ICE Analysis Training Program

Module 1:
How to Determine Which Resources Should be Considered in an ICE Analysis

SHA State Highway Administration
Maryland Department of Transportation

How to identify what resources should be considered in the ICE Analysis

Surface/ Groundwater

Wetlands

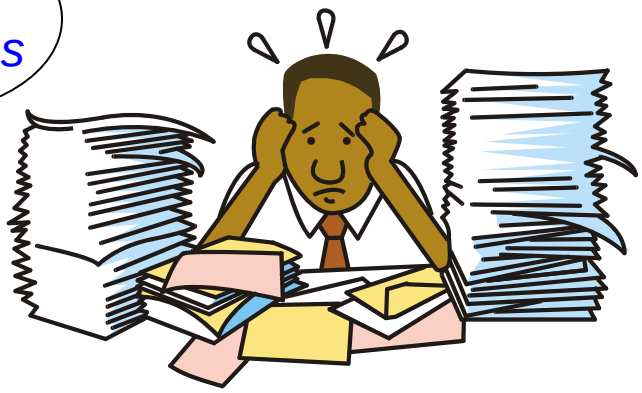
Farmlands

Community

Parks

Wildlife

Cultural Resources



ICE Analysis Training Program

Module 1:
How to Determine Which Resources Should be Considered in an ICE Analysis

SHA State Highway Administration
Maryland Department of Transportation

Overview

- **Scoping and initial ICE Analysis activities**
- **Initial ICE Analysis resource identification**
- **Data Sources**

ICE Analysis Training Program

Module 1:
How to Determine Which Resources Should be Considered in an ICE Analysis

SHA State Highway Administration
Maryland Department of Transportation

Scoping and Initial ICE Analysis Activities

- **Incorporate into project planning process during preliminary alternatives development. Present scoping activities at field meeting on preliminary alternatives.**

- **Identify environmental resources and ICE Analysis issues in the ICE study area. (Directly impacted resources are the starting point. More resources may be identified based on indirect effects or if new alternatives, with other/new impacts, are looked at.)**

- **Coordinate with resource agencies to:**

  - **obtain input on resource identification and analysis methodologies**
  - **inform them of missing information that could become an obstacle**
  - **address agency comments**

Scoping and Initial ICE Analysis Activities

Using the Scoping Process Effectively
("A Common Sense Approach to Improving the NEPA Process" Fred R. Wagner, Environmental Claims Journal/Vol.13, No. 1/Autumn 2000)

"The importance of the scoping process cannot be stressed enough."

- **The agency should use this process to engage the public and other state and federal agencies in the identification of other actions, both public and private, that are within the general geographical area. This will be conducted in a similar time frame, and may impact the same resources affected by the proposed action.**

- **Only by conducting a thorough scoping analysis can the agency avoid the problem of having to analyze after the fact the potential synergistic effects of certain actions when they are not taken into account in initial modeling or analysis.**

Initial ICE Analysis Resource Identification

- **Identify resources directly impacted by each proposed project alternative**
- **Identify potential indirect effects from project alternatives in coordination with local planners and developers**

ICE Analysis Training Program

Module 1:
How to Determine Which Resources Should be Considered in an ICE Analysis

SHA State Highway Administration
Maryland Department of Transportation

Prepare ICE Analysis Resource Matrix for Presentation at the Interagency Field Review

- **Identify readily available data sources.**
- **Create resource matrix identifying:**
  - **each resource**
  - **data availability**
  - **data units**
  - **data sources**
  - **analysis methodology (Modules 4 & 5)**

Identify Direct Impacts → *Identify Potential Indirect Effects* → *Determine Data Availability* → *Develop ICE Analysis Resource Matrix*

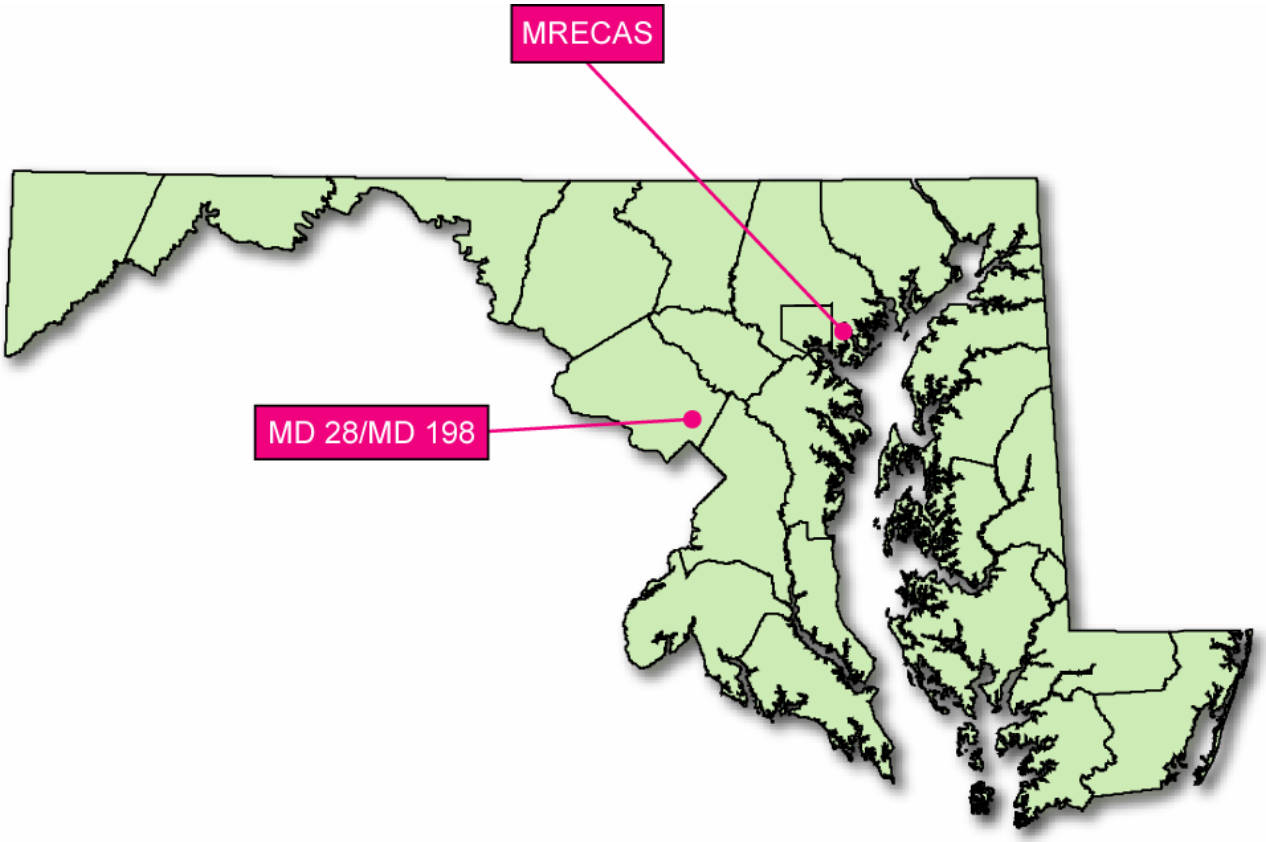
ICE Analysis Training Program

Module 1:
How to Determine Which Resources Should be Considered in an ICE Analysis

SHA State Highway Administration
Maryland Department of Transportation

Key Data Sources

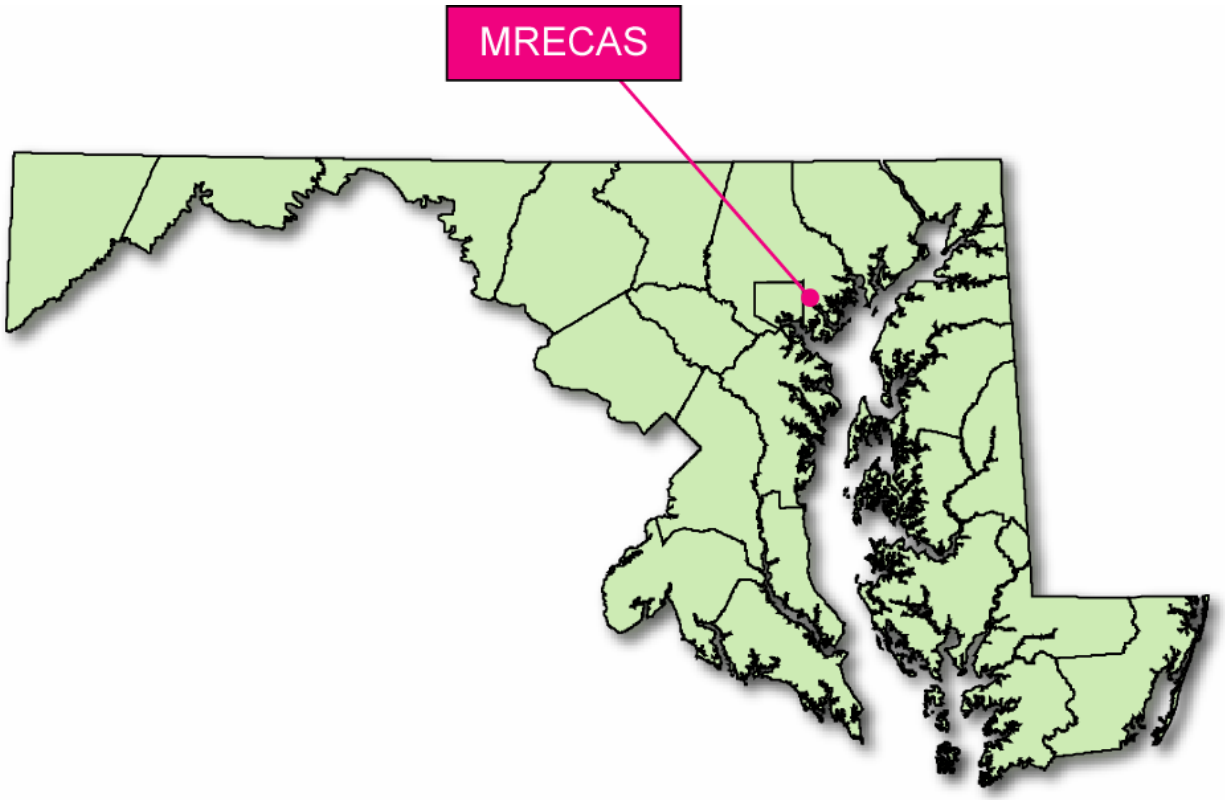
Data	Description	Source/Website
General Data		
Existing Environmental Documents	Used to obtain background information on activities in the study area	Coordinate with State Highway Administration Project Manager
County Master/Sector Plans	Used to identify planned activities /goals within the study area	Coordinate with County Planning Department staff
Army Corps of Engineers Permit Files	Used to identify resources within the study area listed on ACOE permit files	http://www.usace.army.mil
Constrained Long Range Plan and Consolidated Transportation Plan Projects	Used to identify transportation projects slated for the future	http://www.mwcog.org/regionaltransportationplan/default.asp, http://www.e-mdot.com/News/ctpschedulemain
GIS Specific Data		
US Census Data/ Boundary Files	Used for demographic analyses and determining the ICE Analysis geographical boundary.	http://www.census.gov/
Aerial Photographs	Used to verify resources and land use/land cover	Coordinate with State Highway Administration Project Manager
Maryland Department of Planning GIS Data	Used to identify land use/land cover (1973 and 2000), Priority Funding Areas, census data, soils and generalized zoning.	http://www.mdp.state.md.us/zip_downloads_accept.htm
County wide GIS Data	Used to identify various resources, such as parks, wetlands, floodplains, and communities.	Coordinate with County Planning Department staff
Maryland Historic Trust GIS Data	Used to identify historic structures and districts within the study area.	http://www.marylandhistoricaltrust.net/
Maryland Department of Natural Resources GIS Data	Provides resources by county, including: DNR and NWI wetlands, floodplains, RTE project review areas, critical areas, wetlands of special state concern, watershed boundaries, Green Infrastructure, FIDS, and protected lands in a GIS shapefile format.	http://dnrweb.dnr.state.md.us/gis/data/data.asp



Case Studies

- **MRECAS (MD 43 Extended)**
- **MD 28/MD 198 (DEIS)**

Middle River Employment Center Access Study (MRECAS)



Middle River Employment Center Access Study (MRECAS)

PROJECT PURPOSE AND NEED

Purpose of the Project:

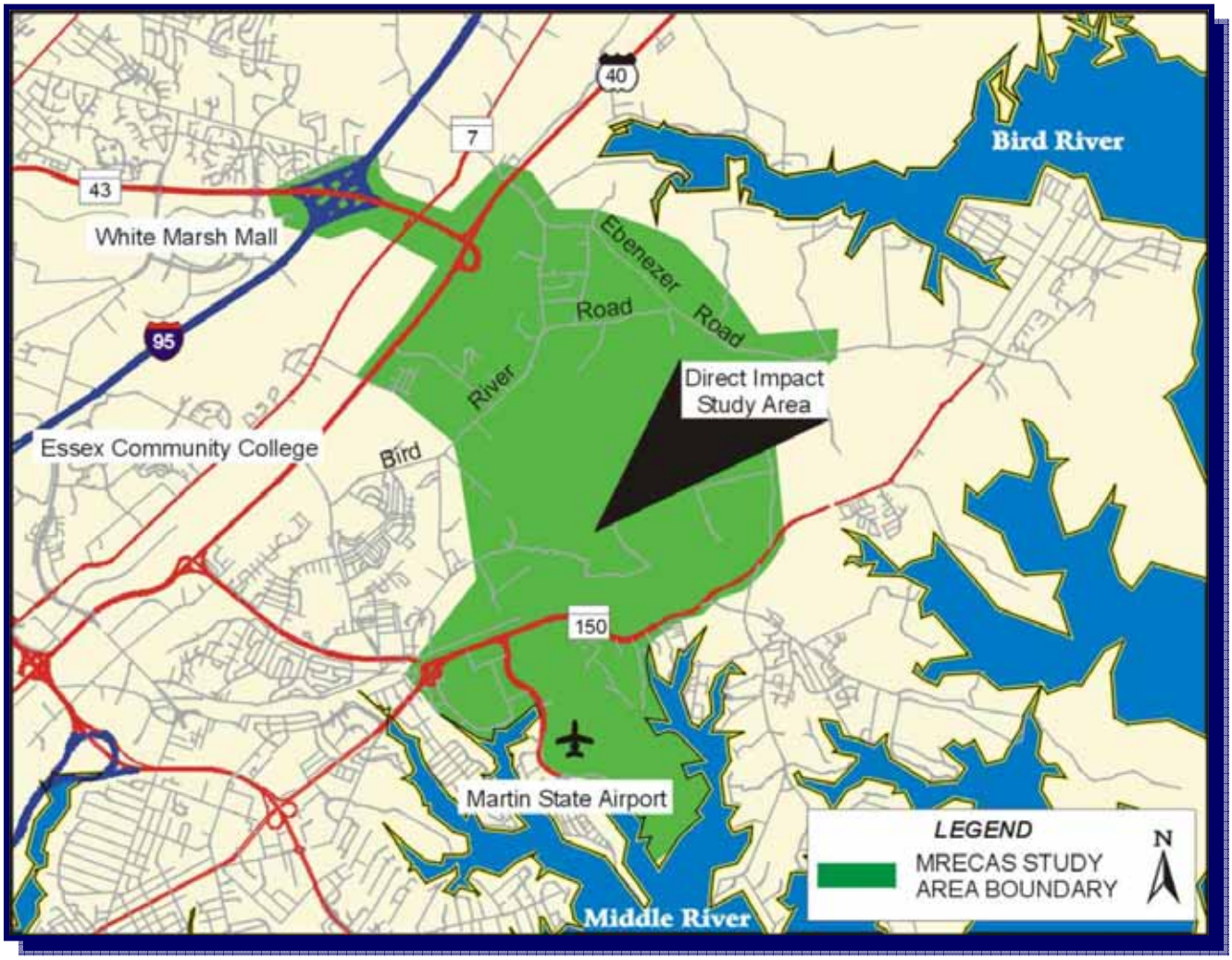
- To improve access from regional transportation network to enable planned economic development
- To increase utilization of established employment areas in the Middle River Employment Center

Need for the Project:

- Need for a sufficient level of access and mobility for the Employment Center
- Support of economic development
- Existing roads in the study area lack the capacity and continuity to provide adequate access to the entire MREC from the existing highway network

Middle River Employment Center Access Study (MRECAS)

Study Area Boundary



ICE Analysis Training Program

Module 1:
How to Determine Which Resources Should be Considered in an ICE Analysis

SHA State Highway Administration
Maryland Department of Transportation

Middle River Employment Center Access Study (MRECAS)

Resource Matrix

Resource	Boundary	Time Frame	Approach	Data Source	Agency
~~**Disruption to Community**~~	~~Sub-watersheds~~	~~1963-2020~~	~~Trend analysis, overlay~~	~~*Aerial photography~~ ~~*Historic mapping~~	~~Baltimore County Planning~~
~~**Employment**~~	~~Employment Center~~	~~1960-2020~~	~~Trend analysis County projections~~	~~*Census~~ ~~*Purpose and Need~~	~~*US Department of Commerce~~ ~~*Baltimore County Planning~~
~~**Population**~~	~~Census Tracts~~	~~1960-2020~~	~~Trend analysis~~	~~*Census~~ ~~*County Projections~~	~~*US Department of Commerce~~ ~~*Baltimore County Planning~~
~~**Land Use (residential, industrial, farmland)**~~	~~Census Tracts~~	~~1963-2020~~	~~*Trend analysis, overlay~~ ~~*Identifiy current and future capital projects~~	~~*Aerial photography~~ ~~*Baltimore County Master Plan~~ ~~*MDOT Consolidated Trans. Program~~ ~~*OP Land Use maps~~ ~~*Pipeline Res. Development~~	~~*Baltimore County Planning~~ ~~*Maryland Office of Planning~~ ~~*Baltimore Metropolitan Council~~
Historic Sites	Census Tracts	1963-2020	Trend analysis, overlay	Historic mapping	*Baltimore County Historical Society *Maryland Historical Trust
Groundwater	Sub-watersheds	1963-2020	Trend analysis	*GIS files (MDE) *Historical records	*MDE *DNR *Baltimore County Planning
Surface Water Quality & Quantity	Sub-watersheds	1963-2020	Trend Analysis Matrices *Compare water quality data at specific monitring sites, if available. *Determine the change in the amount of impervious surfaces. *Identifiy NPDES sites and overlay land use	*Aerial photography * Internet * Maryland Stormwater Management (existing and propsed new regulations)	*Baltimore County *Maryland Department of the Environment (MDE) *Save Our Streams *Natural Resource Conservation Service
Floodplains	Sub-watersheds	1963-2020	Trend Analysis Overlays *Identify floodplain boundaries and overlay land use.	*FEMA maps *Baltimore County GIS *Aerial Photographs	*SHA *Baltimore County
Wetlands	Sub-watersheds	1963-2020	Determine the change in acreage of wetlands based on work by MOP	*National Wetland Inventory Maps, US Fish and Wildlife *Baltimore County GIS *Army Corps of Engineers Permit Files *Maryland Department of Natural Resources *"Wetlands of Maryland", US Fish and Wildlife	*Maryland Department of the Environment *MOP *Chesapeake Bay Foundation *US Fish and Wildlife Service *MD Department of Natural Resources *DEPRM
Wildlife, Terrestrial and Aquatic Habitat	Sub-watersheds	1963-2020	Trend Analysis, Overlays, Matrices *Use MOP data to identify changes in forest acreage	* MOP GIS/Maps * 1989 Maryland Reforestation Law *Aerial Photography *1990 Maryland State Forest Conservation Act *Maryland Seed Tree Law	*MOP * USFWS * Baltimore County *MDE *DEPRM
~~**Noise**~~			~~Qualitive discussion~~		
~~**Air Quality**~~			~~Consult BMC - Regional discussion~~		
~~**Hazardous Materials**~~			~~Overlays~~ ~~*Identify CERCLA List and overlay on land use~~	~~*CERCLA List~~ ~~*MDE lists~~	~~*Environmental Protection Agency~~ ~~*MDE~~

Note: Strikethroughs indicate items that are inappropriately listed as ICE Analysis resources.

ICE Analysis Training Program

Module 1:
How to Determine Which Resources Should be Considered in an ICE Analysis

Middle River Employment Center Access Study (MRECAS)

Rationale for Removing Items From the ICE Analysis

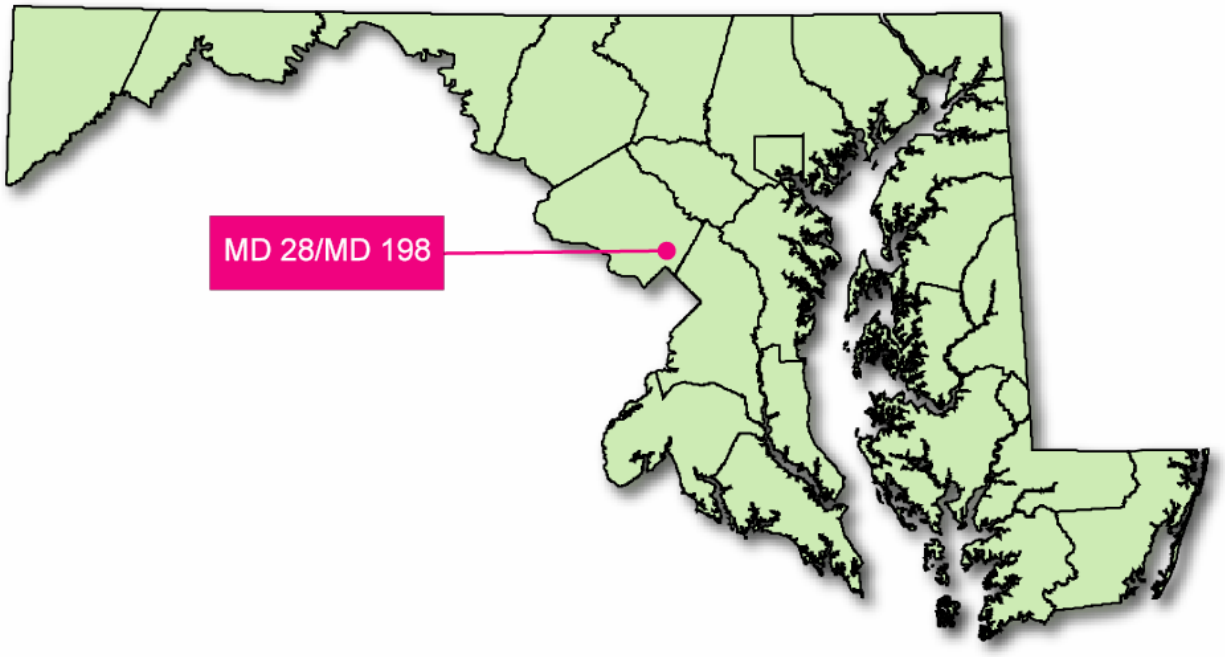
Items Stricken	*Rationale*
* Disruption to Community	Not appropriate for a ICE Analysis
Employment	Not appropriate for a ICE Analysis
Population	Not appropriate for a ICE Analysis
Land Use	Not appropriate for a ICE Analysis
Noise	Not appropriate for a ICE Analysis
Air Quality	Addressed in Regional/TIP Conformity Process
Hazardous Material	Not appropriate for a ICE Analysis

Rationale for Retaining Resources in the ICE Analysis

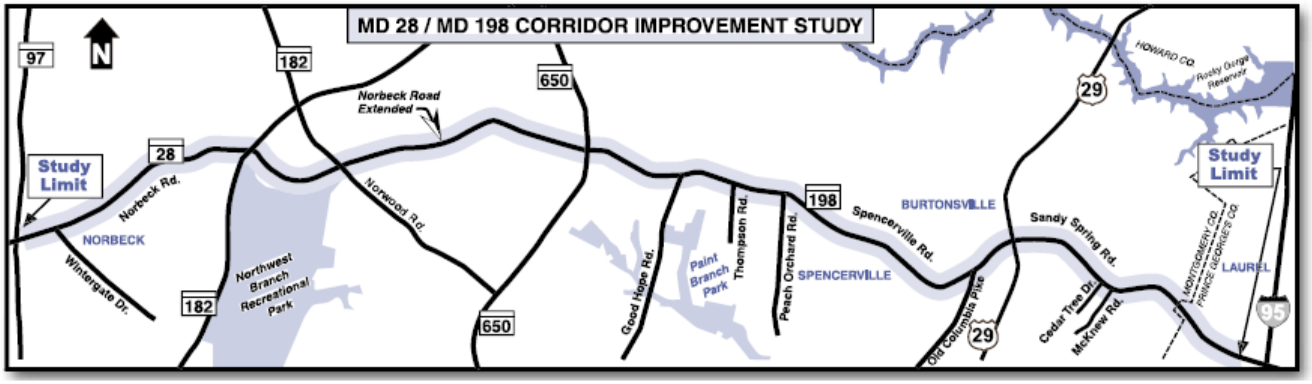
Resources Included	*Rationale*
Historic Sites	Direct Impacts
Groundwater	Well/Septic Considerations
Surface Water	Direct Impacts
Floodplains	Direct Impacts
Wetlands	Direct Impacts
Wildlife Habitat	Direct Impacts

NOTE: "Disruption to Community" as it is termed in the MRECAS environmental impact matrix, is not a resource and was not analyzed in the ICE Analysis. However, "communities" is considered a resource and can be analyzed as such in other ICE Analysis.

MD 28/198 Improvement Study
Montgomery & Prince George's Counties



MD 28 / 198 Improvement Study
Montgomery & Prince George's Counties



PROJECT PURPOSE
- Relieve locally generated congestion while managing access
- Improve safety and traffic conditions for motorists, bicyclists and pedestrians along the MD 28/198 corridor across from intersecting roads; and
- Preserve the rural and suburban quality of life relative to localized traffic congestion while realizing the local planning visions for the communities along the corridor

PROJECT NEED
- MD 28/198 are currently operating near capacity in some areas
- Portions of the corridor is experiencing higher than state average collision rates
- Sidewalks and Bicycle facilities do not exist in portions of the corridor

MD 28/198 Improvement Study
Montgomery & Prince George's Counties

DETERMINING ICE Analysis RESOURCES
Resources directly or secondarily effected by the project was the basis for those resources examined in the ICE Analysis. Therefore, a summary of direct effects was included in the ICE Analysis:

Resource	Direct Effect
Socio-Economic Resources	
Residential Displacements	Maximum of 23 Residences
Business Displacements	Maximum of 8 Businesses
Park and Recreation Facilities	Maximum of 2 Parks
Right-of-Way	123.9 Acres
Cultural Resources	
Historic Sites	Maximum of 5 Sites
Archeological Sites	1 site impacted
Natural Environmental Resources	
Surface Water	5 Stream Crossings
Groundwater	Several watersheds impacted
Wetlands/Aquatic Habitat	Maximum of 1.37 Acres
Floodplains	Maximum of 5.2 Acres
Woodland	10-18 acres of impact

MD 28/198 Improvement Study
Montgomery & Prince George's Counties

Resource	Direct Effect
Socio-Economic Resources	
Residential Displacements	Maximum of 23 Residences
Business Displacements	Maximum of 8 Businesses
Park and Recreation Facilities	Maximum of 2 Parks
Right-of-Way	123.9 Acres
Agricultural/Farmland	No anticipated impacts (not a resource)
Cultural Resources	
Historic Sites	Maximum of 5 Sites
Archeological Sites	1 site impacted
Natural Environmental Resources	
Surface Water	5 Stream Crossings
Groundwater	Several watersheds impacted
Wetlands/Aquatic Habitat	Maximum of 1.37 Acres
Floodplains	Maximum of 5.2 Acres
Woodland	10-18 acres of impact
Rare, Threatened & Endangered Species	No Species Present (not a resource)

MD 28/198 Improvement Study
Montgomery & Prince George's Counties

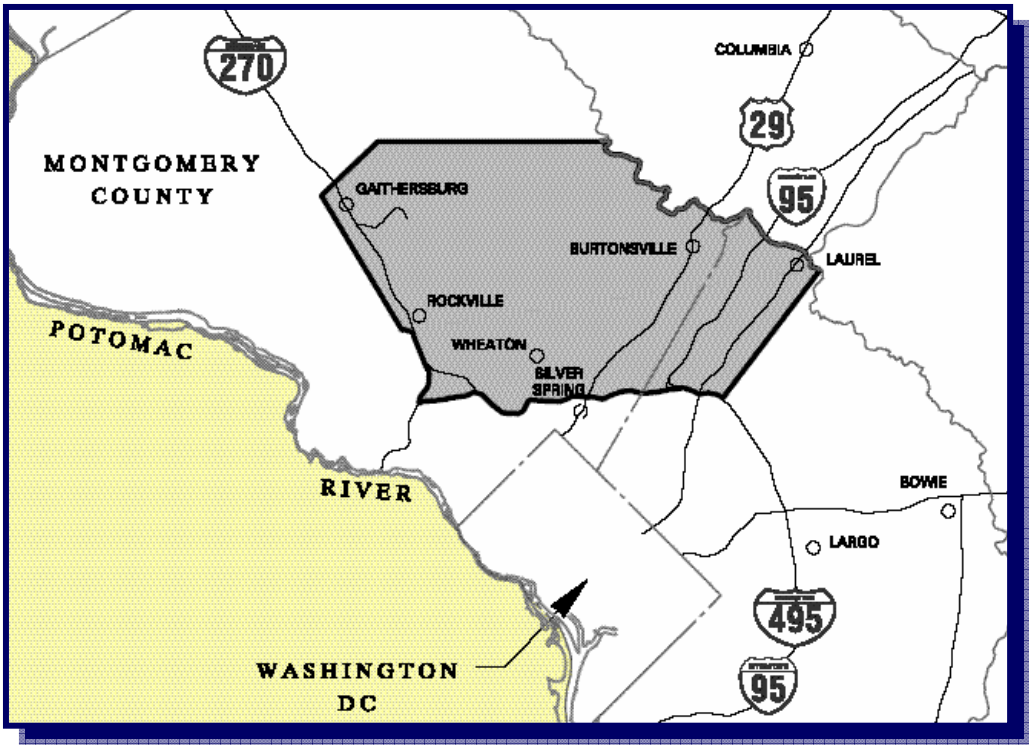
Resource	Available Data	Data Sources
Socio-Economic Resources		
Community Impacts	• Aerial Photos • Historic Maps • Census Records • Land Use Mapping	• M-NCPPC • Maryland Dept. of Planning • Montgomery Dept. of Planning • Prince George's Dept. of Planning • U.S. Census Bureau • Traffic Data
Cultural Resources		
Historic Structures & Archeological Sites	• Aerial Photos • Historic Maps • Historical Site Records • Land Use Mapping	• M-NCPPC • Maryland Historical Trust • National Register of Historic Places
Natural Environmental Resources		
Surface Water/Floodplains	• Stream Quality Records • Aerial Photography • NPDES Permit Data	• Environmental Agencies (i.e., DNR, USGS, EPA, MDE) • M-NCPPC • Maryland Biological Stream Survey
Groundwater	• Historic Records • Well Data	• Environmental Agencies (i.e., EPA, MDE, USACE • MD Geological Survey
Wetlands/Aquatic Habitat	• Large-scale wetland mapping • Wetland Permit Data • Land Use Data • Macroinvertebrate Data	• National Wetlands Inventory • Project Mapping • Maryland Biological Stream Survey • Environmental Agencies (i.e., DNR, USGS, EPA, MDE)
Woodlands	• Current/Historic Aerials • Land Use Data	• NRCS • M-NCPPC • Maryland Department of Planning • DNR

Group Exercise

Determining Resources

ICC PROJECT PURPOSE AND NEED

- **Increase community mobility and safety**
- **Facilitate the movement of goods and people**
- **Provide cost-effective transportation infrastructure to serve existing and future development reflecting local land use planning objectives**
- **Restore the natural, human, and cultural environments**
- **Advance homeland security**



ALTERNATIVES RETAINED FOR DETAILED STUDY NO ACTION

- **Improvements in the National Capital Region TPB 2004 CLRP**
- **More TDM measures such as transit and vanpool incentives**
- **Improvements are assumed to be in place by 2030 regardless of the ICC alternatives being considered**
- **Other major actions that are independent from the ICC study are either being studied or are underway in the study area and would be included in the No-Action Alternative. Each of these studies has its own unique project Purpose and Need and is separate from the ICC study**

ALTERNATIVES RETAINED FOR DETAILED STUDY CORRIDOR 1

- 18 miles from I-370/I-270 near the Shady Grove Metrorail Station to I-95 and US 1 south of Laurel
- 16 of the 18 miles are located in Montgomery County and approximately 2 miles are in Prince George's County
- Alignment options are being considered in the vicinity of Rock Creek and Northwest Branch
- Corridor 1 includes six interchanges and two optional interchanges.
- Corridor 1 interchanges would be provided at MD 355, Shady Grove METRO Access Road, MD 97 (Georgia Avenue), MD 182 [Layhill Road (optional)], MD 650 (New Hampshire Avenue), Old Columbia Pike/US 29/Briggs Chaney Road, and Virginia Manor Road (optional)
- An at-grade intersection with US 1 is an option being considered
- A truncated option that would terminate the ICC at I-95, with no connection to US 1 and thus no interchange with Virginia Manor Road or intersection with US 1, is also under consideration. The Truncated Option would reduce the length of Corridor 1 in Prince George's County by about one mile

ALTERNATIVES RETAINED FOR DETAILED STUDY CORRIDOR 2

- 20 miles from I-370/I-270 near the Shady Grove Metrorail Station to I-95/US 1 south of Laurel
- 16 of the 20 miles are located in Montgomery County and approximately 4 miles are in Prince George's County
- Alignment options, are in the vicinity of Rock Creek, Norbeck (just east of MD 97), Spencerville, Burtonsville and Fairland (MD 198 near the Montgomery County/Prince George's County line)
- Corridor 2 includes seven interchanges along with two optional interchanges, and would displace the 2.5 miles on Norbeck Road Extended between MD 28 and MD 198
- Corridor 2 interchanges would be provided at MD 355, Shady Grove Metro Access Road, MD 97 (Georgia Avenue), MD 182 (Layhill Road-optional), MD 650 (New Hampshire Avenue), US 29, Contee Road, I-95 and Virginia Manor Road (optional)
- An at-grade intersection would be provided at US 1
- As with Corridor 1, an option to truncate the ICC at I-95 is also being considered. The Truncated Option would reduce the length of Corridor 2 in Prince George's County to about three miles

ICE Analysis Training Program

Module 1:
How to Determine Which Resources Should be Considered in an ICE Analysis

SHA State Highway Administration
Maryland Department of Transportation

Agency Resource Concerns

Who Were The Key Resource Agencies For This Project?

- MDE
- ACOE
- NPS
- USFWS
- DNR
- MHT
- MDP
- M-NCPPC
- Others

Water Quality

- Stormwater Management
- Mitigation
- Stream Seep Protection
- Stone Blankets
- Impacts to tributary to North Branch, Good Hope, and the Little Paint Branch
- Bridge crossings over Paint Branch/Gum Springs and Northwest Branch
- Fish Relocation/Brown Trout Populations

Parklands/Recreational Facilities

- Bike Trails
- 4(f) Impacts/Mitigation

Terrestrial Habitat / Wildlife

- Deer Fencing
- Small Amphibian Crossings
- Vernal Pool Measures
- Wildlife Connectivity
- FIDS

Wetlands

- Additional Wetland Impacts Than From Previous Study
- Impacts to high function wetlands

Floodplains

- Roadway effects on Floodplain elevations

Public Resource Concerns

Concerns Included:

- Noise and air pollution
- Project Costs
- Impact on safety
- Community Cohesion
- Tolls
- Bike paths
- Truck access/congestion
- Environmental Concerns
- Visual Quality
- Traffic Statistics
- Emissions
- Inducing Growth
- Long Term Benefits
- Taxes
- Transit Alternatives
- Property Values
- Low-Income/Minority Communities
- Underground Railroad areas

Who Were Included as the Public?

- Citizens
- Elected Officials
- Home Owners Associations
- Civic Associations
- Business Associations
- PTA's
- Schools
- Other

ICE Analysis Training Program

Module 1:
How to Determine Which Resources Should be Considered in an ICE Analysis

SHA State Highway Administration
Maryland Department of Transportation

Review Resources (Refer to Map Hand Out):

- Parks
- Wetland
- Floodplains
- Streams
- Forest
- Communities
- Historic Structures/Districts

- **Which resources should be included in your ICE Analysis?**

Pick up your Polling Devices!