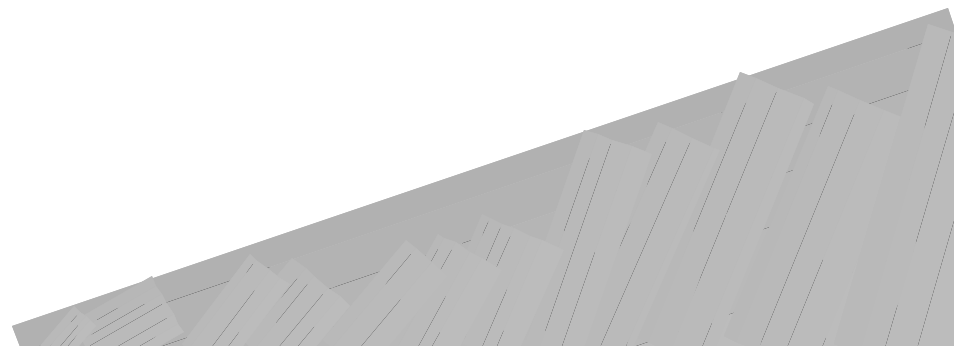


The Environmental Impact Statement



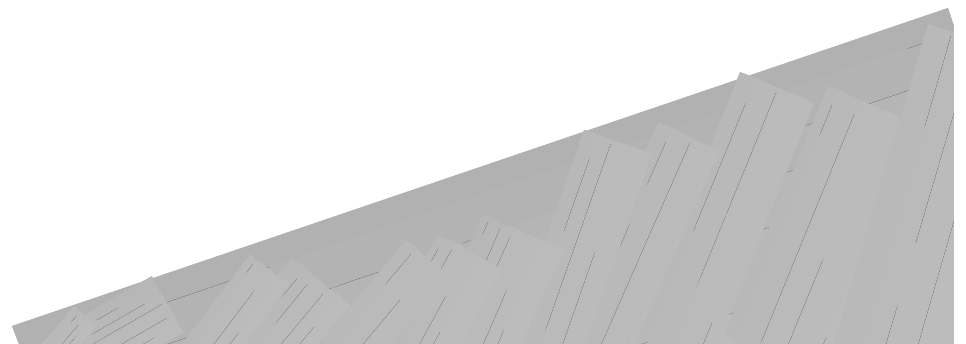
Purpose for EIS

- ◆ 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



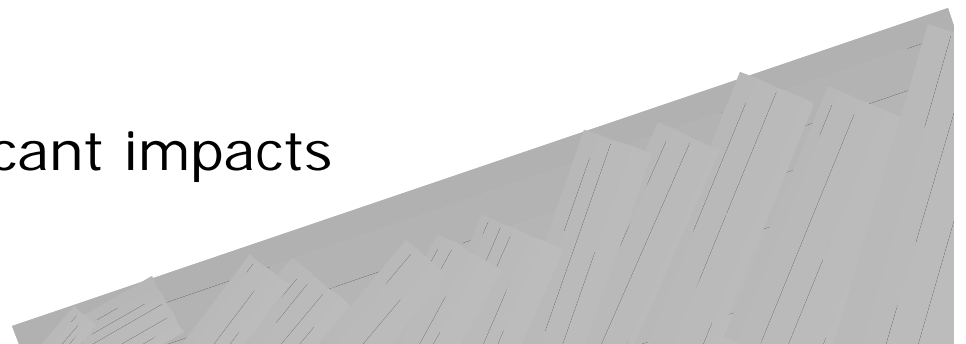
Types of EISs

- ◆ 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



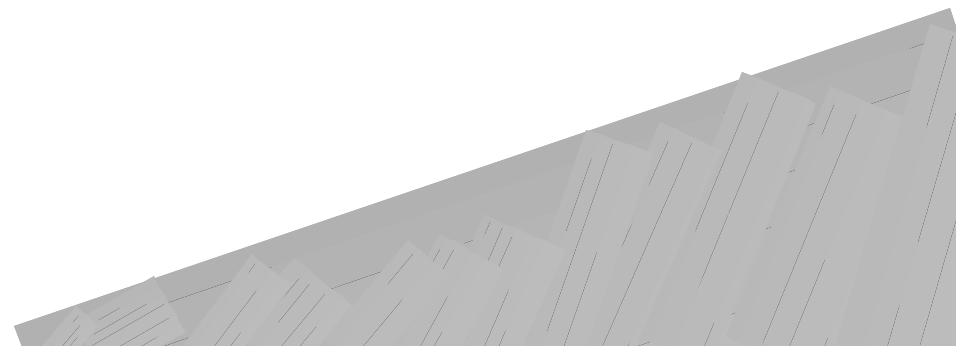
EIS Process

- ◆ 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



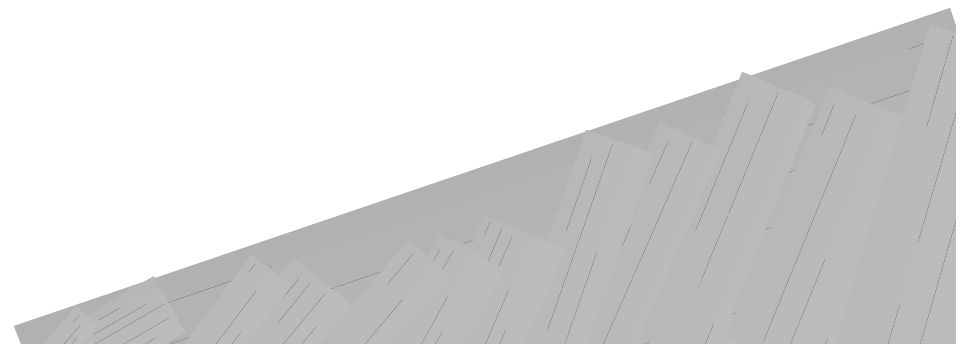
EIS Process (continued)

- ◆ 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

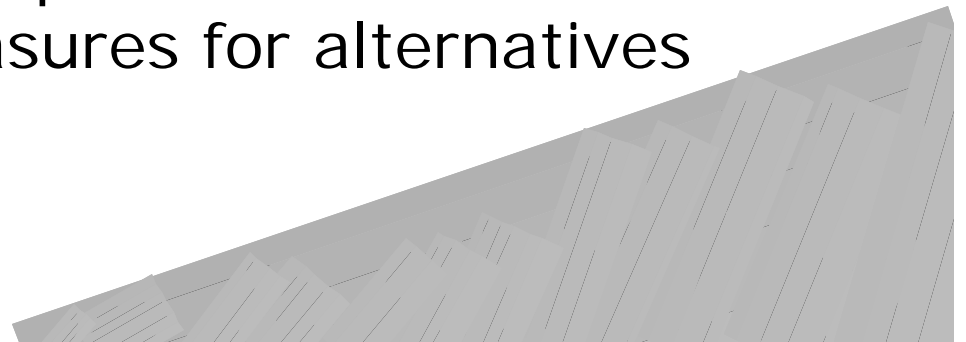


Scoping

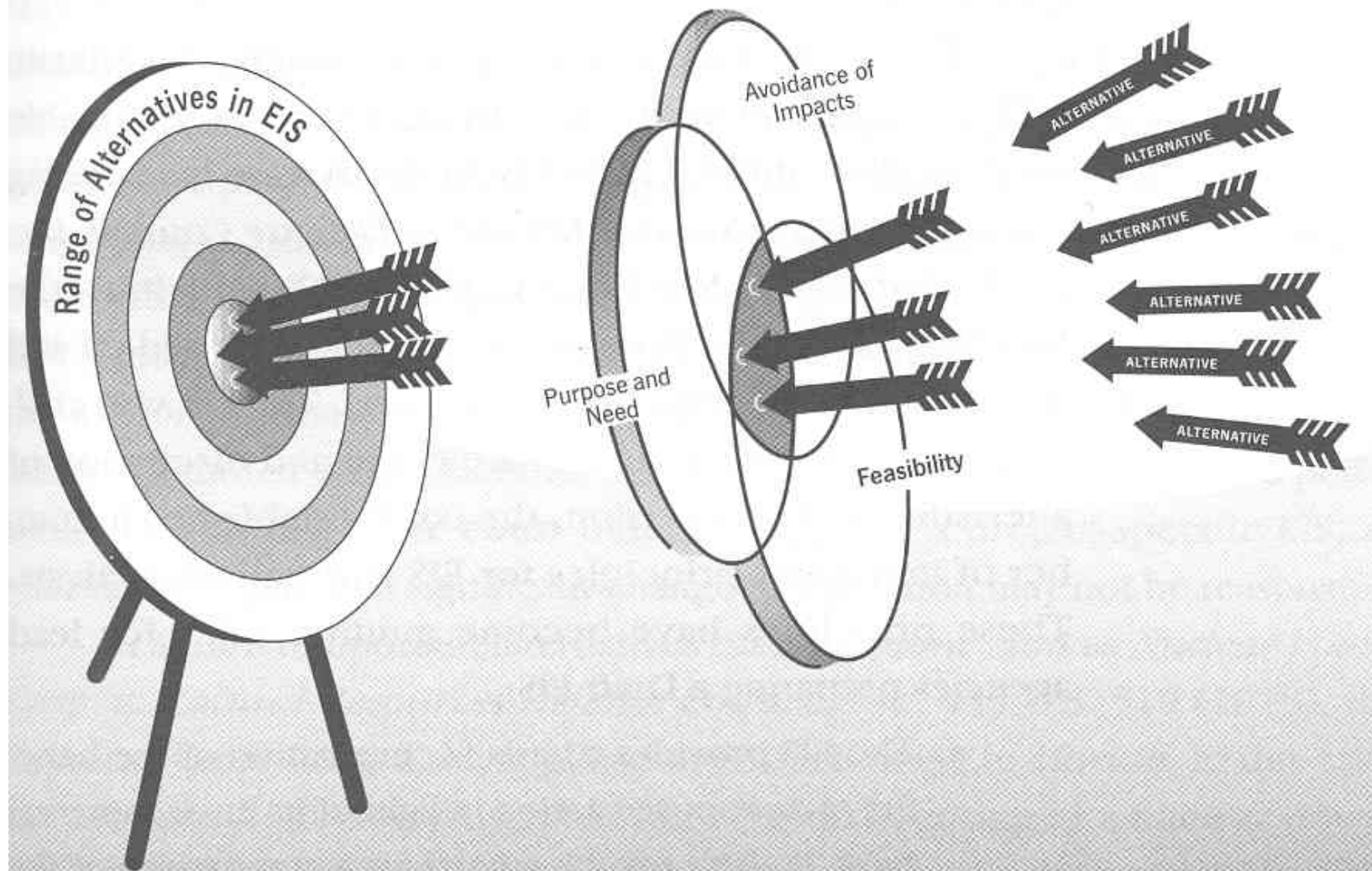
- ◆ Start Scoping in Early Planning Stages
 - ◆ Invite Participation of:
 - Affected Federal, State and Local Agencies
 - Affected Native American Tribes
 - Interested Parties
 - Public
 - ◆ Purpose:
 - Determine the Scope and Issues to Analyzed in Depth
 - Identify Additional Alternatives
 - Identify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

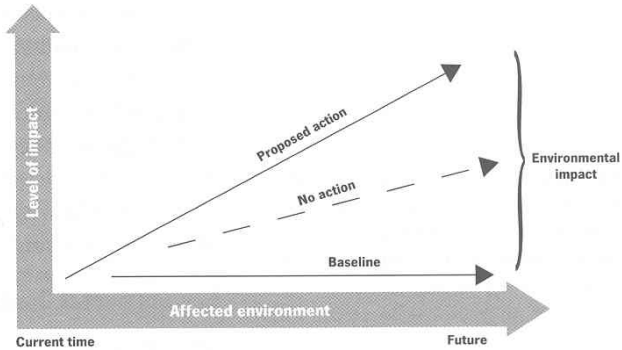


Screening of Alternatives

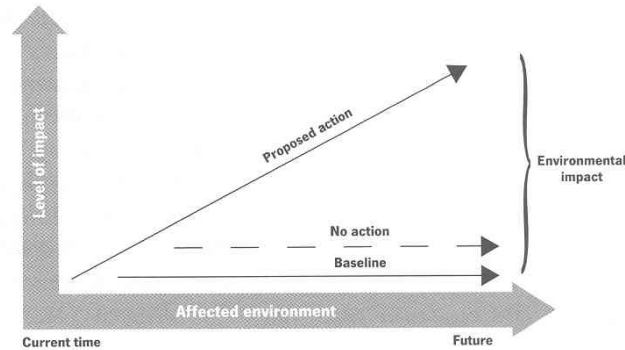


Possible Impact Scenarios

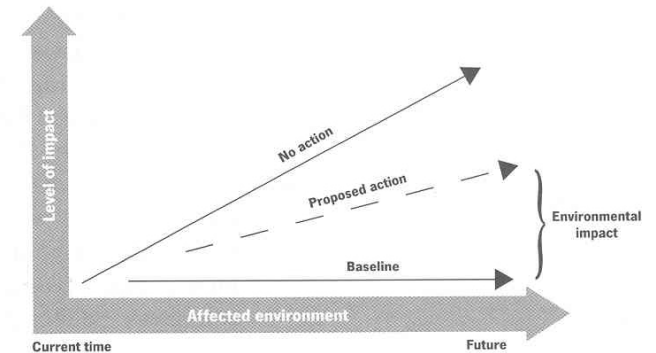
Scenario 1. Typical Situation




Scenario 2 . No-Action Alternative Same as Baseline



Scenario 3. No-Action Alternative Worse Than Proposed Action

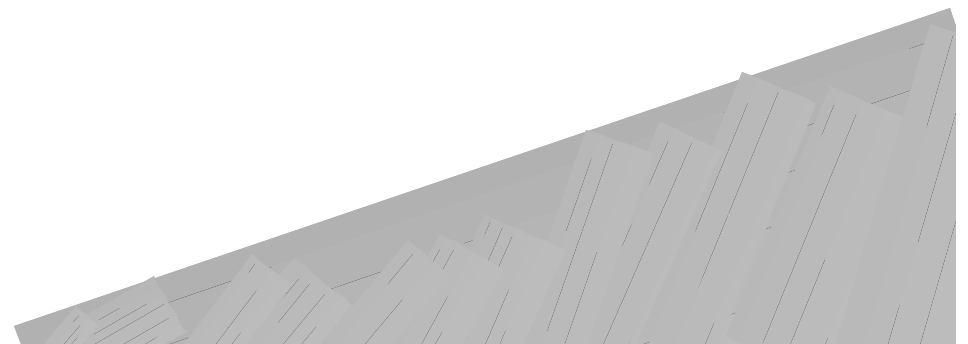


Technical Studies (Environmental Attributes)

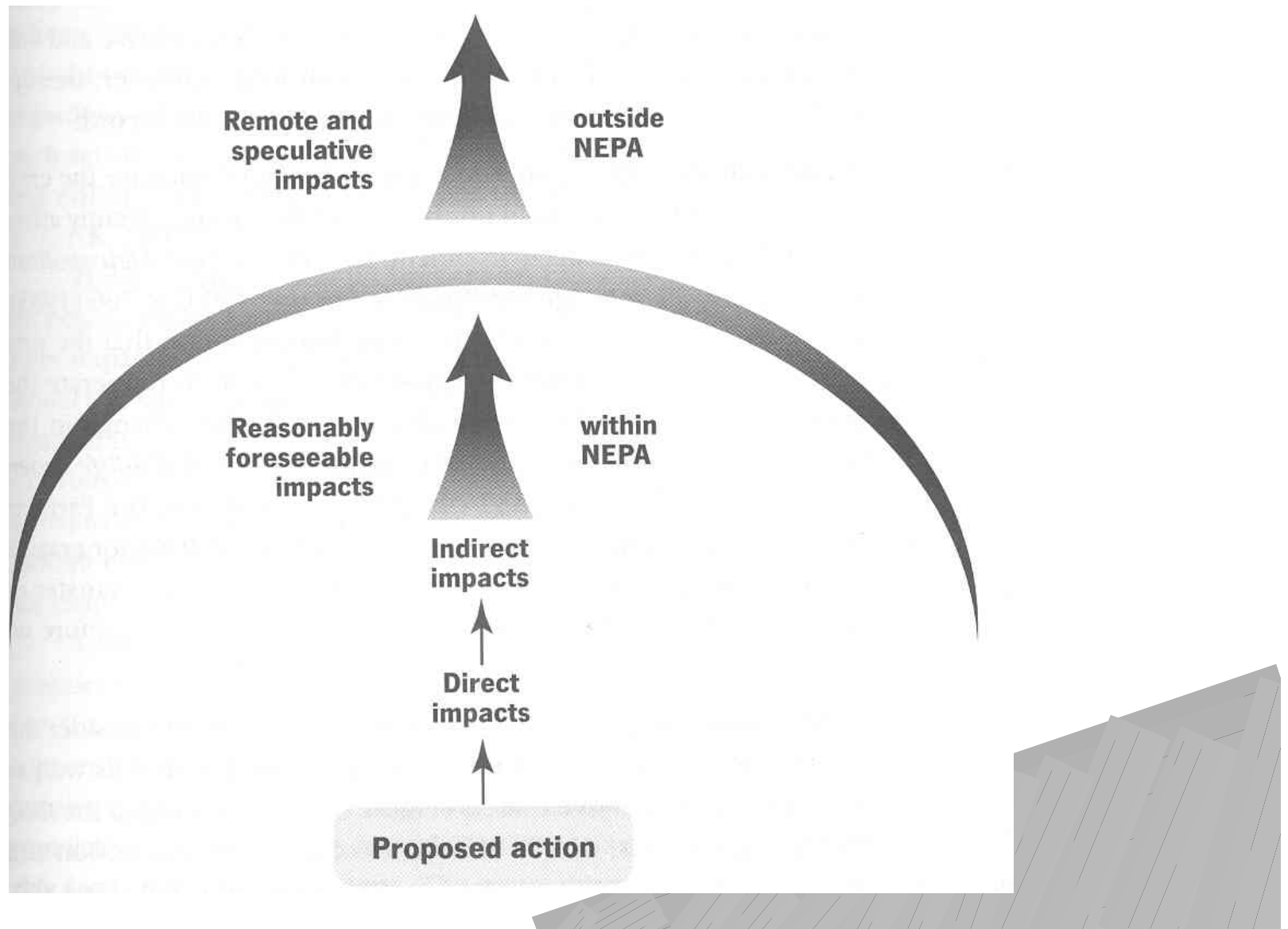
- ◆ Traffic and Transportation
 - ◆ Air Quality
 - ◆ Noise
 - ◆ Natural and Biological Resources
 - Geology
 - Groundwater (Quality/Quantity)
 - Soils
 - Surface Water (Quality/Quantity)
 - Floodplains
 - Terrestrial Vegetation (includes E&T Species)
 - Terrestrial Wildlife (includes E&T Species)
 - Aquatic Biota (includes E&T Species)
 - Wetlands
- 

Environmental Attributes (cont.)

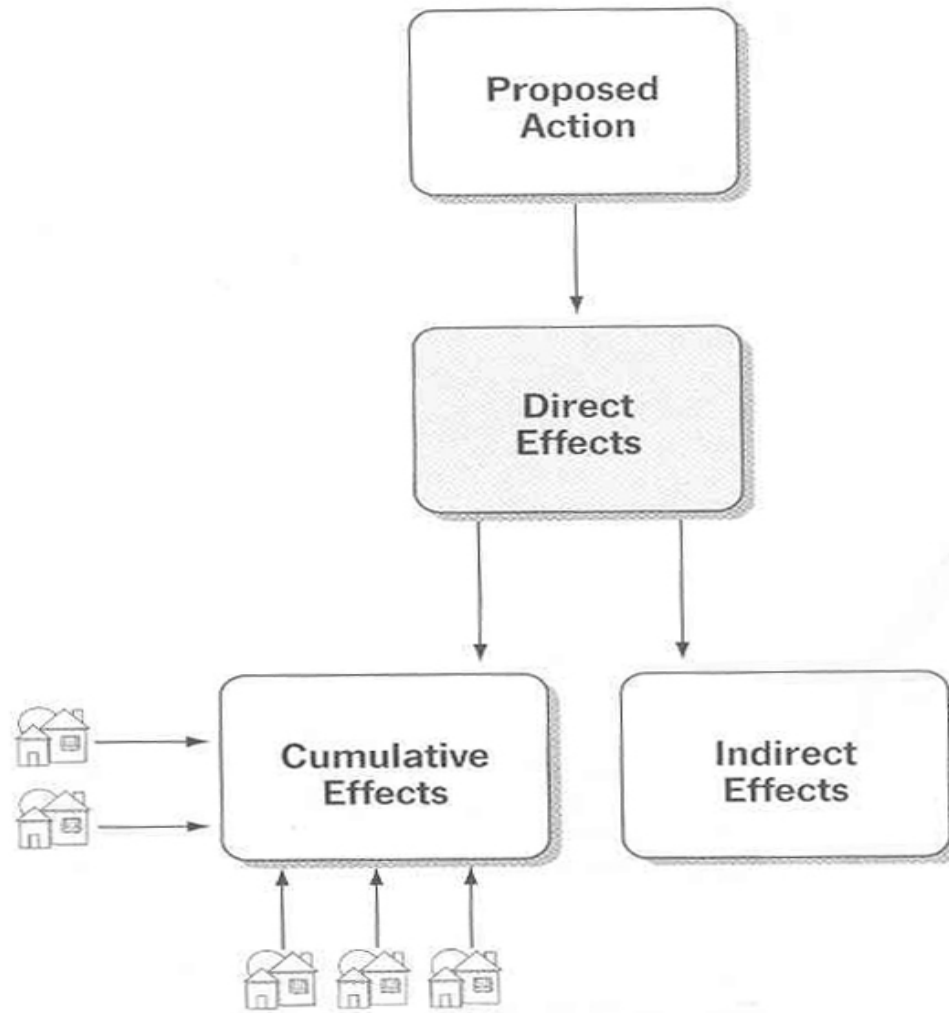
- ◆ Cultural Resources
 - Prehistoric
 - Historic
- ◆ Socioeconomics
 - Displacements
 - Business
 - Demographics
 - Cohesive Communities
 - Land Use and Zoning
 - Regional/Community Plans
 - Farmland
 - Aesthetics
 - Local Fiscal
 - Economics
 - Public Services
 - Infrastructure
- ◆ Energy
- ◆ Hazardous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



Potential Impacts

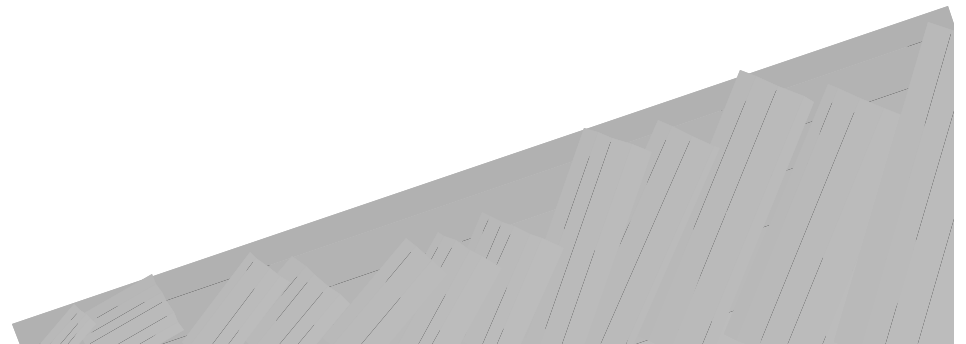


Types of Effects



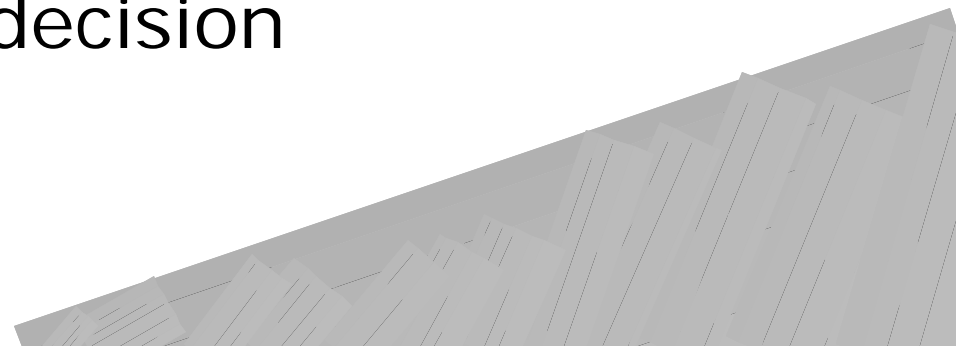
Mitigation of Impacts

- ◆ 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

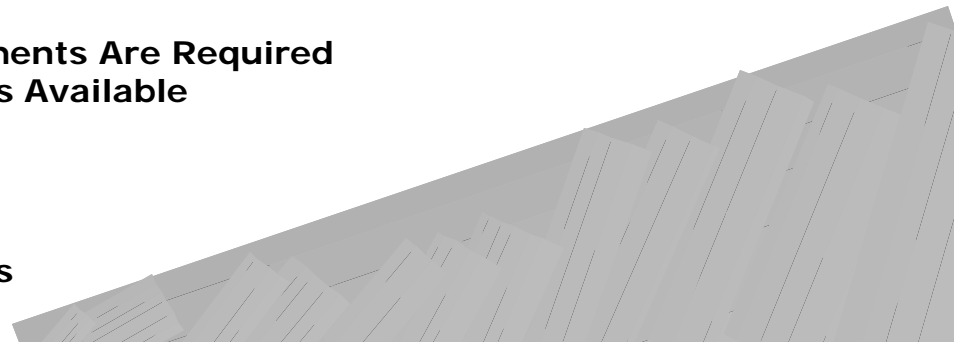


Content of an EIS

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

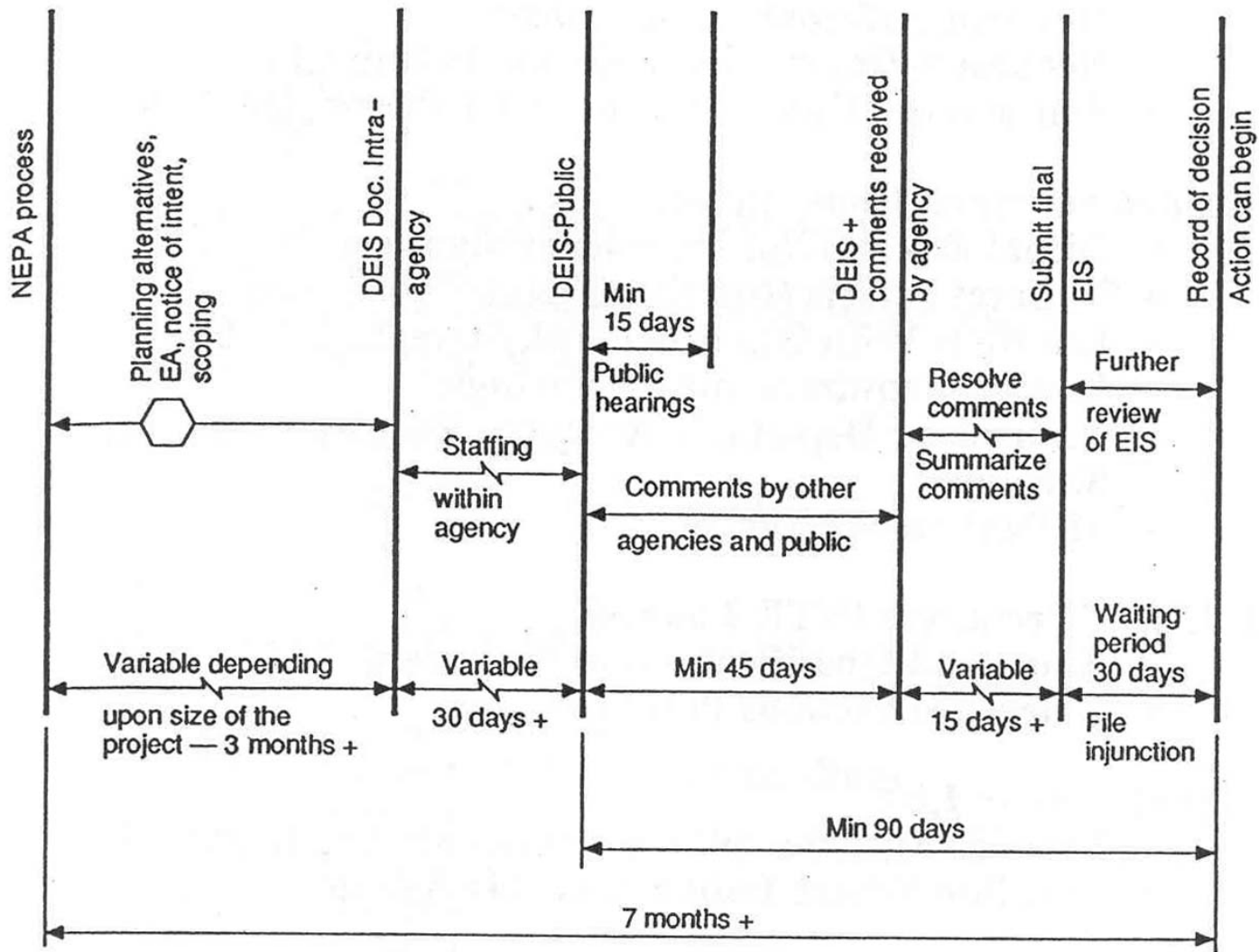
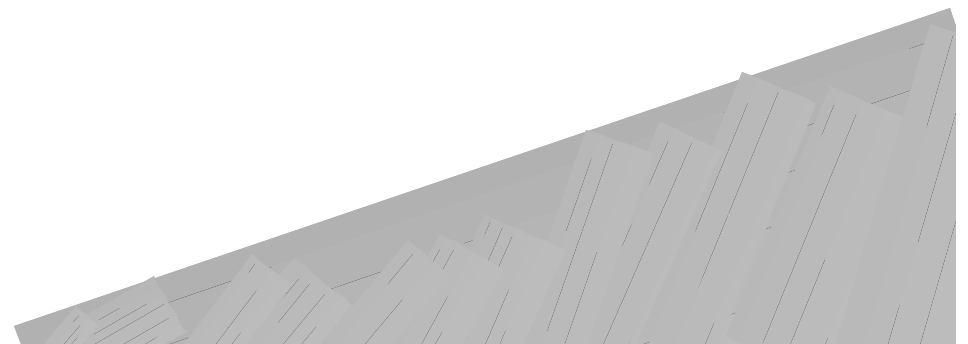


Figure 4.4 Minimum times for EIS processing.

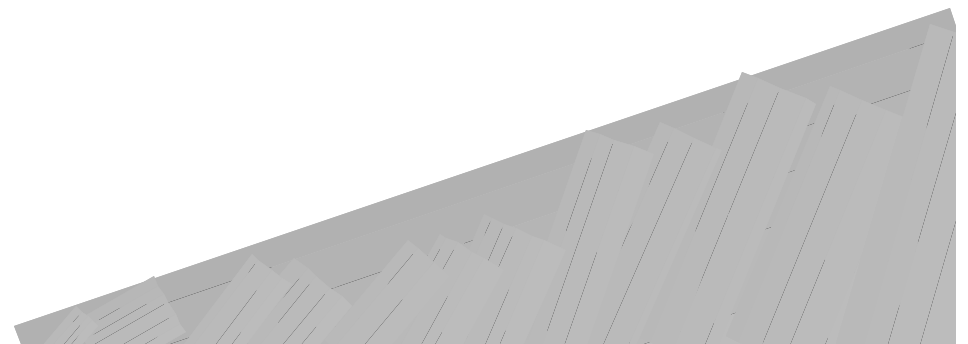
Supplement EIS

- ◆ 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



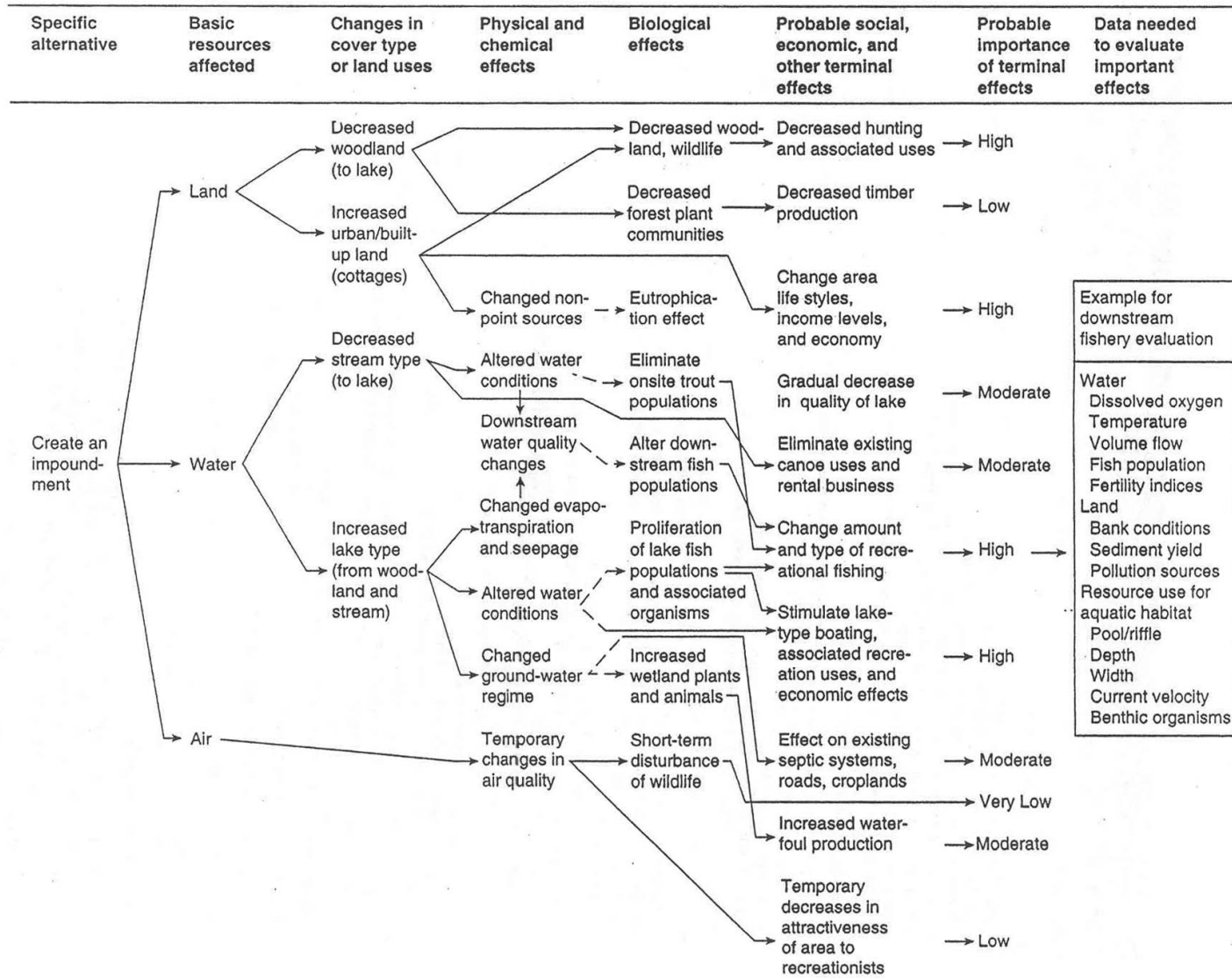
Checklist of Potential Effects

| | Yes | Maybe | No | Comment |
|---------------------------|-----|-------|----|---------|
| Traffic/Trans | | | | |
| Air Quality | | | | |
| Noise | | | | |
| Natural/Bio. Resources | | | | |
| Cultural Resources | | | | |
| Socio- economics | | | | |
| Energy | | | | |
| Hazardous Materials | | | | |

Matrix of Potential Effects

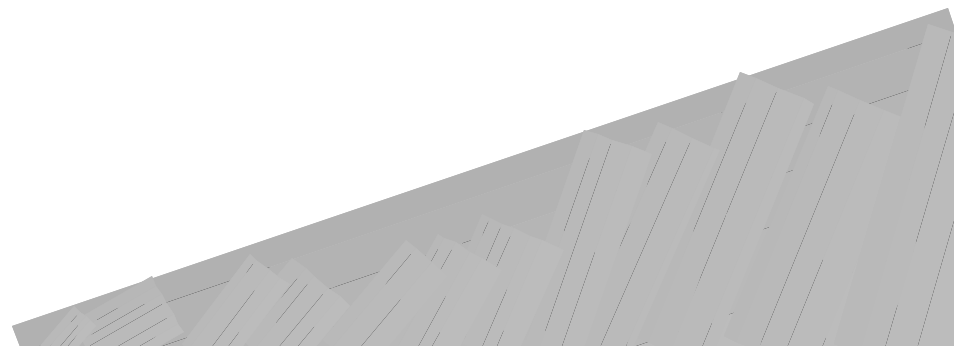
| | Clearing | Excavation | Grading | Compaction | Paving | Use/Maintenance |
|------------------------|----------|------------|---------|------------|--------|-----------------|
| Traffic/Trans | | | | | | |
| Air Quality | | | | | | |
| Noise | | | | | | |
| Natural/Bio. Resources | | | | | | |
| Cultural Resources | | | | | | |
| Socio-economics | | | | | | |
| Energy | | | | | | |
| Hazardous Materials | | | | | | |

Network of Potential Effects



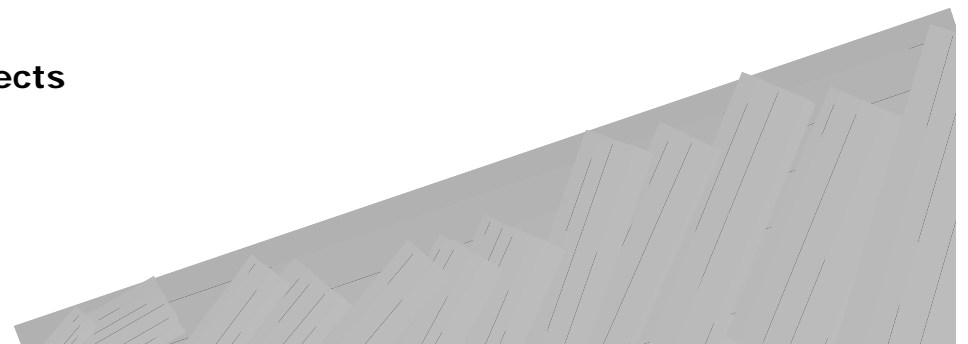
Physical Environment

- ◆ 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



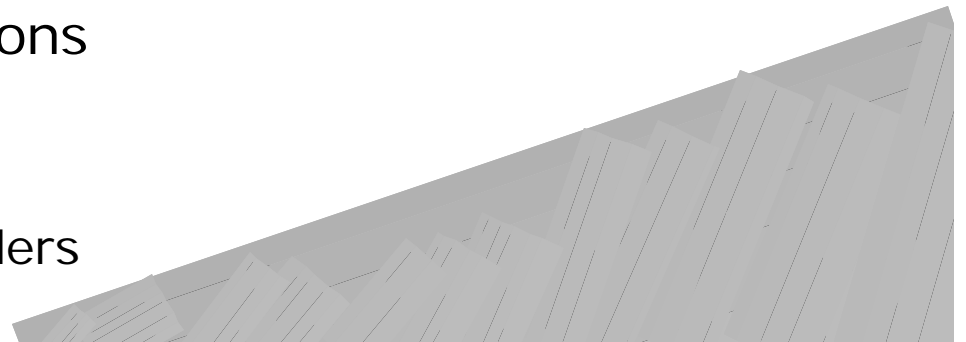
Assessing Impacts to Soils

- ◆ **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



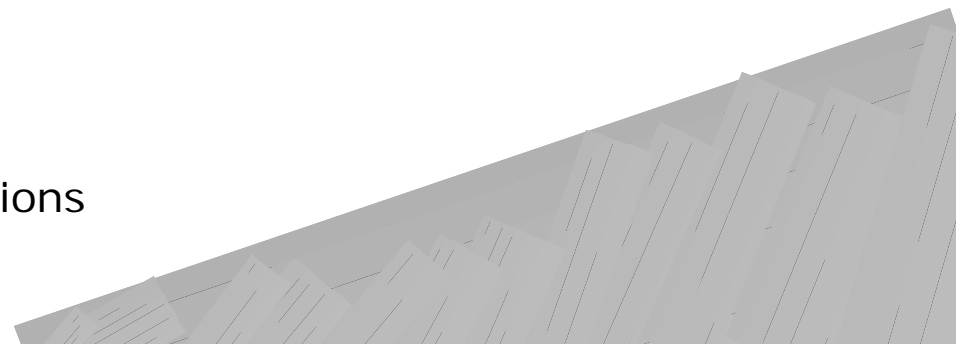
Assessing Impacts to Groundwater

- ◆ 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

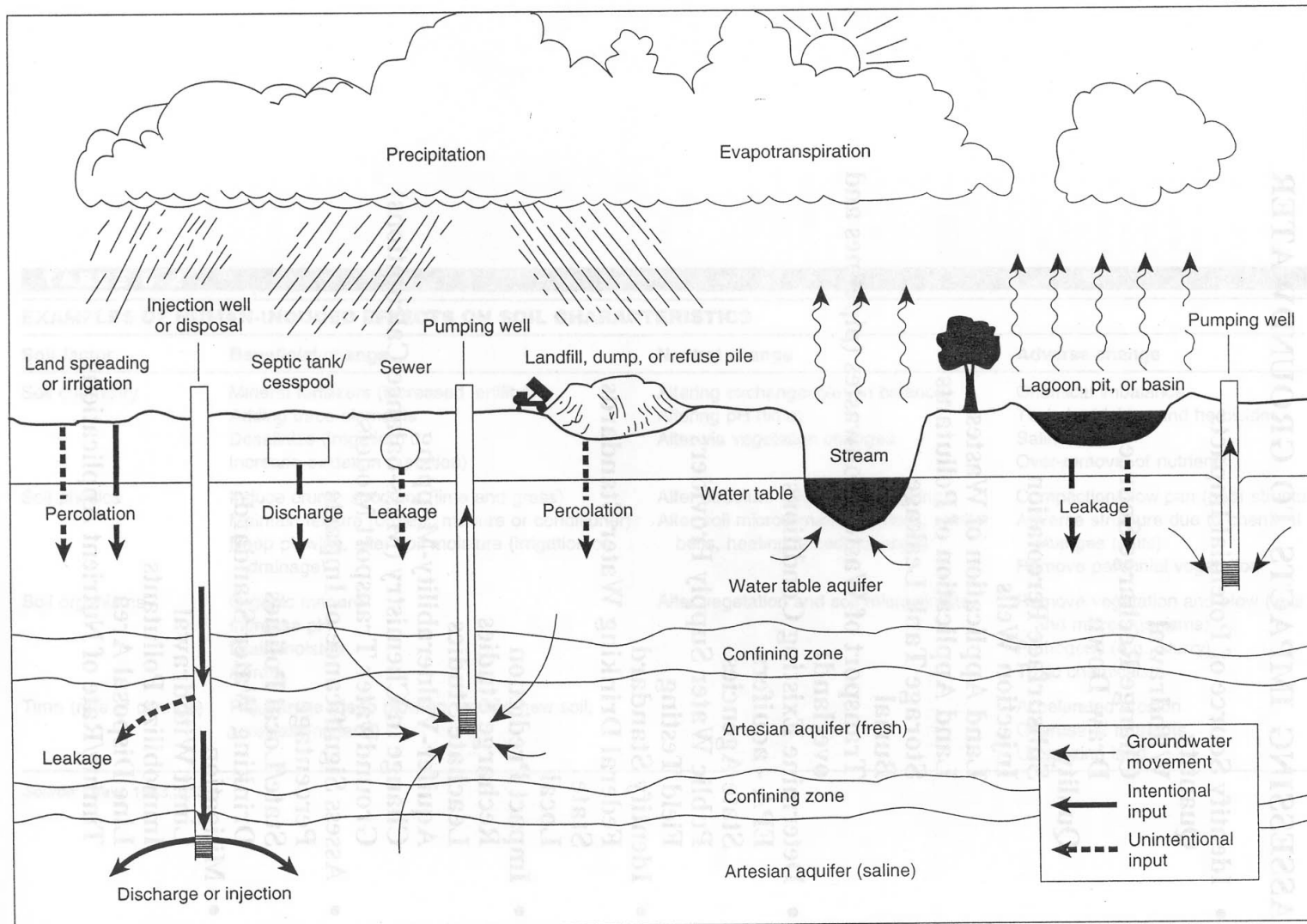


Groundwater (cont.)

- ◆ 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

