Integration of NEPA and Project Delivery

2010 Minnesota DOT
Environmental Stewardship and Streamlining Workshop
May 12, 2010

James “Skip” Spensley
Spensley & Associates
JWSpensley@aol.com
Key Principles of NEPA
(National Environmental Policy Act of 1969)

Use of systematic, interdisciplinary process
Understanding purpose and need
Consideration of context
Exploration of alternatives
Evaluating and documenting impacts
Consideration of impacts and managing risk
Identifying potential mitigation measures
Key Elements of Project Delivery

- Clear roles and responsibilities of players
- Building client relationships
- Chartering and building a team
- Developing a work plan
- Managing change and risk
- Closing the project
<table>
<thead>
<tr>
<th>NEPA Principles</th>
<th>Project Delivery Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of systematic, interdisciplinary process and</td>
<td>Clear roles and responsibilities for project manager and team</td>
</tr>
<tr>
<td>team</td>
<td></td>
</tr>
<tr>
<td>Understanding purpose and need</td>
<td>Building client relationships</td>
</tr>
<tr>
<td>Consideration of context</td>
<td>Developing a work plan</td>
</tr>
<tr>
<td>Exploration of alternatives</td>
<td>Developing a work plan</td>
</tr>
<tr>
<td>Evaluation and documentation of impacts</td>
<td>Developing a work plan</td>
</tr>
<tr>
<td>Consideration of impacts and managing risk</td>
<td>Managing change and risk</td>
</tr>
<tr>
<td>Identification of mitigation measures</td>
<td>Closing the project</td>
</tr>
</tbody>
</table>
Systematic process

Methodical, orderly, planned and logical process
- Using accepted practices and protocols
- Identifying clear objectives and milestones
- Understanding the scope of the action

Clearly identifying key players and contributors to the process
- Lead agency project manager
- Cooperating agencies representatives
- Stakeholders

Defining the roles and responsibilities of key players
- Agency and Public Coordination Plan (SAFETEA-LU)
Leading and managing interdisciplinary project teams

Project manager’s responsibilities are a blend of technical and people management requiring effective interpersonal skills, strong self-management skills and proven technical skills.

Project management involves a balanced application of both management and leadership principles.

Innovative project success is largely dependent upon leading project teams having diverse, interdisciplinary skills.

Note: Applies to large (EIS) and small (CatEx) projects.
The way projects often occur...

The **CUSTOMER**
(An idea to create change)

The **“DO”** Team
(Great to finally get started!)

**RESULTS:**
More $$$$ More Time

The **“FIX-UP”** Team
(Full Time Know-It-Alls)

**The “DOING”**

**OH MY! We Have A Problem**
Annual fix-up costs are high

Fix-Up Costs = 25% Of Annual Operating Budgets

Fix-Up Costs Result From:
♦ A lack of Customer Focus
♦ Poor Teamwork
♦ Little Planning
♦ An absence of Work Processes
♦ Very little learning

In Japan, current fix-up costs are less than 9% per year.
Lead project work by insisting on:

- A focus on the client’s needs
- The use of accepted work processes
- Achieving teamwork through leadership
- Training of and learning by team members
- Measuring success and utilizing lessons learned through effective feedback
¡Customers and clients are local and state entities!
Development of an Interdisciplinary team

Build a team having interdisciplinary skills to address the broad areas of relevant concern identified in scoping.

Utilize both internal staff, cooperating agency experts and outside consultants to bring an understanding of accepted methods and protocols and special expertise.

Clearly define the roles and responsibilities of all team members and their interactions with one another. Respect each others lanes of expertise.
Managing an interdisciplinary team can be challenging...

Understanding of organization vision
Clear line of sight with team’s goals
Work in a high-trust environment
Open communications respectful of differing opinions
Holds people accountable for results
High-trust, highly cooperative working relationships with other groups

Information from Harris Poll with FranklinCovey
23,000 people surveyed in top 100 companies
If the Vikings had the same scores...

§ Only four of the eleven players on the field would know which goal is theirs.

§ Only two of the eleven would care.

§ Only two of the eleven would know what position they play and know exactly what they are supposed to do.

§ All but two players would, in some way, be competing against their own team members rather than the opponent.
Clear Team Responsibilities

- **Project Kickoff Meeting**: The focus is on the "What" & "Doing"
- **Team Chartering**: The focus is on "How" & "Operational Strategies"
- **Team Building**: The focus is on the "Who" & "Relationships"
Components of Project Team Charter

**Team Purpose** – What is the purpose of the project team?

**Critical Success Factors** – What will the project team need to accomplish on a regular basis to be successful?

**Goals & Measures** – What are the metrics for team success tied to the Critical Success Factors?

**Roles & Responsibilities** – Who is doing what on the project?

**Operating Guidelines** – How do we set goals? How do we communicate? How do we make decisions? How do we resolve conflict? How do we manage change?

**Boundary Conditions** – What is our authority and who makes the decisions? How do we interface with others?
Charter Session should address both team and project.

<table>
<thead>
<tr>
<th>Team Charter</th>
<th>Project Charter</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How The Team Is To Function</strong></td>
<td><strong>What Is The Project About</strong></td>
</tr>
<tr>
<td>Y Team Purpose</td>
<td>Y Project Purpose &amp; Need</td>
</tr>
<tr>
<td>Y Team Critical Success Factors</td>
<td>Y Project Critical Success Factors (Schedule, Budget, QA/QC &amp; Project Scope)</td>
</tr>
<tr>
<td>Y Goals/Measures of Success</td>
<td>Y Project Deliverables</td>
</tr>
<tr>
<td>Y Roles &amp; Responsibilities</td>
<td>Y Project Assumptions</td>
</tr>
<tr>
<td>Y Communication Protocols</td>
<td>Y Project Risks/Concerns</td>
</tr>
<tr>
<td>Y Boundary Conditions</td>
<td>Y Sponsor Limitations</td>
</tr>
<tr>
<td>Y Resolution of Conflicts</td>
<td></td>
</tr>
</tbody>
</table>
### Integration of Principles

<table>
<thead>
<tr>
<th>NEPA Principles</th>
<th>Project Delivery Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of systematic, interdisciplinary process and team</td>
<td>Clear roles and responsibilities for project manager and team</td>
</tr>
<tr>
<td>Understanding purpose and need</td>
<td>Building client relationships</td>
</tr>
<tr>
<td>Consideration of context</td>
<td>Developing a work plan</td>
</tr>
<tr>
<td>Exploration of alternatives</td>
<td>Developing a work plan</td>
</tr>
<tr>
<td>Evaluation and documentation of impacts</td>
<td>Developing a work plan</td>
</tr>
<tr>
<td>Consideration of impacts and managing risk</td>
<td>Managing change and risk</td>
</tr>
<tr>
<td>Identification of mitigation measures</td>
<td>Closing the project</td>
</tr>
</tbody>
</table>
Understanding Client’s Purpose and Need

Understanding the **real** problem to be solved or the **real need** for a proposed action.

Viewing the **whole problem** is critical to success in avoiding unlawful segmentation.

Use of the scoping process to hear **differing perspectives** of the problem or need can help understand the alternatives for consideration.

Identifying the **hard data** will assist in evaluating the potential solutions.
Public and Agency Scoping

Crucial to understanding the breadth, depth, implications and impacts of the project.

Important in identifying the accepted analytic approaches accepted by cooperating agencies.

Providing sufficient information in the scoping process to facilitate public and agency understanding of the proposed action.

*If you can’t describe what you’re doing as a process, then you simply don’t know what you’re doing.*

W. Edwards Deming
Purpose and Need is the foundation of the process

A clearly defined Purpose and Need will:

Set the boundaries for the project
Define the “reasonableness” of alternatives to be considered and evaluated
Serve as the basis for evaluation criteria for the reasonable alternatives identified
Become the justification for the preferred alternative

More to come in next session!
Perceptions of the problem and solution are the problem!

Perceptions drive reality in decisionmaking…therefore, validate!

Describing the “need” in broad but specific terms can facilitate proper project scope and the consideration of reasonable alternatives.

Working closely with the client and stake-holders can result in a more responsive and cost effective solution – CSS approach.

Premises and assumptions must be tested!
## Integration of Principles

<table>
<thead>
<tr>
<th>NEPA Principles</th>
<th>Project Delivery Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of systematic, interdisciplinary process and team</td>
<td>Clear roles and responsibilities for project manager and team</td>
</tr>
<tr>
<td>Understanding purpose and need</td>
<td>Building client relationships</td>
</tr>
<tr>
<td>Consideration of context</td>
<td>Developing a work plan</td>
</tr>
<tr>
<td>Exploration of alternatives</td>
<td>Developing a work plan</td>
</tr>
<tr>
<td>Evaluation and documentation of environmental and socioeconomic impacts</td>
<td>Developing a work plan</td>
</tr>
<tr>
<td>Consideration of impacts and managing risk</td>
<td>Managing change and risk</td>
</tr>
<tr>
<td>Identification of mitigation measures</td>
<td>Closing the project</td>
</tr>
</tbody>
</table>
Developing a Work Plan

Consideration of context

Helps to define “significantly” affects
CEQ Regulations definition 40 CFR §1508.27

Gauges breadth and depth of analyses

Exploration of all reasonable Alternatives

Defined in relation to project Purpose and Need

Screened and refined based on explicit criteria

Evaluation and documentation of socioeconomic and environmental
Work Plan Level of Effort

Scoping results should be the basis for a determination of level of effort of socioeconomic and environmental studies and investigations.

Ranking issues of concern into classifications:

<table>
<thead>
<tr>
<th>Issue</th>
<th>Level of effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Important and of great concern</td>
<td>≈60%</td>
</tr>
<tr>
<td>Relevant and applicable</td>
<td>≈30%</td>
</tr>
<tr>
<td>Unimportant or not applicable</td>
<td>≈10%</td>
</tr>
</tbody>
</table>

All issues need to be addressed.
Work Plan Schedule

Considerations for schedule development

Timing of work elements
- Key project decisions and milestones
- Nature’s timetable for observation
- Resource availability – people, equipment, money

Anticipating and providing for contingencies
- Access to private property
- Non-linear responses or discontinuities
- Change in project direction
  - Change in purpose and need
  - Discovery of major barriers

Understanding critical path
## Integration of NEPA Principles and Project Delivery Elements

<table>
<thead>
<tr>
<th>NEPA Principles</th>
<th>Project Delivery Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of systematic, interdisciplinary process and team</td>
<td>Clear roles and responsibilities for project manager and team</td>
</tr>
<tr>
<td>Understanding purpose and need</td>
<td>Building client relationships</td>
</tr>
<tr>
<td>Consideration of context</td>
<td>Developing a work plan</td>
</tr>
<tr>
<td>Exploration of alternatives</td>
<td>Developing a work plan</td>
</tr>
<tr>
<td>Evaluation and documentation of environmental and socioeconomic impacts</td>
<td>Developing a work plan</td>
</tr>
<tr>
<td>Consideration of impacts and managing risk</td>
<td>Managing change and risk</td>
</tr>
<tr>
<td>Identification of mitigation measures</td>
<td>Closing the project</td>
</tr>
</tbody>
</table>
Risk management by the project team is an essential ingredient for successful project execution. To achieve the lowest cost of risk, a multi-dimensional strategy is often needed.
Risk vs. Uncertainty

§ The concept of “risk” is grounded in the notion that it can be understood, analyzed and managed.

§ Calculation of risk depends upon investigating the historical frequency of occurrences and the likely outcomes.

§ True “uncertainty” does not yield to historical examination and thus must be handled differently.

§ In the NEPA process:
  o Risk of environmental consequences based on incomplete information may require additional studies and evaluations;
  o Uncertainty of environmental consequences requires the use of a precautionary principle and the use
Potential Risks and Uncertainties in a Project

Project Risks:
- Funding may be decreased.
- New demand could be discovered.
- New environmental regulations may appear.
- Water quality standards are tightened.

Project Uncertainties:
- Water quality impacts on critical habitat.
- Air quality impacts on GHG.
- Secondary impacts on land use changes.
- Health impacts from hazardous...
How Do We Deal with Uncertainty

Ignore it and move ahead.

Stop the project until more information is discovered.

Move ahead using the Precautionary Principle.
Precautionary Principle

The “precautionary principle or approach” is a response to uncertainty, in the face of risks to health or the environment.

In general, it involves acting to avoid serious or irreversible potential harm, despite lack of scientific certainty as to the likelihood, magnitude, or causation of that harm.

It utilizes continuous monitoring, adaptive management and contingency planning.
The Project Risk Management Process

Risk Management Planning

Risk Identification

Risk Analysis
  - Qualification
  - Prioritization
  - Quantification

Risk Monitoring & Control
  - Monitor & Evaluate
  - Corrections
  - Communicate

Risk Response Planning

Risk Strategies
  - Avoidance
  - Mitigation
  - Transfer
  - Acceptance

Total Cost Of Risk

Source: PMBOK
Risk Management Tips

- Develop a risk profile for your project / project activity including the identification of “Uncertainties” so appropriate actions can be taken.

- Actively use a risk register as part of routine project management meeting agenda – an aid to planning.

- Use qualitative or quantitative assessment techniques as project complexity suggests. These assessments are a directional gauge not an end of themselves.
Risk Register “Starter” Examples

Project Risks:

§ Construction accident on an active highway.

§ Canal / ditch crossing – COE regulatory needs

§ Landowners lawsuit to stop the project

§ Loss or reduction in project funding

§ Discovery of endangered species in project area
## Example of Risk Register

<table>
<thead>
<tr>
<th>List of Project Risks (Threat / Opportunity)</th>
<th>(A) Probability</th>
<th>Impact Area</th>
<th>(B) Max Consequence</th>
<th>(C) Urgency</th>
<th>(D) Manageability</th>
<th>Risk Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health &amp; Safety</td>
<td>Community</td>
<td>Environ &amp; Regulator</td>
<td>Capital Costs</td>
<td>Schedule</td>
<td>Reputation</td>
</tr>
</tbody>
</table>

### Risk Criteria
- **Probability of occurrence**: The probability of the risk occurring.
- **Maximum score from risk criteria used in calculation**: The highest score assigned to a risk based on the criteria used.
- **The urgency for mitigation**: The urgency for mitigating the risk.
- **The risk ranking score** = 
  \[(A) \times (B) \times (C) \times (D)\]
# Completed Risk Register

<table>
<thead>
<tr>
<th>List of Project Risks (Threat / Opportunity)</th>
<th>(A) Probability</th>
<th>Impact Area</th>
<th>(B) Max Consequence</th>
<th>(C) Urgency</th>
<th>(D) Manageability</th>
<th>Risk Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway Const. accident</td>
<td>7</td>
<td>7</td>
<td>4</td>
<td>7</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>COE regulatory needs</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Landowner Lawsuit</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>45</td>
</tr>
</tbody>
</table>

- Probability △1 Low to 7 High
- Consequence △1 Low to 7 High
- Urgency △1 Low to 5 High
- Manageability △1 High to 5 Low

<table>
<thead>
<tr>
<th>Highway Const. accident</th>
<th>Impact Area</th>
<th>Max Consequence</th>
<th>Urgency</th>
<th>Manageability</th>
<th>Risk Ranking</th>
<th>Mitigating Actions, Due Date, Budget &amp; Schedule Impact, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway Const. accident</td>
<td>7</td>
<td>7</td>
<td>4</td>
<td>7</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>NEPA Principles</td>
<td>Project Delivery Elements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of systematic, interdisciplinary process and team</td>
<td>Clear roles and responsibilities for project manager and team</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understanding purpose and need</td>
<td>Building client relationships</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consideration of context</td>
<td>Developing a work plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exploration of alternatives</td>
<td>Developing a work plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation and documentation of environmental and socioeconomic impacts</td>
<td>Developing a work plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Consideration of impacts and managing risk</strong></td>
<td>Managing change and risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identification of mitigation measures</td>
<td>Closing the project</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Closing the Project

Decision about mitigation measures and appropriate monitoring to allow for adaptive management

Ensuring good documentation of the process for the Administrative Record

Preparation of a Record of Decision
Mitigation Measures

NEPA was enacted to ensure that impacts of a project be identified and considered in federal decisionmaking process.

NEPA does not require mitigation, but does require consideration of mitigation and adoption when required.

CEQ Regulations (40 CFR 1505.2) state that the Record of Decision should include among other things:

- Identification of ...alternatives which were considered to be environmentally preferable.
- Statement as to whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not.
- A monitoring and enforcement program shall be adopted and summarized where applicable for any mitigation.
Significant Adverse Impacts

Discovery of significant adverse impacts require the consideration of mitigation measures or changes to the proposed action.

Generally, changes to the proposed action that lessen environmental impacts can be done without backtracking on the NEPA work.

However, secondary or unintended results could appear that may be troublesome requiring further analyses.
Maintaining the Project File

- Project files need management!
- Keep records of all public meetings
  - Presentation materials
  - Attendance lists
  - Questions, comments and suggestions
- Maintain all incoming correspondence
  - Note responses to correspondence
- Maintain all information and documents used in reaching a decision
The ROD must:

State the decision;
Identify all alternatives considered by the agency in reaching its decision, specifying the alternative or alternatives which were considered to be environmentally preferable.
An agency shall identify and discuss all such factors including any essential considerations of national policy which were balanced by the agency in making its decision and state how those considerations entered into its decision.
State whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not. A monitoring and enforcement program shall be adopted and summarized where applicable for any mitigation; and
Summarize any mitigation measures that will be incorporated in the project and document any required section 4(f) approval in accordance with § 771.135(l).
Implementing the ROD

** Agencies may provide for monitoring to assure that their decisions are carried out and should do so in important cases.

** Mitigation and other conditions established in the EIS or during its review and committed as part of the decision shall be implemented by the lead agency or other appropriate consenting agency.

** The lead agency must:

(a) Include appropriate conditions in grants, permits or other approvals.

(b) Condition funding of actions on mitigation.

(c) Upon request, inform cooperating or commenting agencies on progress in carrying out mitigation measures which they have proposed and which were adopted by the agency making the decision.

(d) Upon request, make available to the public results of monitoring.

CEQ Regulations 40 CFR §1505.2
Remember...

First, recognize that future change is happening much faster than our “linear” pattern of thinking.

Secondly, continuing improvement is a matter of balance between leadership (teamwork) and processes (knowledge management).

Thirdly, trust underpins the pathway to most, lasting improvements and innovative solutions.
Thank you!

Question?!