| CECW-PR | Department of the Army  
U.S. Army Corps of Engineers  
Washington, DC 20314-1000 | ER 1165-2-29  
18 Nov 87 |
|---|---|---|
| Regulation No. 1165-2-29 | Water Resources Policies and Authorities  
GENERAL CREDIT FOR FLOOD CONTROL | |
| | **Distribution Restriction Statement**  
Approved for public release; distribution is unlimited. | |
GENERAL CREDIT FOR FLOOD CONTROL

1. **Purpose.** This establishes guidelines and procedures for Department of the Army application of the provisions of Section 104 of Public Law 99-662.

2. **Applicability.** Policies and procedures contained herein apply to all HQUSACE elements and field operating agencies of the Corps of Engineers having Civil Works responsibilities.

3. **Reference.** Section 104 of Public Law 99-662. *(Appendix A)*

4. **Legislative Provisions.** Section 104 authorizes and directs the development of guidelines which include criteria for determining whether work carried out by local interests is compatible with a project for flood control. Compatible work which was carried out prior to project authorization, before 17 November 1986 but after 17 November 1981, may be considered part of the project and credited against the non-Federal share of the cost of project, if the local sponsor applied for consideration of such work not later than 31 March 1987. Local work to be carried out after 17 November 1986 must receive Army approval prior to construction to be eligible for credit, taking into account the economic and environmental feasibility of the project. (Such approval can only be given on the basis of the guidelines required to be issued pursuant to Section 104(a); hence, the law is silent with respect to work performed between 17 November 1986 and the effective date of the guidelines.) The credit will not relieve the non-Federal sponsor of the requirement to pay 5 percent of the project costs in cash during construction of the remainder of the project. This legislative authority also provides that benefits and costs of compatible work will be considered in the economic evaluation of the Federal project. This includes the costs and benefits of compatible local work which was carried out after 17 November 1981 or within the 5 years prior to the initial obligation of reconnaissance study funds if that should establish a later date.

5. **Discussion.** Discussion of this legislation is contained in the Conference Report, H.R. Rpt. No. 99-1013, which accompanies H.R. 6. The House passed version of the bill contained a number of project-specific provisions that authorized credit against the non-Federal share for compatible work completed by local interests. The Senate passed version authorized crediting of compatible flood control works for projects under study. Both general
under study. Both general provisions would enable local interests to proceed with compatible work on the understanding that the local improvements would be considered a part of the Federal project for the purpose of benefit-to-cost analysis, as well as subsequent cost sharing. The Conference Committee deleted virtually all of the crediting provisions applicable to individual projects and expanded the general provision allowing the Secretary to credit the cost of certain work undertaken by local interests prior to project authorization against the non-Federal share of project costs and to consider the benefits and costs in the economic evaluation of a more comprehensive project. This authority provides a basis for non-Federal interests to undertake local work to alleviate flood damages in the period preceding authorization of a Federal project with assurance that they will not adversely affect the project's economic feasibility. It provides local sponsors more flexibility in meeting their flood problems.

6. General Policy.

a. Section 104 is applicable only to projects specifically authorized by the Congress (not to projects authorized by the Chief of Engineers under continuing authorities), and only to "flood control" projects except in instances where the Congress may provide, by specific language in the authorization, that a project of other characterization is eligible for Section 104 credit consideration.

   (1) Section 104 provisions will be applied only at locations where Federal construction of a congressionally authorized project, or separable element thereof, is initiated after April 30, 1986; a congressionally authorized study is underway; or where the feasibility report has been forwarded for Executive Branch review or for consideration by Congress.

   (2) The crediting provisions of Section 104 are applicable only to non-Federal work started after the reconnaissance phase of Corps preauthorization studies but prior to project authorization. No credit is available under Section 104 for non-Federal work started after project authorization.

   (3) A credit recommendation will be in response to a specific request from a State, city, municipality or public agency that is the prospective local sponsoring agency for the contemplated Federal plan.

b. Work eligible for crediting shall be limited to that part of the local improvement directly related to a flood control purpose. (These guidelines, although they generally make reference to flood control "projects," should be understood to have equivalent application to allocated flood control costs in a multiple purpose project.) Measures (structural or nonstructural) undertaken for channel alignment, navigation, recreation, fish and wildlife, land reclamation, drainage,
or to protect against land erosion, and which, in conjunction with the project, do not produce appreciable and dependable effects in preventing damage by irregular and unusual rises in water levels, are not classed as flood control works and are ineligible for credit.

c. Future work proposed for crediting should be separately useful for flood control or other purposes even if the Federal Government does not construct the contemplated project, and must not create a potential hazard.

d. For local work initiated before 17 November 1986, but after 17 November 1981, the local sponsoring agency must have requested consideration by letter dated on or before 31 March 1987. For new local work commenced after 17 November 1986, only work for which the sponsor receives notification of compatibility and extent of potential credit pursuant to subparagraph 9(c) of this regulation shall be eligible for credit.

e. The maximum amount creditable shall equal the actual expenditures made by non-Federal entities (not limited solely to the project sponsor's specific efforts and expenditures) for work that meets the criteria set forth above and in paragraphs 7 or 8. Expenditures eligible for inclusion in the amount creditable include the costs of all efforts actually required for the non-Federal implementation of the compatible flood control works including, but not necessarily limited to, costs for permits, environmental, cultural or archaeological investigations, engineering and design, land acquisition expense, other LERRD, and construction of the flood control works including any required mitigation measure. For construction efforts accomplished by non-Federal interests using their own forces and other resources, for which "costs" may not be recorded, consideration will be given to inclusion of a reasonable estimate of the value thereof (as if accomplished by contract). Regardless of the total amount creditable on this basis, however, the amount actually credited will not exceed the amount that is a reasonable estimate of the reduction in Federal project expenditures resulting from substitution of the local work for authorized project elements or, in the case of compatible work outside the scope of the project as originally authorized, a reasonable estimate of what Federal expenditures would have been if that work had been Federally constructed. Costs of subsequent maintenance of the creditable non-Federal flood control work will not be credited. In the event that the local construction work is financed by a Federal non-reimbursable grant or other Federal funds, the amount creditable against future local cooperation requirements shall be reduced by a commensurate amount, unless the law governing the grant permits grant funds to be used to meet the non-Federal share of Corps of Engineers cost sharing requirements. However, there will be no corresponding reduction in the costs or benefits considered in the project's economic evaluation.
f. Regardless of the total amount creditable for compatible work at the time of construction, the local sponsor will be required to contribute 5 percent of the total project cost in cash during construction of the project by the Corps. The credit can only be applied toward the value of needed lands, easements, rights-of-way, relocations, and disposal areas (LERRD) the sponsor would otherwise have to provide plus any additional required cash contribution needed to make the total sponsor contribution equal at least 25 percent of total project costs. As a consequence of crediting non-Federal construction costs against LERRD requirements some costs for LERRD may become a Federal responsibility.

g. Reimbursement to non-Federal interests will not be made for any excess of costs for compatible works beyond that which can be credited in accordance with subparagraph 6(f). In this regard, reimbursements pursuant to Section 103(a)(3) of P.L. 99-662 will not be made should the non-Federal share of project-related costs exceed 50 percent of total project-related costs by virtue of such excess of costs for compatible work.

h. Local interests are responsible for developing all necessary engineering plans and specifications for the work they propose to undertake. However, those costs, including engineering and overhead, directly attributable to the creditable part of local work may be included in the amount credited.

i. Non-Federal costs in connection with LERRD required for the Federal project, regardless of when incurred, will be recognized in computation of the LERRD component of project costs (the credit provisions of Section 104, P.L. 99-662, have no direct bearing on this).

j. Non-Federal construction and LERRD costs in connection with compatible work for which credit can be given will, when those costs are incorporated in project costs, be included in their related categories, and total project cost sharing responsibilities will be adjusted accordingly.

7. Credit Criteria for Projects Authorized on or Before 17 November 1986

a. For work accomplished prior to project authorization, the following local improvements can be construed as compatible and considered for credit: (1) Work that would constitute an integral part of the Federal project as authorized (integral work); (2) Work that would have been included in the Federal project if it had not been assumed to be part of the without project condition (external work); and (3) Work that reduces the construction cost of the Federal plan (substitute work).
b. For local work accomplished subsequent to project authorization, only work started prior to authorization, and for which credit consideration was requested by letter dated on or before 31 March 1987, is eligible for credit under the provisions of Section 104. New non-Federal work initiated after project authorization, provided it is on an element of the authorized project, is subject to limited credit under a separate authority. Such work, if the sponsor desires related credit, should be undertaken under formal agreement pursuant to Section 215 of the Flood Control Act of 1968, P.L. 90-483, approved August 13, 1968, as amended.

c. All creditable non-Federal costs for compatible work, and related benefits, may be considered in the project economic evaluation and, to the extent the related benefits are required for economic justification, creditable costs shall be included in total project first costs. In any event, costs for compatible work shall be included in total project first costs to at least the extent that credit is actually given, including LERRD.

d. Flood control projects authorized in P.L. 99-662 subject to Sections 903(a) and (b) or similar provisions (401(b) and 601(b)) of that act fall, with respect to crediting non-Federal costs, under this paragraph. (However, pending completion of the relevant procedural requirements for such projects, as set forth in those provisions of the act, Section 215 agreements covering proposed non-Federal accomplishment of compatible work on the project will not be executed.) Works eligible for credit will be explicitly addressed in new project reports submitted to the Secretary of the Army pursuant to Sections 903(a) and (b) or similar provisions.

e. Formulas for determining the amount of allowable credit in accordance with these guidelines are provided in Appendix B.

8. Credit Criteria for Projects Authorized After 17 November 1986

a. In general, for projects authorized after 17 November 1986, work eligible for credit will be explicitly addressed in recommendations to Congress. If a report has been submitted to Congress, work on an element of the recommended Federal project or work that reduces its construction cost can be considered for credit.

b. Local work initiated after 17 November 1981 or within 5 years before the first obligation of funds for the reconnaissance study began, whichever is later, can be incorporated into the recommended plan for the purpose of economic evaluation. However, credit can be considered only for local work undertaken after the end of the reconnaissance study and for which a credit application has been acted upon prior to construction pursuant to paragraph 9 procedures.
(For any portion of such work undertaken prior to 17 November 1986, credit may be granted only if a letter application was received prior to 31 March 1987.) If such work was undertaken between 17 November 1986 and the effective date of this regulation, an after-the-fact application pursuant to the paragraph 9 procedures will be accepted.

c. Reports recommending Federal participation in a plan should include the following, "Future non-Federal expenditures for improvements that, prior to their construction, are found to be compatible with the plan recommended herein, as it may be subsequently modified, will entitle the (sponsor's name) to consideration for credit in accordance with the guidelines established under Section 104, P.L. 99-662."

d. All costs for non-Federal work incorporated in the recommended plan in accordance with this paragraph shall be included in total project first costs and will therefore be subject to cost sharing. Related benefits will be included in the project's economic evaluation.


a. For non-Federal works undertaken prior to 17 November 1986, credit determinations (deferred until these guidelines became effective) will be made by the Secretary in response to the applications received prior to 31 March 1987. Future non-Federal works for which credit may be allowed under the provisions of Section 104 of Public Law 99-662 are limited, basically, to local works undertaken while Federal preauthorization studies of a Federal project for the locality are in progress. Credit consideration for such works will be governed by the procedures set forth here. Non-Federal entities desiring credit should confer with the District Engineer and submit a written application to him. The application will include a full description of planned work, plans, sketches, and similar engineering data and information sufficient to permit analysis of the local proposal.

b. The District Engineer shall review the engineering adequacy of the local proposal and its relation to the Federal plan and determine what part of the proposed local improvement would be eligible for credit. The District Engineer will forward his recommendations through the Division Engineer and the Chief of Engineers to the Assistant Secretary of the Army (Civil Works) and provide information on:

(1) Basis for concluding the local plan is appropriate in relation to the prospective Federal plan.

(2) Total estimated cost and benefits of creditable work.
(3) Environmental effects of the local work, including a brief statement of both beneficial and detrimental effects to significant resources.

(4) The urgency for proceeding with the local plan.

c. Upon being informed of the Secretary's decision, the District Engineer shall reply by letter stating to the local applicant what local work and costs can reasonably be expected to be recommended for credit under the provisions of Section 104 (assuming that the final plan for a Federal project, when it is ultimately recommended, remains such as to preserve the local work as a relevant element). If the improvement proposed by the non-Federal entity includes work that will not become a part of the Federal project, the means of determining the part eligible for credit shall be fully defined. This letter shall include the following conditions:

(1) This shall not be interpreted as a Federal assurance regarding later approval of any project nor shall it commit the United States to any type of reimbursement if a Federal project is not undertaken.

(2) This does not eliminate the need for compliance with other Federal, State, and local requirements, including any requirements for permits, Environmental Impact Statements, etc.

(3) Upon authorization of the Federal project, approval shall be subject to rescission if the non-Federal work has not commenced and, as a consequence, Corps planning for orderly implementation of the project is being adversely affected.

d. The non-Federal entity will notify the District engineer when work commences. The District Engineer will conduct periodic and final inspections. Upon completion of local work, local interests shall provide the District Engineer details of the work accomplished and the actual costs directly associated therewith. The District Engineer shall audit claimed costs to ascertain and confirm those costs properly creditable and shall inform the non-Federal entity of the audit results.

e. During further Corps studies, the local work actually accomplished that would constitute a legitimate part of the overall recommended Federal project may be incorporated within any plan later recommended for implementation.

f. The District Engineer shall submit a copy of his letter and notification of creditable costs of completed work to the Secretary through the Division Engineer and the Chief of Engineers.
g. All justification sheets supporting new start recommendations for Preconstruction Engineering and Design or Construction of projects will include information on credits in the paragraph on local cooperation. The information should include but not be limited to date of the District Engineer's letter to the sponsor pursuant to subparagraph 9(c) of this regulation, status of the creditable work, estimated or actual cost of the work and the estimated amount of credit.

FOR THE COMMANDER:

[Signature]

ROBERT C. LEE
Colonel, Corps of Engineer
Chief of Staff

2 Appendices
App A - Section 104 of Public Law 99-662
App B - Formulas for Determining Amount of Allowable Credit
An Act to provide for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

** ** ** ** ** ** ** ** ** ** ** **

SEC. 104. GENERAL CREDIT FOR FLOOD CONTROL.

(a) GUIDELINES.--Within one year after the date of enactment of this Act, the Secretary shall issue guidelines to carry out this section, consistent with the principles and guidelines on project formulation. The guidelines shall include criteria for determining whether work carried out by non-Federal interests is compatible with a project for flood control and procedures for making such determinations. The guidelines under this section shall be promulgated after notice in the Federal Register and opportunity for comment.

(b) ANALYSIS OF COSTS AND BENEFITS.--The guidelines established under subsection (a) shall provide for the Secretary to consider, in analyzing the costs and benefits of a proposed project for flood control, the costs and benefits produced by any flood control work carried out by non-Federal interests that the Secretary determines to be compatible with the project. For purposes of the preceding sentence the Secretary may consider any work carried out after the date which is 5 years before the first obligation of funds for the reconnaissance study for such project. In no case may work which was carried out more than 5 years before the date of the enactment of this Act be considered under this subsection, unless otherwise provided in this Act.

(c) CREDITING OF NON-FEDERAL SHARE.--The guidelines established under subsection (a) shall provide for crediting the cost of work carried out by the non-Federal interests against the non-Federal share of the cost of an authorized project for flood control as follows:

(1) Work which is carried out after the end of the reconnaissance study and before the submission to Congress of the final report of the Chief of Engineers on the project and which is determined by the Secretary to be compatible with the project shall be included as part of the project and shall be recommended by the Secretary in the final report for credit against the non-Federal share of the cost of the project.

(2) Work which is carried out after submission of the final report of the Chief of Engineers to Congress and which is determined by the Secretary to be compatible with the project shall be considered as part of the project and shall be credited by the Secretary against the non-Federal share of the cost of the project.
in accordance with the guidelines promulgated pursuant to subsection (a).

In no event may work which was carried out more than 5 years before the date of enactment of this Act be considered under this subsection, unless otherwise provided in this Act.

(d) PROCEDURE FOR WORK DONE BEFORE DATE OF ENACTMENT.--The Secretary shall consider, under subsections (b) and (c), work carried out before the date of enactment of this Act by non-Federal interests on a project for flood control, if the non-Federal interests apply to the Secretary for consideration of such work not later than March 31, 1987. The Secretary shall make determinations under Subsections (b) and (c) with respect to such work not later than 6 months after guidelines are issued under subsection (a).

(e) PROCEDURE FOR WORK DONE AFTER DATE OF ENACTMENT.--The Secretary shall consider work carried out after the date of enactment of this Act by non-Federal interests on a project for flood control under subsections (b) and (c) in accordance with the guidelines issued under subsection (a). The guidelines shall require prior approval by the Secretary of any flood control work carried out after the date of enactment of this Act in order to be considered under this section, taking into account the economic and environmental feasibility of the project.

(f) LIMITATION NOT APPLICABLE.--Any flood control work included as part of the non-Federal share of the cost of a project under this section shall not be subject to the limitation contained in the last sentence of section 215(a) of the Flood Control Act of 1968.

(g) CASH CONTRIBUTION NOT AFFECTED.--Nothing in this section affects the requirements of section 103(a)(1)(A).

** ** ** ** ** ** ** ** ** ** ** ** ** ** **
1. **General.** The amount of credit that non-Federal interests may receive under the provisions of Section 104 of the Water Resources Development Act of 1986 depends first on the value of the compatible work they have accomplished and then on the value of the local cooperation against which they may receive credit. If the compatible work is for construction which was outside the scope of the project as authorized, the costs for the compatible work for which credit is desired are additive to the original estimate of total project cost. This increases the estimated cost of basic local cooperation requirements, thus enlarging the target against which credit may be given.

2. The "formulas" for determining the amount of credit that may be allowed in the various cases are provided in the following paragraphs. TPC means the total estimate of project costs for the project as it was authorized. LERRD means the costs for lands, easements, rights-of-way, relocations and disposal areas as included in that estimate.

3. Calculations for several hypothetical examples are provided to illustrate how crediting determinations would impact on project costs and on cost sharing. For each of these examples it is assumed that the estimated total project cost (TPC) of the project as authorized is $100.0 million. All of the elements of cost are given in millions of dollars.

4. **Integral Work.** For compatible work that is integral with the project as authorized [240.7(a)(1)] or compatible work that constitutes an advantageous substitution for work integral with the authorized project [i.e. substitute work, 240.7(a)(3)]:
   a. LERRD 20% TPC
      Credit = Value of compatible work up to 20% TPC
   b. LERRD 20% TPC
      Credit = Value of compatible work up to LERRD

Crediting non-Federal interests for constructing an integral part of the project or substitute work will not result in any increase in project costs. Ordinarily, the result will simply be a transfer of equivalent responsibilities between the Corps and non-Federal interests. If non-Federal interests should accomplish compatible integral or substitute work exceeding the possible credit, the Corps will be relieved of the expense of constructing an increment of the project. An example is provided below. In this example, non-Federal interests have
accomplished integral project work amounting to 30.0 million. LERRD are less than 20% of TPC so that the maximum value of local cooperation against which they may receive credit is $20.0 million. Since the $10.0 for which credit cannot be given nonetheless represents useful project work, in this example the Corps would be relieved of the costs for accomplishing that much construction.

Case: LERRD 20% TPC

<table>
<thead>
<tr>
<th></th>
<th>Basic Project</th>
<th>Credit Example 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Federal:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5% Cash</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>LERRD</td>
<td>14.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Extra cash (toward constr.)</td>
<td>6.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Construction (actual)</td>
<td>-</td>
<td>30.0</td>
</tr>
<tr>
<td>Subtotal</td>
<td>25.0</td>
<td>35.0</td>
</tr>
<tr>
<td>Federal:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>75.0</td>
<td>51.0</td>
</tr>
<tr>
<td>LERRD</td>
<td>-</td>
<td>14.0</td>
</tr>
<tr>
<td>Subtotal</td>
<td>75.0</td>
<td>65.0</td>
</tr>
<tr>
<td>TPC</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Reduction in Federal costs - 10.0(1)

(1) The amount by which the integral or substitute work actually accomplished by non-Federal interests exceeds the requirements of local cooperation against which credit may be given.

5. **External Work.** For compatible work outside the scope of the project as authorized [i.e. external work, 240.7(a)(2)]:

   a. LERRD 25% TPC

      Credit = Value of compatible work up to 25% TPC

   b. LERRD 25% TPC

      Credit = Value of compatible work up to LERRD

Crediting non-Federal interests for compatible work which was not part of the project as authorized (external work) will result in an increase in project costs and an increase in net Federal costs. The costs for compatible external work for which non-Federal interests desire credit must be incorporated into the estimate of total project costs (but only to the extent that credit can actually be given). Assigned Federal and non-Federal project costs then making up the adjusted total project costs will both be greater than for the basic project. However, the
net effect will be a savings to non-Federal interests in the further costs they will have for fulfilling local cooperation requirements. The maximum amount that can be credited for compatible external work (and thus added to project costs), where LERRD 25% TPC, follows from

\[ \text{Credit, } C = 20\%(TPC + C) \]

which reduces to

\[ C = 0.2TPC + 0.2C, \]

and finally

\[ C = \frac{0.2}{0.8}TPC \text{ or } 0.25TPC \] as indicated in a, above. An example of crediting in a case involving external work is provided below. In this example, as in example 1, non-Federal interests have accomplished work amounting to $30.0 million. This work, however, was not integral with the project as authorized (it has been determined to be compatible external work), so that any part of it for which credit is given must be added to TPC. Since, in this case LERRD are less than 25% of TPC, the maximum amount that can be credited is 25% of TPC, or $25.0 million. Adjusting TPC by this amount results in an added Federal cost of $18.75 million (75% of the $25.0 million increase).

<table>
<thead>
<tr>
<th>Case</th>
<th>LERRD</th>
<th>25% TPC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Basic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Project</td>
</tr>
<tr>
<td>Non-Federal:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5% Cash</td>
<td>5.0</td>
<td>6.25</td>
</tr>
<tr>
<td>LERRD</td>
<td>14.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Extra cash (toward constr.)</td>
<td>6.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Construction (actual)</td>
<td>-</td>
<td>25.0</td>
</tr>
<tr>
<td>Subtotal</td>
<td>25.0</td>
<td>31.25</td>
</tr>
<tr>
<td>Federal:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>75.0</td>
<td>79.75</td>
</tr>
<tr>
<td>LERRD</td>
<td>-</td>
<td>14.0</td>
</tr>
<tr>
<td>Subtotal</td>
<td>75.0</td>
<td>93.75</td>
</tr>
<tr>
<td>TPC</td>
<td>100.0</td>
<td>125.0</td>
</tr>
<tr>
<td>Adjusted TPC</td>
<td></td>
<td>125.0</td>
</tr>
<tr>
<td>Excess of Compatible Work</td>
<td></td>
<td>5.0(1)</td>
</tr>
<tr>
<td>Increase in Federal Costs</td>
<td></td>
<td>18.75(2)</td>
</tr>
</tbody>
</table>

(1) This portion of the compatible external work is not incorporated in the project costs because it would be a disadvantage to the project sponsor to do so (if included, the sponsor would become obligated for an additional 5% up-front cash contribution but without any savings in other local cooperation because there would be nothing left to give credit against).

(2) This is also the measure of the net savings to non-Federal interests by virtue of crediting.
6. **Combined integral and external works.** For cases where non-Federal interests have accomplished compatible work, some of which is integral with the project as authorized and some of which is outside the original scope (external), determination of the allowable credit is a two step process. Work that is integral to the project is credited first. This, $C_1$, is accomplished in accordance with paragraph 4 above. If, after this step, there remain local cooperation requirements against which credit may be given, credit for compatible external work, $C_2$, is determinable on the following basis.

   a. LERRD $20\%(TPC + C_2)$
   
   \[ C_2 = \text{Value of compatible work up to } 25\%TPC - 1.25C_1 \]
   
   b. LERRD $20\%(TPC + C_2)$
   
   \[ C_2 = \text{Value of compatible work up to remaining LERRD} \]

Note that total credit, $C = C_1 + C_2$. Formula 6.a. is derived from $C = C_1 + C_2 = 20\%(TPC + C_2)$. An example of crediting in a case involving both kinds of compatible works is provided below. In this example non-Federal interests have accomplished $25.0$ million in compatible work, $5.0$ of which was integral with the project as authorized and $20.0$ of which was external. The integral work is credited in the first step against the extra cash component of the original local cooperation requirements. TPC is unaffected; however, the target against which credit for the external work might be credited has been partially used up. The second step shows only the incremental effects of crediting external work. Using 6.a. the maximum credit that can be given for this work is $18.75$ million. Although other non-Federal requirements are extinguished as a result of the credit for the external work, the non-Federal 5% cash contribution increases by $0.9375$ million, say $0.94$ (5% of $18.75$). In the final step, the incremental effects of crediting the external work are added in with the values obtained in step 1.
Case: LERRD 20% (TPC + C2)  

<table>
<thead>
<tr>
<th></th>
<th>Basic Project</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Final</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-Federal:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5% Cash</td>
<td>5.0</td>
<td>5.0</td>
<td>0.94</td>
<td>5.94</td>
</tr>
<tr>
<td>LERRD</td>
<td>14.0</td>
<td>14.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Extra cash (toward constr.)</td>
<td>6.0</td>
<td>1.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Construction (actual)</td>
<td>-</td>
<td>5.0</td>
<td>18.75</td>
<td>23.75</td>
</tr>
<tr>
<td></td>
<td>25.0</td>
<td>25.0</td>
<td></td>
<td>29.69</td>
</tr>
<tr>
<td><strong>Federal:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>75.0</td>
<td>75.0</td>
<td>0.06</td>
<td>75.06</td>
</tr>
<tr>
<td>LERRD</td>
<td>-</td>
<td>-</td>
<td>14.0</td>
<td>14.0</td>
</tr>
<tr>
<td></td>
<td>75.0</td>
<td>75.0</td>
<td>14.0</td>
<td>89.06</td>
</tr>
<tr>
<td><strong>TPC</strong></td>
<td>100.0</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Adjusted TPC</strong></td>
<td>100.0</td>
<td></td>
<td></td>
<td>118.75</td>
</tr>
<tr>
<td><strong>Excess of Compatible Work</strong></td>
<td></td>
<td></td>
<td>1.25</td>
<td>1.25</td>
</tr>
<tr>
<td><strong>Increase in Federal Costs</strong></td>
<td></td>
<td></td>
<td></td>
<td>14.06</td>
</tr>
</tbody>
</table>

(1) Compatible work consisting of 5.0 integral work credited in first step of calculations plus 20.0 external work credited, to the extent possible, in second step.