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REPORT TO THE CONGRESS

093679

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

Increased Attention Needed To Insure That Bridges Do Not Create Navigation Hazards

United States Coast Guard
Department of Transportation

The Coast Guard is responsible for insuring that bridges across the Nation's waterways do not create safety hazards or unreasonable obstructions to navigation. Weaknesses in the Coast Guard's procedures for administering this responsibility, however, prevent program objectives from being fully and uniformly accomplished.

GAO is making recommendations to the Secretary of Transportation to correct weaknesses noted in the Coast Guard's program.

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093679

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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To the President of the Senate and the
Speaker of the House of Representatives

This report describes how the Department of Transportation can improve its administration of the laws pertaining to bridges across the navigable waters of the United States. This report was done to determine if the Department of Transportation was fulfilling its responsibility to keep the Nation's waterways reasonably free and unobstructed for navigation.

We made this review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Director, Office of Management and Budget and to the Secretary of Transportation.

Comptroller General
of the United States

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ABBREVIATIONS

GAO	General Accounting Office
GIWW	Gulf Intercoastal Waterway

COMPTROLLER GENERAL'S
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INCREASED ATTENTION NEEDED TO INSURE THAT BRIDGES DO NOT CREATE NAVIGATION HAZARDS
United States Coast Guard
Department of Transportation

D I G E S T

There are weaknesses in the system followed by the Coast Guard to insure that bridges across the navigable waters of the United States do not create safety hazards or unreasonable obstructions to navigation.

Coast Guard casualty statistics show that vessel collisions with fixed objects, such as bridges, more than doubled between 1966 and 1975 as larger and greater numbers of vessels used the Nation's waterways.

Bridges can restrict vision, affect sound signals, and change waterway flow directions and velocities. In 1974 and 1975, the Coast Guard received reports on 411 vessel collisions with bridges, resulting in 7 deaths and approximately $28 million in property damages. (See p. 1.)

The Coast Guard inspects bridges to insure navigational safety, orders alteration of those that are unreasonable obstacles to navigation, requires permits for bridge construction and modification, and regulates drawbridge operations. (See p. 2.)

However, its bridge inspection program has not effectively disclosed navigation hazards. Specifically, (1) inspection requirements of Coast Guard districts are not consistent with headquarters requirements and (2) many inspections are not, or are inadequately done.

GAO's inspections disclosed hazardous navigation conditions, such as disrepair of bridge pier protection systems, clearance gages, and navigation lights. (See pp. 12-17.)

The Coast Guard has not paid sufficient attention to bridge pier protection systems. These structures are attached to, or separated

from, a bridge pier to protect the bridge from vessel damage. They may pose safety hazards due to their poor design or disrepair.

The Coast Guard has not always required pier protection systems, where needed, and has not controlled their design sufficiently to be sure that they meet navigational safety needs. (See p. 19.)

GAO questions the way the Coast Guard applies the process of giving advance or "blanket" approval for bridge construction across certain waterways because the process is not being uniformly applied. In some cases permits are required to build a bridge over waterways that are not largely navigable and in other cases permits are not required to bridge waterways that are navigable.

In addition, consideration of the environmental effect of bridges across advance approval waterways is not certain. Coast Guard policy requires that an environmental assessment be done on each project requiring a bridge permit. On waterways designated for advance approval, however, bridge permits are not required and environmental assessments are not always made. (See p. 28.)

RECOMMENDATIONS

GAO recommends that the Coast Guard

--review its districts' bridge inspection procedures and take action to eliminate inconsistencies with headquarters instructions;

--develop and implement a reporting system to be sure that the inspection requirements are being met;

--prescribe an inspection form, listing all items to be inspected, for use throughout the Coast Guard;

--make sure that inspection teams are provided adequate information to accomplish their mission;

--develop procedures to insure that bridge owners are notified of deficiencies and that district offices are notified when these are corrected (see p. 18);

--establish specific criteria for requirements and maintenance and design standards for bridge pier protection systems;

--determine (1) the extent to which hazardous conditions have resulted from previously approved pier protection systems or the lack of such systems and (2) if determined to be a major problem, seek legislative authority to require bridge owners to construct pier protection systems or alter previously approved pier protection systems where hazardous conditions exist; and

--evaluate and issue revised instructions on applying the advance approval process in light of the National Environmental Policy Act of 1969 and changes in the use of waterways designated for advance approval. (See p. 36.)

The Coast Guard agreed with the report findings and stated that the recommendations were under active review and appropriate changes would be made at an early date. (See p. 39.)

2. The Department of Transportation has submitted two legislative proposals which it believes would have a direct relationship on the inspection and pier protection problems identified in this report. GAO found that neither proposal provides the Coast Guard with authority to require bridge owners to construct or alter previously approved pier protection systems when hazardous conditions exist.

CHAPTER 1

INTRODUCTION

The net total waterborne commerce of the United States has increased from approximately 1.3 billion tons in 1966 to an estimated 1.7 billion tons in 1975. This increase has been accomplished through more and larger vessels on the Nation's waterways. Coast Guard casualty statistics show that vessel collisions with fixed objects--including bridges--more than doubled in the fiscal years between 1966 and 1975.

Bridges represent a complex combination of safety hazards and increased costs for vessels. Bridges can restrict vision, affect sound signals, and change waterway flow directions and velocities. In fiscal years 1974 and 1975, the Coast Guard received reports on 411 vessel collisions with bridges, resulting in 7 deaths and approximately $28 million in property damages.

Bridges are also responsible for vessel operating costs resulting from increased operating times and schedule delays incurred when waiting or maneuvering to pass under a bridge or when limitations on the size of vessels or their tows are required because a bridge does not provide sufficient horizontal or vertical clearances.

COAST GUARD'S BRIDGE ADMINISTRATION PROGRAM

The Department of Transportation was established by the Department of Transportation Act of 1966 (49 U.S.C. 1651) and started operations in April 1967. At that time, the Coast Guard was transferred to it from the Treasury Department, and certain duties of the U.S. Army Corps of Engineers, including the regulation of bridges across navigable waters of the United States 1/, were made part of the Coast Guard's new responsibilities.

1/Navigable waters include U.S. waters that have a navigable character and that form a continuous waterway on which vessels may travel between two or more States. Statutory declarations by the Congress and decisions by the Federal courts as to the navigability of specific waters are binding upon the Coast Guard. Where no Federal judicial proceeding or congressional act has declared specific waterways to be navigable or nonnavigable, the Coast Guard can determine whether or not it has jurisdiction (33 C.F.R. 2.10; 33 C.F.R. 2.15).

The objective of Coast Guard bridge regulation is to insure that bridges do not unreasonably interfere with the efficiency and safety of marine traffic. To achieve this objective the Coast Guard

--processes applications for approval of the location and plans for bridge construction or modification to insure that adequate clearances are maintained for marine traffic,

--issues drawbridge operation regulations to meet the needs of both land and water traffic,

--inspects bridges periodically to insure that they are properly maintained and operated to provide for navigational needs and safety, and

--orders the alteration of bridges that are unreasonable obstructions to navigation.

In addition to considering the effect bridges may have on navigation, the Coast Guard is required to consider the environmental effect.

Description of Coast Guard bridge responsibilities

The Coast Guard reviews plans for constructing or modifying bridges to insure that structures will provide adequate horizontal and vertical clearances for vessels.1/ The Coast Guard must also consider what effect the bridge location, structure, and components may have on navigational safety and the environment.

On the basis of the review results, the Coast Guard either grants or denies a permit for bridge construction or modification. The permit may contain any special conditions--such as a requirement for navigation lights--the Coast Guard deems necessary for navigational safety. During fiscal year 1975, the Coast Guard issued 150 permits.

1/The statutory provisions for review and approval of bridge location and clearances over navigable waters are contained in section 9 of the River and Harbor Act of March 3, 1899, as amended (33 U.S.C. 401); the General Bridge Act of 1906, as amended (33 U.S.C. 491 et seq.); the General Bridge Act of 1946, as amended (33 U.S.C. 525 et seq.); and the International Bridge Act of 1972 (33 U.S.C. 535 et seq).

Many waterways, navigable by legal definition, actually support little or no navigation. To eliminate the time and expense required to prepare and process an application for bridge permits on these waterways, the Coast Guard follows a procedure previously used by the Corps of Engineers whereby such waterways are designated as having advance approval for bridges to be constructed or modified. This procedure is commonly referred to as the advance approval process.

The Coast Guard is also responsible for issuing regulations governing drawbridge operations. Normally, drawbridges are required to open promptly upon signal from approaching vessels. However, where either the need for uninterrupted rail or vehicular traffic is great or the need for uninterrupted waterway traffic is limited, the Coast Guard may prescribe regulations establishing closed periods for drawbridges or requiring advance notice for their opening.1/

Bridges must be maintained and operated so that they will not create an unreasonable obstruction or hazard to navigation. To insure compliance, the Coast Guard has established a system for periodic bridge review and inspection.

Changes in the type or volume of water traffic sometimes result in existing bridges becoming obstructive. If the Coast Guard determines that a bridge has become an unreasonable obstruction to navigation, the owner may be ordered to alter the bridge.

Before 1940, bridge owners had to pay for all costs of altering their bridges. However, since 1940, the Federal Government has provided financial assistance of about $98 million to help pay the costs of 33 bridges ordered to be altered.2/

1/The statutory provision for the regulation of drawbridge operations is the act of August 18, 1894, as amended (33 U.S.C. 499).

2/The authority to order alterations to obstructive bridges is found in the General Bridge Act of 1906 (33 U.S.C. 494) and in the Truman-Hobbs Act of June 21, 1940 (33 U.S.C. 513). The Truman-Hobbs Act provides financial assistance for railroad and publicly owned highway bridges ordered to be altered.

Coast Guard's bridge administration organization

The Bridge Division, Office of Marine Environment and Systems, at Coast Guard headquarters, Washington, D.C., administers the Coast Guard's bridge program. This division is responsible for developing policies and procedures for the bridge administration program and providing guidance to and review of the work of bridge administration organizations within each of the 12 Coast Guard district offices. (See app. I.) Technical support, such as developing economic analyses and engineering cost estimates and monitoring bridge alteration projects, is provided by the Bridge Alteration Branch, Office of Engineering, at Coast Guard headquarters.

The Commandant of the Coast Guard has delegated to each of the district commanders the responsibilities for (1) obtaining and analyzing all required information and developing recommendations for appropriate actions on bridge matters and (2) prescribing the lights and signals required on bridges for navigational safety. These responsibilities are carried out by the bridge administration organizations under direction of the 12 districts' operations divisions.

Bridge inspections are performed by Coast Guard district field units that also carry out the majority of other activities associated with Coast Guard programs, including search and rescue, establishing and maintaining aids to navigation, and port security. The district commanders are responsible for all field unit operations within their district.

As of December 31, 1975, the Coast Guard employed 61 people to carry out the functions of the bridge administration program.

CHAPTER 2

BRIDGE INSPECTIONS NOT TOTALLY EFFECTIVE

Bridges across navigable waters are required by existing laws and Coast Guard regulations to be operated and maintained so as to insure that they will not create unreasonable obstructions or hazards to navigation. To satisfy this requirement, the Coast Guard has established procedures for periodic inspection of certain bridges. The Coast Guard district field units, under the direction of their respective district commanders, are responsible for performing the required inspections.

Certain weaknesses exist, however, which limit the effectiveness of the Coast Guard's bridge inspections. Specifically, (1) district office requirements are not always consistent with headquarters requirements for bridge inspections and (2) field units do not always perform inspections required by either the district or headquarters instructions. As a result, during our observations of selected bridges, we noted bridge conditions hazardous to navigation.

COAST GUARD BRIDGE INSPECTION REQUIREMENTS NOT FULLY ADOPTED BY DISTRICTS

The bridge inspection programs implemented by the districts do not fully comply with the requirements of the Coast Guard instructions. The inspection programs adopted by the districts, in some cases, do not require inspection of all types of bridges or do not require inspection of all the items required by the Coast Guard instructions.

The Coast Guard's instructions for bridge inspections require annual inspections of all drawbridges, all bridges lighted for the protection of marine traffic, and all bridges on which fog signals are required. These instructions require that the following conditions and items be included in the inspections:

--The location and operation of lights, fog signals, and other signals required for navigational safety.

--The legibility of clearance gages.

--The disrepair or unauthorized modification of bridge structures or pier protection systems 1/ that create navigational hazards or restrict clearances.

--The accumulation of debris that impairs navigation.

--The display or sounding of appropriate drawbridge operating signals.

--The posting, legibility, and visibility to approaching vessels of special operating regulations.

--The ability of drawbridges to open as required by regulation. Bridge inspections include only those features which may affect vessel operations and do not extend to engineering considerations such as the bridge's structural integrity.

The bridge inspection programs adopted by the districts, however, are less comprehensive than those prescribed by headquarters. The district programs, as compared to the headquarters instructions, limit both the types of bridges and the specific items that should be inspected.

The table below contrasts the types of bridges that the Coast Guard instructions prescribed for annual inspection to the types prescribed by the Second, Seventh, and Eighth Districts.

Prescribed by Coast Guard headquarters	Prescribed by the districts		
	Second	Seventh	Eighth
All drawbridges	X		X
All bridges requiring lights for the protection of marine traffic	X	X	X
All bridges on which the operation of a fog signal is required			X

As shown in the following table, two of the three districts considerably limited the items or conditions that require inspection.

1/A pier protection system may consist of protection cells, fenders, pile dolphins, sheer fences, or walers attached to, or separated from, a bridge pier to protect the bridge from damage by vessels.

	Prescribed by Coast Guard headquarters	Prescribed by the districts		
		Second	Seventh	Eighth
Location of:				
Lights		X	X	X
Fog signals		X		
Other signals		X		
Operation of:				
Lights		X	X	X
Fog signals		X		
Other signals		X		
Drawbridge signals		X		X
Drawbridge		X		X
Legibility of:				
Clearance gages		X		X
Special operation regulation signs		X		
Posting of:				
Special operation regulation signs		X		
Visibility to approaching vessels of:				
Special operation regulation signs				
Navigation clearances impaired by:				
Bridge structure				
Disrepair		X		
Unauthorized modification		X		
Pier protection system				
Disrepair		X		
Unauthorized modification		X		
Accumulation of debris		X		X
Navigational hazards by disrepair of:				
Bridge structure		X		
Sheer fences		X		
Pier protection systems		X		

District officials could not provide us with any rationale for the differences between headquarters and district requirements.

In addition to prescribing the extent and frequency of inspections, the instructions require an inspection form to

be filed in the district offices on each inspection made. Although the instructions permit each district to design its own form, the Second, Seventh, and Eighth Districts, where we made our review, continue to use a dated form designed solely for reporting on navigation lighting--a function which the Coast Guard performed before the transfer of additional bridge responsibilities from the Corps of Engineers. Officials in two of these districts said that, other than lighting, items to be inspected should be reported on an exception basis. The other district's operating procedures require inspections of navigation lighting only. (See p. 6.) Such a system provides the districts little assurance that all applicable conditions or items are being considered when bridges are inspected. Thus, the Coast Guard should prescribe an inspection form including all items required to be inspected.

The Coast Guard's instructions do not require the district offices to send any information on their inspection activities to Coast Guard headquarters. Therefore, these officials had not been made aware of discrepancies between headquarters and district instructions and the fact that inspection requirements were not being met.

DISTRICT IMPLEMENTATION OF ADOPTED INSPECTION REQUIREMENTS NOT FULLY ACCOMPLISHED

The annual inspection requirements adopted by the Second, Seventh, and Eighth Districts, in addition to being limited compared to Coast Guard instructions, have not been fully accomplished by the districts. We found that

- --all Eighth District bridges which should be inspected have not been identified,
- --many bridges identified for inspection have not been inspected,
- --inspection forms do not indicate whether all prescribed items were inspected,
- --inspecting units lack the information needed to perform complete inspections, and
- --followup actions vary on deficiencies noted during inspections.

All Eighth District bridges which should be inspected have not been specifically identified

We compared part of the Coast Guard's list of bridges over navigable waters to the lists of bridges identified for inspection by the Second, Seventh, and Eighth Districts. Our comparisons in the Second and Seventh Districts indicated that their inspection lists included bridges that the districts required to be inspected. However, as shown on page 7, the types of bridges required to be inspected in these districts do not include all types of bridges for which Coast Guard headquarters requires inspections.

In the Eighth District, the types of bridges to be inspected conformed with Coast Guard requirements, but the district's inspection list did not include all bridges of those types. For 12 Eighth District waterways, 21 drawbridges had not been identified. Three of these bridges cross the Gulf Intercoastal Waterway (GIWW), which is heavily used by cargo vessels.

Many bridges specifically identified for inspection are not inspected

Of those bridges which the districts did identify for annual inspections many have not been inspected by the field units. We selected a sample of bridges that the districts had identified as requiring annual inspections, and we determined the number of inspections actually performed on those bridges between 1972 and 1974. The following table shows the results.

District	Number of bridges listed for inspection	Percent of inspections not accomplished during 1972-74 (note a)
Second	585	35
Seventh	367	69
Eighth	346	35

a/Comparison of number of inspections that should have been performed during this period to number that were not performed.

Officials in the Seventh and Eighth Districts told us that no effort has been made in their district to insure that required inspections are made. A Second District official stated that his district had established a procedure to determine whether inspections have been performed. However, the procedure has not been followed. District

officials attributed this to (1) little personnel awareness of procedures as a result of frequent personnel changes and (2) limited management attention because bridge inspections are not a high-priority item in the district's bridge program.

Inspection forms do not indicate whether all prescribed items are inspected

District bridge inspection records do not contain information on whether inspections performed by field units included all required items. As discussed on page 5, the inspection form used by the districts provides for recording only the placement, condition, and operation of navigational lighting. Because the Seventh District inspection requirements are limited to navigational lighting, as shown on page 6, the district's inspection records indicate that inspections performed included all specified items.

Although bridge inspection requirements of the Second and Eighth Districts specify items other than lighting, as shown on page 8, inspection reports generally did not show whether the field units had inspected all the items.

The Second District specifies 23 items for inspection. Only 3 of the 103 reports reviewed showed anything other than the location and operation of navigation lights had been inspected. The Eighth District specifies eight items for inspection. Only 1 of the 112 reports reviewed showed that all required items had been inspected. The remainder showed only location and operation of the bridge lighting.

Inspecting units lack needed information

The districts have not provided their field units with all the information needed to evaluate the items to be inspected. For example, the Second District requires field units to inspect for unauthorized modifications to bridge structures or pier protection systems but does not provide the approved construction plans to inspecting units. The Second District also requires the inspection of fog signals, the legibility of clearance gages, and the posting of special operating instructions. The district, however, had not informed inspecting units of which bridges require such items. In the Seventh District field units are required to inspect bridge lighting, but the district does not provide inspecting units with a copy of the approved lighting plans. The Eighth District requires that clearance gages be inspected for legibility; however, inspecting units are not informed which bridges require such gages.

Although Eighth District officials stated that inspecting units are provided the data needed to evaluate bridge lighting, our discussions with officials of four Eighth District inspecting units disclosed that two of the units did not have such information. These discussions also revealed that the units were generally unfamiliar with an annual inspection requirement. The officer-in-charge of one unit said he was not aware of such a requirement. The operations officer of another unit, responsible for the inspection of 48 bridges, said he did not fully understand the inspection requirements prescribed by the district but would contact district officials to resolve the matter.

Followup actions for reported deficiencies vary

Coast Guard instructions require that deficiencies noted during bridge inspections be reported to the district commander, who in turn is to notify the bridge owner or operator. The instructions also state that the owner or operator will be given reasonable time to make the needed corrections. The instructions, however, do not establish any procedures for insuring that bridge owners have corrected deficiencies. The three districts reviewed used different procedures for notifying bridge owners of deficiencies and for insuring that bridge owners corrected those deficiencies.

Bridge owners in the Seventh District were consistently notified of navigation lighting deficiencies--the only item the district requires to be inspected. The Second District generally informs the bridge owner of reported deficiencies by a telephone call and a letter. Both the Second and Seventh Districts require the bridge owner to notify the district office that the deficiencies have been corrected, although such a procedure is not required by headquarters instruction. In all cases in the Seventh District, the bridge owners had informed the district that deficiencies noted were corrected. In the Second District, our sample included 46 inspection reports that listed deficiencies. Forty of these 46 bridge inspection files contained a response from the bridge owner that the deficiency had been corrected. The other six bridge files contained neither a letter notice from the district nor a response from the bridge owner.

The Eighth District requires the inspecting unit to follow up on reported deficiencies, even though Coast Guard instructions assign this duty to the district commander. When the district bridge section must contact the bridge owner regarding reported deficiencies, contact is made by telephone. Our sample of inspection reports disclosed 10 that listed deficiencies. Only one of these report files

contained evidence that the bridge owner had been contacted regarding the deficiencies. None of the bridge files contained information on whether the bridge owners had taken any corrective actions.

HAZARDOUS NAVIGATIONAL CONDITIONS FOUND BY GAO

In August 1975, using selected Coast Guard inspection requirements, we inspected 36 Eighth district bridges. The bridges crossed waterway segments which were accessible, commercially used, and geographically dispersed. Only 13 of these bridges had been inspected by the Coast Guard annually between 1972 and 1974.

Eleven of the 36 bridges crossed waterways used to transport petroleum cargoes, and we found that 8 of the 11 bridges were hazardous to navigation because of the use of steel in, or the disrepair to, the pier protection systems around these bridges.

Although the Coast Guard has not concerned itself with the structural adequacy of bridges, pier fenders, or any other bridge accessory, it has concerned itself with conditions which present obvious navigation safety hazards. In August 1971 the Commandant notified all districts of the need to emphasize the inspection of pier protection systems. Citing an accident involving loss of life resulting apparently from a pier protection system in which some of the original wood walers had been replaced by steel, the notice pointed out the hazards caused by the poor design, disrepair, or lack of pier protection systems. Particular emphasis was placed on waterways used for transport of many hazardous materials and petroleum products.

During inspections of the 11 bridges across waterways used to transport petroleum cargoes, we found the following hazardous conditions:

--A GIWW highway bridge, about 36 miles west of the Mississippi River, was protected by a steel-beam pier protection system. One section of the system was damaged, causing a steel beam to protrude into the channel (see top photo, p. 14). In addition, the clearance gage on one side of the bridge was not legible. This bridge had been inspected by the Coast Guard.

--A GIWW highway bridge, about 4 miles west of the Mississippi River, had a bridge pier protection system

consisting of steel beams covered with wood. One of the steel beams was missing, exposing the ends of the adjacent steel beams to waterway traffic (see bottom photo, p. 14). A clearance gage required by the bridge's permit was missing. This bridge had not been inspected since 1972.

--A New Orleans Inner Harbor Navigational Canal railroad bridge had a section of its pier protection system missing and steel beams were exposed (see top photo, p. 16). This bridge had not been inspected by the Coast Guard in at least 3-1/2 years.

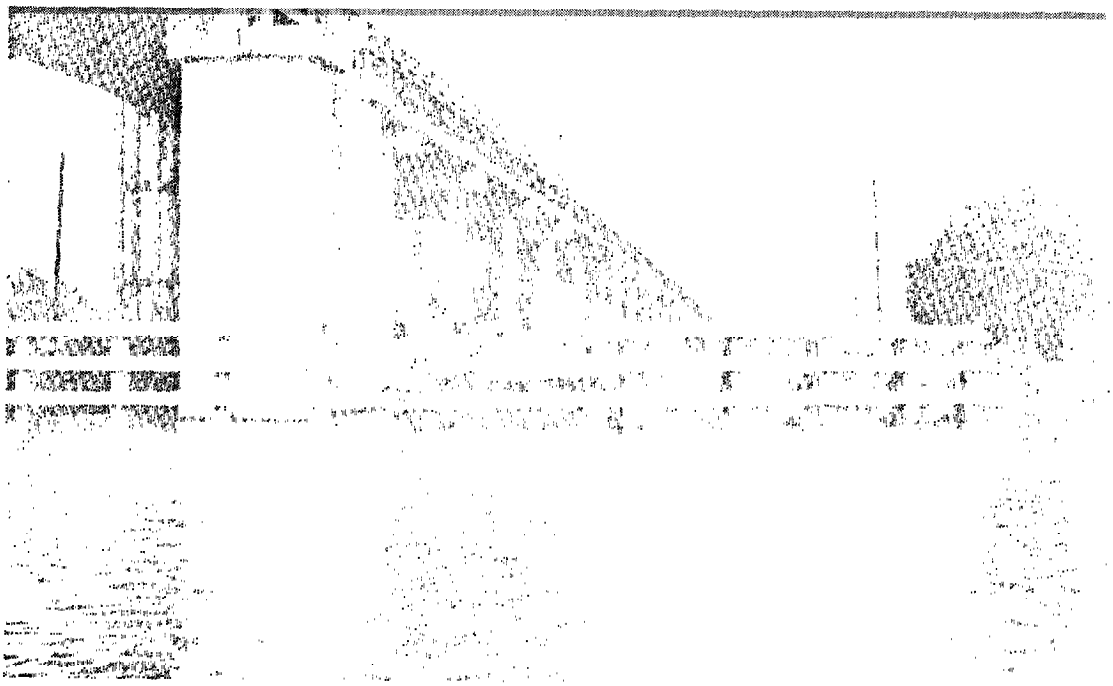
--A GIWW highway bridge, about 3 miles west of the Mississippi River, had steel angle irons mounted on the corners of one section's timber beams. The bridge permit required that the pier protection system be constructed in accordance with the approved plans, which required timber beams. Therefore, the steel angle irons were an unauthorized modification to the system (see bottom photo, p. 16). This bridge had not been inspected annually as required.

--A New Orleans Inner Harbor Navigational Canal bridge pier protection system was extensively damaged. The timber beams were caved in and some were floating loosely along the fender wall. Exposed steel sheet piling was noted on the circular ends of the protection piers (see top photo, p. 15.) This bridge was last inspected in 1972.

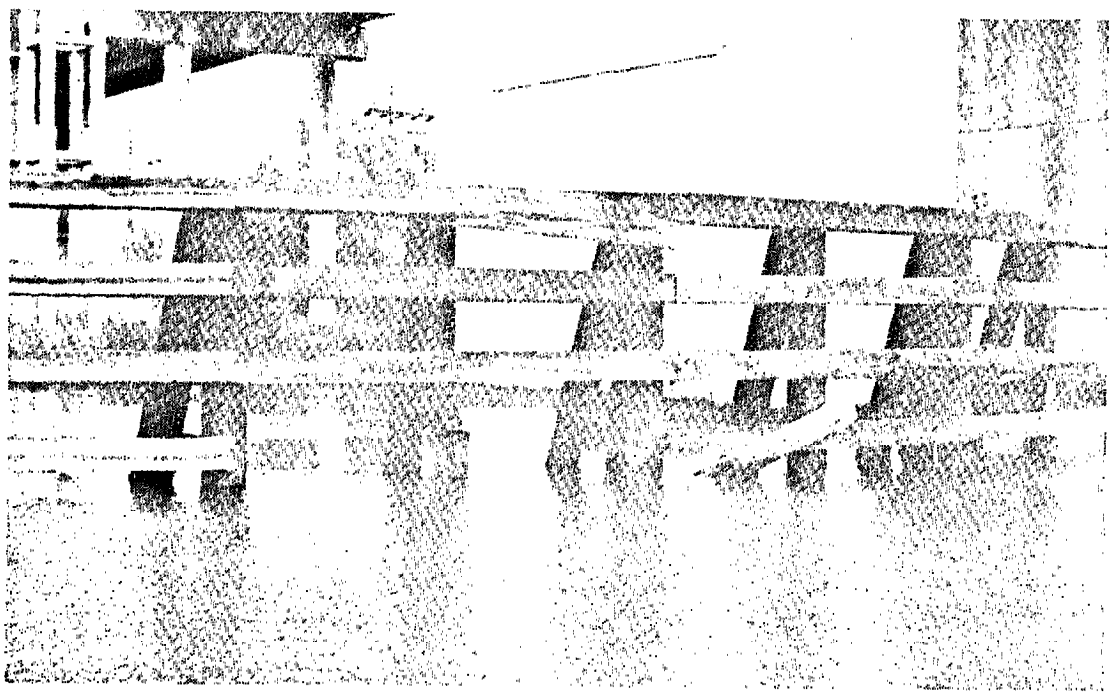
--A GIWW railroad bridge pier protection system, about 4 miles west of the Mississippi River, had exposed steel sheet piling because timber beams were missing. The last inspection of this bridge was in 1972.

--The pier protection system for the Huey P. Long Bridge across the Mississippi River near New Orleans was extensively damaged. The system protecting a portion of one pier was torn away, exposing the wedge-shaped stone and concrete pier (see bottom photo, p. 15). The Coast Guard had not inspected this bridge since 1972.

--Another GIWW highway bridge, about 13 miles west of the Mississippi, had a pier protection system which was heavily damaged (see p. 17). One of the required navigation lights was missing. This bridge was last inspected in 1972.

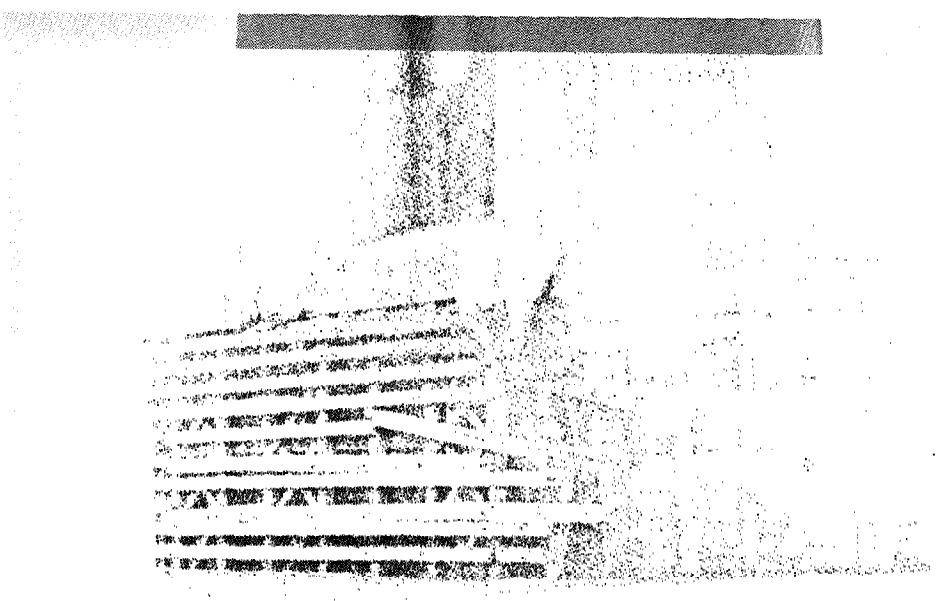


A GIWW BRIDGE WITH A DAMAGED STEEL BEAM PIER PROTECTION SYSTEM.

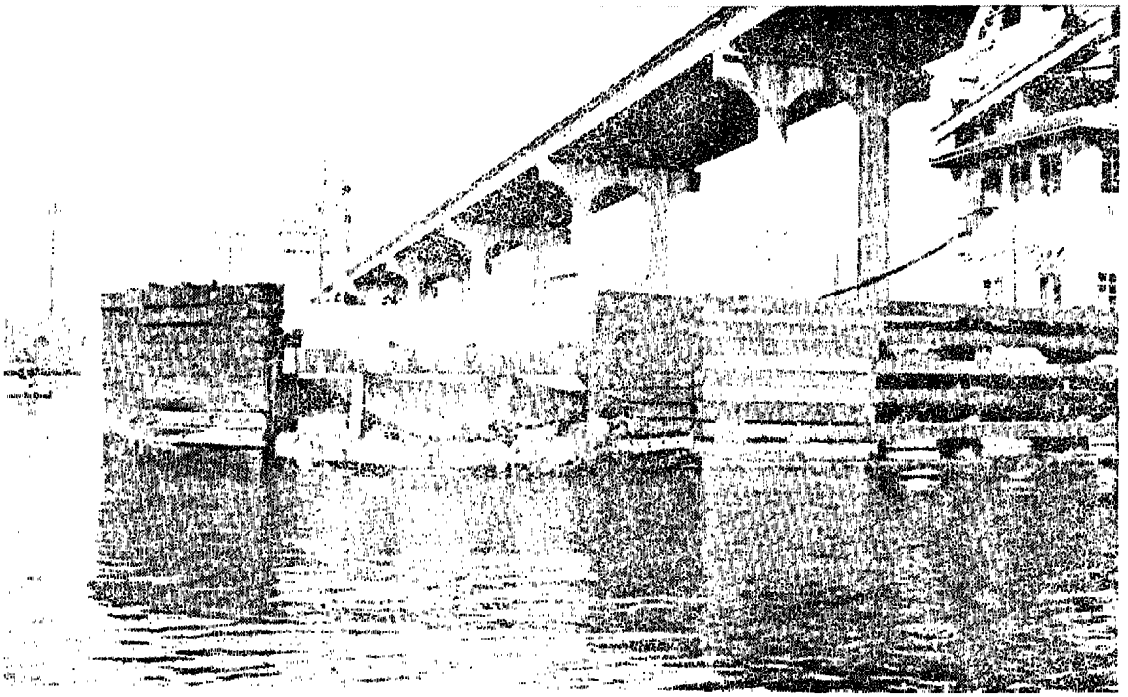


A GIWW BRIDGE WITH ONE WOOD-COVERED STEEL BEAM MISSING, EXPOSING THE ENDS OF ADJACENT STEEL BEAMS.

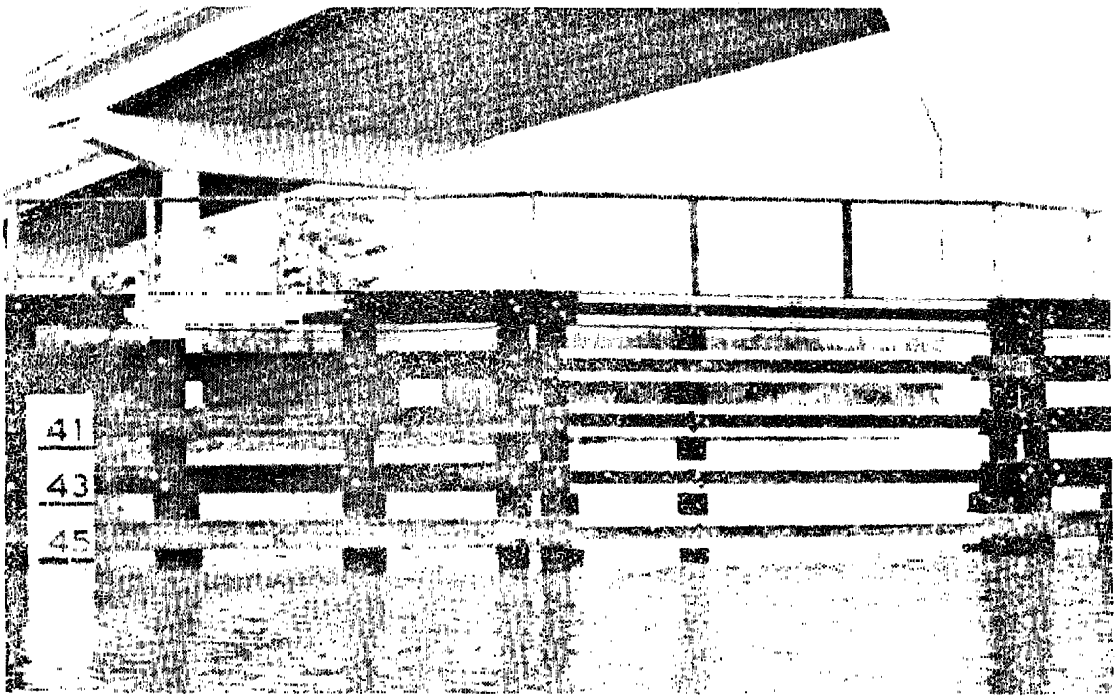
A NEW ORLEANS INNER HARBOR NAVIGATIONAL CANAL BRIDGE WITH AN EXTENSIVELY DAMAGED PIER PROTECTION SYSTEM.



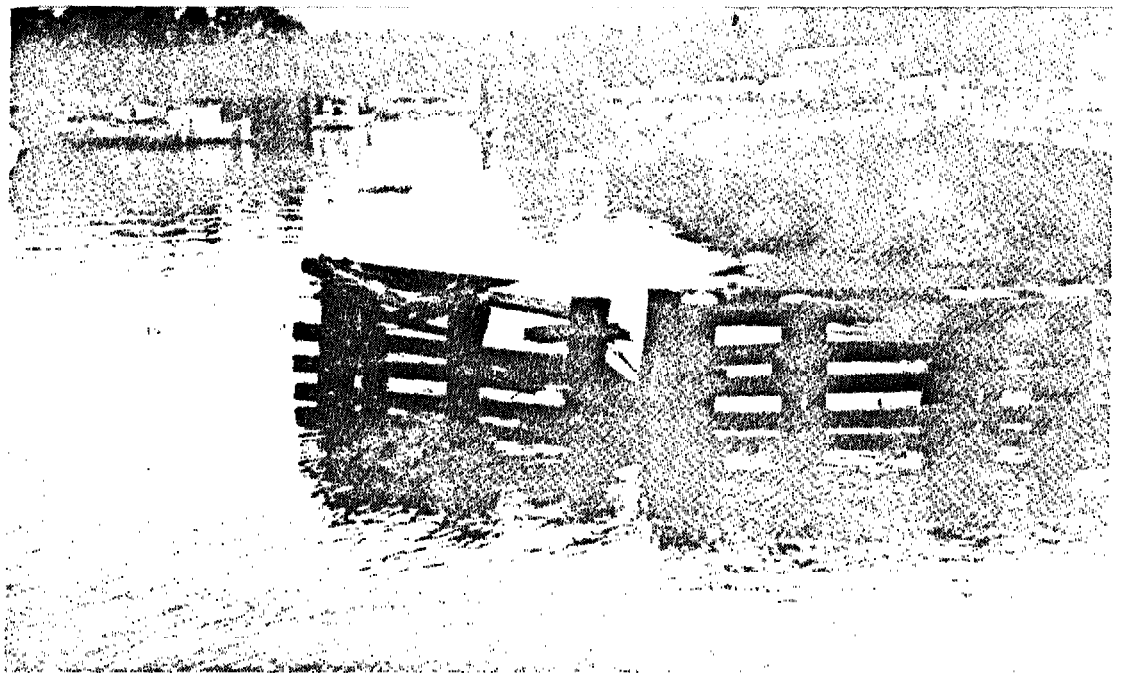
A MISSISSIPPI RIVER BRIDGE WITH AN EXTENSIVELY DAMAGED PIER PROTECTION SYSTEM.



A NEW ORLEANS INNER HARBOR NAVIGATIONAL CANAL BRIDGE WITH A PARTIALLY MISSING PIER PROTECTION SYSTEM.



A GIWW BRIDGE WITH UNAUTHORIZED STEEL ANGLE IRONS AS PART OF ITS PIER PROTECTION SYSTEM.



ANOTHER GIWW BRIDGE WITH AN EXTENSIVELY DAMAGED PIER PROTECTION SYSTEM.

In addition, we noted other deficiencies which in our opinion, Coast Guard inspections should have disclosed. For example, although required by the approved bridge permit, no pier protection system existed for a highway bridge near Mobile, Alabama.

CONCLUSIONS

Coast Guard policies and procedures allow considerable latitude to district commanders in carrying out their bridge inspection responsibilities and do not provide for any feedback on program implementation so that it can be reviewed, evaluated, and improved by management. Major variances exist in how this program is being administered, and many bridges are not being properly inspected. As a result, conditions hazardous to navigation are going undetected and uncorrected.

To make this important program effective, headquarters and district management need to insure that bridges are properly inspected.

RECOMMENDATIONS

We recommend the Secretary of Transportation require the Commandant of the Coast Guard to

--review the districts' bridge inspection procedures to insure such procedures are consistent with headquarters instructions;

--develop and implement a reporting system to insure that the inspection requirements are being met;

--prescribe an inspection form, listing all items to be inspected, for use throughout the Coast Guard;

--insure that inspection teams are provided adequate information to effectively accomplish their duties; and

--develop procedures to insure that bridge owners are notified of deficiencies and district offices are notified when corrective actions have been taken.

AGENCY COMMENTS

In a June 15, 1976, letter (see app. II), the Department of Transportation indicated that the Coast Guard generally agreed with the report findings. The Department stated that the Coast Guard was reviewing the recommendations and would implement appropriate changes at an early date.

CHAPTER 3

HAZARDOUS PIER PROTECTION SYSTEMS

Pier protection systems protect bridges from damage by vessels. The Coast Guard has recognized that the absence, poor design, or disrepair of a pier protection system can threaten navigational safety.

Although Coast Guard headquarters has issued directives to the districts requiring that actions be taken to eliminate the hazards associated with pier protection systems, these directives are not sufficiently detailed to insure that such hazards will be identified or prevented. We reviewed the actions taken by the districts and noted that

--hazardous pier protection systems have not been identified,

--pier protection systems are not always required even though the absence of such systems may threaten navigational safety, and

--adequate design control has not been exercised to insure that the construction of pier protection systems meet navigational safety needs.

NEED FOR MORE SPECIFIC CRITERIA

Coast Guard directives regarding hazards created by some pier protection systems followed a fatal accident in 1970 at the West Port Arthur Bridge on the Gulf Intercoastal Waterway. Several previous marine accidents at this bridge had also indicated a threat to navigation caused by this bridge's pier protection system.

The West Port Arthur Bridge permit of 1945 required a timber-faced pier protection system as part of the bridge design. Over the years, steel was used to replace timber in the system.

In May 1969 a barge carrying gasoline ripped open in a collision with an exposed metal section of the pier protection system. A Coast Guard officer investigating the accident described the fenderworks as having protruding steel rubrails which " * * * could easily rip a barge wide open * * * ". The officer concluded: "If the rubrail was made of wood, I feel this incident would not have happened."

In September 1970 another gasoline-laden barge collided with the bridge. The barge was torn open and a large fire

resulted. Of the tug boat's eight crewmembers, three died, two were critically injured, and one was slightly injured. According to a Coast Guard report, the accident occurred when the barge was ripped open on the fenderworks, igniting the gasoline. The report further stated that the accident "apparently resulted from a fender system in which some of the original wood walers had been replaced by steel."

Although the Coast Guard took no specific corrective actions on this bridge, which was removed in 1972, subsequent Coast Guard headquarters notices and instructions began emphasizing the importance of considering pier protection systems as part of the bridge structure.

In March 1971 the Coast Guard amended the bridge inspection procedures to include the inspection of bridge structures and pier protection systems for disrepairs that create navigational hazards. And, in August 1971 Coast Guard headquarters issued a notice to the districts regarding the hazards some pier protection systems may pose to vessels carrying oil or dangerous liquid chemicals. This notice required district commanders to emphasize the inspection of pier protection systems. Poor design, disrepair, or absence of pier protection systems were given as causes of hazards.

The districts, however, were not specifically required to consider bridge pier protection systems as part of the bridge permit process until August 1973 when the Commandant required that

--during permit processing, districts consider possible need for pier protection systems;

--when the need for a pier protection system has been established, no permit is issued until the applicant has submitted an acceptable pier protection system plan; and

--the plans include sufficient detail to show that the pier protection system will meet safety needs of waterway users.

Although these instructions require the districts to consider pier protection systems in the bridge permit and inspection processes, the instructions do not provide information useful to the districts about when a pier protection system should be required or what pier protection systems are acceptable. Because the criteria are broad, we believe that more specific criteria are needed to insure that hazardous conditions are being consistently identified and considered by the districts.

HAZARDOUS PIER PROTECTION SYSTEMS NOT IDENTIFIED

As illustrated by our inspection of selected bridges in the Eighth District (see pp. 12 to 17), the bridge inspection program has not always identified hazardous conditions resulting from disrepair, unauthorized modification, unsafe design, or absence of pier protection systems. Some of the conditions noted during our inspection had existed for more than a year.

Hazardous bridge conditions have not always been detected because the Coast Guard has not established specific criteria to identify unsafe pier protection systems, the inspection of pier protection systems is not required by all districts, and required annual inspections are not being performed. As a result, the Coast Guard is not aware of the extent of the problem and hazardous conditions may continue to go undetected.

The problem is compounded because Coast Guard districts differ in their perception of what authority they have to require the correction of hazardous pier protection systems. The only guidance provided by headquarters has been in response to specific requests from individual districts involving particular cases encountered. In these cases, the Coast Guard has asserted that it has the authority to require a bridge owner to maintain the bridge, including any pier protection system, in compliance with the bridge's permit. Pier protection systems in disrepair are considered by the Coast Guard as not being in compliance with the permit. If, however, no pier protection system was required by the permit or the pier protection system approved in the permit is later found to be a navigational hazard but not an unreasonable obstruction, the Coast Guard's position has been that it can only attempt to persuade the bridge owner to make the modifications necessary to eliminate the existing hazard.

The Coast Guard has no information available to determine the extent to which existing hazardous conditions may be the result of previously approved designs. However, in light of changes in the character of navigation on the Nation's waterways and new information concerning pier protection designs, we believe the Coast Guard needs to determine the extent of the problem, and, if necessary, seek additional legislative authority so that it can require adequate protection systems.

NEED FOR PIER PROTECTION SYSTEMS NOT ALWAYS CONSIDERED

Coast Guard headquarters has given districts broad authority in determining the possible need for pier protection systems. Instructions state only that the districts give appropriate consideration to the possible need for pier protection systems. The instructions do not establish any criteria to be used to determine this need. As a result, Coast Guard districts differ in their consideration of the need for pier protection systems.

The Second District considers the need for pier protection systems for drawbridges on a case-by-case basis but does not require these systems for fixed bridges. Officials in this district said that they do not require pier protection systems on fixed bridges because fixed bridge piers in the waterway can withstand a collision with waterborne traffic or provide a wide enough horizontal clearance so that collision is unlikely.

Information in Coast Guard files indicate that the horizontal clearance provided by a bridge may not be a good basis for determining the need for a pier protection system. For example, waterway users in one district objected to omitting pier protection on a fixed bridge involving piers 750 feet apart because of the danger of fire if a vessel carrying flammable cargoes should strike the unprotected piers. They pointed out that, in addition to protecting bridge piers from vessel collisions, pier protection systems provide protection to the vessel through impact absorption and prevention of spark-inducing contact with the piers.

In addition, Coast Guard casualty reports indicate that river currents are often a contributing factor in bridge collisions. In two such accidents which occurred in 1973, 1 resulting in 2 deaths and the loss of 30,000 barrels of fuel and the other resulting in 1 death, the clearances provided by the bridges were 720 and 800 feet, respectively. Examples such as these (1) illustrate that vessels do collide with bridge piers even when seemingly adequate clearances exist and (2) point out the need for the Coast Guard districts to consider other factors when determining the need for pier protection systems such as river currents and the nature of cargo transported on the waterway.

In the Seventh District, requirements for pier protection systems are based on waterway use and public concern.

Eighth District officials told us that a pier protection system is required if needed to protect water traffic.

We reviewed the six bridge permit actions in the Eighth District, approved during the first 8 months of 1975 and involving waterways used to transport petroleum cargoes. We noted that:

--The location, construction details, and materials for a pier protection system were specified as part of only one permit.

--The location of pier protection systems was indicated on the plans made a part of the permits for three bridges; construction details or material were not specified in the plans.

--Pier protection systems were not required by the permits for two bridges.

We also reviewed two additional permits approved by this district in 1975 where future industrial development of the waterway was anticipated and we found:

--One waterway is currently used to transport fish and shellfish cargoes. However, the Coast Guard had determined that the waterway has potential for commercial and industrial development. The issued permit contained the condition that a pier protection system will be installed if later required by the District Commander.

--The other waterway is not navigated. However, according to Coast Guard records, the waterway is being developed and will be used to transport chemical cargoes. The issued bridge permit did not require a pier protection system nor did it reserve the right to require one in the future.

INADEQUATE DESIGN CONTROL

The accidents at the West Port Arthur Bridge (discussed on pp. 19 and 20) suggest that pier protection systems pose a serious hazard when exposed steel is present. This steel can tear open barges carrying dangerous cargoes or can produce sparks to ignite flammable cargoes.

The Second District allows metal systems if they are coated with nonsparking or spark-inhibiting materials. Although the coatings approved by the Second District may prevent sparking, they did not solve the problem of vessels being torn open on impact.

Officials of both the Seventh and Eighth Districts said that metal pier protection systems are not allowed in their districts because of the safety hazards they pose. As discussed in the previous section, however, our review of recent bridge permit actions in the Eighth District disclosed that pier protection system construction details were not specified in six of the eight bridge permits approved during the first 8 months of 1975. As a result, hazardous pier protection systems may be built because of inadequate control over construction materials and design details.

CONCLUSIONS

Without systematic and complete bridge inspections, the Coast Guard has no effective means of determining whether existing pier protection systems are navigational hazards. The Coast Guard needs to take corrective action to improve its inspection program. (See p. 18.) Also, Coast Guard headquarters has not provided the districts with specific guidance for pier protection systems. As a result, systems are not always required where needed and adequate control is not being exercised over system design.

The extent of hazardous conditions resulting from previously approved designs--particularly in light of the growing size of vessels, increasing volume of water traffic, changing nature of cargoes being transported, and the Coast Guard's current ability to deal with this problem--is not known.

RECOMMENDATIONS

We recommend that the Secretary of Transportation require the Commandant of the Coast Guard to

--establish specific criteria which set forth (1) the conditions under which pier protection systems will be required and maintained and (2) minimum design standards for pier protection systems and

--determine (1) the extent to which hazardous conditions have resulted from previously approved pier protection systems or the lack of such systems, and (2) if determined to be a major problem seek legislative authority to require bridge owners to construct pier protection systems or alter previously approved pier protection systems where hazardous conditions exist.

AGENCY COMMENTS AND OUR EVALUATION

In the Department of Transportation's comments, it said that the Coast Guard generally agreed with report findings. It also said that the Coast Guard was reviewing the recommendations and that appropriate changes would be implemented at an early date.

The Coast Guard said the Department had submitted two legislative proposals that would have a direct relationship on the problem areas identified in chapters 2 and 3.

The first proposal, DOT 94-23, was submitted to the Congress in August 1975, but as of July 7, 1976, had not been introduced. This proposal, if enacted, would amend existing bridge laws to clearly require owners to keep their bridges and any accessory works in proper repair. It would also provide for civil penalty authority, in addition to the criminal sanctions now authorized, as an enforcement device to prompt bridge owners to be more attentive to the condition and operation of their facilities.

The second proposal, H.R. 12145, was introduced in the House of Representatives in February 1976. This bill, if enacted, would provide for Federal financial assistance to the bridge owner in the construction or alteration of bridge protection systems that would reduce hazards to vessel transits under a bridge.

We have reviewed these proposals and found that, although they provide the Coast Guard with greater authority and flexibility to carry out their responsibilities, neither proposal provides the Coast Guard with the authority to require bridge owners to construct or alter previously approved pier protection systems when hazardous conditions exist.

The Department also said that, if our review had been expanded to include the viewpoints of bridge owners, the report may have had different conclusions and recommendations. In subsequent discussions, a Department official stated that the bridge owner has the sole financial responsibility for maintaining bridges, including their pier protection systems, for waterborne transportation. Consequently, the maintenance costs associated with items having sole navigational purposes, such as pier protection systems, clearance gages, and navigational lights, are a burden to other modes of transportation, generally highway and railroad users.

We recognize that the bridge owners bear financial responsibility for maintaining the bridge and its accessory structures, including making only those repairs which benefit

navigation. However, under existing bridge laws, the Coast Guard is the Federal agency responsible for insuring that bridges do not create safety hazards or unreasonable obstructions to navigation. It is the Coast Guard's responsibility to develop an effective program for identifying safety hazards or unreasonable obstructions to navigation and determine what actions are needed to correct such problems. Therefore, we do not believe our conclusions and recommendations for improving the Coast Guard's bridge program would have changed as a result of a discussion with bridge owners.

CHAPTER 4

QUESTIONABLE APPLICATION OF THE ADVANCE APPROVAL PROCESS FOR BRIDGE CONSTRUCTION

Many small streams and bodies of water are designated as being navigable by law but are in fact not navigable nor likely to support future navigation. These streams supported some navigation during the 18th and 19th century when they were the only means of transportation available. As reliable and efficient roads and railroads were developed, these minor streams were abandoned. Because these waters have a history of use, they are by legal definition navigable waterways and as such technically require the Coast Guard to approve the bridge location and plans and issue a permit.

In 1958 the Corps of Engineers established a general permit device called "advance approval" to relieve the Corps of the burden of issuing individual permits for bridge construction across waterways on which there was no navigation. To qualify for advance approval, a waterway could be navigable only by logs, log rafts, rowboats, canoes, or other similar small craft. Those waterways or segments of waterways which met this criteria had to be designated by publishing a public notice of intent and providing interested persons an opportunity for comment. Because waterways specifically identified under this process have advance approval for any bridge constructed across them, no permit application is required. Therefore, the applicant's cost, time, and effort required to develop the application and the detailed analysis and investigation required of the Government to issue a bridge permit, are avoided.

When responsibility for regulating bridges was transferred from the Corps of Engineers, the Coast Guard adopted the advance approval process for those waterways previously designated by the Corps.

The Coast Guard has estimated that there are thousands of streams not navigated and their length would be in the tens of thousands of miles. The Coast Guard also has estimated that the number of bridge permit actions required for these waterways would be five times the number required for navigable waterways.

The advance approval process is not being uniformly applied. In some cases permits are required to build a bridge over waterways that are not largely navigable and in other cases permits are not required to bridge waterways that are largely navigable. This results in inequitable requirements for persons or agencies building bridges.

In addition, consideration of the environmental effect of bridges across advance approval waterways is not certain. Present Coast Guard policy requires that an environmental impact statement be prepared on each bridge project requiring a bridge permit. On waterways designated for advance approval, however, where bridge permits are not required, environmental statements are not always prepared.

PERMITS REQUIRED TO BRIDGE SOME WATERWAYS WHICH ARE NOT SIGNIFICANTLY NAVIGABLE

Coast Guard districts generally have not changed the advance approval designations previously established by the Corps of Engineers, even though some Corps districts never identified waterways in their district that met criteria for advance approval designation. Twenty-six Corps districts administered the bridge program for the area now under jurisdiction of the Second, Seventh, and Eighth Coast Guard Districts. Of these Corps districts

--10 had designated waterways for advance approval and identified them by name,

--8 had identified those waterways which required bridge permits and designated "all other waterways" within their areas as waterways having advance approval, and

--8 had not designated any waterways for advance approval.

Coast Guard officials in all three districts told us many waterways that they consider meet the criteria for advance approval are not so designated. These officials stated that 6 of the 28 Second District permit actions and 14 of the 43 Eighth District permit actions processed during fiscal year 1975 involved waterways of this type. Seventh District officials stated that approximately 25 percent of their bridge permit actions processed during fiscal year 1975 involved waterways that met advance approval criteria.

After the Coast Guard assumed responsibility for the program, the Second District identified some of the "all other waterways" previously designated by the Corps in that district. The waterways identified at that time are now considered as waterways having advance approval. For waterways in the "all other waterways" category not identified at that time, individual bridge permits are required.

The Coast Guard has not designated any additional waterways for advance approval since becoming responsible for the bridge programs. According to Coast Guard officials, no

further designations were made because Coast Guard headquarters has been studying the entire procedure to determine if legislative or regulatory changes are needed. In the meantime, the Coast Guard uses the advance approval process essentially the same as implemented by the Corps of Engineers.

Because some waterways that meet advance approval criteria have not been identified or designated, permits are required to bridge them even though they are largely not navigable. Examples of such waterways follow:

--The City of Mobile, Alabama, was required to obtain a permit to replace an existing culvert over the west fork of Perch Creek with a 24-foot precast concrete bridge. This waterway, in the vicinity of the culvert, varies in width from 4 to 10 feet and is thick with vegetation. As seen by the photographs on page 30, it would be difficult for even small boats to navigate near the bridge.

--The Airline Borrow Canal between the Bonnet Carré Floodway and Kenner, Louisiana, although approximately 50 feet wide in some areas, is overgrown with vegetation in some areas and in other areas is closed to navigation by fixed bridges. (See p. 31.) The Coast Guard has ruled that permits will be required to bridge this waterway.

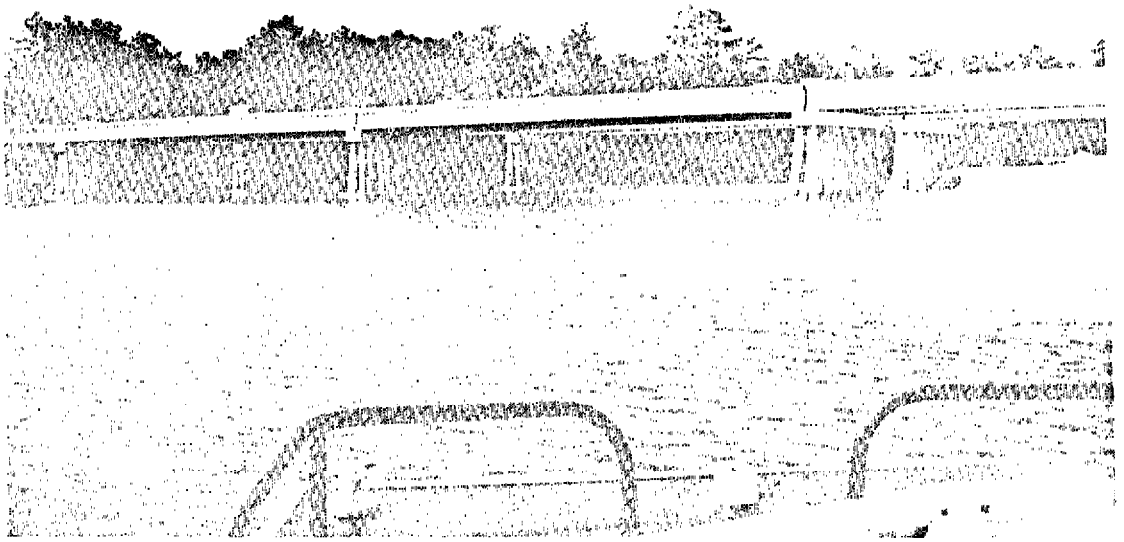
Another example illustrates the effect of not identifying additional waterways for advance approval. A minor waterway in the Coast Guard Second District is now considered navigable for 9.1 miles from its mouth. A portion of this waterway--for 3 miles from its mouth--was designated as having advance approval. The result is that bridges constructed over the first 3 miles of waterway do not require an individual permit but bridges constructed over the next 6.1 miles do.

PERMITS MAY NOT BE REQUIRED TO BRIDGE WATERWAYS WHICH ARE SIGNIFICANTLY NAVIGABLE

Although the Corps of Engineers designated waterways for advance approval as early as 1958, the Coast Guard districts have not systematically reevaluated these waterways to determine whether they still meet the criteria. Unless such reevaluations are made, permits may not be required to build bridges across waterways now largely navigable. In three Coast Guard districts, we identified two waterways which did not meet the criteria regarding waterway use.

THIS WATERWAY, THICK WITH VEGETATION,
REQUIRES A COAST GUARD PERMIT TO BRIDGE.

DIFFERENT VIEWS OF A WATER-WAY WHICH REQUIRES A COAST GUARD PERMIT TO BRIDGE.



TWO VIEWS OF A WATERWAY NOT
REQUIRING A PERMIT TO BRIDGE.

The Tchoutacabouffa River (from its source to 12 miles above its mouth) is designated for advance approval. An inspection of a section of this waterway revealed, as shown in the photographs on page 32, that it is large and is navigable by cabin-cruiser-type craft. Although applicable regulations clearly state that cabin cruiser craft are not considered small motorboats for the purpose of making advance approval designations, Eighth District bridge files showed that navigation on the waterway in the immediate vicinity of a proposed bridge consisted of pleasure craft with fixed cabins up to 15 feet above the waterline. The Eighth District, however, did not require a bridge permit because the waterway had been previously designated for advance approval.

South Hogan Creek in Indiana is another example of a designated waterway which does not meet advance approval criteria. The Second District initially informed the Indiana State Highway Commission that a permit was not required to bridge this waterway. After local citizens complained about the proposed bridge, however, the district investigated navigability of this waterway and found South Hogan Creek to be navigated by boats that required 18-foot vertical clearances. The district then decided that a permit was required.

Correspondence between Coast Guard headquarters and other Coast Guard districts indicate similar situations exist. In May 1973 the Coast Guard Fifth District Commander expressed his concern for the manner in which the advance approval process was being implemented. He pointed out that many large navigable waterways, such as segments of the Potomac and Roanoke Rivers and their tributaries, had been designated for advance approval by the Corps of Engineers and therefore did not require bridge permits.

In another case, the Coast Guard Thirteenth District Commander reported that plans existed to replace a bridge over a waterway having advance approval. Because the waterway supported some navigation at the time and had potential for increased navigation in the future, the District Commander believed there was a need for the Coast Guard to review the plans and require permits for proposed bridges on this waterway.

CONSIDERATION OF BRIDGE ENVIRONMENTAL EFFECTS NOT ASSURED

The advance approval process as adopted by the Coast Guard from the Corps of Engineers in 1967 may not be compatible with the provisions of the National Environmental Policy Act of 1969 (42 U.S.C. 4321) which require that all Federal agencies prepare an environmental impact statement on all

proposed major Federal actions significantly affecting quality of the human environment.

The advance approval process allows some bridges to be built without any environmental consideration. Once a waterway has been designated for advance approval, anyone can build any type of bridge in any manner without further Coast Guard review. The Coast Guard does not review the proposed location and plans of individual bridges and neither issues a public notice nor holds a public hearing on a proposed bridge project across such a waterway. If such a bridge is not federally funded, an environmental impact statement will probably not be prepared. Because of the additional expense involved and because no public process is required, bridge-builders have little incentive to implement procedures to protect the environment.

Officials of all three districts stated that many waterways designated for advance approval flow through environmentally sensitive areas, such as wetlands. Without an evaluation by the Coast Guard of the advance approval in light of the requirements of the National Environmental Policy Act, the Coast Guard lacks assurance that the environmental effect of bridge-building projects across these waterways will be considered.

Coast Guard regulations pertaining to the advance approval procedure state:

> "In general, the advance approval procedure is intended to apply only to routine and obvious circumstances. Any case of reasonable doubt will be resolved by the usual practice of notice or hearing prior to specific approval of location and plans * * *." (33 CFR 115.70(d).)

However, Coast Guard regulations do not require and Coast Guard districts we reviewed have not taken any action to systematically identify and remove from the advance approval process those waterways which flow through environmentally sensitive areas.

When environmental issues have been raised on waterways designated for advance approval, Coast Guard district offices have taken different actions. The Second Coast Guard District, for example, requires a permit to bridge any waterway having advance approval if district officials become aware of any controversy regarding the environmental aspects of the waterway.

The Eighth District, however, differs in its approach to such issues. In a recent case, environmentalists wanted the Coast Guard to prevent the bridging of a waterway in this district because they believed the proposed bridge would have an adverse environmental effect on the river and would open a previously undeveloped area to open pit gravel mining. In July and August 1975 district officials advised various complainants that the Coast Guard did not exercise regulatory authority in this case because the waterway in the area of the proposed bridge had been designated for advance approval by the Corps of Engineers in 1958. On August 15, 1975, the acting District Commander wrote to one complainant stating not only that the section of the river at the site of the proposed bridge was designated for advance approval but also that there was no suggestion that this section of the waterway could satisfy any of the tests normally used in determining navigability. In an April 1976 letter to another complainant, the Coast Guard's Chief Counsel stated that the authority to determine Coast Guard jurisdiction over particular waters had been delegated to the District Commanders and did not provide for formal review by Coast Guard headquarters. On the basis of the August 15 letter, the Chief Counsel stated that the district commander had found clearly insufficient factual support for the exercise of Coast Guard jurisdiction over the proposed bridge.

Officials at Coast Guard headquarters are aware of the incongruity between its continued use of the advance approval process and the requirements of the National Environmental Policy Act of 1969. During the past 2 years, Coast Guard officials have considered modifying the bridge permit statutes or making appropriate changes in the regulations. One alternative the Coast Guard considered would be to abolish the advance approval process. Bridge program officials estimate, however, that if the process were abolished, the current workload and expense would triple and staff levels would need to be considerably increased. Officials of the bridge program and the Coast Guard Office of Chief Counsel have not yet decided how this matter can best be resolved.

CONCLUSIONS

Coast Guard application of the advance approval process does not provide for equal consideration of all prospective bridgebuilders because permits are required in some cases to bridge some relatively minor waterways and are not required in other cases to bridge some large waterways. In addition, the Coast Guard does not always consider the environmental effect of bridges built across waterways designated for

advance approval. Coast Guard application of the advance process should be modified to insure that it is equitably applied and considers all existing legislation.

RECOMMENDATIONS

We recommend that the Secretary of Transportation require the Commandant of the Coast Guard

--to evaluate and issue revised instructions on application of the advance approval process in light of the National Environmental Policy Act of 1969 and changes in the use of navigable waterways and to place under the advance approval process only those waterways (1) for which bridge construction will not greatly affect the environment and (2) which meet provisions of the advance approval criteria and

--as an interim measure, if the above action cannot be quickly taken, to clarify and reemphasize existing regulations to insure equitable and consistent application of the current advance approval process.

AGENCY COMMENTS

The Coast Guard stated in its comments that the advance approval process had been of concern to the agency for some time. They also stated that they, along with the Corps of Engineers, have been actively seeking a solution which involves both their bridge permit authority and the Corps of Engineers' dredge and fill permit authority. The Coast Guard stated that a revised Memorandum of Agreement between the two agencies may permit most uncertainties of the advance approval issue to be solved.

CHAPTER 5

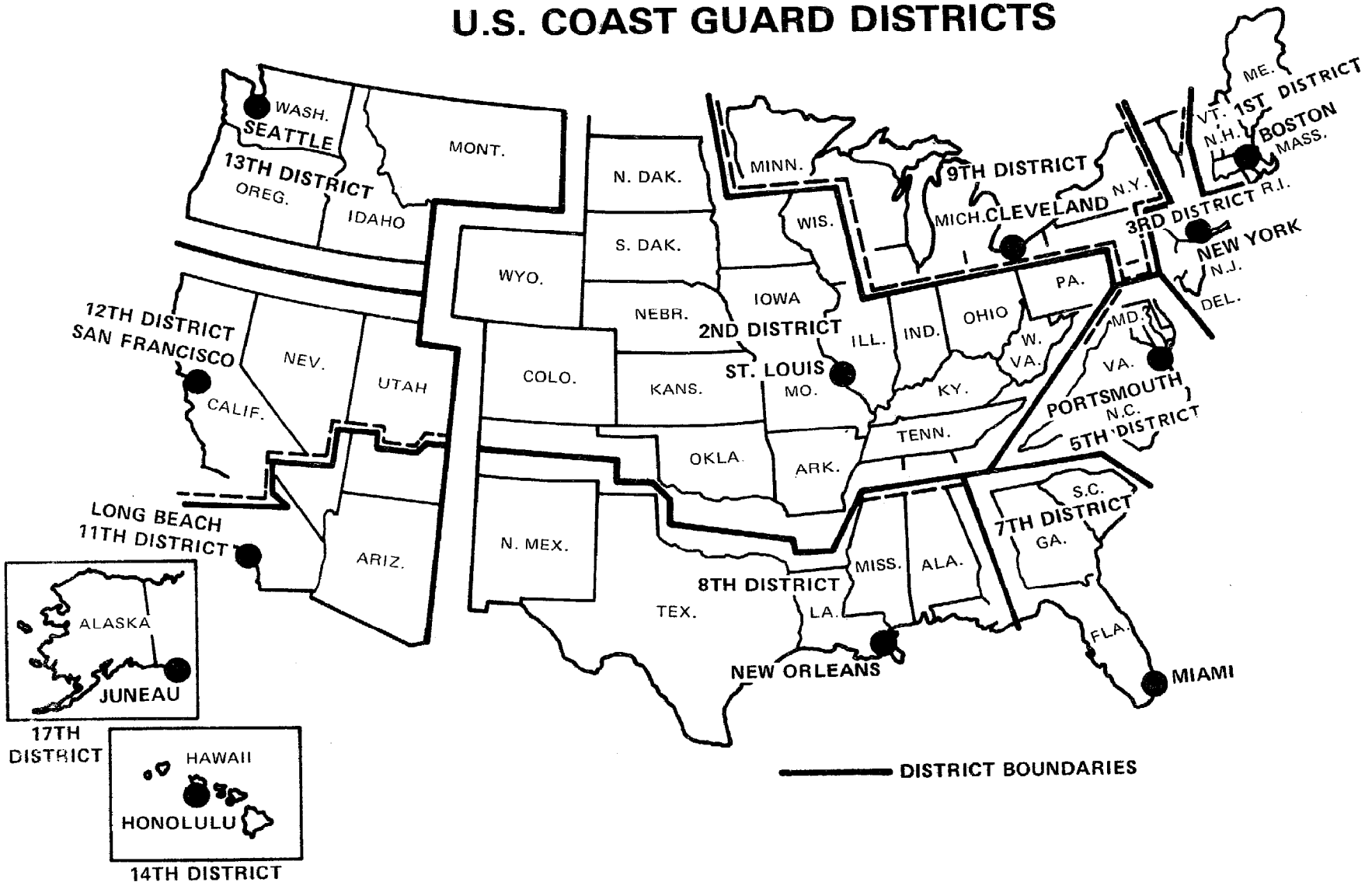
SCOPE OF REVIEW

We reviewed aspects of Coast Guard procedures for administering the provisions of laws relating to bridges. These procedures include approving the location and plans of bridges across certain waterways and assuring that bridges are constructed and maintained so as not to create unreasonable obstructions or navigational safety hazards.

Our review was made at Coast Guard headquarters in Washington, D.C., and three Coast Guard district offices--the Second District in St. Louis, Missouri, the Seventh District in Miami, Florida, and the Eighth District in New Orleans, Louisiana.

We examined the various bridge laws and Coast Guard regulations, policies, and procedures established to implement the legislation. We also reviewed Coast Guard documents and records, including individual bridge files and marine casualty reports, and had discussions with Coast Guard officials responsible for carrying out the bridge program, waterways users and representatives of waterway user organizations, and officials of State and Federal highway agencies. In the Eight District, we inspected certain bridges and waterways.

U.S. COAST GUARD DISTRICTS



APPENDIX I

APPENDIX II

OFFICE OF THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

ASSISTANT SECRETARY
FOR ADMINISTRATION

June 15, 1976

Mr. Henry Eschwege
Director
Resources and Economic Development
Division
U.S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Eschwege:

This is in response to your letter of April 26, 1976, requesting our comments on the General Accounting Office (GAO) draft report entitled "Increased Management Attention Needed to Insure That Bridges Do Not Create Hazards to Navigation." The GAO report has been reviewed by the Coast Guard and there is general agreement with the report findings, except as noted in the enclosed Department of Transportation reply. The reply does not address each recommendation specifically, but the Coast Guard does have the recommended changes under active review and they will be implemented at an early date where appropriate.

It appears that the scope of the GAO review was limited to constructing and maintaining bridges and appurtenances, but the viewpoints of the bridge owners who must be financially responsible for the costs for constructing and maintaining the bridges and appurtenances were not addressed in the report. In this light, we believe that the scope of future GAO reviews in this area should be expanded to include the viewpoints of bridge owners, which could probably result in different conclusions and recommendations.

I have enclosed two copies of the Department's reply.

Sincerely,

William S. Heffelfinger

Enclosure
(two copies)

APPENDIX II

Department of Transportation Reply to GAO
Draft Audit Report of April 1976

I. Title: Draft Audit Report on "Increased Management Attention Needed to Insure that Bridges do not Create Hazards to Navigation"

II. GAO Findings and Recommendations:

The findings of chapter two are expressed by the title of the chapter "Bridge Inspections Not Effective for Disclosing Hazards to Navigation." Recommendations involve review and modification of the inspection program being conducted by Coast Guard Districts.

The findings of chapter three note that pier protection systems are not universally required as a condition in connection with the granting of a Coast Guard bridge permit. Recommendations are that the Coast Guard establish better definition of criteria under which pier protection systems will be required and that a review be made to determine the need for legislative authority to require bridge owners construct new pier protection systems or modifying existing systems.

The findings of chapter four deal with the application of advanced approval process in connection with granting of bridge permits. It is recommended that the advanced approval procedure be reviewed and modified to insure equitable and consistent treatment the bridge owners and the environmental interests.

III. Coast Guard Comments on Findings and Recommendations:

The opening remarks on page i under DIGEST, states vessel collisions with fixed objects including bridges, more than doubled in the 10 fiscal years between 1966 and 1975. If the report is to deal with bridges then the statistics should be refined to reflect only the change related to bridge collisions.

[See GAO note 1, p. 42 .]

[See GAO note 2, p. 42 .]

[See GAO note 2, p. 42 .]

IV. Status of Corrective Action:

Chapter 2 and 3 of subject report deal with several aspects of bridge pier protection systems. The Department of Transportation has submitted two legislative proposals that would have a direct relationship on the problem areas identified in chapters 2 and 3. These proposals are identified as HR 12145 titled "to amend the act of 21 June 1940 as amended, to provide for federal financial assistance in construction or alteration of bridge protection systems and for other purposes." If enacted this act would give the Coast Guard authority to assist the bridge owner in the installation or modification of pier fendering systems that would reduce the hazard to marine made transits under a given bridge. The second legislative proposal is identified as DOT 94-23 and is titled "To amend the act of 18 August 1894, the act of 8 March 1899, the Bridge Act of 1906 and the General Bridge Act of 1946 to provide for civil penalties in certain circumstances, and for other purposes. If enacted this legislation would give the Coast Guard and Department of Justice an effective method to require bridge owners to maintain installed pier protection systems in a good state of repair.

Chapter 4 of the report discusses the present relationship between our advanced approval category of stream and the requirements of the National Environmental Policy Act. This problem area has been a matter of concern to the Coast Guard for some time. There is an additional relationship between the Coast Guard bridge permit authority under section 9 of the 1899 River and Harbors Act and the U. S. Army, Corps of Engineers dredge and fill permit under section 404 of the Federal Water Pollution Control Act. The Coast Guard and Corps of Engineers have been active in seeking a solution that will permit the publishing of a revised Memorandum of Agreement between the two agencies that will resolve the section 9 and section 404 permit interface and at the same time solve most uncertainties of the advanced approval issue.

Other recommended changes in the Coast Guard Bridge Administration Program are under active review and will be implemented at an early date where appropriate.

R. H. SCARBOROUGH
Rear Admiral, U. S. Coast Guard
Chief of Staff

GAO notes:

1. We agree that refined statistics on bridge collisions would be better; however, such information was not readily available.

2. Deleted comments refer to matters in our draft report which were modified in this final report.

PRINCIPAL OFFICIALS OF THE DEPARTMENT OF TRANSPORTATION AND THE COAST GUARD RESPONSIBLE FOR ADMINISTRATION OF ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
DEPARTMENT OF TRANSPORTATION		
SECRETARY OF TRANSPORTATION:		
William T. Coleman, Jr.	Mar. 1975	Present
John W. Barnum (acting)	Feb. 1975	Mar. 1975
Claude S. Brinegar	Feb. 1973	Feb. 1975
John A. Volpe	Jan. 1969	Feb. 1973
UNITED STATES COAST GUARD		
COMMANDANT:		
Adm. Owen W. Siler	May 1974	Present
Adm. Chester R. Bender	June 1970	May 1974
Adm. Willard J. Smith	June 1966	June 1970
CHIEF, OFFICE OF MARINE ENVIRONMENT AND SYSTEM:		
Rear Adm. Anthony F. Fugaro	June 1976	Present
Rear Adm. Robert I. Price	June 1974	June 1976
Rear Adm. William M. Benkert	Oct. 1971	May 1974
Rear Adm. James W. Moreau	July 1971	Oct. 1971
CHIEF, OFFICE OF ENGINEERING:		
Rear Adm. Malcom E. Clark	Apr. 1975	Present
Rear Adm. James W. Moreau	July 1973	Apr. 1975
Rear Adm. Helmer S. Pearson	Aug. 1969	July 1973

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