TO:

ENGINEERING INSTRUCTION

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

SUPERSEDED BY EB 98-014 EFFECTIVE 4/24/98

SUBJECT: PROCEDURE FOR BRIDGE REHABILITATION PROJECTS

Subject Code: 7.35

Distribution: [A] Main Office [E] Regions [H] Special

APPROVED: E. V. Hennigan

Code: 79-46

Date: Nov. 14, 1979

Supersedes: EI 74-87 EI 74-115, EI 75-37

This procedure shall be followed for all bridge rehabilitation projects which are not associated with other work or for which design approval has not been requested under a larger project. See Step XV. In cases where the bridge rehabilitation is included in a highway reconstruction, or a safety project, the procedure applies in part. The EI entitled "Procedure For Rehabilitation Work Included in Highway Projects", currently EI 79-47, shall be followed in those cases.

The procedure includes the following attachments:

Attachment 1, Correlation with Phases in Design Procedure Manual.

Attachment 2, Evaluation of Bridge Rehabilitation Projects for Possible Substandard Features.

Attachment 3, Sample Field Inspection Report.

Attachment 4, Typical Layout of Preliminary Plan.

Attachment 5, Rehabilitation Preliminary Sheet Check and Review List.

Attachment 6, Sample memorandum to FHWA.

Attachment 7, Sample letter to the Department of Environmental Conservation forwarding the Preliminary Plan.

Attachment 8, Sample memorandum requesting design approval for projects under CA.

Attachment 9, Sample memorandum requesting design approval for projects not under CA.

PROCEDURE FOR BRIDGE REHABILITATION PROJECTS

The following procedure shall be followed in progressing all bridge rehabilitation projects to be constructed by the New York State Department of Transportation, regardless of fund source and regardless of design agency. Attachment 1, Correlation With Phases In Design Procedure Manual, is included for information. It is Department policy to utilize Federal Aid wherever possible so actions to be followed must be based on the assumption that Federal Aid will be utilized.

I. GENERAL

In accordance with the Guidelines of FHPM 7-7-2, Environmental Impact and Related Statements, a bridge rehabilitation project is ordinarily considered a Non-Major Federal Action and an Environmental Impact Statement or a Negative Declaration is not required. A bridge rehabilitation project is also ordinarily considered to be in Category III of the current Environmental Action Plan. Category III projects are always "non-major FHWA actions". This procedure is written as complying with a Category III determination.

II. DEFINITIONS

Rehabilitation: The major work required to restore the structural integrity of a bridge as well as work necessary to correct major safety defects.

Replacement: The total replacement of a structurally deficient or functionally obsolete bridge with a new facility constructed in the same general traffic corridor and meeting the current structural and geometric standards.

III. DESIGNER

This procedure accounts for certain variations based on the agency performing design. Bridge rehabilitation projects may be designed by any of the following:

A. Structures Subdivision

B. Regional Office

C. Consulting Engineer

The scope of the work to be accomplished by the Consultant will be spelled out in the Consultant Agreement. It may encompass all or just part of the work described in this procedure. In the case of differences between this procedure and the agreement, the agreement will prevail. All communications required by this procedure between the State and the Consultant will be made through the Consultant Manager or with the Consultant Manager informed in writing regardless of whether or not the Consultant Manager is specifically mentioned at that step of the procedure.

D. Local Government

Under the term Local Government (LG) is included counties, towns, cities (excluding New York City), villages and any engineering consultant hired by them to do bridge rehabilitation plans.

The Regional Director will be the contact between the State and the LG. All substantial communications required by this procedure between the State and the LG will be made through the Regional Director or with the Regional Director informed in writing regardless of whether or not the Regional Director is specifically mentioned at that step of the procedure.

IV. OBTAINING BRIDGE PLANS AND REPORTS

The Designer shall obtain the following:

1. The latest General Bridge Inspection and Condition Report and the original contract number, if available, from the Bridge Inventory and Inspection Unit (Structures).

2. The plans of the existing bridge from the following sources:

   a. State Highway Bridges - Plan Files Unit of the Final Plan Review Bureau or Region Plan Files Unit.

   b. Canal Bridges - Waterways Maintenance Subdivision (Main Office or Regional Office).

   c. Railroad Bridges - The railroad, through the Rail Project Implementation Bureau.

   d. Other Bridges - The Shop Drawing and Fabrication Unit (Structures), steel fabricator, consulting engineer, contractor, county or any other available source.

V. INFORMATION REQUIRED TO PROGRESS DESIGN

The following items of information are necessary to progress design. Some of the items may have already been secured under Steps of the Environmental Action Plan. If so, the appropriate report may be referred to as the source of the information.

1. Current traffic, projected traffic (20 years, or as specified) and design speed. If the design speed of the highway is not known, an evaluation shall be made as to whether the segment of highway which includes the bridge project has an equivalent design speed of (1) 50 mph or more, or (2) less than 50 mph. When DHV's are furnished, both the 1-way DHV and the 2-way DHV shall be included.

2. A statement from the Regional Planning Group about proposed improvements to this section of the highway. Ordinarily, the statement from the Planning Group will say that there are no plans in the foreseeable future. If there are plans, the Region must justify why the bridge is being rehabilitated at this time, rather than at the time of highway improvement.

3. A method for maintaining traffic: The Region will discuss the project with State and local police, and with local officials, including school boards and fire companies. Some of this discussion may have to take place during the preparation of the Preliminary Plan.

4. A stream bridge shall be inspected for hydraulic deficiencies: severe scouring, chronic flooding, etc. If none are found, a statement to that effect shall be made. If some are found or the rehabilitation work reduces the waterway area, a Hydraulic Report shall be made.

5. The bridge shall be inspected for foundation deficiencies: settlement, tilting, etc. If none are found, a statement to that effect shall be made. If some are found, Foundation Design Requirements must be obtained.

6. A statement on right-of-way: Any necessary right-of-way taking should be briefly described. Otherwise, state that no taking is necessary.

7. The accident record at the bridge from the Regional Office.

8. A statement on any substandard features of the bridge and the immediately adjacent highway, and justification if they are to be retained. If no substandard features, so state. The Regional Office shall provide the Designer with information relative to substandard features on the immediately adjacent highway. The existing and proposed bridge roadway widths and highway sections shall be described. See Attachment 2 (Evaluation of Bridge Rehabilitation Projects for possible Substandard Features).

   Relevant to the retention of substandard features is FHPM 6-2-1-1, paragraph 4e(2), "The determination to approve a project design that does not conform to the minimum (design) criteria is to be made only after due consideration is given to all project conditions such as maximum service and safety benefits for the dollar invested, compatibility with adjacent section of unimproved roadway, and the probable time before reconstruction of the section due to increased traffic demands or changed conditions."

Origin of the above items:

A. Design by Structures Subdivision or Regional Office

   All items are prepared by the Regional Office.

B. Design by Consulting Engineer

Items 1 and 2 are supplied to the Consulting Engineer by the Regional Office. The balance of the items are prepared by the Consulting Engineer in collaboration with the Regional Office as necessary.

C. Design by Local Government

All items are prepared by the Local Government. The Regional Office will assist with items 1 and 2, if requested.

VI. IN-DEPTH FIELD INSPECTION

The Designer will make an in-depth field inspection of the bridge. The Regional Bridge Maintenance Engineer will be informed of the inspection and the proposed rehabilitation and, at his option, he may either be present at the inspection or forward to the designer his comments. When the design is by Structures Subdivision or Consultant, the Regional Structures Engineer will also be present at the field inspection. The thorough inspection necessary may include several visits to the job site and the use of considerable inspection equipment. Arrangements must be made in advance with the Regional Maintenance Group for equipment needed to adequately perform the inspection. In the case of Structures Subdivision Inspection, arrangement will be made through the Regional Structures Engineer, who will use his judgement as to what equipment is needed. Equipment could include ladders, scaffolding, snooper, cherry picker, boat, etc.

The Designer will make a Field Inspection Report in which the following points must be addressed:

1. Purpose of inspection.
2. Scope of inspection.
3. Those participating.
4. Observations (will include color photographs in the original report and in all copies).
5. Conclusions.
6. Recommendations.

See Attachment 3 (sample Field Inspection Report)

In the case of design by Consulting Engineer, an inspection specification may be included in the Consultant Agreement in place of the above format.

VII. BRIDGE DECK EVALUATION REPORT

The Designer shall check to see if a Bridge Deck Evaluation Report has been prepared and is up-to-date. If not, the Regional Office, the Consulting Engineer, or the Local Government should be requested to prepare it, follow-

ing the procedure in the current Bridge Deck Evaluation Procedure Manual. When required, substructure cores shall be requested through the Inventory and Inspection Unit (Structures).

VIII. BRIDGE REHABILITATION PROJECT REPORT

The Designer shall prepare the Bridge Rehabilitation Project Report (BRPR) which will include the following when appropriate:

1. Current and projected traffic and design speed.
2. Statement from the Planning Group.
3. Traffic Maintenance Plan and Cost.
4. Hydraulic Statement.
5. Foundation Statement.
6. Statement on right-of-way.
7. The accident record at the bridge.
8. Statement on substandard features.
9. Location map.
10. Field Inspection Report or In-Depth Inspection Report and Summary Report (Consulting Engineer).
11. Bridge Deck Evaluation Report.
12. Approach highway width.
13. Recommendations and conclusions, including the cost of minimum rehabilitation to existing geometrics, of rehabilitation to standard geometrics and of bridge replacement.

    If the Designer concludes that the bridge should be replaced instead of rehabilitated, he shall so recommend. In that case, he shall not proceed with further steps of this procedure, but shall forward the report and recommendation, through usual channels, to the Deputy Chief Engineer, Structures (DCES) for his review and confirmation.

    If the DCES concurs with the recommendation that the bridge be replaced rather than rehabilitated, he will recommend to the Regional Office that a scope change be submitted through appropriate channels and the project be rescheduled.

IX. PRELIMINARY PLAN

If the original decision to rehabilitate is unchanged, the Designer will prepare the Preliminary Plan. See Attachment 4 (layout of Preliminary Plan) and Attachment 5 (Rehabilitation Preliminary Sheet Check and Review List). This Preliminary Plan shall be prepared in accordance with the current Standard Details for Highway Bridges, Bridge Design Data Sheets and Guideline Drawings.

A Preliminary Plan shows basic concepts and major details, acquaints affected parties with the project and project components, serves as an instrument for initial approval by affected parties and serves as a basis for the development of final plans.

If traffic is to be maintained on the bridge, the location of the longitudinal deck joint, the type of traffic barrier, and the width and location of traffic lanes to be maintained during various phases of construction shall be shown.

X. PRELIMINARY PACKAGE

The Preliminary Package consists of the following:

Bridge Rehabilitation Project Report

Preliminary Plan

Rehabilitation Preliminary Sheet Check and Review List (Attachment 5)

A. Design by Structures Subdivision

The Designer will submit the package along with the original Preliminary Plan to the Supervisor of the Bridge Design Section for concurrence. After his review, the Supervisor will forward the same data to the DCES for approval, to be signified by signing of the original Preliminary Plan. One sepia and two prints of the approved Preliminary Plan will be forwarded to the Regional Office for its review and comment. One additional copy of the Field Inspection Report will be submitted to the Bridge Inventory and Inspection Unit of the Structures Subdivision.

B. Design by Regional Office, Consulting Engineer or Local Government

The Designer shall submit two sets of the Package to the Supervisor of the Bridge Design Section for review by the Plan Review Unit. One additional copy of the Bridge Rehabilitation Project Report may be submitted for use in obtaining design approval in Step XV.B. One additional print of the Preliminary Plan of projects retaining substandard features shall be submitted for forwarding to FHWA in Step XI. One additional copy of the Field Inspection Report shall be submitted for the files of the Bridge Inventory and Inspection Unit. The transmittal memorandum shall indicate if the bridge plans are included in a larger (highway) project for which design approval has been or will be requested.

One marked-up print of the Preliminary Plan and any corrections to the Check and Review List will be returned by the Plan Review Unit to the Designer. The revised original Preliminary Plan and the Rehabilitation Preliminary Sheet Check and Review List will be submitted to the Plan Review Unit for approval of the DCES. After making any necessary prints for the Department of Environmental Conservation, Railroads, Federal Highway Administration, or other agencies to whom the Plan will be sent, the approved original Preliminary Plan will be returned to the Designer.

XI. APPROVAL OF SUBSTANDARD FEATURES AND CATEGORY DETERMINATION (See Attachment 2)

1. Substandard Features.

   A. Design by Structures Subdivision

   The designer will make a print of the Preliminary Plan. The print, along with the Statement on Substandard Features, will be forwarded to FHWA for concurrence in retention of substandard features.

   B. Design by Regional Office, Consulting Engineer or Local Government

   The Plan Review Unit will excerpt the Statement on Substandard Features from the Bridge Rehabilitation Project Report, and send it, together with a print of the Preliminary Plan, to FHWA for concurrence in retention of substandard features.

2. Category Determination

   The designer will check to see if the determination that the project falls in Category III was made at the Project Initiation Report (PIR) stage. If made, he shall review the current project conditions to confirm that the determination is still valid. If the category determination has not previously been established, the designer shall make such a determination in accordance with the criteria on page 5.43 of the Environmental Action Plan. In the case of Structures Subdivision, Consulting Engineer or Local Government design, assistance of the Regional Office may be requested in establishing category determination.

3. Submission to FHWA

   A memorandum to FHWA, outlining reasons and requesting concurrence with category determination shall be submitted for all projects. For those projects which include substandard features, the same submission shall include the information outlined in XI.1. See Attachment 6 (sample memorandum to FHWA). While waiting for FHWA reply, the designer may continue with the procedure up to step XV, Design Approval.

XII. SUBMISSION TO LOCAL AGENCIES

The approved Preliminary Plan will be submitted to appropriate local agencies for comment in the following manner.

A. Design by Structures Subdivision and Regional Office.

Submission by Regional Office.

B. Design by Consulting Engineer.

Submission by Consultant Manager.

C. Design by Local Government.

Submission by Local Government.

XIII. SUBMISSION TO THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

For all projects over water, the Supervisor of the Bridge Planning Section will submit three prints of the approved Preliminary Plan to the particular Regional Supervisor of Environmental Analysis with a copy of the submission letter to the Director of Environmental Analysis and the Regional Office. See attachment 7 (sample letter to the Department of Environmental Conservation). The letter for the signature of the Supervisor of the Bridge Planning Section will be prepared by the Project Engineer in the case of projects designed in the Structures Subdivision and by the Plan Review Unit Supervisor in the case of projects designed by Regional Offices, Consulting Engineers or Local Governments.

XIV. SUBMISSION TO RAILROAD

For all projects involving a railroad, the Supervisor of the Bridge Design Section will submit three prints of the approved Preliminary Plan to the Rail Project Implementation Bureau with a copy of the submission memorandum to the Regional Office. The memo will be prepared by the Project Engineer in the case of projects designed in the Structures Subdivision and by the Plan Review Unit Supervisor in the case of projects designed by Regional Offices, Consulting Engineers or Local Governments.

XV. DESIGN APPROVAL

A. Projects Administered Under Certification Acceptance (CA).

A memorandum requesting Design Approval will be sent by the Deputy Chief Engineer Structures (DCES) to the Chief Engineer (see attachment 8 for sample memorandum). The memorandum shall state whether there are any substandard features and if so, whether FHWA approval for their retention has been secured. The memorandum will also cover any other comment relating to the project and discussed with the FHWA.

B. Projects Not Administered Under CA.

One copy of the Bridge Rehabilitation Project Report and one copy of the approved Preliminary Plan will be sent by the Supervisor of the Bridge

Design Section to the FHWA with a memorandum requesting Design Approval (see attachment 9 for sample memorandum).

Copies of the memorandum after being approved by the Chief Engineer or the FHWA shall be sent by the Planning and Programming Unit (Structures) to the Regional Director, the Director of the Preliminary Plan Review Bureau, the Director of the Capital Projects Coordination Bureau, and the Director of the Rail Projects Implementation Bureau if a railroad is involved.

Design Approval as noted above will not be requested for bridge rehabilitation projects if the work is included in a larger (highway) project for which Design Approval is requested by the Facilities Design Subdivision or the Traffic and Safety Division. This decision will be made during the Project Initiation Request Stage, and those projects for which the Structures Subdivision must obtain Design Approval will be so identified under the "Remarks" heading of the Bridge Monthly Progress Report by the entry "DES APP BY BR OFF".

XVI. ADVANCE PLAN PREPARATION

The Designer will prepare the advance structure plans using the N.Y.S. D.O.T. Standard Specifications, Construction and Materials. Advance structure plans show essential details, are unchecked, contain no bar lists and contain the table, E stimate of Quantities", showing the items but no quantities.

A. Design by Structures Subdivision

The Regional Office will prepare the plans for any necessary approach work or for any work portion beyond the reinforced concrete approach slab. It will also prepare the Maintenance and Protection of Traffic items and the title sheet for the plans. Two sets of the advance highway plans will be forwarded to the Bridge Design Section (Structures) for review, and one set will be returned to the Regional Office.

B. Design by Regional Office, Consulting Engineer or Local Government

The office responsible for design prepares all plans.

XVII. ADVANCE PLAN DISTRIBUTION

A. Design by Structures Subdivision

The Project Engineer distributes the advance structure plans as follows:

1. One sepia and two prints for the Regional Office.

2. One for FHWA, if Federal Aid is requested and CA does not apply.

3. Three for each railroad, if involved, through the Rail Project Implementation Bureau.

4. Two for Waterways Maintenance Subdivision, if involved.

B. Design by Regional Office, Consulting Engineer or Local Government

The Designer will forward to the Plan Review Unit, for review and distribution the following numbers of sets of the advance structure plans:

1. Two for Plan Review Unit (Structures).

2. One for FHWA, if Federal Aid is requested and CA does not apply.

3. Three for each railroad, if involved, through the Rail Project Implementation Bureau.

4. Two for Waterways Maintenance Subdivision, if involved.

The Consultant will also submit the necessary sets of the advance structure plans to the Regional Office required for local agency review and comments.

XVIII. PS&E SUBMISSION

A. Design by Structures Subdivision

The Design Squad Supervisor will finalize the structure plans, incorporating the appropriate comments from the Regional Office, Railroad, Waterways, FHWA, Department of Environmental Conservation, Utility Companies, etc. The Regional Office will prepare the Report on Design and its portion of the plans: title sheet, approach plans, maintenance of traffic plans, etc. In conformance with the current Engineering Instruction titled "Final PS&E Submission" the Structures Subdivision and the Regional Office will forward their respective portions of the PS&E to the Final Plan Review Bureau.

B. Design by Regional Office, Consulting Engineer or Local Government

The office responsible for design will prepare the Report on Design and finalize the structure and approach plans, incorporating the appropriate comments from the Regional Office, the Plan Review Unit, Railroad, Waterways, FHWA, Department of Environmental Conservation, Utility Companies, etc. In accordance with the current Engineering Instruction titled "Final PS&E Submission", the Designer will forward the combined PS&E to the Final Plan Review Bureau through appropriate channels. A copy of the transmittal memorandum will be sent to the Supervisor of the Bridge Design Section.

XIX. BRIDGE INVENTORY

Bridge Inventory Input Forms will be prepared in accordance with the current "Procedure for Inventorying New and Reconstructed Bridges."

ATTACHMENT: 1

CORRELATION WITH PHASES IN DESIGN PROCEDURE MANUAL

In order that the steps in this procedure may be related to the various phases in the Design Procedure Manual, the following matching of steps may be used:

Phases I, II (combined) - Steps I through IX

Phase III - None

Phase IV - Steps X through XV

Phase V - Steps XVI through XVII

Phase VI - Step XVIII

Evaluation of Bridge Rehabilitation Projects for Possible Substandard Features

Substandard Feature: A characteristic of the proposed work that would fail to meet applicable AASHTO standards. Proposed work that does not comply with Department standards is not "substandard". Similarly, features of the existing highway beyond the limits of work that do not comply with AASHTO standards are not considered to be "substandard".

- Prior to seeking Design Approval, an evaluation must be made to determine whether or not a bridge rehabilitation project contains, or would retain, a substandard feature, which would then require specific approval by FHWA.

- The first step in this process is to determine which AASHTO Geometric Design Standard should apply. This decision is usually made by the Bridge Planning Section during the Project Initiation Request stage, or soon thereafter.

- The next step is to investigate and determine whether the proposed bridge rehabilitation project satisfies the minimum standards of the appropriate AASHTO standard. Pavement and shoulder width is the primary concern, but the designer must also evaluate structural capacity (design loading), sight distance provided across the structure, and highway grades. Refer to the definition of "Substandard Feature" on page 1 above.

- Usually, one of the three following procedures would apply:

A.) For proposed bridge rehabilitation projects carrying collector rural roads, collector streets, local rural roads and local streets, the AASHTO "Geometric Design Guide for Local Roads and Streets" will normally be followed. Table 9 of this Guide "Minimum Structural Capacities and Minimum Roadway Widths For Bridges To Remain In Place" sets the "Roadway Clear Width", between rails, for various ranges of current and projected traffic. "DHV" is expressed here as two-way traffic. An existing bridge proposed for rehabilitation will satisfy minimum AASHTO standards if its present width, or its width after rehabilitation, equals or exceeds the minimum value shown in the far right hand column. The first part of the second footnote to Table 9 may be employed, but only after very careful consideration. The second part of that footnote contains the phrase "approach surfacing width", which should be taken to mean the approach pavement width, excluding shoulders. The last paragraph of the Section entitled "Bridges To Remain In Place", on page 10 should not normally be employed. The Minimum Design Loadings indicated on Table 9 will apply in every instance, regardless of total bridge length.

B.) With the exception of Interstate and Expressway projects, all bridge rehabilitation projects not included in A) will normally be covered by the AASHTO "Geometric Design Standards for Highways Other than Freeways", and in particular Table 8, which should be employed in a manner similar to that described for Table 9 in A.) above.

C.) For proposed rehabilitation of bridges carrying Interstate System Highways or Expressways, there does not exist at present any specific AASHTO design standard that would apply. Thus, no feature of an existing Interstate or Expressway bridge can be considered "substandard". Designers should follow the instructions contained in the memorandum dated December 20, 1977, entitled "Interstate Bridge Deck Widening" from E. V. Hourigan to All Regional Directors and others. Copy follow

MEMORANDUM

DEPARTMENT OF TRANSPORTATION

DATE December 20, 1977

SUBJECT INTERSTATE BRIDGE DECK WIDENING

FROM E. V. Hourigan, Structures Subdivision, 6th Fl., Bldg. 5

TO ALL REGIONAL DIRECTORS
REGIONAL STRUCTURES ENGINEERS

M. D. Graham, Asst. Comm., Transp. Op., Rm. 501, Bldg. 5
D. J. Egan, Program Planning & Management, Rm. 524A, Bldg. 5
J. M. Seiling, Capital Projects Coordination, Rm. 519, Bldg. 5
R. H. Edwards, Facilities Design, Rm. 408, Bldg. 5
J. H. Shafer, Traffic and Safety, Rm. 312, Bldg. 5
R. C. Keating, Office
D. J. Massimilian, Office

Attached is a copy of FHWA Memorandum of May 26, 1977 on the subject "Interstate Bridge Deck Widening." This memorandum states that bridges carrying Interstate traffic "should" be widened to carry full shoulders when work such as deck rehabilitation and/or rail upgrading is done on the bridge, if the bridge were originally constructed to a lesser width.

This memorandum was discussed at the October 18-19, 1977 Regional Structures Engineers' Meeting. At that time, we stated that the FHWA is taking the position that widening must be done in conjunction with the other work. The structures engineers were told that a general instruction on this subject was forthcoming from this office.

Since that meeting, the situation has changed considerably. A survey of upcoming bridge deck restoration work showed that the budget implications of widening all the substandard bridges was enormous. The Department probably has neither the funds nor the design capability to accomplish this without seriously cutting down either on the deck restoration program or other Interstate programs.

Further discussion with FHWA personnel has led to the conclusions that the memorandum does not have the mandatory intent that we had originally been led to believe. It should be interpreted as it reads, that consideration must be given to the need for widening bridge decks in conjunction with other work.

Because of budgetary and design limitations, this Department must of necessity take a cautious approach to this subject, while fully realizing the contribution to safety that widening bridges to carry full shoulders would offer. Therefore, the philosophy to be employed in programming reconstruction work on bridges carrying Interstate traffic is as follows:

1. Consideration should be given to traffic and accident records in programming projects. If the bridge has a high accident record which can be attributed to substandard width, or if present or

projected traffic is particularly heavy in relation to the number of lanes, widening to carry full shoulders on the bridge should be considered. This work is eligible for Federal funding on a 90-10 basis.

2. Whenever possible, safety walks must be eliminated when reconstruction work is done on a bridge, as a minimum safety improvement. Normally, the safety walk itself can be cut back with the railing left in its present location. When the type of construction does not lend itself to that treatment, sometimes railings may be relocated or blocked out to within six inches of the curb. However, the distance from edge of travel lane to face of railing may not be reduced to less than 3'-6". Since it is the objective of the Department to get as much roadway width as is practicable, moving the railings closer to the roadway is a much less preferable treatment than cutting back the safety walk.

3. Even though there may not be adequate justification from traffic and accident records to reconstruct to full shoulder width, when the bridge deck is to be replaced, the bridge should be widened as much as practicable up to the full shoulder width. This may very well involve modification to abutments and wingwalls. However, the addition of superstrucrure beams or widening of piers will not normally be done. As an example, if a bridge with three-foot shoulders can be widened to five feet, it should be done, even though full shoulder width cannot be gained.

It should be expected that the FHWA will be looking at all bridge deck projects to see that the intent of their memorandum is being followed. Therefore, it behooves the Regional Offices to look at accident and traffic records when programming a project and to be prepared to explain why a bridge is not being widened if those records indicate consideration for widening should be given.

If there are any questions on this memorandum, contact this office.

EVH/CKB/LH

Attachment

FHWA 1PF (Rev. 5-73)

UNITED STATES GOVERNMENT

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

Memorandum

DATE: MAY 26 1977

In reply refer to: HNG-10
HNG-21
HNG-32

SUBJECT: Interstate Bridge Deck Widening

FROM : Director, Office of Engineering
Washington, D.C. 20590

TO : Regional Federal Highway Administrators
Regions 1-10

During the recent Regional Environment and Design Directors' meeting in Tampa, Florida, the question of FHWA policy on widening Interstate bridges to meet current standards was discussed. This memorandum is for the purpose of restating and clarifying the comments made during that meeting.

With proper consideration for specific site conditions such as the degree of deficiency in the width, the approach roadway width, and traffic volumes, Interstate bridges which do not meet minimum width standards should be widened to meet existing standards concurrently with other work such as deck rehabilitation and/or rail upgrading. This widening is eligible for Federal-aid Interstate participation. Justification for such combining of work is based on factors such as minimization of hazards through construction zones by reducing the need for future work, avoidance of higher construction costs in the future, and savings in engineering and contingency costs. Also, there is the advantage of not having to redo any of the previously completed work.

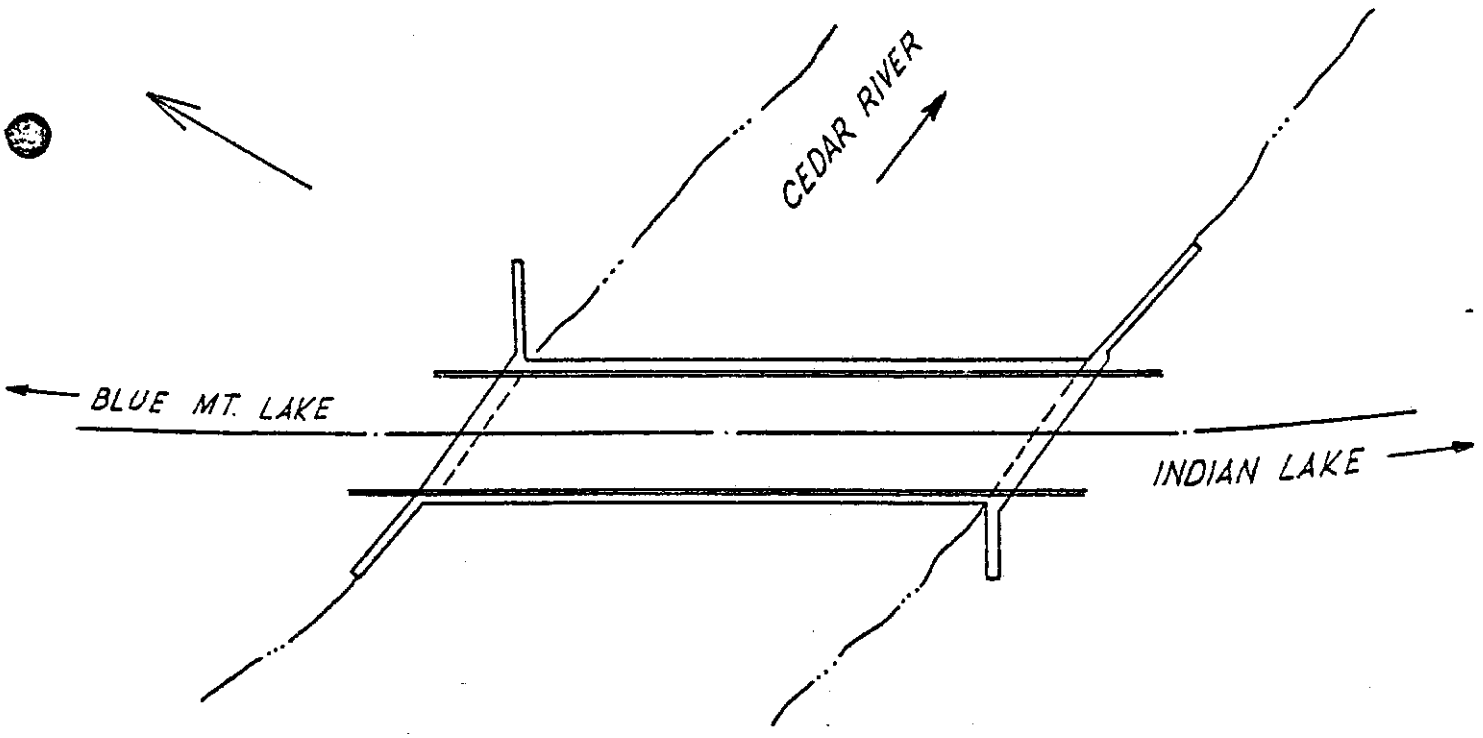
Bridge accidents tend to be severe and bridges are involved in more than their share of fixed-object collisions as compared with their proportion to all roadside obstacles. Still, bridge widening quite often does not show up as high priority work under FHPM 6-8-2-1 ("Highway Safety Improvement Program") procedures because of the relatively high cost as compared with other safety improvements. Other factors as discussed in the previous paragraph should be considered and the safety priority of widening reassessed in view of any concurrent higher priority projects such as bridge deck rehabilitation and/or rail upgrading.

It is not the intent to arbitrarily manipulate States' safety program priorities, but to assure that all factors influencing those priorities are considered and to assure that various program activities are coordinated to the benefit of one or both.

for Joseph W Bardell, Jr.
W. J. Wilkes

FIELD INSPECTION REPORT

DATE:	August 24, 1978
PIN:	2044.28-101-70
BIN:	1020310
COUNTY:	Hamilton
REGION:	2
TOWN:	Indian Lake
PROJECT NAME:	Stanton Road to Cedar River
FEATURE CARRIED:	Routes 28 and 30
FEATURE UNDER	Cedar River
INSPECTION DATE:	August 4, 1978
INSPECTION BY:	C. Hall, Jr., S. Siddiqui, M. Jablon (Main Office) J. McConnell, R. Williamson (Region)
INSPECTION REPORT BY:	C. Hall, Jr.



1. BACKGROUND

The structure consists of a 120-foot single-span pony truss with a pavement width of 24 feet curb-to-curb. There are no sidewalks on this structure. The deck is composed of a 7-1/4-inch reinforced concrete structural slab overlaid with a 4-inch cement concrete wearing coarse. There is a bituminous membrane between the structural slab and the wearing surface. The bridge has been resurfaced with asphalt concrete varying in thickness from 3-1/4 inches to 5 inches. The structure was constructed in 1929 under Contract RC 3231. A new box beam guide rail was placed across the structure under Contract RCR 75-4.

II. OBSERVATIONS

A. Substructure:

1. South Abutment.

   a. Southeast Wingwall: The face of the wall is in good condition. Some spalling has occurred on the top surface. The depth of the damage varies from 2 inches to 8 inches. The joint between the wingwall and abutment has opened to between one inch and two inches wide.

   b. Southwest Wingwall: There is some deterioration to the concrete at the top of the wall adjacent to the abutment. There are some areas of spalling two to three inches deep near the water line.

   c. Abutment: The backwall is in excellent condition with no evidence of concrete deterioration. The bridge seat has scaling on the entire surface. The area under the southwest bearing is severely deteriorated. This deterioration under the bearing extends for the full height of the stem. Stains and numerous small cracks appear on the stem under the southeast bearing.

2. North Abutment.

   a. Northwest Wingwall: The first 10 feet of the lower end is severely deteriorated. There is also a smaller spalled area on the top surface.

   b. Northeast Wingwall: This wingwall is in excellent condition and shows no signs of deterioration.

   c. Abutment: The backwall is in excellent condition. The bridge seat has scaling over the entire surface with severe deterioration in the area under the northeast bearing. This deterioration under the bearing extends for the full height of the stem. Light staining and numerous small cracks are visible on the stem under the northwest bearing.

B. Superstructure:

1. Deck: See separate Deck Evaluation Report.

2. Structural Steel: The steel is generally in good condition with a need for cleaning and painting. There are areas of heavy rust on the bearings and some of the adjacent structural steel. There are some badly rusted rivets that need replacing. The expansion bearings are overextended and need to be reset.

C. Approaches:

1. The condition of the approaches is generally good.

2. Box beam guide rail has been installed in the approaches and across the structure.

3. There are no curbs in the approach areas.

III. RECOMMENDATIONS:

A. Substructure:

1. South Abutment.

a. Jack structure and replace deteriorated concrete under bearings.

b. Repair top of remainder of bridge seat.

c. Replace deteriorated concrete in stem.

d. Replace portions of backwall to accommodate new armored joints.

e. Repair spalled areas on the top of the southeast wingwall.

f. Repair deteriorated areas of southwest wingwall.

2. North Abutment.

a. Make repairs similar to those on the south abutment.

b. Replace concrete in low end of northeast wingwall and repair spalled area on top surface.

B. Superstructure:

1. Replace existing deck with new monolithic slab with curbs.
2. Jack structure, clean and reset bearings.
3. Install armored joints at each abutment.
4. Remove existing railing and reinstall guide rail to proper location.
5. Replace deteriorated rivets with high-strength bolts.
6. Clean and paint all structural steel.

C. Approaches:

1. Install new reinforced concrete approach slabs.
2. Provide curbs on approaches.

CCH/LH

NOTE: The 15 color photographs are not shown in this sample report.

LOCATION MAP (Relocate to Title Sheet for final P.S.E.)

A-PLAN

B - ELEVATION

C BRIDGE CROSS SECTIONS

D- BRIDGE APPROACH SECTION

E-HIGHWAY SECTION

F- ROAD UNDER OR CHANNEL SECTION

G-FLAG PROFILE OF BRIDGE

H-FLAG PROFILE OF ROAD UNDER OR CHANNEL

J-INFORMATIO LIST (To be removed for final P.S. & E.)

LAYOUT OF PRELIMINARY PLAN

ATTACHMENT 5

REHABILITATION PRELIMINARY SHEET CHECK AND REVIEW LIST

The designer-detailer places in the left box a check if the item is included on the preliminary and a NA if the item is not applicable.

The reviewer places in the right box a red check or a red NA.

A. Plan (Shows rehabiliation generally, however, existing conditions may be shown if needed for clarity)

		Bridge centerline stationing, left to right
		Centerline of feature beneath the bridge
		North Arrow
		Station equality
		Approach Slab
		Pressure relief joints on approach pavement
		Light poles
		Slope lines
		Names of roads
		Scuppers
		Utilities
		Skew
		Bridge joints, show type
		Adjacent topography
		Theoretical grade lines
		Bridge begin and end stations
		Abutments
		Piers
		Bridge curbs
		Bridge pavement lanes
		Superstructure
		Bridge railing
		Approach railing
		Approach shoulders
		Ditches
		Direction of channel flow
		Slope protection
		Span lengths
		BIN (bridge identification number) to be placed above the lower right hand block.

B. Elevation (directly under and projected down from plan)

		Bridge Railing
		Approach railing
		Superstructure
		Abutments
		Piers
		Slope protection
		Light poles
		Bearings, fixed and expansion
		Minimum vertical clearance
		Road section beneath bridge

C. Bridge Cross Section (show a section for each different type of bridge section) (includes the following):

- Removal item numbers
- New item numbers
- Cross slope
- Curb type
- Curb height
- Centerline of structure
- Sidewalk dimensions
- Lane dimensions
- Out-to-Out dimensions
- Stringer spacing
- Type of railing
- Pavement type and thickness
- Deck thickness
- Theoretical grade lines

D. Bridge Approach Section:

- Removal item numbers
- New item numbers
- Centerline
- Lane dimensions
- Shoulder dimensions
- Railing type
- Cross slope
- Side slope
- Theoretical grade line
- Pavement type
- Subsurface layers
- Curb type
- Gutters

E. Highway Section (highway section shall be beyond the 50' approach section; the Regional Office shall indicate the removal items and new items on the highway section):

- Centerline
- Lane dimensions
- Shoulder dimensions
- Curb dimensions
- Mall dimensions
- Pavement slope
- Shoulder slope
- Side slope
- Slope protection
- Curb type

F. Road Under or Channel Section

Road Under:

- [ ] [ ] Centerline
- [ ] [ ] Lane dimensions
- [ ] [ ] Shoulder dimensions
- [ ] [ ] Curb dimensions
- [ ] [ ] Mall dimensions
- [ ] [ ] Pavement slope
- [ ] [ ] Shoulder slope
- [ ] [ ] Side slope
- [ ] [ ] Slope protection
- [ ] [ ] Guide Rail Protection

Channel Section:

- [ ] [ ] Centerline
- [ ] [ ] Slope protection (stone fill)
- [ ] [ ] Side slope
- [ ] [ ] Channel dimensions

G. Flag Profile of Bridge (no scale, no datum, exaggerate grades, flags at one or two PVIs in vicinity of bridge, show both existing and proposed flag profiles if they differ)

- [ ] [ ] Station PVI
- [ ] [ ] Elevation PVI
- [ ] [ ] Vertical curve length
- [ ] [ ] Grades
- [ ] [ ] Middle ordinate

H. Flag Profile of Road Under or Channel (no scale, no datum, flag at one PVI)

- [ ] [ ] Station PVI
- [ ] [ ] Elevation PVI
- [ ] [ ] Middle ordinate
- [ ] [ ] Vertical curve length
- [ ] [ ] Grades

I. Location Map (small scale)

NOTE: For C, D, E and F, the following shall apply:

1. If symetrical, show existing left of centerline and proposed right of centerline.
2. If unsymetrical, show complete existing and complete proposed sections.

J. Information List

1. Work to be done (list in sequence the bridge work to be done, show payment items and at least once on the preliminary give the title of each payment item).

[ ] W1 Remove asphalt wearing course under Item 581.01, Removal of Bituminous Concrete Overlay (Bridge).

[ ] W2 Remove structural slab under Item 580.03, Removal of Steel Supported Structural Slab (without shear connectors)

[ ] W3 etc.

2. Regional Office Notes (when preliminary is made by Structures Design and Construction Subdivision)

[ ] R1 Regional Office will prepare plans, specifications and Estimate for the Maintenance and Protection of traffic including detour layout, signing and signal devices.

[ ] R2 Regional Office will locate all utilities on bridge and will indicate their disposition during construction.

[ ] R3 Regional Office will indicate any surplus material to be salvaged.

[ ] R4 Regional Office will indicate whether they will do the project survey and stakeout or will Item 634.01, Survey and Stakeout be included in the contract.

[ ] R5 Regional Office will indicate any water channel work to be done.

[ ] R6 etc.

3. Miscellaneous Notes

[ ] M1 Design specifications (applies only to work of this contract): Current New York State Department of Transportation Standard Specifications for Highway Bridges.

[ ] M2 Loading (applies only to work of this contract).

[ ] M3 Material and Construction Specifications (applies only to work of this contract): Specifications of New York State Department of Transportation dated January 3, 1978.

[ ] M4 Preliminary Estimates (see VI of Procedure)

a. Rehabilitation Est._____(use current bid prices)

b. Replacement Est._____(use dollars per square foot figure from the Preliminary Plans Unit)

[ ] M5 Hydraulic Data

	Basic Flood	Design Flood
Recurrency Interval	100 yr.	50 yr.
Peak Discharge		
High Water Elevation		

[ ] M6 etc.

DESIGNED BY_____ DATE_____

REVIEWED BY_____ DATE_____

Attachment 6

MEMORANDUM
DEPARTMENT OF TRANSPORTATION

DATE July 18, 1979

SUBJECT PIN 2044.28.101-70, BIN 1020310
ROUTES 28 & 30 OVER CEDAR RIVER
HAMILTON COUNTY

FROM D. J. Massimilian, Structures Subdiv., 6th Fl., Bldg. 5

TO V. E. Taylor, Division Administrator, FHWA, HBR-NY

CC R. N. Simberg, Regional Director of Region No. 2

Attached for your information, is a print of the Preliminary Plan which shows generally the work proposed under this project. The Department has determined that this project conforms to the Category III criteria of our Environmental Action Plan and accordingly is a nonmajor action. We request your concurrence in this determination.

Also attached is a Statement on Substandard Features which describes and justifies the substandard geometric features which are to be retained. We request your concurrence in the retention of these features.

Following your concurrence, we intend to progress this project under Certification Acceptance Procedures.

DJM/FAL/MB

Attachments

NOTE TO WRITER - Include last two paragraphs if applicable.

SAMPLE LETTER ATTACHMENT 7

NEW YORK STATE
DEPARTMENT OF TRANSPORTATION
William C. Hennessy, Commissioner

1220 Washington Avenue, State Campus, Albany, New York 12232

July 17, 1979

Mr. George Elliott, Regional Supervisor
Office of Environmental Analysis
N.Y.S. Department of Environmental Conservation
Route 10
Stamford, New York 12167

Dear Sir:

PIN 9018.15-101-70
BIN 1019950
Milford-Cooperstown
Route 28 over Oaks Creek
Otsego County

We are attaching three sets of our Preliminary Plan in connection with the rehabilitation of the above-noted structure.

Please review and advise us of your comments by November 12. We will assume after that date that review is not desired and the Preliminary Plan is approved.

Very truly yours,

R.C. Keating
Principal Civil Engineer (Structures)

RCK/FAL/kz
Attachments

cc: T.P. Curran, Director
Environmental Analysis
N.Y.S. D.E.C.

J.K. Connors, Regional Director, Region #9

NOTE TO WRITER - ALLOW 30 DAYS FOR REVIEW

ATTACHMENT 8

MEMORANDUM
DEPARTMENT OF TRANSPORTATION

DATE June 21, 1979

SUBJECT PROJECT NO. 2044.28-101-70 - BIN 1020310
~~ROUTES 28 & 30 over CEDAR RIVER - HAMILTON COUNTY~~
REQUEST FOR DESIGN APPROVAL

FROM E. V. HOURIGAN, Structures Subdivision, Bldg. 5, 6th Floor

TO L. W. HALLENBECK, Design & Construction, Bldg. 5, Room 401

CC R. N. SIMBERG, Regional Director of Region No. 2
J. M. SEILING, Capital Proj. Coord., Bldg. 5, Room 519
R. K. RADLIFF, Preliminary Plan Review, Bldg. 5, Room 408

This project provides for rehabilitation of the existing truss structure over Cedar River. The cost of this work is estimated at $0.34 million.

The work will include deck and railing replacement, with minor pier repairs. We have reviewed this design and find that it is consistent with accepted engineering standards. There are no substandard features in this project.

FHWA concurred that this project is a non-major action. To the best of our knowledge, all procedural requirements have been satisfied that are requisite to design approval.

Please indicate your approval of design by signing and returning a copy of this memorandum. Additional information is available in this office should you wish to see more detail.

APPROVED _____ DATE _____

DISAPPROVED _____ DATE _____

EVH:DJM:FAL:MB

NOTE TO WRITER - Send copies only after action by Chief Engineer.

ATTACHMENT 9

Sample Memorandum Requesting Design Approval For Projects Not Under CA.

January 17, 1979

PROJECT No. 2029.11-101-70 - BIN 1002950
CITY OF AMSTERDAM-ROUTE 5S ART. CONN.
ROUTE 5S over S. CHUCTANUNDA CREEK - MONTGOMERY COUNTY

D. J. Massimilian, Structures Subdivision, Bldg. 5, 6th Floor

V. E. Taylor, Federal Highway Administration, HBR-NY

cc R. N. Simberg, Regional Director of Region No. 2
J. M. Seiling, Cap. Proj. Coord. Bur., Bldg. 5, Room 519
M. Tegza, Final Plan Review, Bldg. 5, Room 410

In accordance with FHPM6-7-2-7, Concrete Bridge Decks, we believe that the subject bridge rehabilitation project is eligible for Federal Aid.

The Bridge Rehabilitation Project Report and the Preliminary Plan are attached to this memorandum to support our request.

In regard to procedural requirements, we have made the following determinations:

1. This project is exempt from the A95 Clearinghouse Review due to existing memoranda of understanding.

2. A public hearing is not necessary since this project does not;

   a. Require the acquisition of a significant amount of right-of-way.
   b. Change the layout or function of connecting roadways or function of the facility being improved.
   c. Have a significant impact on abutting real property.
   d. Otherwise have a significant social, economic, environmental or other effect.

3. The existing bridge has been qualified for the Special Bridge Replacement Program (SBR), with a Sufficiency Rating of 39.9. Thus, our proposed rehabilitation work easily qualifies for the new Highway Bridge Replacement and Rehabilitation Program (HBRR), since we understand that a figure of 80 has been tentatively established as a cut-off value for Rehabilitation eligibility.

Accordingly, we request your concurrence with our belief that this project should be eligible, in its entirety, for HBRR funding.

We also request your concurrence in our designation of this project as a Category III project and, accordingly, that this project is a nonmajor action.

We are now requesting design approval for this project.

DJM:FAL:CCH:MB

Attachments