The Environmental Impact Statement
Purpose for EIS

- Serve as a Action-Forcing Device To Ensure NEPA Policies and goals
- Provide Full and Fair Discussion of Environmental Impacts
- Analyze Potential Consequences of Alternatives
- Inform the Public
- Basis for Making Informed Decisions
Types of EISs

- **Project Specific EIS**
- **Programmatic EIS**
  - Broad Federal Actions (regulations/policy/plans)
  - Focus on:
    - Broader geographical area
    - Cumulative impacts
    - Policy-level mitigation
  - Usually no site evaluation
  - Tiering
- **Legislative EIS**
EIS Process

- Define Purpose and Need
- Define Preferred Action
- Notice of Intent
- Scoping
  - Public
  - Agency
- Identify Alternatives
- Screen Alternatives
- Technical Studies
  - Existing Conditions
  - Impacts
  - Identify potentially significant impacts
EIS Process (continued)

- Mitigation
- Draft EIS (internal circulation)
- Notice of Availability
- Circulate Draft EIS (public/agencies)
- Public/Agency Comment
- Public Hearing (meeting)
- Respond to Comments
- Final EIS
- Record of Decision
Statement of Purpose and Need

- *Need* – broader underlying social need to which the agency is responding
- *Purpose* – specific objectives of propose action
Scoping

- Start Scoping in Early Planning Stages
- Invite Participation of:
  - Affected Federal, State and Local Agencies
  - Affected Native American Tribes
  - Interested Parties
  - Public
- Purpose:
  - Determine the Scope and Issues to Analyzed in Depth
  - Identify Additional Alternatives
  - Identify and Eliminate Issues
  - Identify Other Federal Actions
  - Indicate Timing of EIS Preparation
Alternatives

- EIS must explain why certain alternatives were eliminated
- Alternative to consider
  - Alternative ways to meet purpose and need
  - No-Action alternative
  - Alternatives outside Lead Agency’s jurisdiction
- Rigorous evaluation and comparison required
- Identify preferred alternative in
  - Draft EIS, if one exists
  - Final EIS
- Identify environmentally preferable alternative
- Describe mitigation measures for alternatives
Screening of Alternatives
Possible Impact Scenarios

Scenario 1. Typical Situation

Scenario 2. No-Action Alternative Same as Baseline

Scenario 3. No-Action Alternative Worse Than Proposed Action
Technical Studies
(Environmental Attributes)

- Traffic and Transportation
- Air Quality
- Noise

- Natural and Biological Resources
  - Geology
  - Groundwater (Quality/Quantity)
  - Soils
  - Surface Water (Quality/Quantity)
  - Floodplains
  - Terrestrial Vegetation (includes E&T Species)
  - Terrestrial Wildlife (includes E&T Species)
  - Aquatic Biota (includes E&T Species)
  - Wetlands
Environmental Attributes (cont.)

- Cultural Resources
  - Prehistoric
  - Historic
- Socioeconomics
  - Displacements
  - Business
  - Demographics
  - Cohesive Communities
  - Land Use and Zoning
  - Regional/Community Plans
  - Farmland
  - Aesthetics
  - Local Fiscal
  - Economics
  - Public Services
  - Infrastructure
- Energy
- Hazardous Materials
Types of Effects
Mitigation of Impacts

- Discussion of mitigation required by CEQ Regulations
- All impacts
- Not Required to implement mitigation
- Types of mitigation for significant impacts
  - Avoid
  - Minimize
  - Rectify
  - Reduce
  - Compensate
Considerations in Preparing an EIS

- Analytic rather than encyclopedic
- Impacts discussed in proportion to significance
- Discuss how alternatives/decisions will achieve requirements of NEPA
- Alternatives discussed limited to those expected to be acted on
- Systematic and interdisciplinary
- Should be means to assess proposed action vs. justifying decision
- Plain language
Content of an EIS

1. Cover Sheet (1 page)
   - Title of the Action
   - Action's Location
   - EIS Designation
   - Lead Agency and Cooperating Agencies
   - Agency POC
   - Date by Which Comments Must Be Received
   - Abstract (1 paragraph)

2. Summary (NTE 15 pages)
   - Summarizes EIS (EIS Format)
   - Conclusion
   - Areas of Controversy
   - Issues to Be Revolved

3. Table of Contents (NTE 6 pages)
   - Cover All Headings and Subheadings
   - List of Figures
   - List of Tables
   - List of Abbreviations
   - List of Symbols

4. Purpose and Need for the Action (Sections 4-7: NTE 150 pages; 300 pages max)
   - Need or Requirement
   - Purpose or Objective
Content of an EIS (cont.)

5. Alternatives (Including the Proposed Action)
   ♦ Description of Each Alternative Considered
   ♦ Alternatives Not Rigorously Explored and Reasons
   ♦ Environmental Consequences of Alternatives (Comparative Form)
   ♦ Preferred Alternative
   ♦ Mitigation

6. Affected Environment
   ♦ Describe Affected Environment
   ♦ Necessary Description Relevant to Impacts
   ♦ Summarize, Consolidate or Refer (Minimize Bulk)

7. Environmental Consequences
   ♦ Direct Effects (Not Significant/Significant)
   ♦ Indirect Effects (Not Significant/Significant)
   ♦ Conflicts With Other Federal, State, Local Plans
   ♦ Energy Requirements (or Savings)
   ♦ Natural or Depletable Resource Requirements (or Savings)
   ♦ Mitigation Measures

8. List of Preparers (NTE 2 pages)
   ♦ Name and Qualifications of Preparers
   ♦ Reference Sections Prepared

9. Distribution List
   ♦ Identify Agencies Whose Comments Are Required
   ♦ Location Where Public Access Is Available

10. Index

11. Appendices
    ♦ Material Prepared for EIS
    ♦ Analysis to Support Conclusions
Timing of EIS Process

Figure 4.4 Minimum times for EIS processing.
Supplement EIS

- Supplement to Draft or Final EIS
- Required if:
  - Substantial changes in proposed action relevant to impacts
  - New information or circumstances relevant to impacts
- Process same as EIS (except no scoping/NOI)
Assessment Process

- Identify Potential Impacts
  - Matrix
  - Networks
  - Check Lists
- Determine Study Area
- Determine Existing Conditions
  - Published Documents
  - Interviews
  - Primary Data Collection
- Identify Standards
  - National
  - State
- Determine Worst Case Conditions
- Predict Impacts
  - Qualitative
  - Quantitative
- Assess Significance of Impacts
  - Standards
  - Professional Judgment
- Mitigation
## Checklist of Potential Effects

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<th>Yes</th>
<th>Maybe</th>
<th>No</th>
<th>Comment</th>
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<tr>
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<tr>
<td>Hazardous Materials</td>
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## Matrix of Potential Effects

<table>
<thead>
<tr>
<th></th>
<th>Clearing</th>
<th>Excavation</th>
<th>Grading</th>
<th>Compaction</th>
<th>Paving</th>
<th>Use/Maintenance</th>
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<td><strong>Traffic/Trans</strong></td>
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<td><strong>Noise</strong></td>
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<td><strong>Energy</strong></td>
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</tbody>
</table>
Network of Potential Effects

<table>
<thead>
<tr>
<th>Specific alternative</th>
<th>Basic resources affected</th>
<th>Changes in cover type or land uses</th>
<th>Physical and chemical effects</th>
<th>Biological effects</th>
<th>Probable social, economic, and other terminal effects</th>
<th>Probable importance of terminal effects</th>
<th>Data needed to evaluate important effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create an impoundment</td>
<td>Land</td>
<td>Decreased woodland (to lake)</td>
<td>Decreased woodland, wildlife</td>
<td>Decreased hunting and associated uses</td>
<td>High</td>
<td>Example for downstream fishery evaluation</td>
<td></td>
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<tr>
<td></td>
<td>Land</td>
<td>Increased urban/built-up land (cottages)</td>
<td>Decreased forest plant communities</td>
<td>Decreased timber production</td>
<td>Low</td>
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<tr>
<td></td>
<td>Water</td>
<td>Increased evapotranspiration and seepage</td>
<td>Changed non-pont sources</td>
<td>Eutrophication effect</td>
<td>High</td>
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<tr>
<td></td>
<td>Water</td>
<td>Decreased stream type (to lake)</td>
<td>Altered water conditions</td>
<td>Eliminate onsite trout populations</td>
<td>Moderate</td>
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<tr>
<td></td>
<td>Water</td>
<td>Downstream water quality changes</td>
<td>Changed evapotranspiration and seepage</td>
<td>Proliferation of lake fish populations and associated organisms</td>
<td>Moderate</td>
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<td>Water</td>
<td>Altered water conditions</td>
<td>Changed ground-water regime</td>
<td>Increased wetland plants and animals</td>
<td>High</td>
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<td>Air</td>
<td>Temporary changes in air quality</td>
<td>Short-term disturbance of wildlife</td>
<td>Effect on existing septic systems, roads, croplands</td>
<td>Moderate</td>
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<td></td>
<td>Air</td>
<td></td>
<td></td>
<td>Increased waterfoul production</td>
<td>Very Low</td>
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<td></td>
<td></td>
<td>Temporary decreases in attractiveness of area to recreationists</td>
<td>Low</td>
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</tr>
</tbody>
</table>

- Water: Dissolved oxygen, Temperature, Volume flow, Fish population, Fertility indices
- Land: Bank conditions, Sediment yield, Pollution sources, Resource use for aquatic habitat
- Air: Pool/riffle, Depth, Width, Current velocity, Benthic organisms
Physical Environment

- Geology/Soils/Groundwater
- Climate
- Surface Water Resources
- Air
- Noise
Assessing Impacts to Geology

- **Identify Source of Potential Impacts**
  - Overpumping Groundwater
  - Construction of Steep Slopes
  - Logging on Steep Slopes
  - Construction of Jetties
  - Reservoirs
  - Seismic Issues - Affect Project
  - Mineral Takings

- **Determine Existing Conditions**
  - USGS Geological Atlases
  - Bureau of Mines
  - DOGAMI
  - State/Local Planning Studies (Hazard Areas/Seismic)

- **Identify Standard**
  - State
  - Local

- **Impact Prediction**
  - Engineering Studies
  - Similar Projects in Area

- **Assess Significance of Impacts**
  - Percentage
  - State/Local Policies
  - Human and Ecological Down-slope Affects

- **Mitigation**
  - Limit Groundwater Use
  - Move Project from Hazard Areas
  - Seismic Reinforcement
Assessing Impacts to Soils

- Identify Source of Potential Impacts
  - Site Clearing
  - Compaction
  - Change in Land Use
  - Hazardous Materials
  - Change Nutrients

- Determine Existing Conditions
  - Soil Survey
  - Field Testing

- Identify Standard
  - State
  - Local

- Impact Prediction
  - Erosion (Universal Soil Loss Equation)
  - Compaction (Engineering Studies)
  - Change in Chemistry (Mass-balance Calculations)

- Assess Significance of Impacts
  - Percentage
  - State/Local Policies
  - Ecological (e.g. sedimentation of salmon bearing streams)

- Mitigation
  - Re-Vegetate Area
  - Limit Time of Year
  - Barriers
  - Best Management Practices
  - Line Disposal Area
Assessing Impacts to Groundwater

- Identify Source of Potential Impacts
  - Quantity
    - Withdrawal
    - Change Recharge Source
    - Draw Down
  - Quality
    - Subsurface Percolation
    - Injection Wells
    - Land Application of Wastes
    - Land Application of Pollutants
    - Storage Tank Leakage
    - Burial
    - Transport of Wastes/Nonwastes (pipelines and overland)

- Determine Existing Conditions
  - EPA - aquifers
  - State Agencies
  - Public Water Supply Providers
  - Field Testing
Groundwater (cont.)

- Identify Standard
  - Federal Drinking Water Standards
  - State
  - Local
- Impact Prediction
  - Recharge Studies
  - Leachate Studies
  - Aquifer-Vulnerability-Mapping
  - Change in Chemistry (Mass-balance Calculations)
  - Groundwater Transport Models
- Assess Significance of Impacts
  - Percentage
  - State/Local Policies
  - Drinking Water Standards
- Mitigation
  - Limit Withdrawal
  - Immobilize Pollutants
  - Line Disposal Area
  - Timing/Rate of Nutrient Applications
Sources of Groundwater Contamination
Wellhead Impacts