

# Ecologist Development Program

## Master Outline

### ECOLOGY RESOURCES

#### Georgia Landscape

Understanding the Natural Communities of Georgia

- Physiographic Regions – Appalachian Plateau, Valley & Ridge, Blue Ridge, Piedmont, Coastal Plain
- Watersheds & Major River Systems
- Ecoregions
- Underlying Geology

#### Describing Aquatic Resources

Classification Methods

- Cowardin system
- NWI codes

Physical Characteristics of Aquatic Resources

- Natural vs. Artificial
- Hydrology:
  - Baseflow, standing water, flow regime, sinuosity
  - Saturation, inundation
  - Freshwater vs. tidal
    - Indicators (under CMPA): fiddler crab, wrack lines, escarpment, salt marsh peat
    - Wave action, mean high tide level
  - Effect of weather/climate conditions (ex., drought)
- Substrate, Structure (ex., riffle pool, step-pool etc.)
- Ordinary High Water Mark
- Quality (ex., odor, sheen, erosion, runoff, disturbance, etc.)
- Aquatic connectivity
- Inflow/outflow
- Wrested Vegetation
- Hydric soils vs non-hydric soils

- **Natural riparian buffer zones & their functions**
  - Temperature control /shading
  - Sediment trapping
  - Pollutant/heavy metal removal
  - Aquatic habitat
  - Stream bank stability

## Types of Linear/Channelized Features

- **Perennial Stream**
- **Intermittent Stream**
- **Ephemeral Channel**
- **Tributaries**
- **State Waters (buffered & non-buffered)**
- **Human-made/artificial features**
  - Ditch
  - Canal
  - Flume
  - Stormwater drainage
- **Others**
  - Erosional gullies/rills, drainage features, swales

## Types of Non-Linear Features

- **Wetland**
  - Hydric soils
  - Hydrophytic vegetation
  - Wetland hydrology
    - Saltmarsh
- **Open Water**
- **State Waters (buffered & non-buffered)**
- **Human-made/artificial features**
  - Berms/impoundments, retention ponds

## Vegetated Buffers

- **Difference between observed vegetated buffer and the EPD regulated buffers**
  - Wrested Vegetation (from flow or wave action)
  - Baseflow or evidence of baseflow
  - Jurisdictional Determination (JD) line: Coastal Marsh Plant List
- **Resource Types with Buffers:**
  - Warm water streams
  - Cold water streams
  - Open waters
  - Coastal marshlands

## Describing Protected Species and Their Habitats

### Physical Characteristics of Protected Species Habitats

*These are qualities of habitats to pay specific attention to during the general survey to evaluate habitat suitability.*

- Indicators of Disturbance
  - land disturbance
    - fire/burning
    - browsing/grazing
    - flooding/inundation
    - mowing/mechanized maintenance
  - Invasive species – tracked lists
  - Connectivity to surrounding habitat/fragmentation
  - Litter/trash, smell
- Terrestrial & Plants
  - Vegetative community
    - Age – Mature vs mid-successional vs early-successional
    - Forested vs scrub-shrub vs emergent
    - Understory “open-ness” / sunlight availability / canopy cover
    - Species-specific associate plants
    - Edge habitat
    - Vegetative strata (understory, midstory, overstory)
  - Specialized landforms
    - Floodplains
    - Terraces
    - Outcrops
    - Glades
    - Ecotones
  - Soil Characteristics
    - Moisture
      - Mesic vs. Xeric / upland vs lowland
      - Inundated vs saturated (ex. pitcher plants)
    - pH – acidic vs basic
    - Mafic, calcareous
    - Cherty/rocky
    - Depth of soil/depth to bedrock
  - Slope & Aspect
  - Differentiating foraging, roosting, nesting habitats (applies mostly to bats, but also turtles, shorebirds, etc, varies by species)
  - Species burrow ID
- Bats
  - Roosting structures
    - bridges, culverts

- Abandoned structures including barns & sheds
  - Trees – snags, flaky bark
  - Guano, smell, staining
  - Flyways – foraging habitat
- Birds
  - Nesting: tree height & age, type of tree
  - Large water bodies/open waters
  - Nest ID (for migratory birds, eagles, some specialized Phase 2 surveys ex red-cockaded woodpecker)
  - Structures – bridges/culverts (migratory birds)
  - Shorebirds - shoals/sandbars, beach width, tidal flats
- Aquatics
  - See aquatic characteristics above for general features, as many relate here
    - Fish/Mussels - Stream velocity, substrate, in-channel structure
  - Water quality indicators – clarity/turbidity/macrobenthos
  - Woody vegetation, submerged aquatic vegetation (SAV)
  - Bank suitability for nesting - (ex., diamondback terrapin, alligator snapping turtle)

## Other Protected Habitats

- Critical Habitat
- Essential Fish Habitat
  - Tidal Influence
  - Shallow estuaries
  - Connectivity to ocean/deepwater habitat
  - Aquatic vegetation (ex. eelgrass beds)

## Protected Species-Specific Surveys

*This section is for techniques and observable features we look for while conducting PSS's*

- Follow Protocols outlined in GDOT Species Survey Methodologies Manual
- Visual Surveys – *do not require a collection permit*
  - Plant transects – conducted seasonally
  - Nest ID – ex RCW nest cavities, bald eagle nests etc
  - Pedestrian/visual inspection surveys
    - Insects – adult surveys
    - Flashlight surveys - (ex. green salamander, Rafinesque's big-eared bat)
  - Burrow activity/density surveys - (GT, EIS, PG)
  - Acoustic – frogs, RCW
- Capture Surveys – *methods requiring a collection permit*
  - Fish – electrofishing, seining
  - Mollusks, crayfish etc - grubbing
  - Amphibians – dip netting, minnow/funnel traps, drift fence/pitfall
  - Bats – mist-netting
  - Insects – larval surveys

## Surveying for Ecology Resources

### Desktop Review: Online Resources

- General/ applicable to both waters and species:
  - Aerial imagery
  - Topographic maps
  - Google StreetView
  - Web Soil Survey – soil types, hydric soils
  - Geology maps/layers
  - 305(b)/303(d) List of waters not supporting designated uses
- For Waters:
  - WATERS layer on Google Earth
  - Property boundaries
    - ROW
    - qPublic website
  - National Wetland Inventory (NWI) maps
  - Trout watershed map/layer
- For Species:
  - IPAC
  - GNAHRGIS & GADNR Biodiversity Portal
    - Range Maps
    - Species Descriptions
    - Preferred habitats
  - NOAA Section 7 Mapper
    - GDOT NOAA App / Inland EFH Mapper
  - GDOT Protected Species Methodologies Manual

### Field Assessment and Data Collection

- Delineating ESAs and Resources for Report Figures
  - WOTUS
  - State Waters
  - Protected Species Habitat
  - Habitat and Land Use Types (if not visible via aerial imagery)
  - Large Invasive Species Infestations
- Habitat/Community descriptions
  - Plant identification & description of strata
  - Age of trees, if forested
  - Overall quality, notes on disturbance
  - Protected Species Suitability
- Invasive species
- Aquatic Resource Data Collection for report (in addition to data forms)
- Photograph Requirements:
  - Habitat and Land Use Types

- Photos of roadway/project location
- Upstream/downstream views
- Existing structures
- Data Forms:
  - North Carolina Department of Water Quality (NCDWQ) Forms (For streams and state waters)
  - Wetland Data forms
  - Bats & Bridges (for culvert and bridge surveys)
  - PSSR/ASSR Data Forms – Short Forms & Species-specific forms

## Regulatory Agencies, Policies and Regulations

### Agency List

- US Army Corps of Engineers (USACE)
- National Park Service (NPS, has unique WL designation criteria)
- US Forest Service (USFS)
- Environmental Protection Agency (EPA)
- Georgia Department of Natural Resources (DNR)
  - Wildlife Resources Division (WRD)
  - Environmental Protection Division (EPD)
    - 401 delegated to the state
    - Trout waters (GADNR Rule 3910306.03(15))
  - Coastal Resources Division (CRD) (Coastal Marshlands Protection Act, CMPA)
- US Coast Guard (USCG)
- Tennessee Valley Authority (TVA)
- U.S Fish & Wildlife Service (USFWS)
- NOAA Fisheries (Coastal Zone Management Act)

### Regulations, Laws, and Policies

- Clean Water Act
  - Waters of the U.S (WOTUS) & Jurisdiction
    - Court rulings – definition of WOTUS is constantly changing
  - Sections:
    - 404 – Permitting (USACE) – fill, dredge, modification, diversion of WOTUS
      - Nationwide General & Regional Permits
      - Individual Permits
      - Associated mitigation
    - 401 – Water Quality Certification (EPD)
    - 402 - National Pollutant Discharge Elimination System (NPDES) – EPA regulated
    - Municipal Separate Storm Sewer System (MS4) Permit
    - 408 – only to mention that it must be completed before 404 is issued
- Rivers & Harbors Act
  - Navigable WOTUS meaning/list

- Section 10 Authorization (USACE)
- Section 9 US Coast Guard Permit
- Georgia Erosion & Sedimentation Control Act of 1975 (OCGA § 12-7-1)
  - State Waters – definition & how state waters fit into CWA
  - EPD Regulated Buffers
    - 25 ft, 50 ft, 25 ft saltmarsh buffers
  - Buffer Variances & buffer mitigation
- Coastal Marshlands Protection Act
  - GDOT is exempt, but required to get Revocable License and/or Letter of Authorization (LOA)
  - Jurisdictional Determination (JD) line – verified by CRD
- TVA Act
  - Section 26a Permit – obstructions, changes to dams
- Endangered Species Act
  - Sections 7, 9, & 10
  - USFWS & NOAA
- Fish and Wildlife Coordination Act (FWCA)
  - USFWS
- Magnuson-Stevens Fisheries Conservation Act (MSFCA) for Essential Fish Habitat
  - NOAA Fisheries
- GA Endangered Wildlife Act & Georgia Wildflower Preservation Act
  - GA DNR
- Bald and Golden Eagle Protection Act
  - USFWS – Eagle Management Program
- Migratory Bird Treaty Act
  - USFWS
- Official Code of Georgia § 27-1-28 (Taking of non-game species)
  - DNR – WRD

## CONSTRUCTION & MAINTENANCE

### General Construction Practices

- Project limits vs construction limits
- Terminology
  - Roadway terms
    - Right of Way (ROW)
    - Required ROW
    - Easements – permanent, temporary, demolition
  - Roadway structure terms
    - Bridge terms
    - Culverts

- Wall systems
- Engineering terms
  - Horizontal
  - Vertical
  - S curve
- Site preparation
  - Clearing and grubbing
  - Installation of temporary stormwater best management practices (BMPs)
- Site stabilization
- Grading
- Alignment construction considerations
  - Detours (onsite & offsite)
  - Staged construction
  - Order of construction activities

## Plan Reading

### General Plan Reading

- Beginning to read plans
  - Sheet order
  - Emphasize most important series to ecology (i.e., 13, 19, 20, 35, etc.)
  - Cover sheet
    - Description
    - Project location sketch
    - Layout view
    - Sheet identification
    - Plans revised and plans completed
    - Scale
    - Project length
    - Design data
  - Plan sheet formatting (legend, title block, plan series name and number, scale, and north arrow)
- Index and revision summary sheet
- Stationing, symbols, and abbreviations
  - Symbology
    - Focus on what ecologists refer to the most – ROW, cut/fill lines, easements, environmentally sensitive areas (ESAs), ecology delineations, orange barrier fence (OBF), bridges, culverts
    - Existing (grey) vs. planned (black) features
  - Project limits vs. Construction limits
  - Station numbers
  - Abbreviations
- Typical sections
  - Horizontal distance

- Summary and detailed estimate quantities
- Introduction to views
  - Plan view/longitudinal cross section
    - “Bird’s eye view” or “top down view”
  - Profile view
    - “slice” parallel or along alignment
  - Cross section view
    - “slice” perpendicular to the alignment
- Drainage
  - Culverts
  - Bridges
- Utility plans
- Signing and pavement markings, signals, highway lighting and landscaping
- Maintenance of traffic, sequence of operations, and staging
- Erosion, sedimentation, and pollution control plans (ESPCP)
- Cross sections
- Standards and details

## Ecology Relevant Plan Series

- Plan phases (related to environmental) – refer to Plan Reading Class slides
  - Concept
    - Environmental Survey Boundary (ESB)
  - Preliminary
    - Avoidance and Minimization Measure Meeting (A3M)
    - Tech studies
    - PFPR
  - Final
    - Lockdown
- Displaying ecology resources and labels on plans correctly
  - Streams, ephemeral channels, wetlands, open waters, buffered state waters (BSWs), non-buffered state waters (NBSWs), buffers (cold and warm water)
  - Habitats not shown on plans
  - Streams – using survey’s line(s) (top of bank (TOB)) vs. the ecology delineations (ordinary high water mark (OHWM)), what both look like and when each would be used
  - Wetlands – sometimes wetlands along stream banks will show as in the stream if the surveyor’s lines are used for streams – show examples and instruct to ask design to fix this
- Sheets with ecology impacts
  - 13 series
    - Permanent impacts
    - Common impacts to look for –
      - Bridge bents, cut/fill, rip rap, clearing and grubbing, etc.

- 19 series (staging)
  - When impacts differ from the 13-series for staged projects
- Section 20
  - Temporary impacts
  - Common impacts to look for -
    - Cofferdams, debris containment structures, work bridges, etc.
  - Where to find the most recent guidance, since this changes
- Utility plans
- OBF
  - Best practices – tie to ROW, need space between OBF and cut/fill, don't overlap streams
- Environmental Resources Impacts Table (ERIT)
  - What information should be included
  - Comparing against plan impacts

## Maintenance

### Bridge Maintenance

- Bridge Preservation
  - Repairing/replacing expansion joints
    - Polymer overlays
  - Joint header repairs/replacement
  - Superstructure painting
    - Patching, sand blasting, painting, etc.
    - Micro-milling
  - sealing concrete surfaces – polymer overlay
- Bridge Rehabilitation
  - Concrete bridge deck overlays
    - Latex Modified Concrete (LMC) Deck repair
    - Partial-depth
    - Deck replacement
  - Full-depth
  - Repairing structural steel
  - Edge beam replacement
  - concrete spall repair – superstructure and substructure
  - Epoxy crack injection – superstructure and substructure
  - Steel beam repair
  - Anchor bolt repair
  - Concrete beam repair
  - Anchor bolt replacement
  - Pile encasements
  - Scour repairs/erosion repairs/debris removal
  - Concrete patching
  - Guardrail repairs

## Roadway Maintenance

- Milling, leveling, surfacing, and resurfacing (pavement rehab, contrast with full depth replacement)
- Sidewalk and trail repair
- Pavement markings (e.g. striping, rumble strips, reflectors, etc.)
- Patching asphalt and crack repair when not over bridge expansion joints
- Median opening additions or alterations
- Spall and slab repair on concrete roadways
- Shoulder building
- Shoulder paving
- Roundabout splitter island reconstruction
- Alteration of existing facilities to ensure Americans with Disabilities Act (ADA) compliance
- Guardrail and cable barrier installation, repair, and replacement
- Intersection improvements
- Streetscapes and beautification projects
- Roadway safety or traffic operation projects
- Railroad crossing improvements and rehabilitation
- Roadway lighting installation in urbanized areas
- Bicycle and pedestrian lanes, paths, and facilities construction
- Noise barrier, retaining wall, and fence construction and repair
- Curb and gutter construction and alteration
- Shoulder and foreslope maintenance and repair
- Concrete preservation and rehab

## Roadway Construction

- Design Policy for Roadways
- Construction Activities
  - Roundabout
  - Interchange (grade separation)
  - Widening
  - Turn lanes
  - Auxiliary lanes
  - Frontage roads
  - Passing lanes
  - Intersection improvement
  - Managed Lanes
  - Realignment
  - New location
  - New general-purpose lanes
  - Bypass routes
  - Pedestrian/bicycle facilities

- full-depth roadway replacement
- Culvert extension/replacement
  - Dewatering / Stream Diversion: berm, pumping, channel diversions
  - Ditching of waters
  - Slope ratios
  - Sediment basins

## Bridge Construction

- New
- Replacement
- Temporary construction access
  - Cofferdam
  - Debris containment structure – sheet piles, sandbags
  - rock jetty
  - Barge
  - Bulkhead
  - Temporary work bridge
  - Berm
  - Other methods
- Construction of bridge columns/piers/abutments
  - Pile type/materials/methods (i.e., vibratory or impact hammer)
  - Spread footing
  - Caisson/drilled shaft
- Superstructure construction
  - Beam placement
- Bridge removal/demolition
  - Jackhammering
  - Blasting/Explosives
  - sawing
- Riprap placement - endroll

## Miscellaneous Construction Activities

- Railroad Crossings
  - Construction/Reconstruction
  - Consolidation
- Multi-use (aka Shared-use) Paths
- Other maintenance and emergency projects
  - Slope repair
  - Culvert repair
- Other roadway projects
  - Median work
  - Streetscapes
  - Drainage Improvements

- **Intelligent Transportation Systems Projects**
  - Railroad crossing (RRX) Warning Device
  - Signals
  - Underground conduit installation via directional boring/drilling, jack and bore, trenching, and ploughing
  - Pull boxes
  - Dynamic Message Signs (DMS)
  - Junction/electrical boxes
  - Gantry
  - Conduit/cable attachment to bridges
  - Environmental Sensor Stations (ESS)
  - Ramp meter systems (RMS)
- **Safety Projects**
  - Pavement markings
  - Cable barriers
  - Rumble Strips
  - Restricted Crossing U-Turn (RCUT)
  - Bicycle lanes
  - Pedestrian crossings, sidewalks, and other facilities
  - Lighting
  - RRX Signing & Marking
  - Signage

## GDOT PROJECT DELIVERY

### GDOT Organization

#### General Information

- **GDOT Org Chart**
  - State Transportation Board > Commissioner > GDOT
  - GDOT Ecology Location (You are Here)
    - Commissioner > Chief Engineer > (Deputy Chief) > Engineering > OES
    - OES Org Chart: Office Head > Asst. OH > Section Manager > Team Leader > Ecologist
    - Ecologist Roles: Associate/Junior/Senior; Special Projects Teams
- **GDOT Office Locations**
  - Districts and OGC
  - State Map

## Ecology Interactions with Other Offices

- **Administration**
  - General Council/Legal Services: Special Provision Reviews
  - Information Technology: GDOT account access (Solution Center)
  - Procurement: Scoping and Work Hours
- **Field Services**
  - Districts 1-7
    - Area Engineers – send them final SPs
    - Construction and Maintenance liaisons can discuss project specific questions/challenges
- **Engineering**
  - Office of Environmental Services
    - Environmental Delivery Support: Schedule support, P6 and 411 queries, Let/ROW status meetings
    - Environmental Program Managers: recovery schedules, project delivery support
    - Interagency Office of Environmental Quality: Agency Coordination, IRT Meeting Agendas, expedited review coordination
    - Subject Matter Experts: Environmental Analysis, Ecology, Air & Noise, Cultural Resources
  - Roadway Design: coordinate on AMMs; provide roadway with resource delineations
  - Bridge Design & Maintenance: coordinate on AMMs specific to bridge or culvert design; coordinate on AMMs for bridge maintenance projects
  - Design Policy & Support
    - Maintains Design Policy, Guidelines and Standards (see [Design Manuals](#))
    - Coordinate on stormwater best management practices (BMPs)
- **Permits and Operations**
  - Utilities: Coordinate on plan reviews; may have questions about utility relocations on projects
- **Construction**
  - Construction: may provide input at constructability/FPRs
  - Office of Materials and Testing (OMAT): can assist with geotechnical permits (rare)
- **P3 Public-Private Partnerships**
  - P3 Program: Alternative Delivery/Design-Build Projects
- **Program Delivery**
  - Office of Program Delivery: Project Managers are part of this office
  - TIA – Transportation Investment Act: TIA Program is overseen by this office
- **Engineering Services**
  - coordinates and runs Field Plan Reviews and Meetings
  - Environmental Compliance Bureau (document and address compliance violations)

## Project Delivery Team

- In-house vs Consultant Ecologist Roles
- OES Subject Matter Experts
  - Environmental Analyst
  - Historian
  - Archeologist
  - Air & Noise Specialist
  - Ecologist
- Project Manager: schedule management, responsible for meeting minutes, contracting (task orders)
- Design – usually assigned to a group rather than individual for GDOT Design
  - Design Manager/Engineer of Record
  - Roadway Designer
  - Bridge Designer
- Other Offices as issues arise
- Value Engineering Team

## Project Information Resources

### GeoPI

- Map-based project information tool
- Can search for projects by location
- Technical Guidance available

### TPro

- Overview description of tool
- Project level info (not eco specific)- type and location

### ProjectWise

- Overview description of tool
- Organization of Files

### Primavera P6/P6 Team Member

- Schedule Tool used by Project Managers
- Data is entered by team members at different stages throughout a project
- Link to technical guidance on entering dates into P6 (internal only)

### GDOT 411

- Database Tool used to query data from multiple sources into more usable formats
  - Preconstruction Status Reports (PSRs)
  - Let Status and ROW Status Spreadsheets
  - All Projects Spreadsheet
- Used by Schedulers
- Share the Env. 411 page with all the queries (internal only)

- Can craft custom queries (not common)
- Link to technical guidance on how to use the tool

## Project Delivery

### Project Funding

- Lead federal agency
  - State – Lead Federal Agency (LFA) - USACE
  - Federal – LFA FHWA
  - Local – No LFA – GDOT is lead
- Funding Shifts mid-project

### Program Types

- Construction Work Program

### *Design Bid Build*

- Typical Schedule for most projects – Detailed in the Plan Development Process (PDP)
- Three main phases – Typically guided by funding milestones
  - Concept and Resource Identification
  - Preliminary Design, Technical Studies, and Right of Way Certification
  - Final Design and Certification for LET
- Schedule Variations
  - Low Impact Bridge Program / State-Funded Bridge Program
    - Schedule differences – accelerated/compressed schedule
      - Lack of an ESB/creating your own per LIBP Manual
      - Initial Screening & Initial Screening Meeting
      - Field Survey, LIBP Section III Form, & Field Scoping Meeting
  - Maintenance
    - Roadway
    - Bridge
  - Quick Response
  - Emergency Projects

### *Design Build*

- Simultaneous design and construction, suitable for challenging design or used to test innovative design.
- Project team consists of different team members:
  - GDOT internal team – PM, OES representatives, etc
    - GDOT Ecologist: review/provide input on documents, RFPs, Technical Provisions
  - Program Management Consultant (PMC) - manages project, acts as liaison between GDOT and the owner/design-builder
  - General Engineering Consultant (GEC) - completes environmental studies/analysis

- Schedule differences:
  - Generally expedited timelines
  - Pre-Let
    - Resource Identification (typically occurs, handled by GEC, reviewed by OES Ecologist)
    - Preliminary Design: Development of “costing plans” (~30% designed plans), Assessment of Effects & Agency review. These become Reference Information Documents (RIDs)
    - RFP Review: review of ITP, DBA, Technical Provisions,
    - Request for Proposals: project is advertised and developers bid on project with their unique design ideas, ask questions etc
  - Post-Let
    - Can be broken into multiple phases, each with their own NTP
    - Design Builder refines plans. May trigger PMC to update environmental documents
    - Permitting – handled by the Design Builder

## TRACK 4: ENVIRONMENTAL PROCESS

### Overall Process Guides

#### Programmatic Agreements

- Joint Coordination Procedures
  - What it is
  - How to use it/application of programmatic agreement
  - Review Commitments from Agency Partners
- Local Coordination Procedures
- Bat Programmatic Agreement
- Aquatic Programmatic Agreement (eventually)

#### Technical Writing Best Practices

- How to write a good analysis
  - Give examples
    - Species
    - Waters
  - Past tense vs future tense vs present tense
- Templates:
  - List of Available Templates
  - How to use the templates – general guidance
  - Companion Resources and Interim Guidance Documents

## GDOT Project Management Tools

- All Projects Spreadsheet
- SharePoint Trackers (Internal GDOT Only)
  - Document Review Times
  - GDOT EO Tracking Spreadsheet – only for EOs within GDOT ROW
  - 404 Permit Tracking
  - Buffer Variance Tracking
- TPro
  - Comment Guidance
  - When to update:
    - Project changes (PCRF, RCTS, PCRRAPI)
    - Let/ROW status meetings,
    - document reviews and transmittals
    - Agency Concurrences or Approvals
    - PDP milestones (inc. P6 activities)

## Document Review Processes

- Consultant Document Review Process
  - QA/QC of documents prior to initiation of GDOT review process
  - FTP site
  - Initiation of review process
    - Prime verification
    - Routing slip
    - Submittal email content
  - Responding to comments
  - Workshop Criteria
  - Review timeline expectations
- Internal OES Consultant Document Review Process (*internal only*)
  - Review timelines and roles (primary, secondary, TL)
  - Team Leader Review Tracking Spreadsheets
  - Avoiding Preferential Comments
  - Consolidating comments
- Expedited Reviews
  - When to request
  - How to request
    - OES Review
    - Agency Review
- Document Approval and Record Keeping
  - Signatures
  - File management and folders and naming conventions

## Document Transmittal Process

- Transmittal Addresses and CC list

- Email Templates
- External Transmittals (to Agencies)
  - Attachments in addition to Reports (ex., ORM tables)
  - Hard copies and format preferences (ex., NOAA wants word files)
  - Document Transmittal Procedures
    - IPAC Process (FHWA/FWS/DNR):
      - Creating IPAC project and adding members
    - RRS Process (USACE):
    - Email Process (NOAA):
    - FTP Process (EPD, others): (SFTP and ad hoc)
      - FTP Folder best practices
- Internal Transmittals (within GDOT)
  - Document Types:
    - Quick Response Projects
    - Interoffice Memo (i.e., SF w/no LFA)
    - Special Provision (to the project team/construction)
    - Permit and Buffer Variance (to the project team/construction office)
  - Procedure:
    - Email with ProjectWise link

## Agency Coordination and Processing Responses (Internal Only)

- Record Keeping
  - Project file organization structure (ProjectWise and Project Files)
    - Correspondence
    - Concurrence
  - File naming conventions
- Notify Project Team
  - Coordinate with Cultural Resources SMEs on SOA Responses

## Scoping

- Deliverables at various stages (ROW/LET)
- Survey Needs
- Report Needs
- REMEDY Procedures (internal only)
  - Internal Staff only (>6 months experience)
  - Assignment
  - Workflow: secondary reviewers and team leaders
  - Process for Support Services Ecologists vs in-house
  - Automated Scoping Spreadsheet & Guidance

## Project Delivery Process Variations and their Impact on Ecology Processes

- Restrictive Covenant – permit type limitations, PCN requirements; schedule implications; coord with USACE

- Design-Build vs. Design-Bid-Build: expectations and requirements for the Ecologist
  - Permitting and/or AOERs using 30% plans (“Costing plans”)
  - Post-Let ecology expectations

### Concept & Resource Identification

Environmental Survey Boundary (ESB) receipt

- What makes a good ESB/evaluating ESBs (GDOT ESB Guidance)

GDOT Meetings and PDP Milestones

- Concept Meeting
- LCP Coordination with USACE (IRT Meetings)

Field Survey Post-Processing

- Processing Data
  - Technical Guide
  - Best Practices
- Send Environmentally Sensitive Area (ESA) Delineations to Design

Technical Assistance from Agencies/GDOT after field survey

- Protected Species Surveys:
  - Engage GDOT Ecologist regarding survey needs
  - USFWS/DNR Technical Assistance to determine need for surveys
  - Coordination with specialist sub-contractors, if needed
- Site visit with agencies (USACE, EPD)
- JD line verification (CRD) - *(only good for 1 year)*
- Local Coordination Procedures (LCP)
  - Preliminary LEDPA concurrence
  - Only for projects with significant WOTUS impacts

Documentation

- Ecology Resource Survey Report (ERSR)
  - When to assume species presence
  - Describing resources
- Protected Species Survey Report (PSSR)
  - Non-Aquatic PSSR Guidance v1.1
- Aquatic Species Survey Report (ASSR)
- Delineation Concurrence (for USACE)
- Heritage Report (for USFS)
- Local Coordination Procedures
  - Checkpoints 1-2 Memos
  - Checkpoint 3 – Practicable Alternatives Review (PAR) Report

## Agency Coordination and Responses

- USACE
  - Delineation Concurrence response from USACE (SAS letter)
  - Preliminary LEDPA Approval (*for LCP Projects only*)
- USFWS
  - Technical Assistance on Action Area (*if needed*)
- CRD
  - JD line verification

## Preliminary Design, Technical Studies, and ROW Certification

### Avoidance & Minimization Measures Meeting (A3M)

- How to prepare
- How A3M meetings work – Roles and Responsibilities
- Methods and strategies for implementing AMMs
- Receiving Preliminary Plans after the meeting

### Documentation

- Scope of Analysis
- Assessment of Effects (AOE)
  - Assessing & Reporting Impacts to Species
    - Assuming Species Presence
    - Effect Determinations
      - Federal: NE, MANLAA, MALAA, Programmatic determinations, Conference, Take/No Take
      - State: NE, NSAE, SAE
      - EFH: NE, No Adverse Modification, Significant adverse modification
    - Mitigation:
      - Species Mitigation (monitoring plans, other purchased types?)
      - EFH Mitigation
  - Assessing & Reporting Impacts to Federal Aquatic Resources
    - Impact types & calculation
      - Clearing & grubbing
      - Discharge of fill
      - Morphological alteration
      - Dewatering
      - Dredge
    - Impact duration:
      - Temporary
      - Short Term
      - Permanent/reoccurring
    - Mitigation

- USACE Mitigation Manual
- (SOPs) Qualitative Assessment and Adverse Impacts Worksheets
- Assessing & Reporting Impacts to State Waters
- Assessing & Reporting Impacts to Buffers
  - BV Criteria
  - Exemption Areas (RDSE/DSE)
  - Buffer mitigation
  - Handling trout waters
- Biological Assessment (*for Formal S7 Consultation*)
- Special Provisions
  - Types
    - Aquatic Protections
    - Stop work if sighted
    - Daily site inspections
    - Seasonal restrictions – tree clearing, in water work, structure demo/construction
    - EIS 713.6
  - Legal language – how to write
  - Internal GDOT Review Process
  - Transmittal Process and Species Detail Sheets
- Ecology Post Construction Stormwater Report (EPCSR)- Initiation + interpretation (BMPs in Track 2)
- NOAA Southeast Regional Office (SERO) Form
  - GDOT MYMFS Tools App
- Essential Fish Habitat Report
- Effects Determination Guidance for Endangered & Threatened Species (EDGES) Coordination Slips
- Review Green Sheet, Environmental Commitments Table (ECT) & Environmental Resources Impact Table (ERIT)
- USFS Heritage Survey

## AGENCY COORDINATION and Responses

- FHWA (*federal funding only*)
  - Initiate Formal Section 7 on behalf of GDOT
- USACE (*state funding only*)
  - Species Consultation
    - Formal Section 7 (Biological Opinion)
    - Informal Section 7 Concurrence
- USFWS
  - Species Consultation
    - Formal Section 7 (Biological Opinion)
    - Informal Section 7 Concurrence
    - Programmatic Consultations

- Technical Assistance on Action Area (*if needed*)
- FWCA (*federal funding only*)
- NOAA
  - EFH Report Response
  - Species Consultation
    - Formal Section 7 (Biological Opinion)
    - Informal Section 7
- Agency Review Times and Processes for Expediting

## GDOT Meetings and PDP Milestones

- Preliminary Field Plan Review Meeting
- Constructability Review Meeting #1

## Final Design Including Re-Evaluations

### GDOT Meetings and PDP Milestones

- Constructability Review Meeting #2
  - Roles and Responsibilities
  - Preparation Tips
- Lockdown Plan Submittal date
  - Preparation for LD and timing of document reviews
  - Hot Button Issues and timing of notification
  - Procedures for Plan Changes after LD
- Final Field Plan Review Meeting

### Re-evaluation

- Addenda
  - When to re-open consultation
    - Change in project limits, project activities, new easements/ROW, changes to impacts
    - New species listings
- Species Relocations (as part of protected species coordination)
- Developing Recovery Plans

### Permitting

- JD Line Verification (*only good for 1 year*)
- Revocable License Request
- DNR, EPD Notification Form (aka “non-reporting forms” for projects not requiring a PCN, RP 30, or 31)
- Pre-Construction Notification (PCN)
- Individual Permit Application
  - Preparation
  - Modifications
- Stream and Wetland Mitigation

- Credit coordination process (with Special Projects Team)
- Compensatory mitigation credit purchase order:
  - Primary Service Area Bank Credits
  - Secondary Service Area Bank Credits
  - In-Lieu Fee
- RIBITS
- Cost estimations
- Statement of Credit Availability (SOCA)
- Buffer Variance
- Buffer Mitigation
  - Calculating credit amounts
  - Compensatory mitigation credit purchase order:
    - On-site
    - Same HUC8 as impact
    - Primary Service Area
    - Secondary Service Area
    - Stream Credits, then Wetland Credits if no stream credits available
- TVA Section 26a Permit (May need to be submitted during technical studies if TVA ROW is needed)

## Agency Coordination and Responses

*Same Coordination with Agencies as during Technical Studies Phase. Additional coordination listed below.*

- CRD
  - JD Line Verification
- USACE
  - Permit Approval
- EPD
  - BVA Approval
  - Coordination with EPA for 401 WQC Approval for certain permit types
- TVA
  - Permit approval for certain projects

## Post-Let Commitments

- Species Commitments
  - Annual Surveys
  - Relocation Monitoring

## Post-Let Re-Evaluations – Special Projects Team

- Prior to Construction Activity:
  - Survey Report Reviews (as dictated by Special Provisions; Pre-Construction))
    - Bats in Bridges surveys
    - Species Relocation Monitoring Reports

- Species exclusions
    - Alligator Snapping Turtle surveys
  - Amendments
    - Permit changes
- During Construction
  - Use On Construction (UOC) Changes
  - Design Changes
  - Permit Changes
- Emergency Projects (typically weather events; failures)
- NPDES Review (54-series changes to 404 or buffer impacts)