

Report No. UM-HSRI-78-42

Interim Report on ASPLUNDH Study Approach

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September 22, 1978

Technical Report Documentation Page

1. Report No.		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Interim Report on Asplundh Study Approach				5. Report Date September 22, 1978	
				6. Performing Organization Code	
7. Author(s) Dennis M. Powers, Murray Greyson, Kent B. Joscelyn				8. Performing Organization Report No. UM-HSRI-78-42	
9. Performing Organization Name and Address Highway Safety Research Institute The University of Michigan Huron Parkway at Baxter Road Ann Arbor, Michigan 48109				10. Work Unit No.	
				11. Contract or Grant No.	
12. Sponsoring Agency Name and Address Asplundh Environmental Services Blair Mill Road Willow Grove, Pennsylvania 19090				13. Type of Report and Period Covered Interim Report	
				14. Sponsoring Agency Code	
15. Supplementary Notes					
16. Abstract This paper gives a preliminary report on the ASPLUNDH study approach in terms of compliance with federal and state environmental protection laws. The analysis reviews the litigation that resulted in the federal court in Grand Rapids enjoining the Michigan Department of State Highways and Transportation from proceeding with a tree removal program under Sections 210 and 230 of the Federal Aid Highway Act of 1973. The analysis then describes how the ASPLUNDH study approach evolved. At this point, the analysis summarizes the environmental protection laws in detail and evaluates the ASPLUNDH study approach in terms of them. The analysis uncovered several areas of the ASPLUNDH study approach that require clarification to pass muster under those laws. Accordingly, recommendations for modifications to the ASPLUNDH study approach were made.					
17. Key Words			18. Distribution Statement		
19. Security Classif. (of this report)		20. Security Classif. (of this page)		21. No. of Pages 51	22. Price

CONTENTS

1.0	INTRODUCTION	1
2.0	LITIGATION	3
2.1	Background	3
2.2	Hearing Testimony	4
2.3	Documentary Evidence	5
2.4	The Injunction	7
2.5	Later Developments	9
2.6	Summary and Conclusions	10
	2.6.1 The Council	10
	2.6.2 Judge Fox	11
	2.6.3 The Injunction	11
3.0	THE STUDY APPROACH	14
3.1	The Request for Proposal	14
	3.1.1 Phase One	14
	3.1.2 Phase Two	14
	3.1.3 Phase Three	15
	3.1.4 Phase Four	15
3.2	Proposed Study Approach	15
	3.2.1 Phase One	15
	3.2.2 Phase Two	16
	3.2.3 Phase Three	18
	3.2.4 Phase Four	18
3.3	Summary and Conclusions	18
	3.3.1 The RFP	18
	3.3.2 The Study Approach	19
4.0	DETERMINATION OF SIGNIFICANT EFFECT	20
4.1	Factors	21

CONTENTS (continued)

4.2	Methodology	22
4.3	Summary and Conclusions	23
5.0	NEGATIVE DECLARATION	25
5.1	Contents	25
5.2	Procedure	26
5.3	Summary and Conclusions	27
6.0	ENVIRONMENTAL IMPACT STATEMENT	30
6.1	NEPA Requirements	31
6.2	CEQ Guidelines	31
6.2.1	Project Description	31
6.2.2	Land Use	32
6.2.3	Probable Environmental Impact	32
6.2.4	Alternatives	33
6.2.5	Unavoidable Adverse Effects	33
6.2.6	Tradeoffs	33
6.2.7	Irreversible Commitment	34
6.2.8	Balancing Process	34
6.2.9	Mode of Presentation	34
6.3	Cost-Benefit Analysis	34
6.4	Procedure	36
6.5	Summary and Conclusions	37
7.0	STATE LAW	41
7.1	Background	41
7.2	State EIS	42
7.3	Summary and Conclusions	42
8.0	CASE LAW	45
9.0	SUMMARY	46
9.1	State Decisions	46

CONTENTS (continued)

9.2	Identification of Highway Safety Actions	48
9.3	Analysis of Identified Countermeasures	48
9.4	Development of Manual	49
9.5	Recommended Approach	50
9.6	Public Participation	50

1.0 INTRODUCTION

This is a preliminary report prepared for Asplundh Environmental Services [ASPLUNDH] by the Policy Analysis Division of the Highway Safety Research Institute of The University of Michigan.

This report concerns a roadside tree removal program undertaken, with federal funding, by the Michigan Department of State Highways and Transportation [DOSHAT]. As a result of certain litigation initiated in federal court in Grand Rapids, DOSHAT has been enjoined from cutting live trees under the program until it has complied with federal and state environmental protection laws. That injunction was issued on June 4, 1976. It requires DOSHAT to determine if the program will have significant effects on the human environment. If so, DOSHAT must prepare an environmental impact statement [EIS]. If not, DOSHAT must prepare a negative declaration explaining why there are no such effects.

DOSHAT invited several contractors to develop proposals designed to get the injunction lifted. That objective was to be accomplished by doing the following two things:

- developing a management manual containing guidelines for selecting hazardous trees to be removed from highway rights-of-way, and
- preparing an environmental assessment document for that tree removal program in Michigan.

Both tasks were to use the court opinion that accompanied the injunction as a frame of reference. Furthermore, both DOSHAT and the Federal Highway Administration [FHWA] had to review and accept the environmental assessment in its final form.

On September 26, 1977, ASPLUNDH made a Proposal responding to this invitation. DOSHAT accepted that Proposal. ASPLUNDH in turn subcontracted with the Institute to do two things:

- provide an accident data analysis for use in carrying out the proposal, and
- provide a legal analysis of the proposed study approach.

From a legal point of view, ASPLUNDH wanted to know if its study approach would develop all the information and data needed to lift the injunction. This interim report is a preliminary answer to that question.

Section 2.0 analyzes the litigation that led to the injunction. Section 3.0 summarizes the ASPLUNDH study approach. Section 4.0 analyzes the meaning of "significant effect on the quality of the human environment" and evaluates the study approach in those terms. Section 5.0 evaluates it as the basis for an acceptable Negative Declaration under federal law. Section 6.0 evaluates it as the basis for an acceptable EIS under federal law. Section 7.0 evaluates it in terms of state law. Section 8.0 gives a brief overview of pertinent federal cases. Section 9.0 summarizes work to date and provides suggestions to guide future efforts.

2.0 THE LITIGATION

At issue are tree removal programs administered by DOSHAT and funded by the United States Department of Transportation [DOT] under Sections 210 and 230 of the Federal Aid Highway Act of 1973 (1). Both sections promote highway safety by seeking to remove fixed roadside obstacles. Section 210 deals with roads on the federal aid system: state trunk line highways, county primary roads, and major city streets. Section 230 deals with roads not on the federal aid system, mainly county secondary roads (2).

2.1 Background

Michigan was allocated approximately sixteen million dollars for Section 210 and 230 programs for fiscal years 1974-1977. DOSHAT sent application information to all county road commissions in the state (3). One hundred forty applications were submitted, of which nine involved tree removal. Those nine applications came from Arenac, Berrien, Cass, Jackson, Kent, Lenawee, Mason, Missaukee, and St. Clair Counties. DOSHAT approved each application except those of Arenac and Kent Counties.

The approved applications proposed removing only trees over eight inches in diameter. Trees smaller than that were not regarded as hazardous. They were considered likely to bend or break on impact, so motorists could survive a crash with one in most cases. On the other hand, larger trees were believed more likely to withstand a collision and stop the vehicle. Crashing into such an immobile obstacle would greatly increase the risk of death or serious injury (4).

Applications approved by DOSHAT covered 7,300 trees (5). On a statewide basis, some 80,000 trees were subject to removal under the

eight-inch-diameter rule. The affected areas had a total of 60,000,000 trees (6).

The West Michigan Environmental Action Council [the Council] was concerned over this planned tree removal. The Council wrote DOSHAT, asking that the approved Section 210 and 230 programs be suspended pending preparation of an environmental impact statement under the National Environmental Policy Act [NEPA] (7). A delegation from the Council renewed that request on January 14, 1976, at a meeting of the Michigan Highway Commission. Both efforts failed to halt the programs.

On January 29, 1976, the Council sued in federal court for an injunction. It sought temporary and permanent bans against removal of any trees until adequate environmental impact statements had been prepared and circulated. Count I of the Complaint relied on NEPA as the basis for relief. Count II relied on Michigan Executive Order 1974-4 as providing a basis for relief under the Michigan Environmental Protection Act [EPA] (8). Count III relied on the public trust that Section 2 of EPA created in Michigan's natural resources (9).

DOSHAT and DOT moved to dismiss the case. The matter came on for hearing before federal Judge Noel P. Fox on March 1 and 2, 1978.

2.2 Hearing Testimony

John P. Woodford, director of DOSHAT, testified that DOSHAT had established a standard zone to be cleared of trees under Section 210 and 230 programs: ten feet from the pavement's edge on each side of the road. Although that figure was derived from the Design Manual of the American Association of State Highways and Transportation, DOSHAT had not published that Manual as a formal standard. Rather, Woodford testified, DOSHAT had used the Manual as a working guideline in fixing this clear roadside recovery area (10).

The Design Manual suggested a ten-to-fifteen-foot recovery zone under either of two conditions. One was when the design speed of a highway is under 50 miles an hour. The other was when average daily

traffic flow is less than 750 vehicles a day (11). In considering an application for funding, Woodford testified, DOSHAT looked for one of those two factors. All qualifying applications would be approved, if funds were available, even if no recent accidents on the roads involved were tree related (12). DOSHAT had followed this procedure in approving the present projects.

William J. MacCreery, engineer of Local Government for DOSHAT, explained why DOSHAT felt no environmental impact statement was required. The seven approved projects covered 590 miles of roads. Although there were about 4,000,000 trees within ten feet of the pavement on those roads, only 7,300 were slated for removal--less than 0.2% of potentially affected trees (13). Given that fact, the program's effects had been judged too small to constitute a major state action.

David A. Merchant, divisional administrator of the Federal Highway Administration [FHWA], confirmed the use of statistical analysis to identify areas of concern. He stated that assessing the hazard potential of a given tree was virtually impossible because run-off-the-road accidents are so infrequent. That made it necessary to pinpoint dangerous stretches of road from the accident rate (14).

Neither DOSHAT nor FHWA considered alternatives to tree removal in their decisions because, in their judgment, alternatives could not make a roadside as safe as tree removal would. For example, Merchant observed, existing regulations require guardrails to be at least 150 feet long. Erection of a guardrail would thus create a 150-foot-long obstacle instead of protecting drivers from a one-point obstacle (15). Such a result was hardly conducive to the "more forgiving" roadside that Sections 210 and 230 sought to create.

2.3 Documentary Evidence

Also in evidence at the March hearing was an exchange of correspondence between DOSHAT and FHWA in 1974. DOSHAT concluded that the Section 210 and 230 programs would have no permanent

environmental impact. Its determination rested on the following considerations:

- Trees to be removed would be within the highway right-of-way. If the main object of a project was to remove trees from a hazardous location, that project would "receive a detailed review to ensure that only those considered necessary to remove under current [DOSHA] Clear Roadside Policy are affected."
- No adverse impact on air or noise quality would result, as these programs would generate no increase in traffic flow.
- Removal of roadside hazards would decrease the number of accidents and fatalities due to out-of-control vehicles hitting trees.
- Probable unavoidable adverse environmental impacts were limited to removal or destruction of some existing ground vegetation.
- The "do nothing" alternative was not acceptable because it would not alleviate accidents or fatalities.
- At each location, "a thorough review [would] be made of accident experience and roadway configuration to arrive at the recommended and proposed course of correction."
- To mitigate the effect of tree removal, "[e]ach project will be reviewed to determine if replacement trees would be provided for trees which must be removed."
- Replacement trees would be located in areas safe from out-of-control vehicles. These trees were to be nursery stock, two or three inches in diameter, not mature trees.

Attached to this negative determination of DOSHA's were two tabular summations of 1973 fixed-object accidents.

Woodford forwarded DOSHA's negative determination to FHWA by letter dated April 15, 1974. On April 16, Merchant wrote back that FHWA concurred in that assessment. Another exchange of letters took place in 1975. On September 15, 1975, relying on the same data, DOSHA sent FHWA a letter seeking classification of Section 210 and 230 programs as non-major actions. Merchant so classified them in writing on September 25, 1975.

2.4 The Injunction

On June 4, 1976, Judge Fox issued an opinion holding that Section 210 and 230 programs were major federal actions. He then sent the case back to DOSHAT and FHWA. They were instructed to determine if these major federal actions would significantly affect the quality of the human environment. If so, they were to prepare an environmental impact statement. If not, they were to prepare a negative declaration conforming to published FHWA regulations (16).

Judge Fox forbade the cutting of live trees while DOSHAT and FHWA carried out this review. However, he did note that "those trees which constitute a greater risk to motorists will ultimately be removed." The public interest in reducing traffic accidents and fatalities made that clear. Therefore, trees in obviously hazardous settings could be cut on a selective basis pending completion of the review process.

Judge Fox ruled that DOSHAT and FHWA had not adequately supported their determination that these programs were non-major actions. Relevant documentation was limited to Woodford's 1975 letter to Merchant and an attached environmental assessment. Judge Fox observed in his opinion:

- Nowhere did DOSHAT or FHWA discuss the scope of the programs. Such factors as the cost of the project, the number of trees to be removed, the length of time involved, the amount of resources and personnel committed, were ignored.
- Neither DOSHAT nor FHWA discussed the prospects for continuation of the program when current funding expired.
- The program descriptions were superficial, lacking detailed explanations and justifications.

Having rejected the non-major-action determination as too cursory, Judge Fox looked to DOT regulations implementing NEPA for guidance in deciding if Section 210 and 230 programs were major federal actions. FHWA regulations focused on highway construction. For that reason, he believed that they failed to cover the present situation precisely. DOT's regulations were more general in focus. They defined

"the overall, cumulative impact of the action proposed" as the key to whether a program is a non-major action. Judge Fox therefore moved on to dissect that concept in his opinion.

The cumulative impact approach precludes cutting a program into component parts, each minor or insignificant in itself, in an attempt to evade NEPA. In Judge Fox's view, DOSHAT had done exactly that. He mentioned these facts as indicative:

- Only trees in counties already approved for participation were counted by DOSHAT and FHWA.
- If other counties were approved for funding at a later time, the number of trees slated for removal could jump from 7,300 to as many as 80,000.
- An additional fifteen million dollar allocation was expected for fiscal years 1977-1980, which would allow substantial expansion of the program.
- Only funds allocated to Michigan were considered by DOSHAT and FHWA, not the total nationwide appropriation.
- These programs are being implemented across the country, potentially calling for cutting 40,000,000 trees if carried out in all 50 states.

Indeed, Judge Fox remarked, an expected appropriation of thirty million dollars over six years was probably sufficient in itself to make these programs major actions. He held that they were, in fact, major federal actions.

Judge Fox's reasoning so far left open the ultimate question of whether those major federal actions would significantly affect the quality of the human environment. Judge Fox ordered DOSHAT and FHWA to decide that issue. He instructed them as follows:

- DOSHAT and FHWA were to answer that question by following "all applicable regulations and guidelines."
- In determining whether a significant effect exists, DOSHAT and FHWA were "to consider the safety goals of the program as important factors affecting the human environment."
- Whether or not DOSHAT and FHWA decide a full environmental impact statement is required, "some consideration of alternatives is dictated" by Section 102(D) of NEPA, which operates independently of Section 102(C).

In conclusion, Judge Fox commented that many different types of roads were involved in these Section 210 and 230 programs. Yet no specific guidelines had been formulated to distinguish between them. Since "a primary object of plaintiffs' suit [is] to develop some standard governing the selection of trees to be removed under the program," Judge Fox suggested that DOSHAT and FHWA would be well advised to devote attention to this problem.

2.5 Later Developments

On August 17, 1976, the Council filed interrogatories addressed to DOSHAT and FHWA. On September 21, DOSHAT and FHWA stated in written answers:

- They had made a joint determination to continue tree cutting within the limits of the injunction.
- They were engaged in "formulating a program of removing trees which are clearly too hazardous to human safety. . .as authorized by Order of the Court."
- They had not yet decided whether to prepare an environmental impact statement, but any statement prepared would not be on a nationwide basis.

On September 28, 1976, the Council wrote DOSHAT to voice its lack of satisfaction at this response. Its views were as follows:

- Judge Fox's Opinion did not authorize DOSHAT and FHWA to go ahead with the program, even though limited to "clearly hazardous trees," without complying with NEPA.
- The "clearly hazardous" exception permitted only limited tree removal while DOSHAT and FHWA went through the NEPA process.
- Since DOSHAT and FHWA had decided to continue the program in some form, they were obligated to promptly make a good faith determination of its effect on the human environment.

The Council expressed its hope that DOSHAT would not attempt to evade the thrust of Judge Fox's ruling.

By letter dated October 15, 1976, DOSHAT advised Judge Fox precisely what cutting was contemplated under the "clearly hazardous" exception. Two situations were included:

- Inside and outside curves, as well as 200 feet on each side of the curve
- 300 feet on each side of highway intersections and railroad crossings.

DOSHAT further represented to Judge Fox that outside consultants would conduct the necessary environmental studies. DOSHAT concluded by promising to take no action until authorized to proceed by the Court.

On October 21, 1976, the Council wrote DOSHAT that "it may be possible for the plaintiffs and the defendants to agree on some of the matters outlined in [DOSHAT's] letter or at least to narrow the questions put to the Court." The Council asked for a meeting to explore this. Pending such meeting, it noted, DOSHAT had pledged not to cut any trees until mutually agreeable criteria for doing so under the exception had been drawn up.

On November 15, 1976, DOSHAT filed a motion to permit selective tree cutting in clearly hazardous locations. Following a meeting on November 23, DOSHAT and the Council agreed to adjourn DOSHAT's motion indefinitely. They further agreed to work out a means for facilitating such cutting. The Council summarized its understanding of those procedures in a letter to DOSHAT dated November 24:

- DOSHAT would submit tree cutting proposals to the Council in advance.
- The Council would reply within ten days.
- Inability to work out a solution would necessitate getting Judge Fox to settle a given dispute.

"Finally," the Council concluded, "[DOSHAT has] agreed to supply us with a copy of the request for proposals to consultants when it is ready for internal review, and we will comment on it with a view to alerting the department to potential problem areas or disagreements."

2.6 Summary and Conclusions

2.6.1 The Council. The Council's concerns can be identified as follows:

- DOSHAT had not considered the aesthetic impact of tree cutting on the roadside environment in rural Michigan.
- DOSHAT envisioned clear-cutting trees to a depth of ten feet on each side of designated highways.
- No standards for choosing the highways to be treated, or the trees to be removed, existed.
- DOSHAT limited its environmental review to a county-by-county, not statewide, evaluation.
- DOSHAT considered only programs already approved, ignoring the potential for later inclusion of other counties in Section 210 and 230 programs.
- An environmental impact statement under NEPA must be prepared on a statewide level.
- DOSHAT should obtain comment on draft requests for proposal before inviting bids, thereby ironing problem areas out ahead of time.

2.6.2 Judge Fox. Judge Fox's reasons for rejecting the negative statement prepared by DOSHAT were:

- No systematic analysis had been done to support the conclusions reached.
- The scope of the programs was not spelled out, nor was a justification of the need for them provided.
- No criteria for selecting roads to be included in the program, or trees to be removed under it, had been issued.

2.6.3 The Injunction. Judge Fox ordered DOSHAT and FHWA to do the following:

- Determine whether carrying out tree removal as originally planned would have a significant effect on the human environment's quality.
- Consider safety ramifications as a factor affecting that quality.
- Not to balance safety gains against environmental costs in determining whether there would be a significant effect on that quality.

- Prepare either a negative declaration or an environmental impact statement.
- Even if an impact statement was not filed, alternatives to tree cutting such as guardrails or lowered speed limits must be considered.
- Limit cutting while the environmental review process was underway to trees in such clearly hazardous locations as curves.

FOOTNOTES

- (1) 23 United States Code §§ 153, 405.
- (2) Transcript of proceedings in West Michigan Environmental Action Council Inc et al v. William Coleman et al (No. G 76-70 CA 1, United States District Court for the Western District of Michigan), pp. 16-17 (testimony of John P. Woodford).
- (3) Id, pp. 21-22 (testimony of John P. Woodford).
- (4) Id, pp. 38-39, 71 (testimony of John P. Woodford).
- (5) Id, pp. 89-91 (testimony of William J. MacCreery). Arenac and Kent Counties were rejected only because available funds had been committed by the time they applied. Id, pp. 109-110 (testimony of William J. MacCreery).
- (6) Id, p. 100 (testimony of William J. MacCreery).
- (7) 42 United States Code § 4332(C).
- (8) Michigan Compiled Laws Annotated §§ 691.1201-691.1207. (Supp. 1978).
- (9) Id § 691.1202.
- (10) Transcript, supra note 2, pp. 37-38.
- (11) Id, pp. 31-34. Some trees more than fifteen feet from the edge of the road might also be removed. Trees in so-called target positions, i.e., on the outside of curves, pose an above-average safety threat. These trees might be cleared further than the ten-foot minimum width. Id, pp. 49-51. The ten-foot zone was a product of empirical research. Data gathered at the General Motors Proving Ground showed that 25% to 60% of obstacles hit are struck within that distance. Id, pp. 174, 184-185 (testimony of David A. Merchant).
- (12) Id, pp. 59-61.
- (13) Id, pp. 95-97, 104-105. See also Id, pp. 175-176, 188-190 (testimony of David A. Merchant).
- (14) Id, pp. 178, 181-182.
- (15) Id, pp. 208-210.
- (16) 23 Code of Federal Regulations §§ 771.1-771.22.

3.0 THE STUDY APPROACH

DOSHAT's October, 1976 letter represented that outside consultants would conduct all environmental studies. DOSHAT had a Request for Proposal [RFP] ready for internal review on May 31, 1977. It mailed the RFP to prospective bidders on August 12, 1977.

3.1 The Request for Proposal

The RFP circulated by DOSHAT sought to get the injunction lifted by doing two things. (1) An operating manual was to be prepared, which would contain guidelines for selecting trees to be removed under Section 210 and 230 programs. (2) An "environmental assessment document" was to be prepared for these programs in Michigan. In both instances, the dicta in Judge Fox's Opinion were to serve as reference points. These tasks were to be accomplished in four stages.

3.1.1 Phase One. Phase One would establish parameters for the tree removal program. DOSHAT was to furnish its design specifications for correcting hazardous roadside areas, as well as raw data indicating when trees were roadside hazards. From these materials, correlation matrices would be developed to document the relationship between given roadside conditions and highway safety.

3.1.2 Phase Two. Phase Two would develop generic classifications for roadside environments. A taxonomic system was to be used to establish descriptive definitions of roadside environments. These descriptive definitions would then be compared to such specific contexts as land use patterns or types of road. From this integration, a set of roadside environments would be derived. A second product would be a set of criteria, either qualitative or descriptive, for dealing with hazardous trees. These criteria would then be applied to the roadside environments already identified.

3.1.3 Phase Three. Phase Three would develop treatment guidelines for the generic roadside environments defined in Phase Two. Safety considerations and design standards already in use by DOSHAT were to be applied to the roadside environments. The suitability of alternatives to tree cutting in each roadside environment was to be illustrated by a compatibility matrix. The treatment guidelines and compatibility matrix would then be cast into the form of an operating manual for use by county road commissions.

3.1.4 Phase Four. Phase Four would prepare a predictive impact assessment for each generic roadside environment. Alternative approaches to hazard correction were to be developed. Using the do-nothing approach as a comparison, the balance between environmental impact and safety benefits was to be calculated for each roadside environment. Alternative approaches were to be compared to this anticipated environmental impact. "[A]n environmental assessment required for the federal aid roadside tree removal program [as] required by the Injunction" would then be drafted. This assessment had to pass muster under NEPA, FHWA regulations implementing NEPA, and Judge Fox's Opinion.

3.2 The Proposed Study Approach

ASPLUNDH sent in its Proposal on September, 1977. Two goals were set. A management manual for the tree removal program was to be prepared, containing tree cutting guidelines based on scientifically validated criteria. In addition, an environmental assessment based on the criteria and guidelines in the manual was to be prepared. These two tasks were to be accomplished in four phases.

3.2.1 Phase One. Phase One would develop a data base for analyzing trees as roadside hazards in Michigan. As the first step in developing that data base, an information bank of accident statistics would be built up. Parameters and criteria for defining roadside environments would next be identified. Finally, a legal analysis

was to be performed in order to ensure that study design and work to date were adequate to get the Injunction lifted.

Compiling the information bank was seen to include preparing an annotated bibliography and conducting an analysis of accident data. For the annotated bibliography, publications would be culled to identify documents that discussed trees as roadside hazards. Those documents would then be abstracted. Once the bibliography was finished, Michigan State Police accident statistics would be systematically analyzed to establish these three things:

- Characteristics of typical tree-related accidents.
- Hazardous situations associated with tree-related accidents, as identified by manipulating the characteristics previously isolated.
- Geographic patterns of tree-related accidents.

Identifying parameters and criteria for defining roadside environments was seen as entailing an analysis of accident data. Multivariate analysis programs would be run to identify factors frequently associated with tree-related accidents, as well as the relationships among those factors. The resulting parameters would circumscribe the possible environments. Using those parameters, additional multivariate analyses would be run to isolate criteria for identifying trees as roadside hazards. The resulting criteria would be grouped into these categories: geometric road design, roadside physical conditions, vehicle dynamics, sociological factors, traffic volume, and traffic control. Data on accident frequency would then be employed to rank the criteria categories in order of significance.

3.2.2 Phase Two. Phase Two would identify typical roadside environments in the context of Section 210 and 230 programs. As the first step in identifying those environments, roadside environments would be defined. The environmental conditions typical of each roadside environment would then be categorized. Generic roadside environments would next be developed from the range of roadside

environments already identified. Finally, obstacle treatment criteria would be devised for each generic roadside environment.

Definition of roadside environments involved in tree-related accidents was seen as requiring yet further analyses of accident data. Four items of information were desired:

- Collisions involving trees, as identified by computer searches of Michigan State Police accident statistics.
- Patterns of such collisions, as identified by comparing conditions surrounding each collision.
- Tree-related accidents of special significance, i.e., those resulting in fatalities.
- Characteristics typical of tree-related collisions, but not reported in the computerized data, as identified by reviewing original police reports or photo logs of the scene.

Through a stratified random sampling of accidents identified by the above process as having occurred under similar conditions, sets of discrete roadside conditions would be developed.

By plotting the location of each accident on a Michigan base map, concentrations of accidents across the state would be identified. Natural features of those sites would then be identified, and correlated with the sets of discrete roadside conditions just developed, to group roadside environments by size and classification of highway. Grouping similar environmental-to-hazard relationships would yield a set of generic roadside environments.

Establishing these generic environments would finally lay the basis for formulating criteria to identify conditions under which roadside trees posed safety hazards. Size, species, location, and vigor of trees involved in crashes would be gleaned from accident reports. After that information had been substantiated by analysis of the accident data on hand, it would be used to identify hazardous areas within each generic roadside environment. Further refinement of that information would yield guidelines for controlling hazard trees by means other than cutting.

3.2.3 Phase Three. Phase Three would develop a management manual for tree removal by doing four things:

- Current DOSHAT safety standards would be related to each generic roadside environment.
- Alternatives to cutting hazardous trees would be identified by reference to linear systems requiring predetermined clearances, such as electrical utilities.
- Alternatives to cutting would be tested by DOSHAT safety standards to identify suitable alternatives.
- Alternatives identified as suitable would be illustrated by a compatibility matrix for each generic environment.

ASPLUNDH planned to involve county road commissions in the development process to achieve the most effective and practical approach to program management. A panel of representative public interest groups would also be involved in an attempt to resolve differences of opinion as they surfaced during the development process. Eliminating as many problems as possible in this way was seen as a means of minimizing public controversy when the finished manual was released for formal comments.

3.2.4 Phase Four. Phase Four would prepare a predictive impact assessment for each generic roadside environment. By reference to do-nothing alternatives, the balance between environmental impact and safety benefits would be identified. Feasible alternative treatments to cutting were to be presented, evaluated, and discussed in terms of safety, hazard potential, and environmental impact. Contemplated alternatives would range from planting barrier vegetation to roadway redesign. Draft and final environmental assessment reports would be written in conformity with NEPA and EPA guidelines.

3.3 Summary and Conclusions

3.3.1 The RFP. Analysis of the RFP yields the following insights:

- The do-nothing approach is to be used as the sole standard of comparison in preparing environmental assessments.
- The range of alternatives to tree cutting which are to be developed is unclear.
- The operating manual and environmental assessment are both to be developed through systematic analysis of computerized accident data.
- The ultimate environmental assessment document must be adequate under NEPA and FHWA regulations, as well as sufficient to allay the concerns expressed in Judge Fox's Opinion.

3.3.2 The Study Approach. Analysis of the ASPLUNDH study approach yields the following insights:

- ASPLUNDH intends to base its environmental assessment document on the guidelines and criteria contained in the management manual for the tree removal programs that it contemplates developing.
- The operating data on which ASPLUNDH would base its entire work product is to be developed through systems analysis of computerized accident reports, supplemented by field investigation in the case of significant accidents.
- Alternatives to tree cutting to be considered appear to be limited, since they are to be developed by reference to linear systems like electric utilities, railroads, and pipelines. Each cited example requires only a clear right of way for its operations.
- ASPLUNDH wants to involve the Council in developing the operating manual as the process is underway.
- ASPLUNDH apparently plans to evaluate the balance between environmental impact and safety benefits by reference to the do-nothing alternative.
- Alternative treatments would also be discussed by reference to the do-nothing alternative.
- Only one environmental assessment document will be prepared, and that one will not be put together until the operating manual is completed.

4.0 DETERMINATION OF SIGNIFICANT EFFECT

Previous sections of this interim report have analyzed the Injunction, the RFP, and the ASPLUNDH study approach. In this section, the adequacy of the study approach as a response to the Injunction will be analyzed.

Judge Fox saw the key issue in this case as whether an EIS had to be prepared for Section 210 and 230 programs. In resolving that issue, he followed the conceptual approach of the Council on Environmental Quality [CEQ] (1). NEPA requires an EIS for "major federal actions significantly affecting the quality of the human environment" (2). The Council broke that phrase down into four components. An action must be major. That major action must be federal. That major federal action must affect the quality of the human environment. That effect must be significant. Only when all four factors are present must an EIS be prepared, for the words "major" and "significantly" imply that minimum levels of importance and impact must first exist.

Judge Fox ruled that Section 210 and 230 programs are major federal actions. Having done so, he left it to DOSHAT and FHWA to decide if those programs would have significant effects on the human environment. An EIS was to be prepared if those programs were found to cause such effects. A negative declaration, explaining why no such effect existed, was to be prepared if those programs were found not to cause such effects.

One thing is clear from this ruling: before an EIS or a negative declaration is prepared, there must first be a determination that a significant effect on the human environment exists. That determination is a separate component of the environmental review process. It is not clear from examination of the RFP and the proposal that this point is understood by all parties involved in the study effort.

The critical importance of the significant-effect question is its threshold nature. The answer to that question dictates whether the state must eventually produce an EIS or a negative declaration. For reasons explained in Section 2.0, a negative declaration is far easier to prepare. The time and expense of preparing an EIS should not needlessly be incurred. Therefore, an initial decision on significant-effect is essential.

Two areas of concern surface in determining the significant effect issue. What factors must be considered in its resolution? What methodologies must be employed in its resolution? Each of these areas will now be explored.

4.1 Factors

NEPA addresses more than nature's ecosystems. Its concern is not just air and water quality, rare or endangered species of flora and fauna, or consumption of nonrenewable resources. The focus of concern is the human environment--which includes noise, traffic, congestion, and such urban concerns as the quality of housing (3). In this case, Judge Fox specifically mentioned an additional factor. "[T]he agencies are well advised to consider the safety goals of the programs as important factors affecting the human environment" (emphasis by the Court).

Surveying this broad range of concerns will produce a catalog of effects attributable to Section 210 and 230 programs. The significance of those effects must then be determined, and making that determination entails looking at the proposed action from two perspectives. One is the extent to which it will cause adverse environmental effects in excess of those already created by existing uses. The other is the absolute quantitative effects of the action itself. Those adverse quantitative effects include the cumulative harm caused when the action's individual effects are added to existing adverse conditions (4).

In practical terms, CEQ suggests that effects likely to be significant include (5):

- Cumulative effects of an action that exceed the effects of the single action standing alone.
- Degradation of existing environmental quality.
- Curtailing the range of beneficial uses of the environment.
- Advancing short-term environmental goals at the expense of long-term ones.
- Mixed beneficial and adverse impacts attributable to an action, even if the net effect is deemed to be beneficial.
- Secondary effects, i.e., indirect effects of an action.
- The setting of a proposed action; i.e., actions that would have little impact in an urban area may be of greater moment in rural ones.
- Environmental controversy stirred up by a proposed action.

In addition, Judge Fox directed that some consideration be given to alternatives to tree cutting. The example that he mentioned was lowering speed limits on rural highways. Implicit in this suggestion by Judge Fox is the notion that measures such as pruning rather than cutting trees do not constitute a broad enough range of options. Measures that advance highway safety without damaging trees at all must be identified and evaluated.

4.2 Methodology

NEPA mandates use of an interdisciplinary approach to decision-making (6) in order to ensure that all potential environmental effects of a proposed action are identified. However, that statement of purpose presupposes that interested parties know how the identified effects were arrived at. Implicit in NEPA is a demand that an agency "explicate fully its course of inquiry, its analysis and its reasoning" (7).

Meeting that demand for full disclosure requires that four things be done:

- The factors listed in Section 4.1 above must be quantified.
- Data accumulated must be analyzed in terms of those factors to yield a range of potential effects.
- Criteria must be developed for identifying which effects are significant.
- Those criteria must be applied to the identified effects to determine if any of the effects are significant.

How the criteria of significance were developed must also be explained.

Judge Fox cautioned DOSHAT and FHWA not to weigh competing value considerations at this stage of the environmental review process. This threshold analysis seeks only to determine if any identified effect is significant enough to warrant preparations or an EIS. If no effect is deemed to be that significant, then a negative declaration must be written to explain that conclusion.

4.3 Summary and Conclusions

Deciding whether a proposed action will have a significant effect on the quality of the human environment is the key to NEPA. Only an affirmative answer requires preparation of an EIS. The ASPLUNDH study approach seems to assume that Section 210 and 230 programs will cause significant effects. No clearly identified point when that decision will be made is established. Failure to squarely decide this question is likely to preclude a later determination not to file an EIS, for it would be hard to document such a decision unless it rests on scientifically validated criteria. Therefore, unless a firm decision has been made to abandon the idea of filing a negative declaration, this omission is a mistake.

FOOTNOTES

1. 40 Code of Federal Regulations § 1500.6(c)
2. 42 USC § 4332(c)
3. Trinity Episcopal School Corp. v Romney, 523 F2d 88 (2nd Cir. 1975); Hanley v Mitchell, 460 F2d 640, 647 (2nd Cir.), cert. denied, 409 US 990 (1972).
4. Hanly v Kleindienst, 471 F2d 823, 830-831 (2nd Cir. 1972), cert. denied, 412 US 908 (1973).
5. 40 Code of Federal Regulations §§ 1500.6(a), 1500.6(b). NEPA regulations published by FHWA, 23 Code of Federal Regulations § 771.10, are of no help because they speak to highway construction.
6. 42 United States Code § 4332(A).
7. Ely v Velde, 451 F2d 1130, 1139 (4th Cir. 1971).

5.0 NEGATIVE DECLARATION

Section 4.0 of this interim report analyzed the ASPLUNDH study approach in terms of the significant-effect determination. A negative declaration must be prepared if DOSHAT and FHWA decide that Section 210 and 230 programs produce no significant impact on the quality of the human environment. In this section, the adequacy of the ASPLUNDH study approach as the basis for an acceptable negative declaration will be analyzed.

Negative declarations document the reasonableness of deciding not to file an EIS (1). Not filing an EIS runs the risk of overlooking serious adverse impacts of a proposed action, for the full-scale environmental review entailed in preparing an EIS will have been foregone. Decisions not to file an EIS are therefore looked on with disfavor. When properly challenged, agencies must establish that such decisions are not attempts to avoid NEPA.

Two areas of concern immediately surface. What must an adequate negative declaration contain? What procedural steps must be followed in preparing an adequate negative declaration? Each of these areas will now be explored.

5.1 Contents

Negative declarations are not expressly called for in the act. However, as a result of the large amount of litigation generated by agency refusals to file an EIS, standardized tools for defending such refusals became imperative. Negative declarations were the response evolved by administrative agencies in the face of this judicial pressure (2). Each agency of the federal government has issued its own guidelines for projects that fall within its legal jurisdiction. In this case, the regulations promulgated by FHWA tell what must be included in an acceptable negative declaration. Negative declarations must contain the following points of information (3):

- Descriptions of the proposed action and the need for it.
- Alternatives to the proposed action which were considered.
- The reasons why the proposed action is not anticipated to significantly affect the environment.
- The social, economic, environmental, and other effects of the proposed action which were considered.
- Comparative cost and benefit data for each alternative.

Of particular significance is the degree to which alternatives must be discussed in a negative declaration. That requirement stems from NEPA's provision that agencies must "study, develop, and describe alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources" (4).

Trinity Episcopal School Corp v Romney (5) applied the quoted provision to negative declarations. This case holds that such unresolved conflicts are involved if the following two factors are both present:

- The proposed major federal action can be accomplished in two or more ways.
- The several ways of accomplishing that action each have differing impacts on the environment.

Existence of both these factors means that a negative declaration must discuss alternatives to the proposed action. In terms of scope, that discussion appears to entail preparing the functional equivalent of an EIS (6). That aspect of an EIS is discussed in section 6.2.5 below.

5.2 Procedure

Negative declarations must be prepared by following these procedural steps (7):

- A draft declaration must be written, covering the items outlined in section 5.1 above.
- Unlike a draft EIS, the draft negative declaration does not have to be circulated to other agencies for comment.

- A public hearing on the draft negative declaration is not required, but public notice of its availability is required.
- That notice of availability must be published in a local newspaper, must advise the public that the draft negative declaration exists, must tell the public where to obtain information on the proposed action, and must invite public comment within 30 days.
- At the end of the 30-day period, a final negative declaration must be written that includes a summary and disposition of public comments on the proposed action.
- If significant impacts are identified at any stage of the process, a draft EIS is to be prepared and processed in lieu of a negative declaration.

Procedurally, the advantages of a negative declaration over an EIS are the savings in time and cost. Negative declarations do not require input and comment by other government agencies. Agency-suggested alternatives need not be actively sought out. Opportunity for public comment is all that is required. This streamlined procedure should greatly expedite the internal review process.

5.3 Summary and Conclusion

The ASPLUNDH study approach requires some clarification to provide the basis for an acceptable negative declaration.

It is unclear whether the alternatives that the ASPLUNDH study approach plans to develop are broad enough. Task Three of Phase Four speaks of alternatives ranging from simply planting barrier vegetation to redesigning highways. That would be sufficiently comprehensive to satisfy NEPA. However, Task Two of Phase Four speaks only of comparing tree cutting to the do-nothing alternative. Limiting alternatives to the do-nothing approach alone is clearly insufficient to meet NEPA requirements. Tree cutting must be compared to all alternatives identified in the environmental review process.

Furthermore, Task Two of Phase Three speaks of developing alternatives by reference to linear systems requiring predetermined clearances. Implicit in that frame of reference is an apparent assumption that consideration of alternatives can be limited to devices such as tree pruning: linear systems such as pipelines or railroads require nothing but clear right-of-ways. Limiting the range of alternatives in that fashion is insufficient to satisfy NEPA. More to the point, since Judge Fox specifically mentioned lowered speed limits as an alternative approach to be considered, the injunction will not be lifted if the range of alternatives is restricted to this one option. Clearly, the range of alternatives must include some that involve safety precautions other than cutting, on the one hand, and not cutting, on the other.

Task Two of Phase Four appears adequate to identify the environmental effects, good and bad, of Section 210 and 230 programs. The analytical design of the ASPLUNDH study approach as a whole is more than sufficient to provide the interdisciplinary analysis that NEPA requires. However, care should be taken to present the data on the proposed action and alternatives in the form of a cost-benefit analysis. (Cost-benefit analysis issues are discussed in Section 6.3.)

Task Three of Phase Three contemplates involving the public in developing the management manual. However, FHWA regulations require that the public be involved in the entire process. Public comment on the draft negative declaration must be affirmatively solicited. Therefore, provision must be made for complying with the public notice requirement of the regulations.

Footnotes

1. Hanly v Mitchell, 460 F2d 640, 647 (2nd Cir. 1972), cert. denied, 412 US 908 (1973). See generally S.L. Deutsch, The National Environmental Policy Act's First Five Years, 4 Environmental Affairs 3, 36-38 (1975).
2. R.S. Lynch, The 1973 CEQ Guidelines: Cautious Updating of the Environmental Impact Statement Process, 11 California Western Law Review 297, 316-318 (1975).
3. 23 Code of Federal Regulations §771.11 (b).
4. 42 United States Code §4332(a)(D).
5. 523 F2d 88 (2nd Cir.1975). Earlier cases had hinted at this development. E.g., see Nucleus of Chicago Homeowners Ass'n v Lynn, 524 F2d 225, 232 (7th Cir. 1975), cert. denied, 414 U.S. 967 (1976); Hanly v Kleindienst, 471 F2d 823, 834-835(2nd Cir. 1972), cert. denied, 412 U.S. 908 (1973); Citizens for Reid State Park v Laird, 336 F Supp 783, 788 (D. Me. 1972).
6. Comment, 64 Georgetown Law Journal 1153, 1162-1165 (1976).
7. 23 Code of Federal Regulations §§ 771.11(c), 771.11(d), 771.11(e), 771.11(f).

6.0 ENVIRONMENTAL IMPACT STATEMENT

Section 5.0 of this interim report analyzed the ASPLUNDH study approach in terms of a negative declaration. An EIS must be prepared if DOSHAT and FHWA decide that Section 210 and 230 programs produce a significant impact on the quality of the human environment. In this section, the adequacy of the ASPLUNDH study approach as the basis for an acceptable EIS will be analyzed.

An EIS serves at least two purposes. First, at a minimum, it is an environmental full disclosure (1). It alerts the decision-maker and the public to all of the environmental consequences of an action by gathering in one place all information needed to evaluate the project. It also alerts the public to the rationale of agency decisions by articulating the reasoning process behind those decisions (2). Second, in addition to the above, an EIS is a tool to assist in making balanced decisions on proposed actions that will affect the human environment (3). It was not conceived of as an after-the-event rationalization for decisions already made (4).

For an EIS to be a meaningful guide in the decision-making process, all feasible means of accomplishing project goals must be systematically identified. The one that maximizes the cost-to-benefit ratio is then to be selected. Environmental costs and benefits of that alternative must be ascertained. Only if the net impact is beneficial should the proposed action go forward as originally planned. The EIS reproduces the decision-making process so that interested parties can examine it.

Three areas of concern immediately surface. What does NEPA itself require that an EIS include? What kind of information must an EIS contain to satisfy those NEPA requirements? How must an adequate EIS be prepared? Each of these areas will now be explored.

6.1 NEPA Requirements

NEPA itself defines the essentials of an EIS by mandating that five things be included in it (5):

- Environmental impacts of the proposed action.
- Any adverse environmental effects that are unavoidable if the action is carried out as proposed.
- Alternatives to the proposed action that could accomplish the same ends.
- The relationship between short-term uses of the environment, on one hand, and maintaining and enhancing its long-term productivity, on the other.

The CEQ guidelines flesh out this framework by providing detailed guidance on preparing an acceptable EIS.

6.2 CEQ Guidelines

The CEQ is not an agency possessing regulatory power. CEQ guidelines enjoy an uncertain status as a result. They may constitute substantive rules on proper compliance with NEPA. They may also be nothing but non-binding suggestions on its implementation (6). However, regulations issued by DOT are undeniably binding. Those regulations (7) are virtually identical to CEQ guidelines. The contents of an acceptable EIS can therefore be derived, in this case, from CEQ guidelines.

CEQ guidelines cover project description, relationship to land use planning, probable environmental impacts, alternatives to the proposed action, unavoidable adverse effects on the environment, trade-offs between short-term and long-term uses, irreversible resource commitment, and policy considerations that offset adverse environmental effects. Presentation of the above information is also discussed. Each of these topics will now be explored.

6.2.1 Project Description. This section of the EIS draws together the raw data needed to permit an assessment of potential environmental impact (8):

- A succinct description of the proposed action, as well as a statement of its purposes.
- A description of the area involved as it exists prior to the proposed action.
- Site visitations to ensure accurate description of the pre-existing environment.
- Identification of the sources of data used to identify, quantify, or evaluate environmental consequences.
- An appendix or footnotes containing technical or specialized data relied on, as that data is not to be incorporated in the body of the EIS's text.

6.2.2 Land Use. This section of the EIS traces the relationship between the proposed action and land use in the affected area. It must include the following information (9):

- Zoning and land use plans, in addition to existing land uses, in the area covered by the proposed action.
- An analysis of ways in which the proposed action would create a non-conforming use.
- Where non-conforming uses would be created by the proposed action, a description of steps undertaken to reconcile the proposed action with the land use control in question.
- An explanation of any decision to carry out the proposed action despite lack of full reconciliation with a conflicting land-use control.
- Ways in which the proposed action would conform to existing land use in the area concerned.

6.2.3 Probable Environmental Impact. This section of the EIS assesses both negative and positive effects that the proposed action will have on the environment (10). The main focus is to be on the most obviously affected aspects of the environment. However, secondary effects are also to be covered in the discussion. Essentially, this section of the EIS duplicates the determination of significant effect explored in section 3.1 above.

6.2.4 Alternatives. This section of the EIS identifies alternatives to the proposed action. Of special concern are those that could improve the environment or mitigate environmental degradation, examples of which include (11):

- Taking no action at all.
- Postponing action pending further study.
- Taking action that could provide benefits similar to the proposed action, but with different impacts on the environment.
- Revising design details of the proposed action to eliminate or mitigate its adverse environmental effects.
- Actions that could eliminate or mitigate adverse environmental effects, but which the agency recommending the proposed action lacks power to undertake.

Alternatives whose marginal nature makes them impractical do not have to be evaluated (12). Alternatives should serve as aids to deciding whether to go ahead with a proposed action, rather than being drafted as a smoke-screen to justify decisions already reached (13). That entails conducting a cost-benefit analysis for each alternative discussed (14). Cost-benefit analysis is explored in Section 6.3 below.

6.2.5 Unavoidable Adverse Effects. This section of the EIS summarizes in one place those adverse environmental effects that are inevitable if the proposed action is implemented (15). Examples include air or water pollution and undesirable land use patterns. In this way, the decision-maker forced to concentrate his or her attention on the absolute quantitative impact of the proposal action. The contrast is sharper because a clear explanation of how other adverse impacts will be mitigated must also be included.

6.2.6 Tradeoffs. This section of the EIS analyzes the tradeoffs made by the proposed action in terms of environmental values (16). It

identifies to what extent the proposed action forecloses future options.

6.2.7 Irreversible Commitment. This section of the EIS surveys the extent to which the proposed action irrevocably curtails potential uses of the environment (17).

6.2.8 Balancing Process. This section of the EIS indicates what policy considerations offset adverse environmental impacts of the proposed action (18). The extent to which alternative courses of action could realize those goals, while mitigating such impacts, must also be discussed.

6.2.9 Mode of Presentation. The substantive contents of the EIS are covered in Sections 6.2.1 through 6.2.8 above. However, CEQ guidelines also stress that the EIS should emerge as a self-contained document suitable for non-specialists to use. Points to be remembered in that regard include (19):

- An EIS should remain focused on the environmental impact of the proposed action and its identified alternatives.
- An EIS should stress clarity in presenting its information, avoiding jargon and unnecessary length.
- An EIS need not cover each point of required information in a separate section, so long as each point is adequately covered somewhere in the discussion.
- The EIS should reference all supporting documents used in its preparation, indicating how internal reports and other data not readily available can be obtained by an interested reader.
- The EIS may attach copies of any supporting document as appendices, but must be sure to incorporate all relevant information into the body of the EIS itself so that the reader need not constantly refer back to the appendices.

6.3 Cost-Benefit Analysis

NEPA is designed to compel consideration, disclosure, and mitigation of adverse environmental effects. The CEQ guidelines contemplate

counterbalancing of environmental impacts in economic terms to accomplish that result (20). Environmental amenities can be seen as an economic good whose societal cost is measured by opportunities passed up in order to preserve those amenities (21). However, quantifying environmental values in economic or monetary terms is at best an uncertain process (22). A large margin of safety must therefore be built in to guard against inadvertent degradation of environmental quality.

In most cases, the results of a cost-benefit analysis will be expressed in terms of a numerical ratio called the maximand. Quantified benefits are placed in the numerator, while quantified costs go in the denominator. A value in excess of 1.0 would ordinarily warrant the conclusion that an action has a net beneficial impact. However, where environmental values are concerned, it has been suggested that the problems encountered in quantifying them preclude going ahead with a project unless the maximand exceeds 2.0 (23). Few projects will have such high maximands. In consequence, the safety margin built into the maximand can become an obstacle to action rather than a tool for deciding when to act.

Awareness of this has prompted some retreat from numerical analysis of environmental values. Language that weighs environmental benefits and costs in less quantitative terms may also be deemed sufficient to comply with NEPA (24). But the balancing process used must always discuss each of these points:

- Economic and technical benefits of the proposed action.
- Environmental costs of the proposed action.
- Alternatives that would affect the balance of values.
- Why the action decided on is, on balance, the optimally beneficial action.

The discussion of cost-benefit in this interim report is necessarily abbreviated. Further research will be required to evaluate specific analyses produced as part of the ASPLUNDH study effort.

6.4 Procedure

Developing an EIS requires preparation of a draft statement, circulating it for agency and public comment, and incorporation of that input into a final statement. Section 210 and 230 programs are federal-aid programs. Where federal-aid programs are involved, FHWA regulations put the burden of preparing an EIS on the state highway agency involved (25). DOSHAT, not FHWA, is thus responsible for seeing that an EIS is properly prepared here.

Draft declarations must be prepared by following these steps (26):

- FHWA is to be consulted in preparation of the draft EIS, which must cover the areas discussed in Section 6.2 above.
- FHWA is to indicate agreement with the scope and content of the draft EIS by initialing the title page before its release for comment.
- Copies of the draft EIS are to be circulated for comment to federal, state, and local agencies with legal responsibility for projects like the proposed action.
- Copies of the draft EIS are to be circulated for comment to any other agencies that have special expertise respecting identified environmental impacts.
- Copies of the draft EIS are to be circulated for comment to the state clearinghouse and the affected counties.
- Copies of the draft EIS are to be circulated to members of the public that have special expertise respecting any identified environmental impact, or who are known to have an interest in the proposed action.
- Recipients of copies of the draft EIS are to be allowed at least 45 days to return comments, a firm due date being fixed in the transmittal letter.
- Copies of the draft EIS are to be available for public inspection at DOSHAT and FHWA offices.
- Notices are also to be published in newspapers advising the public that the draft EIS is available for comment, where to obtain copies of it, and where to send comments on it.

- Public comments received in response to such inspection or publication are due within 45 days after notice of the draft EIS has been published in the Federal Register.
- The draft EIS is to be revised and recirculated if the final EIS is not filed within three years.

A final EIS must not be prepared until comments on the draft EIS has been evaluated by DOSHAT. DOSHAT's response to responsible, well thought-out and documented positions opposing the proposed action must be discussed in the body of the final EIS. Furthermore, copies of all substantive comments on the draft EIS ought to be attached to the final EIS, even if a given comment is not individually discussed in the final EIS itself (27).

The final EIS is to be distributed to CEQ, the Regional Administrator of the Environmental Protection Agency, and the state or regional clearinghouse. Copies are also to be sent, on request, to anyone who made substantive comments on the draft EIS.

6.5 Summary and Conclusions

In terms of the substantive areas discussed in Section 6.2 above, the ASPLUNDH study approach requires some clarification to provide the basis for an acceptable EIS.

Task One of Phase Two intends to characterize roadside environments, in part, by adjacent land uses. Care must be taken to ensure that the data generated here are detailed enough to pass muster under Section 6.2.2 above. In particular, attention should always be paid to ways of mitigating the aesthetic impact of tree cutting. DOSHAT's 1974 negative determination spoke of providing replacement trees from nursery stock and placing them in non-hazardous locations. Care should be taken to explore these and similar approaches to the problem of aesthetics.

Task Two of Phase Four appears adequate to assess the effects of tree cutting, both positive and negative. However, in terms of

alternatives to cutting, the ASPLUNDH study approach is still subject to the objections raised previously. Attention must also be paid to identifying unavoidable adverse effects of tree cutting, environmental tradeoffs, and irreversible impacts on the environment. It is not clear if Task Two of Phase Four will generate all of this information.

In terms of the procedural steps discussed above, the ASPLUNDH study approach appears to be deficient. Some of these deficiencies can be remedied by state action. Since the ASPLUNDH effort is so closely linked to the state's position in this matter, identification of who is to do what should be determined early in the study.

Footnotes

1. Environmental Defense Fund Inc. v. Corps of Engineers, 325 F Supp 749 (E.D. Ark 1971), modified, 470 F2d 289 (8th Cir. 1972). See also Note, Envolving Judicial Standards Under the National Environmental Policy Act and the Challenge of the Alaska Pipeline, 81 Yale Law Journal 1592, 1592 n.4, 1606 (1972).
2. R.C. Cramton and R.K. Berg, On Leading a Horse to Water: NEPA and Federal Bureaucracy, 71 Michigan Law Review 511, 514-516 (1973); A. D'Amato and J.H. Baxter, The Impact of Impact Statements Upon Agency Responsibility: A Prescriptive Analysis, 59 Iowa Law Review 195, 200-205 (1973).
3. Natural Resources Defense Council v. Morton, 458 F2d 827, 836 (D. C. Cir. 1972). See R.D. Peltz and J. Weinman, NEPA Threshold Determinations: A Framework of Analysis, 31 University of Miami Law Review 71, 115-124 (1976).
4. Jones v. District of Columbia Redevelopment Land Agency, 449 F2d 502, 511 (D.C. Cir. 1974), cert. denied, 423 US 937 (1975). See F.R. Anderson, NEPA in the Courts 288-293 (Baltimore: John Hopkins University Press, 1973).
5. 42 United States Code §4332(2)(C).
6. R.S. Lynch, The 1973 CEQ Guidelines: Cautious Updating of the Environmental Impact Statement Process, 11 California Western Law Review 297, 316-318 (1975).
7. 49 Code of Federal Regulations §§520.21-520.34
8. 40 Code of Federal Regulations §1500.8(a)(1).
9. Id §1500.8(a)(2).
10. Id §1500.8(a)(3).
11. Id §1500.8(a)(4).
12. Natural Resources Defense Council v. Morton, *supra*, 458 F2d at 834, 838. Good discussions of the degree of investigation required are contained in A. D'Amato and J.H. Baxter, *supra* footnote 2, at 208-218, and R.E. Jordan, Alternatives Under NEPA: Toward An Accomodation, 3 Ecology Law Quarterly 705, 716-724 (1973).
13. Montgomery v. Ellis, 364 F Supp 517, 528 (E.D. Ala. 1973).

Footnotes

14. Calvert Cliffs Coordinating Committee Inc. v. Atomic Energy Commission, 449 F2d 1109, 1123 (D.C. Cir. 1971). See also Cape Henry Bird Club v. Laird, 359 F Supp 404, 414 (W.D. Va.), aff'd, 484 F2d 453 (4th Cir 1973); Sierra Club v. Froehkle, 359 F Supp 1289, 1363 (S. D. Tex. 1973), rev'd on other grounds sum nom. Sierra Club v. Callaway, 499 F2d 982 (5th Cir. 1974).
15. 40 Code of Federal Regulations §1500.8(a)(5).
16. Id §1500.8(a)(6).
17. Id §1500.8(a)(7). See R.S. Lynch, supra footnote 6, at 327.
18. Id §1500.8(a)(8).
19. Id §1500.8(b). See R.E. Jordan, supra footnote 12, at 724-729.
20. R.S. Lynch, supra footnote 6, at 342-343.
21. Note, Cost-Benefit Analysis in the Courts: Judicial Review Under NEPA, 9 Georgia Law Review 417, 420-426, 445-446 (1975).
22. M.B. Lapping, Environmental Impact Assessment Methodologies: A Critique, 4 Environmental Affairs 123, 124-129 (1975); Note, The Least Adverse Alternative Approach to Substantive Review Under NEPA, 88 Harvard Law Review 735, 744 N.60 (1975), L.H. Tribe, Ways Not to Think About Plastic Trees: New Foundations for Environmental Law, 83 Yale Law Journal 1315, 1320 (1974).
23. A. D'Amato and J.H. Baxter, supra footnote 2, at 238; Note, Cost-Benefit Analysis and the National Environmental Policy Act of 1969, 24 Stanford Law Review 1092, 1105-1106 (1972).
24. Environmental Defense Fund v. Corps of Engineers, 492 F2d 1123 (5th Cir. 1974), cert denied, 412 US 931 (1975); Environmental Defense Fund v. Tennessee Valley Authority, 371 F Supp 1004 (E.D. Tenn. 1973), aff'd per curiam, 492 F2d 466 (6th Cir 1974). See also D. Hanke and H. Walker, Benefit-Cost Analysis Reconsidered: An Evaluation of the Mid-State Project, 10 Water Resources Research 898 (1974).
25. 23 Code of Federal Regulations §771.3(f).
26. Id §771.12.
27. Id §771.18(o). See also 40 Code of Federal Regulations §1500.10.

7.0 STATE LAW

Sections 4.0 through 6.0 of this interim report discuss the adequacy of the ASPLUNDH study approach as a response to NEPA. The main thrust of the complaint was that DOSHAT had ignored NEPA in deciding not to file an EIS for Section 210 and 230 programs. However, in addition to violating NEPA, the Council alleged that DOSHAT's failure to file an EIS also violated EPA. The Complaint accordingly relied on EPA as a secondary basis for relief. In this section, the adequacy of the ASPLUNDH study approach as a response to EPA will be analyzed.

7.1 Background.

Unlike NEPA, EPA does not itself mandate preparation of an EIS. EPA creates a public trust in Michigan's natural resources. It then authorizes suits to protect the environment from degradation (1). Under this approach, the costs and benefits of a proposed action are not balanced by the agency in an EIS. EPA rather puts that obligation on the trial court when it decides the case (2). In this framework, the ASPLINDH study approach plays a more limited role than it did under NEPA. It needs only to generate sufficient data for DOSHAT to be able to rebut any initial showing of environmental degradation (3). The ASPLUNDH study approach is clearly adequate for that purpose.

EPA is a procedural statute in so far as it permits citizen suits to protect the environment. But it also supplements existing statutes and regulatory procedures (4), thereby forcing state agencies to assess the environmental consequences of their actions. EPA's standards must be affirmatively applied by DOSHAT in its consideration of Section 210 and 230 programs (5). In this sense, EPA is also a source of substantive law.

EPA's substantive role was underscored when Governor Milliken

issued Executive Order 1974-4 on May 3, 1974. That Order directed preparation of an EIS for each major action proposed by state agencies that might significantly impact the environment or human life. Guidelines for complying with that Order were issued on November 20, 1975.

Executive Order 1974-4 applies to major state actions. For present purposes, it will be assumed that major federal actions are covered by that definition when carried out by a state agency. The ASPLUNDH study approach will now be evaluated in terms of Executive Order 1974-4.

7.2 State EIS.

Section 6 (6) of the Guidelines implementing Executive Order 1974-4 applies here. An EIS required to be prepared under NEPA can also be used for state review if it covers the items enumerated in Section 9 (A)(1) of the Guidelines. Those items are:

- Description of probable impacts on the environment and on human life.
- Description of probable adverse effects that are unavoidable if the proposed action is carried out as planned.
- Evaluation of alternatives that might avoid some or all of the adverse effects.
- Explanation of why alternatives were rejected in favor of the proposed action.
- Identification of modifications to the proposed action that might lessen adverse effects.
- Discussion of additional costs that such modifications would entail.

7.3 Summary and Conclusion

The sections into which an EIS under NEPA is organized are discussed in section 6.2 of above. With one exception, the subjects outlined in section 7.2 above would be adequately covered by a federal EIS. Care must be taken to include modifications to the proposed action in the alternatives section. The federal EIS would then pass muster under

Executive Order 1974-4. For this reason, the main focus of this Interim Report is on NEPA rather than EPA. The federal allegations are the core of the lawsuit.

Footnotes

1. Michigan Compiled Laws Annotated §691.1202(1).
2. Id §691.1204
3. Id §691.1203
4. Id §691.1206
5. Ray v Mason County Drain Commissioner, 393 Mich 294, 306; 224 NW2d 883 (1975); Michigan State Highway Commission v Vanderkloot, 392 Mich 159, 184; 220 NW2d 416 (1974). See generally J.K. Haynes, Michigan's Environmental Protection Act in Its Sixth Year: Substantive Environmental Law from Citizen Suits, 53 Journal of Urban Law 589, 609-615, 634-645 (1976).

8.0 CASE LAW

A preliminary screening of federal cases construing NEPA turned up six that deal with tree removal:

- West Virginia Division of the Izaak Walton League of American v. Butz, 522 F.2d 945 (4th Cir. 1975).
- Silva v. Romney, 473 F2d 287 (1st Cir. 1973).
- Hill v. Tennessee Valley Authority, 419 F.Supp. 753 (E.D. Tenn. 1976).
- Mount Vernon Preservation Society v. Clements, 415 F.Supp. 741 (D.N.H. 1976).
- Minnesota Public Interest Research Group v. Butz, 401 F.Supp. 1276 (D. Minn. 1975).
- Rankin v. Coleman, 394 F.Supp. 647 (E.D. N.C. 1975).

None are directly in point. Each addressed tree removal as an incidental effect of a proposed action, not as a proposed action whose effects on the environment must be determined. Discussion of these cases is therefore beyond the scope of this Interim Report.

However, in terms of guiding future effects by ASPLUNDH, an in-depth analysis of federal cases will be required. Determining the minimum set of conditions that trigger the EIS requirement will necessitate a detailed review of NEPA cases construing the phrase "significant effect on the human environment." A similar detailed review will be necessary to isolate the factors that courts have held can render an EIS or a negative declaration defective. Only with the benefit of such an analysis can the ASPLUNDH effort be channeled in the directions most likely to get the injunction against DOSHAT lifted.

Our preliminary screening has identified thirty reported cases in the Sixth Circuit construing NEPA. On a nationwide basis, there are some 731 cases. These cases and other relevant legal materials will be examined as a part of the HSRI support of the ASPLUNDH study.

9.0 SUMMARY

Prior sections of this report have reviewed the study approach as it is reflected in DOSHAT's RFP and the ASPLUNDH proposal.

An interim report on Phase I activities prepared by the ASPLUNDH project staff has also been reviewed.

The interim report is responsive to the terms of the contract between ASPLUNDH and DOSHAT. The study approach proposed by ASPLUNDH is also responsive to the RFP issued by DOSHAT. It is not as clear, however, that execution of the study approach, as now described, will meet the general goal of removing the injunction. Thus, we believe there are areas of the study approach that should be clarified.

Note that such clarification should not be merely limited to an identification of what ASPLUNDH should do. DOSHAT must also make several major decisions during the course of the study, and subsequently, to develop an overall approach that will lift the injunction. ASPLUNDH's efforts must be viewed as an element of DOSHAT's efforts and not simply as a separate activity. Thus, planned activity by both DOSHAT and ASPLUNDH require clarification. These are discussed in greater detail in the following sections.

9.1 State Decisions

DOSHAT, in consultation with other appropriate state agencies, must at some time make a decision as to whether the programs to be funded under Section 210 and 230 have a significant effect on the quality of the human environment. Note that this decision must be made by DOSHAT, not ASPLUNDH. The importance of this decision is that it determines whether a negative declaration or an EIS will be prepared by DOSHAT to lift the injunction.

The point at which this decision will be made is not clearly specified in the RFP and was not directly addressed in the ASPLUNDH

proposal. It would appear that a logical point for the decision to occur would be after the completion of the assessment report by ASPLUNDH.

The analyses of past accidents and tree-related accident characteristics may be expected to provide an identification of the type and quantity of trees, as well as the environments in which they exist, that would be the target of highway safety countermeasure programs. Thus, these analyses, if complete, should provide information that would support the determination of significant effect. The documentation of these analyses, which we understand would be contained in the assessment report, could form the basis for the development by DOSHAT of either a negative declaration or EIS, whichever may be appropriate.

If the analyses are to be complete, alternative strategies for dealing with the tree hazard must be identified. Such countermeasures must then be analyzed to assess the impact of each on the human environment. These points are discussed in greater detail in the following sections.

The RFP does not indicate clearly that DOSHAT recognizes that the actions to lift the injunction must be taken by DOSHAT. Information developed by ASPLUNDH can support DOSHAT actions, but ASPLUNDH cannot act independently.

This point should be made explicit and the ways in which ASPLUNDH will support the DOSHAT should be defined with greater clarity than now exists.

The proposed order of tasks to be performed by ASPLUNDH should be reexamined in light of these considerations. For example, it appears that it would be more prudent to develop a manual after the injunction is lifted. This is also discussed in greater detail in the following sections.

9.2 Identification of Highway Safety Actions

Once the risk that trees pose has been identified, an examination of alternative strategies for dealing with the risk is required. An examination of all feasible solutions must be completed. Tree cutting is only one alternative to be examined.

Although the ASPLUNDH proposal and the DOSHAT RFP appear to contemplate the examination of alternatives other than tree cutting, the major emphasis that flows throughout both documents is on cutting or not cutting trees. Such an approach is too limited and would not be legally defensible.

As it appears that a broader examination of alternatives is in fact planned, it is recommended that further project documentation (e.g., progress reports) clearly establish that the full range of feasible countermeasures to deal with the risk to highway safety posed by trees will be examined.

9.3 Analysis of Identified Countermeasures

Once countermeasures to deal with trees as roadside hazards have been identified, each alternative countermeasure must be analyzed to determine the impact on the quality of human environment. Each alternative must be subjected to an appropriate cost-benefit analysis. The alternatives must be compared with each other as well as with the case in which nothing is done.

The study approach does not clearly indicate that ASPLUNDH or DOSHAT understand that this must be done to support either a negative declaration or an EIS.

This point should be clarified and the project tasks examined to ensure that adequate effort is provided to identify and analyze all feasible alternatives that can reduce the risk trees pose as roadside hazards.

The analysis must address not only the environmental impact of the proposed countermeasure but must attempt to identify ways to mitigate adverse environmental and aesthetic impacts.

9.4 Development of a Manual

The RFP and the Proposal contemplate the development of a manual. While this may be a desirable end product of the study, we believe serious consideration should be given as to when is the appropriate time for the development of a manual.

First, a manual is not required, per se, to lift the injunction against DOSHAT. It will be necessary to develop and analyze alternative countermeasures. The documentation of the identification and analysis should be adequate to support DOSHAT decision-making on: whether the proposed activity is significant; whether a negative declaration or EIS should be prepared; and what the content of the supporting materials for either approach should be.

While it may be hoped that the court and the plaintiffs will be receptive to an objective, scientifically supported approach, there is no assurance that the adequacy of any specific approach can be determined in advance. Thus, it appears more appropriate to develop a manual for use by the DOSHAT and county highway departments after the court has accepted a proposed approach and dissolved the injunction.

May we note that any manual will necessarily contain specific information on how to identify trees that constitute a roadside hazard. Dissemination of this information at a time when countermeasure alternatives are restricted could be counterproductive. In fact, it might serve only to further confuse the situation and, at the same time, provide stimulation for civil lawsuits based on the existence of identified roadside hazards.

If the risk-identification process were a clear objective matter, it would clearly be unreasonable to withhold any information about risks and their management that would lead to safer highways. Unfortunately, this is not the case. It is the very inability to clearly demonstrate the risks and benefits to the quality of human environment of roadside trees that has led to the present legal action,

9.5 Recommended Approach

We suggest an ordered approach to be conducted as rapidly as possible.

First, the risk that roadside trees present should be identified as objectively as possible. The nature and extent of the tree as a roadside hazard problem in Michigan should be described. The ASPLUNDH proposed approach will accomplish this task.

Second, alternative countermeasures to reduce the risk of the hazardous trees should be identified. The alternatives should be examined to determine the impact of their implementation on the quality of the human environment. ASPLUNDH can meet this need, and this should be the focus of the assessment task.

Third, a decision should be made as to whether the impact on the human environment is "significant." DOSHAT must make this determination.

Fourth, either a Negative Declaration or EIS should be prepared. This document will form the basis for court review to determine if the injunction should be dissolved. Responsibility for preparation of either document as well as the legal actions necessary to lift the injunction rests on DOSHAT.

Fifth, after acceptable alternatives have been identified, a manual describing how they may be implemented should be prepared for use by state and local highway safety decision-makers. ASPLUNDH can perform this task. However, the manual should not be prepared until after the court has approved the negative declaration or EIS submitted by DOSHAT.

9.6 Public Participation

The ASPLUNDH proposal discusses plans for obtaining public comment during the development of a manual. We believe public comment, in particular the review of a manual by prospective users, is highly likely to increase the usefulness of the final product.

We also note that the opportunity for public comment in various forms must be afforded as either a negative declaration or EIS is prepared.

It appears that public comment is likely to take two forms. First, comment will address the appropriateness of the suggested alternatives to deal with the hazardous tree problem. Second, comment will address the sufficiency, practicability, and usefulness of the manual as a document for effectively implementing an agreed-upon policy or policies.

These comments address quite different sets of issues. Attempting to mix them is likely to be counterproductive and ineffective in terms of cost and time.

We recommend that the issue of public participation be clarified and that more specific plans for public involvement be developed than now appear in the project documentation.