federal register

Monday
September 29, 1980

Part IV

Water Resources Council

Procedures for Evaluation of National Economic Development (NED) Benefits and Costs and Other Social Effects (OSE) in Water Resources Planning (Level C); Final Rule

Reprint with Editorial Corrections
(Includes corrections published at
45 FR p. 73033 on November 4, 1980.)

WATER RESOURCES COUNCIL

18 CFR Parts 713 and 716

Procedures for Evaluation of National Economic Development (NED) Benefits and Costs and Other Social Effects (OSE) in Water Resources Planning (Level C)

AGENCY: U.S. Water Resources Council.

ACTION: Final rule.

SUMMARY: This final rule establishes procedures for the evaluation of National Economic Development (NED) Benefits and Costs for Subpart J—Transportation (Deep-Draft Navigation) and Subpart L—Commercial Fishing and Other Social Effects for Subparts A and E—Structural Failure in Water Resources Planning (Level C).

The purpose is to provide Federal agencies with a set of procedures that ensure that NED benefits and costs and other Social Effects are estimated using the best current techniques and are calculated accurately, consistently, and in compliance with the Principles and Standards and other applicable economic evaluation requirements.

EFFECTIVE DATE: October 29, 1980.

FOR FURTHER INFORMATION CONTACT: Frank H. Thomas, U.S. Water Resources Council, 2120 L Street, N.W. Washington, DC 20037 (202/254–6453).

SUPPLEMENTARY INFORMATION:

1. Purpose

The Water Resources Council is publishing as a final rule four additional subparts, Subpart J—Transportation (Deep-Draft Navigation) and Subpart L—Commercial Fishing of the Procedures for Evaluation of National Economic Development (NED) Benefits and Costs in Water Resources Planning (Level C) and Subpart A—Introduction and Subpart E—Structural Failure, of the Procedures for Evaluation of Other Social Effects (OSE) in Water Resources Planning (Level C).

The purpose is to provide Federal agencies with a set of procedures that ensure NED benefits and costs and Other Social Effects are estimated using the best current techniques and are calculated accurately, consistently, and in compliance with the Principles and Standards and other applicable economic evaluation requirements.

These procedures represent only part of the procedures being prepared or to be prepared by the Water Resources Council at the direction of the President.

This final rule reflects changes made as a result of public comments received on the proposed rule published in the April 14, 1980, **Federal Register** (45 FR 25319–25329 and 25346–25348) and consultations among member agencies of the Water Resources Council.

2. Background

These procedures are being published as final rules concurrently with the Principles and Standards for Level C Water and Related Land Resources Planning (18 CFR Part 711) and Environmental Quality Evaluation Procedures (18 CFR Part 714). Much of the background of these four subparts for Parts 713 and 716 is contained in the discussions preceding Parts 711 and 714 to be published today. In addition, the Procedures for Evaluation of National Economic Development (NED) Benefits and Costs in Water Resources Planning (Level C), Part 713, but not including Subparts J and L, were published as a final rule on December 14, 1979, at 45 FR 72892. The discussion of the development of the NED Procedures contains relevant background information for Subparts J and L.

Development of additional subparts for Other Social Effects (OSE) Evaluation Procedures (18 CFR Part 716) will be initiated in late 1980 and are scheduled to be published in full in 1983.

(a) *Responsibility of the Water Resources Council.* The Water Resources Planning Act was enacted by the Congress in 1965 to provide for the optimum development of the Nation's natural resources through the coordinated planning of water and related land resources. Title I of the Act established the Water Resources Council and outlined its principal duties. One of these duties was to establish, with the approval of the President, Principles, Standards, and Procedures for Federal participants in the preparation of comprehensive regional or river basin plans and for the formulation and evaluation of Federal water and related land resources projects.

(b) *Procedures.* The previous and current efforts to revise the Principles and Standards and to develop procedures is the result of the President's Water Policy Reform Message of June 6, 1978. In that Message to the Congress, the President stated that reforms in agency planning were essential to achieve economic efficiency and environmental quality in water resources management.

On July 12, 1978, the President issued a memorandum directing the Water Resources Council to carry out a thorough evaluation of current agency practices for making benefit and cost calculations and to publish a planning manual that will ensure that benefits and costs are estimated using the best current techniques, and are calculated accurately, consistently, and in compliance with the Principles and Standards and other applicable economic evaluation requirements.

During the preparation of the December 14, 1979, Procedures for the Evaluation of National Economic Development (NED) Benefits and Costs in Water Resources Planning (18 CFR Part 713), procedures for the evaluation of deep-draft navigation and commercial fishing benefits were deferred for further development.

One of the items addressed in the President's Directive of July 12, 1978, was the "consideration and display of engineering uncertainty" associated with Federal water resources projects.

In responding to the President's Directive to consider and display engineering uncertainty, the proposed procedure calls for the estimation and display of the adverse effects of structural failure in the Other Social Effects (OSE) account. Since average annual monetary values are not required in the OSE account, effects of a potential structural failure can be described without regard to the probability of occurrence.

(c) *Development of final rules.* A draft of the four subparts to Parts 713 and 716 was prepared and published along with Parts 711 and 714 in the **Federal Register** on April 14, 1980, with a 60-day period for public review and comment.

The proposed procedures were carefully reappraised by the Council in light of comments received during the 60-day review period. Every comment was reviewed carefully to determine its validity and usefulness. When the Council staff determined that a comment raised a valid issue concerning the measurement or display the procedure was revised to reflect the comment.

3. Required Analyses

These proposed rules have been determined to be significant under Executive Order 12044, and a final regulatory analysis has been prepared. Based on an environmental assessment prepared in accordance with 40 CFR Parts 1500–1508, the Acting Director of the Water Resources Council has determined that these proposed rules will not significantly affect the quality of the human environment and has signed a finding of no significant impact.

Copies of the final regulatory analysis, environmental assessment, and the finding of no significant impact may be obtained from the Director, U.S. Water Resources Council, 2120 L Street, N.W., Washington, D.C. 20037.

4. Comments and Responses

This section summarizes the major ssues raised during the 60-day public review and comment period, April 14–June 13, 1980. Following the summary of each comment is a response describing the resulting change made in the final rule or the rationale for not making the change. Comments were received on a wide variety of issues. Some commenters were supportive of the proposed rules and stated that they should improve Federal planning for water resource projects. Other commentors expressed opposition to the proposed rules and stated that they would unnecessarily hinder and delay needed water resources development.

Procedures for Evaluation of National Economic Development (NED) Benefits and Costs (Part 713).

Subpart J—Transportation (Deep-Draft Navigation)

Comment: "Deep-Draft Navigation" should be defined in § 713.801.

Response: The definition has been expanded in order to clarify the distinction between deep-draft and inland navigation.

Comment: Regional Economic Development (RED) or Other Social Effects (OSE) should take priority rather han NED.

Response: This Part, 713, deals only with evaluation of NED benefits and costs. Plan selection is discussed in Part 711, Principles and Standards, which states that NED and Environmental Quality are two co-equal objectives.

Comment: The objective should be to optimize benefits rather than maximize benefits which assumes unlimited resources.

Response: The maximization of net benefits approach described in the Principles and Standards and in Subpart B, § 713.51 of this Part, 713, shall continue to be used for scaling the level of development for the NED plan.

Comment: Some comments argued that a regional analysis of supply and demand of deep-draft facilities should be made while others contend that the rules should not result in recommending a plan or project for a port other than the one under study.

Response: Unless a regional port analysis is specifically called for in the study these rules will not result in a direct recommendation of a plan at another port but they will result in recommending against the plan for the port under study if an alternative plan at another port is shown to result in lower transportation costs.

Comment: Federal port projects are basically justified by benefit/cost ratios. Given a justification based on maximized net benefits versus maximized benefit/cost ratios, the latter would be preferable, since it allows the economic justifications of small as well as large projects. Maximizing net benefits would tend to favor large projects at large ports.

Response: The theory of benefit/cost states that maximizing net benefits is preferable to maximizing benefit/cost ratios unless there is a binding budget constraint. (See § 713.51 on project scaling).

Comment: The line should be drawn where it is with respect to Federal involvement in our Nation's seaports, as an ample amount presently exists. We feel strongly that any further involvement would be contrary to the overall welfare of our industry.

Response: These rules only apply to Level C Implementation Studies which are expected to result in Federal project authorization, funding, and implementation. Generally, these rules only apply if at least one of the alternative plans is expected to be implemented by a Federal agency.

Comment: The role of ports in national contingencies and national defense should be recognized.

Response: These procedures are to be used only to evaluate NED benefits. The Principles and Standards only recognize economic and environmental quality objectives. (See responses to comments on Part 711).

Comment: With respect to possible expansion of navigation benefits, inclusion of charter boats and regional "savings to shippers" as commercial navigation benefits would be appropriate.

Response: Inclusion of charter boat benefits is allowed if procedures are documented in the planning report and are in accordance with the general measurement standards in paragraph (b) of § 711.61 of the Principles and Standards. Regional savings to shippers should be displayed in the Regional Economic Development (RED) account.

Comment: The Federal Government's benefits from ports include the revenues it receives from projects, which are quite substantial.

Response: Customs receipts, the primary source of such revenues, are transfer payments and do not reflect an increase in the output of goods and services or a reduction in the real resource cost to transport commodities.

Comment: Benefits from (a) prevention and reduction of damages, (b) advance replacement, operation, and maintenance savings, and (c) dredged material utilization were criticized by commenters because no specific procedures for evaluating them were provided, they were not specifically claimed in other benefit categories procedures (e.g., inland navigation), and such benefits are not unique to navigation.

Response: These categories have been removed from this Subpart because they are either not unique to deep-draft navigation or are not direct transportation benefits. However, these benefits are often appropriate and are allowed if procedures are documented in the planning report in accordance with the general measurement standards in paragraph (b) of § 711.61 of the Principles and Standards. Benefits for advance replacement, operation, and maintenance savings cannot be claimed if they have been accounted for in the formulation of costs for a plan.

Comment: Section 713.803 should explicitly state that benefits from deep-draft navigation projects should only be counted when they accrue to U.S. citizens and corporations.

Response: The problem of identifying the incidence of benefits to the Nation is not unique to deep-draft navigation plans, therefore, the response to this comment is included in the Prinicples and Standards' comment section. (See § 711.60(i) for treatment in the rules).

Comment: In § 713.803(a)(1) does "the savings in resources from not having to use a more costly means of transportation" mean the same thing as "the reduction in the value of resources required to transport commodities"? The second phase is unambiguous and should have been used.

Response: Paragraph 713.803(a) has been rewritten to reflect this comment.

Comment: In § 713.803 no provision was made for cases where movement will occur by an alternate mode in the without condition. Also, the statements on rates and cost given in § 713.703(c) were missing from this subpart.

Response: The alternate mode case has been specified in § 713.803(a)(3). The rules now clearly state that rates, rather than costs, shall be used for competitive commodity movements by land as per Section 7(a) of the Department of Transportation Act (Pub. L. 89–670).

Comment: Section 713.805(a)(6) should be revised so that projects which stimulate the use or allow the accommodation of new technology are credited with a valid project benefit.

Response: The wording of this paragraph has been altered to reflect its original intention and this comment.

Comment: The without-project condition stated in § 713.805(a)(1) should only include measures within the discretion of the operating agency.

Response: The inclusion of all reasonable measures, including those outside the discretion of the Federal planning agency, in the without condition will eliminate the possibility of double counting benefits. (See § 711.50(c))

Comment: Since proposed rules involve a great number of projections into the future (e.g., §§ 713.805(a) and 713.807(c)(2)) which are subject to considerable uncertainty, the analyses should be run with projections based on varying assumptions in order to provide a range of results that reflect the uncertainty.

Response: Sections 713.31–.41 of Subpart B, Risk and Uncertainty Analysis—Sensitivity Analysis, are now referenced for additional guidance.

Comment: Section 713.805(a)(1) should include alternate modes of transportation among the nonstructural alternatives.

Response: Alternate modes have been added as a possible situation in § § 713.803(a)(3) and 713.807(i)(1)(iii).

Comment: If the planner expects significant changes in law or public policy, this information should not be excluded from the without-project forecast discussed in § 713.805(a).

Response: The wording of the subsection has been changed to "including any known change in law or public policy."

Comment: In projecting commodity movements involving intermodal movements it should not always be assumed that capacity of interrelated facilities and hinterland transportation be adequate for increased traffic. Studies of such capacity should be made.

Response: The rule assumes that related capacity will be adequate unless there is substantive data to the contrary. Step 1 requires a study of the transportation network functionally related to the plan under study. Thus, sufficient capacity of related facilities is not always assumed.

Comment: Section 713.807(b) is misleading because a proposed harbor deepening related to the economics of general cargo ship size will not just affect a few commodities or types, but a vast array of merchandise.

Response: The subsection has been changed to reflect this comment.

Comment: Section 713.809(a) on multiport analysis is unclear. A systems analysis approach is needed to insure that the number and timing of port projects is optimal.

Response: The procedures now suggest that computer modeling techniques may be needed to perform regional port analyses. However, the introduction to § 713.807 states that the level of effort directed at the study should be appropriate to the problems and opportunities to be addressed.

Comment: We cannot understand the rationale of limiting benefit growth to 20 years. Projects are evaluated on a 50-year life, thus benefits should be evaluated over the same time period.

Response: Benefits may be claimed over the expected life of the plan but other knowledgeable commenters noted that even a 5 or 10 year forecast still borders on guesswork. Estimates of traffic growth should be subjected to sensitivity and uncertainty analysis. Section 713.809(c)(3), growth beyond 20-year period, has been removed.

Subpart L—Commercial Fishing

Comment: One commenter stated that much of the material in this section should be excluded since it is part of environmental quality evaluation.

Response: Several phrases on the environment have been deleted. However, a biological determination of the availability of fish is needed in order to determine the commercial worth of the fishery.

Comment: Several commenters noted several terms that are used inconsistently with other subparts of Part 713.

Response: Several terms, such as "associated costs" and "consumer surplus" have been removed if their meaning conflicted with definitions used elsewhere in this Part.

Comment: Section 713.1017, Problems in application, needs rewriting as it does not seem appropriate for a rule.

Response: This section has been rewritten. Its application is limited by the specification of the with- and without-plan condition in § 713.1005.

Comment: Commenters stated that it was not clear that current prices of harvested species should be used in the analysis.

Response: The rule has been made clear that current prices should be used as stated in § 711.17.

Comment: One commenter argued that significant net changes in value in processing sometimes occur and should be included.

Response: These possible income changes to processers were not included because they would not normally be directly related to a water resources management or development plan.

Procedures for Evaluation of Other Social Effects (OSE) (Part 716)

Subpart E—Structural Failure

Comment: Several commenters recommended that a similar analysis be required to describe the flooding effects of failure of other types of structural measures which are included in the plans when such failure would create serious flooding.

Response: The coverage of this procedure has been expanded to specifically include levees and floodwalls, as well as dams (§ 716.303(c)). In addition, the title of this subpart has been altered to reflect the change in coverage.

Comment: One commenter suggested the use of the concept of monetary value of human life in displaying one aspect of the effects of structural failure.

Response: The use of this controversial concept is fraught with practical difficulities. Also, since the procedure does not estimate the number of lives that would be lost in the event of a structural failure but simply displays the number of persons at risk, an economic valuation of human life is unnecessary.

Comment: Several commenters suggested that the analysis be expanded to include potential adverse effects on environmental resources. They noted that the potential adverse effects on both flora and fauna have social effects as important as income loss, emergency costs, and loss of life.

Response: While not directly addressing the potential adverse effects on environmental quality as defined in the P&S and EQEP, the displays and descriptions required by these procedures should include such effects to the extent of their potential impact on life, health, and safety.

Comment: Several commenters questioned the conceptual similarity between the primary and secondary impact areas described in the procedures and the floodway and flood fringe recognized in the regulations of the National Flood Insurance Program.

Response: Although the Water Resources Council recognizes these areas as at least analogous, the references to the National Flood Insurance Program terminology have been removed to avoid confusion.

Comment: One commenter stated that Tables 716.309–1 and 2 should show the areas subject to inundation without the structure as well as in the event of failure, and other commenters questioned the with- and without-failure specifications for the planning setting and suggested that potential effects be shown for only the existing conditions and land uses.

Response: As stated in § 716.305(b), the without-failure condition corresponds to the with-plan condition which includes the structure. Any areas subject to flooding without the structure

(the without-plan condition) would be shown in the analyis which lead to the election of the structure as one measure for solving the problems or taking advantage of any opportunities. This with-plan condition, referred to as the without-failure condition in this procedure is a forecast of future development and is shown here since it is the basis for estimating potential adverse effects. The pattern of land use, and hence occupancy, of the affected area may change during the project period, and it is important to show how potential adverse effects also might change over time.

Comment: Several commenters stated that the display of the potential adverse effects of structural failure without specification of the probability of failure is a deliberate negative approach which can be viewed only as "anti-dam." Others noted the lack of guidance as to the specification of this probability. Several commenters also added that the only possible use of these procedures would be to deter development below such structures.

Response: As noted in the preamble to the proposed rules (45 FR 25303), the issue of the precise probability of failure of individual structures has not been resolved. However, the Water Resources Council decided that the display of potential adverse effects of structural failure is important to the decisionmaker. When it becomes possible to define an appropriate probability of failure for individual structures, the expected economic losses from structural failure could be incorporated into the NED account and compared against expected economic benefits which the structure was designed to achieve. Until such time, it is important to recognize and consider potential losses from our decisions to construct such measures as dams, levees, and floodwalls; displays of such information to show the potential effects on life, health, and safety are properly placed in the OSE account.

Comment: Several commenters suggested that Subparts B–D be written to include the effects listed in the Principles and Standards (§ 711.64) and that the procedures presented thus far do not address the intent of the OSE account.

Response: The Water Resources Council intends to establish procedures for displaying and assessing all the effects cited in the P&S (§ 711.64) which pertain to the OSE account. Work is scheduled to begin on these procedures in 1982 and should be completed by late 1983. Subpart E, Structural Failure, is being published in advance of the others because much of the work on this procedure was completed during earlier efforts to include it as a NED procedure. Subpart E is not intended to address all the effects on life, health, and safety which may occur due to plan implementation.

Comment: Several commenters stated that more guidance was needed as to the definition of structural failure (§ 716.305(c)) and on the delineation of affected areas (§ 716.307(a)). They noted the relationship between these two sections.

Response: The Water Resources Council agrees that the selected specification of pre-failure conditions, i.e., water level and inflow hydrograph and mode of failure will have an impact on the delineation of the affected areas. However, the Council believes that, since the selection of these parameters should be based on site specific information which includes the topography and hydrology of the area as well as the type of structure, such guidance should be provided by the principally affected departments and agencies. For example, the policies and procedures of the Water and Power Resources Services (WPRS) can be found in the "Interior Guidelines for Preparing Inundation Maps for Areas Downstream from Water and Power Resources Service Dams."

Comment: Several commenters suggested approaches for evaluating systems of structures when the "system" was being proposed or included existing structures. One commenter suggested displaying the single most severe failure of any of the structures in the system, while another commenter suggested that the procedures be applied to existing structures which might impact on the proposed structure. Others suggested that Soil Conservation Service Dams designated Class A or B be exempt from these procedures.

Response: Any proposed structure which meets the criteria in § 716.303(c) should be evaluated under these procedures. If the failure of a proposed structure could cause the failure of another structure downstream, that effect should also be displayed. As far as existing structures are concerned, they should be included in the continuing inspection and evaluation process being conducted by the Federal Emergency Management Agency (FEMA) and other agencies. If the failure of an existing structure might endanger any structure being proposed, the potential effects should be considered in the design of the proposed structure and it must be recognized that the presence of a structure upstream from the proposed structure may affect its probability of failure.

5. Rule Promulgation

Accordingly, the Water Resources Council amends the Code of Federal Regulations, Title 18, Chapter VI by amending Part 713, Procedures for the Evaluation of National Economic Development (NED) Benefits and Costs in Water Resources Planning (Level C) and adding Part 716, Procedures for Evaluation of Other Social Effects (OSE) in Water Resources Planning (Level C).

Approved: September 19, 1980.

Cecil D. Andrus,

Chairman.

PART 713—PROCEDURES FOR EVALUATION OF NATIONAL ECONOMIC DEVELOPMENT (NED) BENEFITS AND COSTS IN WATER RESOURCES PLANNING (LEVEL C)

1. Part 713 is amended to read as follows:

a. Section 713.3 is to be amended by redesignating the existing text of paragraph (b) as paragraph (b)(1) and adding a new paragraph (b)(2) to read as follows:

§ 713.3 Agency activities covered by the manual.

* * * * *

(b)(1) * * *

(2) The discretionary authority for project purposes covered under Subparts J and L applies to those projects not yet authorized or for which preauthorization planning is now complete or will be complete by the end of FY 1981 and to those authorized projects requiring post-authorization planning if such planning is now complete or will be completed by the end of the FY 1981. This discretionary authority extension for Subparts J and L may not be exercised after July 31, 1982.

* * * * *

b. By adding Subparts J and L to read as follows:

Subpart J—NED Benefit Evaluation Procedures: Transportation (Deep-Draft Navigation)

Sec.
713.801 Introduction.
713.803 Conceptual basis.
713.805 Planning setting.
713.807 Evaluation procedures.
713.809 Problems in application.
713.811 Report and display procedures.

Authority: Sec. 103, Pub. L. 89–80; 79 Stat. 245; 42 U.S.C. 1962 a–2 and d–1.

Subpart J—NED Benefit Evaluation Procedures: Transportation (Deep-Draft Navigation)

§ 713.801 Introduction.

This subpart presents the procedure to be followed in measuring the beneficial

contributions to national economic development (NED) associated with the deep-draft navigation features of water resources plans and projects. Deep-draft navigation features include construction of new harbors and channels and improvements of existing or natural harbors on the sea coasts to meet the requirements of ocean-going and Great Lakes shipping. Harbor improvements include such structural projects as the construction of breakwaters and jetties to protect exposed harbors and the provision of entrance channels, interior channels, turning basins, and anchorage areas. Nonstructural deep-draft plans consist of such measures as improved traffic management and pilotage regulations.

§ 713.803 Conceptual basis.

The basic economic benefits from navigation management and development plans are the reduction in the value of resources required to transport commodities and the increase in the value of output for goods and services. Specific transportation savings may result from the use of larger vessels, more efficient use of large vessels, more efficient use of existing vessels, reductions in transit time, lower cargo handling and tug assistance costs, reduced interest and storage costs such as from an extended navigation season, and the use of water transportation rather than an alternative land mode. Principal direct benefits are categorized as follows:

(a) *Cost reduction benefits.* If there is no change in either the origin or destination of a commodity, the benefit is the reduction in costs of transportation of quantities of the commodity that would move with and without the plan resulting from the proposed improvement. Cost reduction benefits apply in the following situations:

(1) *Same commodity, origin-destination, and harbor.* This situation occurs where commodities now move or are expected to move via a given harbor with or without the proposed improvement.

(2) *Same commodity and origin-destination, different harbor.* This situation occurs where commodities that are now moving or are expected to move via alternative harbors without the proposed improvement would, with the proposed plan, be diverted through the subject harbor. Cost reduction benefits from a proposed plan apply to both new and existing harbors and channels.

(3) *Same commodity and origin-destination, different mode.* This situation occurs where commodities that are now moving or are expected to move via alternative land modes without the proposed improvement would, with the proposed plan, be diverted through the subject harbor or channel. Cost reduction benefits from a proposed plan apply to both new and existing harbors and channels. Cost reduction benefits for alternate modes will be computed in accordance with Subpart I (See § 713.703(e)).

(b) *Shift of origin benefits.* If there is a change in the origin of a commodity as a result of a proposed plan and no change in destination, the benefit is the reduction in the total cost of producing and transporting quantities of the commodity that would move with and without the plan.

(c) *Shift of destination benefits.* If there is a change in destination of a commodity as a result of a proposed plan and no change in origin, the benefit is the change in net revenue to the producer for quantities that would move with and without the plan.

(d) *Induced movement benefits.* If a commodity or additional quantities of a commodity are produced and consumed as the result of lowered transportation costs, the benefit is the value of the delivered commodity less production and transportation costs. More precisely, the benefit of each increment of induced production and consumption is the difference between the cost of transportation via the proposed improvement and the maximum cost the shipper would be willing to pay. Where data are available, benefits are to be estimated for various increments of induced movement. In the absence of such data, the expected average transportation costs that could be borne by the induced traffic may be assumed to be half way between the highest and lowest costs at which any part of the induced traffic would move.

§ 713.805 Planning setting.

The planning setting consists of the physical, economic, and policy conditions that influence and are influenced by a proposed plan or project over the planning period. The planning setting is defined in terms of a without-project condition and with-project condition.

(a) *Without-project condition.* The without-project condition is the most likely condition expected to exist over the planning period in the absence of a plan, including any known change in law or public policy. It provides the basis for estimating benefits for alternative with-project conditions. Assumptions specific to the study are to be stated and supported. The basic assumptions for all studies are:

(1) Nonstructural practices within the authority and ability of port agencies, other public agencies, and the transportation industry will be considered to determine changes that are likely to occur. These practices may consist of reasonably implementable changes in management and use of existing vessels and facilities on land and water. Particular attention should be paid to the attitudes of public agencies and private industries toward the impact, economic efficiency, and acceptability of proposed nonstructural practices. Nonstructural alternatives include, but are not limited to, lightering, tug assistance, use of favorable tides, split deliveries, topping-off, alternative modes and ports, and transshipment facilities.

(2) Alternative harbor and channel improvements available to the transportation industry over the planning period include those in place and under construction at the time of the study and those authorized projects that can reasonably be expected to be in place over the planning period.

(3) Authorized operation and maintenance will be assumed to be performed in the harbors and channels over the period of analysis unless clear evidence is available that maintenance of the project is unjustified.

(4) In projecting commodity movements involving intermodal movements, sufficient capacity of the hinterland transportation and related faciltities including port facilities, will be assumed unless there is substantive data to the contrary.

(5) A reasonable attempt should be made to reflect advancing technology affecting the transportation industry over the period of analysis. However, the benefits from improved technology should not be credited to the navigation improvement if the technological change would occur both with and without the plan.

(b) *With-project condition.* (1) The with-project condition is the one expected to exist over the period of analysis if a project is undertaken. The with-project condition is to be described for each alternative plan. Since benefits attributable to each alternative will generally be equal to the difference in the total transportation costs with and without the project, the assumptions stated for the without-project condition must be used to establish the with-project condition for each alternative. The alternatives will include a primarily nonstructural plan presented in a manner comparable to structural plans.

(2) Specific nonstructural alternatives for deep ports are generally within the discretion of the private shipper or

carrier and therefore are part of the without condition.

(3) Nonstructural alternatives that are sometimes within the discretion of a public entity and are therefore subject to change in the with condition include, but are not limited to, traffic management, pilotage regulations, addition of berths, and additions or modifications to terminal facilities.

(c) *Display.* The derivation and selection of with and without project conditions shall be clearly presented in planning reports in accordance with the following guidelines:

(1) The assumptions specific to the study shall be stated.

(2) The significant technical, economic, environmental, social, and other elements of the planning setting to be projected over the period of analysis will be specified. The rationale for selecting these elements will be clearly discussed.

(3) The with and without project conditions will be presented in appropriate tabular and graphic displays with respect to the elements selected as in paragraph (c)(2) of this section and as exemplified by Tables 713.811–1, –4, and –5.

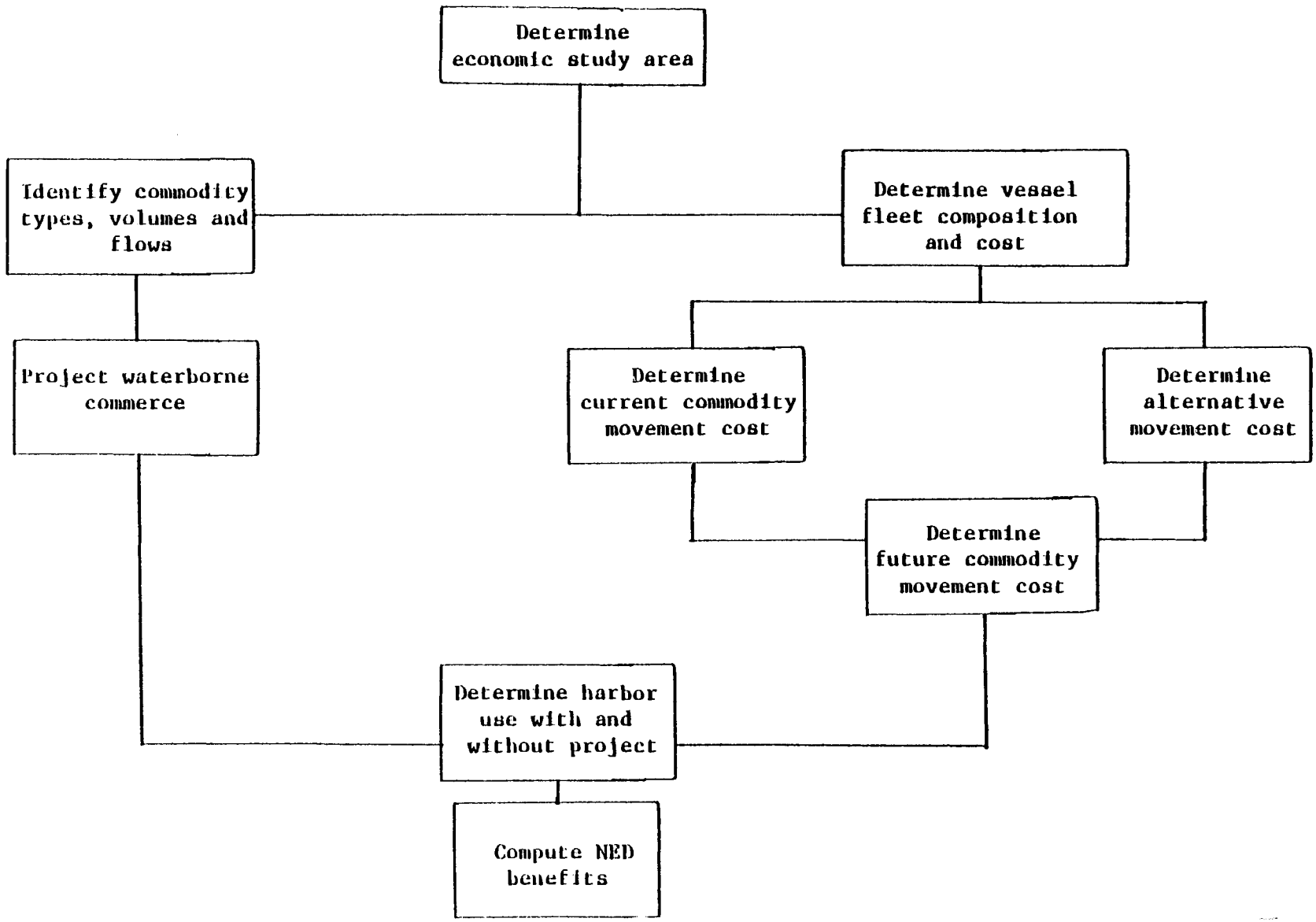
§ 713.807 Evaluation procedures.

The following steps are used to estimate navigation benefits. The level of effort expended on each step depends upon the nature of the proposed improvement, the state-of-the-art for accurately refining the estimate, and the sensitivity of project formulation and evaluation to further refinement. A flowchart of navigation evaluation procedures is shown in Figure 713.807–1.

BILLING CODE 8410-01-M

FIGURE 713.807-1

FLOW CHART OF DEEP-DRAFT
NAVIGATION EVALUATION PROCEDURES



(a) *Step 1—Determine the economic study area.* The economic study area that is tributary to the proposed harbor and channel improvement must be delineated. An assessment must be made of the types and volumes of commodities being shipped into and out of the economic study area and would flow via the improvement under study. This assessment should include foreign origins and destinations. The delineation and description of the trade area requires a study of the transportation network functionally related to the studied improvement in order to determine the area that can be served more economically by the improvement. Diversion from or to adjacent competitive harbors as well as distribution via competing modes of transport must be considered. It should be recognized that the lines of demarcation for the economic study area are not fixed and that the area may expand or contract as a result of innovations or technological advances in transportation and/or production or utilization of a particular commodity. The economic study area is likely to vary for different commodities. Combinations of economic areas will result in a trade area delineated specifically for the improvement under study. However, in many cases, due to the close proximity of adjacent harbors to the proposed improvement, the economic study area may be the same as, or overlap with, such adjacent harbors. Therefore, in the final delineation of the economic study area for a given improvement, there should be adequate discussion of the trade area relative to adjacent ports and any commonality that might exist.

(b) *Step 2—Identify types and volumes of commodity flow.* To estimate the types and volumes of commodities that now move on the existing project or that may be attracted to the proposed improvement, an analysis must be made of commerce that flows into and out of the economic study area. This analysis results in an estimate of gross potential cargo tonnage; the estimate is refined to give an estimate of prospective commerce that may reasonably be expected to use the harbor during the period of analysis in light of existing and prospective conditions. If benefits from economics of ship size are related to proposed deepening of the harbor, the analysis should concentrate on the specific commodities or types of shipments that will be affected. Thus, an historical summary of types and trends of commodity tonnage should be displayed. The considerations generally involved in estimating current volumes of prospective commerce are:

(1) If the plan consists of further improvements of an existing project, statistics on current waterborne commerce will provide the basis for evaluation. For new harbors where there is no existing traffic, or for existing commodity movements that may be susceptible to diversion from adjacent harbors, basic information is collected by means of personal interviews or questionnaires sent to shippers and receivers throughout the economic study area. Secondary commercial data are usually available through State and local public agencies, port records, and transportation carriers. In the case of new movements, attention shall be given to resource and market analyses.

(2) After determining the types and volumes of commodities currently moving or expected to move in the economic study area, it is necessary to obtain origins, destinations, and vessel itineraries in order to analyze the commodity types and volumes that are expected to benefit from the proposed improvement. Commodities that are now moving without the project but that would shift origins or destinations with the project, as well as induced movements, should be segregated for additional analysis (see steps 5 and 6). A study should be made of various alternatives for the existing traffic and of new traffic susceptible to diversion from alternative harbors or other modes of transportation. The objective of such a study is to determine the type and volume of those commodities for which savings could be affected by movement via a proposed navigation improvement and the likelihood that such movements would occur. Savings must be sufficient to divert traffic from established distribution patterns and trade routes. Particular attention should be given to alternative competitive harbors in the case of new movements and to hinterland traffic in determining the likelihood of prospective commerce. Elements to be considered in subjecting the current tonnage to further analysis include, but are not limited to, the following: Size and type of vessel, annual volume of movements, frequency of movements, volume of individual shipments, adequacy of existing harbor and transportation facilities, rail and truck connections, and service considerations. As a general rule, this prospective traffic is the aggregate of a large number of movements (origin-destination pairs) of many commodities; the benefit from the navigation project is the savings on the aggregate of these prospective movements.

(c) *Step 3—Project waterborne commerce.* (1) Projections of the potential use of the harbor under study shall be developed for selected years from the time of the study until the end of the period of analysis. Commodity projections shall be set forth and documented for the commodity groups identified in Step 2. The methods used to make the projections must be defensible and must be coordinated with government entities that have expertise concerning the commodities being considered. It may be necessary to use more than one method, depending on the availability of data. For example, OBERS projection data may be found to be inappropriate, and the method for imports is likely to be different from the method of exports. The analyst shall undertake independent studies to ascertain the most appropriate projection methodologies, basing the final choice on an assessment of the available secondary data. These data will assist in delineating the limits on the estimated changes in waterway traffic and facilitate a better understanding of the problem of projections. Secondary data shall be supplemented with interviews of relevant shippers, carriers, and port officials; opinions of commodity consultants and experts; and historical flow patterns. Commodity projections shall be constructed on the basis of the results of the independent studies. The projection methodologies selected should be described in sufficient detail to permit a review of their technical adequacy.

(2) Sensitivity analysis of several levels of projections is needed for the economic analysis. There may be a high level projection embodying optimistic assumptions and a low level projection based on assumptions of reduced expectations. The high and low projections should bracket the most foreseeable conditions. The third and fourth levels of projections can reflect the with- and without-project conditions based on the most likely estimates of the future. If a proposed plan would not induce commodity growth, one level of projection may be shown for both the with- and without-project conditions. (See § 713.31–41).

(3) The commodities included in the projections should be identified, if possible, according to the following waterborne modes; containerized, liquid bulk, dry bulk, break-bulk, etc. Projection-related variables include estimated value, density, and perishability. The commodities should also be categorized by imports, exports, domestic shipments, domestic receipts,

and internal trade. Projected tonnages by trade areas both with and without the project should be displayed at least for the study year, the base year, fifth year, tenth year, and then by decades over the period of the analysis.

(4) Most projections of waterborne commerce are static estimates of dynamic events; therefore, the projections should be sufficiently current to support the report conclusions.

(d) *Step 4—Determine vessel fleet composition and cost*—(1) *Vessel fleet composition.* A key component in the study of deep-draft harbor improvements is the size and characteristics of the vessels expected to use the project. Data on past trends in vessel size and fleet composition, and anticipated changes in fleet composition over the project life will be presented. Estimates of future fleet will be consistent with domestic and world fleet trends and based on data provided from various sources including, but not limited to, Maritime Administration of the U.S. Department of Commerce, Office of the Chief of Engineers of the U.S. Army Corps of Engineers, trade journals trade associations, shipbuilding companies, and vessel operating companies. The completed study of the foreign and/or U.S. fleet will be translated to the particular area under study in order to determine the composition of the current and future fleet that would utilize the subject harbor both with and without the proposed improvement. Adequate lead time must be provided for anticipated changes in fleet composition for vessels that are currently a small part of the world fleet. Size selection may vary according to trade route, type of commodity, volume of traffic, canal restrictions, foreign port depths, and lengths of haul. It may not be realistic or acceptable to assume that the optimum size vessel is always available for charter; the preferred approach is a fleet concept that includes a range of vessels expected to call with and without the project. It is suggested that tabulations in the report show composition of vessel fleets by deadweight tonnage for each type of vessel beginning with the current fleet and by decades through the period of analysis. Historical records of trips and drafts of vessels calling at the existing project should also be displayed.

(2) *Vessel operating costs.* To estimate transportation costs, deep-draft vessel operating costs must be obtained for various types and classes of foreign and United States flag vessels expected to benefit from using the proposed improvement. Since vessel operating costs are not readily available from ocean carriers or from any central source, such costs will be developed and provided by the Office of the Chief of Engineers on an annual basis for use in plan evaluation. Planners should determine to what extent these estimates of vessel costs must be modified to meet the needs of local conditions. Selected vessel operating costs will be clearly displayed in the report so that reviewers may compare the costs used in the report with those costs developed and maintained by the Corps of Engineers.

(e) *Step 5—Determine current cost of commodity movements.* Transportation costs prevailing at the time of the study will be determined for all tonnage identified in Step 2. Transportation costs shall include the full origin-to-destination cost, including handling, transfer, storage, and other accessory charges. Costs will be constructed for the with- and without-project condition. The without-project condition will be based on costs and conditions prevailing at the time of the study. Transportation costs with a plan will reflect any efficiencies that can be reasonably expected, such as use of larger vessels, increased loads, reduction in transit time and delays (tides), etc. Competitive rates, rather than costs, should be used for competitive movements by land (See §§ 713.803(a)(3), 713.703(e), and 713.717(b)). This concept also applies to Steps 6, 7, and 9 and elsewhere where a competitive movement by land is an alternative.

(f) *Step 6—Determine current cost of alternative movement.* Transportation costs prevailing at the time of the study will be determined for all tonnage identified in Step 2 for alternative movements. The cost shall include the full origin-to-destination cost. Such alternatives include, but are not limited to, competitive harbors, lightering, lightening and topping-off operations, off-shore port facilities, trans-shipment terminals, pipelines, traffic management, pilotage regulations, and other modes of transportation. Competitive harbors with existing terminal facilities and sufficient capacities shall be considered as possible alternatives for traffic originating in or destined to the hinterland beyond the confines of the harbor and for all other new commerce as well as all diverted traffic. Commerce with final origins and destinations within the confines of the study harbor is normally noncompetitive with other harbors and need not be considered for diversion unless unusual circumstances exist. Diversion of established commerce now moving through the existing harbor to or from the hinterland is dependent on many different cost and service factors; therefore, to assure that all of these factors are included in the analysis, interviews and consultations with shippers and receivers should be conducted prior to any determination concerning diversion of traffic. Factors to be considered in the analysis will include, but are not limited to, transportation costs for both inland and ocean movement, handling and transfer charges, available service and schedules, carrier connections, institutional arrangements, and other related factors. In addition, for commodities with shifts in origins and destinations, as well as for new movements, data must be collected on the value of the delivered product as well as production and transportation costs for shipments with the project. The specific data and method of collection will vary with the specific situation and the nature of the benefit.

(g) *Step 7—Determine future cost of commodity movements.* Relevant shipping costs during the period of analysis and future changes in the fleet composition, port delays, and port capacity must be estimated under the with- and without-project conditions for each alternative improvement under study. Future transportation costs will be based on the vessel operating cost prevailing at the time of the study. Additional analysis may be necessary to obtain data on the relationship between total volume and delay patterns and port capacity for the with- and without-project conditions for each alternative. Changes in costs due to the project should be identified and separated from changes due to other factors.

(h) *Step 8—Determine use of harbor and channel with and without project.* At this point, the analyst will have a list of commodities that potentially might use the proposed improvement; potential tonnages of each commodity or commodity group; transportation costs for alternatives and for the proposed improvement; and present and future fleet composition with and without the proposed plan. To estimate the proposed harbor use over time, both with and without the project, the analyst must compare costs, other than project costs, for movements via the proposed plan and via each alternative. Any changes in the cost functions and demand schedules in the current and future without condition and the current and future with condition must be analyzed. Conceptually, this step should include all factors that might influence a demand schedule. The analyst must

determine the impact of uncertainty in the use of the harbor, the level of service provided; and existing and future inventories of vessels. Adequate lead time for adoption must be provided for vessels that are currently a small percentage of the world fleet.

(i) *Step 9—Compute NED benefits.* Once the tonnage moving with and without a plan is known and the cost via the proposed harbor and via each alternative are known, total NED navigation benefits will be computed using the applicable discount rate.

(1) *Cost reduction benefits.* (i) Traffic with same commodity, origin-destination, and harbor. For traffic now using the harbor or expected to use it, in the future, both with and without the proposed project, including future growth, the transportation benefit is the difference between current and future transportation cost for the movement by the existing project (without-project condition) and the cost with the proposed improvement (with-project condition).

(ii) Traffic with same origin-destination; different harbor. For commerce shifted to the proposed improvement from other harbors or alternatives, including future growth, the benefit is any reduction in current and future costs when movement via the proposed improvement is compared with each alternative.

(iii) Traffic with same commodity and origin-destination, different mode. For commerce shifted to the proposed improvement from other modes, the benefit is any reduction in current and future costs to the producer or shipper. (See § 713.803(a)(3)) when movement via the proposed improvement is compared with each alternative.)

(2) *Shift of origin benefits.* For commerce which originates at a new point because of the proposed improvement, the benefit is the difference between the total cost of producing and transporting the commodity to its destination with and without the plan.

(3) *Shift of destination benefits.* For commerce which is destined to a new point because of the proposed improvement, the benefit is the difference in net revenues to producers with and without the plan.

(4) *Induced movement benefits.* If a commodity or additional quantities of a commodity are produced and consumed as a result of a plan the benefit for each increment of induced production and consumption is the difference between the cost of transportation via the proposed improvement and the maximum cost the shipper would be willing to pay. To determine the maximum cost the shipper would be willing to pay, estimate how much of a price increase would it take to induce the producer to increase its output by each increment or how much of price decrease would it take to induce consumers to increase their consumption by each increment. In the absence of data suitable for incremental analysis the expected average transportation costs that could be borne by the induced traffic may be assumed to be half way between the highest and lowest costs at which any part of the induced traffic would move.

§ 713.809 Problems in application.

(a) *Multiport analysis.* The procedure in this manual calls for a systematic determination of alternative routing possibilities, regional port analyses, and intermodal networks which may require the use of computer modeling techniques. The data needed for such a determination are often difficult to obtain; therefore, interviews with knowledgeable experts will often have to be relied upon.

(b) *Ultimate origins and destinations.* The procedure calls for an analysis of full origin-destination costs to determine routings as well as to measure benefits in some instances. Problems will arise in determining the ultimate origins and destinations of commodities and in determining costs. Therefore, the analyst should attempt to shorten the analysis to the most relevant cost items.

(c) *Sensitivity analysis.* Risk and uncertainty must be addressed in the analysis (see Subpart B, § 713.31–41). The uncertainty in the estimates of critical variables should be dealt with. Those variables specifically related to deep-draft navigation may be traffic projections, especially foreign shipments, fleet composition, and cost of commodity movements.

(d) *Data sources.* The following discussion summarizes key data sources including problems in their use:

(1) *Interviews.* Data not available from secondary sources shall be collected by personal interviews. (Only interview forms approved by the Office of Management and Budget shall be used.) The questionnaire used and a summary of responses shall be compiled and displayed in the project report in such a way that individual sources are not disclosed.

(2) *Publications.* Data concerning commerce in foreign trade, United States coastal shipping, and activities of U.S. flag vessels in foreign trade, together with limited data concerning the world fleet, are readily available from a number of Federal agencies, trade journals, and port publications. However, data concerning the foreign-flag fleet are often not regularly available in up-to-date form from sources in the United States. Principal governmental sources are the U.S. Army Corps of Engineers, the U.S. Department of Commerce, Maritime Administration and Bureau of the Census. For more detailed background on world fleet trends, shipping outlooks, and vessel characteristics, available foreign literature must be carefully analyzed. A few of the available foreign ship registers and literature are listed below to illustrate the type of data available from foreign sources.

Lloyd's Register of Shipping, London (Annual).
The Tanker Register, H. B. Clarkson (Annual).
The Bulk Carrier Register, H. B. Clarkson (Annual).
Shipping Statistics and Economics (and special reports), H. P. Drewry, Ltd., London (Monthly).
Fairplay International Shipping Journal (and special reports), London (Monthly).

§ 713.811 Report and display procedures.

Clear presentation of study results, as well as documentation of assumptions and steps in the analysis, will facilitate review of the report. The accompanying tables are suggested but are not intended to limit the number of displays, nor is each of the illustrated displays required in every report. The number of displays will depend on the complexity of the study.

BILLING CODE 8410-01-M

Table 713.811-1- PROJECTED VESSEL FLEET SIZE DISTRIBUTION[a/] _____ FT CHANNEL PLAN

(By percentage)

Vessel size (D.W.T.)	Percentage of tonnage					
	Current[b/]	Base year[c/]	Year 5	Year 10	Year 20	Year- Year End
			With Project			
Total						
			Without Project			
Total						

a/ Size distribution projections should be made separately, as follows:

1. For foreign and U.S. flag fleets.
2. For vessel types.
3. For trade routes (where distances, constrictions or other circumstances indicated varying sized vessel fleets).
4. For year project plan.

b/ Study year

c/ First year of project.

Table 713.811-2.-TYPICAL VESSEL DIMENSION OF VESSEL FLEET BY TYPE AND DEADWEIGHT TONNAGE

Type	Vessel Characteristics			
	DWT	Length	Beam	Draft, Loaded

Table 713.811-3.- COMPUTATION OF ANNUAL TRANSPORTATION COSTS a/ FOR _____

D.W.T. Group (000)	foot channel: Tonnage carried Percent	foot channel: Tonnage carried Volume (000)	foot channel: Unit Cost	foot channel: Total Cost (000)	foot channel: Tonnage carried Percent	foot channel: Tonnage carried Volume (000)	foot channel: Unit Cost	foot channel: Total Cost (000)	foot channel: Tonnage carried Percent	foot channel: Tonnage carried Volume (000)	foot channel: Unit Cost	foot channel: Total Cost (000)
TOTAL												

a/ Similar computations should be included for major commodity movements.

Table 713.811-4.-PROJECTED COMMERCE FOR DEEP-DRAFT TRAFFIC

COMMODITY[a]	CURRENT[b]	BASE YEAR[c]	YEAR 5	YEAR 10	YEAR 20	YEAR --	YEAR --	YEAR END	AVERAGE ANNUAL
With Project									
Without Project									

a/ Study year.
b/ First year of project.
c/ Commodities should be categorized by trade area.

Table 713.811-5.-PROJECTED VESSEL TRIPS FOR DEEP-DRAFT TRAFFIC

VESSEL TYPE[a]	CURRENT[b]	BASE YEAR[c]	YEAR 5	YEAR 10	YEAR 20	YEAR --	YEAR --	YEAR END	AVERAGE ANNUAL
With Project									
Without Project									

a/ Show projected vessel trips by type of vessel and total for project life.
b/ Study year.
c/ First year of project.

BILLING CODE 8410-01-C

Subpart L—NED Benefit Evaluation Procedures: Commercial Fishing

Sec.
713.1001 Introduction.
713.1003 Conceptual basis.
713.1005 Planning setting.
713.1007 Evaluation procedure: General.
713.1009 Evaluation procedure: Identify the affected areas.
713.1011 Evaluation procedure: Determine the without-project condition.
713.1013 Evaluation procedure: Determine conditions that would exist with an alternative plan.
713.1015 Evaluation procedure: Estimate NED benefits.
713.1017 Problems in application.
713.1019 Data sources.
713.1021 Report and display procedures.

Authority: Sec. 103, Pub. L. 89–80; 79 Stat. 245; 42 U.S.C. 1962 a–2 and d–1.

Subpart L—NED Benefit Evaluation Procedures: Commercial Fishing

§ 713.1001 Introduction.

This subpart provides procedural guidance for the evaluation of the national economic development (NED) benefits of water and related land resources plans to commercial fishing. These procedures shall apply to marine, estuarine, and fresh water commercial fisheries for both fish and shellfish.

§ 713.1003 Conceptual basis.

(a) The NED benefits are measured as the increase in net income to fish harvesters as a result of a plan.

(b) When the projected change in catch of fish is too small to affect market price, the (seasonally-weighted) current price will be used to value the with and without plan harvest. On the other hand, if additional output of fish is expected to affect market prices, the gross value of the harvest can be estimated using a price midway between that expected with and without the plan.

(c) The gross value minus the costs to harvesters will provide an estimate of net income.

(d) Harvest costs expected to vary between the with and without plan condition should be analyzed.

(1) These may include the cost of equipment owernship and operation; harvesting materials; labor and management; maintenance operation and replacement; and interest payments. If costs associated with plan measures (e.g., dock costs, harbor facilities, etc.), are included in the plan cost analysis they shall be excluded from harvest costs.

(2) Purchased input shall be valued at current market prices. All labor, whether operator, hired or family shall be valued at prevailing labor rates. Management shall be valued at 10 percent of variable harvest costs and interest at plan discount rates.

(3) Current production costs shall be projected to the selected time periods; any changes are to reflect only changes in catch or physical conditions.

§ 713.1005 Planning setting.

(a) *Without-plan condition.* The without-plan condition is the most likely condition expected to exist in the future in the absence of any of the alternative plans being considered. Several specific elements are to be included in the without-plan condition:

(1) *Habitat condition.* The biological resources consist of stocks of living resources subject to commercial fishing, any living resources ecologically related to the stocks, the migration pattern and reproduction rate of the stocks, and any physical characteristic of the environment essential to these living resources.

(2) *The institutional setting.* Existing local, State, regional, national, and international policies and regulations governing the harvest and sale of the affected species, including the level of access to the fishery shall be included in the without-plan condition. Expected revisions of such policies and rules shall also be included unless policy or rule revision is one of the alternative plans being studied.

(3) *Nonstructural measures.* The effects of implementing all reasonably expected nonstructural methods, including those required or encouraged by Federal, State, and local policies, shall be included. Nonstructural measures may include, but are not limited to, prevention of pollution to the marine environment or relocation of shore facilities.

(4) *Market conditions.* Information on the without plan situation is to include the projected number of harvesters, the percentage of their time and capacity utilized, harvest technology, the markets in which they buy inputs, fishing efforts, probable harvests, harbors and channels utilized, ex-vessel price of harvests, and probable processing and distribution facilities. See § 713.1003(c). Projected market conditions are to be consistent with the projected biological and institutional conditions.

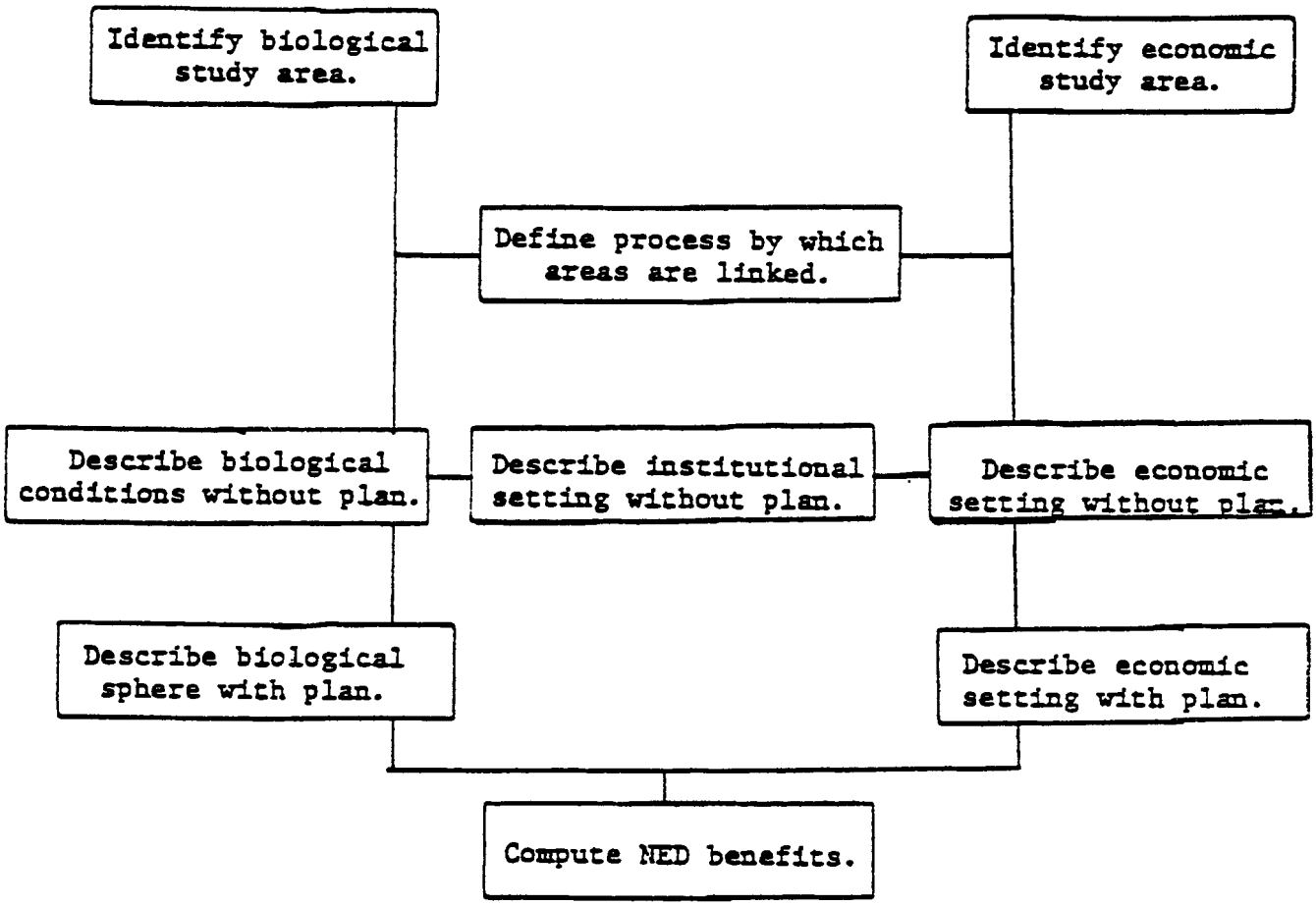
(b) *With-plan condition.* The with-plan condition is the most likely condition expected to exist in the future with a given alternative. The elements and assumptions included in the without-plan condition shall also be included in the with-plan condition. Special attention should be given to tracing economic conditions related to positive or negative biological impacts of the proposed plan.

§ 713.1007 Evaluation procedure: General.

The steps in §§ 713.1009–713.1015 are necessary to estimate NED benefits to commercial fishing from water or related land resources plans. The level of effort to be expended on each step depends on the nature of the proposed project, the reliability of data, and the degree of refinement needed for plan formulation and evaluation. (See Figure 713.1007–1.)

BILLING CODE 8410–01–M

FIGURE 713.1007-1 COMMERCIAL FISHING



BILLING CODE 8410-01-C

§ 713.1009 Evaluation procedure: Identify the affected areas.

(a) Identify the biological study area which is the ecosystem within which the proposed alternative plans will have impacts on habitat or fishery conditions.

(b) Identify the economic study area which is the economic setting within which the proposed alternative plans will have impacts on the inputs or outputs of the harvesters.

(c) Describe the process by which the biological and economic study areas are linked for those management and development plans that directly or indirectly affect both areas.

§ 713.1011 Evaluation procedure: Determine the without-project condition.

(a) Estimate the harvest of the relevant species in physical terms if a plan is not undertaken. Include a detailed description of the stock, including catch per unit of effort and whether or not the estimated harvest is at, or near, the range of absolute decreasing returns. (See § 713.1005(a)(1).)

(b) Describe the most likely set of institutional conditions that would exist without a project. (See § 713.1005(a)(2).)

(c) Estimate the total cost of harvesting the relevant species in each of the relevant years if a plan is not undertaken. Determine the current weighted ex-vessel price for each relevant species corrected for seasonal fluctuations. (See § 713.1005(a)(4).)

§ 713.1013 Evaluation procedure: Determine conditions that would exist with an alternative plan.

(a) Estimate the harvest of the exploited stocks in each of the relevant years if an alternative plan is undertaken.

(b) Estimate the seasonally-corrected current price of the harvested species and the total cost of harvesting in each of the relevant years if a plan is undertaken. This will require an understanding of the economics of entry and exit for the fish harvesting industry, as well as the effects of a change in harvest rates on the catch per unit of effort.

§ 713.1015 Evaluation procedure: Estimate NED benefits.

(a) Calculate the ex-vessel value of the harvest (output) for each alternative and for the without plan condition.

(b) Determine the harvesting costs, including non-project operation, maintenance, and replacement, for the level of catch (output) identified by each alternative plan and the without plan condition.

(c) Compute the NED benefit from an alternative plan as the value of the change in harvest less the change in harvesting cost from the without plan condition to the with plan condition.

§ 713.1017 Problems in application.

(a) As the harvest rate of living stocks goes up, it is possible to reach a range in which the increases in annual harvesting efforts will actually produce a long-run decrease in the quantities harvested. In the absence of effective limits on harvesting, it is possible that commercial fishing will operate in this range of absolute decreasing returns. This is possible because individual operators will compare only their revenues and costs; they will not be concerned with the absolute productivity of the stock. This can be very important in determining NED benefits because what may appear to be a positive effect (something that encourages an increase in harvesting effort) may ultimately result in negative benefits (decreased total harvest and increased total cost per unit of harvest).

(b) The fact that fish are common, as opposed to private, property creates special problems in measuring NED benefits. Unless entry is restricted, excessive quantities of capital and labor will enter a fishery; that is, entry will continue until the "economic rent" from the living stock is dissipated. This excess entry will result in economic inefficiency in the utilization of fishery resources because the value of the resulting extra output will be less than the social opportunity cost of the entry. Some economic benefits may be realized but the total benefits will not be as large as they might be if entry were restricted. Although evaluation of this potential has been limited by the specification of the with- and without-plan condition in § 713.1005 three specific points are worthy of separate mention.

(1) *Transitory benefits.* Because the benefits from harvesting open-access fisheries tend to be dissipated through entry of excess capital and labor, some NED benefits from commercial fishing can be transitory. It will therefore be necessary to determine how many years these benefits will last and in what amounts for each year.

(2) *Industry capacity.* The excess capacity that will normally exist will make it difficult to obtain a proper estimate of changes in cost associated with changes in harvests. In some instances, idle boats will be available and the only additional costs will be operating costs. In other instances, vessels that are already operating will be able to harvest the extra catch without significant change in variable costs.

(3) *Regulation.* Because of the tendency of open-access fisheries to attract excess capital and labor which can deplete the stocks, most commercial fishing operations are currently subject to government regulations which stipulate the manner, time, place, etc., in which harvesting may take place. These stipulations usually result in harvesting activity that is not as economically efficient as it might be. These stipulations will therefore affect the size of NED benefits.

§ 713.1019 Data sources.

(a) Data for annual harvests, demand, harvesting and processing costs, ex-vessel and other prices, physical production, biological modeling, models or information about management policies and regulations, and survey results are available from several Federal, State, and local government agencies, universities (especially those with sea grant programs), private organizations (such as industry groups, fishermen unions, or cooperatives), regional fisheries management councils, and international commissions or organizations.

(b) Initial contacts should be made with the National Marine Fisheries Service Regional Office, United States Coast Guard, State resource agencies having management or other responsibility for the fishery or resource in question, and all local or regional fishery councils, commissions, or institutes that have responsibility or jurisdiction or that are functioning within the area affected by the project. Fisheries dynamics biologists at universities or at National Marine Fisheries Service regional laboratories will be the best source of information on biological effects and their repercussion in the market.

§ 713.1021 Report and display procedures.

(a) Clear presentation of study results, as well as documentation of key input data assumptions and steps in the analysis, will facilitate review of the report. Table 713.1021–1 is a suggested method of data presentation. Its use will provide the reader with information on physical changes in output as well as value.

(b) Because the benefits are broken down into annual flows, it will be possible to determine if and when the open access nature of commercial fishing will lead to a dissipation of any NED benefits provided by the project.

Table 713.1021-1

Years	1	2	n
(1) Change in output			
(2) Value of change in output (line 1 times expected price)			
(3) Change in costs			
(4) NED benefit (line 2 minus line 3)			

2. A new Part 716 is added to read as follows:

PART 716—PROCEDURES FOR EVALUATION OF OTHER SOCIAL EFFECTS (OSE) IN WATER RESOURCES PLANNING (LEVEL C)

Subpart A—Introduction

Sec.
716.1 Authority.
716.3 Agency activities covered.
716.5 Application.
716.7 Modification.

Subpart B-D—[Reserved].

Subpart E—OSE Evaluation Procedures: Structural Failure

716.301 Introduction.
716.303 Conceptual basis.
716.305 Planning setting.
716.307 Evaluation procedures.
716.309 Report and display procedures.

Authority: Secs. 103, 402, Pub. L. 89–80; 79 Stat. 245 (42 U.S.C. 1962 a–2 and d–1).

Subpart A—Introduction

§ 716.1 Authority.

On July 12, 1978, President Carter directed the Water Resources Council (WRC) and its Member agencies to "carry out a thorough evaluation of current agency practices for making benefit and cost calculations" and "publish a planning manual that will ensure that benefits and costs are estimated using the best current techniques and calculated accurately, consistently and in compliance with the Principles and Standards and other applicable economic evaluation requirements." This Part of the procedures is specifically intended to supplement and implement the Standards for the evaluation and display of Other Social Effects (OSE) in water resources planning (Level C) established by the Water Resources Council pursuant to Section 103 of the Water Resources Planning Act (Pub. L. 89–80; 42 U.S.C. 1962a–2).

§ 716.3 Agency activities covered.

(a) These procedures shall be used for the evaluation and display of Other Social Effects of Federal and federally-assisted water resources plans covered by the Principles and Standards (P&S) (18 CFR 711.1(b)). They apply to all Level C planning studies subject to the P&S including:

(1) Plans that may be approved by agency administrators;

(2) Plans requiring congressional authorization; and

(3) Plans authorized on or after October 25, 1973, which are not yet being implemented or under construction and for which agencies currently prepare postauthorization planning documents. Postauthorization studies for plans authorized prior to October 25, 1973, are exempt from complying with these procedures except:

(i) Where the Secretary of a department or head of an independent agency requires compliance; or

(ii) Where the plan is resubmitted to Congress for authorization.

(b) For the purposes of these procedures a plan is to be considered as "being implemented or under construction" when funds have been appropriated by the Congress or budgeted by the President for land acquisition or physical construction activity. Plans for which postauthorization planning documents are not required are to be considered as being implemented or under construction when authorized for implementation or construction.

(c) The secretaries of departments and the heads of independent agencies have the discretion to review those plans not being implemented or under construction and may, under their discretionary authority, wholly exempt the studies for a plan from complying with these procedures, or partially exempt such studies and direct expedited additional planning to meet specific procedures. This discretionary authority may not be exercised after July 31, 1982. When this discretionary authority is exercised, the decision and reasons for it are to be recorded in the appropriate planning document.

(1) This discretionary authority applies to those studies for plans not yet authorized for which preauthorization planning is now complete or will be complete by the end of Fiscal Year 1981, and to studies for those authorized plans requiring postauthorization planning if such studies are now complete or will be complete by the end of Fiscal Year 1981. For purposes of these procedures, preauthorization or postauthorization studies shall be considered complete when the appropriate planning documents have been approved by the responsible agency's field office.

(2) Discretionary authority to exempt studies from these procedures is provided to prevent undue loss of time or expenditure of public funds in those cases in which the Secretary of a Department or head of an independent agency judges additional planning to be unnecessary.

§ 716.5 Application.

The administrator of each Federal or federally-assisted program covered by the P&S (18 CFR 711.1(b)) is responsible for applying these procedures. The responsible agency administrator is to adopt these procedures within 30 days of their publication as a final rule in the Federal Register.

§ 716.7 Modification.

The Water Resources Council will revise these and subsequently adopted procedures as WRC determines that experience, research, and planning conditions dictate.

Subparts B-D—[Reserved]

Subpart E—OSE Evaluation Procedures: Structural Failure

§ 716.301 Introduction

This subpart presents the procedures to be followed for measuring and displaying the potential adverse contributions to Other Social Effects (OSE) associated with the possible failure of dams, levees, and floodwalls.

§ 716.303 Conceptual basis.

(a) *General.* The *Federal Guidelines for Dam Safety* prepared by the Ad Hoc Interagency Committee on Dam Safety of the Federal Coordinating Council for Science, Engineering and Technology, June 25, 1979, should help to minimize the risk of future dam failures, but the possibility of structural failure still exists. Current economic analyses of alternative water resource plans do not explicitly reflect the expected social costs associated with low-probability disasters resulting from structural failures. The state-of-the-art of risk-based analysis does not permit precise specification of the probability of failure of individual structures. Nevertheless, potential losses can be considered in the evaluation of alternative plans.

(b) *Types of adverse effects.* The adverse effects of structural failure include physical damage or loss; income loss; emergency costs; loss of future benefits; loss of life; and reduced public health and safety. Each activity affected by a structural failure experiences losses in one or more of these categories. See § 713.503 for a description of physical damages, income losses, and emergency costs.

(c) *Structures covered.* The procedures apply to:

(1) A dam, including appurtenant works, that impounds or diverts water and that—

(i) Is 25 feet or more in height from the natural bed of the stream or watercourse measured at the downstream toe of the barrier or from the lowest elevation of the outside limit of the barrier if it is not across a stream, channel, or watercourse, to the maximum water elevation; or

(ii) Has an impounding capacity of 50 acre feet or more at maximum water storage elevation.

(2) A levee or floodwall that—

(i) Is 25 feet or more in height from the lowest elevation of the outside limit of the barrier; or

(ii) Is designed to provide protection for residential or commercial properties.

(d) The procedures apply to both dams with permanent reservoirs and detention dams used for temporary storage of floodwaters. The impounding capacity at maximum water elevation includes storage of flood-waters above the normal full storage elevation.

(e) These procedures do not apply to any structure 6 feet or less in height, regardless of storage capacity, or regardless of height to barriers with an impounding capacity at maximum water storage elevation of 15 acre feet or less. These lower size limitations should be waived if a potentially significant downstream hazard exists.

§ 716.305 Planning setting.

(a) *General.* The estimation of adverse effects that would be incurred in the event of failure of a structure shall be based on a careful analysis of the with- and without-failure conditions.

(b) *Without-failure condition.* The without-failure condition is the land use and related conditions likely to occur in the absence of structural failure. The without-failure condition corresponds closely to the condition expected to exist in the future with a given alternative plan that includes the structure being analyzed.

(c) *With-failure condition.* The with-failure condition is the most likely condition expected to exist in the future with a given structural failure. Structural failure is defined as a catastrophic failure characterized by the sudden, rapid, and uncontrolled release of water. It is recognized that there can be lesser degrees of failure and that any malfunction or abnormality outside the design assumptions and parameters that adversely affect a structure's primary function is properly considered a failure. Such lesser degrees of failure can lead to or heighten the risk of a catastrophic failure, but are normally amenable to corrective action.

§ 716.307 Evaluation procedures.

Four steps shall be completed in estimating and displaying the potential adverse effects of structural failure. The steps are designed primarily to relate land use to the hazard from an OSE perspective. The level of effort expended on each step depends on the sensitivity of alternative plan formulation to further refinement. Emphasis should be on evaluating the overall reasonableness of local land use plans with respect to OBERS and other larger area data, and in recognition of the hazard of structural failure.

(a) *Step 1—Delineate affected area.* The area affected consists of all areas likely to be inundated with floodwaters or affected indirectly as a result of structural failure. Maps delineating the affected area and indicating land uses and significant development or improvements shall be prepared. To assist in the evaluation of hazard potential, areas delineated on inundation maps shall be classified according to the degree of occupancy and potential for hazard.

(1) The *primary impact area* is the area in the direct path of the initial wave.

(2) The *secondary impact area* is the area expected to be flooded primarily by rising water, where less serious damage is expected.

(b) *Step 2—Determine characteristics of affected areas.* The existing and projected characteristics of the affected area shall be described. The categories of characteristics used to determine benefits from reduction of urban and rural flood damages (§§ 713.511 and 713.207 through 713.219) shall be used as a guide.

(c) *Step 3—Project activities and land use in affected areas.* The projections of activities and land use shall be consistent with the projections used to estimate benefits for the structure. The analyst must recognize that the areas subject to flooding in the event of structural failure are likely to be larger than those subject to recurring flooding.

(d) *Step 4—Collect land market value and related data.* The land market value and related data utilized for the affected areas shall be consistent with the data used to estimate benefits for the alternative plan containing the structure. The procedures in § 713.525 shall be used as a guide.

§ 716.309 Report and display procedures.

The report shall include enough data to enable the reviewer to follow the key steps in the analysis.

(a) *Required displays and information.* The following shall be displayed:

(1) The inundation map for the flood event resulting from structural failure, including the delineation of the primary and secondary impact areas.

(2) The number of people and towns affected; the number and value of properties and acres by land-use type; description of essential services (water, power, fire protection, and sanitary services, etc.) and distance to unaffected essential services; anticipated warning time; and flood depths, velocity, duration, debris content, etc., and other indicators pertinent to catastrophic flooding.

(b) *Summary tables.* Summary Tables 716.309–1 and 716.309–2 are suggested presentations for all reports that include a structure as a measure of achieving benefits. Other summary tables may be necessary and pertinent. Other data pertinent to the evaluation shall also be presented and appropriately displayed.

Table 716.309–1.—*Number of Persons Subject to Hazard*

	Number						
Time period [1]	P0	P10	P20	P30	P40	P50	P100
Primary impact area							
Secondary impact area							
Total							

[1] The designation P10 and P20 identify the tenth and twentieth year, respectively, of project life.

Table 716.309-2.—*Number of Acres (or Properties) Subject to Inundation*[1]

	Acres						
Time period[2]	P0	P10	P20	P30	P40	P50	P100
PROPERTY TYPE							
Residential:							
a. (Subclassification of residential units)							
b.							
c.							
Commercial							
Industrial							
Agricultural:							
a. (Subclassification of agricultural uses)							
b.							
c.							
Public							
Semipublic							
Transportation							

[1] Tables should be displayed for the primary and secondary impact areas. Similar tables reflecting the value of these properties should also be displayed.

[2] The designations P10 and P20 identify the tenth and twentieth year, respectively, of project life.

[FR Doc. 80-29718 Filed 9-26-80; 8:45 am]

BILLING CODE 8410-01-M