

Responsible for the identification of Indiana bat habitat, the development of a study plan for the project and the completion of an Indiana bat mist netting survey required by NYDEC and the USFWS as part of Section 7 Consultation for the project.

Lead Biologist - Indiana Bat Survey - Falcon Project, Beaver County, PA

Responsible for the identification of Indiana bat habitat, the development of a study plan for the project and the completion of an Indiana bat mist netting survey required by USFWS as part of consultation for the project.

Lead Biologist / Instructor - Indiana Bat Regulatory Training – Williams Midstream Training Course

Responsible for the creation and presentation of a regulatory training program specific to the Indiana bat and other bat species of the

Lead Biologist– Pennsylvania Department of Transportation (PENNDOT): Indiana Bat (*Myotis sodalis*) Habitat Assessment, New Stanton Project

Lead USFWS Indiana bat surveyor- responsible for the identification of potential Indiana bat habitat, management plans, study plan, habitat conservation plans, and state and federal agency coordination.

Wildlife Biologist – Frey Wind farm Project, PA: Bat Identification

Mr. Leiberher was responsible for the identification of bat species carcasses collected at the project site.

Project Manager / Lead Biologist - Lowe's Companies Inc., Sussex and Orange County, NJ: Indiana Bat Survey

Responsible for the identification of Indiana bat habitat, the creation of a study plan, and implementation of the study plan, which included an Indiana bat mist netting survey following New Jersey Department of Environmental Protect (NJDEP) & USFWS protocol.

Lead Biologist- Purple Line MTA, Maryland – Bat Protection Plan

Worked in conjunction with Maryland USFWS, FTA and MTA to develop a T&E bat protection plan. Conducted ESA Section 7 agency coordination and a created a desktop habitat suitability model for determination of Threatened and Endangered bat species within the impact area, characterized forested areas and other features according to suitability as habitat for Indiana bat and Northern long-eared bat in the Purple Line impact area.



Volunteer Experience- PGC:

Wildlife Biologist – Canoe Creek Mine Internal Survey and Bat Counts- Assisted PGC with internal surveys and bat counts in the pre-white nose syndrome era.

Wildlife Biologist – Canoe Creek Mine Harp Trapping Surveys- Assisted PGC with harp trapping surveys during the pre- white nose syndrome era.

Wildlife Biologist – Canoe Creek Church/Condo Internal Survey and Bat Counts- Assisted PGC with internal roost surveys and bat counts in the pre-white nose syndrome era.

Wildlife Biologist – Canoe Creek Radio Telemetry Surveys- Assisted PGC with *Myotis lucifugus* foraging and travel telemetry in the pre-white nose syndrome era.

Wildlife Biologist – Canoe Creek Route 22 Bat Crossing Counts and morality surveys- Assisted PGC with internal bat counts and traffic related mortality surveys in the pre-white nose syndrome era.

Wildlife Biologist – Glen Lyon Mine Internal Survey and Bat Counts- Assisted PGC with internal surveys and bat counts in the pre-white nose syndrome era.



APPENDIX I- SITE COORDINATES

Surveyed Point Coordinates and Dates

			SURVEY DATES AND TIME								
SITE ID	LAT	LONG	NIGHT 1	L	NIGHT 2	2					
			DATE	TIME	DATE	TIME					
1	38.970321	-77.179342	7/15/2020-7/16/2020	19:36-06:51	7/16/2020-7/17/2020	19:36-06:51					
1A	38.970179	-77.179042	7/15/2020-7/16/2020	19:36-06:51	7/16/2020-7/17/2020	19:36-06:51					
1B	38.969966	-77.179862	7/15/2020-7/16/2020	19:36-06:51	7/16/2020-7/17/2020	19:36-06:51					
1C	38.968151	-77.179281	7/15/2020-7/16/2020	19:36-06:51	7/16/2020-7/17/2020	19:36-06:51					
1D	38.968285	-77.180026	7/15/2020-7/16/2020	19:36-06:51	7/16/2020-7/17/2020	19:36-06:51					
2	38.983994	-77.158877	6/17/2020-6/18/2020	19:36-06:43	6/18/2020-6/19/2020	19:36-06:43					
3	38.985514	-77.159178	6/17/2020-6/18-2020	19:36-06:43	6/18/2020-6/19/2020	19:36-06:43					
3A	38.990166	-77.159054	6/17/2020-6/18/2020	19:36-06:43	6/18/2020-6/19/2020	19:36-06:43					
4	38.993044	-77.15816	7/23/2020-7/24/2020	19:36-06:51	7/24/2020-7/25/2020	19:36-06:51					
5	39.018273	-77.14716	6/15/2020-6/16/2020	19:36-06:43	6/16/2020-6/17/2020	19:36-06:43					
5A	39.032325	-77.142243	6/15/2020-6/16/2020	19:36-06:43	6/16/2020-6/17/2020	19:36-06:43					
6	39.038186	-77.146453	6/15/2020-6/16/2020	19:36-06:43	6/16/2020-6/17/2020	19:36-06:43					
6A	39.038376	-77.145258	6/15/2020-6/16/2020	19:36-06:43	6/16/2020-6/17/2020	19:36-06:43					
7	39.052504	-77.153843	-		-						
8	39.052681	-77.152171	7/9/2020-7/10/2020	19:36-06:51	7/10/2020-7/11/2020	19:36-06:51					
8A	39.069825	-77.158858	7/7/2020-7/8/2020	19:36-06:51	7/8/2020-7/9/2020	19:36-06:51					
8B	39.100322	-77.178227	7/22/2020-7/23/2020	19:36-06:51	7/23/2020-7/24/2020	19:36-06:51					
9	39.123345	-77.200785	7/25/2020-7/26/2020	19:36-06:51	7/26/2020-7/27/2020	19:36-06:51					
10	39.124289	-77.199345	-	10.20 00.42	-	10.20 00.42					
11	39.032937	-77.13722	6/15/2020-6/16/2020	19:36-06:43	6/16/2020-6/17/2020	19:36-06:43					
11A	39.028872 39.016725	-77.117535 -77.096923	6/17/2020-6/18/2020	19:36-06:43	6/18/2020-6/19/2020 7/7/2020-7/8/2020	19:36-06:43					
12 13	39.016725	-77.09343	7/6/2020-7/7/2020 7/7/2020-7/8/2020	19:36-06:51 19:36-06:51	7/8/2020-7/8/2020	19:36-06:51 19:36-06:51					
13 13A	39.013177	-77.09343	7/6/2020-7/7/2020	19:36-06:51	7/7/2020-7/8/2020	19:36-06:51					
134	39.007073	-77.08496	7/7/2020-7/8/2020	19:36-06:51	7/8/2020-7/9/2020	19:36-06:51					
14	39.007253	-77.079254	7/7/2020-7/8/2020	19:36-06:51	7/8/2020-7/9/2020	19:36-06:51					
15	39.007233	-77.06866	7/7/2020-7/8/2020	19:36-06:51	7/8/2020-7/9/2020	19:36-06:51					
10	39.011732	-77.064371	7/9/2020-7/10/2020	19:36-06:51	7/10/2020-7/11/2020	19:36-06:51					
18	39.014701	-77.059262	7/9/2020-7/10/2020	19:36-06:51	7/10/2020-7/11/2020	19:36-06:51					
18 18A	39.013546	-77.057182	7/23/2020-7/24/2020	19:36-06:51	7/24/2020-7/25/2020	19:36-06:51					
19	39.015386	-77.032446	-	19.50 00.51	-	19.50 00.51					
20	39.014599	-77.031979	7/9/2020-7/10/2020	19:36-06:51	7/10/2020-7/11/2020	19:36-06:51					
21- Bridge- NW Branch	39.017731	-76.994322	-	13.30 00.31	-	19.50 00.51					
22	39.017002	-76.993901	7/9/2020-7/10/2020	19:36-06:51	7/10/2020-7/11/2020	19:36-06:51					
23	39.02029	-76.98296	-		-						
24	39.019475	-76.983615	7/9/2020-7/10/2020	19:36-06:51	7/10/2020-7/11/2020	19:36-06:51					
24A	39.018917	-76.966916	6/22/2020-6/23/2020	19:36-06:43	6/23/2020-6/24/2020	19:36-06:43					
24B	39.019498	-76.959311	6/22/2020-6/23/2020	19:36-06:43	6/23/2020-6/24/2020	19:36-06:43					
25	39.02427	-76.950308	6/22/2020-6/23/2020	19:36-06:43	6/23/2020-6/24/2020	19:36-06:43					
26	39.026704	-76.951113	6/22/2020-6/23/2020	19:36-06:43	6/23/2020-6/24/2020	19:36-06:43					
27	39.019933	-76.948244	6/22/2020-6/23/2020	19:36-06:43	6/23/2020-6/24/2020	19:36-06:43					
28	39.020347	-76.932842	-		-						
29	39.019375	-76.933545	7/13/2020-7/14/2020	19:36-06:51	7/14/2020-7/15/2020	19:36-06:51					
30	39.01182	-76.903173	7/13/2020-7/14/2020	19:36-06:51	7/14/2020-7/15/2020	19:36-06:51					
31	39.011227	-76.903896	-		-						
31A	39.003366	-76.89285	7/13/2020-7/14/2020	19:36-06:51	7/14/2020-7/15/2020	19:36-06:51					
32	38.996932	-76.875361	6/22/2020-6/23/2020	19:36-06:43	6/23/2020-6/24/2020	19:36-06:43					
33	38.989374	-76.886312	6/22/2020-6/23/2020	19:36-06:43	6/23/2020-6/24/2020	19:36-06:43					
34	38.982267	-76.891663	-		-						
34A	38.982588	-76.893933	6/22/2020-6/23/2020	19:36-06:43	6/23/2020-6/24/2020	19:36-06:43					
34B	38.958038	-76.867089	6/24/2020-6/25/2020	19:36-06:43	6/25/2020-6/26/2020	19:36-06:43					
34C	38.950732	-76.859956	6/24/2020-6/25/2020	19:36-06:43	6/25/2020-6/26/2020	19:36-06:43					
34D	38.947294	-76.841284	6/24/2020-6/25/2020	19:36-06:43	6/25/2020-6/26/2020	19:36-06:43					
34E	38.925059	-76.854271	6/24/2020-6/25/2020	19:36-06:43	6/25/2020-6/26/2020	19:36-06:43					
35	38.889168	-76.84517	7/13/2020-7/14/2020	19:36-06:51	7/14/2020-7/15/2020	19:36-06:51					
35A	38.860262	-76.848691	7/13/2020-7/14/2020	19:36-06:51	7/14/2020-7/15/2020	19:36-06:51					
35B	38.850351	-76.860622	7/13/2020-7/14/2020	19:36-06:51	7/14/2020-7/15/2020	19:36-06:51					

				SURVEY DAT	ES AND TIME	
SITE ID	LAT	LONG	NIGHT 1	L	NIGHT 2	2
			DATE	TIME	DATE	TIME
36	38.830814	-76.872853	6/29/2020-6/30/2020	19:36-06:43	6/30/2020-7/1/2020	19:36-06:43
36A	38.829223	-76.876497	6/29/2020-6/30/2020	19:36-06:43	6/30/2020-7/1/2020	19:36-06:43
36B	38.823774	-76.884609	6/29/2020-6/30/2020	19:36-06:43	6/30/2020-7/1/2020	19:36-06:43
36C	38.819806	-76.895725	6/29/2020-6/30/2020	19:36-06:43	6/30/2020-7/1/2020	19:36-06:43
36D	38.819891	-76.916071	6/29/2020-6/30/2020	19:36-06:43	6/30/2020-7/1/2020	19:36-06:43
37	38.819776	-76.930791	-		-	
38	38.818029	-76.931255	6/29/2020-6/30/2020	19:36-06:43	6/30/2020-7/1/2020	19:36-06:43
39- Bridge-Seven Locks Road	38.983773	-77.160555	6/17/2020-6/18/2020	19:36-06:43	6/18/2020-6/19/2020	19:36-06:43
40- Bridge-Macarthur						
Blvd/Clara Barton	38.975416	-77.178263	7/15/2020-7/16/2020		7/16/2020-7/17/2020	
Westbound				19:36-06:51		19:36-06:51
X1	38.982135	-77.172286	7/15/2020-7/16/2020	19:36-06:51	7/16/2020-7/17/2020	19:36-06:51
X2	39.009289	-77.152381	7/23/2020-7/24/2020	19:36-06:51	7/24/2020-7/25/2020	19:36-06:51
Х3	39.012758	-77.147143	6/17/2020-6/18/2020	19:36-06:43	6/18/2020-6/19/2020	19:36-06:43
X4	39.016389	-77.114379	6/17/2020-6/18/2020	19:36-06:43	6/18/2020-6/19/2020	19:36-06:43
X5	39.019171	-77.108434	7/6/2020-7/7/2020	19:36-06:51	7/7/2020-7/8/2020	19:36-06:51
X6	39.017007	-76.913091	6/29/2020-6/30/2020	19:36-06:43	6/30/2020-7/1/2020	19:36-06:43
X7	38.976909	-76.873268	6/24/2020-6/25/2020	19:36-06:43	6/25/2020-6/26/2020	19:36-06:43
X8	38.967182	-76.868858	6/24/2020-6/25/2020	19:36-06:43	6/25/2020-6/26/2020	19:36-06:43
X9	38.943794	-76.861428	6/29/2020-6/30/2020	19:36-06:43	6/30/2020-7/1/2020	19:36-06:43
X10	38.932718	-76.855395	6/24/2020-6/25/2020	19:36-06:43	6/25/2020-6/26/2020	19:36-06:43
X11	38.90972	-76.850227	6/24/2020-6/25/2020	19:36-06:43	6/25/2020-6/26/2020	19:36-06:43
X12	38.898213	-76.848816	7/13/2020-7/14/2020	19:36-06:51	7/14/2020-7/15/2020	19:36-06:51
X13	38.875774	-76.844325	6/24/2020-6/25/2020	19:36-06:43	6/25/2020-6/26/2020	19:36-06:43
X14	38.83882	-76.869957	6/29/2020-6/30/2020	19:36-06:43	6/30/2020-7/1/2020	19:36-06:43

*All sites were surveyed for 12 hours each night



Wood Turtle Habitat Assessment and Survey Report - Virginia (ESS Log # 40764) May 14, 2021



MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION

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- Appendix B Wood Turtle Survey Area
- Appendix C Qualified Biologist Resume
- Appendix D Photographic Log

LANES STUDY

1 INTRODUCTION

The Federal Highway Administration (FHWA), as the Lead Federal Agency, and the Maryland Department of Transportation State Highway Administration (MDOT SHA), as the Local Project Sponsor, are preparing an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA) for the I-495 & I-270 Managed Lanes Study (MLS). The purpose of the MLS is to develop a travel demand management solution that addresses congestion and improves trip reliability on I-495 and I-270 within the Study limits (Figure 1-1) and enhances existing and planned multi-modal mobility and connectivity. Efforts have been made throughout the planning process to avoid and minimize impacts to rare, threatened, and endangered species to the greatest extent practicable, while still achieving the goals of the MLS.

During coordination with the Virginia Department of Environmental Quality (DEQ) in October 2020 regarding its review of the Draft EIS, the DEQ requested that a habitat evaluation of streams in the Virginia portion of the MLS Corridor Limits of Disturbance be conducted for wood turtle (*Glyptemys insculpta*). Wood turtle is a state-threatened species in Virginia, and is known to occur in Turkey Run, a waterbody located east of the project limits of disturbance. The evaluation was to include an assessment of potential upland and aquatic habitats, the results of which will be reported to Virginia Department of Wildlife Resources (DWR). Correspondence related to this study request is provided in **Appendix A**.



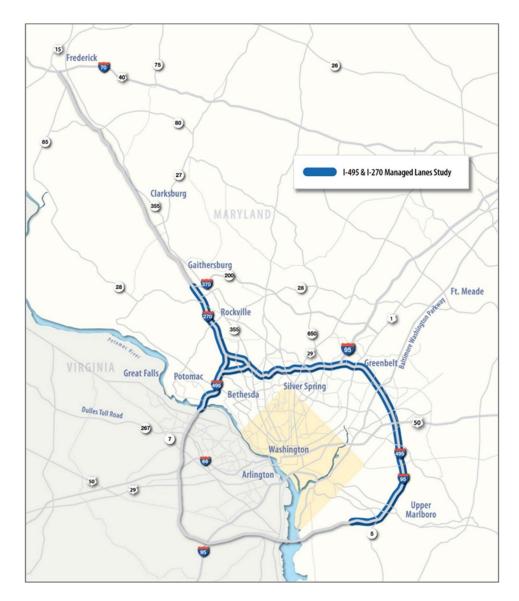


Figure 1-1: MLS Study Corridors

2 METHODS

SURVEY LIMITS

The wood turtle study was limited to the Virginia portion of the MLS Corridor Study Boundary. The wood turtle survey area included all property in Virginia within the extent of the MLS DEIS Build Alternatives limits of disturbance (LOD). Wood Turtle Survey Area limits are depicted in **Appendix B**, Figure 2-1.

HABITAT ASSESSMENT

The wood turtle is a species that inhabits both aquatic and terrestrial environments. Wood turtle habitat is characterized by a combination of suitable environmental components, including such features as cold perennially-flowing streams, riparian woodlands, scrubby wetlands, open meadows, and sandy or gravelly areas that can be used for nesting. A key feature is the presence of a flowing watercourse of adequate width and depth (typically mid-sized streams 10 feet to 65 feet wide, Jones et. al 2018) that does not freeze completely during the winter. Wood turtles hibernate in such streams, as well as using them during the mating season. Within-stream structure is important for providing cover, basking sites, overwintering areas, and stability during high-flow periods. Common structural features within streams include large root masses of adjacent mature trees, logjams, and accumulated woody debris. Additional key terrestrial habitat features include the presence of potential nesting substrate within a reasonable distance (usually up to 300 feet, Jones et. al 2018) from the watercourse. For the purposes of this report, the terms "watercourse", "stream", "aquatic habitat" and "waterbody" may be used interchangeably.

Wetland and waterbody delineations previously conducted by VDOT had identified 8 watercourses and one wetland within the wood turtle survey area. The habitat assessment portion of this study focused initially on determining the suitability of these watercourses to potentially support wood turtles, together with an evaluation of the surrounding terrestrial land cover. The habitat assessment survey was conducted by two MDOT SHA biologists on February 3, 2021.

The lead biologist conducting the survey is a Certified Wildlife Biologist with 25+ years' experience that has entailed numerous studies on various turtle species, including wood turtles. Her resume is included in **Appendix C** of this report.

Exclusions and Exceptions

Watercourse 22SS was located on private property and not accessible during the study to evaluate on foot, therefore observations were made from a nearby roadside.

Dead Run, a watercourse depicted in Figure 2-1 on the easternmost edge of the survey area, will not be impacted by the project. This segment of roadway improvements is limited to pavement markings and signage and will not entail earth disturbance or waterway encroachment. Therefore, Dead Run was not included within the wood turtle habitat survey.

PRESENCE-ABSENCE SURVEY

During the active season (generally, mid-April through late October) wood turtles wander throughout multiple types of habitats and therefore presence-absence surveys conducted during that timeframe would need to cover more expansive areas and utilize a variety of survey techniques to be effective. During the inactive season (generally, late October through late March/early April), wood turtles are restricted to their hibernation streams and therefore searches can be limited to these aquatic areas. November to April is the VDWR recommended presence-absence survey window for wood turtles (WSSI 2020).

Streams within the MLS DEIS Build Alternatives LODs that were identified as potential wood turtle habitat were searched opportunistically during the habitat survey in February and were re-visited a second time on March 17, 2021. Equipment to facilitate observation of turtles included a walking stick used to probe substrates and polarized sunglasses. Two biologists walked slowly upstream and downstream, visually scanning the streambed and searching within pools, under woody debris, beneath undercut banks, and within crevices made by overhanging rocks or tree roots. The search methods employed generally followed typical, standardized procedures for wood turtle surveys (e.g. Brown et al, 2017) combined with the DWR recommended survey season. Based upon the observations of field conditions, discussed further below, two visits were deemed to be sufficient to draw conclusions for this study.

3 RESULTS

Table 1 below lists the delineated water features within the wood turtle survey area, which wereevaluated for suitability as wood turtle habitat. Further discussion on each stream and its adjoining landareas follows. Identified features are depicted on the Wood Turtle Survey Area map (Figure 2-1) inAppendix B. Photographs of the streams and adjoining habitats evaluated and searched within thewood turtle survey area are provided in Appendix D.

Watercourse ID	Description	Survey Date(s)	Potential Habitat Conclusion	Wood Turtle Use Conclusion
22UU (tributary to Potomac)	Intermittent stream	2/3/2021	Not potential habitat	N/A
22MM (Potomac River)	Perennial river	2/3/2021	Unlikely habitat	No turtles observed
22VV (tributary to Potomac)	Ephemeral drainage	2/3/2021	Not potential habitat	N/A
22WW/22XX (tributary to Potomac)	Intermittent stream	2/3/2021	Not potential habitat	N/A
22SS (tributary to Potomac)	Perennial stream surrounded by upland forest	2/3/2021	Marginal potential habitat	Unlikely within limits of disturbance
22AAA (tributary to Potomac)	Perennial stream surrounded by upland forest	2/3/2021 and 3/17/2021	Marginal Potential Habitat	No turtles observed
22ZZ (tributary to Potomac)	Perennial stream adjoining PFO (22BBB)	2/3/2021 and 3/17/2021	Marginal Potential Habitat	No turtles observed

Table 1 – Summary of Evaluated Watercourses

22UU. This intermittent stream had water flowing about 6 inches deep at the time of the field visit. The stream channel was approximately 8 feet wide at the toe of bank. Streambed consisted of cobble and gravel substrate with debris. The stream has steeply eroded banks and no connection to the floodplain. Intermittent streams will not support overwintering habitat due to the need for year-round flow and minimal freezing. The surrounding forest does not have a mosaic of wooded and scrub-shrub wetlands with clearings preferred by wood turtles. This stream and its adjacent forested uplands are not potential wood turtle habitat.

22MM. Wood turtles generally do not prefer large river systems, however literature indicates tributaries to "lower Potomac" in Fairfax County did historically support wood turtles and some sandy edges may have been used for nesting (Akre 2002, Akre & Ernst 2006, both as cited in Jones & Willey, 2018). The edge of the Potomac River in the study area has some suitable structural elements such as sand-bars (nesting) and overhanging rocks/pools. The in-water river's edge was searched and probed for turtles during the February field visit and no wood turtles were observed, although visibility was excellent. The main channel of the river within the Project Study Area is not connected to a suitable wood turtle stream or diverse riparian habitat (with both woodlands and openings). Therefore, this section of river is not likely to support wood turtles.

<u>22VV</u>. This feature has ephemeral drainage without distinct bed/banks and lacks water or flow. This drainage feature and its adjacent forested uplands are not potential wood turtle habitat.

22WW/22XX. This feature is an intermittent stream with bedrock outcroppings. There is gravel substrate within the streambed. The channel is approximately 3-feet wide and 1-inch deep, with some good structural elements including pools, bank and rock overhangs, and woody debris. However, this stream is very small and without year-round flow, and therefore would not be expected to support overwintering wood turtles. The surrounding habitat is predominantly upland forest and no potential nesting habitat was observed in the vicinity. This area is not potential wood turtle habitat.

22AAA. This perennial stream has good flow, is 6-18 inches in depth, and is 10-feet wide at the base of the streambank. The streambed substrate consists of bedrock, gravel, cobble, and silt. Instream structure includes overhanging roots and undercut banks, which could offer potential overwintering elements. A search for wood turtles was conducted within the channel during the February investigation and no wood turtles were identified. This stream is a bit small for width/depth to support adequate overwintering, basking or foraging and it is isolated within the interchange. The adjoining habitat is upland beech forest habitat and suitable nesting areas were not observed in the vicinity, which may be a limiting factor. This site has been identified as marginal potential habitat because it is hydrologically-connected (via culverts) to other marginal potential streams (see below).

During the March 17 survey, there was very shallow water (less than 6 inches deep) with minimal flow. No wood turtles were observed.

22SS. This stream is only accessible through private property, therefore it was observed from a public roadway (Live Oak Drive), approximately 180 feet away. The stream appears to be 10-12 feet wide with perennial flow, approximately 6-12 inches deep, with a cobble and gravel substrate. There is

sedimentation immediately downstream of the culvert and undercut banks that indicate erosion. The channel has some sinuosity. The surrounding land use is upland forest, and no potential nesting areas were observed. Per delineation mapping, this stream connects to a palustrine forested (PFO) wetland downstream, outside the proposed impact area (LOD). The portion of the stream within the wood turtle survey area seems too filled-in with sediment to be of over-wintering use to wood turtles. This perennial stream hydrologically-connects to another marginally-suitable site (22AAA upstream). Downstream (but well outside of LOD) may be potential habitat, because the stream connects with an adjacent PFO, and eventually drains into the Potomac River, which may have sandbar nest habitat. Based on the visual assessment of the stream reach within the study area, Feature 22SS is unlikely to support wood turtles due to substantial sedimentation.

22272. This perennial stream is approximately 3 feet wide, with water flowing at 3 inches to 12 inches deep and with a gravel and silt substrate comprising the streambed. There are generally steep banks that are mostly disconnected from the adjoining PFO wetland (22BBB). This stream has marginally potential habitat, because although it is not as wide as would be ideal wood turtle habitat, it does have suitable flow with instream structure and pools and an adjoining PFO wetland habitat. Potential nesting appears limited, but there is a nearby transmission line and roadway embankment that may contain sandy or gravelly elements. The channel was searched for wood turtles in February and none were observed. During the March 17 survey, the water was very shallow, just a couple of inches in depth. No wood turtles were observed.

4 CONCLUSIONS

Of the eight watercourses located within the wood turtle survey area, six were determined to be unsuitable habitat together with the adjoining terrestrial areas. Two watercourses were found to be marginally-suitable habitat and were searched for wood turtles on two occasions during the overwintering season. During the second survey in March 2021, the watercourses were found to have minimal water depth and the suitability was deemed even less ideal than when assessed in February 2021. No wood turtles were found to inhabit the wood turtle survey area. It is unlikely that the MLS project will adversely impact the wood turtle.

5 **REFERENCES**

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APPENDIX A: VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY CORRESPONDENCE



COMMONWEALTH of VIRGINIA

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October 1, 2020

Ms. Lisa B. Choplin, DBIA Maryland Department of Transportation State Highway Administration I-495 and I-270 P3 Office 707 North Calvert Street Mail Stop P-601 Baltimore, Maryland 21202 Via email: mls-nepa-p3@mdot.maryland.gov

RE: Draft Environmental Impact Statement and Draft Section 4(f) Evaluation, I-495 & I-270 Managed Lanes Study, Federal Highway Administration, Fairfax County (DEQ 20-103F)

Dear Ms. Choplin:

Matthew I. Strickler

Secretary of Natural Resources

The Commonwealth of Virginia has completed its review of the above-referenced document. The Department of Environmental Quality is responsible for coordinating Virginia's review of federal environmental documents submitted under the National Environmental Policy Act (NEPA) and responding to appropriate federal officials on behalf of the Commonwealth. DEQ is also responsible for coordinating Virginia's review of federal consistency documents submitted pursuant to the Coastal Zone Management Act (CZMA) and providing the state's response. This is in response to the June 2020 Draft Environment Impact Statement (DEIS) (received July 9, 2020) for the above-referenced project. The focus of this response to the 0.4-mile portion of the project in Virginia. The following agencies and locality participated in the review of this proposal:

Department of Environmental Quality Department of Wildlife Resources Department of Conservation and Recreation Marine Resources Commission Department of Health Department of Historic Resources Department of Transportation Fairfax County

In addition, the Northern Virginia Regional Commission was invited to comment on the proposal.

PROJECT DESCRIPTION

The Federal Highway Administration (FHWA), as the Lead Federal Agency, and Maryland Department of Transportation State Highway Administration (MDOT-SHA), as the Local Project Sponsor, have prepared a Draft Environmental Impact Statement (DEIS) under the National Environmental Policy Act (NEPA) for the I-495 and I-270 Managed Lanes Study (Study). The Study is the first element of the broader I-495 and I-270 Public-Private Partnership (P3) Program. The Study considers alternatives to address roadway congestion within the 48-mile Study area from I-495 south of the George Washington Memorial Parkway in Fairfax County, Virginia, including improvements to the American Legion Bridge over the Potomac River, to west of Maryland (MD) Route 5, and along I-270 from I-495 to north of I-370, including the East and West I-270 Spurs. I-495 and I-270 in Maryland are the two most heavily traveled freeways in Maryland, each with an Average Annual Daily Traffic (AADT) volume up to 260,000 vehicles per day in 2018. The purpose of Study is to develop a travel demand management solution that addresses congestion, improves trip reliability, and enhances existing and planned multimodal mobility and connectivity. The DEIS provides a comparative analysis between the No Build Alternative and six Build Alternatives;

- <u>Alternative 1</u>: No Build.
- <u>Alternative 8</u>: Two-Lane, Express Toll Lane (ETL) managed Lanes Network on I-495 and One-ETL and One-Lane High Occupancy Vehicle (HOV) Managed Lane on I-270.
- <u>Alternative 9</u>: Two-Lane, High Occupancy Toll (HOT) Managed Lanes Network on both I-495 & I-270.
- <u>Alternative 9 Modified (9M)</u>: Two-Lane, HOT Managed Lanes Network on west and east side of I-495 and on I-270; One-Lane HOT Managed Lane on top side of I-495.
- <u>Alternative 10</u>: Two-Lane, ETL Managed Lanes Network on I-495 & I-270 plus One-Lane HOV Managed Lane on I-270 only.
- <u>Alternative 13B</u>: Two-Lane, HOT Managed Lanes Network on I-495; HOT Managed, Reversible Lane Network on I-270.
- <u>Alternative 13C</u>: Two-Lane, ETL Managed Lanes Network on I-495, ETL Managed, Reversible Lane Network and One-Lane HOV Managed Lane on I-270.

The Preferred Alternative will be identified in the Final Environmental Impact Statement (FEIS) which will focus on any additional analysis and refinements of the data and will respond to substantive comments received on the DEIS.

ENVIRONMENTAL IMPACTS AND MITIGATION

1. Surface Waters and Wetlands. According to the DEIS (page 4-88), within Virginia, the corridor study boundary crosses the Middle Potomac watersheds, comprised of the Bull Neck Run, Scotts Run, Dead Run, Turkey Run, and Pimmit Run subwatersheds. All

Build Alternatives would affect surface waters, surface water quality, and watershed characteristics in the corridor study boundary due to direct and indirect impacts to ephemeral, intermittent, and perennial stream channels and increases in impervious surface in their watersheds. Impacts associated with the use of the road after construction are mainly based on the potential for contamination of surface waters by runoff and from new impervious roadway surfaces.

On August 12, 2020, DEQ notified MDOT-SHA that is was unable to determine the extent of jurisdictional waters that would be impacted in Virginia. Supplemental information provided by MDOT-SHA on September 18, 2020, indicate that the Build Alternatives in Virginia have identical impacts. The Build Alternatives would impact a total of 0.05 acres of wetland and 3,349 linear feet of stream in Virginia. The mitigation requirement for each Build Alternative would be 0.10 acres of wetland mitigation and 729 linear feet of riverine mitigation in the Middle Potomac-Catoctin watershed. Mitigation will be met by purchasing bank credits. Bank credit purchases will be described in the Final Compensatory Mitigation Plan (CMP) to be prepared in support of the Final Environmental Impact Statement.

1(a) Agency Jurisdiction.

(i) Department of Environmental Quality

The State Water Control Board promulgates Virginia's water regulations covering a variety of permits to include the <u>Virginia Pollutant Discharge Elimination System Permit</u> regulating point source discharges to surface waters, Virginia Pollution Abatement Permit regulating sewage sludge, storage and land application of biosolids, industrial wastes (sludge and wastewater), municipal wastewater, and animal wastes, the <u>Surface and Groundwater Withdrawal Permit</u>, and the <u>Virginia Water Protection (VWP) Permit</u> regulating impacts to streams, wetlands, and other surface waters. The VWP permit is a state permit which governs wetlands, surface water, and surface water withdrawals and impoundments. It also serves as §401 certification of the federal Clean Water Act §404 permits for dredge and fill activities in waters of the U.S. The VWP Permit Program is under the Office of Wetlands and Stream Protection, within the DEQ Division of Water Permitting. In addition to central office staff that review and issue VWP permits for transportation and water withdrawal projects, the six DEQ regional offices perform permit application reviews and issue permits for the covered activities:

- Clean Water Act, §401;
- Section 404(b)(i) Guidelines Mitigation Memorandum of Agreement (2/90);
- State Water Control Law, <u>Virginia Code</u> section 62.1-44.15:20 *et seq.*; and
- State Water Control *Regulations*, 9 VAC 25-210-10.

(ii) Virginia Marine Resources Commission

The Virginia Marine Resources Commission (VMRC) regulates encroachments in, on or

over state-owned subaqueous beds as well as tidal wetlands pursuant to Virginia Code §28.2-1200 through 1400. For nontidal waterways, VMRC states that it has been the policy of the Habitat Management Division to exert jurisdiction only over the beds of perennial streams where the upstream drainage area is 5 square miles or greater. The beds of such waterways are considered public below the ordinary high water line.

1(b) Agency Findings.

(i) Virginia Department of Environmental Quality

The VWP Permit program at the DEQ Office of Wetlands and Stream Protection (OWSP) finds that the Build Alternatives may require either VWP Individual Permit or General Permit coverage.

(ii) Virginia Marine Resources Commission

VMRC has no comments on the proposal.

1(c) Requirements. FHWA must submit a Joint Permit Application (JPA) in accordance with form instructions for further evaluation and final permit need determination by DEQ. FHWA must coordinate with DEQ-OWSP prior to the implementation of the preferred alternative. The JPA should be submitted to VMRC which serves as the clearinghouse for review by DEQ, VMRC, local wetlands board and the U.S. Army Corps of Engineers (Corps).

1(d) Recommendations. DEQ offers the following recommendations:

- 1. Wetland and stream impacts should be avoided and minimized to the maximum extent practicable.
- 2. If the scope of the project changes, additional review will be necessary by one or more offices in the Commonwealth's Secretariat of Natural Resources and/or the Corps.
- 3. At a minimum, any required compensation for impacts to State Waters, including the compensation for permanent conversion of forested wetlands to emergent wetlands, should be in accordance with all applicable state regulations and laws. Consider mitigating impacts to forested or converted wetlands by establishing new forested wetlands within the impacted watershed.
- 4. Any temporary impacts to surface waters associated with this project should be restored to pre-existing conditions.
- 5. No activity may substantially disrupt the movement of aquatic life indigenous to the water body, including those species, which normally migrate through the area, unless the primary purpose of the activity is to impound water. Culverts placed in streams must be installed to maintain low flow conditions. No activity may cause more than minimal adverse effect on navigation.

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and threatened species of plants and insects. Under a Memorandum of Agreement established between VDACS and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species.

7(b) Agency Findings.

(i) Potomac Gorge Conservation Site

According to the information currently in DCR files, the Potomac Gorge Conservation Site is located within the Study in Virginia. The Potomac Gorge Conservation Site has been given a biodiversity significance ranking of B1, which represents a site of outstanding significance. The natural heritage resources of concern at this site are:

Maianthemum stellatum	Starry Solomon's-plume	G5/S1S2/NL/NL		
Phacelia covillei	Coville's phacelia	G3/S1/NL/NL		
Gomphus fraternus	Midland Clubtail	G5/S2/NL/NL		
Boechera dentata	Short's rock cress	G5/S1/NL/NL		
Silene nivea	Snowy Campion	G4?/S1/NL/NL		
Central Appalachian/Pied	G3G4/S2S3/NL/NL			
Boulderfield Forest				
Coastal Plain/Outer Piedn	G4?/ S3/NL/NL			

See DCR-DNH comments attached for more detailed information on these resources.

(ii) Additional Listed Species

DCR-DNH finds the following listed species have been historically documented within the Virginia portion of the Study:

Tall Thistle	Cirsium altissimum	G5/S1/NL/NL
Wild cucumber	Echinocystis lobate	G5/SH/NL/NL
Smartweed Dodder	Cuscuta polygonorum	G5/S1/NL/NL
Northern rattlesnake-master	Eryngium yuccifolium var. yuccifolium	G5T5/S2/NL/NL
One-sided shinleaf	Orthilia secunda	G5/SH/NL/NL
Pizzini's Amphipod	Stygobromus pizzinii	G3G4/S1S2/NL/NL

Furthermore, DCR biologists find that there is potential for the Northern Virginia Well amphipod (*Stygobromus phreaticus*, G1/S1/SOC/NL) and other *Stygobromus* amphipod species to occur within the Study area.

(iii) Ecological Cores

DCR-DNH finds that the proposed project will fragment an Ecological Core C4 as identified in the <u>Virginia Natural Landscape Assessment</u>, one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection.

Ecological Cores are areas of unfragmented natural cover with at least 100 acres of interior that provide habitat for a wide range of species, from interior-dependent forest species to habitat generalists, as well as species that utilize marsh, dune, and beach habitats. Cores also provide benefits in terms of open space, recreation, water quality (including drinking water protection and erosion prevention), and air quality (including carbon sequestration and oxygen production), along with the many associated economic benefits of these functions. The cores are ranked from C1 to C5 (C5 being the least ecologically relevant) using many prioritization criteria, such as the proportions of sensitive habitats of natural heritage resources they contain. See detailed DCR-DNH comments attached for additional information.

(iv) State-listed Plant and Insect Species

DCR-DNH finds that the activity will not affect any documented state-listed plants or insects at the site.

(v) State Natural Area Preserves

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

(vi) Rare, Threatened and Endangered Plant Species Surveys

DCR received the summary of rare, threatened and endangered (RTE) plant species surveys conducted to date in the Potomac River Gorge area by MDOT-SHA. DCR looks forward to reviewing the full report on the survey findings and further coordination per the DEIS (page 4-116), to minimize impacts to natural heritage resources.

7(c) Recommendations.

(i) Avoidance of Natural Heritage Resources

DCR recommends avoidance of documented occurrences of natural heritage resources by limiting the project footprint as much as possible, including along the steep bluff on the eastern side in Virginia.

(ii) Natural Heritage Resources Inventory

Due to the potential of the Study area in Virginia to support additional populations of natural heritage resources that are not included in a RTE plant survey, DCR recommends an inventory for these resources within areas proposed for disturbance including stormwater management ponds and equipment staging areas. With the survey results DCR can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources. DCR-DNH biologists are qualified and available to conduct inventories for rare, threatened, and endangered species.

(iii) Ecological Cores

Minimizing fragmentation is a key mitigation measure that will preserve the natural patterns and connectivity of habitats that are key components of biodiversity. DCR-DNH recommends efforts to minimize edge in remaining fragments, retain natural corridors that allow movement between fragments and designing the intervening landscape to minimize its hostility to native wildlife (natural cover versus lawns).

(iv) Natural Heritage Resources Database Update

Contact DCR-DNH to secure updated information on natural heritage resources if the scope of the project changes or six months pass before the project is implemented, since new and updated information is continually added to the Biotics Data System.

8. Wildlife Resources and Protected Species. According to the DEIS (page 4-110), the Virginia Department of Agriculture and Consumer Services (VDACS), Virginia Department of Game and Inland Fisheries, and DCR cooperate in the protection of Virginia's state- and federally-listed threatened and endangered species. Threatened and endangered wildlife species are protected under the Virginia Endangered Species Act of 1972 (Chapter 5 Wildlife and Fish Laws; Va. Code Ann., § 29.1-563 through 570).

8(a) Agency Jurisdiction. The Virginia Department of Wildlife Resources (DWR)

(formerly the Department of Game and Inland Fisheries), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state- or federally-listed endangered or threatened species, but excluding listed insects (Virginia Code, Title 29.1). DWR is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S. Code §661 *et seq.*) and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DWR determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce or compensate for those impacts. For more information, see the DWR website at <u>www.dwr.virginia.gov</u>.

8(b) Agency Findings. DWR documents the state-listed endangered Little brown bat

and Tri-colored bat, and the state-listed threatened Wood turtle from the project area. Turkey Run, a tributary of the Potomac River that is located to the east of this project site and crosses George Washington Memorial Parkway, has been designated a Threatened and Endangered Species Water due to the presence the Wood turtle. In addition, the Potomac River has been designated a Confirmed Anadromous Fish Use Area.

8(c) Recommendations.

(i) Little Brown Bat and Tri-Colored Bat

DWR recommends that the Final EIS consider potential impacts upon these species. In addition, FHWA should adhere to a time-of-year restriction on tree removal and timbering from April 1 through October 31 in areas of suitable roosting habitat (forest) or that such areas be assessed or surveyed for roosting sites. The assessments should be provided to DWR for further review.

(ii) Wood Turtle

DWR recommends that the Final EIS address the potential presence of the Wood turtle and its habitat within the project area. In addition, DWR recommends the following for the protection of the Wood turtle:

- Adhere to a time-of-year restriction for instream work from October 1 through March 31 of any year.
- Adhere to a time of year restriction from April 1 through September 30 of any year for work in uplands within 900 feet of a stream.
- Preserve at least 300 feet of undisturbed naturally vegetated buffer along the stream.

Additional information on the <u>Wood Turtle</u> may be found online on the DWR website.

DWR recommends that a formal habitat assessment be performed by a qualified biologist which clearly depicts, via narrative and photographic description, all stream and upland habitats along the tributary to Stony Run. The habitat assessment should be made available to DWR for review. Upon review, DWR will make final comments regarding protection of the Wood turtle associated with this project.

DWR recommends that, prior to construction, contractors should be made aware of the possibility of encountering Wood turtle on site and become familiar with its appearance, status and life history. Attached is an appropriate information sheet/field observation form for distribution to contractors. If Wood turtles are encountered and are in jeopardy during construction, remove them from immediate harm. If there is staff on site with an appropriate Threatened and Endangered Species Scientific Collection Permit, relocate

encountered Wood turtles to suitable habitat, preferably within the nearest perennial stream. Relocations should be reported to DWR.

(iii) Potomac River

DWR recommends the implementation of the following measures for proposed instream work.

- Adhere to a time-of-year restriction from February 15 through June 30 of any year.
- Conduct instream activities during low or no-flow conditions.
- Use non-erodible cofferdams or turbidity curtains to isolate the construction area.
- Block no more than 50% of the streamflow at any given time (minimal overlap of construction footprint notwithstanding).
- Stockpile excavated material in a manner that prevents reentry into the stream.
- Restore original streambed and streambank contours.
- Revegetate barren areas with native vegetation.
- Implement strict erosion and sediment control measures.
- Designed and perform instream work in a manner that minimizes impacts upon natural streamflow and movement of resident aquatic species.
- Use a dam and pump-around for as limited a time as possible and return water to the stream free of sediment and excess turbidity.
- Use matting made from natural/organic materials such as coir fiber, jute, and/or burlap to minimize potential wildlife entanglements resulting from use of synthetic/plastic erosion and sediment control matting.
- Install concrete (e.g. Tremie method, grout bags, and poured concrete) "in the dry," allowing all concrete to harden and cure prior to contact with open water to minimize harm to the aquatic environment and organisms.
- Construct stream crossings via clear-span bridges due to the future maintenance costs associated with culverts and the loss of riparian and aquatic habitat. If this is not possible, countersink culverts below the streambed at least 6 inches or use bottomless culverts to allow passage of aquatic organisms.
- Install floodplain culverts to carry bankfull discharges.

(iv) General Protection of Wildlife Resources

DGIF offers the following recommendations to minimize overall impacts to wildlife and natural resources from the construction of linear road projects.

- Avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable.
- Maintain naturally vegetated buffers of at least 100 feet in width around wetlands and on both sides of perennial and intermittent streams, where practicable.
- Conduct significant tree removal and ground clearing activities outside of the

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- Performance of ecological resource surveys for each of these stream corridors, the Scotts Run Nature Preserve, and the George Washington Memorial Parkway.
- Assessment of the environmental services and the economic, social, and health benefits of the urban forest that would be lost due to the clearing associated with this project, as well as compensation for these impacts.
- Reforestation of all disturbed areas with commitments to compensation, soil rebuilding, and the restoration of native plant communities.
- Integration of invasives control throughout the project area.
- Clarification of the current status of and expectations regarding noise mitigation, to include potential barrier locations and design details.

For additional information regarding the county's comments, contact Fairfax DPD, Joseph Gorney at (703) 324-1380 or joseph.gorney@fairfaxcounty.gov.

15. Pollution Prevention. DEQ advocates that principles of pollution prevention and sustainability be used in all construction projects as well as in facility operations. Effective siting, planning, and on-site BMPs will help to ensure that environmental impacts are minimized. However, pollution prevention and sustainability techniques also include decisions related to construction materials, design, and operational procedures that will facilitate the reduction of wastes at the source.

15(a) Recommendations. We have several pollution prevention recommendations that may be helpful in the construction and operation of this project:

- Consider development of an effective Environmental Management System (EMS). An effective EMS will ensure that the proposed facility is committed to minimizing its environmental impacts, setting environmental goals, and achieving improvements in its environmental performance. DEQ offers EMS development assistance and it recognizes facilities with effective Environmental Management Systems through its Virginia Environmental Excellence Program (VEEP). VEEP provides recognition, annual permit fee discounts, and the possibility for alternative compliance methods.
- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts.
- Consider contractors' commitment to the environment (such as an EMS) when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.
- Integrate pollution prevention techniques into the facility maintenance and operation. Maintenance facilities should be designed with sufficient and suitable space to allow for effective inventory control and preventative maintenance.

DEQ's Office of Pollution Prevention provides information and technical assistance relating to pollution prevention techniques and EMS. For more information, contact

DEQ's Office of Pollution Prevention, Meghann Quinn at (804) 698-4021 or <u>meghann.quinn@deq.virginia.gov</u>.

REGULATORY AND COORDINATION NEEDS

1. Surface Waters and Wetlands. Surface water and wetland impacts associated with the Preferred Alternative may require VWP Permit authorization from DEQ pursuant to Virginia Code §62.1-44.15:20. A Joint Permit Application may be obtained from and submitted to the VMRC which serves as a clearinghouse for the joint permitting process involving the VMRC, DEQ, Corps, and local wetlands boards. For additional information and coordination, contact DEQ-OWSP, Michelle Henicheck at (804) 698-4007 or <u>michelle.henicheck@deq.virginia.gov</u>.

2. Erosion and Sediment Control and Stormwater Management.

2(a) Erosion and Sediment Control and Stormwater Management. Construction in Virginia must comply with the Virginia Erosion and Sediment Control Law (Virginia Code § 62.1-44.15:61) and *Regulations* (9 VAC 25-840-30 *et seq*.) and Stormwater Management Law (Virginia Code § 62.1-44.15:31) and *Regulations* (9 VAC 25-870-210 *et seq*.) as administered by DEQ. Activities that disturb 2,500 square feet or more in CBPAs would be regulated by *VESCL&R* and *VSWML&R*. Erosion and sediment control, and stormwater management requirements should be coordinated with DEQ-NRO, Kelly Vanover at (804) 837-1073 or kelly.vanover@deq.virginia.gov.

2(b) General Permit for Stormwater Discharges from Construction Activities (VAR10). For land-disturbing activities of equal to or greater than one acre, the applicant is required to apply for registration coverage under the Virginia Stormwater Management Program General Permit for Discharges of Stormwater from Construction Activities (9 VAC 25-880-1 *et seq.*). Specific questions regarding the Stormwater Management Program requirements should be directed to DEQ-NRO, Kelly Vanover at (804) 837-1073 or kelly.vanover@deq.virginia.gov.

3. Chesapeake Bay Preservation Areas. Construction must comply with the requirements of the Bay Act (Virginia Code §§ 62.1-44.15:67 through 62.1-44.15:78) and *Regulations* (9 VAC 25-830-10 *et seq.*) as administered by DEQ. The construction, installation, operation, and maintenance of public roads in RPA are conditionally exempt under 9 VAC-25-830-150.B.1 of the *Regulations*. For additional information and coordination, contact the DEQ-OWLGAP, Daniel Moore at (804) 698-4520 or daniel.moore@deq.virginia.gov.

4. Air Quality Regulations. The Proposed Alternatives are subject to air regulations administered by DEQ. The following sections of the Code of Virginia and Virginia Administrative Code are applicable:

• asphalt paving operations (9 VAC 5-45-780 et seq.);

- fugitive dust and emissions control (9 VAC 5-50-60 et seq.); and
- open burning restrictions (9 VAC 5-130).

Contact Fairfax County fire officials for information on any local requirements pertaining to open burning. For more information and coordination contact DEQ-NRO, Justin Wilkinson at (703) 583-3820 or justin.wilkinson@deq.virginia.gov.

5. Solid and Hazardous Wastes. All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations. For additional information concerning location and availability of suitable waste management facilities in the project area or if free product, discolored soils, or other evidence of contaminated soils are encountered, contact DEQ-NRO, Richard Doucette at (703) 583-3813 or <u>richard.doucette@deq.virginia.gov</u>.

5(a) Asbestos-Containing Material. The owner or operator of a demolition activity, prior to the commencement of the activity, is responsible to thoroughly inspect affected structures for the presence of asbestos, including Category I and Category II nonfriable asbestos containing material (ACM). Upon classification as friable or non-friable, all waste ACM shall be disposed of in accordance with the Virginia Solid Waste Management Regulations (9 VAC 20-80-640), and transported in accordance with the Virginia regulations governing Transportation of Hazardous Materials (9 VAC 20-110-10 et seq.). Contact the DEQ-NRO, Richard Doucette at (703) 583-3813 or richard.doucette@deq.virginia.gov and the Department of Labor and Industry, Doug Wiggins (540) 562-3580 ext. 131 for additional information.

5(b) Lead-Based Paint. Construction must comply with the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) regulations, and with the Virginia Lead-Based Paint Activities Rules and Regulations. For additional information regarding these requirements contact the Department of Professional and Occupational Regulation at (804) 367-8500.

5(c) Petroleum Contamination. In accordance with Virginia Code §§ 62.1-44.34.8 through 9 and 9 VAC 25-580-10 *et seq.*, site activities involving excavation or disturbance of petroleum contaminated soils and or groundwater must be reported to DEQ-NRO, Randy Chapman at (703) 583-3816 or <u>randy.chapman@deq.virginia.gov</u>.

5(d) Petroleum Storage Tank Compliance and Inspection. The installation and use of an AST of greater than 660 gallons for temporary fuel storage of more than 120 days must comply with the requirements in 9 VAC 25-91-10 *et seq*. Contact DEQ-NRO, Riaz Syed at (703) 583-3915 or <u>riaz.syed@deq.virginia.gov</u>.

6. Natural Heritage Resources.

6(a) Natural Heritage Resources Inventory. Contact Natural Heritage Chief Biologist, Anne Chazal at (804) 786-9014 or <u>anne.chazal@dcr.virginia.gov</u>, to discuss conducting

a natural heritage resources survey within areas proposed for disturbance, including stormwater management ponds and equipment staging areas. With the survey results DCR can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

6(b) Ecological Cores. Additional information on minimizing the deleterious effects of fragmentation of the ecological core may be obtained by contacting DCR-DNH, Rene Hypes at (804) 371-2708 or rene.hypes@dcr.virginia.gov.

6(c) Natural Heritage Resources Update. Contact DCR-DNH, Rene Hypes at (804) 371-2708 or <u>rene.hypes@dcr.virginia.gov</u>, to secure updated information on natural heritage resources if the scope of the project changes and/or six months pass before the project is implemented, since new and updated information is continually added to the Biotics Data System.

7. Wildlife Resources and Protected Species

7(a) Wood Turtle. Contact DWR's Herpetologist, John (J.D.) Kleopfer at (804) 829-6703 or john.kleopfer@dwr.virginia.gov to further discuss a formal habitat assessment at all stream and upland habitats along the tributary to Stony Run. The habitat assessment should reference ESSLog#40764 and be made available to DWR for review. In addition, Wood Turtle relocations should be reported to DWR, J.D. Kleopfer, and Wood Turtle observation forms should be faxed to (804) 829-6788.

7(b) General Protection of Wildlife Resources. Contact DWR, Amy Ewing at (804) 367-2211 or may.ewing@dwr.virginia.gov for the development of project-specific measures to minimize project impacts upon wildlife resources.

8. Historic and Archaeological Resources. The FHWA must continue to consult with DHR under Section 106 NHPA. For additional information and coordination, contact DHR, Marc Holma at (804) 482-6090 or <u>marc.holma@dhr.virginia.gov</u>.

9. Recreational Resources. Under § 6(f) (3) of the Land and Water Conservation Fund Act, no property acquired or developed with assistance under LWCFA shall be converted to other than public outdoor recreation uses without the approval of the Secretary of the Interior. This also includes coordination with DCR-DPRR to confirm that the project will not impact Scotts Run Nature Preserve. Contact DCR-DPRR, Kristal McKelvey at or kristal.mckelvey@dcr.virginia.gov, for further information and coordination.

10. Floodplain Management. The Preferred Alternative must be implemented in compliance with Fairfax County's local floodplain ordinance. Local floodplain administrator contact information may be found on DCR's <u>Local Floodplain</u> <u>Management Directory</u>.

11. Federal Consistency under the CZMA. Pursuant to the Coastal Zone Management Act (CZMA) of 1972, as amended, FHWA is required to determine the consistency of its activities affecting Virginia's coastal resources or coastal uses with the Virginia Coastal Zone Management (CZM) Program (see section 307(c)(1) of the *Act* and 15 CFR Part 930, Subpart C, section 930.34). This involves an analysis of the activities in light of the <u>enforceable policies</u> of the Virginia CZM Program, and the submission of a consistency determination reflecting that analysis and committing the FHWA to comply with the enforceable policies. In addition, we encourage FHWA to consider the <u>Advisory Policies</u> of the Virginia CZM Program. Section 930.39 gives content requirements for the consistency determination, or you may also find guidance in DEQ's <u>Federal Consistency Information Package</u> on the agency's website.

Thank you for the opportunity to review the Draft Environmental Impact Statement for the I-495 & I-270 Managed Lanes Study in Fairfax County. Detailed comments of reviewing agencies are attached for your review. Please contact me at (804) 698-4204 or John Fisher at (804) 698-4339 for clarification of these comments.

Sincerely,

Bute Rafe

Bettina Rayfield, Program Manager Environmental Impact Review and Long-Range Priorities

Enclosures

Ec: Amy Ewing, DWR Robbie Rhur, DCR Arleen Warren, VDH Mark Eversole, VMRC Roger Kirchen, DHR Heather Williams, VDOT Denise James, Fairfax County Robert Lazaro, NVRC



ESSLog# 40764_20-103F_ManagedLanesStudy_DWR_AME20200812

1 message

 Ewing, Amy <amy.ewing@dwr.virginia.gov>
 Wed, Aug 12, 2020 at 11:25 AM

 To: John Fisher <john.fisher@deq.virginia.gov>
 Cc: John Kleopfer <john.kleopfer@dwr.virginia.gov>, Richard Reynolds <rick.reynolds@dwr.virginia.gov>

John,

We have reviewed the Virginia portion of the subject project that proposes upgrades to miles of interstate in Northern Virginia and Maryland. We document state Endangered Little Brown Bats and state Endangered Tri-colored Bats from the project area. We recommend that he EIS consider potential impacts upon these species. We typically recommend adherence to a time of year restriction on tree removal and timbering from April 1 through October 31 in areas of suitable roosting habitat (forest) or that such areas be assessed or surveyed for roosting sites and that such assessments be provided to us for further review.

We also document state Threatened Wood Turtles from the project area. Turkey Run, a tributary of the Potomac River that is located to the east of this project site and crosses George Washington Memorial Parkway has been designated a Threatened and Endangered Species Water due to the presence of this species. We recommend that EIS address the potential presence of Wood Turtles and their habitats within the project area. Our typical recommendations for the protection of Wood Turtles and their habitats associated with construction activities are the following. If presence is determined, these and/or other measures may be recommended:

<u>Standard recommendations for protection of Wood Turtles associated with construction activities</u>: We recommend that all instream work adhere to a time of year restriction from October 1 through March 31 of any year. We recommend that any work in uplands within 900 ft of the stream adhere to a time of year restriction from April 1 through September 30 of any year. In addition, we recommend preservation of an at least 300-ft undisturbed naturally vegetated buffer along the stream.

<u>Habitat Assessment (formal)</u>: The habitat assessment should be performed by a qualified biologist and should clearly depict, via narrative and photographic description, all stream and upland habitats along the tributary to Stony Run located on site. This habitat assessment should be made available to Amy Ewing in DWR's Headquarters office in Henrico and John (JD) Kleopfer in DWR's Charles City office for review. The habitat assessment and associated correspondence should reference the five-digit ESSLog# in the subject line of this email. Upon review of the habitat assessment, we will make final comments regarding protection of Wood Turtles associated with this project.

<u>Education of contractors</u>: We recommend that prior to the commencement of work all contractors associated with work at this site be made aware of the possibility of encountering Wood Turtles on site and become familiar with their appearance, status and life history. An appropriate information sheet / field observation form to distribute to contractors and employees is attached. If any Wood Turtles are encountered and are in jeopardy during the development or construction of this project, remove them from immediate harm and call DWR's Herpetologist, John (J.D.) Kleopfer at 804-829-6703. If staff on site hold an appropriate Threatened and Endangered Species Scientific Collection Permit, this staff member may relocate Wood Turtles out of harm's way and into suitable habitat, preferably within the nearest perennial stream. Any relocations should be reported to J.D. Kleopfer and the wood turtle observation form should be completed and faxed to JD at 804-829-6788.

Further information about wood turtles can be found online at: https://www.DWR.virginia. gov/wildlife/information/wood-turtle/

The Potomac River has been designated a Confirmed Anadromous Fish Use Area. If instream work in this river is necessary, we recommend that such work adhere to a time of year restriction from February 15 through June 30 of any year.

We recommend conducting any in-stream activities during low or no-flow conditions, using non-erodible cofferdams or turbidity curtains to isolate the construction area, blocking no more than 50% of the streamflow at any given time (minimal overlap of construction footprint notwithstanding), stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas with native vegetation, and implementing strict erosion and sediment control measures. We recommend that instream work be designed and performed in a manner that minimizes impacts upon natural streamflow and movement of resident aquatic species. If a dam and pump-around must be used, we recommend it be used for as limited a time as possible and that water returned to the stream be free of sediment and excess turbidity. To minimize potential wildlife entanglements resulting from use of synthetic/plastic erosion and sediment control matting, we recommend use of matting made from natural/organic materials such as coir fiber, jute, and/or burlap. To minimize harm to the aquatic environment and its residents resulting from use of the Tremie method to install concrete, installation of grout bags, and traditional pouring of concrete, we recommend that such activities occur only in the dry, allowing all concrete to harden and cure prior to contact with open water. Due to future maintenance costs associated with culverts, and the loss of riparian and aquatic habitat, we prefer stream crossings to be constructed via clear-span bridges. However, if this is not possible, we recommend countersinking any culverts below the streambed at least 6 inches, or the use of bottomless culverts, to allow passage of aquatic organisms. We also recommend the installation of floodplain culverts to carry bankfull discharges.

To minimize the adverse impacts of linear utility/road project development on wildlife resources, we offer the following general recommendations: avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable; maintain naturally vegetated buffers of at least 100 feet in width around wetlands and on both sides of perennial and intermittent streams, where practicable; conduct significant tree removal and ground clearing activities outside of the primary songbird nesting season of March 15 through August 15; and, implement and maintain appropriate erosion and sediment controls throughout project construction and site restoration. To minimize potential wildlife entanglements resulting from use of synthetic/plastic erosion and sediment control matting, we recommend use of matting made from natural/organic materials such as coir fiber, jute, and/or burlap. We understand that adherence to these general recommendations may be infeasible in some situations. We are happy to work with the applicant to develop project-specific measures as necessary to minimize project impacts upon the Commonwealth's wildlife resources.

This project is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding protection of these resources.

Thanks, Amy



Amy Martin Ewing

Environmental Services Biologist Manager, Wildlife Information P 804.367.2211 Virginia Department of Wildlife Resources CONSERVE. CONNECT. PROTECT. A 7870 Villa Park Drive, P.O. Box 90778, Henrico, VA 23228 www.VirginiaWildlife.gov

2 attachments

₩OTU_INfoSheet_DWR20200805.pdf 629K

WOTU_FieldObsForm_20200805.pdf



Wood Turtle: Glyptemys insculpta State Threatened

Field Observation Form

August 5, 2020

Note: The Wood Turtle is a protected species in Virginia. It is unlawful to harm, collect, possess and/or disturb these animals without a permit. Wood Turtles found within a project area uplands during construction should be moved out of immediate harm's way. Only appropriately permitting staff may move Wood Turtles to locations out of the project area, within the same watershed, approximately ¼ to ½ mile downstream of their original location. To apply for a permit please contact Shirl Dressler at 804-367-6913. **If you encounter a Wood Turtle, please provide the information requested below and mail or FAX this form to:**

> Virginia Department of Wildlife Resources Attn: John Kleopfer 3801 J.T. Memorial Highway Charles City, Virginia 23030 FAX 804-829-6788

If possible, send digital photos to: <u>John.Kleopfer@dwr.virginia.gov</u>

Distribution: Wood Turtles are found primarily in the northeastern United States and parts of southeastern Canada, reaching the southern limit of its range in northern Virginia. In Virginia, it has been documented in Warren, Rockingham, Shenandoah, Frederick, Loudoun, Fairfax, Clark, and Page counties.

Species Description: Wood Turtles are a semi-aquatic turtle usually found in or near streams, but not in ponds, reservoirs, or lakes. The shell length of an adult Wood Turtle can reach 9 inches. The plastron (bottom-half of the shell) is NOT hinged and the carapace (top-half of the shell) is flattened. The legs and tail are usually reddish to orange in color. Females are sometimes less colorful.

Wood Turtles may be confused with Eastern Box Turtles (*Terrapene carolina carolina*). Eastern Box Turtles are mainly terrestrial and only seldom are found in water. Eastern Box Turtles have a high domed shell with a hinged plastron which allows for it to completely enclose itself. The shell length of an adult Eastern Box Turtle is rarely over 5 inches. See the following page for images and detailed descriptions of Wood Turtles and Eastern Box Turtles.

Your name: _____

TE Collection Permit#, if applicable:_____

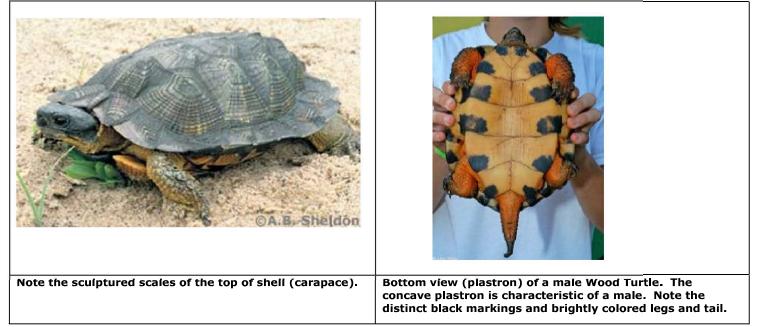
Your address:

Your phone number (optional): _____

Location of observation (GPS coordinates, nearest stream):_____

Comments: _____

WOOD TURTLE



EASTERN BOX TURTLE



The plastron of Eastern Box Turtles will often turn black.

Unlike Wood Turtles, Eastern Box Turtles can completely enclose themselves within their shell.



Wood Turtle: *Glyptemys insculpta* State Threatened



Note the sculptured scales of the top of shell (carapace).

Wood turtles are medium-sized (6-9" adult shell length) semi-terrestrial turtles found in streams or in riparian uplands on norther/northwestern Virginia. Their dull brown upper shell is very rough, and each section of the shell reflects growth rings that form an irregular



Bottom view (plastron) of a male Wood Turtle. The concaved plastron is characteristic of a male.

pyramid. There is great variation in this trait, however, and the upper shell of older turtles may appear smooth. The bottom shell is yellow with black marginal blotches. Wood turtles have a black head, and dark brown extremities with characteristic yellow to burnt-orange skin patches on the neck and leg sockets.

Wood Turtles overwinter instream in deep pools with sandy bottoms and under submerged roots, branches, or logs. During warmer months, they wander the uplands mate-seeking, nesting, and foraging. In Virginia, females typically lay clutches of 7-14 eggs. Hatchlings typically emerge from June through August.

The wood turtle eats both animal and plant food items, including berries, herbs, algae, moss, fungi, grass, insects, mollusks, earthworms, dead fish, tadpoles, newborn mice and other turtles' eggs. It will forage on the ground, in the water, in herbaceous vegetation, and on logs.

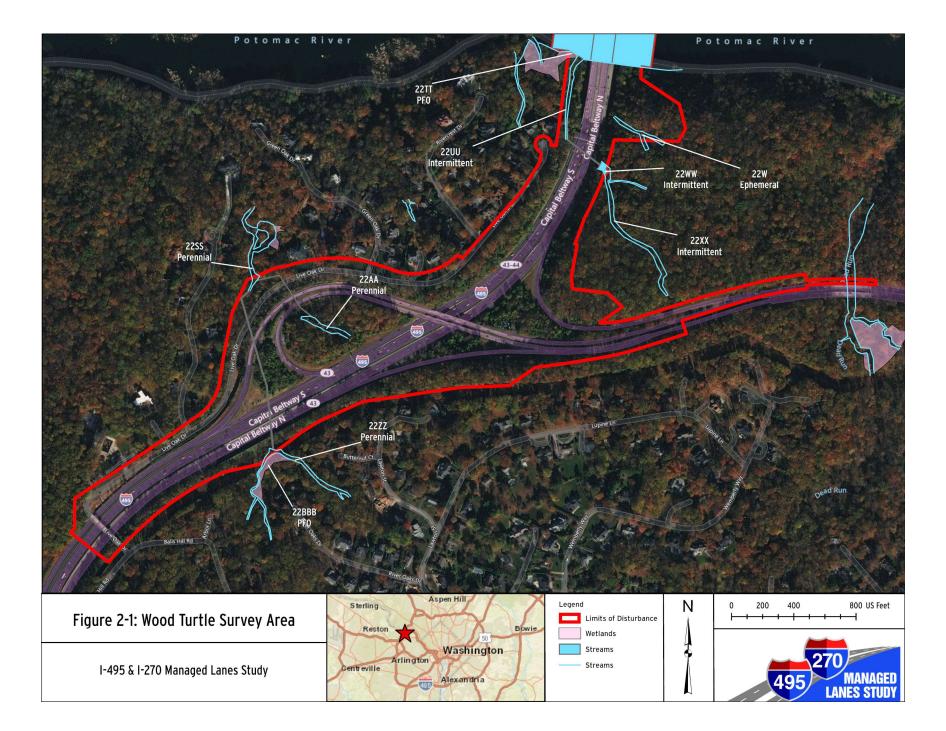
If you have any questions concerning Wood Turtles, please contact John Kleopfer, Virginia Department of Wildlife Resources, at 804-829-6703 or John.Kleopfer@dwr.virginia.gov.

The Wood Turtle is a protected species in Virginia. It is unlawful to HARM, COLLECT, OR POSSESS THESE TURTLES unless one is permitted to do so.

To apply for a permit please contact Shirl Dressler at 804-367-6913.



APPENDIX B: WOOD TURTLE SURVEY AREA MAP





APPENDIX C: LEAD BIOLOGIST RESUME

DEBORAH POPPEL SENIOR ENVIRONMENTAL SCIENTIST

YEARS OF EXPERIENCE: 29

EDUCATION: BS / Entomology & Applied Ecology / University of Delaware / 1991
MS/Applied Ecology & Conservation Biology/Frostburg State University/1997
AREAS OF EXPERTISE: Wetlands and Watercourses Permitting, Threatened & Endangered Species, NEPA, Project
Management
CERTIFICATION: Certified Wildlife Biologist (CWB [®])- The Wildlife Society
PA Fish and Boat Commission- Recognized, Qualified Eastern Redbelly Turtle Surveyor

Deborah Poppel is a Certified Wildlife Biologist with 29 years of professional experience, 24 of which have been as an environmental consultant. Ms. Poppel specializes in assisting clients with compliance under the Endangered Species Act, National Environmental Policy Act, and wetlands/water regulations. Her areas of expertise include management of multi-disciplinary environmental projects, particularly for linear projects such as natural gas pipelines, electric transmission lines & surface transportation. She is adept at assessing specific environmental permit needs and collaborating with regulatory agencies on efficient and timely project authorizations. Ms. Poppel is experienced with conducting wetland delineations, habitat assessments for species of concern, stream and wetland mitigation site selection, preparing/reviewing/editing technical reports, and engaging in agency consultations. In her career she has served as a project manager, department manager (natural resources), and technical practice group leader (protected species).

- Senior Biologist/Rare Species Consultation and Subcontractor Coordination, PennEast Pipeline, UGI- Pennsylvania. Coordinator for federal and state rare, threatened and endangered species surveys/consultations for new 100+ mile natural gas pipeline. Species of concern included bog turtle, Indiana bat, Northern long-eared bat, eastern small footed bat, Allegheny woodrat, timber rattlesnake, northern flying squirrel, and northeastern bulrush. Prepared impact assessment portion of draft applicant-prepared Biological Assessment submitted to USFWS under Section 7 of ESA.
- Broomall Lake Dam Removal, Media, PA. Project entailed trapping, netting, capture, and relocation of redbelly turtles and other turtles from a pond prior to a dewatering and dam removal project for the Pennsylvania Department of Environmental Protection.
- □ Woodlyn Crossing, Langhorne, PA. Project entailed trapping, netting, capture, and relocation of redbelly turtles and other turtles, herpetofauna, and fish from 2 ponds prior to a dewatering/dredging and restoration project for a homeowners association.
- Pleasant Hill Fish Hatchery, Philadelphia PA. Project entailed the restoration of a fish hatchery site at a public park in Northeast Philadelphia. As Qualified Redbelly Turtle Biologist, I supervised and assisted two other biologists with the netting, capture, and relocation of all fish, turtles, frogs and other aquatic life from 4 ponds during dewatering. One state endangered redbelly turtle was collected and safely removed to another pond at the park site. Numerous other turtles, frogs and fish were also relocated under the auspices of my PFBC scientific collection permit and threatened and endangered species permit.
- Task Manager, Terrestrial Studies- Conowingo Dam and Muddy Run Reservoir FERC Relicensing, Harford County, MD and York County, PA, Exelon. Assisted with the FERC relicensing of the Conowingo Hydroelectric Power and Muddy Run Reservoir projects. Coordinated with state and federal agencies related to technical studies and provided management



and study oversight for bald eagle, osprey, black-crown night heron, bog turtle, and green snake surveys. Conducted Phase I habitat assessments for bog turtle and prepared management plan for bog turtle that was located in project area.

- Project Biologist, SR 0032 Sect BRC, River Road over Delaware Canal, New Hope, Bucks County, PA, PennDOT District
 6. As a qualified eastern redbelly turtle surveyor, conducted pre-construction nesting surveys and nestling/hibernation emergence surveys for redbelly turtles at site of bridge replacement. Provided oversight for habitat protection fencing installation. Prepared compliance report for PennDOT and PFBC.
- Project Biologist, S.R. 1017, Sect. -1B, Bridgeton Hill Road over Delaware Canal, Bucks County, PA, PennDOT District 6. As a qualified eastern redbelly turtle surveyor, conducted habitat assessment and presence/absence surveys (visual and nesting) for this species in vicinity of proposed bridge replacement project. Conducted preconstruction surveys during dewatering activities. Prepared compliance report for PennDOT and PFBC.
- SR 422 Section SRB, PennDOT District 6-0, Montgomery County, PA: Project biologist; as a qualified eastern redbelly turtle surveyor conducted habitat assessments, coordination with PFBC, and developed a habitat mitigation plan for impacts to redbelly turtle related to replacement of bridge over Schuylkill River.
- SR 0078 Sect 12M, Interstate 78 Wetland Mitigation Project, PennDOT District 5-0, Berks County, PA: Project biologist; conducted redbelly turtle surveys, coordinated with District EM on PFBC consultation, and assisted with responses to comments on JPA and CEE. Developed measures associated with turtle habitat for wetland mitigation site.
- Langan Engineering, Site Redevelopment, Bucks County, PA. Conducted habitat assessment, nesting surveys, visual encounter surveys, and trapping surveys for Pennsylvania-endangered red-bellied turtle. Surveys were conducted on the former U.S. Steel property in Falls Township, PA. A variety of aquatic traps including hoop and basking traps were used, collecting several painted turtles but no red-bellied turtles.
- Multiple Clients (Duke, Williams, Conectiv, Phila Suburban, PECO, Columbia Gas, Toll Bros, Tennessee Gas), Bog Turtle Studies, PA, NJ, MD, DE. As USFWS-recognized, qualified bog turtle surveyor, conducted habitat assessments and presence-absence surveys for this federally-listed species in Pennsylvania, New Jersey, Delaware and Maryland for numerous clients/industries including natural gas, electric transmission, residential developments and golf courses. Identified new, previously undocumented locations of bog turtles in Chester County, PA. Participated in agency coordination meetings and consultations regarding minimizing project impacts on bog turtle habitats.
- Delaware Department of Transportation, Delaware. For the Delaware Department of Transportation new U.S. Route 301 project, conducted presence/absence surveys for bog turtle at three wetlands. Also conducted trapping surveys for bog turtles at two wetlands using drift fences and funnel traps. Supervised teams of biologists who assisted with both types of surveys.
- Williams Gas Pipeline, Trenton-Woodbury Lateral, Burlington County, New Jersey. Conducted visual and trapping surveys for federally-threatened bog turtle for Trenton-Woodbury Lateral in Burlington County, NJ. Provided environmental training to construction managers and environmental inspectors regarding compliance with threatened and endangered species regulations, specifically regarding the bog turtle and state-listed wood turtle. Conducted pre-construction surveys at wetland and creeks of concern for the turtles.
- Property Development Services, Residential Development, Jackson Township, New Jersey (Pinelands). Project Manager for northern pine snake studies (surveys, trapping) in the Pine Barrens region of New Jersey, subject to jurisdiction of Pinelands Commission. Developed survey methodology, obtained scientific collector's permit, provided oversight and field assistance for trapping surveys, and prepared final survey report. Part of scientific round-table committee for the development of standard survey protocols for threatened and endangered snakes in the Pinelands.



- Department of the Army, Endangered Species Management Plan, Picatinny Arsenal, New Jersey. Conducted surveys for bog turtles within 5-acre wetland on grounds of Picattiny Arsenal (Morris County, New Jersey). Results incorporated into endangered species management plan for bog turtles. Prepared other core elements of Picatinny Arsenal's "Endangered Species Management Plan for the Bog Turtle". Reviewed and assisted with preparation of final document approved by agencies.
- □ CJS Investments, Residential Development, Sussex County, NJ. Conducted surveys for bog turtles on a 70-acre site in Sussex County, NJ. Found state-endangered wood turtles mating within stream. Suitable habitat for bog turtle. Assisted client with consultations with USFWS and NJ Division of Fish and Wildlife regarding the required buffer width (transition area) around the wetlands on the site.
- □ Federal Bureau of Prisons, Prison Expansion, Victorville, California. Conducted USFWS protocol-level surveys for desert tortoise and burrowing owl at proposed federal correctional facility expansion site in Mojave Desert region. Prepared biological resources report for agency review. Managed the creation of artificial owl burrows as mitigation. Coordinated and led interagency meeting to facilitate approval of development project and mitigation plan.
- □ USDA NRCS/ Maryland DNR/ Frostburg State University, Bog Turtle Research, Harford County, Maryland. Surveyed for and marked 50 bog turtles at three sites in Harford County, Maryland. Determined turtle habitat use and movements with radio-telemetry. Characterized vegetation, soils, and hydrology of the wetlands they inhabit. Co-wrote grant proposal and preliminary report. Coordinated telemetry equipment acquisition. Helped install and sample groundwater-monitoring well. Interacted with private landowners, state and federal agency personnel on a regular basis.
- Masters Research, Diversity of Herpetofauna among three forest community types in Dorchester County, Maryland. Involved drift fence/funnel trap surveys of reptiles and amphibians in coastal Maryland.
- □ Conservancy of Southwest Florida, Sea Turtle Surveys, Naples, Florida. Sea Turtle Conservation Intern. Patrolled beaches of Key Island, day and night, for sea turtles throughout the nesting season. Responsibilities included tagging nesting turtles, taking measurements, building enclosures to protect nests in-situ from raccoon predation, occasional nest relocation, and distinguishing false crawls from nests. Trained in turtle and crawl/nest identification by Florida DEP. Compiled data for submission to Florida DEP's Index Beach Nesting Survey. Responded to calls from residents on Naples beaches regarding false crawls, nests, and hatchling rescue. Monitored nests throughout hatching season and was sole intern responsible for nest excavation following hatching, compilation of hatching data, and stranded hatchling releases. Wrote year-end report, including recommendations for improvements to management techniques.

Publications

Morrow, J.L., J.H. Howard, S.A. Smith, and D.K. Poppel. 2001. "Habitat Selection and Habitat Use by the Bog Turtle in Maryland". Journal of Herpetology, Vol. 35, No. 4, pp. 545-552.

J.L. Morrow, J.H. Howard, S.A. Smith, and D.K. Poppel. 2001. "Home Range and Movements of the Bog Turtle (Clemmys muhlenbergii) in Maryland". Journal of Herpetology, Vol. 35, No. 1, pp. 68-73



Chronology

1998-2000: Louis Berger & Associates, Inc.

2000-2008: ENSR

2008-2009: AECOM

2009-2014: URS

2014-2019: AECOM

Feb 2019-Present: RK&K

Specialized Training

40-Hour OSHA/HAZWOPER

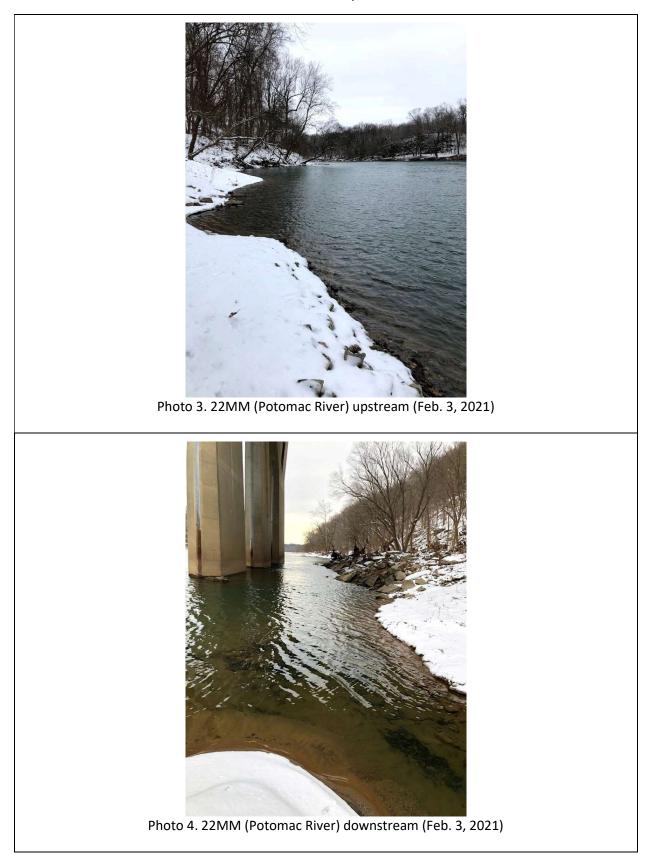




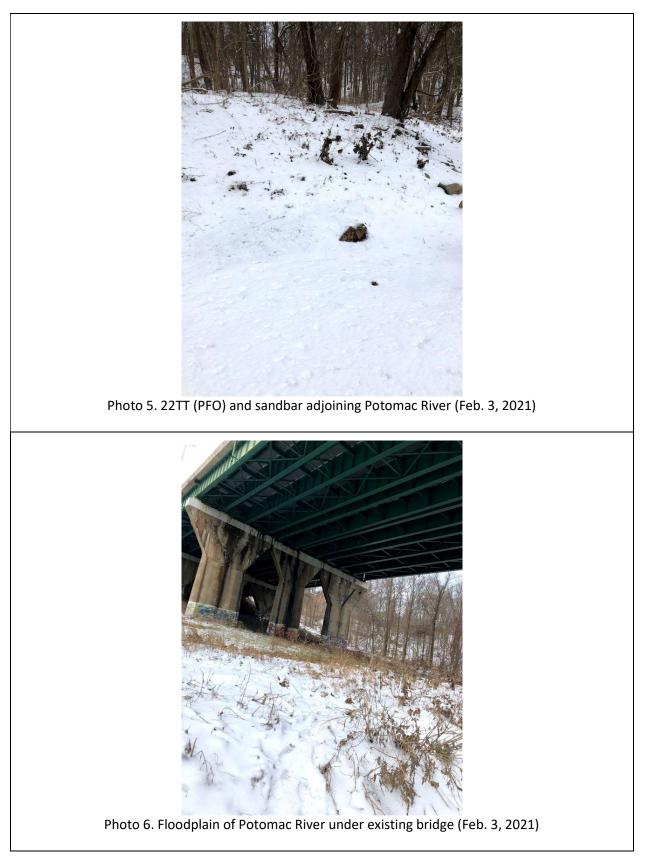
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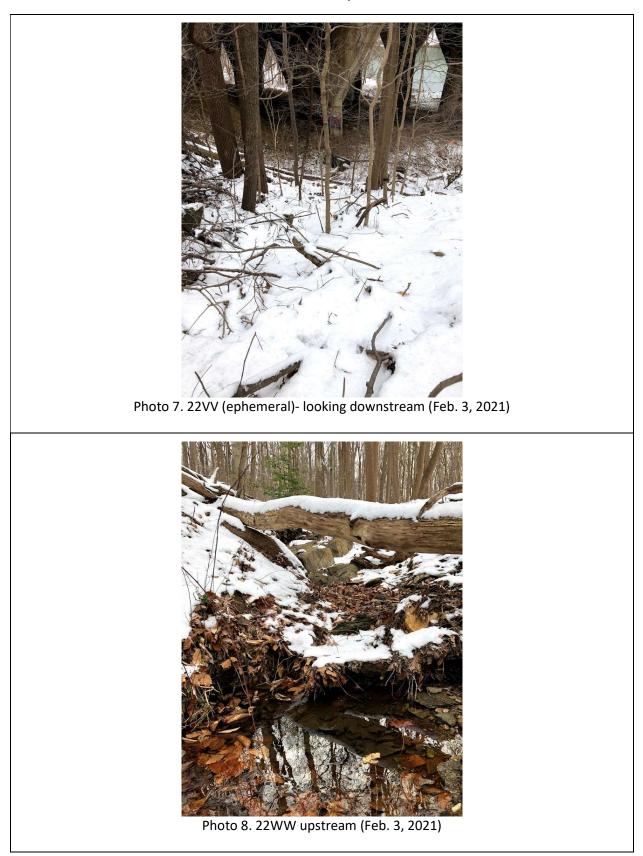




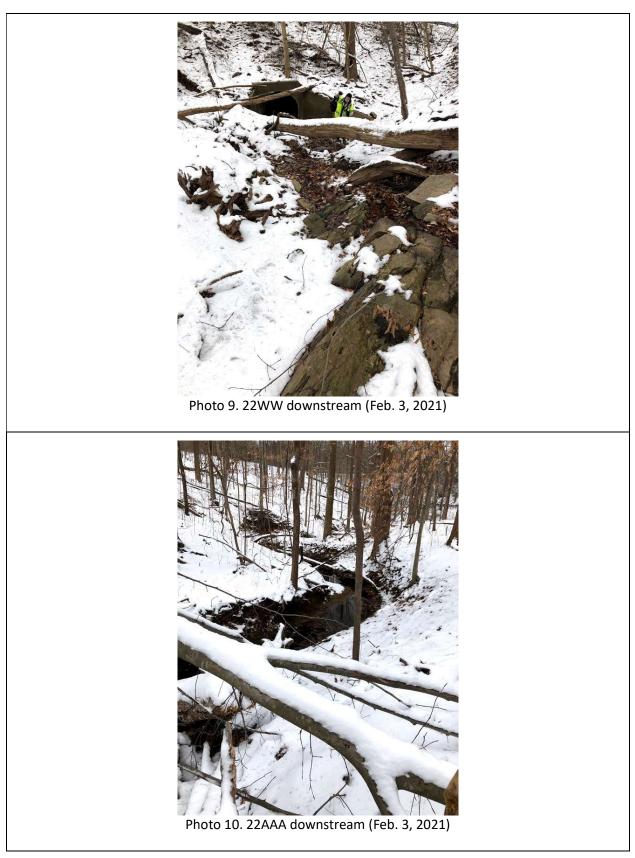




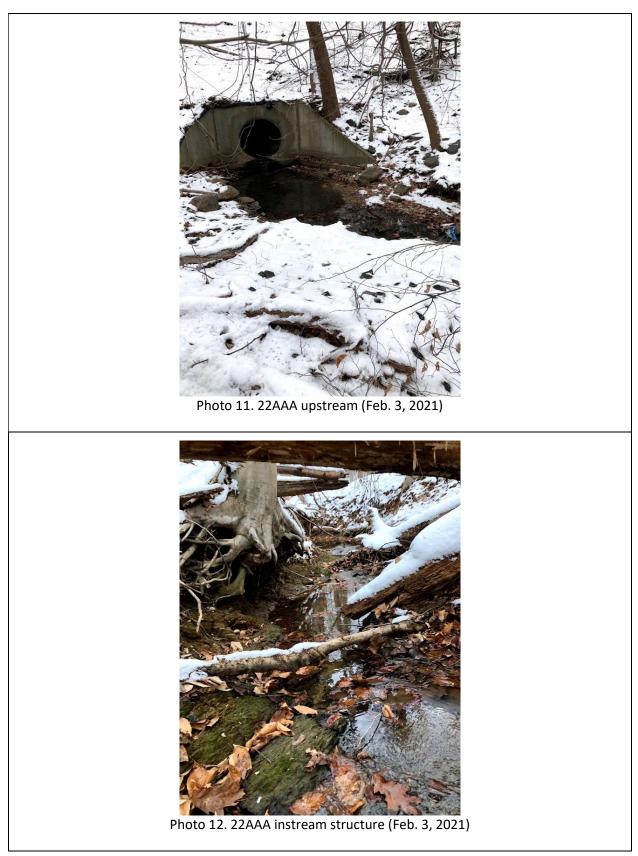




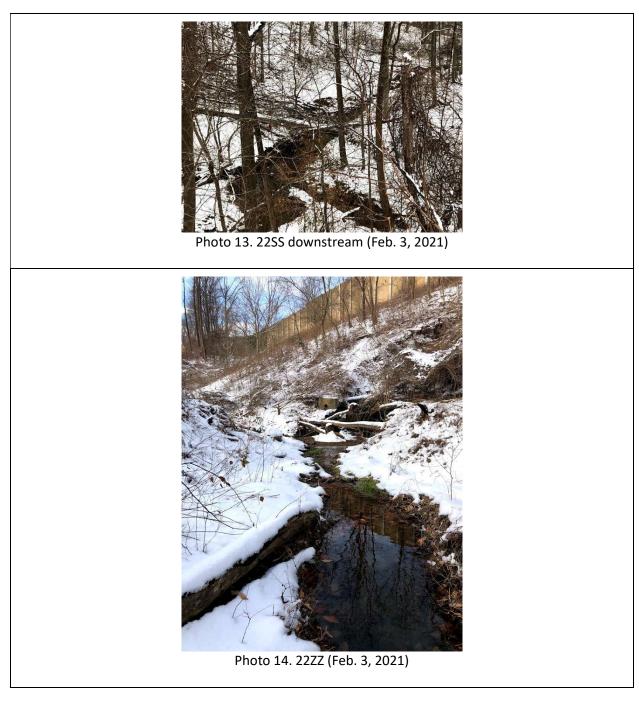












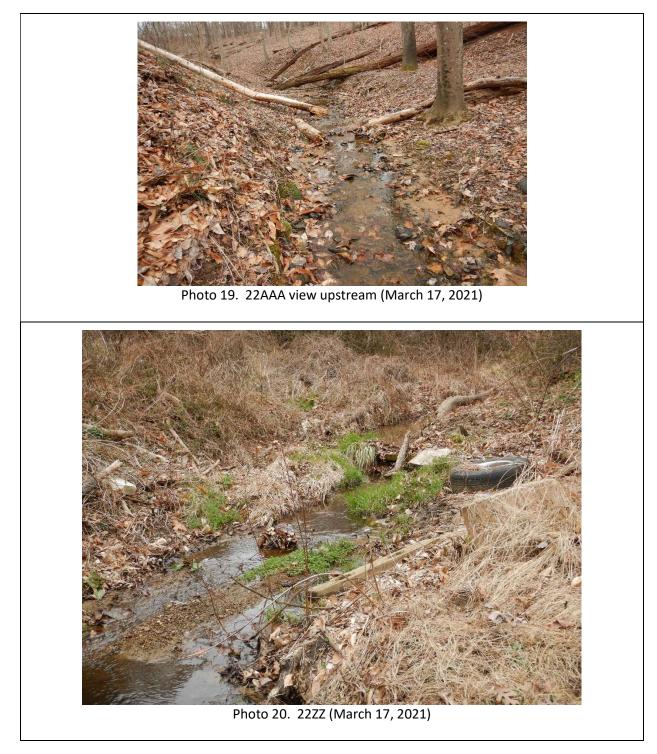




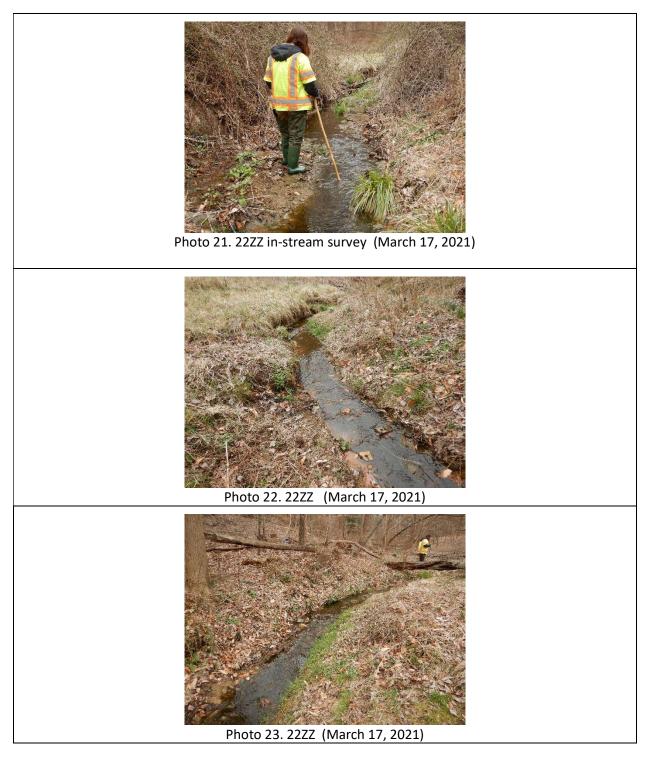














MLS Wood Turtle Survey- February and March 2021 Fairfax County, VA

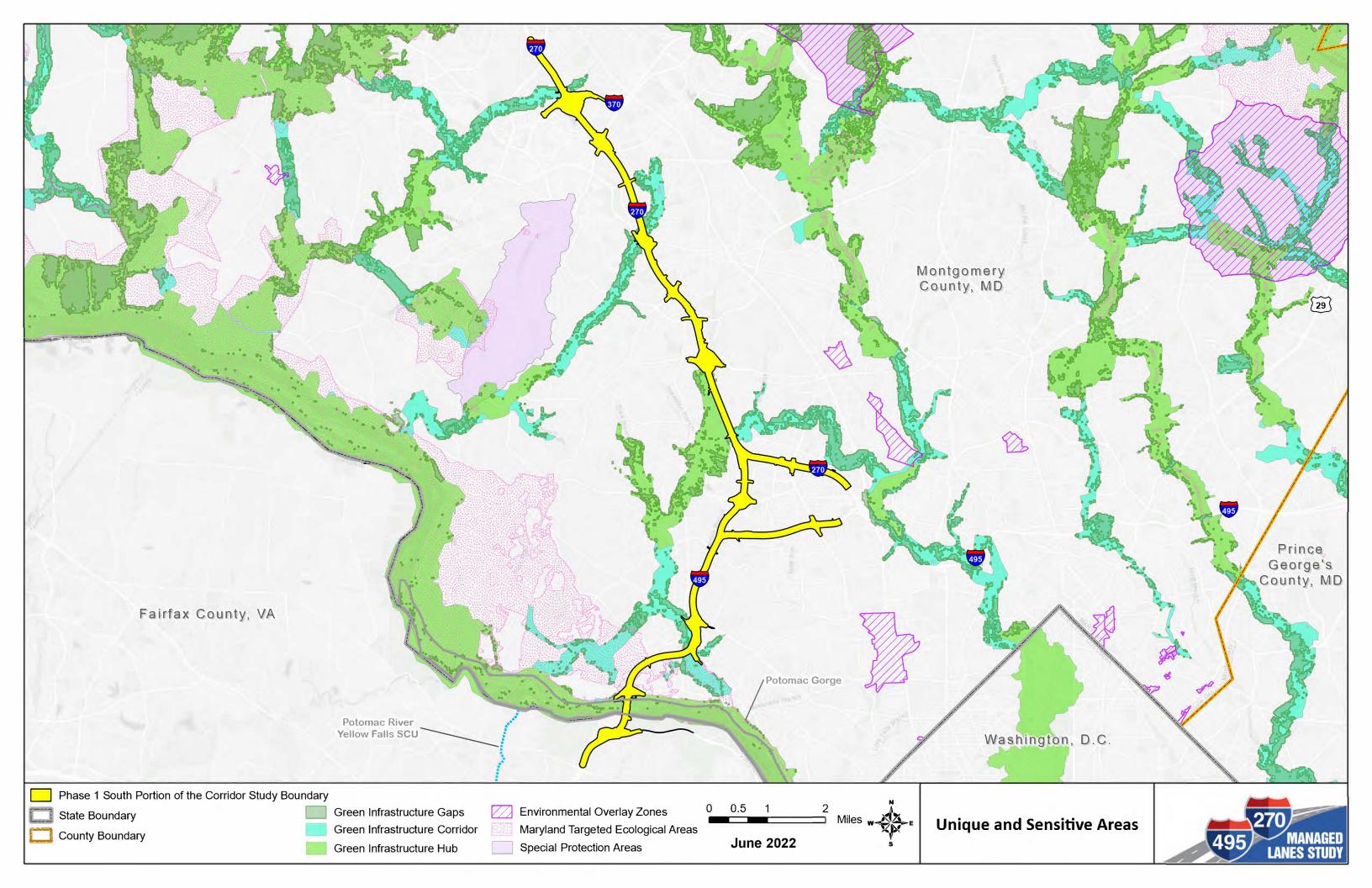


Photo 19. 22ZZ and adjoining PFO (March 17, 2021)





APPENDIX Q: UNIQUE AND SENSITIVE AREAS MAPS





APPENDIX R: RARE, THREATENED, AND ENDANGERED PLANT SPECIES SURVEYS

I-495 & I-270 Managed Lanes Study Montgomery & Prince George's County, Maryland

Rare, Threatened, and Endangered Plant Survey Report

Prepared for: Maryland Department of Transportation State Highway Administration

> Under Contract to: RKK 700 East Pratt Street, Suite 500 Baltimore, Maryland 21202

> > July 2019

Prepared by:



25 Old Solomons Island Road, Annapolis, Maryland 21401 phone (410) 956-9000 fax: (410) 956-0566

1

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APPENDICES

Appendix A – DNR-WHS Correspondence

Appendix B – Photographs

A. Introduction

The I-495 & I-270 Managed Lanes Study is being conducted to address major traffic congestion problems within the National Capital Region. As part of the environmental review process for the Maryland portion of the I-495 & I-270 Managed Lanes Study, coordination was initiated with the Maryland Department of Natural Resources, Wildlife and Heritage Service (DNR-WHS) regarding the potential presence of state-listed rare, threatened, or endangered (RTE) species within the corridor study boundary (CSB). The DNR-WHS sent a response letter dated July 17, 2018 that identified various potential RTE species within or adjacent to the CSB. The DNR-WHS then submitted a follow up letter dated September 11, 2018 that provided more detail about the potential RTE species surveys be completed for six state-listed plant species potentially occurring within the Potomac River floodplain and adjacent forested habitat. The DNR-WHS response letters are included in **Appendix A**. The six RTE plant species referenced in the DNR-WHS letter included the following:

<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>
Rumex altissimus	Tall Dock	Endangered
Paspalum fluitans	Horse-tail Paspalum	Endangered
Matelea obliqua	Climbing Milkweed	Endangered
Baptisia australis	Blue Wild Indigo	Threatened
Coreopsis tripteris	Tall Tickseed	Endangered
Phacelia covillei	Buttercup Scorpionweed	Endangered

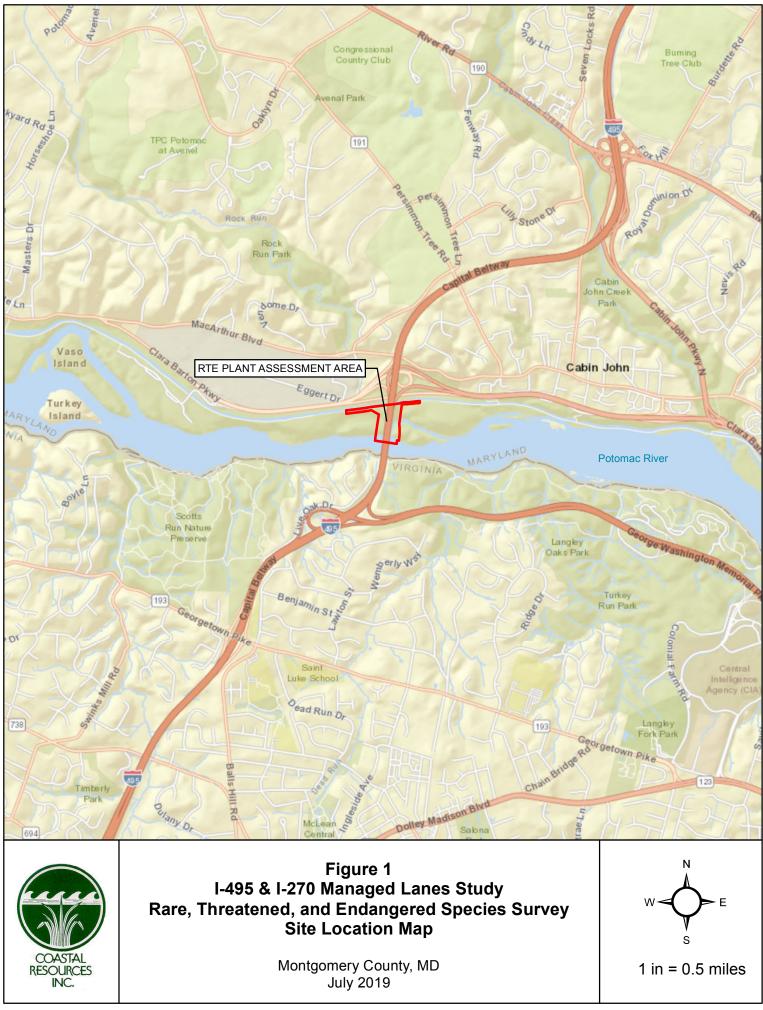
A meeting was then held with the DNR-WHS on September 14, 2018 to further discuss the recommended survey approach for the Maryland portion of the Potomac River floodplain and adjacent forested slopes.

This report summarizes the results of the RTE habitat assessment and targeted species survey for the above referenced species conducted by Coastal Resources, Inc. (CRI) within the Maryland portion of the I-495 & I-270 Managed Lanes Study.

B. Site Description

The limits of the RTE habitat assessment and targeted species survey were restricted to the I-495 & I-270 Managed Lanes Study corridor study boundary within forested habitat on terraces and slopes immediately above the Potomac River floodplain, the forested Potomac River floodplain itself, and the rocky shoreline of the Potomac River (**Figure 1**, Site Location Map).

Land use classifications within and adjacent to this portion of the study area include parkland, residential, forest, transportation, and wetlands. The study area occurs within the Potomac River MDE 8-digit watershed, along the fall line between the Atlantic Coastal Plain and Piedmont physiographic provinces. Within this area, several terrace levels occur above the Potomac River, rising to over 100 feet in elevation. The study area includes a portion of Plummers Island south of the American Legion Bridge and a small stream known as Rock Run Culvert. Exposed bedrock occurs on Plummers Island. Large boulders occur along the shoreline of the river.



C. Species Descriptions

Rumex altissimus Alph. Wood – Tall dock is a perennial herbaceous plant with a long tap root that grows up to 2 m tall. Leaves occur primarily along the stem, are ovate or oblong lanceolate, and grow to 15 cm long. Flowers are born on spikelike racemes up to 30 cm long. Habitat includes frequently flooded zones along rivers in sandy to gravelly alluvium. They can also occur within forested wetlands in muck soils. Their flowering period is from May to June or rarely July. The plants typically go to seed in August.

Paspalum fluitans (Elliott) Kunth – Horse-tail paspalum is an aquatic annual. Stems are soft and spongy and grow to a meter long. Plants submerged in water have elongate stems that are little branched. Plants that are growing more terrestrially often form mats. Leaves are lanceolate, up to 35 cm by 2 cm in size, and taper at both ends. Flowering spikelets occur in open panicles with up to 70 branches. Upper florets are white. Habitat includes floodplain seeps and pools with muck soils or seasonally exposed rocky stream channels. The flowering/fruiting period is late August through September or early October.

Matelea obliqua (Jacq.) Woodson – Climbing milkweed or angle-pod is a perennial herbaceous vine. Stems are hairy. Leaves are rounded with a pointed tip and a base that is somewhat heart shaped, growing up to 15 cm in length and 13 cm in width. The inflorescence is branched, often compound, and 10 to 50 flowered. Flowers are somewhat star shaped with purplish petals. Habitat includes bedrock scour and terrace woodlands in rich alluvium, upland forests, barrens, glades, clearings, and roadsides over limestone or shale substrates. The plants typically flower from June to July and are in fruit in September.

Baptisia australis (L.) R. Br. – Blue wild indigo is a perennial herb with ascending branches that can grow to over 1.5 m tall. Leaflets are small (3 cm by 7 cm), oblong, and have entire margins. Flower racemes are erect, terminal, and loosely flowered, growing to 40 cm tall. Flowers are blue and seed pods are pointed, somewhat inflated, and contain many small seeds. Habitat includes prairie-like scour bars and riverside prairies in rich alluvium. Flowering occurs in May and fruits are present from June to August.

Coreopsis tripteris L. – Tall tickseed is a perennial herb with long or short rhizomes. Stems are stout and up to 3 m tall. Leaves are numerous, grow mostly along the stem, and are divided into three to five leaflets. Flowers are yellowish and become tinted purple or deep red. Habitat includes bedrock scour bars and riverside prairies in rich alluvium. Flowering occurs in September and fruits are present from September through October.

Phacelia covillei S. Watson – Buttercup scorpionweed is a short, hairy annual or biennial. Stems are weak, spreading, and up to 20 cm long. The oblong leaves are pinnate and deeply divided into one to six segments, the terminal segment often with three lobes. The inflorescence is also sparsely hairy and is comprised of five blue petals. Seed capsules are 4-6 mm in diameter, rounded, and contain four seeds. Habitat includes rich floodplain and terrace and ravine forests and mesic upland woods. Flowering typically occurs from late March to April with fruits present in May.

D. Methodology

The survey entailed both background research and field investigations. The objective of the survey was to assess the presence or absence of suitable habitat for the subject species within the study area and to attempt to locate those target species possibly visible during the time of the survey. Background research included review of standard botanical references to determine identifying and habitat characteristics of targeted species. References used included Brown and Brown (1984), Gleason and Cronquist (1991), Holmgren (1998), and Weakley et al. (2012).

Two qualified observers traversed the study area described above looking for the presence of suitable habitat for the target species. The observers also searched for evidence of the six target species, though the buttercup scorpionweed may have already senesced by the time of the survey and the horse-tail paspalum is a late summer species. Survey time was recorded in fifteen-minute increments. For any confirmed element occurrences, population limits were surveyed using a handheld Global Positioning System (GPS). GPS survey locations were recorded around the perimeter of each population cluster, and the numbers of individual plants of the identified targeted species were counted or estimated for each population encountered.

E. Results

The field investigation was conducted on June 25 and July 10, 2019. The total time of the field survey was 9 hours. None of the targeted RTE plant species were found during the field survey. Suitable habitat for some of the RTE plant species was observed within the study area and are depicted on **Figure 2**, **Photo Location & Suitable Habitat Area Map**. The following is a brief description of the suitable habitat areas identified during the field survey.

Upland Terrace Forest

Mesic upland terrace forest habitat was present throughout much of the study area. This habitat lies along the proposed access areas abutting the C & O Canal Towpath and along the eastern and western sides of the American Legion Bridge. While DNR-WHS identified this habitat as being suitable to support the climbing milkweed and buttercup scorpionweed, most of the upland terrace forest habitat within the study area was comprised of a dense invasive groundcover, vine, and shrub layer that degrades the habitat sufficiently to render it unsuitable for these species. Common invasive shrub, vine, and understory plants included bush honeysuckle (*Lonicera* sp.), Asian bittersweet (*Celastrus orbiculatus*), Japanese stilt grass (*Microstegium vimineum*) and ground ivy (*Glechoma hederacea*).

One small area of upland terrace forest south of the C & O Canal Towpath east of I-495 and a larger area just west of the American Legion Bridge had a sparse native understory and mature canopy layer and was identified as being suitable habitat for the two RTE plants (**Figure 2**). Common canopy trees within the suitable habitat area along the C & O Canal Towpath included white oak (*Quercus alba*) and common hackberry (*Celtis occidentalis*). Common canopy trees within the other suitable habitat area included American sycamore (*Platanus occidentalis*), pignut hickory (*Carya glabra*), and tuliptree (*Liriodendron tulipifera*). Common saplings and shrubs within both habitat areas included common pawpaw (*Asimina triloba*). Common groundcover plants within the habitat adjacent to the C & O Canal Towpath included partridge-berry (*Mitchella repens*). Common groundcover plants within the area west of the American Legion Bridge

included Pennsylvania sedge (*Carex pensylvanica*) and kidney-leaf white violet (*Viola renifolia*). Invasive groundcover was absent within the smaller habitat area adjacent to the C & O Canal Towpath. Invasive groundcover comprised about 25 percent of the habitat west of the American Legion Bridge. Invasive species present included Japanese stilt grass, Asian bittersweet, and garlic-mustard (*Alliaria petiolate*).

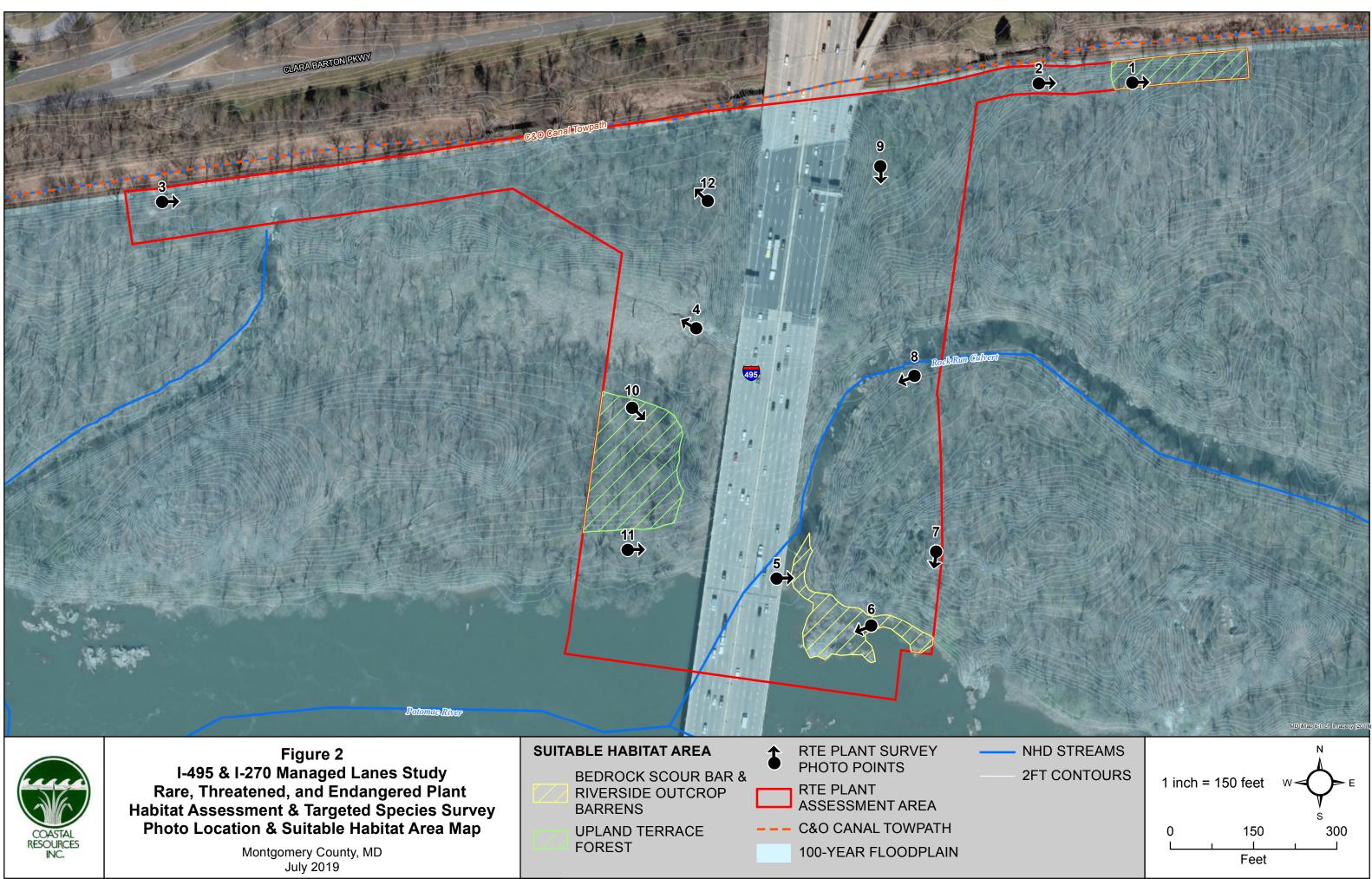
Bedrock Scour Bar and Riverside Outcrop Barrens

Small areas of bedrock scour bar habitat were present along the shoreline of the Potomac River beneath the American Legion Bridge and downstream to the edge of the CSB (**Figure 2**). These areas occurred with riverside outcrop barren habitat that was present on large boulders along the shoreline. Most of the scour bar areas were rocky and had very little soil. However, a few areas along the river edge had enough soil for vegetation growth. According to the DNR-WHS, this habitat is suitable for blue wild indigo, tall tickseed, tall dock, and perhaps horse-tail paspalum. Within the CSB, this habitat was observed to support various seedling trees, including ash-leaf maple (*Acer negundo*), silver maple (*Acer saccharinum*), and American sycamore. Few herbaceous plants were observed, the most common being common morning-glory (*Ipomoea purpurea*). Sparse herbaceous vegetation occurred on the riverside outcrop barrens habitat, including sapling American sycamore and sticky goldenrod (*Solidago racemose*). While this area was considered marginally suitable habitat for some of the listed plant species, the apparent higher frequency of flooding in this location makes it less likely to support these species.

F. Conclusions

Field surveys were conducted in late June and early July to assess the potential presence of suitable habitat for six state-listed plant species documented along and adjacent to the Potomac River near the I-495 & I-270 Managed Lanes Study CSB. Based on flowering phenology, a targeted species survey was also completed for four of the six species, including tall dock, climbing milkweed, tall tickseed, and blue wild indigo. Marginally suitable habitat for the climbing milkweed and the buttercup scorpionweed was found within upland terrace forest in two locations within the CSB, one just south of the C & O Canal Towpath and the other just west of the American Legion Bridge. Neither of these species were observed during the field survey. Marginally suitable habitat was also found for tall dock, tall coreopsis, wild blue indigo, and horse-tail paspalum within bedrock scour bar/riverside outcrop barrens habitat, though the scour areas appear to be too frequently disturbed and the outcrop barrens devoid of sufficient soil to support these plants. None of these four species were found during the survey.

The proposed I-495 & I-270 Managed Lanes Study limits of disturbance for Alternatives 8/9/10/13B/13C slightly overlap these marginally suitable habitat areas. However, it is not likely that these areas support any of the listed RTE species, as none were found during the targeted field survey and the habitats along the Potomac River do not exactly match those described for the species. The buttercup scorpionweed is a weak plant that flowers in early spring. It likely would not still be visible during the late June and early July survey period. A followup survey during spring may be necessary to completely rule out the potential presence of this species within the upland terrace forest habitat areas.



G. References

- Brown, M. L. and R. G. Brown. 1984. Herbaceous Plants of Maryland. Port City Press, Baltimore, Maryland.
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- Weakley, A. S., J. C. Ludwig, and J. F. Townsend. 2012. Flora of Virginia. Bland Crowder, ed. Foundation of the Flora of Virginia Project Inc., Richmond. Fort Worth: Botanical Research Institute of Texas Press.

Appendix A

MDNR Correspondence



July 17, 2018

MEMO To: Gwen Gibson, IPR

From: Lori Byrne, WHS

RE: Environmental Review for I-270/I-495 Managed Lane Study - AW073A11 Montgomery & Prince George's Counties

The Wildlife and Heritage Service has determined that there are the following areas of concern in regard to potential impacts to rare, threatened or endangered species, in the study corridor that you have provided:

In the area of the project route crossing of the Potomac River, there are records for these RT&E species occurring within close proximity where they may be directly impacted by this project:

Scientific Name	Common Name	State Status
Rumex altissimus	Tall Dock	Endangered
Paspalum fluitans	Horse-tail Paspalum	Endangered
Matelea obliqua	Climbing Milkweed	Endangered
Baptisia australis	Blue Wild Indigo	Threatened
Coreopsis tripteris	Tall Tickseed	Endangered
Phacelia covillei	Buttercup Scorpionweed	Endangered

Near Sellman Road there is a meadow habitat within a powerline right-of-way that is known to support occurrences of state-listed threatened Sundial Lupine (*Lupinus perennis*) and state-listed endangered Long's Rush (*Juncus longii*). The Lupine occurs in open sandy soils within the powerline corridor and the Long's Rush is found in seepage areas in the same corridor.

Just south of the intersection of Powder Mill Road with I-95, there are wetlands associated with Little Paint Branch that are designated in state regulations as NTWSSCs, and are regulated by MDE, due in part to the presence of these species: Long's Rush, state-listed threatened Long-stalk Greenbrier (*Smilax pseudochina*) and state rare Pink Milkwort (*Polygala incarnata*). Impacts to this wetland should be avoided as much as possible.

Where the project route crosses Little Paint Branch in the area of Cherry Hill, there are records for the statelisted threatened American Brook Lamprey (*Lethenteron appendix*) and the Acuminate Crayfish (*Cambarus acuminatus*), a species with In Need of Conservation status in Maryland. Maintaining good water quality and hydrology is important to these species.

Adjacent to the Greenbelt Metro Station, a stream system associated with Indian Creek supports a population of state-listed endangered Trailing Stitchwort (*Stellaria alsine*). Impacts to the floodplain should be avoided and all appropriate BMPs for sediment and erosion control should be stringently enforced.

Page 2

On the northeast side of the project route where Indian Creek crosses there are records for state rare Laura's Clubtail (*Stylurus laurae*) and state-listed threatened Selys' Sundragon (*Helocordulia selysii*) occurring downstream in Beaverdam Creek where the wetland is designated as a NTWSSC. These odonate species have an aquatic larval stage that is very susceptible to changes in water quality.

Where the project route overlaps Bald Hill Branch, there are records for these species in close proximity to the project route, downstream in Western Branch. Maintaining good water quality and hydrology is important to these species, especially the fish.

Scientific Name	Common Name	State Status
Arundinaria tecta	Switch Cane	Rare
Lethenteron appendix	American Brook Lamprey	Threatened
Etheostoma vitreum	Glassy Darter	Threatened
Percina notogramma	Stripeback Darter	Endangered

Thank you for the opportunity to review and comment. We look forward to further coordination as project details become available. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

ER# 2018.0981.pg/mo



September 11, 2018

MEMO To: Gwen Gibson, IPR

From: Lori Byrne, WHS

RE: Follow-Up to Environmental Review for I-270/I-495 Managed Lane Study - AW073A11 Montgomery & Prince George's Counties

Regarding the need for RT&E species surveys, please see the additional comments after each section. The Wildlife and Heritage Service has determined that there are the following areas of concern in regard to potential impacts to rare, threatened or endangered species, in the study corridor that you have provided:

In the area of the project route crossing of the Potomac River, there are records for these RT&E species occurring within close proximity where they may be directly impacted by this project. We recommend that surveys for these species be conducted in areas of appropriate habitat that may fall within proposed limits-of-disturbance for this project.

<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>	
Rumex altissimus	Tall Dock	Endangered	
Paspalum fluitans	Horse-tail Paspalum	Endangered	
Matelea obliqua	Climbing Milkweed	Endangered	
Baptisia australis	Blue Wild Indigo	Threatened	
Coreopsis tripteris	Tall Tickseed	Endangered	
Phacelia covillei	Buttercup Scorpionweed	Endangered	
Based on a compilation of Mar	yland records, habitat info and	flowering/fruiting info for these species is described as:	
Rumex altissimus Polygonacea	ae (Smartweed Family)		
Habitat: Frequently flooded zon	nes along rivers in sandy/grave	lly alluvium; also forested wetlands in muck soils.	
Flw: May-Jun (July); Fr: Aug.			
Paspalum fluitans Poaceae (G	rass Family)		
Habitat: Floodplain seeps and p	pools in muck soils; seasonally	exposed rocky stream channels.	
Flw/Fr: late Aug-Sept (Oct).			
Matelea obliqua Apocynaceae (Dogbane Family)			
Habitat: Bedrock scour and terrace woodlands in rich alluvium, upland forests, barrens, glades, clearings, and roadsides			
over limestone or shale substra	tes.		
Flw: Jun-Jul; Fr: Sept.			
Baptisia australis Fabaceae (Le	egume Family)		
Habitat: Prairie-like scour bars	Habitat: Prairie-like scour bars, depositional bars, rocky alluvial flats.		
Flw: May; Fr: late Jun-Aug.			
Coreopsis tripteris Asteraceae (Aster Family)			
Habitat: Bedrock scour bars and riverside prairies, in rich alluvium.			
Flw: Sept; Fr: Sept-Oct.			
Phacelia covillei Boraginaceae (Borage Family)			
Habitat: Rich floodplain and terrace and ravine forests, mesic upland woods.			
-			

Page 2

Near Sellman Road there is a meadow habitat within a powerline right-of-way that is known to support occurrences of state-listed threatened Sundial Lupine (*Lupinus perennis*) and state-listed endangered Long's Rush (*Juncus longii*). The Lupine occurs in open sandy soils within the powerline corridor and the Long's Rush is found in seepage areas in the same corridor. If either of these suitable habitats occurs in proposed limits-of-disturbance for this project, we recommend that surveys be conducted for these species. Based on a compilation of Maryland records, habitat info and flowering/fruiting info for these species is described as: *Lupinus perennis* Fabaceae (Legume Family)

Habitat: Dry sandy soils of inland dunes and sand ridge woodlands, sandy powerline meadows, dry rocky slopes and outcrops.

Flw: May-early Jun; Fr: late Jun-early Jul. *Juncus longii* Juncaceae (Rush Family) Habitat: Open-canopied seepage wetlands, roadside seeps, powerlines.

Just south of the intersection of Powder Mill Road with I-95, there are wetlands associated with Little Paint Branch that are designated in state regulations as NTWSSCs, and are regulated by MDE, due in part to the presence of these species: Long's Rush, state-listed threatened Long-stalk Greenbrier (*Smilax pseudochina*) and state rare Pink Milkwort (*Polygala incarnata*). Impacts to this wetland should be avoided as much as possible. If impacts to this NTWSSC are unavoidable, we may ask for the extent of these populations to be delineated so that impacts can be evaluated.

Where the project route crosses Little Paint Branch in the area of Cherry Hill, there are records for the state-listed threatened American Brook Lamprey (*Lethenteron appendix*) and the Acuminate Crayfish (*Cambarus acuminatus*), a species with In Need of Conservation status in Maryland. Maintaining good water quality and hydrology is important to these species. We would not recommend surveys for these aquatic species, but instead would want to emphasize the need for stringent sediment and erosion control during all work in this area.

Adjacent to the Greenbelt Metro Station, a stream system associated with Indian Creek supports a population of state-listed endangered Trailing Stitchwort (*Stellaria alsine*). Impacts to the floodplain should be avoided and all appropriate BMPs for sediment and erosion control should be stringently enforced. Recent surveys have indicated that this population still exists within the braided stream floodplain to the southwest of I-95/495, therefore we would not recommend more surveys, but instead would want to emphasize the need for stringent sediment and erosion control during all work in this area.

On the northeast side of the project route where Indian Creek crosses there are records for state rare Laura's Clubtail (*Stylurus laurae*) and state-listed threatened Selys' Sundragon (*Helocordulia selysii*) occurring downstream in Beaverdam Creek where the wetland is designated as a NTWSSC. These odonate species have an aquatic larval stage that is very susceptible to changes in water quality. We would not recommend surveys for these aquatic species, but would want to emphasize the need for stringent sediment and erosion control during all work in this area.

Where the project route overlaps Bald Hill Branch, there are records for these species in close proximity to the project route, downstream in Western Branch. Maintaining good water quality and hydrology is important to these species. We would not recommend surveys for these aquatic species, but would want to emphasize the need for stringent sediment and erosion control during all work in this area.

Scientific Name	Common Name	State Status
Arundinaria tecta	Switch Cane	Rare
Lethenteron appendix	American Brook Lamprey	Threatened
Etheostoma vitreum	Glassy Darter	Threatened
Percina notogramma	Stripeback Darter	Endangered

Thank you for the opportunity to review and comment. We look forward to further coordination as project details become available. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

ER#	2018.0981x.pg/mo
Cc:	K. McCarthy, DNR

Appendix B

Photographs

Attachment B: Photograph Log I-495 & I-270 Managed Lanes Study

Rare Threatened, and Endangered Plant Survey



Photo 1: Looking east at forested habitat area with relatively sparse native groundcover & fewer invasive plants



Photo 2: Looking east at disturbed forested habitat area with dense invasive groundcover



Photo 3: Looking east at disturbed forested habitat area with dense invasive groundcover



Photo 4: Looking northwest at emergent wetland habitat area dominated by invasive reed canary grass



Photo 5: Looking east at rocky scour bar habitat area along Potomac River shoreline



Photo 6: Looking southwest at rocky scour bar habitat along Potomac River shoreline



Photo 7: Looking south at hilltop rocky habitat area with sparse native groundcover



Photo 8: Looking southwest at top of bank of Rock Run Culvert forested habitat area with dense invasive groundcover



Photo 9: Looking south at forested habitat area with dense invasive shrub and groundcover layers



Photo 10. Looking southeast at suitable mesic upland terrace forest

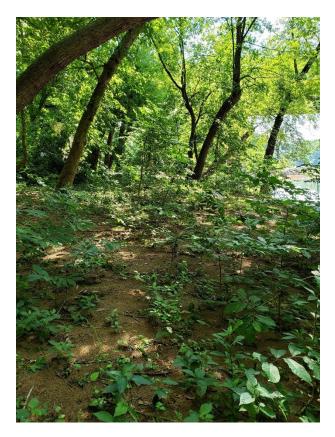


Photo 11. Looking east at Potomac River floodplain habitat



Photo 12. Looking northwest at forested habitat with dense invasive groundcover and shrub layer

Rare, Threatened, and Endangered Plant Survey Report

I-495 & I-270 Managed Lanes Study Montgomery and Prince George's Counties, Maryland & Fairfax County, Virginia

Prepared for: Maryland Department of Transportation State Highway Administration

> Under Contract to: Rummel Klepper & Kahl



November 2020

Prepared by:



25 Old Solomons Island Road, Annapolis, Maryland 21401 Phone: (410) 956-9000 Fax: (410) 956-0566

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APPENDICES

Appendix A – Agency Correspondence

Appendix B – RTE Plant Species Descriptions

Appendix C – Photographs

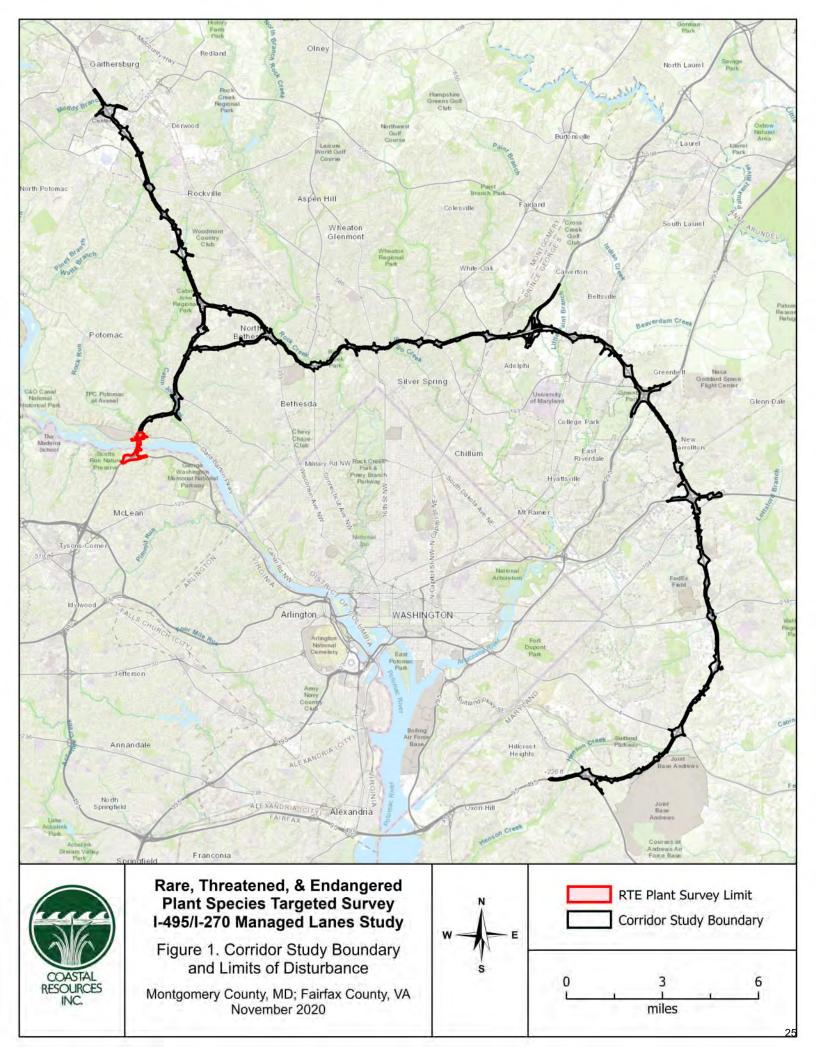
Introduction

The Maryland Department of Transportation State Highway Administration (MDOT SHA) and Federal Highway Administration (FHWA) have initiated a highway improvements study of the I-495 and I-270 corridors. This study, referred to as the I-495 & I-270 Managed Lanes Study (MLS), is evaluating potential transportation improvements to portions of the I-495 and I-270 corridors in Montgomery and Prince George's Counties, Maryland, and Fairfax County, Virginia. As part of the initial environmental review process for the MLS, coordination was initiated in 2018 with state and federal regulatory agencies regarding the potential presence of listed rare, threatened, or endangered (RTE) species within the corridor study boundary (CSB). The CSB is shown in **Figure 1 – Corridor Study Boundary and Limits of Disturbance**.

The Maryland Department of Natural Resources (MDNR) sent a response letter in July of 2018 with a list of RTE species potentially affected by the proposed project. In a follow-up meeting with the MDNR in mid-September 2018, the MDNR indicated that the greatest area of concern with respect to potential impacts to RTE plants was where the CSB crosses the Potomac River Gorge. The MDNR provided a list of six threatened or endangered plant species for which they recommended conducting targeted surveys within suitable habitat within the project limits of disturbance (LOD). The MDNR correspondence is included in **Appendix A**. The six species included the following:

<u>Scientific Name</u>	Common Name	Status (MD)
Rumex altissimus	Tall Dock	Endangered
Paspalum fluitans	Horse-tail Paspalum	Endangered
Matelea obliqua	Climbing Milkweed	Endangered
Baptisia australis	Blue Wild Indigo	Threatened
Coreopsis tripteris	Tall Tickseed	Endangered
Phacelia covillei	Buttercup Scorpionweed	Endangered

Permission from the National Park Service (NPS) to access the Chesapeake and Ohio Canal (CHOH) Unit of the Potomac River Gorge within the CSB was granted in July 2019 and a habitat assessment and targeted species survey was completed for these species. Because of the midsummertime period of the survey, one species, Buttercup Scorpion-weed (*Phacelia covillei*) could not be surveyed, as it is an early season plant that does not persist beyond the spring. However, the presence of potential habitat for this species was noted during the mid-summer habitat assessment and targeted species surveys. The results of this survey indicated that suitable habitat does exist within the CSB for all six species. However, targeted surveys within the appropriate flowering times and habitat of all the species, except buttercup scorpion-weed as mentioned above, did not result in the identification of populations of these plants within the CSB. The project team provided these results to the MDNR in a July 2019 summary report. The project team also agreed to conduct follow-up surveys within suitable habitat for the buttercup scorpion-weed during spring 2020. The MDOT SHA provided the NPS with a copy of the targeted Potomac River Gorge plant species report in the early fall of 2019 (MDOT SHA 2019).



After reviewing the report, the NPS sent the MDOT SHA an email dated November 12, 2019 expressing concern that the MDNR RTE list did not accurately reflect the potential threat to plant species of conservation concern within the project LOD. The NPS noted that their agency maintains a list of RTE species beyond what the MDNR does. In that email, the NPS listed 15 species of RTE plants with a state status or rank previously documented to occur on CHOH lands within the MLS LOD, including three that were already on the MDNR list. A copy of the email is included in **Appendix A**. The list included the following:

<u>Scientific Name</u>	Common Name	Status/Rank ¹
Arabis patens	Spreading Eared Rockcress	S3
Baptisia australis	Blue Wild Indigo	Threatened/S2
Clematis viorna	Vasevine	S3
Coreopsis tripteris	Tall Tickseed	Endangered/S1
Erigenia bulbosa	Harbinger-of-Spring	S3
Galactia volubilis	Downy Milk-Pea	S3
Helianthus occidentalis	Few-Leaf Sunflower	Endangered/S1
Hibiscus laevis	Halberd-Leaf Rose-Mallow	S3
Hybanthus concolor	Eastern Green-Violet	S3
Lipocarpha micrantha	Small-Flower Halfchaff Sedge	Endangered/S1
Monarda clinopodia	White Bergamot	S3S4
Phacelia covillei	Buttercup Scorpion-Weed	Endangered/S2
Phaseolus polystachios	Thicket Bean	S3
Polygala polygama	Racemed Milkwort	Threatened/S1
Sida hermaphrodita	Virginia Fanpetals	Endangered/S1
¹ State Rank: S1=Critically Imperiled	l/Highly State Rare, S2=Imperiled/State F	Rare, S3=Vulnerable/Watchlist,

S4=Apparently Secure

Additionally, the NPS referenced many more RTE species that are known to occur nearby or with location uncertain that could be present within the MLS LOD within suitable habitat. They suggested that surveys be done for these 15 plant species when going back to look for buttercup scorpion-weed in 2020. The Virginia Department of Conservation and Recreation (VDCR) notified the MDOT SHA of three additional plant species of concern known to occur on NPS lands of the George Washington Memorial Parkway (GWMP) Unit within the Virginia portion of the Potomac River Gorge. The VDCR correspondence is included in **Appendix A**. These three included:

<u>Scientific Name</u>	Common Name	Status/Rank (VA) ¹
Arabis shortii	Short's Rockcress	S1
Maianthemum stellatum	Starry False Solomon's-Seal	S1S2
Silene nivea	Snowy Catchfly	S1
¹ State Rank: S1=Critically Imperiled/Highl	y State Rare, S2=Imperiled/State Rare	

In preparation for conducting the follow-up targeted plant surveys during the 2020 growing season, the MDOT SHA submitted a request to the NPS for research permits to authorize the work and allow access to NPS lands within the GWMP Unit and CHOH Unit. During this permitting process,

the NPS provided feedback by email on the list of targeted plant species. For the CHOH Unit in Maryland, the NPS requested that, in addition to the original list of 15 RTE plant species, another 52 species that have been documented within 500 meters of the current I-495 centerline be added to the survey list. For the GWMP Unit in Virginia, the NPS requested that an additional 15 plant species known from nearby Turkey Run and Potomac Heritage Trail be added to the survey list. A copy of the email is included in Appendix A. A conference call with the NPS to discuss the expanded plant list was convened on March 27, 2020. Following the call, MDOT SHA agreed to add the additional species to the survey protocol, but that focused surveys would only cover those species that were state listed threatened or endangered. An exception was made for one species, Boechera dentata, that has a state rank in Virginia and Maryland of rare. This species was included on the VDCR list of RTE plants for which MDOT SHA had already agreed to survey. All other species with a state rank of rare would be noted in the field if encountered but would not be specifically targeted. Therefore, this report updates the original survey protocol to include targeted field surveys for the original 15 species, Boechera dentata, plus an additional 25 species that are state listed endangered or threatened. Table 1 presents the expanded list of 41 potential RTE plants, their rank and status within each state, suitable habitat, recommended survey season, and known localities where previously, if available. Detailed descriptions of each of the 41 targeted species are included in Appendix B.

Site Description

The limits of the RTE plant species targeted survey were restricted to the LOD of the I-495 & I-270 MLS within the Potomac River Gorge adjacent to the American Legion Bridge (ALB) (**Figure 2, RTE Plant Survey Limits**). This survey area includes the forested habitat on terraces and slopes above the Potomac River floodplain out to the I-495/George Washington Memorial Parkway interchange on the Virginia side and out to the Clara Barton Parkway on the Maryland side. The survey area also includes the forested Potomac River floodplain itself and the rocky shoreline of the Potomac River in both Maryland and Virginia.

Land use classifications within and adjacent to this portion of the survey area include national parkland, residential, forest, transportation, and wetlands. The survey area occurs within the Potomac River MDE 8-digit watershed, along the fall line between the Atlantic Coastal Plain and Piedmont physiographic provinces. Within this survey area, several terrace levels occur above the Potomac River, rising to over 100 feet in elevation. The survey area includes a portion of Plummers Island south of the ALB and a small channel known as Rock Run Culvert. Exposed bedrock occurs on Plummers Island in Maryland. Large boulders occur along the shoreline on both sides of the river. A large north facing rock outcrop occurs on the eastern side of I-495 in Virginia.

Scientific Name	Common Name	Rank/ Status ¹	State	Flowering/ Fruiting	Habitat	Survey Period	Documented Location
Arabis patens	Spreading Rockcress	S3G3/ S1G3	MD/ VA	Apr-May	Crevices/thin soils on outcrops/River floodplain forest	Early May	Turkey Run Park
Astragalus canadensis	Canadian Milk-Vetch	S1G5 Endangered	MD	Flw: Jul; Fr: late Jul- Aug	Scoured bedrock terraces, rocky dry woodlands	Jul	Unknown
Baptisia australis	Blue Wild Indigo	S2G5 Threatened	MD	May-Jun	Flood scoured rocky/gravelly bars/outcrops along rivers	May	Unknown
Boechera dentata	Short's Rockcress	S3G5/ S1G5	MD/ VA	Mar-Jun	Rich, well-drained floodplain and river bluff forests	Late Mar- Early Apr	Unknown
Bromus latiglumis	Early-leaf Brome	S1G5 Endangered	MD	Flw/Fr: late Aug- mid Sep	Floodplain forests and river bluffs, often over calcareous (limestone, shale, shell-marl?) substrates.	Sep	Unknown
Carex careyana	Carey's Sedge	S1G4G5 Endangered/ S3G4G5	MD/ VA	Flw/Fr: late Apr- May (Jun)	Rich upland or floodplain woods, often over limestone	May	Turkey Run & Great Falls Parks
Carex hitchcockiana	Hitchcock's Sedge	S1G5 Endangered	MD	Flw/Fr: (late Apr)/May- early Jun	Upland forests over calcareous substrates (limestone, shell-marl), less commonly in rich alluvium	May	Unknown
Clematis viorna	Vasevine	S3G5	MD	May-Jun	Rocky forests/Outcrops/Rocky River Shores- Calciphile	Jul	Unknown
Corallorhiza wisteriana	Spring Coralroot	S1G5 Endangered	MD	Flw: late Apr-early May: Fr: Jun.	Descriptions tend to the general, e.g., "rich woods" corresponding on occasion to basic mesic forests over limestone or coastal shell-marl deposits	May	Unknown

Table 1. RTE plant species targeted for survey within the Potomac River Gorge portion of the I-495 & I-270 MLS

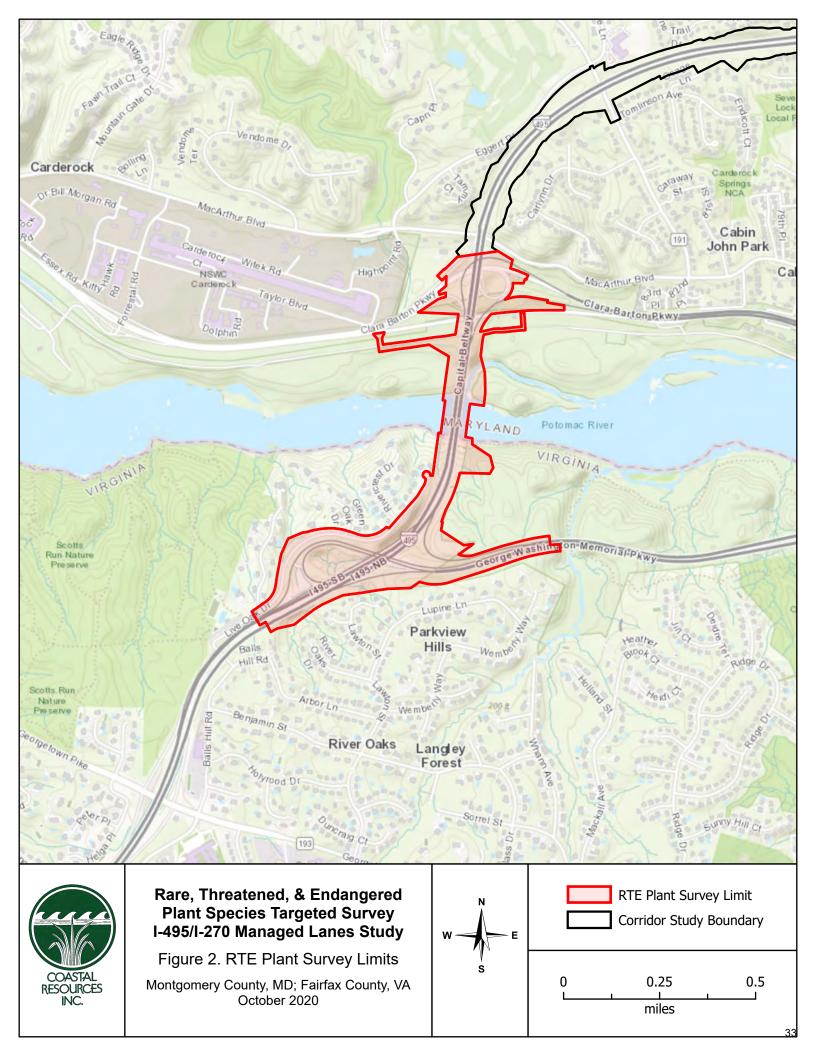
Scientific Name	Common Name	Rank/ Status ¹	State	Flowering/ Fruiting	Habitat	Survey Period	Documented Location
Coreopsis tripteris	Tall Tickseed	S1G5 Endangered	MD	Aug-Sep	Riverside prairie/Outcrops-Calciphile	Sep	Unknown
Cuscuta polygonorum	Smartweed Dodder	S1G5 Endangered/ S1G5	MD/ VA	Jul-Sep	Riverine marsh, oxbows.	Sep	Unknown
Diplazium pycnocarpon	Glade Fern	S2G5 Threatened	MD	Aug-Sep	Rich, mesic ravines (shell-marl), steep rocky "seepy" slopes in mesic mixed forests, often over mafic substrates.	Sep	Unknown
Erigenia bulbosa	Harbinger-of- Spring	S3G5/ S3G5	MD/ VA	Feb-May	Floodplain and mesic slope forests	Late Mar- Early Apr	Great Falls and Turkey Run Parks
Erythronium albidum	Small White Fawn-Lily	S2G5 Threatened/ S2G5	MD/ VA	Flw: late Mar-late Apr: Fr: May	Mature floodplain terrace forests in rich alluvium.	Apr	Turkey Run, Great Falls, & Theodore Roosevelt Island
Galactia volubilis	Downy Milk-Pea	S5G3	MD	Jul-Aug	Dry woodlands, barrens, and clearings	Early- Mid Jul	Unknown
Gentiana villosa	Striped Gentian	S1G4 Endangered	MD	Flw: Sep; Fr: Oct- Nov	Dry, sandy edges of pine forests, dry forest over serpentine. Plants often along rights-of- way.	Sep	Unknown
Geum aleppicum	Yellow Avens	S1G5 Endangered/ SHG5	MD/ VA	Flw: summer	High elevation seepage swamps. Floodplain forests, and mesic or alluvial shaded clearings. Rare, n. mountains and n. Piedmont; no specimens have been collected in Virginia since 1945.	Jul	Unknown

Scientific Name	Common Name	Rank/ Status ¹	State	Flowering/ Fruiting	Habitat	Survey Period	Documented Location
Helianthus occidentalis	Few-leaf Sunflower	S1G5 Threatened/ S1G5T5	MD/ VA	Aug-Oct	Riverside prairies/Outcrops	Sep	Unknown
Hibiscus laevis	Halberd-leaf Rose-Mallow	S3G5	MD	July-Sep	Depositional bars, river shores, canals, ditches, ponds	Early- Mid Jul	Unknown
Hybanthus concolor	Eastern Green-Violet	S3G5	MD	May-Jun	Mesic slope forests, dry rocky forests- Calciphile	May	Unknown
Iresine rhizomatosa	Juda's-Bush	S1 G5 Endangered	MD	Aug-Sep/ Sep-Dec	Deep pockets of alluvial silt and sand along flood channels and riverbanks	Sep	Potomac Gorge
Lipocarpha micrantha	Small-flower Halfchaff Sedge	S1G5 Endangered/ S2G5	MD/ VA	Aug-Oct	Seasonally exposed shores and bars on large rivers; riparian shorelines in muddy/sandy soils exposed during low-flow periods	Sep	Montgomery County
Maianthemum stellatum	Starry False Solomon's- Seal	S1S2 Endangered/ S2G5	MD/ VA	Apr-Sep	Riverside sand and rock bars, rich floodplain forests, seepage swamps	Late Mar- Early Apr	Turkey Run & Great Falls Parks
Matelea obliqua	Climbing Milkweed	S1/S2 G4? Endangered	MD	Jun- Jul/Sep	Bedrock scour and terrace woodlands in rich alluvium, upland forests, barrens, glades, clearings, and roadsides over limestone or shale substrates	Jul	Montgomery County
Mecardonia acuminata	Axil-Flower	S2G5 Endangered	MD	Late Aug- Early Sep	Roadsides, sandpits, utility rights-of-way, rocky pools and seeps	Sep	Unknown
Monarda clinopodia	White Bergamot	S3S4G5	MD	Jun-Jul	Rich alluvial soils of streams and rivers	Early- Mid Jul	Potomac River
Paspalum fluitans	Horse-tail Paspalum	S2G5 Endangered	MD	Late Aug- Sep	Floodplain seeps/pools in muck soils; seasonally exposed rocky stream channels	Sep	Unknown

Scientific Name	Common Name	Rank/ Status ¹	State	Flowering/ Fruiting	Habitat	Survey Period	Documented Location
Phacelia covillei	Buttercup Scorpion- Weed	S2 Endangered/ S1	MD/ VA	Apr-May	Rich, well-drained floodplain and adjacent slope forests	Late Mar- Early Apr	Clara Barton and Turkey Run Parks
Phaseolus polystachios	Thicket Bean	S3G5	MD	Jul-Sep	Rocky ravines, scoured bedrock terrace forests, forest edges and hedgerows	Early- Mid Jul	Unknown
Polygala polygama	Racemed Milkwort	S1G5 Threatened	MD	Jun-Jul	Dry, rocky or gravelly barrens, bedrock scour bars and woodlands	Late May	Montgomery County
Potamogeton foliosus	Leafy Pondweed	S2G5 Endangered	MD	Jul-Oct	Ponds and coastal streams in tidal and nontidal reaches	Sep	Unknown
Pycnanthemum verticillatum	Whorled Mountain- Mint	S1G5 Endangered	MD	Late Jun- Jul	Circumneutral seepage wetlands, dry to mesic calcareous meadows and glades	Jul	Unknown
Rumex altissumus	Tall Dock	S1G5 Endangered	MD	May-Jun	Frequently flooded zones along rivers in sandy/gravelly alluvium; also forested wetlands in muck soils	May	Unknown
Sagittaria rigida	Sessile-fruit Arrowhead	S1G5 Endangered/ S1G5	MD/ VA	Jul-Sep	Delmarva Bays; spring-fed seepage ponds in the mountains; historical habitats may have included vernal pools in the Piedmont and Ridge and Valley	Sep	Unknown
Salix exigua	Sandbar Willow	S1G5 Endangered/ S1G5TNR	MD/ VA	Feb-Jun	Rocky scour bars and scrub-woodlands along the Potomac River	Apr-Oct	Potomac River
Senecio suaveolens	False Indian- Plantain	S1G4 Endangered/ S2G4	MD/ VA	Flw: Aug; Fr: Sep- Oct	A variety of open to lightly-shaded habitats along river banks, light-gaps on the floodplain, side channels and pond and pool margins.	Sep	Turkey Run & Great Falls Park

Scientific Name	Common Name	Rank/ Status ¹	State	Flowering/ Fruiting	Hanifat		Documented Location
Sida hermaphrodita	Virginia Fanpetals	S1G3 Endangered/ S1G3	MD/ VA	Jul-Oct Frequently scoured gravel bars and river island shorelines		Early- Mid Jul	Potomac River shore near Spout Run
Silene nivea	Snowy Catchfly	S1G4? Endangered/ S1G4?	MD/ VA	May-Aug	Mature floodplain and terrace forests over rich alluvial soils	Late May	Unknown
Solidago racemosa	Rand's Goldenrod	S1G3T3 Threatened/ S1G3?	MD/ VA	Early-Mid Jun	Cliff faces and crevices with shell deposits; riverside woodlands, prairies, outcrops, and rocky bars	Jul	Turkey Run Park and Gulf Branch
Triphora trianthophoros	Threebirds	S1G3G4 Endangered/ S1G3G4T3T4	MD/ VA	Mid-Late Aug-Early Sep	Rich, humid hardwood forests	Sep	Presumed extirpated from the Gold Mine Tract, Great Falls
Valeriana pauciflora	Large-flower Valerian	S1G4 Endangered/ S1G4	MD/ VA	Late Apr- Mid May	Rich alluvial soils of mature mesic mixed or bottomland hardwood forests	May	Turkey Run & Great Falls Parks

Source: Townsend 2019, MDNR 2019, Weakley 2012, Brown and Brown 1984 ¹State Rank: S1=Critically Imperiled/Highly State Rare; S2=Imperiled/State Rare; S3=Vulnerable/Watchlist; T=Subspecies/Variety Ranked Differently than Species Global Rank: G3=Vulnerable; G4=Apparently Secure; G5=Secure; ?=Inexact Numeric Rank; NR=Not Ranked



Methodology

The targeted plant survey entailed both background research and field investigations. The objective of the survey was to attempt to locate the target plant species within the season that each species would likely be most visible. Background research included review of various botanical references to determine identifying and habitat characteristics of target species. References used included Brown and Brown (1984), MDNR (2019), and Weakley et al. (2012). Research permits were also obtained from the NPS, one for the CHOH Unit and one for the GWMP Unit, prior to conducting the field surveys. A copy of each permit is included in **Appendix A**.

The 41 species were divided into four survey periods based on peak flowering and fruiting times for each species, when they would be most easily observed and identified. During each survey period, three to four permitted observers traversed the survey area described above looking for the presence of suitable habitat for the target species. Within any habitats identified as potentially suitable, the observers walked parallel transects to search for evidence of the target species. For any confirmed element occurrences, population limits were surveyed using a handheld Global Positioning System (GPS). GPS survey locations were recorded around the perimeter of each population cluster, and the numbers of individual plants of the identified targeted species were counted or estimated for each population encountered. General notes were also recorded on the habitat and common plant associates of any found RTE plant species. Representative photographs were taken of each targeted species and the microhabitat areas where they were found.

Results

The four targeted survey periods referenced above were early April, late May, mid-July, and mid-September. **Table 2** summarizes the survey effort for each targeted survey date within each NPS park unit.

NPS Unit	Date	No. Surveyors	Survey Effort (Hr.)
СНОН	2 April 2020	3	8
	19 May 2020	3	8.25
	15 July 2020	4	7.5
	23 July 2020	3	2
	14 September 2020	4	7.5
GWMP	9 April 2020	3	7.5
	27 May 2020	3	8
	23 July 2020	3	2
	16 September 2020	3	3

Table 2. RTE plant species targeted survey effort.

Habitats surveyed for RTE plants within both NPS units of the Potomac River Gorge included upland terrace forest (mesic forest above the active floodplain; does not flood annually), floodplain forest (floods annually), and bedrock scour bar and riverside outcrop barrens. Within the CHOH Unit in Maryland, this included the entire survey area during each survey visit. Within the GWMP Unit in Virginia, this included the entire survey area out to the southern limit for the April and May surveys, but only included the Potomac shoreline, floodplain, and lower terraces of mesic forest and outcrops during the July and September surveys. The reduced survey area later in the

season resulted from the narrower suitable habitat requirements of the later season targeted RTE plant species in Virginia. These plants were typically associated with scour bars, river floodplains and lower mesic forested habitat.

Seven (7) of the 41 RTE plant species listed in **Table 1** were observed within the Maryland portion of the survey area during the targeted surveys, including:

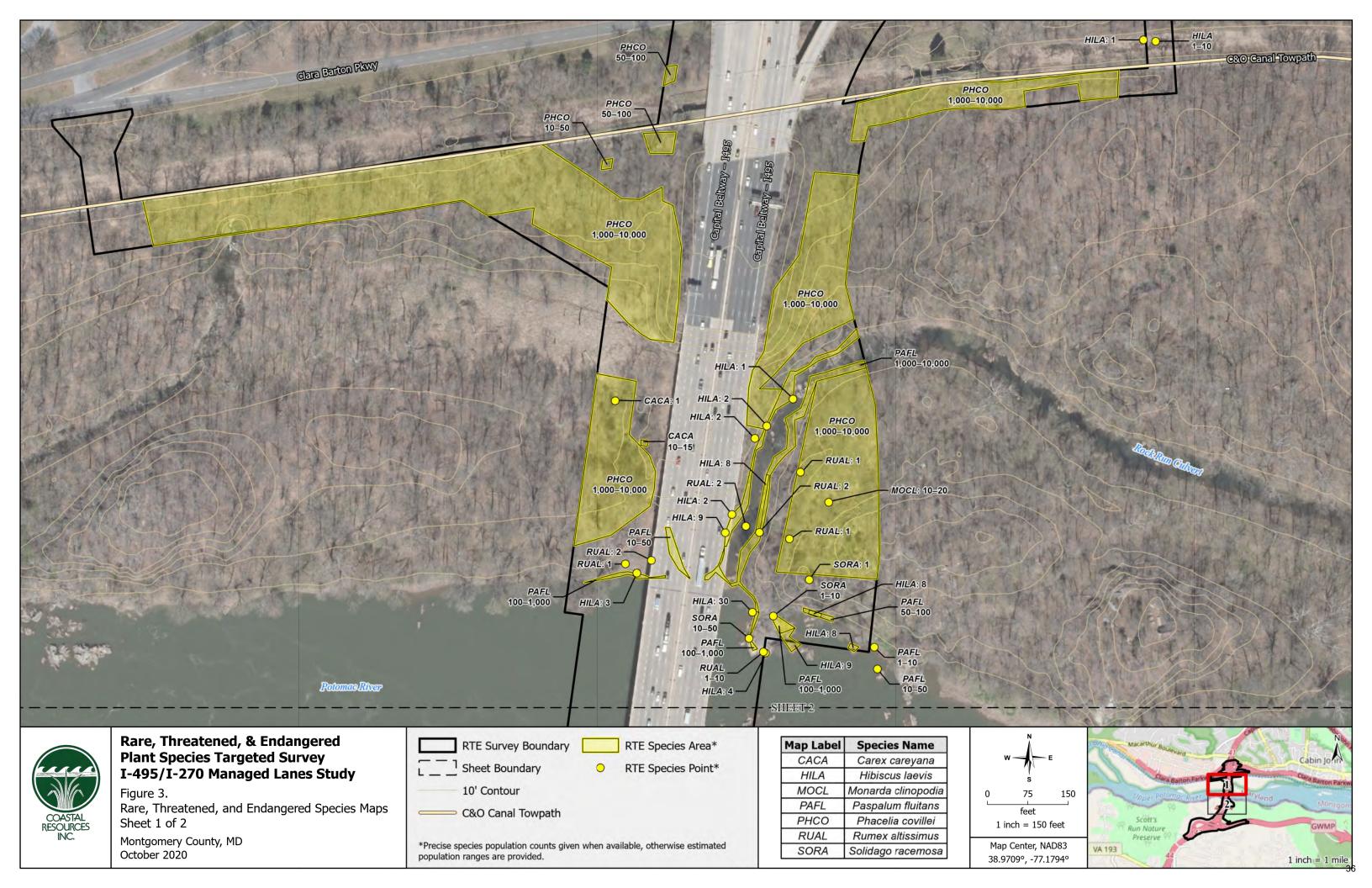
- Buttercup Scorpion-Weed
- Carey's Sedge
- Tall Dock
- Halberd-leaf Rose-Mallow
- White Bergamot
- Rand's Goldenrod
- Horse-tail Paspalum

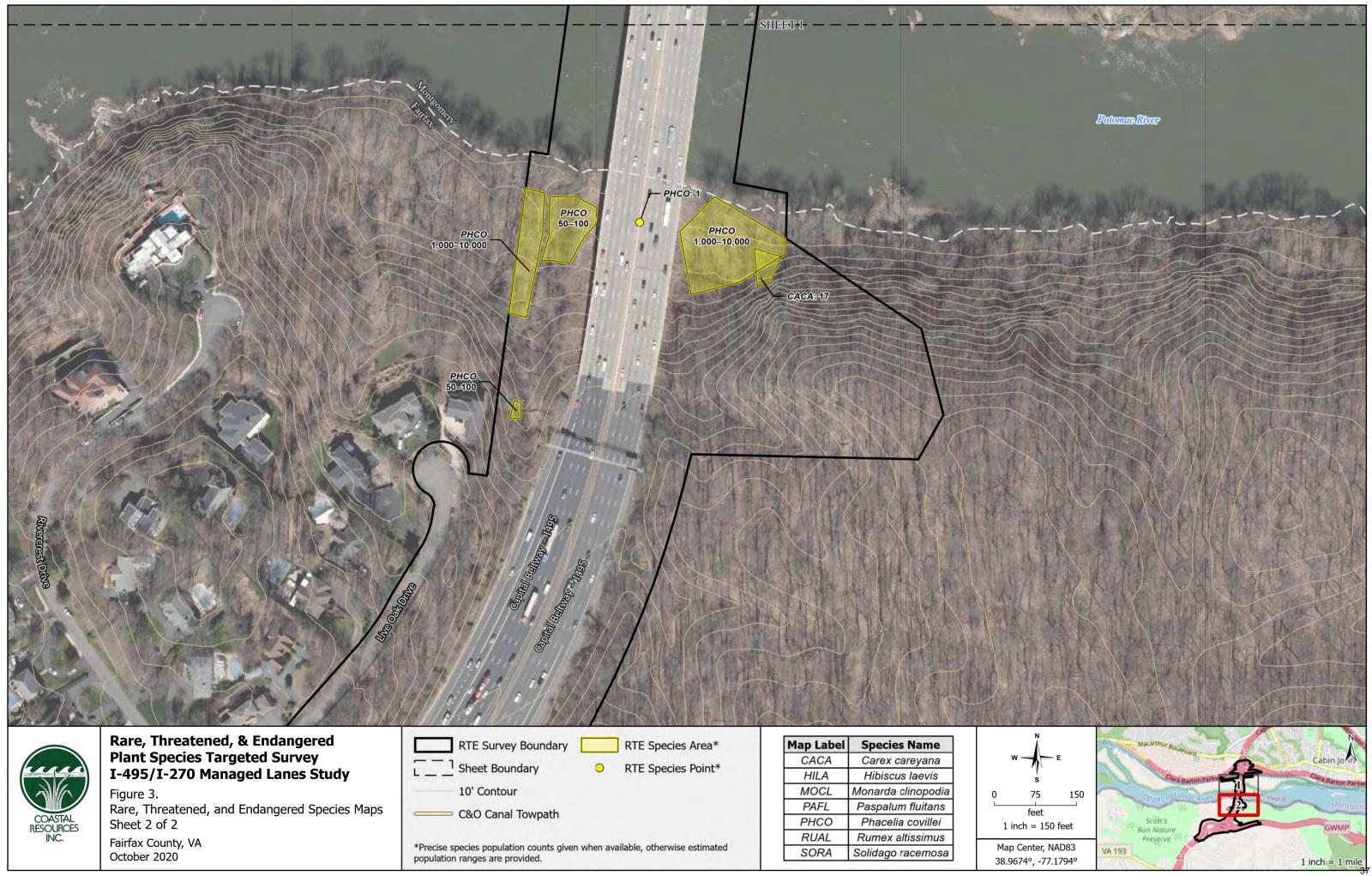
In the Virginia portion of the survey area, two (2) of the 41 plant species listed in **Table 1** were observed, buttercup scorpion-weed and Carey's sedge. Information about each of the species found within or immediately adjacent to the study area and a brief description of their corresponding habitat and associate plant species is discussed below. The descriptions are separated by NPS park unit for clarity. Map sheets depicting the locations of the RTE species are included in **Figure 3**. Photographs of each species and species habitat are included in **Appendix C**.

CHOH Unit (Maryland)

Several RTE plant species were found throughout the Maryland portion of the survey area (**Figure 3**) within the Chesapeake & Ohio Canal, on mesic upland terraces above the Potomac River, along the active floodplain of the river, and on scour bars and boulders within the river.

Buttercup Scorpion-Weed (Phacelia covillei Watson ex A. Gray) - Likely tens of thousands of individuals of this state-endangered plant were found during the April 2nd and May 19th field surveys within the project LOD in Maryland. As shown in Figure 3, plants were found extensively throughout the upland terraces on mesic forested slopes from the C&O Canal to just above the active floodplain of the Potomac River. One small patch of 10 to 50 individuals was also found between the C&O Canal and Clara Barton Parkway west of I-495. Some plants were even growing on the interstate embankment up to within a few feet of pavement on both the east- and west-facing sides. The largest patches of buttercup scorpion-weed were growing where the groundcover was not otherwise too dense with other native and non-native plant species. Common groundcover associates growing with buttercup scorpion-weed included garlic-mustard (Alliaria petiolata), corn speedwell (Veronica arvensis), groundivy (Glechoma hederacea), sticky-willy (Galium aparine), white avens (Geum canadense), Japanese honeysuckle (Lonicera japonica) and wine raspberry (Rubus phoenicolasius). The shrub/sapling layer was dominated by rambler rose (Rosa multiflora), northern spicebush (Lindera benzoin), common pawpaw (Asimina triloba), and amur honeysuckle (L. maackii). The canopy was comprised of American sycamore (Platanus occidentalis), tuliptree (Liriodendron tulipifera), and pignut hickory (Carva glabra) at a density of 95 percent. Photographs 1-2 in Appendix C depict this species, as well as its associated microhabitat.







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Map Label	Species Name
CACA	Carex careyana
HILA	Hibiscus laevis
MOCL	Monarda clinopodia
PAFL	Paspalum fluitans
PHCO	Phacelia covillei
RUAL	Rumex altissimus
SORA	Solidago racemosa

Carey's Sedge (*Carex careyana* **Torrey ex Dewey** – This state endangered sedge was found in two locations within mesic forest on the upland terrace west of I-495 during the May 19th and July 15th field surveys. One patch was represented by a single individual plant growing on an eroding slope above a deeply incised tributary stream. This plant is in danger of eroding away as a result of bank sloughing and may not persist in this location. The other patch was comprised of 10-15 individuals growing at the top of the same tributary stream but on the opposite bank. Common groundcover associates growing with Carey's sedge included Japanese stilt grass (*Microstegium vimineum*), garlic mustard, white snakeroot (*Ageratina altissima*), and Asian bittersweet (*Celastrus orbiculatus*) in a moderate covering of about 60 percent. Other shrubs and vines in the area included amur honeysuckle, Japanese honeysuckle, eastern poison ivy (*Toxicodendron radicans*), wine raspberry, and common pawpaw. Canopy cover was about 55 percent comprised of ash-leaf maple (*Acer negundo*) and tuliptree. Photographs 3-6 in **Appendix C** depict this species, as well as its associated habitat.

Tall Dock (*Rumex altissimus***) A. Wood** – Approximately eight to ten individuals of this state endangered plant were found within the active floodplain of the Potomac River just upstream of the ALB and along Rock Run Culvert that separates Plummers Island from the mainland, during the May 19th and July 15th field surveys. Another patch of up to 10 plants were found on the scour bar associated with large boulders at the edge of the Potomac River adjacent to Plummers Island. Common groundcover associates growing with tall dock included groundivy, white snakeroot, bristly lady's-thumb (*Persicaria longiseta*), common three-seed-mercury (*Acalypha rhomboidea*), jimsonweed (*Datura stamonium*), and beefsteakplant (*Perilla frutescens*), Photographs 7-8 in **Appendix C** depict this species and its associated microhabitat.

Halberd-leaf Rose-Mallow (Hibiscus laevis) Allioni – Dozens of individuals of this Maryland watch list species were found growing within the active floodplain and scour bars along the Potomac River and Rock Run Culvert during the May 19th, July 15th, and July 23rd field surveys. Two additional plants were documented growing within the Chesapeake & Ohio Canal within the project LOD. The largest patch of halberd-leaf rose-mallow was growing on the mud flat between the in-river boulders and the shoreline. Groundcover vegetation was only about 15 percent in this area, including flowering thoroughwort (Eupatorium serotinum), beefsteakplant, and grass seedlings later determined to be state endangered horse-tail paspalum (Paspalum fluitans) (See below). Shading from shoreline canopy trees, including American sycamore and silver maple (A. saccharinum) was about 50 percent. Within the active floodplain of the Potomac River and along Rock Run Culvert, halberd-leaf rose-mallow was observed growing with late-flowering thoroughwort, spotted lady's-thumb (Persicaria maculosa), Carolina horse-nettle (Solanum carolinense), small-spike false nettle (Boehmeria cylindrica), beefsteakplant, seedling horse-tail paspalum, and seedling red maple (A. rubrum) and ash-leaf maple. Canopy cover was relatively sparse in these areas, with partial shading occurring primarily along the active floodplain from larger trees farther up the slope. Within the Chesapeake & Ohio Canal, halberd-leaf rose-mallow was growing in an open-canopy, dense herbaceous layer comprised of rice cut grass (Leersia oryzoides), broad-leaf cat-tail (Typha latifolia), crimson-eye rose-mallow (H. moscheutos), and climbing hempvine (Mikania scandens). Photographs 9-11 in Appendix C depict this species and its associated habitat.

Rand's Goldenrod (*Solidago racemosa*) Green – Two patches of this state threatened goldenrod species were discovered on boulders at the edge of the Potomac River, downstream of the ALB. One patch contained up to 10 individuals and the other patch from 10-50 individuals. All Rand's

goldenrod plants were generally growing sparsely out of cracks or crevices in the boulders with no other plant species. Photographs 12-14 in **Appendix C** depict this species and its associated habitat.

Horse-tail paspalum (*Paspalum fluitans***) (Elliott) Kunth** – Thousands of the state endangered horse-tail paspalum plants were observed growing within scour bars and the active floodplain of the Potomac River upstream and downstream of the ALB and within a narrow floodplain zone along Rock Run Culvert. Some plants were even growing beneath the ALB. This grass was observed growing sparsely with large barnyard grass (*Echinochloa crus-galli***)**, fall panic grass (*Panicum dichotomiflorum*), false daisy (*Eclipta prostrata*), common three-seed-mercury, jimsonweed, annual wormwood (*Artemesia annua*), spiny amaranth (*Amaranthus spinosus*), yellow-seed false pimpernel (*Lindernia dubia*), blue mistflower (*Conoclinium coelestinum*), halberd-leaf rose-mallow, and tall dock. Photographs 15-16 in **Appendix C** depict this species and its associated microhabitat.

White Bergamot (*Monarda clinopodia*) Linnaeus – A patch of 10-20 heavily deer browsed and insect eaten plants, whose vegetative parts matched flowering plants identified as this species observed growing within the GWMP Unit across the Potomac River, were found within mesic forest on the northwest side of Plummers Island. This Maryland watch list species was growing under a canopy of American elm (*Ulmus americana*) and ash-leaf maple with an estimated cover of 85 percent. The shrub layer was comprised of sparse amur honeysuckle. Groundcover was greater than 85 percent and comprised of groundivy, small-spike false nettle, Indian wood-oats (*Chasmanthium latifolium*), wingstem (*Verbesina alternifolia*), Japanese stilt grass, stinging nettle (*Urtica dioica*), jumpseed (*P. virginiana*), and seedling American elm and ash-leaf maple. While these white bergamot plants could not be conclusively identified to species, white bergamot is the only member of the genus that has been documented within the flora of Plummers Island, having been documented on 4 July 1982 just east of the current patch of plants (Shelter et al. 2006). Photographs 17-18 in Appendix C depict the leaves and stems of the plants and their habitat.

GWMP Unit (Virginia)

Within the Virginia survey area, RTE plant species were only found within the lower upland terrace above the active floodplain of the Potomac River (Figure 3).

Buttercup Scorpion-weed (*Phacelia covillei* **Watson ex A. Gray)** – Thousands of individuals of this state-ranked critically imperiled plant were found within the project LOD in Virginia. As shown in **Figure 3**, plants were found extensively within the lower upland terraces on mesic forested slopes just above the active floodplain of the Potomac River. One small patch of 50 to 100 individuals was also found on the northeast-facing slopes of a narrow tributary stream that drains north to the Potomac River. The largest patches of buttercup scorpion-weed were growing where the groundcover was not otherwise too dense with other native and non-native plant species. Common groundcover associates growing with buttercup scorpion-weed in this area included garlic-mustard, Japanese-knotweed (*Reynoutria japonica*), Virginia bluebells (*Mertensia virginica*), corn speedwell, blunt-leaf waterleaf (*Hydrophyllum canadense*), groundivy, sticky-willy, seedling northern spicebush. The shrub/sapling layer was dominated by northern spicebush and ash-leaf maple. Shrub density was about 45 percent. The canopy cover was estimated at 95 percent and was comprised predominately of American sycamore, tuliptree, eastern cottonwood (*Populus deltoides*), and black walnut (*Juglans nigra*). Vine cover was 35-40 percent and was

comprised of eastern poison ivy, Virginia creeper (*Parthenocissus quinquefolia*), unidentified grape (*Vitis* sp.), and Asian bittersweet. Photographs 19-20 in **Appendix C** depict this species and its associated habitat.

Carey's Sedge (*Carex careyana* **Torrey ex Dewey** – In Virginia, Carey's sedge is ranked as state vulnerable. During the May 27, 2020 field surveys, one patch of about 17 plants was found within mesic forest on the upland terrace above the active floodplain and at the base of a rocky slope downstream of the ALB. Common groundcover associates growing with Carey's sedge included richwoods sedge (*C. oligocarpa*), garlic mustard, and Asian bittersweet in a moderate covering of about 60 percent. Canopy cover was about 85 percent. Photographs 21-24 in **Appendix C** depict this species, as well as its associated habitat.

Conclusions

An expanded list of 41 RTE plant species, potentially occurring within the Potomac River Gorge area of the I-495 & I-270 MLS CSB, was obtained from the NPS and VDCR in early 2020. All 41 species were ranked in Maryland or had a status of threatened or endangered. Only 19 of these species were ranked in Virginia. To determine the potential presence of these species within the project LOD, MDOT SHA conducted field surveys during appropriate seasons when the plants would be identifiable. Four survey periods were chosen, including early April, late May, mid-July, and mid-September. At least marginally suitable habitat was present for all 41 species within the Potomac River Gorge portion of the MLS CSB. However, targeted RTE plant surveys documented only seven (7) of 41 species within the CHOH Unit in Maryland and just two (2) of 19 species within the GWMP Unit in Virginia.

The most abundant and widespread RTE species found within the MLS CSB of both NPS units was buttercup scorpion-weed. While this plant is listed as endangered in Maryland and critically imperiled in Virginia, hundreds of thousands of plants likely were present in Maryland and tens of thousands of plants within Virginia. According to MDNR (2019), this species has a very limited range in Maryland, occurring along the Potomac River near the District of Columbia and along Western Branch. Where it occurs, population sizes can vary greatly from year to year, from a few hundred to a million individuals (MDNR 2019). The MDNR has also proposed that this species be downlisted from endangered to threatened (MDNR 2019). The spring of 2020 was clearly a good year for this species, as it was widespread throughout the mesic upper terraces above the Potomac River in a wide variety of aspects with varying amounts of native and invasive shrub and herbaceous cover.

Horse-tail paspalum was another abundant RTE plant (listed as endangered in Maryland, not listed in Virginia) found within the MLS CSB. Thousands of plants were identified along scour bars and the active floodplain of the Potomac River and along the shoreline of Rock Run Culvert that separates Plummers Island from the mainland. A patch of 10-50 individuals was also found growing beneath the ALB. This species reaches its northern limit in Maryland and has been found in Charles and Montgomery Counties (MDNR 2019). MDNR has also proposed to down-list this species from endangered to threatened (MDNR 2019).

The remaining RTE plant species were identified in much lower numbers and somewhat more widely spaced. Carey's sedge occurred in Maryland in two locations on the mesic terrace above the Potomac River along the top of bank of a deeply incised tributary stream. In Virginia, a small

patch of 15-20 individuals was found within the MLS CSB on the first terrace above the Potomac River downstream of the ALB. Most of the remaining RTE plant species were found along the active shoreline of the Potomac River or Rock Run Culvert or on boulders in the Potomac River. These species included halberd-leaf rose-mallow, tall dock, and Rand's goldenrod. The distribution and abundance of these species within the survey area is likely quite dynamic depending upon the flooding and deposition/scour cycles of the Potomac River. Though halberd-leaf rose-mallow typically grows along the Potomac River shoreline and most identified plants were growing in that landscape setting, two individual plants were found within the MLS CSB within the Chesapeake & Ohio Canal between Lock 10 and Lock 11. One addition RTE plant, white bergamot, was tentatively identified on Plummers Island. This small population of the state watch list species never flowered during the 2020 season, but appeared identical to confirmed white bergamot plants found flowering just outside the MLS CSB in Virginia. Excessive deer browse likely precluded flowering during 2020.

While less than 20 percent of the targeted RTE plant species were found during the survey, many of those listed species were not known directly from within the MLS CSB but nearby. Also, many of the species records are likely historical, with no known recent records. Evidence of this can be found within the Checklist of the Vascular Plants of Plummers Island, Maryland published by the Biological Society of Washington (Shelter et al. 2006). This paper documents historic and recent (through 2004) occurrences and distribution of the flora on Plummers Island and the adjacent mainland, up to the Chesapeake & Ohio Canal Tow Path, and including areas now crossed by I-495. Of the 34 listed plants that were targeted for survey in Maryland that were not found, only one (1) species, large-flower valerian, was documented by the Shelter et al. 2006 paper within the past 20 years, and that record was from the north shore of the middle of Plummers Island, well outside the MLS CSB. Therefore, MDOT SHA believes that the results of this survey accurately portray the distribution and abundance of RTE plants within the MLS CSB.

References

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Appendix A

Agency Correspondence



July 17, 2018

MEMO To: Gwen Gibson, IPR

From: Lori Byrne, WHS

RE: Environmental Review for I-270/I-495 Managed Lane Study - AW073A11 Montgomery & Prince George's Counties

The Wildlife and Heritage Service has determined that there are the following areas of concern in regard to potential impacts to rare, threatened or endangered species, in the study corridor that you have provided:

In the area of the project route crossing of the Potomac River, there are records for these RT&E species occurring within close proximity where they may be directly impacted by this project:

Scientific Name	Common Name	State Status
Rumex altissimus	Tall Dock	Endangered
Paspalum fluitans	Horse-tail Paspalum	Endangered
Matelea obliqua	Climbing Milkweed	Endangered
Baptisia australis	Blue Wild Indigo	Threatened
Coreopsis tripteris	Tall Tickseed	Endangered
Phacelia covillei	Buttercup Scorpionweed	Endangered

Near Sellman Road there is a meadow habitat within a powerline right-of-way that is known to support occurrences of state-listed threatened Sundial Lupine (*Lupinus perennis*) and state-listed endangered Long's Rush (*Juncus longii*). The Lupine occurs in open sandy soils within the powerline corridor and the Long's Rush is found in seepage areas in the same corridor.

Just south of the intersection of Powder Mill Road with I-95, there are wetlands associated with Little Paint Branch that are designated in state regulations as NTWSSCs, and are regulated by MDE, due in part to the presence of these species: Long's Rush, state-listed threatened Long-stalk Greenbrier (*Smilax pseudochina*) and state rare Pink Milkwort (*Polygala incarnata*). Impacts to this wetland should be avoided as much as possible.

Where the project route crosses Little Paint Branch in the area of Cherry Hill, there are records for the statelisted threatened American Brook Lamprey (*Lethenteron appendix*) and the Acuminate Crayfish (*Cambarus acuminatus*), a species with In Need of Conservation status in Maryland. Maintaining good water quality and hydrology is important to these species.

Adjacent to the Greenbelt Metro Station, a stream system associated with Indian Creek supports a population of state-listed endangered Trailing Stitchwort (*Stellaria alsine*). Impacts to the floodplain should be avoided and all appropriate BMPs for sediment and erosion control should be stringently enforced.

Page 2

On the northeast side of the project route where Indian Creek crosses there are records for state rare Laura's Clubtail (*Stylurus laurae*) and state-listed threatened Selys' Sundragon (*Helocordulia selysii*) occurring downstream in Beaverdam Creek where the wetland is designated as a NTWSSC. These odonate species have an aquatic larval stage that is very susceptible to changes in water quality.

Where the project route overlaps Bald Hill Branch, there are records for these species in close proximity to the project route, downstream in Western Branch. Maintaining good water quality and hydrology is important to these species, especially the fish.

Scientific Name	Common Name	State Status
Arundinaria tecta	Switch Cane	Rare
Lethenteron appendix	American Brook Lamprey	Threatened
Etheostoma vitreum	Glassy Darter	Threatened
Percina notogramma	Stripeback Darter	Endangered

Thank you for the opportunity to review and comment. We look forward to further coordination as project details become available. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

ER# 2018.0981.pg/mo



September 11, 2018

MEMO To: Gwen Gibson, IPR

From: Lori Byrne, WHS

RE: Follow-Up to Environmental Review for I-270/I-495 Managed Lane Study - AW073A11 Montgomery & Prince George's Counties

Regarding the need for RT&E species surveys, please see the additional comments after each section. The Wildlife and Heritage Service has determined that there are the following areas of concern in regard to potential impacts to rare, threatened or endangered species, in the study corridor that you have provided:

In the area of the project route crossing of the Potomac River, there are records for these RT&E species occurring within close proximity where they may be directly impacted by this project. We recommend that surveys for these species be conducted in areas of appropriate habitat that may fall within proposed limits-of-disturbance for this project.

Scientific Name	<u>Common Name</u>	<u>State Status</u>	
Rumex altissimus	Tall Dock	Endangered	
Paspalum fluitans	Horse-tail Paspalum	Endangered	
Matelea obliqua	Climbing Milkweed	Endangered	
Baptisia australis	Blue Wild Indigo	Threatened	
Coreopsis tripteris	Tall Tickseed	Endangered	
Phacelia covillei	Buttercup Scorpionweed	Endangered	
Based on a compilation of Mar	yland records, habitat info and fl	owering/fruiting info for these species is described as:	
Rumex altissimus Polygonacea	e (Smartweed Family)		
Habitat: Frequently flooded zon	nes along rivers in sandy/gravelly	y alluvium; also forested wetlands in muck soils.	
Flw: May-Jun (July); Fr: Aug.			
Paspalum fluitans Poaceae (Gu	cass Family)		
Habitat: Floodplain seeps and p	oools in muck soils; seasonally ex	xposed rocky stream channels.	
Flw/Fr: late Aug-Sept (Oct).			
Matelea obliqua Apocynaceae (Dogbane Family)			
Habitat: Bedrock scour and terrace woodlands in rich alluvium, upland forests, barrens, glades, clearings, and roadsides			
over limestone or shale substrates.			
Flw: Jun-Jul; Fr: Sept.			
Baptisia australis Fabaceae (Le	egume Family)		
Habitat: Prairie-like scour bars,	depositional bars, rocky alluvia	l flats.	
Flw: May; Fr: late Jun-Aug.			
Coreopsis tripteris Asteraceae (Aster Family)			
Habitat: Bedrock scour bars and riverside prairies, in rich alluvium.			
Flw: Sept; Fr: Sept-Oct.			
Phacelia covillei Boraginaceae (Borage Family)			
Habitat: Rich floodplain and terrace and ravine forests, mesic upland woods.			

Page 2

Near Sellman Road there is a meadow habitat within a powerline right-of-way that is known to support occurrences of state-listed threatened Sundial Lupine (*Lupinus perennis*) and state-listed endangered Long's Rush (*Juncus longii*). The Lupine occurs in open sandy soils within the powerline corridor and the Long's Rush is found in seepage areas in the same corridor. If either of these suitable habitats occurs in proposed limits-of-disturbance for this project, we recommend that surveys be conducted for these species. Based on a compilation of Maryland records, habitat info and flowering/fruiting info for these species is described as: *Lupinus perennis* Fabaceae (Legume Family)

Habitat: Dry sandy soils of inland dunes and sand ridge woodlands, sandy powerline meadows, dry rocky slopes and outcrops.

Flw: May-early Jun; Fr: late Jun-early Jul. *Juncus longii* Juncaceae (Rush Family) Habitat: Open-canopied seepage wetlands, roadside seeps, powerlines.

Just south of the intersection of Powder Mill Road with I-95, there are wetlands associated with Little Paint Branch that are designated in state regulations as NTWSSCs, and are regulated by MDE, due in part to the presence of these species: Long's Rush, state-listed threatened Long-stalk Greenbrier (*Smilax pseudochina*) and state rare Pink Milkwort (*Polygala incarnata*). Impacts to this wetland should be avoided as much as possible. If impacts to this NTWSSC are unavoidable, we may ask for the extent of these populations to be delineated so that impacts can be evaluated.

Where the project route crosses Little Paint Branch in the area of Cherry Hill, there are records for the state-listed threatened American Brook Lamprey (*Lethenteron appendix*) and the Acuminate Crayfish (*Cambarus acuminatus*), a species with In Need of Conservation status in Maryland. Maintaining good water quality and hydrology is important to these species. We would not recommend surveys for these aquatic species, but instead would want to emphasize the need for stringent sediment and erosion control during all work in this area.

Adjacent to the Greenbelt Metro Station, a stream system associated with Indian Creek supports a population of state-listed endangered Trailing Stitchwort (*Stellaria alsine*). Impacts to the floodplain should be avoided and all appropriate BMPs for sediment and erosion control should be stringently enforced. Recent surveys have indicated that this population still exists within the braided stream floodplain to the southwest of I-95/495, therefore we would not recommend more surveys, but instead would want to emphasize the need for stringent sediment and erosion control during all work in this area.

On the northeast side of the project route where Indian Creek crosses there are records for state rare Laura's Clubtail (*Stylurus laurae*) and state-listed threatened Selys' Sundragon (*Helocordulia selysii*) occurring downstream in Beaverdam Creek where the wetland is designated as a NTWSSC. These odonate species have an aquatic larval stage that is very susceptible to changes in water quality. We would not recommend surveys for these aquatic species, but would want to emphasize the need for stringent sediment and erosion control during all work in this area.

Where the project route overlaps Bald Hill Branch, there are records for these species in close proximity to the project route, downstream in Western Branch. Maintaining good water quality and hydrology is important to these species. We would not recommend surveys for these aquatic species, but would want to emphasize the need for stringent sediment and erosion control during all work in this area.

Scientific Name	Common Name	State Status
Arundinaria tecta	Switch Cane	Rare
Lethenteron appendix	American Brook Lamprey	Threatened
Etheostoma vitreum	Glassy Darter	Threatened
Percina notogramma	Stripeback Darter	Endangered

Thank you for the opportunity to review and comment. We look forward to further coordination as project details become available. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

ER#	2018.0981x.pg/mo
Cc:	K. McCarthy, DNR

David Smith

From:	Maddy Sigrist <msigrist@rkk.com></msigrist@rkk.com>
Sent:	Thursday, December 5, 2019 8:27 AM
То:	David Smith
Cc:	Sarah Williamson
Subject:	FW: [EXTERNAL] I-495 & I-270 Managed Lanes Study - RTE Plant Survey Report

Good morning David,

Please see the email below from Laurel Hammig, NPS, in response to the RTE Plant Survey Report. NPS has identified 15 additional plant species that they would like the project to conduct surveys for in the coming year within the LOD on NPS property. I spoke with Caryn Brookman and she thinks we should accommodate their request. I think it would be a good idea to respond to Laurel and ask her if the survey area would be on both the MD and VA banks of the Potomac on NPS property in the vicinity of the American Legion Bridge or if any of these species has been recorded on other NPS properties within the LOD. Are there other questions you have for Laurel in preparation for the surveys? Also, do you have an idea of the additional effort this would require and whether it can be accommodated by the remaining CRI budget?

Thanks! Maddy

MADDY SIGRIST, PWS Project Scientist

700 East Pratt Street, Suite 500 Baltimore, MD 21202

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Responsive People | Creative Solutions



From: Hammig, Laurel <laurel hammig@nps.gov>
Sent: Tuesday, November 12, 2019 10:14:12 AM
To: Stacy Talmadge <<u>STalmadge@mdot.maryland.gov</u>>
Cc: Tammy_Stidham <<u>tammy_stidham@nps.gov</u>>; Caryn Brookman <<u>CBrookman@mdot.maryland.gov</u>>
Subject: Re: [EXTERNAL] I-495 & I-270 Managed Lanes Study - RTE Plant Survey Report

Stacy,

We have a couple of comments on the report. It appears that the report does not consider that NPS maintains data on rare plants beyond that which DNR does. Within the LOD, NPS has records of 15 species of conservation concern, with many others just outside or with location uncertain but in that general area. There are only 3 of these included in the report. The report also mentions that they may have missed Phacelia covillei. This species senesces very early in the year. Just downstream of the demarcated LOD, NPS found 1000's of this species in March 2018. When the contractor returns to

survey in the early spring to target Phacelia, they need to also consider and survey for the aforementioned species to ensure they are not within the LOD.

Arabis patens S3 Baptisia australis S2 Threatened Clematis viorna S3 Coreopsis tripteris S1 Endangered Erigenia bulbosa S3 Galactia volubilis S3 Helianthus occidentalis S1 Threatened Hibiscus laevis S3 Hybanthus concolor S3 Lipocarpha micrantha S1 Endangered Monarda clinopodia S3S4 Phacelia covillei S2 Endangered Phaseolus polystachios S3 Polygala polygama S1 Threatened Sida hermaphrodita S1 Endangered

If you have any questions or need any follow up information, please let me know.

Thank you, Laurel

Laurel Hammig, AICP | National Park Service Regional Planner Region 1 - National Capital Area 1100 Ohio Drive SW Washington, DC 20242

O: 202-619-6347 C: 202-875-3609

On Thu, Oct 31, 2019 at 9:43 AM Stacy Talmadge <<u>STalmadge@mdot.maryland.gov</u>> wrote:

Good morning,

Caryn Brookman asked that I send you the attached report per NPS request.

If you have any questions or issues with the file, please let me know.

Thank you,

Stacy.

Matthew J. Strickler Secretary of Natural Resources

Clyde E. Cristman *Director*



COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

Rochelle Altholz Deputy Director of Administration and Finance

Russell W. Baxter Deputy Director of Dam Safety & Floodplain Management and Soil & Water Conservation

Thomas L. Smith Deputy Director of Operations

July 31, 2019

Catherine Cruz-Ortiz Rummel, Klepper & Kahl, LLP 2600 Fair Lakes Circle, Suite 300 Fairfax, VA 22033

Re: 14168.26, I-495 and I-270 Managed Lanes Study

Dear Ms. Cruz-Ortiz:

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 Potomac Gorge Conservation Site is located within the project site. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. The Potomac Gorge Conservation Site has been given a biodiversity significance ranking of B1, which represents a site of outstanding significance. The natural heritage resources of concern at this site are:

Maianthemum stellatum	Starry Solomon's-plume	G5/S1S2/NL/NL
Phacelia covillei	Coville's phacelia	G3/S1/NL/NL
Gomphus fraternus	Midland Clubtail	G5/S2/NL/NL
Boechera dentata	Short's rock cress	G5/S1/NL/NL
Silene nivea	Snowy Campion	G4?/S1/NL/NL
Central Appalachian / Piedmont Low-Elevation Rich Boulderfield Forest		G3G4/S2S3/NL/NL
Coastal Plain / Outer Piedmont Basic M	G4?/ S3/NL/NL	

In addition, Tall Thistle (*Cirsium altissimum*, G5/S1/NL/NL), Wild cucumber (*Echinocystis lobata*, G5/SH/NL/NL), Smartweed Dodder (*Cuscuta polygonorum*, G5/S1/NL/NL), Northern rattlesnake-master (*Eryngium yuccifolium var. yuccifolium*, G5T5/S2/NL/NL), One-sided shinleaf (*Orthilia secunda*, G5/SH/NL/NL) and Pizzini's Amphipod (*Stygobromus pizzinii*, G3G4/S1S2/NL/NL) have been historically documented within the project site.

600 East Main Street, 24th Floor | Richmond, Virginia 23219 | 804-786-6124

State Parks • Soil and Water Conservation • Outdoor Recreation Planning Natural Heritage • Dam Safety and Floodplain Management • Land Conservation Furthermore, according to a DCR biologist, there is potential for the Northern Virginia Well amphipod (*Stygobromus phreaticus*, G1/S1/SOC/NL) and other *Stygobromus* amphipod species to occur within the project site.

By limiting the project footprint as much as possible, DCR recommends avoidance of documented occurrences of natural heritage resources including along the steep bluff on the eastern side in Virginia. Due to the potential for this site to support additional populations of natural heritage resources, DCR also recommends an inventory for the resources within areas proposed for disturbance including stormwater management ponds and equipment staging areas. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.

DCR-Division of Natural Heritage biologists are qualified and available to conduct inventories for rare, threatened, and endangered species. Please contact Anne Chazal, Natural Heritage Chief Biologist, at <u>anne.chazal@dcr.virginia.gov</u> or 804-786-9014 to discuss arrangements for fieldwork.

In addition, the proposed project will fragment an Ecological Core C4 as identified in the Virginia Natural Landscape Assessment (<u>https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla</u>), one of a suite of tools in Virginia ConservationVision that identify and prioritize lands for conservation and protection.

Ecological Cores are areas of unfragmented natural cover with at least 100 acres of interior that provide habitat for a wide range of species, from interior-dependent forest species to habitat generalists, as well as species that utilize marsh, dune, and beach habitats. Cores also provide benefits in terms of open space, recreation, water quality (including drinking water protection and erosion prevention), and air quality (including carbon sequestration and oxygen production), along with the many associated economic benefits of these functions. The cores are ranked from C1 to C5 (C5 being the least ecologically relevant) using many prioritization criteria, such as the proportions of sensitive habitats of natural heritage resources they contain.

Fragmentation occurs when a large, contiguous block of natural cover is dissected by development, and other forms of permanent conversion, into one or more smaller patches. Habitat fragmentation results in biogeographic changes that disrupt species interactions and ecosystem processes, reducing biodiversity and habitat quality due to limited recolonization, increased predation and egg parasitism, and increased invasion by weedy species.

Therefore minimizing fragmentation is a key mitigation measure that will preserve the natural patterns and connectivity of habitats that are key components of biodiversity. The deleterious effects of fragmentation can be reduced by minimizing edge in remaining fragments; by retaining natural corridors that allow movement between fragments; and by designing the intervening landscape to minimize its hostility to native wildlife (natural cover versus lawns).

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the 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.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please re-submit a completed order form and project map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

A fee of \$150.00 has been assessed for the service of providing this information. Please find attached an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, **DCR - Division of Natural Heritage, 600 East Main Street, 24th Floor, Richmond, VA 23219.** Payment is due within thirty days of the invoice date. <u>Please note the change of address for remittance of payment as of July 1, 2013.</u> Late payment may result in the suspension of project review service for future projects.

The Virginia Department of Game and Inland Fisheries (VDGIF) 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 <u>http://vafwis.org/fwis/</u> or contact Ernie Aschenbach at 804-367-2733 or Ernie.Aschenbach@dgif.virginia.gov.

Should you have any questions or concerns, please contact me at 804-225-2429. Thank you for the opportunity to comment on this project.

Sincerely,

Tyle Meade

Tyler Meader Natural Heritage Locality Liaison

CC: Troy Andersen, USFWS

David Smith

From:	Maddy Sigrist <msigrist@rkk.com></msigrist@rkk.com>
Sent:	Tuesday, March 24, 2020 1:47 PM
То:	David Smith
Subject:	FW: [EXTERNAL] RE: REVISED Survey Protocol

Hi David,

I hope you're doing okay amidst all of this craziness!

I checked-in again with the MLS managers to see if they had resolved the permit issues with MLS for the upcoming surveys. Caryn received the email below from Laurel Hammig, NPS. Please see the email below Laurel's from CHOH regarding the plant survey. It looks like they are now suggesting a full inventory of flora be conducted within the LOD. Is this how you understand their email? Are you still hoping to start next Monday or has the pandemic slowed or stopped your ability to conduct fieldwork? I assume doing a full inventory of all flora would take substantially longer that the survey you were proposing previously. What are your thoughts?

Thanks! Maddy

MADDY SIGRIST, PWS Project Scientist

700 East Pratt Street, Suite 500 Baltimore, MD 21202

410.728.2900 P | 410.462.9125 D | 410.812.4249 C www.rkk.com

Responsive People | Creative Solutions



From: Caryn Brookman (Consultant) <CBrookman.consultant@mdot.maryland.gov>
Sent: Tuesday, March 24, 2020 11:20 AM
To: Maddy Sigrist <msigrist@rkk.com>; Justin Reel <jreel@rkk.com>; Karen Kahl <kkahl@rkk.com>
Cc: Erron Ramsey <eramsey@rkk.com>
Subject: FW: [EXTERNAL] RE: REVISED Survey Protocol

We'll need to discuss this week.

From: Hammig, Laurel D <Laurel Hammig@nps.gov>
Sent: Tuesday, March 24, 2020 11:07 AM
To: Caryn Brookman (Consultant) <<u>CBrookman.consultant@mdot.maryland.gov</u>>; Karen Kahl <<u>kkahl@rkk.com</u>>
Subject: Re: [EXTERNAL] RE: REVISED Survey Protocol

Hi Caryn and Karen,

Hope you all are doing okay during this crazy time! Sorry for the delay. I thought I'd sent this info already. So sorry.

For the bat survey, work with Diane Pavek <u>diane_pavek@nps.gov</u> to obtain a research permit. You can cc me on any communication.

For the tree survey, the permit contacts are: GWMP-<u>peter_mccallum@nps.gov</u>, NACE-<u>jamese_hemsley@nps.gov</u> and CHOH-<u>mary_gentile@nps.gov</u> and cc me on communications.

Below is feedback from C&O and GWMP on the plant survey. For the plant survey, please work with the original permit contacts and include Andrew Landsman, <u>andrew_landsman@nps.gov</u> for CHOH and Brent Steury, <u>brent_steury@nps.gov</u>, for GWMP as well as myself on any communication.

Let me know if anything gets stuck. We'll do our best to be expeditious with these requests.

Thanks, Laurel

CHOH Feedback

Although the survey protocol includes the 15 species that we have documented within the LOD, it does not account for other species that had been documented nearby that may now exist within the LOD. CHOH has documented occurrences of 87 state-listed plant species within a 1,000 m buffer of the current road centerline. Considering a 500 m buffer, we have the below 67 plant species. Targeted surveys for 67 species seem logistically difficult so it would probably be easier to do a full flora of the area just within the LOD.

Ammannia coccinea Arabis patens Arabis shortii Arisaema dracontium Astragalus canadensis Baptisia australis Bromus latiglumis Bromus nottowayanus Carex careyana Carex conjuncta Carex hitchcockiana

Carex leavenworthii

- Carex shortiana
- Celtis laevigata
- Ceratophyllum echinatum
- Chrysogonum virginianum
- Clematis viorna
- Corallorhiza wisteriana
- Coreopsis tripteris
- Cuscuta polygonorum
- Cyperus retrofactus
- Diplazium pycnocarpon
- Dirca palustris
- Ellisia nyctelea
- Erigenia bulbosa
- Erythronium albidum
- Galactia volubilis
- Gentiana villosa
- Geum aleppicum
- Hasteola suaveolens
- Helianthus occidentalis
- Hibiscus laevis
- Hybanthus concolor
- Iresine rhizomatosa
- Lathyrus venosus
- Lipocarpha micrantha
- Lythrum alatum

Maianthemum stellatum

Matelea obliqua

Matteuccia struthiopteris

Mecardonia acuminata

Melica mutica

Monarda clinopodia

Paspalum fluitans

Passiflora lutea

Phacelia covillei

Phacelia purshii

Phaseolus polystachios

Polygala polygama

Potamogeton foliosus

Potentilla arguta

Ptelea trifoliata

Pycnanthemum verticillatum

Pycnanthemum virginianum

Ruellia strepens

Rumex altissumus

Sagittaria rigida

Salix exigua

Scutellaria galericulata

Sida hermaphrodita

Silene nivea

Solidago rupestris

Solidago simplex var. racemosa

Triphora trianthophora

Valeriana pauciflora

Vitis rupestris

Zizia aurea

GWMP Feedback

Below is a list of Virginia state rare plants that have been recorded from Turkey Run Park and the Potomac Heritage Trail (most of these species are not on the list in the protocol or are not recorded for Virginia). For certain that *Matteuccia struthiopteris* (not listed in the protocol) occurs very close to the project area in Turkey Run Park as does *Phacelia covillei*. We also have state listed animal species recorded from Turkey Run Park - will there be surveys for those species? It would be nice to have a complete list of all the plant species in these areas because some of the state rare moth species that have been found in this area have larvae that feed on non-state listed plants.

PLANTS

Arabis patens (spreading rockcress), S2 G3, Turkey Run Park

Arabis shortii (Boechera dentata) (short's rockcress), S2 G5, Turkey Run & Great Falls Parks Aster shortii (Symphyotrichum shortii) (short's aster), S1 G4G5, Windy Run area

Carex careyana (carey's sedge), S3 G4G5, Turkey Run & Great Falls Parks

Cerastium arvense var. velutinum (field chickweed), S2? G5T4?, Turkey Run & Great Falls Parks

Eriginea bulbosa (harbinger-of-spring), S3 G5, Great Falls and Turkey Run Parks Erythronium albidum (white trout-lily), S2 G5, Turkey Run, Great Falls, & Theodore Roosevelt Island Floerkea proserpinacoides (false mermaid-weed), S3 G5, Turkey Run & Great Falls Parks Hasteola suaveolens (Senecio suaveolens) (sweet-scented indian-plantain), S2 G4, Turkey Run & Great Falls Park Juglans cinerea (butternut), S3? G4, Turkey Run & Great Falls Parks Maianthemum stellatum (starry false solomon's seal), S2 G5, Turkey Run & Great Falls Parks Matteuccia struthiopteris (ostrich fern), S1 G5T5, Turkey Run Park; S2S3 G5 Theodore Roosevelt Island VOU (s.n. US) Panax quinquefolius (american ginseng), S3S4 G3G4 LT, Turkey Run LT Phacelia covillei (coville's phacelia), S1 G3, Clara Barton and Turkey Run Parks Sida (Ripariosida) hermaphrodita (virginia sida), S1 G3, Potomac River shore near Spout Run Solidago racemosa (sticky goldenrod), S1 G3?, Great Falls Park, Turkey Run Park and Gulf Branch Spartina pectinata (freshwater cordgrass), S2 G5, Turkey Run & Great Falls Parks Valeriana pauciflora (pink valerian), S2 G4, Turkey Run & Great Falls Parks

ANIMALS

Stygobromus pizzinii (groundwater amphipod), S1S2 G2, Turkey Run, Pimmit Run, Windy Run, and a seep at Great Falls.

Fontigens bottimeri (appalachian springsnail), S1S2 G2, Great Falls & Turkey Run Parks

Striatura milium (fine-ribbed striate), SU G5, Turkey Run and Great Falls Parks

Acronicta radcliffei (Radcliffe's dagger moth), S2S4 G5, TurkeyRun Park and Great Falls

Oligia (Neoligia) crytora (mantled brocade), S2S4, Great Falls and Turkey Run Parks

Orthosia revicta (subdued quaker moth), S2S4 G?, TurkeyRun Park

Sphinx franckii (franck's sphinx), S2S3 G4, Turkey Run, 2014 image (host Elm & White Ash)

Cordulegaster erronea (tiger spiketail), S3 G4, Turkey Run & Great Falls Park

Neophylax virginica (A Caddisfly, Trichoptera), Turkey Run, Turkey Run Park (1921) rediscovered in 2004, described as **new to science** in 2011.

Hydropsyche hoffmani (A Caddisfly, Trichoptera), G3G4, S3, Turkey Run & Great Falls Parks

Ithytrichia clavata (A Caddisfly, Trichoptera), G5, S2S4, Turkey Run Park

Mayatrichia ayama (A Caddisfly, Trichoptera), G5, S2S4, Turkey Run & Great Falls Parks

Ochrotrichia tarsalis (A Caddisfly, Trichoptera), G5, S2S4, Turkey Run & Great Falls Parks

Rhyacophila invaria (A Caddisfly, Trichoptera), G5, S2S4, Turkey Run Park

Hydropsyche brunneipennis (A Caddisfly, Trichoptera), G3G4, S1S3, Turkey Run & Great Falls Parks

Perimyotis (Pipistrellus) subflavus (tricolored bat or eastern pipistrelle), S1S3 G3 PE, Petitioned for federal listing (2016), Great Falls, Turkey Run, Dyke Marsh, Ft. Hunt, Riverside Park

Laurel Hammig, AICP | National Park Service Regional Planner Region 1 - National Capital Area 1100 Ohio Drive SW Washington, DC 20242

O: 202-619-6347 C: 202-875-3609 From: Caryn Brookman (Consultant) <<u>CBrookman.consultant@mdot.maryland.gov</u>>
Sent: Tuesday, March 24, 2020 8:20 AM
To: Hammig, Laurel D <<u>Laurel_Hammig@nps.gov</u>>
Subject: [EXTERNAL] RE: REVISED Survey Protocol

Good morning Laurel,

I hope you are well. I wanted to follow up on the permit as we will need to gear up to start soon. I know the existing permit needs updating so please let me know what you need from our end. So far we've shared the protocol, list of species based on VDCR and NPS consultation and survey area mapping.

Anything more you can do on your end to get this going would be much appreciated. Thanks, Caryn

From: Hammig, Laurel D <Laurel Hammig@nps.gov>
Sent: Monday, March 9, 2020 9:16 AM
To: Caryn Brookman (Consultant) <CBrookman.consultant@mdot.maryland.gov>
Subject: Re: REVISED Survey Protocol

Hi Caryn,

The permits will need to be updated to include this work. The team also has concerns that the species included is not comprehensive. Would you like a list of species or would a call with the teams be better? Let me know.

Thanks! Laurel

Laurel Hammig, AICP | National Park Service Regional Planner Region 1 - National Capital Area 1100 Ohio Drive SW Washington, DC 20242

O: 202-619-6347 C: 202-875-3609

From: Caryn Brookman (Consultant) <<u>CBrookman.consultant@mdot.maryland.gov</u>>
Sent: Wednesday, March 4, 2020 12:53 PM
To: Hammig, Laurel D <<u>Laurel_Hammig@nps.gov</u>>
Subject: [EXTERNAL] REVISED Survey Protocol

Hi Laurel,

Virginia Department of Conservation and Recreation (VDCR) has asked that we survey other species of concern in Virginia. We will include surveying of these species in the current effort. There are three additional species now listed in the survey protocol (attached).

The team would like to survey March 30th-April 4th. However, we need to know whether we can use the existing SUPs to cover this work. Please let me know as soon as you know.

Thank you for helping with this effort.

Caryn



I-495 & I-270 P3 Office 601 North Calvert Street Baltimore, MD 21202

<u>Mailing Address</u> 707 North Calvert Street P-601 Baltimore, MD 21202 Caryn J. G. Brookman Environmental Program Manager I-495 & I-270 P3 Office

Email: <u>cbrookman@sha.state.md.us</u> Office: 410.637.3335 <u>www.roads.maryland.gov</u> <u>www.495-270-P3.com</u>



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SCIENTIFIC RESEARCH AND COLLECTING PERMIT

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general and special conditions

United States Department of the Interior National Park Service

Chesapeake and Ohio Canal

Study#: CHOH-00251 Permit#: CHOH-2020-SCI-0010 Start Date: Apr 02, 2020 Expiration Date: Dec 31, 2020 Coop Agreement#: Optional Park Code:

Name:Mr David Smith	Phone: 4438372154	Email:davids@cri.biz
Name of institution represented: Coastal Resources Inc.		
Additional investigators or key fi	eld assistants:	
Name: Stacey Young	Phone: 4104629176	Email: syoung@rkk.com
Name: Kevin Stohlgren	Phone: 4438372286	Email: kevins@cri.biz
Name: Sean Sipple	Phone: 4438372285	Email: seans@cri.biz
Name: Amanda Cruz	Phone: 4438372151	Email: amandac@cri.biz
Study Title: I-495 & I-270 Managed Lanes Stu	udy	
overlaps with the C&O Canal Par assess potential effects of the proj	k and George Washington Memorial	rare plants within the I-495 & I-270 MLS project study area tha Parkway units. These surveys will help the project team better ow the project to implement avoidance, minimization, and our within the study area.
Vascular Plants		
Locations authorized:		
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Within the I-495 & I-270 Manage	ng the Potomac River floodplain adja	
Within the I-495 & I-270 Manage of between 200 and 1,000 feet alo Transportation method to resear On foot	ong the Potomac River floodplain adja ch site(s): nens or materials, quantities, and a	acent to the tow path.
Within the I-495 & I-270 Manage of between 200 and 1,000 feet alo Transportation method to resear On foot Collection of the following specin No permanent specimen collection	ong the Potomac River floodplain adja ch site(s): nens or materials, quantities, and a n is approved	acent to the tow path.
Within the I-495 & I-270 Manage of between 200 and 1,000 feet alo Transportation method to resear On foot Collection of the following specin No permanent specimen collectio Location of plants and/or plant poprovided to NPS	ong the Potomac River floodplain adja ch site(s): nens or materials, quantities, and a n is approved	ny limitations on collecting: and any and all data, including GPS coordinates, must be
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Researcher will provide a copy of the final project report(s), data, dissertations, publications, and photographs to the park, in addition to the Investigator's Annual Report. Final reports will be included in the park library and archives.

If any GPS data are collected it will be provided to the park accompanied by appropriate metadata.

No permanent specimen collection is permitted without confirmation from research coordinator

Recommended by park st	aff(name and title):		Reviewed by Collection	ons Manager:
Approved by park official	ANDREW	Digitally signed by ANDREW LANDSMAN Date: 2020.03.30 08:24:31 -04'00' Digitally signed by TINA CAPPETTA Date: 2020.03.30	Yes Date Approved:	No
Title:		09:35:24 -04'00'		
Superintendent			_	

I Agree To All Conditions And Restrictions Of this Permit As Specified (Not valid unless signed and dated by the principal investigator)

David R. Smith

3/27/2020

(Principal investigator's signature)

(Date)

THIS PERMIT AND ATTACHED CONDITIONS AND RESTRICTIONS MUST BE CARRIED AT ALL TIMES WHILE CONDUCTING RESEARCH ACTIVITIES IN THE DESIGNATED PARK(S)



1. **Authority** - The permittee is granted privileges covered under this permit subject to the supervision of the superintendent or a designee, and shall comply with all applicable laws and regulations of the National Park System area and other federal and state laws. A National Park Service (NPS) representative may accompany the permittee in the field to ensure compliance with regulations.

2. **Responsibility** - The permittee is responsible for ensuring that all persons working on the project adhere to permit conditions and applicable NPS regulations.

3. False information - The permittee is prohibited from giving false information that is used to issue this permit. To do so will be considered a breach of conditions and be grounds for revocation of this permit and other applicable penalties.

4. **Assignment** - This permit may not be transferred or assigned. Additional investigators and field assistants are to be coordinated by the person(s) named in the permit and should carry a copy of the permit while they are working in the park. The principal investigator shall notify the park's Research and Collecting Permit Office when there are desired changes in the approved study protocols or methods, changes in the affiliation or status of the principal investigator, or modification of the name of any project member.

5. **Revocation** - This permit may be terminated for breach of any condition. The permittee may consult with the appropriate NPS Regional Science Advisor to clarify issues resulting in a revoked permit and the potential for reinstatement by the park superintendent or a designee.

6. **Collection of specimens (including materials)** - No specimens (including materials) may be collected unless authorized on the Scientific Research and Collecting permit.

The general conditions for specimen collections are:

- Collection of archeological materials without a valid Federal Archeology Permit is prohibited.
- Collection of federally listed threatened or endangered species without a valid U.S. Fish and Wildlife Service endangered species permit is prohibited.
- Collection methods shall not attract undue attention or cause unapproved damage, depletion, or disturbance to the environment and other park resources, such as historic sites.
- New specimens must be reported to the NPS annually or more frequently if required by the park issuing the permit. Minimum information for annual reporting includes specimen classification, number of specimens collected, location collected, specimen status(e.g., herbarium sheet, preserved in alcohol / formalin, tanned and mounted, dried and boxed, etc.), and current location.
- Collected specimens that are not consumed in analysis or discarded after scientific analysis remain federal property. The NPS reserves the right to designate the repositories of all specimens removed from the park and to approve or restrict reassignment of specimens from one repository to another. Because specimens are Federal property, they shall not be destroyed or discarded without prior NPS authorization.
- Each specimen (or groups of specimens labeled as a group) that is retained permanently must bear NPS labels and must be accessioned and cataloged in the NPS National Catalog.Unless exempted by additional park specific stipulations, the permittee will complete the labels and catalog records and will provide accession information. It is the permittee's responsibility to contact the park for cataloging instructions and specimen labels as well as instructions on repository designation for the specimens.
- Collected specimens may be used for scientific or educational purposes only, and shall be dedicated to public benefit and be accessible to the public in accordance with NPS policies and procedures.
- Any specimens collected under this permit, any components of any specimens (including but not limited to natural organisms, enzymes or other bioactive molecules, genetic materials, or seeds), and research results derived from collected specimens are to be used for

scientific or educational purposes only, and may not be used for commercial or other revenue - generating purposes unless the permittee has entered into a Cooperative Research And Development Agreement(CRADA) or other approved benefit - sharing agreement with the NPS. The sale of collected research specimens or other unauthorized transfers to third parties is prohibited. Furthermore, if the permittee sells or otherwise transfers collected specimens, any components thereof, or any products or research results developed from such specimens or their components without a CRADA or other approved benefit-sharing agreement with NPS, permittee will pay the NPS a royalty rate of twenty percent(20 %) of gross revenue from such sales or other revenues. In addition to such royalty, the NPS may seek other damages to which the NPS may be entitled including but not limited to injunctive relief against the permittee.

7. **Reports** - - The permittee is required to submit an Investigator's Annual Report and copies of final reports, publications, and other materials resulting from the study. Instructions for how and when to submit an annual report will be provided by NPS staff.Park research coordinators will analyze study proposals to determine whether copies of field notes, databases, maps, photos, and / or other materials may also be requested.The permittee is responsible for the content of reports and data provided to the National Park Service

8. **Confidentiality** - The permittee agrees to keep the specific location of sensitive park resources confidential. Sensitive resources include threatened species, endangered species, and rare species, archeological sites, caves, fossil sites, minerals, commercially valuable resources, and sacred ceremonial sites.

9. Methods of travel - Travel within the park is restricted to only those methods that are available to the general public unless otherwise specified in additional stipulations associated with this permit.

10. Other permits - The permittee must obtain all other required permit(s) to conduct the specified project.

11. **Insurance** - If liability insurance is required by the NPS for this project, then documentation must be provided that it has been obtained and is current in all respects before this permit is considered valid.

12. Mechanized equipment - No use of mechanized equipment in designated, proposed, or potential wilderness areas is allowed unless authorized by the superintendent or a designee in additional specific conditions associated with this permit.

13. **NPS participation** - The permittee should not anticipate assistance from the NPS unless specific arrangements are made and documented in either an additional stipulation attached to this permit or in other separate written agreements.

14. **Permanent markers and field equipment** - The permittee is required to remove all markers or equipment from the field after the completion of the study or prior to the expiration date of this permit. The superintendent or a designee may modify this requirement through additional park specific conditions that may be attached to this permit. Additional conditions regarding the positioning and identification of markers and field equipment may be issued by staff at individual parks.

15. Access to park and restricted areas - Approval for any activity is contingent on the park being open and staffed for required operations. No entry into restricted areas is allowed unless authorized in additional park specific stipulations attached to this permit.

16. Notification - The permittee is required to contact the park's Research and Collecting Permit Office (or other offices if indicated in the stipulations associated with this permit) prior to initiating any fieldwork authorized by this permit. Ideally this contact should occur at least one week prior to the initial visit to the park.

17. **Expiration date** - Permits expire on the date listed. Nothing in this permit shall be construed as granting any exclusive research privileges or automatic right to continue, extend, or renew this or any other line of research under new permit(s).

18. **Other stipulations** - This permit includes by reference all stipulations listed in the application materials or in additional attachments to this permit provided by the superintendent or a designee. Breach of any of the terms of this permit will be grounds for revocation of this permit and denial of future permits.



SCIENTIFIC RESEARCH AND COLLECTING PERMIT

Grants permission in accordance with the attached

general and special conditions

United States Department of the Interior National Park Service

George Washington Memorial Parkway

Study#: GWMP-00181 Permit#: GWMP-2020-SCI-0013 Start Date: Apr 02, 2020 Expiration Date: Oct 31, 2020 Coop Agreement#: Optional Park Code:

Name of principal investigator: Name:Mr David Smith	Phone: 4438372154	Email:davids@cri.biz
Name of institution represented: Coastal Resources Inc.		
Additional investigators or key f	ield assistants:	
Name: Stacey Young	Phone: 4104629176	Email: syoung@rkk.com
Name: Kevin Stohlgren	Phone: 4438372286	Email: kevins@cri.biz
Name: Sean Sipple	Phone: 4438372285	Email: seans@cri.biz
Name: Amanda Cruz	Phone: 4438372151	Email: amandac@cri.biz
Name: Lindsey Nolen	Phone: 4438372287	Email: lindseyn@cri.biz
Name: Alison Montgomery	Phone: 443-837-2159	Email: alisonm@cri.biz
Name: Emily Murrell	Phone: 443-837-2148	Email: emilym@cri.biz
Name: Megan Niehaus	Phone: 443-837-2142	Email: megann@cri.biz
Name: Shannon Pursell	Phone: 443-837-2283	Email: shannonp@cri.biz
	Phone: 4438372156	Email: emmab@cri.biz
I-495 & I-270 Managed Lanes St Purpose of study: To document threatened and enda overlaps with the C&O Canal Par	udy angered species and other state listed rk and George Washington Memorial	rare plants within the I-495 & I-270 MLS project study area tha Parkway units. These surveys will help the project team better
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Study Title: I-495 & I-270 Managed Lanes St Purpose of study: To document threatened and enda overlaps with the C&O Canal Par assess potential effects of the pro- mitigation alternatives where stat Subject/Discipline: Plant Communities (Vegetation) Threatened / Endangered / Rare S Locations authorized: Within the I-495 & I-270 Manage	udy angered species and other state listed tk and George Washington Memorial ject on sensitive plant species and all e threatened or endangered plants occ Species ed Lanes Study corridor where it cros	rare plants within the I-495 & I-270 MLS project study area tha Parkway units. These surveys will help the project team better ow the project to implement avoidance, minimization, and cur within the study area.
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NPS General Conditions for Scientific Research and Collecting Permit (available at the RPRS HELP page) apply to this permit. The following specific conditions or restrictions, and any attached conditions, also apply to this permit: Photographic vouchers of any RTEs will be taken.

Findings, raw data, images, etc. will be shared with the park upon request.

Recommended by park staff(name and title):	Reviewed by Colle	ections Manager:
Mireya Stirzaker Natural Resources Specialist	Yes	No
Approved by park official:	Date Approved:	
Brent Sterry	8 April	2020
Title:		
Brent Steury, Natural Resources Program Manager		
I Agree To All Conditions And Restrictions Of this I (Not valid unless signed and dated by the principal (Principal investigator's signature)	Permit As Specified al investigator)	1 <u>3/31/20</u> (Date)

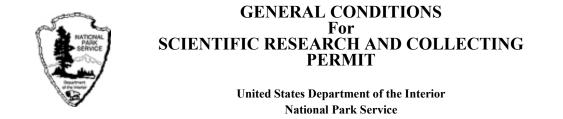
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E.

THIS PERMIT AND ATTACHED CONDITIONS AND RESTRICTIONS MUST BE CARRIED AT ALL TIMES WHILE CONDUCTING RESEARCH ACTIVITIES IN THE DESIGNATED PARK(S)

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1. **Authority** - The permittee is granted privileges covered under this permit subject to the supervision of the superintendent or a designee, and shall comply with all applicable laws and regulations of the National Park System area and other federal and state laws. A National Park Service (NPS) representative may accompany the permittee in the field to ensure compliance with regulations.

2. **Responsibility** - The permittee is responsible for ensuring that all persons working on the project adhere to permit conditions and applicable NPS regulations.

3. False information - The permittee is prohibited from giving false information that is used to issue this permit. To do so will be considered a breach of conditions and be grounds for revocation of this permit and other applicable penalties.

4. **Assignment** - This permit may not be transferred or assigned. Additional investigators and field assistants are to be coordinated by the person(s) named in the permit and should carry a copy of the permit while they are working in the park. The principal investigator shall notify the park's Research and Collecting Permit Office when there are desired changes in the approved study protocols or methods, changes in the affiliation or status of the principal investigator, or modification of the name of any project member.

5. **Revocation** - This permit may be terminated for breach of any condition. The permittee may consult with the appropriate NPS Regional Science Advisor to clarify issues resulting in a revoked permit and the potential for reinstatement by the park superintendent or a designee.

6. **Collection of specimens (including materials)** - No specimens (including materials) may be collected unless authorized on the Scientific Research and Collecting permit.

The general conditions for specimen collections are:

- Collection of archeological materials without a valid Federal Archeology Permit is prohibited.
- Collection of federally listed threatened or endangered species without a valid U.S. Fish and Wildlife Service endangered species permit is prohibited.
- Collection methods shall not attract undue attention or cause unapproved damage, depletion, or disturbance to the environment and other park resources, such as historic sites.
- New specimens must be reported to the NPS annually or more frequently if required by the park issuing the permit. Minimum information for annual reporting includes specimen classification, number of specimens collected, location collected, specimen status(e.g., herbarium sheet, preserved in alcohol / formalin, tanned and mounted, dried and boxed, etc.), and current location.
- Collected specimens that are not consumed in analysis or discarded after scientific analysis remain federal property. The NPS reserves the right to designate the repositories of all specimens removed from the park and to approve or restrict reassignment of specimens from one repository to another. Because specimens are Federal property, they shall not be destroyed or discarded without prior NPS authorization.
- Each specimen (or groups of specimens labeled as a group) that is retained permanently must bear NPS labels and must be accessioned and cataloged in the NPS National Catalog.Unless exempted by additional park specific stipulations, the permittee will complete the labels and catalog records and will provide accession information. It is the permittee's responsibility to contact the park for cataloging instructions and specimen labels as well as instructions on repository designation for the specimens.
- Collected specimens may be used for scientific or educational purposes only, and shall be dedicated to public benefit and be accessible to the public in accordance with NPS policies and procedures.
- Any specimens collected under this permit, any components of any specimens (including but not limited to natural organisms, enzymes or other bioactive molecules, genetic materials, or seeds), and research results derived from collected specimens are to be used for

scientific or educational purposes only, and may not be used for commercial or other revenue - generating purposes unless the permittee has entered into a Cooperative Research And Development Agreement(CRADA) or other approved benefit - sharing agreement with the NPS. The sale of collected research specimens or other unauthorized transfers to third parties is prohibited. Furthermore, if the permittee sells or otherwise transfers collected specimens, any components thereof, or any products or research results developed from such specimens or their components without a CRADA or other approved benefit-sharing agreement with NPS, permittee will pay the NPS a royalty rate of twenty percent(20 %) of gross revenue from such sales or other revenues. In addition to such royalty, the NPS may seek other damages to which the NPS may be entitled including but not limited to injunctive relief against the permittee.

7. **Reports** - - The permittee is required to submit an Investigator's Annual Report and copies of final reports, publications, and other materials resulting from the study. Instructions for how and when to submit an annual report will be provided by NPS staff.Park research coordinators will analyze study proposals to determine whether copies of field notes, databases, maps, photos, and / or other materials may also be requested.The permittee is responsible for the content of reports and data provided to the National Park Service

8. **Confidentiality** - The permittee agrees to keep the specific location of sensitive park resources confidential. Sensitive resources include threatened species, endangered species, and rare species, archeological sites, caves, fossil sites, minerals, commercially valuable resources, and sacred ceremonial sites.

9. Methods of travel - Travel within the park is restricted to only those methods that are available to the general public unless otherwise specified in additional stipulations associated with this permit.

10. Other permits - The permittee must obtain all other required permit(s) to conduct the specified project.

11. **Insurance** - If liability insurance is required by the NPS for this project, then documentation must be provided that it has been obtained and is current in all respects before this permit is considered valid.

12. Mechanized equipment - No use of mechanized equipment in designated, proposed, or potential wilderness areas is allowed unless authorized by the superintendent or a designee in additional specific conditions associated with this permit.

13. **NPS participation** - The permittee should not anticipate assistance from the NPS unless specific arrangements are made and documented in either an additional stipulation attached to this permit or in other separate written agreements.

14. **Permanent markers and field equipment** - The permittee is required to remove all markers or equipment from the field after the completion of the study or prior to the expiration date of this permit. The superintendent or a designee may modify this requirement through additional park specific conditions that may be attached to this permit. Additional conditions regarding the positioning and identification of markers and field equipment may be issued by staff at individual parks.

15. Access to park and restricted areas - Approval for any activity is contingent on the park being open and staffed for required operations. No entry into restricted areas is allowed unless authorized in additional park specific stipulations attached to this permit.

16. Notification - The permittee is required to contact the park's Research and Collecting Permit Office (or other offices if indicated in the stipulations associated with this permit) prior to initiating any fieldwork authorized by this permit. Ideally this contact should occur at least one week prior to the initial visit to the park.

17. **Expiration date** - Permits expire on the date listed. Nothing in this permit shall be construed as granting any exclusive research privileges or automatic right to continue, extend, or renew this or any other line of research under new permit(s).

18. **Other stipulations** - This permit includes by reference all stipulations listed in the application materials or in additional attachments to this permit provided by the superintendent or a designee. Breach of any of the terms of this permit will be grounds for revocation of this permit and denial of future permits.

Appendix B

RTE Plant Species Descriptions

Arabis patens Sullivant – Spreading rockcress is another biennial to sometimes perennial member of the mustard family. Stems are 3-6 dm tall, simple or branched, with spreading hairs or glabrous above. Basal leaves are ovate to oblanceolate, 1.5-7 cm long and dentate. Stem leaves are ovate, 2-5 cm long, with an auricled, clasping base and serrate-dentate margins or the uppermost entire. Lower leaves are hirsute on both sides. Pedicels are ascending, 10-16 mm long in fruit. Flowers are white. Siliques 25-45 X 0.5-1.5 mm in size, linear, subterete, and ascending. Valves are 1-nerved to or above the middle. Seeds narrowly winged, 1.25-1.7 mm, and in one row. Habitat includes thin soils on and around shaded outcrops of limestone, dolomite, marble, and calcareous shale; also, in nutrient-rich, river floodplain forests. Flowers occur from April through May and seeds are present through July.

Astragalus canadensis Linnaeus – Canadian milk-vetch is a perennial and rhizomatous member of the legume family. Stems are coarse, branched, 3-16 dm tall, and smooth or slightly hairy. Leaflets number 13-31 and are 1.5-4 cm long by 5-15 mm wide. They are elliptic or obtuse in shape and slightly notched at the tip and are smooth above with stiff, appressed hairs beneath. Racemes 5-12 cm long and densely flowered. Flowers are spreading to reflexed and creamy to greenish-white. Pods cylindrical, erect, 1-2 cm long by 4-7 mm thick, and crowded. Habitats include dry to occasionally mesic, open forests, rocky woodlands, river bluffs in the Piedmont, usually on calcareous substrates. Flowers in May through July and is in seed in August and September.

Baptisia australis (Linnaeus) R. Brown – Blue wild indigo is a perennial herb with ascending branches that can grow to over 1.5 m tall. Leaflets are small (3 cm by 7 cm), oblong, and have entire margins. Flower racemes are erect, terminal, and loosely flowered, growing to 40 cm tall. Flowers are blue and seed pods are pointed, somewhat inflated, and contain many small seeds. Habitat includes prairie-like scour bars and riverside prairies in rich alluvium. Flowering occurs in May and fruits are present from June to August.

Boechera dentata (Rafinesque) Al-Shehbaz & Zarucchi – Short's rockcress is a small, hairy biennial to sometimes perennial member of the mustard family. Stems are 2-7 dm tall, usually branched at the base, and thinly pubescent. Basal rosette leaves are long petioled, dentate, and stellate below, strigose above. Flower petals are white and 2-3 mm long. Siliques (seed capsules) are 1.5-4 X 0.07-0.13 cm, straight to slightly curved, spreading, and stellate-pubescent. Seeds are up to 1 mm in length along one row, wingless. Habitat includes rich, well-drained floodplains and rocky slopes along the Potomac River. Flowering takes place in late March through early to mid-April and seeds are present in June.

Bromus latiglumis (Shear) A.S. Hitchcock – Early-leaf brome is a perennial grass. Stems range in height from 0.5-2 m tall from tufted bases. Leaf sheaths are strongly ribbed, smooth, longer than the internodes, and closed by a firm, hairy ring at the base of the blade. Blades are dark green and 5-17 mm wide with a conspicuous white midrib. The base of the blade contains flanges that form an auricle. The flowering panicle is loose, ovoid, 1.5-3 dm long, with the spreading or drooping branches usually in pairs. Spikelets are lanceolate to elliptic-oblong, 1.5-3.5 cm long by 5-9 mm wide, and each loosely 3-8-flowered. Glumes hairy or smooth. Lemmas thin, smooth or slightly hairy near the base, 3-4 mm wide, and strongly 5-7-nerved. Awns 2-6 mm. Palea with rounded flat

tip. Grains 6-7 mm. Habitats include well-drained floodplain forests, riverbanks, and mesic upland forests near streams. Plants begin to flower in July and seeds remain through November.

Carex careyana Torrey ex Dewey – Carey's sedge is a perennial sedge that grows in tufts with reddish purple bases. Culms are slender, ascending, and triangular, growing from 2.5-8 dm tall. Each culm has several small leaves. Basal leaves lanceolate, 2-3.7 dm long by 8-17 mm wide. The terminal spike is staminate, peduncled, dark brown, and 1-2 cm long. Pistillate spikes 2-4 widely spaced, peduncled to nearly sessile upwardly. Spikes are 4-8-flowered, cylindrical, and 7-20 mm long. Perigynia ovoid, 3-angled, and 5-6.5 cm long with many nerves. Scales are ovate, acute to awned, white to purplish in color with a green midrib, shorter than the perigynia. Achenes 4.5-6 mm and sharply trigonous. Habitat includes rich, well-drained floodplain forests, mesic and drymesic upland forests over limestone, dolomite, and mafic rocks. Flowering occurs in March and April and seeds are present in June and July.

Carex hitchcockiana Dewey – Hitchcock's sedge is a perennial sedge that grows in tufts with brownish bases. Culms are coarse, sharply angled, and 3-7 dm tall. Leaves are flat, 3-7 mm wide with pubescent sheaths. Bracts are leaf-like with stiff hairs. Staminate spike 1-3 cm long. Pistillate spikes 2-4, loosely few-flowered, erect, 1-2.5 cm long, and well separated with varying length peduncles. Perigynia ovoid to obovoid and triangular, 4-5 mm long, and finely nerved. Scales ovate, exceeding the perigynia, and awned. Achenes 3.2-3.9 mm long, obovoid, and tightly enclosed by the perigynium. Habitat includes rich, well-drained floodplain forests, rich cove forests, dry-mesic to dry calcareous forests over limestone, dolomite, and rarely, mafic rocks. Flowering occurs in May and June and seeds are present in July and August.

Clematis viorna Linnaeus – Vasevine is a high climbing somewhat woody perennial in the crowfoot family. Stems are 6-angled and sparsely hairy. Leaves usually bipinnately compound with 2-4 pairs of bright green leaflets. Leaflets are ovate to lanceolate, acute, entire or 2-3-lobed, and sparsely hairy beneath. Flowering stems are usually minutely hairy. Flowers are dull purple and hairy on the back and margins. Fruiting heads are 5-7 cm in diameter. Achenes are 3.5-5 X 3-4.5 mm in size with yellow-brown hairs. Habitats include dry to mesic rocky forests, woodlands, barrens, rock outcrops, rocky river shores, and rich floodplains, usually on base-rich substrates. Flowers in April through early summer with seeds present through October.

Corallorhiza wisteriana Conrad – Spring coralroot is a perennial member of the orchid family. Flowering stems are purplish, somewhat swollen at the base, and 1-4.5 dm tall. The raceme is 5-20 cm long with 6-16 flowers. Flowers are reddish to purplish and horizontal to reflexed on the stem. The flower lip is white with purplish dots, rounded, and bent downward. Capsule 8-12 mm long, drooping. Habitat includes rich mesic forests, dry rocky forests and woodlands, calcareous ravines in the Coastal Plain; usually in base-rich soils. Flowers appear in March and April and seed capsules are present June into July.

Coreopsis tripteris Linnaeus – Tall tickseed is a perennial herb in the composite family with long or short rhizomes. Stems are stout and up to 3 m tall. Leaves are numerous, grow mostly along the stem, and are divided into three to five leaflets. Flowers are yellowish and become tinted purple or deep red. Habitat includes bedrock scour bars and riverside prairies in rich alluvium. Flowering occurs in September and fruits are present from September through October.

Cuscuta polygonorum Engelmann – Smartweed dodder is an annual parasitic twining or trailing herb in the morning glory family. Stems are slender and orange in color. Flowers are 2-2.5 mm long and sessile, in compact clusters 0.5-1 cm in diameter. Flower parts mostly in fours. Stamens attached in the notches of the corolla. Mature capsule exceeds the calyx. Seeds about 1.3 mm long. Habitat includes depression swamps and ponds, impoundments, and wet clearings. It can be found on *Persicaria* spp. and other herbaceous hosts. Flowers June and July and seeds persist into November.

Diplazium pycnocarpon (Sprengel) Broun – Glade fern is a rhizomatous terrestrial member of the fern family. Rhizomes are about 5 mm in diameter. Fronds are 6-12 dm tall and 1-2 dm wide and once pinnate. Pinnae in 20-30 pairs, linear; 8-12 cm long, with entire margins. The lower pinnae with short stems and the upper ones sessile. Sori linear, nearly straight, and borne on one side of the veinlets. Habitats include rich soils of cove forests, mesic slope forests, and Coastal Plain calcareous ravines.

Erigenia bulbosa (Michaux) Nuttall – Harbinger-of-spring is a perennial spring ephemeral member of the carrot family with deep tubers. Stems are 1-2.3 dm, simple, and glabrous. One or two broadly ovate leaves reach 10-20 cm at maturity and are two to three-ternately divided into linear to spatulate segments. Umbels are terminal and compound, usually into three rays. Petals are 3-4 mm long and anthers are black. Fruits are about 2 mm long and 3-5 mm wide, subtended by persistent bracts. Plants are found on rich soils of well-drained floodplain forests and mesic slope forests at low elevations. Flowers from late February through March and seeds are present in April.

Erythronium albidum Nuttall – Small white fawn-lily is a perennial member of the lily family. It has a very deep bulb or corm and is extensively colonial. Sterile corms numerous, producing a single leaf. Fertile corms with two, mostly mottled leaves 8-22 X 1.3-2 cm in size. Leaves are elliptic-lanceolate to elliptic, acute or short-acuminate. Scapes (flowering stems) stout, 1-2 dm in length. White to pinkish to bluish white flowers 2.5-5 cm in size. Stigmas 3-cleft and spreading or recurved. Capsules rounded to slightly depressed at the summit, erect, and usually held off the ground. Habitat includes rich, well-rained floodplain forests and, occasionally on adjacent mesic, lower slopes. Flowers appear from February to mid-April and fruits are present in May.

Galactia volubilis (Linnaeus) Britton – Downy milk-pea is trailing or twining herbaceous perennial in the legume family. Stems up to 1.5 m in length with spreading or retrorse, fine hairs. Leaflets are ovate to oval-oblong and 1.5-4 cm long by 1-2.5 cm wide. Peduncles and rachis hairy, 3-15 cm long, with flowers growing nearly to the base 1-3 cm apart from one another. Calyx 4-5.5 mm long. Flower about 12 mm long and pink or purplish in color, the keel petals 6-7 mm long. Legumes linear, 2.5-5 cm long by 4 mm wide, and densely soft-hairy. Habitats include dry woodlands, barrens, and clearings. Flowers from May to July and seeds present through September.

Gentiana villosa Linnaeus – Striped gentian is a perennial herb in the gentian family. Stems can be singular or multiple arising from tubers or rhizomes and range from 1-6 dm tall. Leaves are 4-8 cm long, blunt tipped, and long tapering to the base. Flowers are greenish-white to greenish-

purple and striped within. Capsules 1.7-2.5 cm long, ellipsoid to oblong. Seeds 1.1-1.3 mm long, wingless. Habitats include dry to occasionally mesic upland forests and clearings. Flowers in July and August and seeds present into November.

Geum aleppicum Jacquin – Yellow avens is a perennial herb in the rose family. Stems are stout, 6-15 dm tall, and hairy. Basal leaves are long petioled, pinnately compound, with 5-9 main obovate leaflets that are incised and toothed. Stem leaves with 3-5 acute, incised leaflets. Stipules incised and 1-2 cm long. Flowers deep yellow to orange, 10-20 mm across. Petals rounded to broad-obovate, 5-10 mm long. Fruiting head globose-ovoid, 14-23 mm broad, with the achenes attached to a hairy receptacle. Achenes hairy to glabrous. Habitats include floodplain forests, and mesic or alluvial shaded clearings. Flowers appear in May and June and plants remain in seed through July and August.

Helianthus occidentalis Riddell – Few-leaf sunflower is a rhizomatous perennial herb in the composite family. Stems are hairy and 4-25 dm tall. Leaves are opposite, oval or lanceolate-ovate, and range in size from 5-20 cm long by 2-10 cm wide. Margins are mostly entire and leaf surfaces are scabrous. Lower leaves often deciduous. Petioles hairy, upper leaf petioles 3-15 cm long. Flower heads yellow and few, growing on long peduncles. Habitats include riverside prairies and outcrops. Flowers in July and August and seeds persist into November.

Hibiscus laevis Allioni – Halberd-leaf Rose-mallow is a smooth perennial herb in the mallow family. Stems are 0.9-2 m tall. Lower leaves ovate-cordate, upper leaves 6-14 cm long and usually hastate with a long tapering terminal lobe and widely spreading basal lobes. Flowers are pink with a purple center 12-16 cm wide. Capsule ovoid, smooth, but seeds are hairy. Habitats include sandy, gravelly, muddy, and rocky depositional bars and river shores; floodplain pools and ponds, canals, ditches, and disturbed alluvial wetlands. Flowers May through early to mid-July and plants remain in seed in August and September.

Hybanthus concolor (T.F. Forster) Sprengel – Eastern green violet is a perennial member of the violet family. Stems are single or clustered, erect, pubescent, and 3-9 dm tall. Leaves are oblong, entire or toothed, tapering to both the base and apex, and 7-16 cm long. Pedicels 1-2 cm long. Flowers 4-5 mm long with narrow sepals about as long as the greenish white petals. Capsules oblong or ellipsoid, 1.5-2 cm long. Seeds are nearly globose, about 5 mm in diameter, and cream-colored. Habitats include rich cove forests, mesic slope forests and bluffs on mafic and calcareous rocks, rich montane oak-hickory forests, and dry-mesic calcareous forests. Flowers from March to April and seeds present in May and June.

Iresine rhizomatosa Standley – Juda's-bush is a rhizomatous perennial herb in the amaranth family. Stems 3-15 dm tall. Leaves thin, ovate-lanceolate, with a pointed tip and tapered base. Larger leaves are 14 cm long and 4-7 cm wide. Pistillate panicle is pyramid-shaped and up to 3 dm long, with numerous small white-hairy flowers. Seeds to 0.5 mm long. Habitats include sandy floodplain forests and riverbanks in the Piedmont. Flowers emerge in July and August and seeds persist into November.

Lipocarpha micrantha (Vahl) G. Tucker – Small-flower halfchaff sedge is an annual member of the sedge family. Culms are arching and 2-20 cm tall. Leaves up to 10 cm long and about 0.5 mm

wide. Spikelets 1-3, cylindrical or ovoid, and 2-4 mm long. Achene cylindrical to oblong-ovoid, about 0.6 mm long, finely reticulate, and possessing a minute beak. Habitats include seasonally exposed, sandy, gravelly, or silty shores and bars along the larger rivers and reservoir impoundments. Flowers emerge in June through July and achenes are present in August and September.

Maianthemum stellatum (Linnaeus) Link – Starry false solomon's seal is another perennial member of the lily family with elongate, pale rhizomes. Stems are erect to arching and somewhat zigzag, 2-6.5 dm tall, and either hairy or glabrous. Stems support 6-12, 2-ranked, sessile, lanceolate to lance-oblong, taper-pointed leaves measuring 4-15 cm long by 2-5 cm wide that are finely pubescent beneath. The flower stalk is 2-5 cm long with few white flowers with perianth parts (sepals and petals) 4-6 mm long. The berry is black or green with black stripes, 6-10 mm in diameter. Habitat includes riverside sand and rock bars, rich floodplain forests, calcareous fens, and seepage swamps. Flowers emerge in April and May and fruits are present into September.

Matelea obliqua (Jacquin) Woodson – Climbing milkweed or angle-pod is a perennial herbaceous vine in the dogbane family. Stems are hairy. Leaves are rounded with a pointed tip and a base that is somewhat heart shaped, growing up to 15 cm in length and 13 cm in width. The inflorescence is branched, often compound, and 10 to 50 flowered. Flowers are somewhat star shaped with purplish petals. Habitat includes bedrock scour and terrace woodlands in rich alluvium, upland forests, barrens, glades, clearings, and roadsides over limestone or shale substrates. The plants typically flower from June to July and are in fruit in September.

Mecardonia acuminata (Walter) Small – Axil-flower is a perennial herb in the plantain family. Stems 2-5 dm tall, erect, and possessing few branches. Leaves 2-4 cm long, oblanceolate, and serrate beyond the middle. Flower stalks slender and 1-3 cm long, ascending from the axils of the leaves. Flowers are white, but sometimes with purple or lavender lines on the lower lip. Capsules 6-8 mm long, ellipsoid. Habitats include floodplain ponds and pools, ditches, wet clearings, wet meadows, bottomland fields, and other open, disturbed wet habitats. Flowers occur in June and July, with plants persisting until October.

Monarda clinopodia Linnaeus – White bergamot is a perennial member of the mint family. Stems are smooth to slightly hairy and reach a meter in height. Leaves are 6-12 cm long, serrate, and ovate to narrowly triangular in shape, tapering to a long point. Bracteal leaves mostly green. The Flowers dull white or yellowish, 1.5-3 cm long, and with the upper lip not long hairy. Nutlets 1.2-1.3 mm long and yellowish brown. Habitats include mesic to dry upland forests, preferring moderately to strongly base-rich soils. Flowers occur in May through early July and seeds are present through October.

Paspalum fluitans (Elliott) Kunth – Horse-tail paspalum is an aquatic annual grass. Stems are soft and spongy and grow to a meter long. Plants submerged in water have elongate stems that are little branched. Plants that are growing more terrestrially often form mats. Leaves are lanceolate, up to 35 cm by 2 cm in size, and taper at both ends. Flowering spikelets occur in open panicles with up to 70 branches. Upper florets are white. Habitat includes floodplain seeps and pools with muck soils or seasonally exposed rocky stream channels. The flowering/fruiting period is late August through September or early October.

Phacelia covillei S. Watson ex A. Gray – Buttercup scorpion-weed is a short, hairy annual or biennial. Stems are weak, spreading, and up to 20 cm long. The oblong leaves are pinnate and deeply divided into one to six segments, the terminal segment often with three lobes. The inflorescence is also sparsely hairy and is comprised of five blue petals. Seed capsules are 4-6 mm in diameter, rounded, and contain four seeds. Habitat includes rich floodplain and terrace and ravine forests and mesic upland woods. Flowering typically occurs from late March to April with fruits present in May.

Phaseolus polystachios (Linnaeus) Britton, Sterns, & Poggenburg – Thicket bean is a trailing, twining, or climbing perennial herbaceous vine in the legume family. Stems are finely pubescent and grow 1-4.5 m in length. The three leaflets are ovate to rounded, 4-10 cm long, and the lateral ones with unequal sides. All leaflets have 2 mm stipules at the base of the short stalks. Leaves hairy above and below. Flowers are purple, arising on long-stalked racemes 1-3 dm long. Individual flowers 8-12 mm long. Legumes drooping, flattened, and somewhat curved, 3.5-7 cm long by 5-6 mm wide. Seeds black or dark gray, flattened, and 5-10 mm long. Habitats include mesic to dry forests and rocky woodlands, usually in base-rich soils. Flowers arise June through early August and seeds persist into October.

Polygala polygama Walter – Racemed milkwort is a biennial or perennial member of the milkwort family. Stems are 1-4.5 dm tall, numerous, glabrous, unbranched, and very leafy. Basal leaves are spatulate and stem leaves are oblong or oblanceolate, 1-3 cm long by 2-6 mm wide and entire. Flowers are born in loose, terminal racemes that are 2-15 cm long. Flowers are purple, rose, or white and 5-6 mm long; the central petal with a large, fringed crest. Stamens eight in number. The capsule is plump and 3-4 mm long. Seeds are hairy and bear an aril. Habitats include dry, rocky, or sandy woodlands and clearings. Flowers from April to June with seeds present July through August.

Potamogeton foliosus Rafinesque – Leafy pondweed is a rhizomatous, aquatic perennial pondweed. Stems are flattened and up to 7 dm long, often rooting from the nodes. All leaves are submerged, 2-10 cm long and 0.5-2.5 mm wide. Flower stalks 3-10 mm long bearing cylindrical spikes 4 mm thick in two or three whorls with two flowers each. Fruit is orbicular and flattened, 0.2-2.5 mm long, with a dorsal keel and a beak 0.2-0.4 mm long. Habitats include ponds, lakes, streams, and rivers. Plants are active April to November.

Pycnanthemum verticillatum (Michaux) Persoon – Whorled mountain-mint is a perennial herb of the mint family. Stems grow to 8 dm tall and are slightly hairy on the sides and angles. Leaves are short-petioled, narrowly lanceolate, and the main ones 3-5 cm long by 8-12 mm wide. The tips of the leaves are tapering, the margins have a few low teeth, and hairs occur on the 4-7 lateral veins beneath the leaf. Flowering heads numerous, 8-15 mm in diameter and usually terminal. Outer bracts of the flower grayish white and velvety above. Inner bracts more lanceolate, acuminate, usually longer than the calyces and also hairy. Habitats include wet meadows, fens, stream banks, and open upland forests. Flowers appear in June through early August and seeds persist until October.

Rumex altissimus A. Wood – Tall dock is a perennial herbaceous plant with a long tap root that grows up to 2 m tall. Leaves occur primarily along the stem, are ovate or oblong lanceolate, and grow to 15 cm long. Flowers are born on spikelike racemes up to 30 cm long. Habitat includes frequently flooded zones along rivers in sandy to gravelly alluvium. They can also occur within forested wetlands in muck soils. Their flowering period is from May to June or rarely July. The plants typically go to seed in August.

Sagittaria rigida **Pursh** – Sessile-fruit arrowhead is a highly variable perennial emergent or submerged member of the water-plantain family. Stems can be 1-8 dm in length depending upon the depth of the water. Leaves 5-15 cm long by 2-8 cm wide, linear to oval, and rarely sagittate. Inflorescences with 2-8 whorls, each with 2-8 white flowers. The lower two whorls bear pistillate flowers while the upper whorls bear staminate flowers. Fruiting heads sessile or nearly so. Achenes 2.5-4 mm long, rugose, winged only on the margins, and with an erect or curved beak 1-1.5 mm long. Habitats include natural mountain ponds and wet meadows. Flowers in June and July and plants persist into November.

Salix exigua (Neees) Nesom – Sandbar willow is a somewhat colonial shrub or small tree in the willow family that grows to 10 m in height. Stems are grayish and numerous with abundant lateral shoots. Young branches can be smooth or slightly hairy and are reddish or brown in color. Leaves are linear, 3-15 cm long by 4-6 cm wide, shallowly toothed on the margins, and green on both sides, though paler beneath. Leaf petioles are 1-5 mm long and somewhat hairy. Catkins appear with leaves on short lateral branches from axillary buds of the previous year. Staminate catkins 2-4 cm long and pistillate catkins to 8 cm in fruit. Capsules 5-9 mm long, narrowly lanceolate or ovoid-conic, and thinly silky. Habitats include river and stream banks, rocky flood-scoured shores and bars, sand and gravel bars, and ditches. Flowers from February to June.

Senecio suaveolens (Linnaeus) Elliot – False Indian-plantain is a perennial herb in the composite family. Stems are grooved or ribbed and slightly glaucous, reaching a height of 3 m. Leaves are lanceolate to ovate and hastate, measuring 5-20 cm long and nearly equally wide. Leaf margins are doubly serrate. Leaf petioles are wing-margined. Flower heads 20-40 flowered and white. Habitats include floodplain forests, riverbanks, and sandy or rocky, flood-scoured bars. Flowers emerge in June and July and seeds persist into October.

Sida hermaphrodita (Linnaeus) Rusby – Virginia fanpetals is a smooth perennial herb in the mallow family. Stems grow from 1-4 m tall. Leaves are petioled, palmately veined, and deeply lobed; 1-2 dm long by 7.5-15 cm wide. Lobes are three to seven, sharply pointed, with the middle lobe being the longest. Margins are each lobe are slightly toothed. Flowers are white, 18-24 mm in diameter. They grow in terminal, corymbose panicles. The calyx is round at the base with sharppointed lobes. Carpels usually 10, acuminate into one beak. Habitats include sandy or rocky river shores and in adjacent railroad right-of ways. Flowers appear in June and July and plants remain in seed from August through September.

Silene nivea (Nuttall) Muhlenberg ex Otth – Snowy catchfly is a weak perennial member of the pink family. Stems are erect to leaning, 3-8 dm tall, smooth or with minute hairs. Leaves are thin, lanceolate, 8-13 cm long and 1-1.5 cm wide with pointed tips. Flowers are few on slender pedicels in the axils of the upper leaves. Calyx inflated and white petals wedge shaped with a slight notch.

Capsules globose and 8-10 mm long. Seeds 0.7-1 mm long. Habitats include rocky or sandy, flood-scoured riversides, stream beds, and rocky banks. Flowers occur in May and June and seeds are present July and August.

Solidago racemosa Greene – Rand's goldenrod is a perennial herb in the composite family. Stems are smooth, slender, and usually tufted from a short, branched base. Plants grow to 6 dm tall. Basal and stem leaves are oblanceolate, acute to sub-acute, entire or slightly toothed, and 3.5-15 cm long by 5-15 mm wide. The inflorescence is a loose, wand-shaped raceme. Involucres narrowly bell-shaped and 3-8 mm high. The phyllaries occur in three series and are sticky-hairy, paper-like, linear, and blunt to sharp-pointed, with green tips. Ray flowers are yellow and number 7-16. Disk flowers 6-31 in number. Achenes 2-3 mm long and somewhat hairy. Habitats include riverside woodlands, prairies, outcrops, and rocky bars. Flowers present July and August and plants in seed through October.

Triphora trianthophoros (Swartz) Rydberg – Threebirds is a perennial herb in the orchid family. Stems are 1-3 dm tall and often tinged with maroon. Leaves are sessile, ovate, and 1-2 cm long. Flowers are 1-1.5 cm long, pale pink to whitish, and marked with green veins. Sepals and petals lanceolate. The flower lip is about equal to the sepals and marked with three green lines. The anthers have reddish-purple ridges and the pollen is purple. Habitats include mesic slope forests, montane alluvial forests, and large-river floodplain forests. Plants flower in July and August and persist until October.

Valeriana pauciflora Michaux – Large-flowered valerian is a perennial herb in the valerian family that spreads by slender, horizontal rhizomes or runners. Stems are numerous and 3-8 dm tall. Basal leaves are long petioled, usually not divided, heart-shaped or broadly ovate, acute with toothed margins. Stem leaves are short-petioled and pinnately divided into 3-7 segments, the end segment broadly ovate and much larger than the lateral ones. Flowers in a dense corymb that elongates into a loosely pyramidal shape. Corolla tubes 1-1.8 cm long and pale pink. Fruits are oblong to lanceolate, 4-5 mm long. Achenes are elliptic to ovate and 4.5-6.2 mm long with the body narrowly winged. Habitats include nutrient-rich soils of floodplain forests and river-fronting slopes. Flowers in April and May and seeds present in June and July.

Appendix C

Photographs

CHOH Unit (Maryland)



Photo 1: Looking at mesic forested habitat area on upper terrace with Phacelia covillei



Photo 2: Close up of Phacelia covillei in flower



Photo 3: Habitat of Carex careyana

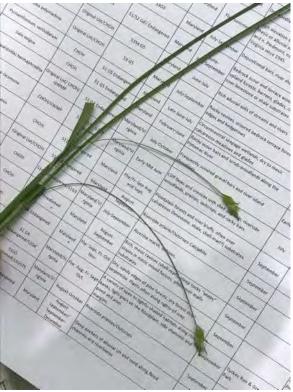


Photo 5: Carex careyana lateral spike



Photo 4: Carex careyana showing purple sheaths

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Photo 6: Carex careyana terminal spike



Photo 7: Looking upstream at habitat for *Rumex altissumus* along Potomac River shoreline upstream of American Legion Bridge



Photo 8: Rumex altissimus growing in floodplain of Potomac River



Photo 9: Looking downstream at large patch of emerging Hibiscus laevis on mudflat



Photo 10: Hibiscus laevis growing in C&O Canal within LOD

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Photo 11: Hibiscus laevis in bloom

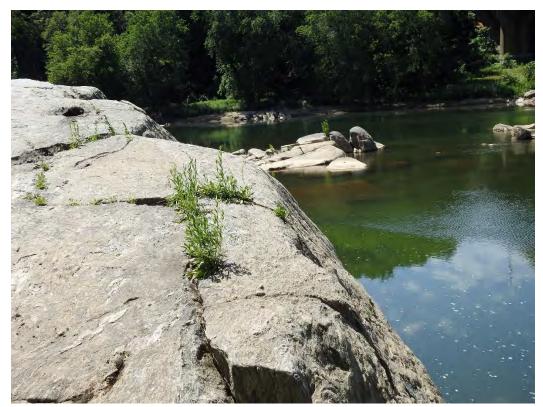


Photo 12: Habitat of Solidago racemosa on boulders at Potomac River edge

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Photo 13: Solidago racemosa growing on in-river boulder



Photo 14: Solidago racemosa flowers



Photo 15: *Paspalum fluitans* habitat along active floodplain and shoreline looking downstream from upstream of American Legion Bridge



Photo 16: Paspalum fluitans spike with seeds



Photo 17: Patch of likely Monarda clinopodia on mesic terrace of Plummers Island



Photo 18: Browsed Monarda clinopodia plant

GWMP Unit (Virginia)



Photo 19: Microhabitat of Phacelia covillei within mesic terrace above active floodplain



Photo 20: Phacelia covillei in flower



Photo 21: General habitat area of *Carex careyana* on mesic terrace downstream of the American Legion Bridge



Photo 22: Carex careyana microhabitat

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Photo 23: Carex careyana purple bases



Photo 24: Carex careyana staminate and pistillate spikes