



Water Supply Reservoir Permitting Process

Environmental Review Commission

November 9, 2011

Potential Permits Required

- Clean Water Act, section 404 (Federal Permit)
 - US Army Corps of Engineers
 - Mitigation
- Clean Water Act, section 401 (State Permit)
 - DWQ
 - Wetlands, mitigation, downstream flow
- Approval to construct treatment plant/use for public water supply (State Permit)
 - DWR, Public Water Supply Section

Potential Permits Required cont'd

- Water Supply Water Quality Reclassification (State)
 - DWQ
 - Critical area delineated
 - Water supply watershed protection measures
 - Rulemaking process, 2 years or more
 - Could be started early
- Local Government(s)
 - Adopt ordinances for water supply watershed protection, and to mitigate impacts

Potential Permits Required cont'd

- Interbasin Transfer Certificate (State Certificate)
 - DWR
 - As applicable
 - ~5 year process
- NC Dam Safety permit (State Permit)
 - Division of Land Resources
 - Often last, since review of engineering design
 - Also includes requirements for amount and water quality of downstream release

1st Step—Analyze Purpose & Need

- Examine projected need of system
 - Defendable demand estimates
- Evaluate:
 - Water loss
 - Water efficiency
 - Water reuse

Identify Potential Options

(listed below from least to most difficult to permit)

- Interconnection / Regional System
- Groundwater sources (in capacity use area)
- Additional surface water intakes
- Side stream reservoir
- Mainstem reservoir

Initial Steps (~ 18 months)

- Document the Purpose and Need for the project
- Initial list of alternatives
- Developing env. documents for permit decisions
- Scoping – identifying issues and stakeholders
- Will it require an EA or EIS / SEPA or NEPA
 - Can the project be permitted under a Nationwide or General Permit from the Corps?
- Form Project Review Team (for NEPA)

Studies (~36 months)

- Varies depending on project specific factors.
- Initial site screening, including:
 - Geotechnical studies
 - Affected dwellings, roads, utilities, etc.
 - Agricultural lands flooded
 - Land acquisition issues

Studies cont'd

- Hydrologic Modeling
 - Determine yield of reservoir
 - Provide input to evaluate downstream flows
- Effects of the Impoundment
 - Wetlands lost
 - Riverine habitats lost
 - Terrestrial habitats lost
 - Threatened or Endangered Species
- Effects on Downstream Aquatic Resources
 - Downstream flows
 - Fish passage? Threatened or Endangered Species?

Studies cont'd

- Water Quality
 - In the reservoir, algae concerns etc.
 - Suitability for water supply use
 - Downstream release (dissolved oxygen, temperature, etc.)
- Initial mitigation measures analysis - sufficient to compare alternatives
- Costs - sufficient to compare alternatives

Preferred Alternative (~24 months)

- Review of Alternatives
 - Study results
 - Project Review Team
 - Agency consultation
- Develop Preferred Alternative
- Least Environmentally Damaging Practicable Alternative (LEDPA) (Corps decides under NEPA)
- Secondary and Cumulative Impacts related to water supply expansion and growth
- Mitigation Plans for direct and indirect impacts

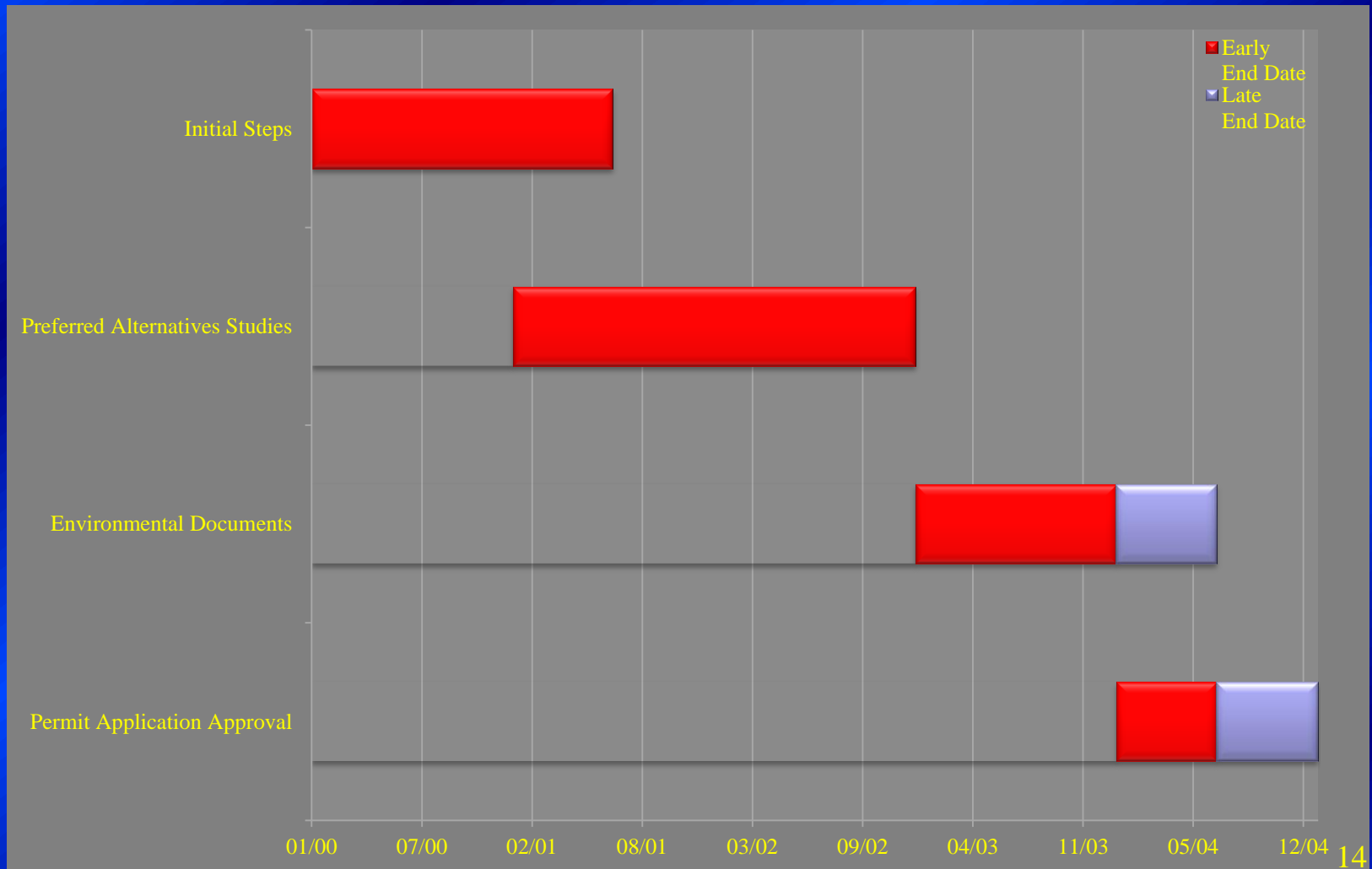
Environmental Documents (~18 months)

- Draft EIS (developed to Army Corps specs)
 - Local govt pays but contractor works for Corps
- Agency/Stakeholder review
 - Federal – EPA, Fish & Wildlife Service, National Marine Fisheries Service
 - State – DENR, Wildlife Resources Commission
 - Other stakeholders
- Subsequent Drafts if needed
- Final EIS
- Public Comment
- Record of Decision

Issues with the Potential to Extend the Review Process Significantly

- Alternative and site selection
 - Not the LEDPA?
- Threatened & Endangered Species
- Interbasin Transfer Certificate
- Fish Passage for Migratory Species
- Water Supply Water Quality Reclassification
 - Concerns from other local governments
- Applicant decisions on study funding
 - Consultant experience and level of staffing
 - Simultaneous or sequential work?

Reservoir Development Process Under Favorable Circumstances



Recent Reservoir Projects in NC

- Randleman Dam
- Rocky River Expansion
- Horse Creek
- Nicks Creek
- West Fork Eno
- Buckhorn Dam
- Lake Tabor
- Mackintosh Reservoir
- Lake Howell
- Stewarts Creek
- Back Creek Reservoir

Side Stream Reservoirs

- Viable alternative to mainstem reservoirs
- Provides tangible, quantifiable water storage
- Quicker permitting times
- Much less expensive
- Often requires Env. Assessment vs. EIS
- Horse Creek Reservoir permitted in 2 years



Horse Creek Reservoir Under Construction

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