

POLICIES, STANDARDS, AND PROCEDURES IN
THE FORMULATION, EVALUATION, AND REVIEW
OF PLANS FOR USE AND DEVELOPMENT OF
WATER AND RELATED LAND RESOURCES

PREPARED UNDER THE DIRECTION OF
THE PRESIDENT'S WATER RESOURCES
COUNCIL

TOGETHER WITH A STATEMENT BY
Senator CLINTON P. ANDERSON
OF NEW MEXICO

Including
Supplement No. 1
Evaluation Standards for Primary
Recreation Benefits
June 4, 1964



MAY 29, 1962.—Ordered to be printed

U.S. GOVERNMENT PRINTING OFFICE
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S. Res. 342

IN THE SENATE OF THE UNITED STATES,
May 29, 1962.

Resolved, That there be printed as a Senate document an agreement of the Secretary of the Army, the Secretary of Agriculture, the Secretary of Health, Education, and Welfare, and the Secretary of the Interior entitled "Policies, Standards, and Procedures in the Formulation, Evaluation, and Review of Plans for Use and Development of Water and Related Land Resources," together with correspondence of the Secretary of the Interior and the President of the United States in regard to the matter, and the explanatory remarks of Senator Clinton P. Anderson, of New Mexico, on the floor of the Senate May 17, 1962, and that there be printed twenty-five hundred additional copies for the use of the Committee on Interior and Insular Affairs.

Attest:

FELTON M. JOHNSTON, *Secretary.*

STATEMENT BY SENATOR CLINTON P. ANDERSON OF NEW MEXICO ON THE FLOOR OF THE SENATE ON MAY 17, 1962

Mr. ANDERSON. Mr. President, on May 15, 1962, President Kennedy approved for application by the agencies of the executive branch, including the Bureau of the Budget, policies, standards, and procedures for the formulation, evaluation, and review of plans for water and related land resource projects. Those standards had been developed at the President's direction by the Secretaries of the Departments of the Army; Agriculture; Health, Education, and Welfare; and Interior, with the latter serving as chairman. The heads of those four Departments which, under the President, have the principal statutory responsibilities for Federal activities concerned with water and land resources conservation and development, were unanimous in their joint recommendations.

This action will place Federal water resource projects proposals in a realistic and forward-looking context that will enable both the executive and the legislative branches to make informed judgments of the merits and desirability of the projects. Thus a significant advance has been made in the resources field. As a consequence, it will be possible soundly to devise, authorize, and execute the large programs that are urgently needed to match water supplies to the water requirements of our rapidly growing population and expanding economy. Furthermore, State officials and the public will also be fully informed about proposed projects.

The recommendations of the four Department heads, and the President's approval of them, are consistent with the established policies of the Senate. They are, in fact, in compliance with requests of the Senate.

The new policies and standards, established in an agreement of the four Department heads, replace Budget Bureau Circular A-47 which caused considerable contention, both as to content and as to the propriety of its source.

On July 26, 1956, in the 84th Congress, the Senate expressed its sense relative to the conservation and development of water and related land resources in Senate Resolution 281 which stated:

Land and water resources development should be planned on a comprehensive basis and with a view to such an ultimately integrated operation of component segments as will insure the realization of the optimum degree of physical and economic efficiency.

Pursuant to the direction provided in Senate Resolution 281 of the 84th Congress, studies and hearings on the matter were conducted jointly by the Committees on Interior and Insular Affairs and on Public Works over a period of a year. These led to a resolution proposing standards and criteria for the authorization of projects. On January 28, 1957, after full debate for 2 days, that resolution—Senate Resolution 148 of the 85th Congress—was agreed to by the Senate.

Senate Resolution 148 sets forth in considerable detail the Senate's concept of proper standards and criteria for evaluation of water and land resource projects proposed for authorization. It is significant that the standards that have just been approved by President Kennedy for executive branch use in formulation of project plans and proposals conform in an important degree with those set forth in Senate Resolution 148.

An interesting historical sidelight is that Senator Kennedy was in the chair as Presiding Officer when the Senate agreed to Senate Resolution 281 which initiated the valuation standards that 5 years later, as President, he applied to the executive branch.

The document approved by President Kennedy states as objectives of planning:

The basic objective in the formulation of plans is to provide the best use, or combination of uses, of water and related land resources to meet all foreseeable short- and long-term needs. * * *

National economic development, and development of each region within the country, is essential to the maintenance of national strength and the achievement of satisfactory levels of living. Water and related land resources development and management are essential to economic development and growth. * * *

Well-being of all of the people shall be the overriding determinant in considering the best use of water and related land resources. Hardship and basic needs of particular groups within the general public shall be of concern, but care shall be taken to avoid resource use and development for the benefit of a few or the disadvantage of many. In particular, policy requirements and guides established by the Congress and aimed at assuring that the use of natural resources, including water resources, safeguard the interests of all of our people shall be observed. * * *

President Kennedy said to his four department heads, "You have done a difficult task well."

In order that the Senate and citizens throughout the Nation may be fully informed of this important accomplishment, I am submitting a resolution to have the new agreement between the departments, approved by the President, printed as a Senate document, together with an exchange of correspondence on the matter between Secretary of the Interior Udall and President Kennedy and these explanatory remarks.

LETTER TO THE PRESIDENT

MAY 15, 1962.

The PRESIDENT,
The White House,
Washington, D.C.

DEAR MR. PRESIDENT: In memorandum of October 6, 1961, to each of us, the Secretaries who would comprise the Water Resources Council under your proposed Water Resources Planning Act, you cited the need for an up-to-date set of uniform standards for the formulation and evaluation of water resources projects. You requested us, consulting with officials of other interested agencies, to review existing principles standards and procedures and make such recommendations as we might deem appropriate.

Our recommendations in response to your request are embodied in the enclosed statement of "Policies, Standards, and Procedures in the Formulation, Evaluation, and Review of Plans for Use and Development of Water and Related Land Resources." Upon your approval, we intend that the provisions of this document shall be applied by each of our Departments.

During preparation of the statement, a draft was reviewed by other interested agencies. Comments were received from these agencies and staff discussions in most instances were held. The views of these agencies were carefully considered in final preparation of the statement.

In addition to the policies, standards, and procedures set forth in this statement, there is need for up-to-date policies, standards, and procedures relating to cost allocation, reimbursement, and cost sharing, and other subjects of mutual concern to our four Departments. If you approve, we intend to consider these subjects and make further recommendations to you.

ELVIS J. STAHR, JR.,
Secretary of the Army,
STEWART L. UDALL,
Secretary of the Interior,
Chairman.

ORVILLE L. FREEMAN,
Secretary of Agriculture,
IVAN A. NESTINGEN,
Acting Secretary of Health, Education, and Welfare.

LETTER OF PRESIDENT JOHN F. KENNEDY TO THE SECRETARY OF THE INTERIOR; THE SECRETARY OF AGRICULTURE; THE SECRETARY OF HEALTH, EDUCATION, AND WELFARE; AND THE SECRETARY OF THE ARMY

THE WHITE HOUSE,
May 15, 1962.

Your joint response to my memorandum of October 6, 1961, requesting you to review existing standards for the formulation and evaluation of water resources projects and to recommend any necessary changes constitutes a major improvement. You have done a difficult task well.

The statement of "Policies, Standards, and Procedures in the Formulation, Evaluation, and Review of Plans for Use and Development of Water and Related Land Resources" enclosed with your memorandum of today is approved for application by each of your Departments and by the Bureau of the Budget in its review of your proposed programs and projects.

There is need, as you indicate, for up-to-date policies, standards, and procedures relating to cost allocation, reimbursement, and cost sharing, and no doubt other water and related land resource subjects of mutual concern to your four Departments upon which uniformity and consistency would be in the public interest. Consideration of subjects such as these and establishment, with my approval, of necessary policies, standards, and procedures will be the responsibility of the Water Resources Council when it is created. In the meantime, I agree that you should move ahead now to a consideration of those subjects you have indicated need immediate attention.

JOHN F. KENNEDY.

POLICIES, STANDARDS, AND PROCEDURES IN THE FORMULATION, EVALUATION, AND REVIEW OF PLANS FOR USE AND DEVELOPMENT OF WATER AND RELATED LAND RESOURCES

I. PURPOSE AND SCOPE

The purpose of this statement is to establish Executive policies, standards, and procedures for uniform application in the formulation, evaluation, and review of comprehensive river basin plans and individual project plans for use and development of water and related land resources. Problems of cost allocation and of reimbursement or cost sharing between the Federal Government and non-Federal bodies will be covered subsequently.

These provisions shall govern, insofar as they are consistent with law and other applicable regulations, all formulation, evaluation, and review of water and related land resources plans. Any proposed variation from these policies and standards shall be specified in planning reports and the reasons therefor indicated.

II. OBJECTIVES OF PLANNING

The basic objective in the formulation of plans is to provide the best use, or combination of uses, of water and related land resources to meet all foreseeable short- and long-term needs. In pursuit of this basic conservation objective, full consideration shall be given to each of the following objectives and reasoned choices made between them when they conflict:

A. Development

National economic development, and development of each region within the country, is essential to the maintenance of national strength and the achievement of satisfactory levels of living. Water and related land resources development and management are essential to economic development and growth, through concurrent provision for—

Adequate supplies of surface and ground waters of suitable quality for domestic, municipal, agricultural, and industrial uses—including grazing, forestry, and mineral development uses.

Water quality facilities and controls to assure water of suitable quality for all purposes.

Water navigation facilities which provide a needed transportation service with advantage to the Nation's transportation system.

Hydroelectric power where its provision can contribute advantageously to a needed increase in power supply.

Flood control or prevention measures to protect people, property, and productive lands from flood losses where such measures are justified and are the best means of avoiding flood damage.

Land stabilization measures where feasible to protect land and beaches for beneficial purposes.

Drainage measures, including salinity control where best use of land would be justifiably obtained.

Watershed protection and management measures where they will conserve and enhance resource use opportunities.

Outdoor recreational and fish and wildlife opportunities where these can be provided or enhanced by development works.

Any other means by which development of water and related land resources can contribute to economic growth and development.

B. Preservation

Proper stewardship in the long-term interest of the Nation's natural bounty requires in particular instances that—

There be protection and rehabilitation of resources to insure availability for their best use when needed.

Open space, green space, and wild areas of rivers, lakes, beaches, mountains, and related land areas be maintained and used for recreational purposes; and

Areas of unique natural beauty, historical and scientific interest be preserved and managed primarily for the inspiration, enjoyment and education of the people.

C. Well-being of people

Well-being of all of the people shall be the overriding determinant in considering the best use of water and related land resources. Hardship and basic needs of particular groups within the general public shall be of concern, but care shall be taken to avoid resource use and development for the benefit of a few or the disadvantage of many. In particular, policy requirements and guides established by the Congress and aimed at assuring that the use of natural resources, including water resources, safeguard the interests of all of our people shall be observed.

III. PLANNING POLICIES AND PROCEDURES

A. National, regional, State, and local viewpoints

1. All viewpoints—national, regional, State, and local—shall be fully considered and taken into account in planning resource use and development. Regional, State, and local objectives shall be considered and evaluated within a framework of national public objectives and available projections of future national conditions and needs. Similarly, available projections of future conditions and needs of regions, States, and localities shall be considered in plan formulation.

2. Significant departures from a national viewpoint required to accomplish regional, State, or local objectives shall be set forth in planning reports by those charged with their preparation. Such reports shall also describe the present economy of the locality, State, and region, changes which can be expected on the basis of current trends, specific economic problems of the area, and the manner in which the project is expected to contribute to the sound economic growth and well-being of the locality, State, and region.

3. Comprehensive plan and project formulation shall be based upon an analysis of the relationship of goods and services to be provided

by a proposed resource use or development to available projections of national, regional, State, and local requirements and objectives. From a national point of view, the analysis shall include, within practical limits, a comparison of the proposed resource use and development with alternative means available for providing similar goods and services to the area and other areas and an indication of its relationship, if any, to specific considerations of national security.

B. Multiple-purpose planning

Planning for the use and development of water and related land resources shall be on a fully comprehensive basis so as to consider—

(1) The needs and possibilities for all significant resource uses and purposes of development, including, but not limited to domestic, municipal, agricultural, and industrial uses of water; water quality control; navigation in relation to the Nation's transportation system; hydroelectric power; flood protection control or prevention; land and beach stabilization; drainage, including salinity control; watershed protection and management; forest and mineral production; grazing and cropland improvement; outdoor recreation, as well as sport and commercial fish and wildlife protection and enhancement; preservation of unique areas of natural beauty, historical and scientific interest; and

(2) All relevant means (including nonstructural as well as structural measures) singly, in combination, or in alternative combinations reflecting different basic choice patterns for providing such uses and purposes.

C. River basin planning

River basins are usually the most appropriate geographical units for planning the use and development of water and related land resources in a way that will realize fully the advantage of multiple use, reconcile competitive uses through choice of the best combination of uses, coordinate mutual responsibilities of different agencies and levels of government and other interests concerned with resource use. Planning use of water and related land resources, therefore, shall be undertaken by river basins, groups of closely related river basins, or other regions, and shall take full cognizance of the relationships of all resources, including the interrelationship between surface and ground water resources. Despite this primary confinement to an area, the fact should be recognized that such planning also requires consideration of pertinent physical, economic, and social factors beyond the area.

D. Individual project planning

To the extent feasible, programs and projects shall be formulated as part of a comprehensive plan for a river basin or other area, and the report proposing development shall indicate the relationship to the comprehensive plan. When a program or project has been formulated independently and not as part of a comprehensive plan, the report shall indicate, to the extent practicable, the relationship of the program or project to the probable later developments needed or to be undertaken in the basin and the reasons for proposing to proceed with the proposed program or project independently.

E. Coordination within the Federal Government and with non-Federal interests

1. Federal planning shall be carried out on a coordinated basis from the earliest steps of investigation, survey, and planning through the entire planning and review process. When any Federal agency initiates an investigation or survey, it shall arrange for appropriate coordination and consideration of problems of mutual concern with other Federal agencies and with interested regional, State, and local public agencies and interests. When warranted, joint consideration of such problems shall be arranged. Full advantage is to be taken of all existing organizations and arrangements for coordination, such as river basin commissions, interagency committees, interstate bodies, and State and local agencies.

2. When plans for resource use or development affect the interests and responsibilities of other Federal agencies, the sponsoring agency shall, to the maximum extent practicable, consult with such agency or agencies in the field and at headquarters in conducting its investigation and preparing its report. When specific project proposals are contemplated, each affected agency shall be afforded an opportunity to participate in the investigations and surveys in an effort to develop fully coordinated proposals. Project reports shall include a statement of the extent of coordination achieved.

3. Before a report is submitted to the President and the Congress, each department or independent agency interested in the project and the concerned States shall be provided with copies of the proposed report, and given an opportunity to furnish a statement concerning the project proposal from the viewpoint of its interest and responsibility. Such statements shall be included in the reports submitted by a sponsoring agency. If such statements propose variations from the policies and standards specified herein, the reasons for each variation shall be stated. A sponsoring agency may submit a report without the views of any agency or State when a statement from that agency or State has not been received within 90 days after receipt of the project report or within such other period specified by law.

4. Planning by Federal agencies shall also be carried out in close cooperation with appropriate regional, State, or local planning and development and conservation agencies, to the end that regional, State, and local objectives may be accomplished to the greatest extent consistent with national objectives. When a proposed resource use or development affects the interest and responsibility of non-Federal public bodies, those bodies shall be furnished information necessary to permit them to evaluate the physical, economic, and social effects. Their views shall be sought, considered in preparation of reports and included in the final reports submitted to the President and the Congress or other approving authority.

F. Relation to existing law and executive orders

The policies, standards, and procedures set forth herein shall not be regarded as authorizing any deviation from general or specific requirements of law or Executive order. Whenever a plan or proposal varies from such policies, standards or procedures because of a requirement of existing law or Executive order, the variation shall be indicated, and reference made to the section of law or Executive order imposing such requirements.

IV. REVIEW OF COMPREHENSIVE PLANS AND PROJECT PROPOSALS

With a view to arriving at general and specific independent judgments upon comprehensive plans, programs and project proposals, and parts thereof, as well as recommendations concerning such plans and proposals, review at all appropriate levels shall be based upon a thorough appraisal of planning reports and upon the following criteria:

(a) Compliance with the statement of purpose and scope, objectives of planning, and planning policies and procedures set forth herein.

(b) Compliance with law, legislative intent, and Executive policies and orders.

(c) Compliance with recognized technical standards.

(d) Compliance with standards for the formulation of plans and evaluation of tangible and intangible effects as set forth herein.

V. STANDARDS FOR FORMULATION AND EVALUATION OF PLANS

A. General setting, viewpoint, and procedures

1. Formulation of comprehensive and project plans, and evaluation of tangible and intangible effects shall reflect full consideration of, and adherence to the purpose and scope, objectives of planning, planning policies and procedures and criteria for review, as set forth herein.

2. Formulation and evaluation shall normally be based on the expectation of an expanding national economy in which increasing amounts of goods and services are likely to be required to meet the needs of a growing population, higher levels of living, international commitments, and continuing economic growth. Such an environment will necessitate relatively high and efficient levels of resource employment and a pattern of production in balance with the anticipated demand for goods and services.

3. Formulation and evaluation of plans or alternative plans shall be accomplished in such a way as to permit timely application of standards appropriate to conditions of: (a) Less than "full employment" nationally, and (b) chronic and persistent unemployment or underemployment in designated areas. Standards appropriate to (a) shall be those adopted at the time of existence of such condition and authorized by the President. Standards appropriate to condition (b) shall be used where an area has been so designated under the Area Redevelopment Act of 1961 (75 Stat. 47) or other authorized procedures relating to resource underemployment. In condition (b) project benefits shall be considered as increased by the value of the labor and other resources required for project construction, and expected to be used in project operation, project maintenance, and added area employment during the life of the project, to the extent that such labor and other resources [would—in the absence of the project—be unutilized or underutilized. Such benefits should be clearly identified as redevelopment benefits for the purposes of cost allocation, cost-sharing procedures, and to indicate their significance for project justification.

4. A comprehensive public viewpoint shall be applied in the evaluation of project effects. Such a viewpoint includes consideration of all effects, beneficial and adverse, short range and long range, tangible

and intangible, that may be expected to accrue to all persons and groups within the zone of influence of the proposed resource use or development. The adequacy of the coverage depends on how completely all effects can be traced and evaluated in comparable terms.

5. Full consideration shall be given to the opportunity and need for outdoor recreational and fish and wildlife enhancement in comprehensive planning for water and related land use and development, and project formulation and evaluation. Project plans shall include provision for public acquisition of lands and rights-of-way adjacent to proposed Federal or Federal-assisted water resource projects (additional to those needed for other uses and for public access) for administration by Federal, State, or local public bodies, as appropriate, to insure full ultimate realization of the outdoor recreational, fish and wildlife, and related resource enhancement opportunities of the project area. Plans shall indicate, in appropriate detail, all facilities needed for full development of the recreation and fish and wildlife potential, as well as specific indication of basic facilities required initially for access, health, safety, fire prevention, and use of the area.

6. Full consideration shall also be given in survey, investigation, and planning to the need for acquisition of lands necessary for all purposes of water resource development in advance of construction, so as to preserve these areas from encroachment by residential, commercial, industrial, and other development. Proposals to this end shall be set forth in special reports, or included in regular planning reports, when deemed necessary. Measures proposed should represent the minimum necessary action consistent with the objective of site preservation. Reliance should be placed, where feasible, on zoning and other measures by non-Federal authorities to keep lands on local tax rolls and control development until sites are needed for project purposes. Such measures should also include provisions for advance participation in construction or reconstruction of transportation facilities, when necessary, to avoid increased costs for relocation.

7. When there are major differences among technically possible plans conceived as desirable on the basis of consideration of intangible benefits and costs, in comparison with optimum plans based on tangible benefits and costs, alternative combinations of projects within a river basin or alternative projects, giving expression to these major differences, shall be planned. Comparison of their economic and financial costs shall be set forth in reports to provide a basis for selection among the alternatives by reviewing authorities in the executive branch and by the Congress. Minor differences, with regard to intangible considerations, shall be handled, to the extent practicable and economically feasible, by adjustments in plans. Planning reports shall clearly indicate alternatives, their consequences, and adjustments made to take account of these minor differences.

8. When secondary benefits are included in formulation and evaluation of a project proposal, planning reports shall indicate—

(a) The amount of secondary benefits considered attributable to the project from a national viewpoint. Such benefits, combined with primary benefits, shall be included in the computation of a benefit-cost ratio.

(b) Secondary benefits attributable to the project from a regional, State, or local viewpoint. Such benefits shall also be evaluated, when this procedure is considered pertinent, and an additional benefit-cost ratio computed.

(c) Presentations in planning reports shall include an explanation of the nature of each type of secondary benefit taken into account from either viewpoint and the methods used in the computation of each of their values. The implications, from the national viewpoint, of considering secondary benefits of the project from a regional, State, or local viewpoint shall be set forth.

B. Specific setting for area under consideration

1. Reports on proposed plans shall include an analysis of present and projected future economic conditions in the project area and the contribution that comprehensive or project development may be expected to make toward the alleviation of problems and the promotion of economic growth and well-being within the zone of influence. Economic projections will be made to provide a basis for appraisal of conditions to be expected with and without the plans under consideration, and an estimate of the contribution that comprehensive development may make to increased national income and welfare, and regional growth and stability. Such analyses will frequently require a general economic study of the area, a study of all of its resources, an assessment of their functional relationships, their development potentials, possible adverse effects, and the locational situation with reference to resources, markets, transportation, climate, and social factors. Analyses should indicate the significance of the locality and the region in producing increased goods and services to meet foreseeable needs.

2. These analyses should be as extensive and intensive as is appropriate to the scope of the project being planned. They should provide essential information for identifying both immediate and long-range needs in economic and social terms and these needs should be expressed in a form useful for program formulation. Presentations in reports should identify—

(a) The relationship between economic development needs and opportunities and potential water and related land resource use and development;

(b) The economic and social consequences of complete or partial failure to satisfy these needs; and

(c) The possible improvements in economic efficiency, alleviation of unemployment, stabilization of production and income, community well-being, and the quality of goods and services that will be forthcoming.

C. Standards for formulation of plans

1. All plans shall be formulated with due regard to all pertinent benefits and costs, both tangible and intangible. Benefits and costs shall be expressed in comparable quantitative economic terms to the fullest extent possible.

2. Comprehensive plans shall be formulated initially to include all units and purposes which satisfy these criteria in quantitative economic terms:

(a) Tangible benefits exceed project economic costs.

(b) Each separable unit or purpose provides benefits at least equal to its costs.

(c) The scope of development is such as to provide the maximum net benefits.

(d) There is no more economical means, evaluated on a comparable basis, of accomplishing the same purpose or purposes which would be precluded from development if the plan were undertaken. This limitation refers only to those alternative possibilities that would be physically displaced or economically precluded from development if the project is undertaken.

3. Net benefits are maximized when the scope of development is extended to the point where the benefits added by the last increment of scale (i.e., an increment of size of a unit, an individual purpose in a multiple-purpose plan or a unit in a comprehensive plan) are equal to the costs of adding that increment of scale. The increments to be considered in this way are the smallest increments on which there is a practical choice of omission from the plan.

4. Reports or plans shall indicate the scale of development that would result from application of the foregoing criteria considering tangible benefits and project economic costs expressed in comparable terms. This will provide a baseline from which the effect of considering intangibles can be judged.

5. Reports and plans shall also indicate the extent to which departures from that scale of development are proposed in order to take into account intangibles or other considerations warranting a modification in scale not reflected in the tangible benefits and project economic costs. For example, a higher degree of flood protection, particularly in urban areas, than is feasible on the basis of tangible benefits alone may be justified in consideration of the threat to lives, health, and general security posed by larger floods. Also, when long-range water needs are foreseeable only in general terms and where alternative means of meeting the needs are not available and inclusion of additional capacity initially can be accomplished at a significant savings over subsequent enlargement, such considerations may justify the additional cost required. Similarly, long-range power needs, in the light of generally expected economic growth of an area, may justify measures initially to insure later availability of the full power potential.

D. Definitions of benefits

1. Benefits: Increases or gains, net of associated or induced costs, in the value of goods and services which result from conditions with the project, as compared with conditions without the project. Benefits include tangibles and intangibles and may be classed as primary or secondary.

2. Tangible benefits: Those benefits that can be expressed in monetary terms based on or derived from actual or simulated market prices for the products or services, or, in the absence of such measures of benefits, the cost of the alternative means that would most likely be utilized to provide equivalent products or services. This latter standard affords a measure of the minimum value of such benefits or services to the users. When costs of alternatives are used as a measure of benefits, the costs should include the interest, taxes, insurance, and other cost elements that would actually be incurred by such alternative means rather than including only costs on a comparable basis to project costs as is required when applying the project formulation criteria under paragraph V-C-2(d).

3. Intangible benefits: Those benefits which, although recognized as having real value in satisfying human needs or desires, are not

fully measurable in monetary terms, or are incapable of such expression in formal analysis. Each type of benefit usually has a part which is readily measurable and may have a part which is not measurable or not readily measurable. The significance of this latter part shall be based upon informed judgment.

4. Primary benefits: The value of goods or services directly resulting from the project, less associated costs incurred in realization of the benefits and any induced costs not included in project costs.

5. Secondary benefits: The increase in the value of goods and services which indirectly result from the project under conditions expected with the project as compared to those without the project. Such increase shall be net of any economic nonproject costs that need be incurred to realize these secondary benefits.

E. Types of primary benefits and standards for their measurement

1. Domestic, municipal, and industrial water supply benefits: Improvements in quantity, dependability, quality, and physical convenience of water use. The amount water users should be willing to pay for such improvements in lieu of foregoing them affords an appropriate measure of this value. In practice, however, the measure of the benefit will be approximated by the cost of achieving the same results by the most likely alternative means that would be utilized in the absence of the project. Where such an alternative source is not available or would not be economically feasible, the benefits may be valued on such basis as the value of water to users or the average cost of raw water (for comparable units of dependable yield) from municipal or industrial water supply projects planned or recently constructed in the general region.

2. Irrigation benefits: The increase in the net income of agricultural production resulting from an increase in the moisture content of the soil through the application of water or reduction in damages from drought;

3. Water quality control benefits: The net contribution to public health, safety, economy, and effectiveness in use and enjoyment of water for all purposes which are subject to detriment or betterment by virtue of change in water quality. The net contribution may be evaluated in terms of avoidance of adverse effects which would accrue in the absence of water quality control, including such damages and restrictions as preclusion of economic activities, corrosion of fixed and floating plant, loss or downgrading of recreational opportunities, increased municipal and industrial water treatment costs, loss of industrial and agricultural production, impairment of health and welfare, damage to fish and wildlife, siltation, salinity intrusion, and degradation of the esthetics of enjoyment of unpolluted surface waters, or, conversely, in terms of the advantageous effects of water quality control with respect to such items. Effects such as these may be composited roughly into tangible and intangible categories, and used to evaluate water quality control activities. In situations where no adequate means can be devised to evaluate directly the economic effects of water quality improvement, the cost of achieving the same results by the most likely alternative may be used as an approximation of value.

4. Navigation benefits: The value of the services provided after allowance for the cost of the associated resources required to make the service available. For commodities that would move in the

absence of the project, the benefit is measured by the saving as a result of the project in the cost of providing the transportation service. For commodities that will move over the improved waterway but would not move by alternative means, the measure of the benefit is the value of the service to shippers; that is, the maximum cost they should be willing to incur for moving the various units of traffic involved. Navigation improvements may also provide benefits in other forms, such as reduction in losses due to hazardous or inadequate operating conditions and enhancement in land values from the placement of dredged spoil.

5. Electric power benefits: The value of power to the users is measured by the amount that they should be willing to pay for such power. The usual practice is to measure the benefit in terms of the cost of achieving the same result by the most likely alternative means that would exist in the absence of the project. In the absence of economically feasible alternative means, the value of the power to users may be measured by any savings in production costs, increase in value of product that would result from its use, or its net value to consumers.

6. Flood control and prevention benefits: Reduction in all forms of damage from inundation (including sedimentation) of property, disruption of business and other activity, hazards to health and security, and loss of life; and increase in the net return from higher use of property made possible as a result of lowering the flood hazard.

7. Land stabilization benefits: Benefits accruing to landowners and operators and the public resulting from the reduction in the loss of net income, or loss in value of land and improvements, through the prevention of loss or damage by all forms of soil erosion including sheet erosion, gullying, flood plain scouring, streambank cutting, and shore or beach erosion, or, conversely in terms of advantageous effects of land stabilization.

8. Drainage benefits: The increase in the net income from agricultural lands or increase in land values resulting from higher yields or lower production costs through reduction in the moisture content of the soil (exclusive of excessive moisture due to flooding), and the increase in the value of urban and industrial lands due to improvement in drainage conditions.

9. Recreation benefits: The value as a result of the project of net increases in the quantity and quality of boating, swimming, camping, picnicking, winter sports, hiking, horseback riding, sightseeing, and similar outdoor activities. (Fishing, hunting, and appreciation and preservation of fish and wildlife are included under par. V-E-10.) In the general absence of market prices, values for specific recreational activities may be derived or estimated on the basis of a simulated market giving weight to all pertinent considerations, including charges that recreationists should be willing to pay and to any actual charges being paid by users for comparable opportunities at other installations or on the basis of justifiable alternative costs. Benefits also include the intangible values of preserving areas of unique natural beauty and scenic, historical, and scientific interest.

10. Fish and wildlife benefits: The value as a result of the project of net increases in recreational, resource preservation, and commercial aspects of fish and wildlife. In the absence of market prices, the value of sport fishing, hunting, and other specific recreational forms of fish

and wildlife may be derived or established in the same manner as prescribed in paragraph V-E-9. Resource preservation includes the intangible value of improvement of habitat and environment for wildlife and the preservation of rare species. Benefits also result from the increase in market value of commercial fish and wildlife less the associated costs.

11. Other benefits: Justification of the recognition of any other benefits and of the standard used in their measurement shall be set forth in reports. Unless included under one or more of the above categories, reports should show the net economic effects of changes in transportation capability, or changes in productivity of forest, range, mineral, or other resources. A project's contribution toward meeting specific needs for servicing international treaties or for national defense may also be included.

F. Definition of costs

1. Project economic costs: The value of all goods and services (land, labor, and materials) used in constructing, operating, and maintaining a project or program, interest during construction, and all other identifiable expenses, losses, liabilities, and induced adverse effects connected therewith, whether in goods or services, whether tangible or intangible and whether or not compensation is involved. Project economic costs are the sum of installation costs; operation, maintenance, and replacement costs; and induced costs as defined below.

2. Installation costs: The value of goods and services necessary for the establishment of the project, including initial project construction; land, easements, rights-of-way, and water rights; capital outlays to relocate facilities or prevent damages; and all other expenditures for investigations and surveys, and designing, planning, and constructing a project after its authorization.

3. Operation, maintenance, and replacement costs: The value of goods and services needed to operate a constructed project and make repairs and replacements necessary to maintain the project in sound operating condition during its economic life.

4. Induced costs: All uncompensated adverse effects caused by the construction and operation of a program or project, whether tangible or intangible. These include estimated net increases, if any, in the cost of Government services directly resulting from the project and net adverse effects on the economy such as increased transportation costs. Induced costs may be accounted for either by addition to project economic costs or deduction from primary benefits.

5. Associated costs: The value of goods and services over and above those included in project costs needed to make the immediate products or services of the project available for use or sale. Associated costs are deducted from the value of goods and services resulting from a project to obtain primary benefits.

6. Taxes: Allowances in lieu of taxes or taxes foregone will not be included in project economic costs, except as required by law.

G. Time considerations

1. *Period of analysis.*—The economic evaluation of a project shall encompass the period of time over which the project will serve a useful purpose. Thus, the period of analysis should be the shorter of either the physical life or the economic life of the structure, facility, or im-

provement. However, because of the difficulty in defining the more remote future conditions and the discount of long-deferred values, 100 years will normally be considered the upper limit of the period of analysis.

2. *Discount rate.*—The interest rate to be used in plan formulation and evaluation for discounting future benefits and computing costs, or otherwise converting benefits and costs to a common time basis shall be based upon the average rate of interest payable by the Treasury on interest-bearing marketable securities of the United States outstanding at the end of the fiscal year preceding such computation which, upon original issue, had terms to maturity of 15 years or more. Where the average rate so calculated is not a multiple of one-eighth of 1 percent, the rate of interest shall be the multiple of one-eighth of 1 percent next lower than such average rate.

This procedure shall be subject to adjustment when and if this is found desirable as a result of continuing analysis of all factors pertinent to selection of a discount rate for these purposes.

3. *Price levels.*—The prices used for project evaluation should reflect the exchange values expected to prevail at the time costs are incurred and benefits accrued. Estimates of initial project costs should be based on price relationships prevailing at the time of the analysis. Estimates of benefits and deferred costs should be made on the basis of projected normal price relationships expected with a stabilized general price level and under relatively full employment conditions for the economy. Pending development of mutually acceptable long-term price projections of this type, normalized current price relationships may be used in estimating deferred project effects. When benefits are measured in terms of the cost of an alternative, the prices should be those expected to prevail at the time such costs would have been incurred. Whenever project production is expected to influence prices significantly, the use of a price about midway between those expected with and without the project may be justified to reflect the public values involved. Appropriate price adjustments should be made where there is a limited foreseeable need or demand for the products or services to be provided by the project.

VI. RELATION TO COST ALLOCATION, REIMBURSEMENT AND COST-SHARING POLICIES, STANDARDS, AND PROCEDURES

Cost allocation, reimbursement and cost-sharing policies, standards, and procedures, as indicated in the section on "Purpose and Scope," above, are not generally included herein. Nevertheless, certain such matters of special importance in relation to the foregoing are included, as follows:

(a) All project purposes shall be treated comparably in cost allocation and each is entitled to its fair share of the advantages resulting from the multiple-purpose project or program. Project purposes to which costs may be allocated on a par with all other purposes, without restrictions regarding reimbursement or cost-sharing policies, shall include (but not be limited to) the following:

Domestic, municipal, or industrial water supply.

Irrigation.

Water quality control.

Navigation.

Hydroelectric power.

Flood control and prevention.

Land and beach stabilization.

Drainage, including salinity control.

Outdoor recreation development.

Fish and wildlife development.

Other purposes, such as area redevelopment and the servicing of international treaties and national defense when specific, quantifiable benefits are provided for such purposes by a project or program.

(b) Allocated costs, determined in accordance with principles and procedures to be established subsequently, shall provide a basis for consideration of reimbursement and cost-sharing arrangements.

(c) The period of analysis and discount rate established herein for purposes of formulation and evaluation of comprehensive plans and project plans (sec. V-G-1 and 2) shall not be construed as establishing the payout period or rate of interest to be used in reimbursement and cost-sharing arrangements.

(d) Planning reports of each department shall include appropriate recommendations covering reimbursement and cost-sharing arrangements and provide a detailed explanation of the basis used in arriving at the recommendations in consideration of the laws and administrative provisions in effect at the time.



**POLICIES, STANDARDS, AND PROCEDURES IN
THE FORMULATION, EVALUATION, AND REVIEW
OF PLANS FOR USE AND DEVELOPMENT OF
WATER AND RELATED LAND RESOURCES**

Supplement No. 1

**EVALUATION STANDARDS FOR PRIMARY OUTDOOR RECREATION
BENEFITS**

**Ad Hoc Water Resources Council
Washington, D. C.**

June 4, 1964

LETTER TO THE PRESIDENT

June 4, 1964

The President
The White House
Washington, D. C.

Dear Mr. President: On May 15, 1962, President Kennedy approved the statement of "Policies, Standards, and Procedures in the Formulation, Evaluation, and Review of Plans for Use and Development of Water and Related Land Resources" for application by each of our Departments and by the Bureau of the Budget in its review of our proposed programs and projects. The statement of the four Departments was later printed as Senate Document No. 97, 87th Congress. On May 31, 1962, the President requested the Secretaries of the Army, Agriculture, the Interior, and Health, Education, and Welfare to develop specific standards for the measurement of recreation and fish and wildlife benefits.

In order to achieve coordination between our four Departments and the Recreation Advisory Council, a Joint Task Force was created to accomplish two tasks. One task was the basic draft of the enclosed Supplement No. 1 titled "Evaluation Standards for Primary Outdoor Recreation Benefits." The other task was the preparation of a proposed Recreation Advisory Council circular "Outdoor Recreation Policy for Federal Water Resource Developments" which is under consideration by the Recreation Advisory Council Staff. Through this process we can say that the Recreation Advisory Council Staff is in accord with this supplement. Accordingly, these "Evaluation Standards for Primary Outdoor Recreation Benefits" are adopted for immediate use within our Departments.

Orville L. Freeman,
Secretary of Agriculture
Stephen Ailes,
Secretary of the Army
Stewart L. Udall
Secretary of the Interior
Anthony J. Celebrezze,
Secretary of Health, Education,
and Welfare

EVALUATION STANDARDS FOR PRIMARY OUTDOOR RECREATION BENEFITS

I. Recreation as a Primary Project Purpose

The interdepartmental statement of Policies, Standards, and Procedures in the Formulation, Evaluation, and Review of Plans for Use and Development of Water and Related Land Resources (Senate Document No. 97 - 87th Congress, 2nd Session), approved by the President on May 15, 1962, provides for full consideration of recreation as a purpose in project formulation and evaluation. The purpose of this supplement is to provide standards, pending further research, for the evaluation of recreation benefits from the use of recreation resources provided by water and related land development projects. Investigations and planning for recreation purposes, including appraisal of recreational values, should be of comparable scope and intensity to studies of other project purposes. In evaluating outdoor recreation as a project purpose, it is necessary that it be viewed as producing an economic product, in the sense that a recreation opportunity has value and is something for which people are willing to pay. An accounting of relative returns from the use of resources for recreation versus other project purposes must be made in decisions affecting resource use.

The service that a project may provide to recreationists is usually only a part of the total goods and services that make possible the total recreation experience, hence the value of the project service is usually only a part of the total tangible and intangible value of the experience to the recreationist. It is impossible to measure in full this total value in monetary terms. Equitable consideration of recreation as a purpose, however, requires that a monetary value be assigned to the tangible recreational service provided by the project. Recreation benefits include the monetary values of increases in quantity and quality of use by outdoor recreationists and any enhancement in land values attributable to project recreation. Allowances must be made for costs of services provided to recreationists other than project services in order to determine net benefits attributable to the project.

The basis for attributing recreation effects to a project is similar to that for other project purposes. Differences in expectations, both with and without the project and with and without recreation as a project purpose provide the primary basis for estimating net project effects on recreation.

II. Scope of Supplement

The standards prescribed in this supplement are intended primarily for the evaluation of recreation benefits associated directly with the use by outdoor recreationists of services made available by the project. They are also considered usable for measuring the effects of a project on such recreational activities as those associated with changes in the regimen of streams or water bodies beyond the project area and land based recreation activities affected by the project.

The overall intangible benefits associated with the protection of wild or primitive areas, areas of unique beauty, areas of scenic, historical, and scientific interest, and the preservation of rare species and their habitat are considered to be in addition to the recreation values encompassed by this supplement. Subject to appropriate adaptation, however, the standards prescribed are considered applicable for evaluating the recreation use aspects of the types of areas indicated.

As a part of the process of determining economic feasibility, recreation is subject to the same requirements as other project purposes with respect to the limitations imposed by the cost of alternatives for providing equivalent services.

The statement does not provide additional criteria for the consideration of recreation benefits in the form of enhancement in land values. The treatment of land enhancement benefits from recreation should be the same as such benefits stemming from any other project purpose.

III. Definition of Terms

In addition to those terms defined in the statement of May 15, 1962, the following terms will be used in the evaluation of primary recreation benefits:

Project Recreation - The use of project recreation resources by people for the enjoyment of leisure time.

Project Recreation Resources - Water and related land and associated natural and man-made resources of project areas, and adjacent affected areas which provide, or may in the future provide, opportunities for outdoor recreation.

Included in associated resources are fish and wildlife which serve specific recreation activities and man-made facilities to allow access and use of natural resources.

Recreation Day - A standard unit of use consisting of a visit by one individual to a recreation development or area for recreation purposes during any reasonable portion or all of a 24-hour period.

General Project Recreation Activities - Those activities attracting the majority of outdoor recreationist and which, in general, require the development and maintenance of convenient access and adequate facilities. This category includes, but is not limited to, most warm water fishing, swimming, picnicking, hiking, sightseeing, most small game hunting, nature studies (except nature photography), tent and trailer camping, marine pier and party boat fishing, water skiing, scuba diving, motor boating, sailing, and canoeing in placid waters.

Specialized Project Recreation Activities - Those activities for which opportunities, in general, are limited, intensity of use is low, and which often may involve a large personal expense by the user. This category includes, but is not limited to, cold water fishing for resident and migratory species, upland bird and waterfowl hunting, specialized nature photography, big game hunting, wilderness pack trips, white water boating and canoeing, and long-range cruisers in areas of outstanding scenic environment.

IV. Estimates of Recreation Use

A recreation day, as defined herein, will be used as the standard unit of measurement for the determination of primary outdoor recreation benefits. Estimates of the pattern of total annual recreation days of use over the economic life of the project will be developed. This generally will require estimates of use during both the initial development period and at optimum carrying capacity.

Among the more important factors affecting the extent of total recreation use are: (1) population within the zone of project influence; (2) proximity of the project to centers of population; (3) socio-economic characteristics of the population including disposable income, age, and mobility; (4) leisure time and recreational habits that reflect changing consumer preferences as indicated by trends in hunting and fishing licenses, sales of recreation equipment, and trends in total recreation demand; (5) the recreation use potential of the project area as reflected by its ability to provide for uniqueness, diversity, and access; and (6) the availability and attractiveness of existing

and potential alternative recreation opportunities. In some situations, inherent physical limitations on carrying capacity will set an upper limit less than estimated future demand.

In conjunction with estimating total recreation use, data on total use for each type of activity that the project could provide will also be needed. These data will be used primarily in planning for specific facilities, but can best be developed in conjunction with the development of estimates of total recreation use.

V. Schedule of Monetary Unit Values for Tangible Benefits

A single unit value will be assigned per recreation day regardless of whether the user engages in one activity or several. The unit value, however, may reflect both the quality of activity and the degree to which opportunities to engage in a number of activities are provided.

<u>Type of Outdoor Recreation Day</u>	<u>Range of Unit Day Values</u>
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<u>General</u>	\$0.50 - \$1.50
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(A recreation day involving primarily those activities attractive to the majority of outdoor recreationists and which generally require the development and maintenance of convenient access and adequate facilities. See examples of these activities in Sec. III.)

<u>Specialized</u>	\$2.00 - \$6.00
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(A recreation day involving those activities for which opportunities, in general, are limited, intensity of use is low, and often may involve a large personal expense by the user. See examples of these activities in Sec. III.)

As shown in the table above, two classes of outdoor recreation days, general and specialized, are differentiated for evaluation purposes. Estimates of total recreation days of use for both categories, when applicable, will be developed. The general class constituting the great majority of all recreation activities associated with water projects'

embraces the more usual activities such as, for example, swimming, picnicking, boating, and most warm water fishing. Activities less often associated with water projects, such as big game hunting and salmon fishing, are included in the special class.

A separate range of values is provided for each class in order that informed judgment may be employed in determining the applicable unit values for each individual project under consideration. Where considered appropriate, departure from the range of values provided is permissible if a full explanation is given.

The recreational services of public water and related land resource developments are currently provided to the users free of charge or for a nominal fee, usually covering only a part of the cost. Thus, although it is known that there is a large and growing demand for these services, there is, in the formal sense, no well-established market for them and few data are available on market prices that reflect the value of the service provided by public projects. Under the circumstances it becomes necessary to derive simulated market prices.

Pending the development of improved pricing and benefit evaluation techniques, desirable uniformity in the treatment of recreation in the planning of projects and programs and in cost allocations will be accomplished through the application of unit values that reflect the consensus judgment of qualified technicians. The unit values per recreation day set forth herein are intended to measure the amount that the users should be willing to pay, if such payment were required, to avail themselves of the project recreation resources.

VI. Criteria for Establishing Specific Values Within Each Range

Unit values selected are to be considered net of all associated costs both of the users and others in utilizing or providing these resources and related services. Thus, they are considered comparable with the benefits for other project purposes. Both primary and secondary criteria will be used in the selection of specific unit values. Primary criteria as listed herein reflect those considerations largely dependent upon project development and management. Secondary criteria are those environmental characteristics that are not frequently dependent upon project development and management.

General Recreation - Activities in this group are those associated with relatively intensive development of access and facilities as compared to the specialized recreation class. Generally, progressively higher physical standards for specific facilities for each unit of carrying capacity would be involved in selecting higher unit values and these may be accompanied by larger related non-project costs.

In projects where facilities would be capable of supporting only casual visitation, the lower end of the range should be used. For example, a project might be evaluated at the \$0.50 level if it included only public access and a minimum of facilities maintained at an acceptable level.

The middle and upper values of the range should be assigned if the project would provide diversified opportunities or if the facilities for a limited number of activities are to be unusually well developed and maintained. For example, \$1.25 might be assigned if the project offers a large diversification of opportunities for general recreation and including such things as landscaped picnic and camping areas, concrete boat launching ramps and storage facilities, and recreation use regulation or zoning of the reservoir. Consideration should also be given to the character of the proposed reservoir operational plans and anticipated volume of use relative to optimum capacity.

Specialized Recreation - This group includes those activities whose values are generally lowered, if not actually excluded in some cases, by the type of development that enhances activities in the general recreation class. Thus, extensive or low density use and development constitutes the higher end of this range of values, as for example, big game hunting and wilderness pack trips. Also included in the upper end of the range are relatively unique experiences such as inland and marine fishing for salmon and steelhead, white water boating and canoeing, and long-range boat cruises in areas of outstanding scenic value. Examples of activities to which values at the lower end of the range would be assigned include upland bird hunting and specialized nature photography.

Secondary Criteria

The unit values to be used for both the general and specialized recreation classes shall be further adjusted to reflect additional quality considerations, weighed as appropriate, expected to prevail at various project sites in various regions of the Nation.

Generally speaking, high quality esthetic experiences for all kinds of activities provided should be valued at a higher level than low quality experiences. For example, a reservoir that is expected to carry a relatively heavy load of suspended silt or expected to be used beyond optimum capacity would be less desirable, and therefore of lower unit value, than one that will have clear water and be less crowded.

Among the more important quality criteria that should be considered are: (1) the expected degree of fishing and hunting success as dependent upon the character of fish and wildlife habitat; (2) the general attractiveness of the project, including visual aspects of water quality and scenic characteristics of the project area; and (3) the effects of topography, climate, and presence of cultural and historic artifacts on the "uniqueness" of the experience.

The degree to which alternative non-project opportunities are available to recreationists should also be considered in the assignment of values. Higher values should be assigned if the population to be served does not have existing water-oriented recreation opportunities. If water-oriented recreation opportunities are relatively abundant, as compared to other outdoor recreation opportunities, lower unit values should be assigned, even if a large number of visitations are expected at the proposed development. A final check of the reasonableness of the selected unit value is whether or not it represents the amount prospective recreationists should be willing to pay to enjoy the recreational opportunities to be afforded by the project.

Total monetary recreation benefits for the project will be determined by applying the selected unit values to the estimated patterns of annual use over the life of the project. Appropriate discount procedures will be used to convert benefits to a common time base.

VII. Criteria for Consideration of Recreation Alternatives in Project Formulation

The treatment of alternatives in project formulation is essentially the same for recreation as for other project purposes. In project formulation, recreation purposes are subject to the requirement that there be no more economical means, evaluated on a basis comparable to the project, of providing equivalent services which would be precluded if recreation were developed as a project purpose. Relevant

recreation alternatives are those that (1) are economically justified and would most likely be utilized in the absence of recreation as a project purpose; (2) serve essentially the same service area as the project; and (3) provide recreation opportunities reasonably equivalent to those of the project. Alternatives may consist of either a single recreation project or unit, a combination of projects and units, or a recreation purpose in a multiple-purpose project. Such alternatives are not limited to reservoir projects and may involve providing access to natural water bodies, rivers, and related land resources having recreation development potentials.

The schedule of monetary unit values presented in this statement may be used to determine whether the alternative is economically feasible. The costs of an economically feasible alternative may in turn be used as a check on the reasonableness of the recreation benefits attributed to the project.

VIII. Criteria for Consideration of Intangible Project Recreation Benefits

Intangible considerations, as defined in Section D-3 of the interdepartmental standards statement of May 15, 1962 (Senate Document No. 97), are a part of almost every recreational aspect of project development. While at times their significance is incidental to the justification of a project, often they are of primary importance. By definition monetary values cannot be placed on intangible benefits. Nonetheless, the costs of providing intangible recreation benefits can be computed. Such costs may take the form either of increased project costs to provide intangible recreation benefits or the opportunity costs of benefits foregone from other project purposes to obtain intangible recreation benefits.

When intangible recreation considerations are found to exist for a proposed project, the evaluation report will include:

- (1) A narrative discussion of the significance of intangible characteristics involved, including estimates of the number of recreation users to whom these benefits would accrue and those project features considered warranted on the basis of such benefits.

- (2) An estimate of the increase in project cost to provide intangible recreation benefits as measured by the difference in project costs between at least two detailed alternative plans, one plan

showing the cost of including these intangible recreation considerations and the other plan showing the cost when these intangibles are not included.

(3) An estimate of the reduction in net benefits from other project purposes in order to accommodate recreation intangibles.

IX. The Need for Further Research and Methodology

Considerable difficulties are inherent in imputing monetary values to the use of outdoor recreation resources and in comprehending the demand structure of this primarily non-market service. The problem is complicated further by the broad meaning of the term "recreation" which covers a broad spectrum of activities, some of which are in conflict with other project purposes and others which are in competition with each other.

Further studies are needed to more clearly define various quantitative and qualitative inter-relationships of recreational uses of resources. There is an overriding need, for example, for studies of factors affecting total recreation demand, activity preferences, and the recreationists' probable extent of substitution between various potential recreational opportunities. Inter-project competition among available opportunities and consumer response to available opportunities in regional recreation complexes are also phenomena which will require further exploration.

Pending the development and practical application of such studies, primary reliance will be placed on informed judgment in applying the standards provided herein, based on knowledge of the project's impact area and the recreation demands and habits of its population. Project reports, in consideration of the laws and administrative provisions in effect at the time, will set forth the bases used for evaluation.