# DUBUQUE URBAN AREA RAIL PLAN

Prepared for the
**EAST CENTRAL INTERGOVERNMENTAL ASSOCIATION**
Dubuque, Iowa

**By Barton-Aschman Associates, Inc.**
**and associated consultants**
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# Executive Summary

The existing rail service situation in the Dubuque area has clearly entered a period of change. Various factors, external and internal to the city, create this situation. These factors can be viewed optimistically as opportunities or negatively as constraints. Those considered opportunities would be:

- The reality of the Chicago and North Western Railroad line abandonment created common concerns, which may lead to more unity of purpose in planning and managing the rail system serving Dubuque.
- The proposed highway Relocated 61 project and associated physical changes.
- The Milwaukee Road and Grand Trunk Western Railroad merger.
- Continued movement of train traffic through Dubuque.
- Changes in service possible in a deregulated situation.

Those matters that could be constraints are:

- Railroads are in a state of flux; this complicates planning and obtaining commitments.
- Propensity for railroads and shippers to act unilaterally concerning service problems, service needs, etc.
- Competition that impedes the flow of information.
- Financial limitations affecting public agencies, shippers, and carriers.
- Nationwide recession.
- Topography of the Dubuque area.

In the face of these conditions, the Dubuque area rail study was undertaken. Its purpose has been primarily to develop an action plan in which rail service would be sufficient to support Dubuque area commercial, industrial, and agricultural activities. Through the process of developing such a plan, it is hoped that a continuous rail planning effort will have been established via the dialogue achieved among community leadership, shippers, and the railroads.

## TECHNICAL FINDINGS

The technical and analytical work undertaken in this project focused on three subjects: (1) the rail service system, (2) commodities, and (3) local industrial development. Highlights of the analysis for these subjects are summarized briefly by the following:

### Rail System

1. Services is provided by three railroads:
   a. The Illinois Central Gulf provides main line service generally in an east-west direction; yard capacity is 235 to 295 cars.
   b. The Milwaukee Road provides main line service generally in a north-south direction, but operates an east-west line south of Dubuque; yard capacity is 190 cars with TOFC service.
   c. The Burlington Northern operates main line service on the east side of the Mississippi River with stub serivce to Dubuque via the Illinois Central Gulf bridge; the Dubuque yard has a 40-car capacity with TOFC service.
   d. The Illinois Central Gulf and Milwaukee Road operate four trains per day each; the Burlington Northern operates 20 trains, but only two to four per day are in local service.
   e. The rail system contains some excess capacity (unused or underused trackage). However, due to growth potentials, reducing capacity should be undertaken carefully in order to avoid creating future constraints for rail service.
2. At-grade crossing:
   a. There are 49 grade crossings.
   b. Twenty involve significant streets and need various improvements.
   c. The proposed highway project, Relocated 61, will affect crossings in downtown Dubuque; however, most changes can be accommodated.
3. Commodities:
   a. Most outbound rail shipments go to the eastern United States, north central states, and west coast. Inbound shipments come from the north central and eastern states.
   b. Inbound rail shipments will increase 52 percent by 1990; outbound shipments will increase 64 percent.
   c. Service is adequate to accommodate the additional rail shipments.
   d. Dubuque terminals capture a significant volume of corn and soybean shipments, i.e., 16 percent and 11 percent of the total state production. Within the Illinois Central Gulf and Milwaukee Road service area, the shares are 32 percent corn and 25 percent soybeans. The potential is for overall grain to increase to 40 percent.
   e. Barge service is essential to grain shipments. There are six fleeting areas having a capacity of 210 barges in the Dubuque area. Some of these areas may not be available in the future; about 100 spaces may be affected.
   f. Three sites are suggested for new grain terminals (port facilities). These include East Dubuque (Sand and Gravel site), the Fourth Street Peninsula, and the Little Maquoketa River. The latter appears to have significant problems affecting potential implementation.
4. Industrial development:
   a. Agriculture and construction-related industries are dominant.
   b. Dubuque County employment is expected to increase from the 1980 level of 43,600 persons to 46,000-plus by 1990 and 48,000 to 52,000-plus by the year 2000.

c. Given the growth potential, the need for industrial development sites is expected to be:
   - 117 to 170 acres for 1983 to 1990.
   - 60 to 100 acres for 1990 to 2000.

   About one-third of this space would be for rail-related industries.

d. There are 11 industrial development areas in the county. These provide up to 500 acres of developable land. Forty-five acres have rail access.

## RECOMMENDED RAIL PLAN AND PROGRAM

Using the findings of the above analyses, a rail plan and program have been developed for the Dubuque area. This includes a physical element, management and operational element, and contingency element.

### Physical Plan

The recommended physical components of the plan are:

1. Fourth Street Peninsula yard, loop track, and interchange tracks.
2. New intermodal facility on the Fourth Street Peninsula or Milwaukee Road yard site.
3. Replacement space for barge fleeting.
4. Improvement program for 10 high-priority at-grade crossings.
5. Provision of new rail access for industrial development sites.
6. System changes compatible with the Relocated 61 highway project.

### Management and Operational Plan

The management and operational element includes:

1. Establishment of an ongoing rail organization.
2. Adoption of an industrial development strategy having three parts:
   a. Railroad and industry contact program.
   b. Marketing program.
   c. Implementation of near-term industrial development projects.

### Contingency Plan

There are prescribed procedures to deal with emergency situations. Federal agencies are responsible for the procedures that are activated, depending on the nature of the emergency.

The local rail organization, recommended as part of the Dubuque rail program, would be essential to developing responses to local emergencies.

### Capital Cost

The estimated capital cost for those projects that could be joint public-private sector efforts is $3,500,000 to $3,800,000. There are various federal and some state aids possible to offset some of these costs.

### Staging Plan

The recommended improvements should be undertaken in proper sequence. This would seek to recognize certain priorities for achieving the objectives of the rail plan. Staging would be developed for three time periods:

1. Immediate
   a. Set up organization.
   b. Finalize Relocated 61 changes.
   c. Initiate Fourth Street Peninsula project.
   d. Initiate industrial development strategy.
   e. Identify barge fleeting area.
   f. Begin at-grade crossing program.
2. Short range
   a. Complete Fourth Street Peninsula project.
   b. Add barge fleeting areas, if necessary.
   c. Make Relocated 61 changes.
   d. Develop intermodal facility.
   e. Complete at-grade crossing program.
   f. Provide new rail access, as necessary.
3. Long range
   a. Develop third grain terminal.
   b. Provide additional new rail access.

## ACTION PROGRAM

To place the plan into operation, a series of action steps are recommended, as follows:

1. Adopt plan.
2. Develop details for rail organization.
3. Establish rail organization.
4. Undertake executive-level railroad dialogue.
5. Set up task force for Jeld-Wen, Burlington Northern, and Fourth Street Peninsula negotiations.
6. Negotiate Relocated 61 design changes to better accommodate rail system needs.
7. Develop specific work plan for rail program.
8. Define financial strategy for plan; submit applications for funding, if appropriate.

# 1.
# Introduction: Purpose of the Program

The purpose of this report is to present the findings of the Dubuque Area Railroad Study and describe a rail plan and program. It documents the data gathered, discusses the concerns and issues identified, and summarizes the most important problems that need to be addressed. These results have been translated into a rail plan and program.

## DESCRIPTION OF THE PROBLEM

In order to properly understand the results of the project, it is useful to review the concerns of the community, shippers, and the railroads that led to its undertaking. A reconnaissance effort or overview of the Dubuque rail situation was completed to establish the issues and problems and help focus the agenda for more detailed investigations. These results are summarized in the following paragraphs.

### Overview of Dubuque Situation

The existing rail service situation in the Dubuque area has clearly entered a period of change. Various factors, external and internal to the city, create this situation. These factors can be discussed from various viewpoints, i.e., as opportunities or as constraints.

#### *Opportunities for Planning*

A number of events have occurred at this point in time that create opportunities for preparing a rail plan for the Dubuque area. First, the reality of the Chicago and North Western Railroad (C&NW) abandonment has created a common concern in Dubuque that can be mobilized and directed toward preparing future planning activities. Furthermore, the impending nature of the Relocated 61 improvements in Dubuque have forced actions to change the railroad system. Under the proposed Milwaukee Road/Grand Trunk Western (GTW) merger, the new railroad service between the Twin Cities and Kansas City will offer opportunities for strengthening rail service within the Dubuque area. The increased grain traffic provided by the Illinois Central Gulf (ICG) from east central Iowa to the Dubuque area, as well as the likelihood of increased grain traffic from the Milwaukee Road, suggests an opportunity for examining the relationships between railroad facilities and port facilities in the Dubuque area. Under the new deregulation environment offered by the Staggers Act of 1980, carriers have the opportunity of examining

their operational activities in order to trade off more expensive operations for cost-saving measures, particularly in the area of joint use of railroad facilities. Because of the ability of shippers to change locations easily, shippers must find solutions for railroad access for the future, suggesting that a contingency plan be prepared for future rail access should another railroad abandon the Dubuque area. Finally, from the perspective of the community, there is an opportunity to undertake a comprehensive planning effort for railroad service in the community that would interface not only with the highway system, but also with the waterway system.

*Constraints*

Given the number of opportunities supporting effective rail planning and implementation of improvements in the Dubuque area, there are also a number of factors that work against such plans. One deals with the fact that the railroads themselves are changing, and operations have not yet stabilized. This reflects the C&NW abandonment, the Milwaukee Road bankruptcy and subsequent reorganization, and the new regulatory environment under the Staggers Act of 1980. Another major constraint on planning activities is related to the fact that carriers and shippers take isolated actions when a dislocation in transportation service occurs. Consequently, there is no history of sharing information. This makes it difficult to prepare a plan for working together if the tradition has been to work separately. Furthermore, there is considerable competition among the carriers, which works against the free interchange of information necessary for planning between any individual carrier and the shippers or the community. Competition is not limited to carriers, however. Shippers are also very competitive and often attempt actions independently in order to obtain market advantages over their direct competitors. There is a feeling that should service be shared among several shippers, the individuals would risk losing service in the process.

The new economic environment has also meant reduced capital dollars available from public programs for capital investment, as well as reduced dollars available for operating subsidies. Dubuque does not enjoy good connections to major national and world markets, which has meant that there is less attention paid to upgrading transportation service to and from Dubuque than improvements in the systems elsewhere. Moreover, due to the rapid inflation experienced during the last decade in the economy, railroads have been discouraged from investing in system rehabilitation, maintenance, and expansion. This trend is expected to continue, making it difficult to force physical changes due to external economic considerations. Another difficulty has arisen because of the recession that has plagued the economy, not only in Dubuque but across the nation as well. The recession has resulted in reduced orders for cars, which makes it difficult for railroads to plan over the long term. This has been translated (by individual shippers) into an inability to plan beyond a very short period of time. The location of shippers is often not easily changed, which means that a desirable combination of industrial land-use and railroad service may not always be possible. This is further exacerbated by the difficult topography that characterizes the Dubuque area. This means that a limited amount of land is available in the area for major industrial development and for relocation.

**Problem Priorities**

The most important problems can be categorized into long-range planning activities and short-range/operational or communication-related activities. The long-range activities are more pro-

active in nature, while the short-range activities are more reactive in nature. In other words, the long-range planning activities would develop an advocacy position for the general community, including industry and carriers, over a time frame lasting several years into the future. On the other hand, the short-range activities would formulate more of a defensive posture, for both the community and all the parties involved, to deal with emergency or contingency issues and other difficulties in transportation operations.

*Long-Range Planning*

The priority considerations for a long-range plan are as follows:

1. How much rail service is needed and where should that service be directed in order to provide a viable future industrial base in Dubuque?
2. How should the proposed Relocated 61 project and the railroad system be interfaced in order to ensure that the two systems function compatibly?
3. What will be the impact on local business of the Milwaukee Road-GTW merger with new rail service between the Twin Cities and Kansas City, operating through Dubuque? How should this opportunity be exploited?

*Short-Range/Operational and Communication-Related Issues*

The priority issues to be dealt with in a short-range response program would be:

1. How should a clearinghouse operation be set up within the community in order to deal with future dislocations in transportation service? The service would benefit both the community and shippers by directing them to key persons on the carrier staff when future problems occur.
2. What is the ability of the city to accommodate unit grain trains? What will be the impact of unit trains on vehicle delay?
3. How should the community market railroad service? Which railroads will remain?

## PURPOSES OF THE RAIL STUDY

The priority problems described above established the general agenda for the study. It should be noted, however, that several different groups are involved or affected, and each has distinct and separate interests. Shippers have an interest in reducing transportation costs and ensuring competitive transportation service. Carriers, on the other hand, have an interest in maximizing revenue from rail service provided to the shippers. In a similar vein, some shippers are in competition with other shippers. This means that the objective of providing viable rail service to all shippers may not be shared among competitive shippers. Furthermore, the community and groups of shippers may not hold the same objectives. All of this suggests that while it may not be possible to obtain a consensus on each problem issue and planning objective, it would be desirable to find the greatest area of common interest and agreement in order to establish a framework for rail service within which separate objectives (held by each party) could be attained over the long run.

Given these understandings, the specific purposes of the project are as follows:

- Establishing continuous rail planning effort.
- Establishing forum for discussion of rail issues among community, shippers, and railroad.
- Promoting appropriate rail-related industrial development.
- Assuring that the rail system is adequate to support shipper and growth needs.
- Rationalizing the existing rail system.
- Minimizing the adverse impacts of Relocated 61 and other proposed highway improvements.
- Analyzing the impacts of potential rail mergers.
- Developing recommendations for grade crossing improvements.

## OTHER ASPECTS OF THE PROJECT

To complete this introduction of the rail plan project, there are other aspects to be noted.

### Study Area

This project focused on the Dubuque urban area. Consideration was also given to those portions of Dubuque County that lie along the rail service corridors defined by the ICG and Milwaukee Road.

### Data Base

All data available through public agencies has been used. Principally, these include the East Central Intergovernmental Association (ECIA), the City of Dubuque, Dubuque County, and the State of Iowa. Data was assembled from shippers and railroads via user market surveys and personal interviews. System physical data was acquired via field track inspection and field observations.

### Acknowledgements

A substantial amount of cooperation and assistance has been provided during the course of the work. Their help is gratefully acknowledged. These persons included staff from the City of Dubuque, ECIA, Dubuque County, Dubuque Chamber of Commerce, Illinois Central Gulf Railroad, the Milwaukee Road, and Burlington Northern Railroad.

# 2.
# Existing Rail System

The existing rail system is described in terms of the physical plant and operations or services available.

## RAILROAD PHYSICAL PLANT DESCRIPTION

The physical plant concerns the location and capacity of the tracks and yards. The Dubuque system includes three Class 1 railroads: the Illinois Central Gulf (ICG), the Milwaukee Road, and the Burlington Northern Railroad (BN).

### Illinois Central Gulf Railroad

As shown in Figure 1, the Illinois Central Gulf Class B main line between Chicago and Council Bluffs, Iowa enters the Mississippi Valley near the mouth of the Galena River, follows the river to East Dubuque, passes through a short tunnel through the river bluffs, and crosses the Mississippi over a multispan, through-truss bridge with a swing span. The line passes through old, established industrial areas east of the downtown area to the Dubuque classification yard, which begins near First Street. The line follows the Mississippi River bank south to Catfish Creek, then turns west, following Catfish Creek up and out of the Mississippi Valley toward Dyersville. The ICG yard contains three main line tracks and seven yard tracks, with a capacity of 235 to 295 cars, depending on whether the scale track is included. The yard is frequently at capacity during periods of heavy grain movements, necessitating the temporary storage of excess cars at Waterloo and Freeport yards. At present, there are no plans for yard expansion by the ICG in the Dubuque area, nor is room available for expansion of the existing facility.

The ICG has joint trackage agreements with the BN from Portage, Illinois, at the mouth of the Galena River, to East Dubuque and across the ICG bridge into Dubuque. The double track main line from Portage to East Dubuque is owned and operated by the ICG and is under automatic block signaling (ABS) from Portage to East Cabin near East Dubuque. From East Cabin to Wood (immediately south of the ICG yard), the railroad is controlled by interlocking from East Cabin. The line between East Cabin and Wood is double track except through the tunnel and across the Mississippi River bridge where single track exists. The ICG crosses the Milwaukee Road at Wood adjacent to Maus Lake, south of Dubuque. The crossing is operated by the ICG and is under CTC control. West of Wood the railroad is a single-track main line controlled by CTC over the entire distance to Waterloo.

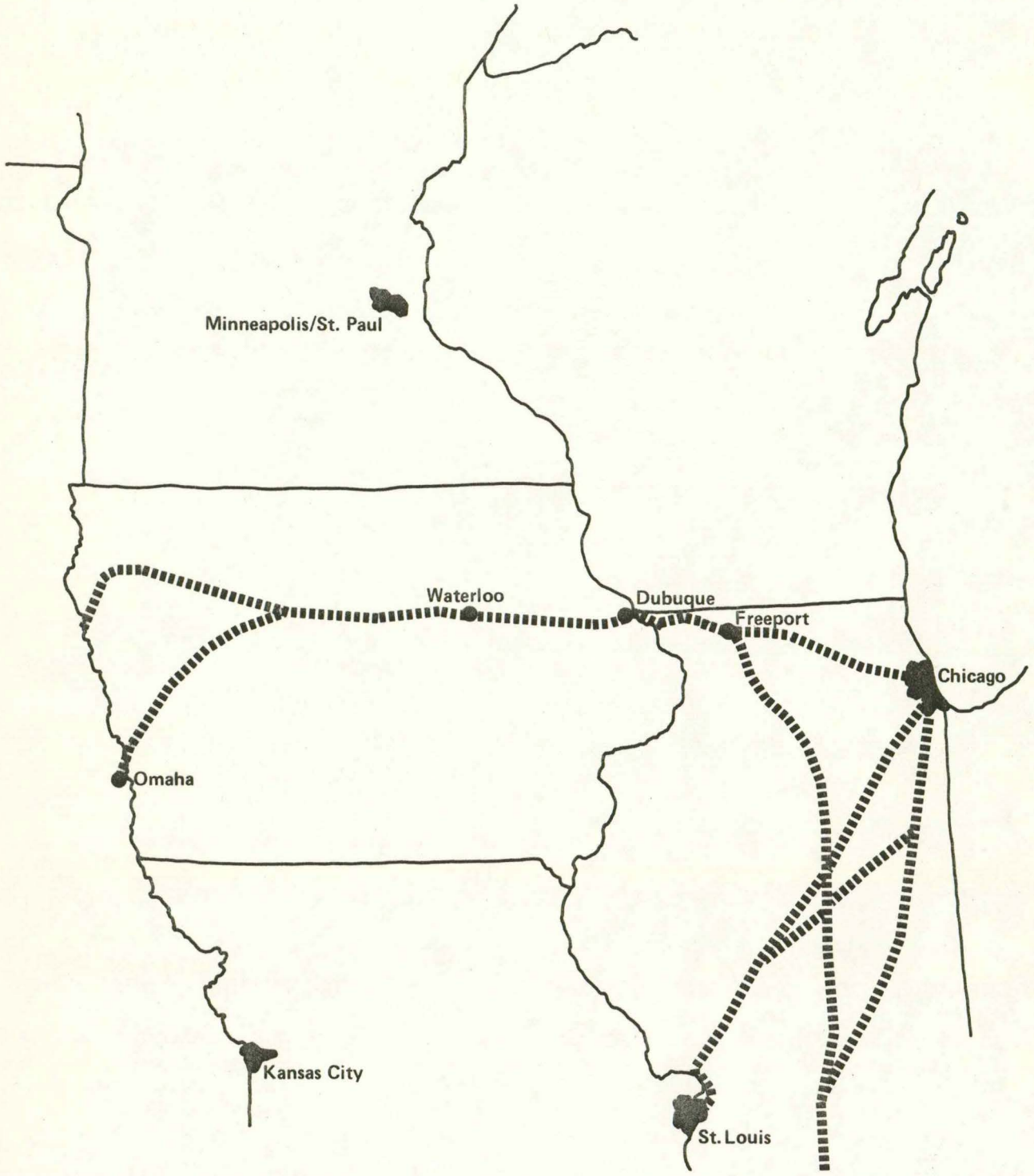



Figure 1
ILLINOIS CENTRAL GULF RAILROAD

The ICG owns and maintains street tracks on Jackson and Washington Streets between Fifth and Ninth Streets, although these tracks are operated jointly with the BN and the Milwaukee Road. The ICG also owns industrial spur tracks serving Inland Molasses and U.S. Chemicals along Catfish Creek and Conti Carriers along the river.

In Dubuque, the ICG owns and maintains a station that houses the former AMTRAK passenger waiting room, ticket office, freight office, and storage for signal and maintenance equipment. The building houses the general agent, track supervisor, and car foreman for the Dubuque area. The ICG also owns a station in East Dubuque that is the location of the East Cabin interlocking plant. Train orders and clearances to ICG and BN trains are issued by the operator from this location.

The ICG does not provide intermodal service to Dubuque, nor does it maintain an intermodal ramp.

**The Milwaukee Road**

The Milwaukee Road's Class B main line follows the banks of the Mississippi River both north and south of Dubuque, as shown in Figure 2. The Milwaukee Road is the only rail carrier that directly serves the John Deere works north of Dubuque. The railroad's yard is located immediately north of the Dubuque packing plant and has nine tracks with a capacity of approximately 190 cars. The main line passes through the developed industrial area east of downtown and parallels the ICG main line and yard to Wood, where the Milwaukee Road crosses the ICG and proceeds south along the west bank of the river. The Milwaukee Road main line between La Crescent, Minnesota and Sabula, Iowa is dark track (no signals) and is operated under train orders and radio control under the direction of the train dispatcher at Ottumwa, Iowa. The Milwaukee Road operates industrial storage and spur trackage serving the John Deere works.

The Milwaukee Road owns several buildings adjacent to the Dubuque yards. These buildings include the freight office, office of the general agent, roundhouse, repair track storehouse, and locker facilities for train crews.

The Milwaukee Road maintains a "circus"-type TOFC ramp adjacent to their shops. Ample room exists for expansion of the facility, which is currently used sparingly. The facility is easily accessible by paved road.

**The Burlington Northern**

The Burlington Northern is primarily on the east side of the Mississippi River, as shown in Figure 3. The BN and ICG share joint trackage between Portage and East Cabin (East Dubuque), a distance of 12.7 miles. The two main line tracks are owned and maintained by the ICG. The BN serves Dubuque through trackage rights across the ICG Mississippi River bridge. The BN has limited yard capacity in Dubuque, with two stub-end tracks near the Ice Harbor capable of holding 15 cars each, and three short tracks, which are used for interchange located next to the freight office. Total capacity of the BN yard trackage is approximately 40 cars. The BN owns and maintains the double track main line north of East Dubuque along the Mississippi River. This track is under CTC control. A center siding and center storage track in this area are used to set out and pick up cars with Dubuque origins and destinations.

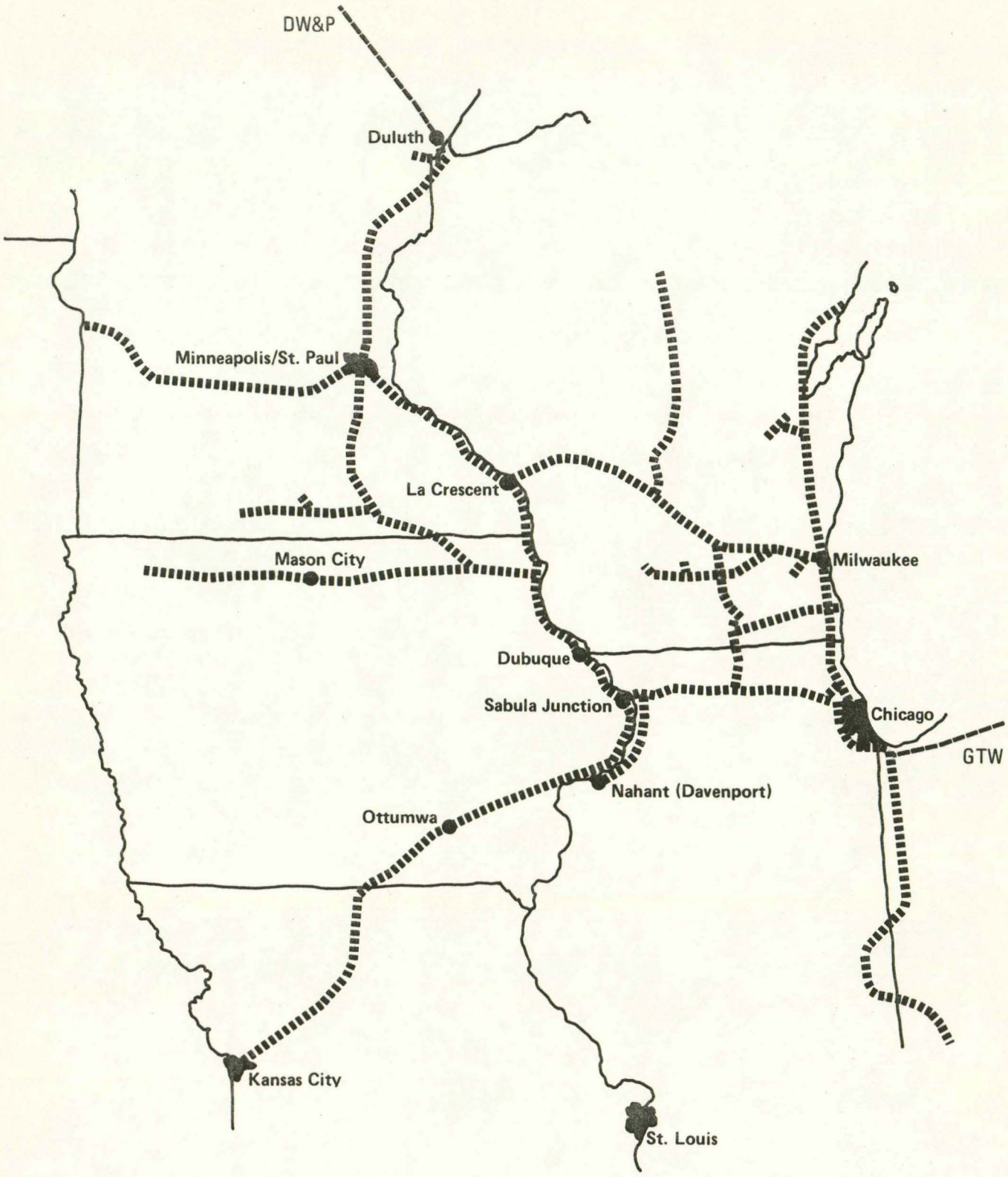



Figure 2
THE MILWAUKEE ROAD

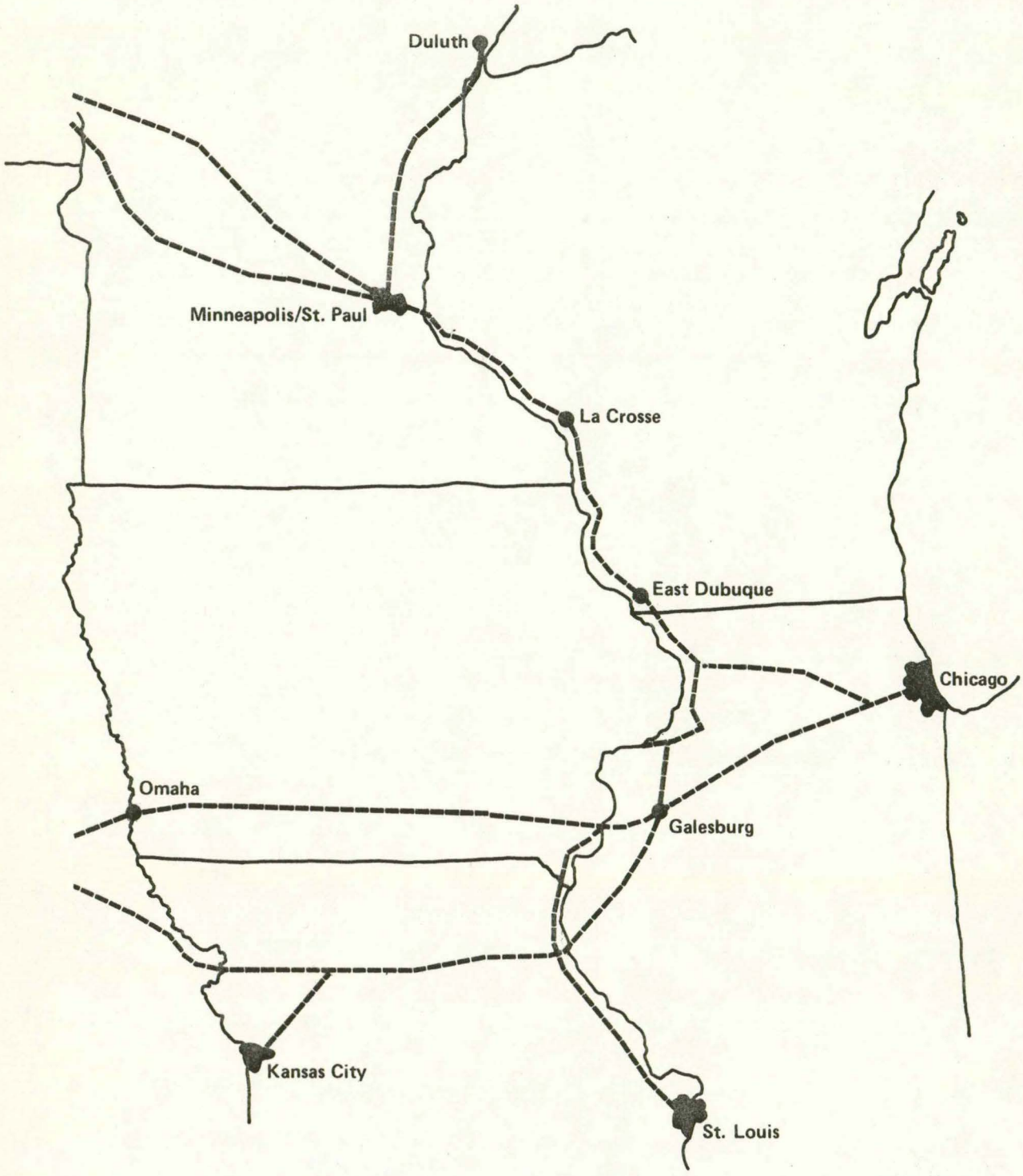



Figure 3
BURLINGTON NORTHERN RAILROAD

The BN owns a station in Dubuque that is occupied by the BN agent. The building also contains crew quarters and a freight receiving and forwarding area. A circus-type TOFC ramp is located adjacent to the station and has a capacity of two cars. Good access is provided by paved city streets, although parking for trailers is limited.

## SUMMARY OF TRACK CONDITIONS

The data collection process included a survey evaluation of track conditions throughout the study area. Surveys were conducted at approximately 40 locations along the tracks of the three railroads serving the defined study area. The evaluation included counts of both new and deteriorated ties, notation of rail type and weight and evaluation of its condition, and evaluation of ballast condition. The results of these track surveys are summarized in Table 1.

### Illinois Central Gulf Railroad

Spot surveys along the ICG were conducted from just east of the N-Ren Chemical Plant in Jo Daviess County to Dyersville, Iowa. Within Jo Daviess County from the point described above to East Cabin (East Dubuque), the ICG/BN joint trackage consists of two main lines with 132 lb/yd continuously welded rail (CWR). Although alignment was judged to be excellent, and the track is Class 1 with a 50 mph maximum authorized speed, variation in the uniformity of tie and ballast conditions was noted. Several areas were found where fine aggregates had migrated to the surface of the ballast, and in some isolated areas pumping has developed.

Between East Cabin and the west portal of the bluff tunnel, the ICG line consists of 115 lb/yd jointed rail. The ballast was muddy, and numerous ties were skewed (not at right angles to the rail). Addition of ballast to rectify the situation, however, is complicated by the tunnel clearances and Mississippi River bridge approach elevation. An ICG track maintenance crew was noted working in this area following the survey, however. Track between East Cabin and Wood is Class 1, with 10 mph operation through this switching and yard area.

The Mississippi River bridge is a six-span, through-truss structure with a 365-foot-long swing span that opens for river barge traffic located near the east end. The bridge was completed in the late 1860s following the Civil War. The struture is inspected annually and can carry the maximum carload weight of 263,000 pounds allowed on the railroads. Adequate width and height clearances exist over both the single-track bridge and nearby bluff tunnel. Maximum operating speed over the bridge is 10 mph, which matches the maximum speed through the adjacent yard and switching areas.

Between the Mississippi River bridge and Peosta, the track is predominantly 115 lb/yd CWR with short sections of 112 to 115 lb/yd jointed rail. The alignment contains numerous curves and grades along Catfish Creek where the line climbs out of the Mississippi River Valley. Curve-worn rail is changed out periodically as necessary, and adequate alignment is maintained through frequent maintenance. Because of the curves and grades, speeds are limited to 25 mph, corresponding to Class 2 track between Wood and Peosta. The maximum horizontal curvature is eight degrees, 10 minutes, and maximum grade is 1.25 percent. Maintenance of track under conditions of significant horizontal and vertical curvature as exists along Catfish Creek is much more ex-

Table 1
SUMMARY OF TRACK CONDITIONS

| Site | | Rail | Ballast | Ties | Comments |
|---|---|---|---|---|---|
| **Illinois Central Gulf Railroad** | | | | | |
| Station Road, Jo Daviss County | NB | Good<br>132 CWR 1960 | Mostly good coarse<br>some pumping | 28 bad/100<br>4 new/100 | Localized pumping |
| | SB | 132 CWR 1960 | Good coarse | 3 bad/100<br>33 new/100 | |
| Prentise Lake Rd. | SB | 132 CWR 1960 | Some fines and mud | 10 bad/100<br>34 new/100 | Some irregular rail wear, corrugation |
| | NB | 132 CWR 1960 | Some new ballast, fines at surface elsewhere | 20 bad/100<br>8 new/100 | Pumping low joints at crossing |
| E. Dubuque Portal | | 115 jointed 1953 | Muddy ballast | 14 bad/100<br>9 new/100 | Skewed ties |
| E. Dubuque at Bridge | | | Poor, pumping and fines | | |
| 6th Street | | 115 jointed 1948<br>115 jointed 1957 | Fines in ballast and pumping | 5 bad, 57 new/100<br>17 bad, 9 new/100 | Dragging, equipment damage |
| Huff Street | | 115 CWR 1973 | Some fouled ballast | 15 bad/100<br>66 new/100 | Curve worn rail, good alignment |
| Catfish Creek, ICG Curve | | Jointed and CWR<br>112 CWR 1947 | Good ballast | 15 bad/100<br>37 new/100 | Curve worn rail, good alignment |
| Inland Road | | 115 CWR 1972 | Good coarse ballast | 3 bad/100<br>23 new/100 | Good rail, weed spray reg. |
| Old Mill Road | | 115 CWR | Thin layer coarse ballast, no problems | 2-3 bad/100 | Curve wear but being changed out |
| Fremont Road | | 115 jointed 1972 | Muddy, pumping in isolated areas | 10 bad/100<br>33 new/100 | Curve worn, ready for changeout rail on site, flat spots at joints |
| Fondell Lane | | 115 jointed 1949 | Thin coat coarse ballast, fines at surface | 0 bad/100<br>12 new/100 | Flattened rail scaling at joints |
| Radford Road | | 115 CWR 1972 | Good coarse ballast | 9 bad/100<br>25 new/100 | Flat spots in rail |
| Old County Home Road | | 115 CWR 1972 | Fines at crossing good coarse ballast elsewhere | 1 bad/100<br>28 new/100 | Flat spots in rail approximately 12-inch ballast |
| 7 Miles West of Julien Road | | 115 CWR 1967 | New, good coarse ballast | 24 bad/100<br>20 new/100 | |
| 1 Mile West of Peosta | | 112 jointed 1952 | New coarse ballast | 13 bad/100<br>3 new/100 | Good condition rail no curve wear |
| Farley, Iowa | | 115 CWR 1940 | New 12 inches coarse ballast | 6 bad/100<br>3 new/100 | |
| Dyersville | | 115 CWR 1949 | New fine ballast | 6 bad/100<br>17 new/100 | Little wear on curve |
| | | siding 90 jointed | New fine ballast | Good 6x8 ties | |

Table 1 (cont'd)
SUMMARY OF TRACK CONDITIONS

| Site | | Rail | Ballast | Ties | Comments |
|---|---|---|---|---|---|
| **Burlington Northern Railroad** | | | | | |
| E. Dubuque Sta. | NB | 115 CWR 1975 | Good ballast | 0 bad/100<br>11 new/100 | No wear |
| | SB | 132 CWR 1976 | Good ballast | 3 bad/100<br>13 new/100 | |
| **Milwaukee Road** | | | | | |
| N. of Dubuque Stone Quarry | | 110 lb jointed 1931 | Muddy ballast | 24 bad/100<br>8 new/100 | Low joints with kinked rail, some rail flow on curves |
| S. of L. Maquoketa River Bridge | | 110-115 lb jointed 1951-1968 | Thin layer uncrushed stone, with fines | 16 bad/100<br>16 new/100 bad | Loose joints, good alignment, good rail condition |
| N. End of John Deere Plant | | 115 jointed 1968 | Mud and pumping no coarse ballast | 24 bad/100<br>21 new/100 | Good condition, good alignment, good joints, skewing of ties |
| Industry tracks | | 90 jointed 1918, 1922 | Sandy gravel | Adequate | Low joints |
| S. End of John Deere Plant | | 110 jointed 1931 | Poor ballast stones and muddy | 31 bad/100<br>19 new/100 | Good alignment, several low joints |
| Beneath Eagle Point Bridge | | 110 jointed 1930 | Good coarse ballast grading to finer | 3 bad/100<br>23 new/100 | Rail curve worn inside, chips out of rail, spalling at joints, joints run together, some low joints |
| Hawthorne Street | | 100 lb jointed 1927 | Thin ballast, fines at surface | | Kinks in track, low joints, flattened rail head |
| Spur track | | 100 lb jointed 1928 | New ballast, thin, fine | Many new ties | |
| Storage track | | 100 lb jointed 1927 | Fines at surface | Many new ties | Low joints |
| Fengler Street | | 100 lb jointed 1928 | Thin layer medium coarse ballast | 1 bad/100<br>59 new/100 | Low joints, flattened joints, kinked track, head worn rail |
| 14th/13th Street | | ? | Thin layer new medium coarseness | 4 bad/100<br>28 new/100 | Low joints, kinked rail |
| Jones Street | | 100 lb jointed 1928 | Thin layer medium coarse | 0 bad/100<br>40 new/100 | Skewed ties, poor joint support, kinked track, low joints, battered ends |
| Huff Road | | 112 lb jointed 1940 | Medium coarse ballast | 19 bad/100<br>8 new/100 | Curve wear on changed over rail, poor joints, chipped and low, poorly supported skewed ties |
| Julien Dubuque Drive | | 110-112 jointed | Muddy ballast pumping | 23 bad/100<br>26 new/100 | Low joints, some skewed ties |

pensive than maintenance of straight track on flat grades, as more frequent maintenance is required to maintain alignment, and heavy stresses are placed on the track structure by passing trains. The conditions within the area were found to be good to excellent, with an average of two deteriorated ties per 100 ties and 33 new ties per 100 ties for the survey sections. Most ballast was good coarse limestone, although several isolated areas of pumping were found.

Between Peosta and Dyersville, the route becomes flatter and straighter, with good 115 lb/yd CWR predominant. The 1982 track program included the replacement of several miles of CWR in the Peosta area. Tie and ballast conditions were adequate, with an average of 10 deteriorated ties per 100 and 16 new ties per 100 and a substantial new ballast lift over a portion of the line segment.

The ICG yard in Dubuque stretches from First Street to Maus Lake and contains seven yard tracks and three main line tracks. The main line tracks through the yard area are predominantly 112 to 115 lb/yd jointed rail in good condition, whereas most yard trackage is 90 lb/yd jointed rail in fair condition. Ballast and tie conditions within the yard were fair to good, and the manual switches within the yard appeared to be in relatively good condition. Operations within the yard occur at speeds of 10 mph or less, and significant derailment problems have not occurred. Two of the main line tracks as well as one yard track were raised during the 1965 flood to allow operations during flood conditions. The construction of the Dubuque flood wall since the 1965 flood should ensure the continued operation of the ICG yard during periods of high water. The ICG does not operate intermodal facilities in the Dubuque area.

**Burlington Northern Railroad**

The BN operates and maintains very limited trackage in the Dubuque area. The railroad owns and maintains double main line trackage north of the ICG Mississippi River bridge in East Dubuque and limited trackage in Dubuque. The main lines in East Dubuque have 115 lb/yd and 132 lb/yd CWR in excellent condition on the westbound and eastbound tracks, respectively. The tracks lie on excellent ties with a thick section of very coarse ballast for the support of the heavy loadings that occur over the route. Storage and yard tracks in Dubuque were observed to be 90 lb/yd jointed rail over older ties set at ground level with little or no remaining ballast. The BN maintains a small intermodal facility with the capability for loading only two flatcars (four trailers) at a time without switching. Trailers are loaded circus style, using a fixed ramp for backing trailers onto the flatcars. Trailer storage is limited to the area adjacent to the BN station, but access to the facility is relatively good from adjacent city streets.

**The Milwaukee Road**

Spot surveys along the Milwaukee Road were conducted from one mile north of the Little Maquoketa River bridge to Julien Dubuque Drive near Catfish Creek. Grades along the route are relatively flat, as the railroad follows the river except through the Dubuque waterfront industrial area. From the Little Maquoketa River area to the Eagle Point area, the rail is predominantly 110 lb/yd jointed, dating from the early 1930s. Limited sections of newer 115 lb/yd jointed rail were noted near the John Deere plant. The rail was noticeably kinked throughout this entire segment, and numerous low joints, loose joints, and battered joints were noted. The ballast was predominantly uncrushed river gravel and muddy in numerous locations. Many new

ties have been installed along the line, although numerous deteriorated ties still remain. Many of the ties were skewed because of inadequate ballast to hold them in place. Subsequent to these inspections, however, additional track maintenance was performed, which included an additional lift of approximately six inches of crushed ballast, as well as tie replacement, lining, and tamping. This maintenance is being performed over the entire line segment between La Crescent, Minnesota and Sabula Junction, Iowa and should increase the strength, improve the alignment, and eliminate skewed ties and low joints. However, kinked rail will still remain, causing continued rocking of cars and limiting speeds to 30 mph north of Eagle Point and 20 mph between Eagle Point at the Hawthorne Street overpass.

Within the City of Dubuque, between the Hawthorne Street overpass and the Julien Dubuque bridge, the rail is predominantly 100 lb/yd jointed, dating to the late 1920s. The rail is noticeably kinked, with head flattening and battered joints noted at numerous locations. A significant tie replacement program over this segment was noted, with an average of 42 new ties per 100 ties and only one deteriorated tie per 100 ties. Unlike the line segment to the north, however, a thin lift of three to six inches of crushed ballast was noted supporting the ties.

South of the Julien Dubuque bridge to Julien Dubuque Drive, the rail was 110 to 112 lb/yd jointed, dating to 1940. The rail was chipped in many locations, and joints were generally low and poorly maintained. A thin layer of crushed ballast was noted, with pumping and skewed ties prevalent. A partial tie replacement program had taken place, with 17 new ties per 100 and 21 deteriorated ties per 100 average. The additional ballast and track work performed last fall will improve the track strength and joint conditions, but will not correct the problem of rail kinking. Speeds are restricted to 10 mph between the Hawthorne Street overpass and Wood Junction adjacent to Maus Lake. From Wood Junction to Sabula Junction, the maximum allowable speed is 30 mph.

The Milwaukee Road yard begins at Hawthorne Street and ends near 16th Street on the south. The yard contains two main line tracks, nine yard tracks, a scale track, rip tracks, and storage tracks for equipment and rolling stock maintenance. The two main line tracks as well as two of the yard tracks have received some rehabilitation, including a thin ballast lift and new ties. Unrehabilitated tracks typically have poor ties, many not visible in the soil, with little or no ballast present. Numerous low and loose joints were noted, with flattening of the rail head and joint end batter frequently found. Rail throughout the yard was predominantly 90 to 100 lb/yd jointed, dating from 1900 to 1930. The Milwaukee Road operates a small intermodal circus-type ramp facility with a capacity of four to five cars per switch. Ample room for trailer storage exists adjacent to the yards, but has not been developed, and the facility is easily accessible to Kerper Boulevard from 16th Street.

The Milwaukee Road plans to continue upgrading its La Crescent-Sabula Junction main line through Dubuque, with completion of ballasting, tamping, and aligning to Sabula scheduled by 1983, and initiation of a yard improvement program focused on tie replacement and reballasting of the Dubuque yard by 1985.

## RAILROAD OPERATIONS

The development of a comprehensive rail plan for a region requires a thorough knowledge of existing railroad operations in order to facilitate industrial development that is compatible with

the existing rail system and to aid in the identification of changes in railroad plant structure and operations, which may positively or adversely affect growth of the region. Railroad operations in the Dubuque area were analyzed through discussions with local rail operating officials and acquisition of timetables, special instructions, condensed profiles, and other relevant documents. Rail traffic figures for the Dubuque area were obtained from the general agents of each railroad and from area shippers.

Several of the data items desired for analysis were not obtainable. As a matter of policy, railroads do not divulge local operating and maintenance costs. The only source available for such costs currently is through the Interstate Commerce Commission Rail Form A costing procedures. These complex costing procedures are based on system-wide average unit costs either for an entire railroad or for a geographic region and are not directly applicable for use in evaluating specific local operations and maintenance practices. Unit costs for track improvement and changes in operation can be sought after specific proposals are developed for changes in such factors. At such time, it may be possible to obtain the cooperation of the railroads in economically evaluating projects that are mutually beneficial to the community and to the railroad. Also, the development of specific proposals will limit the amount of costing data required for the analysis.

**Railroad Operating Practices**

Operating practices are defined in terms of road freight and switching practices, interchange practices, joint operations, weight restrictions, speed limits, and other limitations. Figure 4 illustrates the signal system through which the system operates.

*Road Freight and Local Switching Operations—Illinois Central Gulf Railroad*

The ICG operates four trains through Dubuque on a regular basis, two in each direction. Two of these trains operate as through trains between Chicago and Council Bluffs, Iowa and usually do not stop in Dubuque except to pick up large blocks of cars. These trains usually contain between 80 and 125 cars. The remaining two trains operate daily as locals between Waterloo, Iowa and Freeport, Illinois; the crew changes points for the Dubuque District. These trains usually carry 80 to 125 cars and stop to pick up and set out cars at Dubuque and other points along the 160-mile route. In addition, an average of one coal unit train per week in each direction passes through Dubuque, moving between southern Wyoming coal fields and Chicago. When grain traffic is extremely heavy, a third train per day in each direction is added. No through or local trains are thus dispatched from Dubuque.

The ICG operates two switch engines in Dubuque and currently employs two train crews working separate A.M. and P.M. shifts three days a week and a single train crew working either the A.M. or P.M. shift four days a week. These yard engines originate and terminate their work in Dubuque. The through trains set out cars for Dubuque and pick up cars that have been pulled from various shippers by the switching operation. The switching crew delivers cars set out by through trains in the Dubuque yard and picks up cars originating at Dubuque area industries. The Dubuque yard engine blocks the cars to be picked up in a west block (Waterloo and beyond) and an east block (Freeport and beyond). Local cars, i.e., traffic for stations east of Waterloo and west of Freeport, are lined up by the switch engine in station order for pickup by the local train.

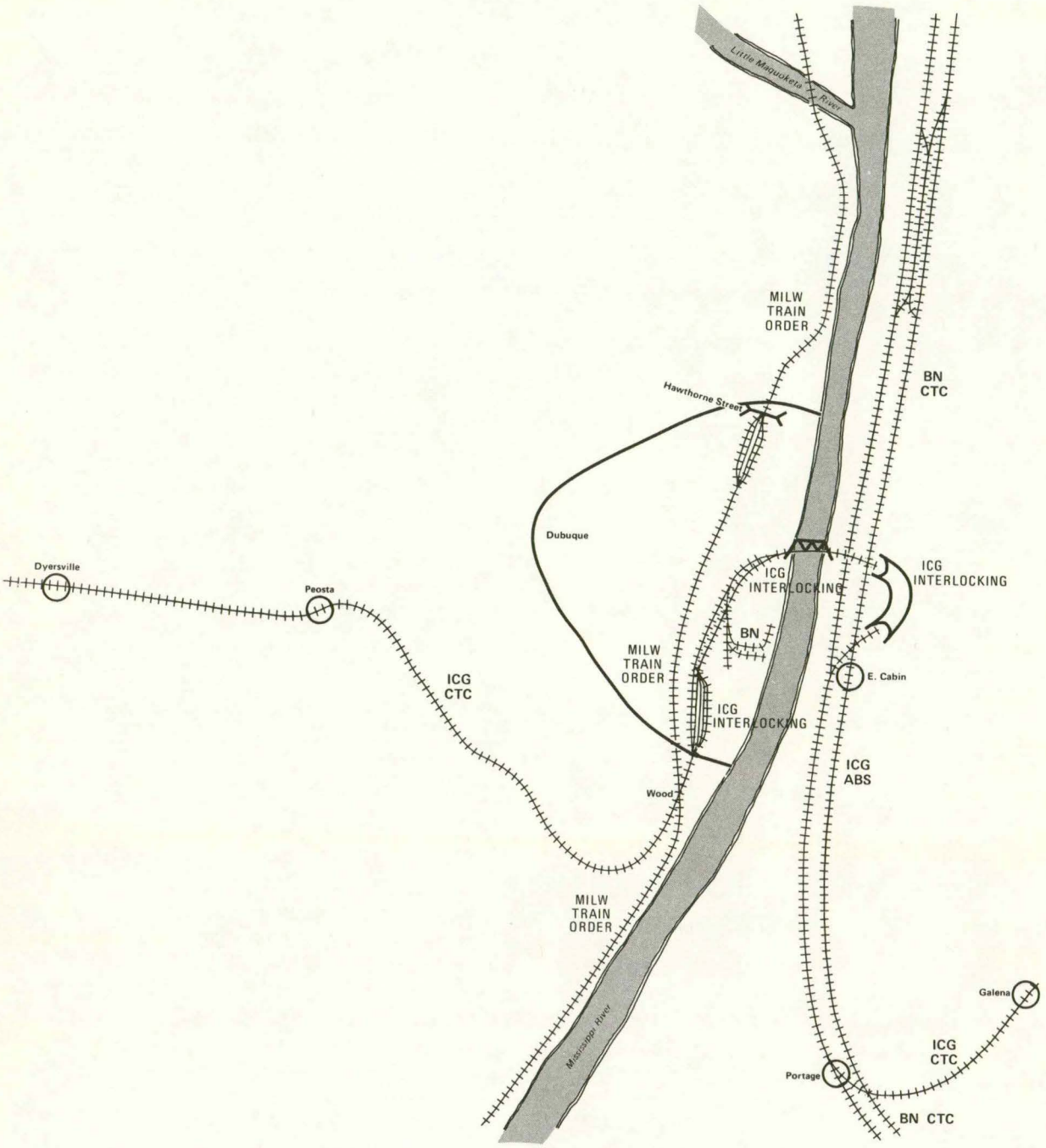



**Figure 4**
**RAILROAD SIGNAL SYSTEMS**

*Road Freight and Local Switching Operations—Milwaukee Road*

The Milwaukee Road operates four trains through Dubuque on a regular basis, two in each direction. Two of these trains operate as through trains between Minneapolis and Kansas City, but stop occasionally in Dubuque to set out and pick up cars that originate between Clinton and Marquette, Iowa and between Marquette and Mason City, Iowa on the Mason City branch. The two remaining trains are locals that operate six days a week on a round-trip basis between Dubuque and Marquette and Marquette and Nahant Yard, Davenport, Iowa. These four trains usually carry an average of 100 cars each. During periods of peak grain movement, a third southbound train per day may be added, originating at either Mason City or Marquette, Iowa and terminating at barge transfer points along the Mississippi River or at Kansas City. At present, traffic volumes are extremely low because of poor economic conditions, and only one train per day is operating in each direction. Dubuque is a crew change point on the Milwaukee Road; thus, all trains must stop. Adjacent crew change points on the Minneapolis-Kansas City route are St. Paul, Minnesota and Nahant Yard, Davenport, Iowa.

The Milwaukee Road operates one switch engine for two shifts, five days per week, and for one shift on Saturday. The Milwaukee Road thus provides shippers with both A.M. and P.M. switching services five days a week. Yard limits for switching services extend between Hawthorne Street and Wood Junction. Thus, the John Deere plant is switched by the local train operating between Dubuque and Marquette.

The Milwaukee Road yard switch engine usually blocks all Kansas City traffic originating in Dubuque for pickup by the Dubuque-Nahant local. At Nahant, this Kansas City block is switched into the St. Paul-Kansas City through train, which normally does not stop to pick up and set out cars in Dubuque. The Dubuque yard engine also blocks cars for north of Dubuque for pickup by the Kansas City to Minneapolis through train. A separate block is formed for eastbound traffic moving toward Chicago. This block connected to the Dubuque-Nahant local for set out at Sabula Junction, Iowa. The eastbound block is picked up by Kansas City to Chicago through trains. Yard switch engines also classify cars in station order for set out on the Dubuque-Nahant and Dubuque-Marquette locals.

*Road Freight and Local Switching Operations—Burlington Northern Railroad*

The BN currently operates approximately 20 trains per day along its main line through East Dubuque. During more favorable economic periods, up to 35 trains a day were operated through East Dubuque. However, only one train in each direction or occasionally two in each direction stop in East Dubuque to pick up and set out cars. Dubuque inbound traffic moving on any of the other through trains is switched out at LaCrosse, Wisconsin for delivery to East Dubuque.

East Dubuque is located on the BN main line between Chicago and Minneapolis-St. Paul and has access south to the BN Chicago-Omaha-Denver and Chicago-Kansas City main lines through Galesburg, Illinois.

The BN normally operates one road switch engine with one crew scheduled six days per week. However, because of low traffic volumes, the crew works only five days per week. The switch

crew picks up cars at industries and interchange points in Dubuque, pulls these cars across the ICG Mississippi River bridge, and sets the cars out for pickup by BN through trains on a center siding located north of the ICG bridge. Eastbound cars are placed at the east end of the center siding and westbound cars at the west end. Cars are set out by BN through trains for Dubuque destinations and ICG interchange on an ICG interchange track at East Cabin. The BN switch engine picks up Dubuque destination cars and moves them to shippers across the river. Switching operations are occasionally hampered or delayed by priority given to ICG train operations and barge operations on the river, which require bridge openings. Dubuque cars are blocked for destination within trains at Galesburg, Illinois and LaCrosse, Wisconsin. No blocking is performed at Dubuque.

*Interchange Practices and Joint Operations*

Interchange between Dubuque area railroads is performed daily at several locations in the Dubuque area. The ICG/Milwaukee Road interchange is performed on two tracks located between the ICG Dubuque yard and the adjacent Milwaukee Road main line. Each track has a capacity of approximately 30 cars. Interchange volumes are provided later in this report. The BN and Milwaukee Road interchange traffic on a single designated track between Sixth and Seventh Streets adjacent to the BN depot. Interchange volumes are particularly light, and the track is capable of holding a maximum of five cars. The ICG interchanges cars with BN destinations on a track adjacent to the Ice Harbor. The BN interchanges cars with ICG destinations at East Cabin in East Dubuque.

The BN and ICG maintain joint trackage operations over the ICG main line between Portage and East Cabin and across the ICG bridge into Dubuque. Industry street tracks on Jackson and Washington Streets between Fifth and Ninth Streets are owned by the ICG but are operated as joint tracks with the BN and Milwaukee Road. The BN must pay the ICG both monthly and per-car fees for use of ICG facilities in the Dubuque area.

Reciprocal switching agreements allow shippers located on a single railroad to route cars to another local railroad. The BN has several reciprocal switching arrangements with the ICG for traffic originating and terminating at Pillsbury, Conti Carriers, Hodge Warehouses, Domtar Salt, Interstate Power Company, the Alton Company, and Dubuque Tank Terminal. Previously, before the abandonment of the C&NW line into Dubuque, the BN had access and reciprocal switching with the C&NW into Pillsbury, Conti Carriers, and Hodge Warehouses and received substantial traffic from each. C&NW trackage that served these shippers has been purchased by Conti Carriers and the ICG, and a substantial reciprocal switching charge has been imposed by the ICG on cars to be interchanged with the BN at Dubuque. This reciprocal switching charge has eliminated most BN reciprocal interchange traffic originating or terminating at Pillsbury and Conti Carriers. Rail switching services to all reciprocal customers except Hodge Warehouses is provided by the ICG. The BN serves Hodge Warehouses, using its own switch engine, and incurs a relatively low reciprocal switching charge per carload. The BN also has a reciprocal switching agreement with the Milwaukee Road to serve Spahn and Rose Lumber.

*Miscellaneous Rail Operating Factors*

1. *Weight Restrictions, Operating Speeds, and Clearance Limitations.* Weight restrictions apply to both the BN and the ICG for operations over the Mississippi River bridge, but this imposes

limitations only on ore cars, which are not currently moved over the route. The special instructions printed in the ICG Iowa Division timetable of April 27, 1981 state:

> When handling ore cars, the maximum number of ore cars which may be coupled together is three cars for ore cars weighing up to 160,000 pounds gross, two cars for ore cars from 160,000 to 200,000 pounds gross and single cars only for ore cars from 200,000 to 220,000 pounds gross. These loaded ore cars, or any group of ore cars, must be separated from other ore cars, the pulling engine, or any cars exceeding a gross weight of 177,000 pounds by at least three spacing cars. The length of each spacing car must be not less than 40 feet and each spacing car must not weigh more than 177,000 pounds gross.

The weight limitation for other commodities moving across the bridge and for all other rail lines in the area is 263,000 pounds per car and is equivalent to the nationally-allowed carload maximum loading. Operating speeds were described previously. The 10 mph speed limits within the City of Dubuque are due to the substantial number of grade crossings and switches encountered by trains operating in Dubuque. In all locations, track within the Dubuque area is much better than Class 1 standard (operation at a maximum speed of 10 mph) and could support operations at higher speeds. There are no unusual clearance limitations on any railroad within the Dubuque area.

2. *Local Railroad Employment and Labor Practices.* Among the three railroads serving Dubuque, only the Milwaukee Road utilizes Dubuque as a terminal for its road and yard crews. All road trains that operate through Dubuque must stop to change crews. Yard crews working in Dubuque are selected from a separate roster and not from the Roadmen's Board. Yard crews work exclusively between Wood and Hawthorne Streets, and road crews cannot perform switching within these limits. The Milwaukee Road employs 14 engineers and 30 trainmen to work in and out of Dubuque. In addition, the Milwaukee Road employes six maintenance-of-way personnel, five operators, two mechanical employees, and an agent/yardmaster.

   The BN uses roadmen to perform switching in the Dubuque area. Since no yardmen are employed, there are no restrictions concerning the rights of these crews to perform switching at any industry. The BN employs four roadmen who are selected from the Galesburg board. In addition, the BN employs three office personnel, including a general agent, and three maintenance section personnel stationed at East Dubuque, Galena, and Dubuque, respectively.

   The ICG also uses roadmen to perform switching in Dubuque, thus eliminating restrictions concerning rights to perform industrial switching. ICG crews are selected from the Roadmen's Board at Waterloo, Iowa. Two engineers and six switchmen are employed in Dubuque. Other operating personnel include four tower operators and one relief man at East Cabin, one communications man, a mechanical foreman, a rate clerk, a signal maintainer, three teleprocessing personnel, and a general agent. Maintenance personnel are stationed at Dubuque, Galena, and Manchester, Iowa. A foreman and two laborers are assigned maintenance responsibility for track between Galena and East Cabin. At Dubuque, a maintenance area supervisor, one foreman, three laborers, a welder and welder's helper, and a Burro crain operator are responsible for maintaining track between Epworth and East Cabin. A third maintenance crew stationed at Dyersville is responsible for maintenance between Manchester and Epworth.

3. *Railroad Taxation Practices.* Railroads are subject to property taxation by municipal and rural governments whose jurisdictions they pass through. The Iowa State Department of Revenue performs an assessment of all railroad properties in the state, evaluating the entire system of each railroad company as a whole. The state also places a value on each railroad's operations throughout the United States. The Rail Revitalization and Regulatory Reform Act of 1976 (4R Act) effectively directs all taxing bodies to value and tax railroad property in the same manner they would value and tax commercial/industrial property. The value of a railroad's property in Iowa is treated as a portion of the railroad's system-wide value. A railroad's proportional value to Iowa is allocated on the basis of the following four weighted factors:

| Factor | Weighting |
|---|---|
| Revenue traffic units | 15% |
| Track mileage | 35 |
| Car and locomotive mileage | 10 |
| Gross operating revenue | 40 |

System-wide valuation of railroad property is performed using three approaches:

- Stock and debt approach: a fair market value for the railroad is obtained by valuing debt, equity, and liabilities obtained from Interstate Commerce Commission R-1 reports.
- Income approach: the railroad's system-wide operating income is divided by a market-determined discount rate.
- Cost approach: the value is determined from the original cost less depreciation plus obsolescence.

The cost approach is not given much weight since original railroad investments were made long ago. The stock and debt approach is most accurate and given the most weight in determining railroad value.

Once the statewide value of each railroad's system has been determined, the assessed value is divided among the Iowa counties on the basis of the number of track miles within the county in proportion to in-state mileage. The municipal tax rate is determined by the following formula:

| | | | | |
|---|---|---|---|---|
| assessed value per mile | × | percent adjustment to limit taxable value to commercial/industrial property levels | = | taxable value |
| taxable value | × | township tax rate | = | property tax due |

Railroad leasehold property, unlike operating property, is assessed locally.

## ANALYSIS OF RAIL TRAFFIC VOLUMES

A portion of the traffic analysis was completed through discussions with local railroad operating officials. This data is discussed here to establish the dimension of goods movement. However, most of the traffic analysis results obtained through the shipper interview process and discussions with railroad headquarters personnel in Chicago and St. Paul are summarized in Chapter 4. Furthermore, it is unclear at this time what degree of confidentiality exists in the traffic figures obtained to date. Therefore, only a general treatment of traffic characteristics will be presented in this report.

During 1981, the ICG received and forwarded approximately 6,000 carloads moving in and out of Dubuque and interchanged approximately 12,000 carloads with other rail carriers. Principal commodities included chemicals, coal, grain, wood, lumber, high-value manufactured goods, and fertilizer. Major shippers and receivers included Conti Carriers, Pillsbury, N-Ren Chemicals, U.S. Chemicals, Inland Molasses, and Standard Oil. Traffic is somewhat lower than in previous years because of general economic conditions. Seasonal traffic variations exist in grain movements, with the heaviest traffic occurring during summer and fall. As previously noted, extra dedicated grain trains are operated during these periods, and the capacity of the Dubuque switch yard is sometimes reached, necessitating storage of cars at Waterloo and Freeport.

During a corresponding period, the Milwaukee Road received and forwarded approximately 3,500 cars and interchanged approximately 4,500 cars with other carriers in Dubuque. However, traffic has decreased significantly since 1981, causing reductions in road train operations to one train per day in each direction. Seasonal traffic variations occur for grain movements originating on the Mason City line, with heaviest volumes occurring in summer and fall. The peaking of grain shipments has been tempered, however, in recent years by nonseasonal movements of export grain and increased on-farm and local elevator storage capacity. Major commodity shipments originating and terminating in Dubuque include construction equipment for export, scrap steel, coke, pulpwood, and grain. Revenue traffic is unbalanced, moving predominantly southbound. Important commodities moving through Dubuque include grain, automobiles, and forest products from Canada.

The BN originated and terminated approximately 2,500 carloads in Dubuque during 1981 and interchanged approximately 8,000 carloads with the other carriers at Dubuque and East Dubuque. The loss of traffic from the major grain terminals in Dubuque, which were previously served by BN switching over the abandoned C&NW track, however, combined with poor general economic conditions, has significantly reduced BN originating, terminating, and interchange traffic within Dubuque. Switching services have been cut from six to five days per week in response to this drop in demand. Major shippers include Hodge Warehouses, ERTL Corporation, and Flexsteel. Predominant commodities are major appliances and furniture and toys moving TOFC (freight all kinds).

## SUMMARY OF SYSTEM CONDITIONS AND OPERATIONS

The ICG is the primary railroad serving the Dubuque metropolitan area and its shippers. It controls direct access to the city from the east and west and owns the railroad bridge crossing the Mississippi River. ICG tracks in the Dubuque area are relatively well maintained and adequate to support current traffic as well as potential traffic growth in the area. Although the capacity of main line trackage is adequate to handle an increase in traffic, the ICG Dubuque yard has become congested during periods when grain shipments are heavy, and it has been necessary to store cars at both Freeport and Waterloo yards, with careful coordination of rail movements during such periods. Space for expansion is not available at the existing facility. This also precludes the idea of consolidating ICG and Milwaukee Road yards. Neither of the two carriers' yards would be sufficient to handle combined traffic volumes.

Despite the fact that the ICG is Dubuque's primary rail carrier, intermodal services are not offered to the shipper. However, this study did not analyze the need for such services or presume

that such a need exists. The ICG controls all train movements on its system in the Dubuque area through automatic block signaling (ABS) on the ICG/BN joint trackage between Portage and East Cabin, through an interlocking plant located at East Cabin for movements between East Cabin and Wood, and by centralized traffic control (CTC) operated from Chicago for all other main line trackage. There are no unusual weight or clearance restrictions on the ICG system in the Dubuque area, and operating speeds within the city and westward to Peosta are dictated by grade crossings, switches, and curvature rather than by track conditions. However, ICG is downgrading its main line between Peosta and Dyersville from Class 4 to Class 3 (50 mph operation to 40 mph operation). This will not significantly impact area shippers. The ICG maintains industrial spur trackage along the Catfish Creek industrial area, in-street joint trackage along Washington and Jackson Streets, and along Kerper Boulevard to service the major grain facilities. Little land for industrial growth exists in these areas, although this situation could change following the construction of Relocated 61, which may precipitate reindustrialization of the waterfront area.

The Milwaukee Road serves Dubuque along a north-south main line corridor between Minneapolis and Kansas City, with an eastern connection to Chicago via Sabula Junction, Iowa. The main line track is maintained to Class 2 standards and operated at a maximum speed of 30 mph. The railroad is gradually upgrading the condition of its track by adding additional ballast, tamping, and lining, and has completed a substantial tie replacement program. Although the rail is adequate for current levels of traffic, it is worn and kinked in many locations and may require replacement at some point in the future. Unusual weight and clearance restrictions do not occur in the Dubuque area. Trains are operated under train orders issued from Ottumwa, Iowa, as no signal system exists between La Crescent, Minnesota and Sabula Junction, Iowa. Portions of the Milwaukee Road yard facility in Dubuque have been improved, and further improvements, including tie replacement and addition of ballast, are scheduled for completion by 1985. The Milwaukee Road maintains a circus-type intermodal loading facility with ample capacity to handle current Dubuque needs, easy access, and ample room for expansion. The Milwaukee Road owns industrial spur trackage adjacent to the John Deere works and shares joint street tracks along Washington and Jackson Streets with the other rail carriers.

The BN has the smallest physical plant in the Dubuque area and is limited in its Dubuque operations by joint trackage and reciprocal switching agreements with the ICG. Yard space in Dubuque is severely limited, but intermodal service is provided through a circus-type ramp capable of loading two flatcars at one time. Trailer storage capacity is extremely limited, and additional capacity is needed if BN intermodal service is to remain viable and grow.

Overall, this analysis of the physical plant has indicated that facilities are being used well; the amount of excess capacity is small. There are some underused and unused track segments. However, such areas are not that substantial. As part of the implementation of the rail program recommended by this report, such excess rail segments should be evaluated for possible elimination and conversion to more efficient use (possibly alternative land-use). However, as the future demand analysis will indicate plus considering the positive changes likely to occur with the Milwaukee Road, reducing rail capacity should be undertaken carefully in order to avoid constraining future service needs.

With regard to operations, the Dubuque area currently receives adequate road train service from each of the three rail carriers, with at least one train per day moving freight cars inward from or outward toward Chicago, Kansas City, Omaha, and Minneapolis/St. Paul. Most shippers have available both A.M. and P.M. switching services five days per week and A.M. switching service on Saturdays. Interchange practices appear to be straightforward and uncomplicated. Joint operations of the BN over the ICG at East Dubuque appear to be adequate, although some delays are caused by ICG priorities and opening of the ICG bridge for river traffic.

Reciprocal switching agreements and depressed traffic levels because of poor economic conditions pose the greatest obstacles to the continuation of the existing level of three-carrier service to Dubuque. All three carriers have reported substantial reductions in originating and terminating traffic in Dubuque since 1980. The success of local development programs would be significant to reversing this trend. This relationship, i.e., the generation of rail service demand that provides the incentive to retain three-carrier service, is a function of local business levels, and should be central to the overall rail plan. Further, reciprocal switching agreements have adversely impacted the BN by significantly reducing the number of carloads delivered and received from rail/water intermodal bulk commodity terminals. Such carload reductions on the BN were caused by the imposition of higher (per carload) reciprocal switching charges by the ICG after the C&NW abandonment of service to Dubuque and its bulk community barge terminals and acquisition of former C&NW trackage by the ICG and Conti Carriers.

The Milwaukee Road has been experiencing severe economic conditions due to the poor general economic conditions and general reductions in freight traffic. The potential merger of the Milwaukee Road with the Grand Trunk Western Railroad, a subsidiary of the Canadian national system, will provide an infusion of new capital into the system and would most likely result in the eventual upgrading of the La Crescent-Sabula Junction line through Dubuque and the potential addition of overhead forest products and grain traffic from Canada.

# 3.
# Railroad-Highway Interface

The location of the rail system in Dubuque (see Chapter 2) creates important relationships with the *other* systems in the community that have an impact on the function of the rail system. The principal impact is related to the at-grade rail crossings. However, a major highway improvement project (Relocated 61) also will have an impact on railroad alignment and facility location.

## IMPACT OF RAIL OPERATIONS ON GRADE CROSSINGS

Grade crossings in the Dubuque area are primarily impacted by the line-haul movement of intercity freight trains and not by local switching operations. During the grade crossing study, several blockages of approximately 10 minutes duration were noted at Dubuque central area crossings on both the Illinois Central Gulf (ICG) and Milwaukee Road Railroads. ICG line-haul freight trains moving at the maximum allowable speed of 10 mph can simultaneously block crossings between Jones and Sixth Streets. Maximum train lengths of approximately 6,400 feet were noted for 110-car coal unit trains moving over the ICG main line. Train lengths of approximately 4,500 feet were noted on the Milwaukee Road main line, with simultaneous blockages of several crossings between Jones and 16th Streets possible.

Switching of grain shipments in Dubuque involves the movement of a maximum 30-car cut from the ICG yard, traversing grade crossings between Jones and Sixth Streets. Access to Conti Carriers is accomplished by a braking switch movement over an industrial spur track entering the ICG main line near the ICG river bridge. This braking movement traverses the Seventh Street grade crossing. Access to Pillsbury is accomplished by a braking movement from the ICG main line onto a short industrial spur that crosses the extension of Seventh Street near the Old Shot Tower. Cuts of grain cars are limited in length by truck capacities of 30 cars at each of the Dubuque grain terminals. Thus, excessive delays due to grain movements do not occur in the Dubuque area and are not expected to occur in the future since track storage capacities at the grain terminals cannot be expanded.

Yard switching operations create temporary blockages of crossings at Jones Street (ICG yard) and Third, Fourth, and Sixth Streets (Burlington Northern yard). However, delays are usually brief.

Simultaneous blockage of the grade crossings at Second, Fourth, and Sixth Streets in East Dubuque occurs with the passage of each train over the ICG and BN main lines, isolating a small residential area of East Dubuque. Train speeds are limited to 10 mph past the interlocking tower and train inspection point at East Cabin (East Dubuque). Maximum delays of approximately 10 minutes duration were noted during the study period. Vehicular delays at all other major crossings within the study area are generally shorter because of higher allowable train speeds through the crossings.

Although seasonal variations of rail commodity movements originating, terminating, or passing through the Dubuque area occur, the impact on the rail/highway interface is minimal. The only pronounced seasonal movement occurs during harvest season when heavier movements of grain from western Iowa over the ICG to the Dubuque terminals take place and when additional grain trains originating on the Milwaukee Road Mason City line are added that pass through Dubuque en route to grain terminals in the Davenport and Kansas City areas. However, terminal track storage capacities at Dubuque require that trains be broken into 30-car cuts in the ICG Dubuque yard, which limits switching movements to 30-car lengths, thus minimizing crossing delay times.

Acquisition of the Milwaukee Road by the Grand Trunk Western Railroad would result in additional traffic over the Milwaukee Road main line through Dubuque, but this is not expected to create longer delays at crossings. One additional daily through train in each direction between Kansas City and St. Paul is planned, with the increase in traffic provided by lumber and potash shipments originating in Canada and increased intermodal traffic. These additional trains will provide Dubuque shippers with rapid through service to Kansas City and St. Paul, since only three stops of relatively short duration will be made over the St. Paul to Kansas City route.

## TRAVEL PATTERNS GENERATED BY LAND-USE

Figure 5 indicates the relationship between community institutions and the Dubuque area rail system. Open circles on the map indicate the location of critical grade crossings for emergency vehicle access. Although specific emergency vehicle routes are not specified by local fire and police officials, the improved arterial street system (indicated by heavier lines) is generally used for access. Location of fire and police stations, as well as hospitals, is also indicated on the map. Within the City of Dyersville, the grade crossing at Highway 136 is considered critical, with construction of a second improved grade crossing near the west end of the city proposed.

Figure 5 also indicates the location of major businesses that employ more than 150 people. Employee commuting impacts heaviest on the crossings located at 16th, Ninth, and 11th Streets. Much of the traffic impact at Ninth and 11th Streets, however, will be eliminated with the construction of the proposed Relocated 61 connector. Average daily traffic over the 16th Street grade crossing will increase to approximately 9,400 vehicles per day by the year 2000, as 16th Street will be a principal means of access to Relocated 61 and to the City Island Park facility.

All other impacts of the rail system on community institutions appear to be minimal. At no grade crossings are pedestrian movements currently a major problem, since the railroads traverse mostly sparsely populated areas, with few pedestrian destinations located east of the tracks in the downtown area. Development of the Lower Main Street/Ice Harbor tourist area will result in increased pedestrian traffic, but a pedestrian overpass is planned across Relocated 61 and the railroad tracks.

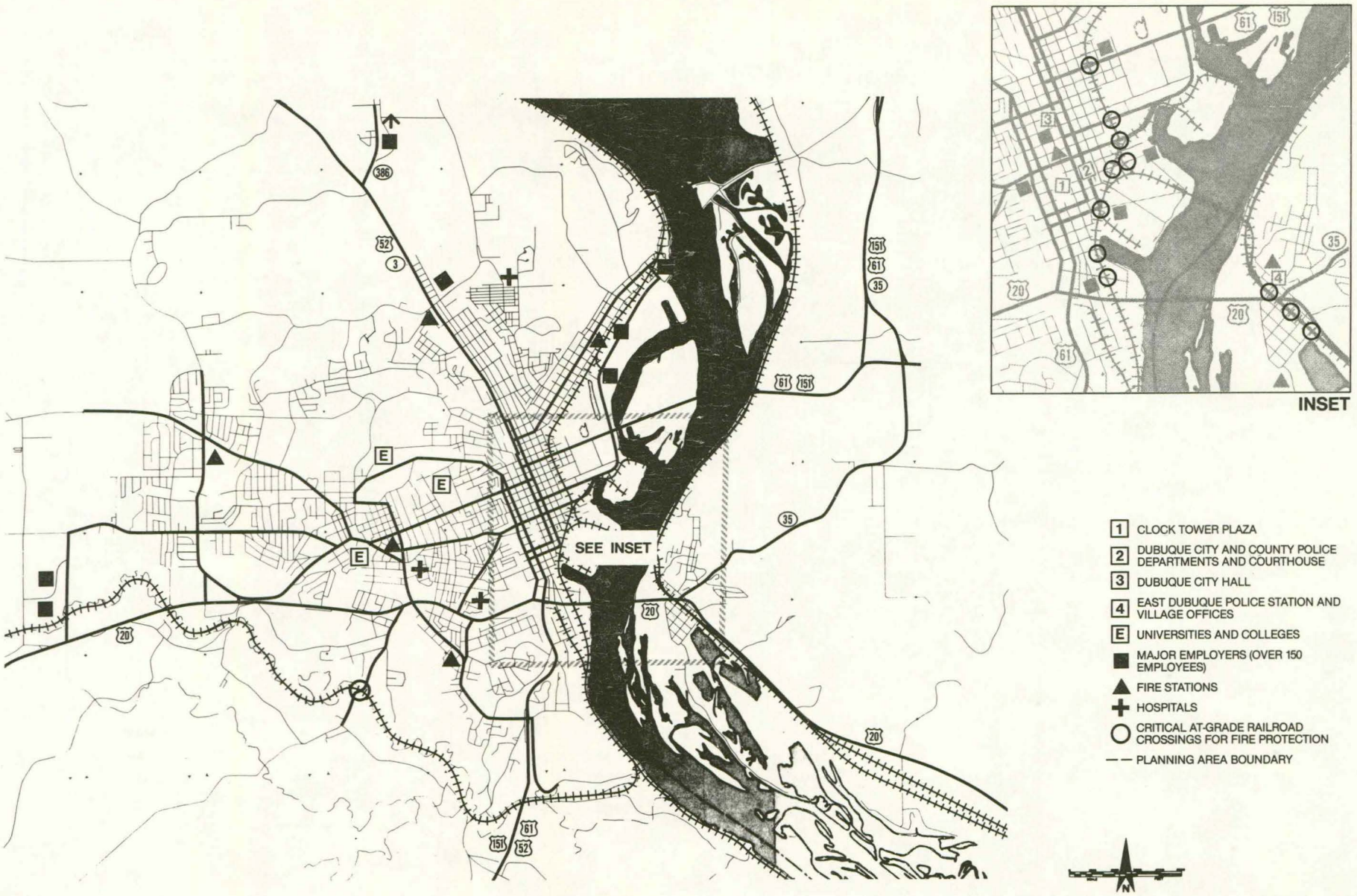



**Figure 5**

**CRITICAL GRADE CROSSINGS AND COMMUNITY INSTITUTIONS**

Thus, specific concerns of fire and emergency personnel centered around access to areas east of the tracks in Dubuque and to the residential area west of the ICG/BN main line in East Dubuque. In each of these areas, however, maximum crossing blockages were observed to be approximately 10 minutes, and little can be done to reduce or eliminate such occasional rail/vehicular conflicts short of constructing underpasses or overpasses at significant expense.

## GRADE CROSSING REVIEW AND INSPECTION METHODOLOGY

Within the study area, there are many at-grade crossings between the roadways and existing rail lines. Several crossings are private or semi-private and used by a small segment of the regional population. Selection of the crossings was based on roadway/rail at-grade intersections designated on the Iowa Department of Transportation (DOT) Dubuque County General Highway Map, the City Map of Dubuque, and the General Highway Map of Jo Daviess County, Illinois. Within the DMATS study area, 49 crossings were inspected: 19 in Dubuque County, 24 in the City of Dubuque, four in the City of East Dubuque, and two in Jo Daviess County. A further breakdown of these same crossings, by rail company, reveals that 35 crossings are associated with the ICG, of which several are under joint trackage agreement with the BN, and 14 involve the Chicago, Milwaukee St. Paul and Pacific Railroad.

Figures 6 and 7 define the location of the crossings within the study area. Figure 6 indicates the location of crossings within Dubuque County. Figure 7 shows the location of crossings in the City of Dubuque and Dunleith Township, Illinois. The 10 major crossings that were evaluated in greater detail than the others are also designated on these figures. These 10 crossings will be discussed later in this report.

### Method of Inspection

Each of the 49 crossings was inspected during the months of October and November, 1982. A standard form was acquired from the Iowa DOT and modified to include additional parameters that were used to evaluate the existing conditions of these crossings. Twenty-two parameters fit within four major headings: (1) Location Information, (2) Railroad Grade Crossing Data, (3) Physical Data, and (4) Highway Traffic Data. Headings 1 through 3 were completed in the field, and those additional parameters under heading 4 were added by the staff at ECIA from information acquired from the Iowa DOT.

All field information pertained to the physical characteristics of the crossing. Evaluated was the presence of visible warning devices, such as stop signs, cross bucks, bells, gates, or flashing lights. An indication was made on the inspection report if commercial power was available at or near the crossing. Power would be essential if other mechanical safety devices were proposed at the crossing. Other conditions were noted, such as land-use adjacent to the crossing, the angle of intersection between the rail and roadway centerline, the number of traffic lanes crossing the rails, surfacing material of the road, and the composition of the rail crossing. This element alone was highly variable in the study area. Some rural crossings had only ballast between the rails. Other lightly-used crossings were constructed of wooden timbers bolted parallel to the tracks. A few of the downtown Dubuque crossings recently had been rebuilt with a rubber mat and asphalt overlay, which provided the best surface for high traffic volume crossings. Predominantly, the crossings were improved with asphalt overlays between the outside rails.

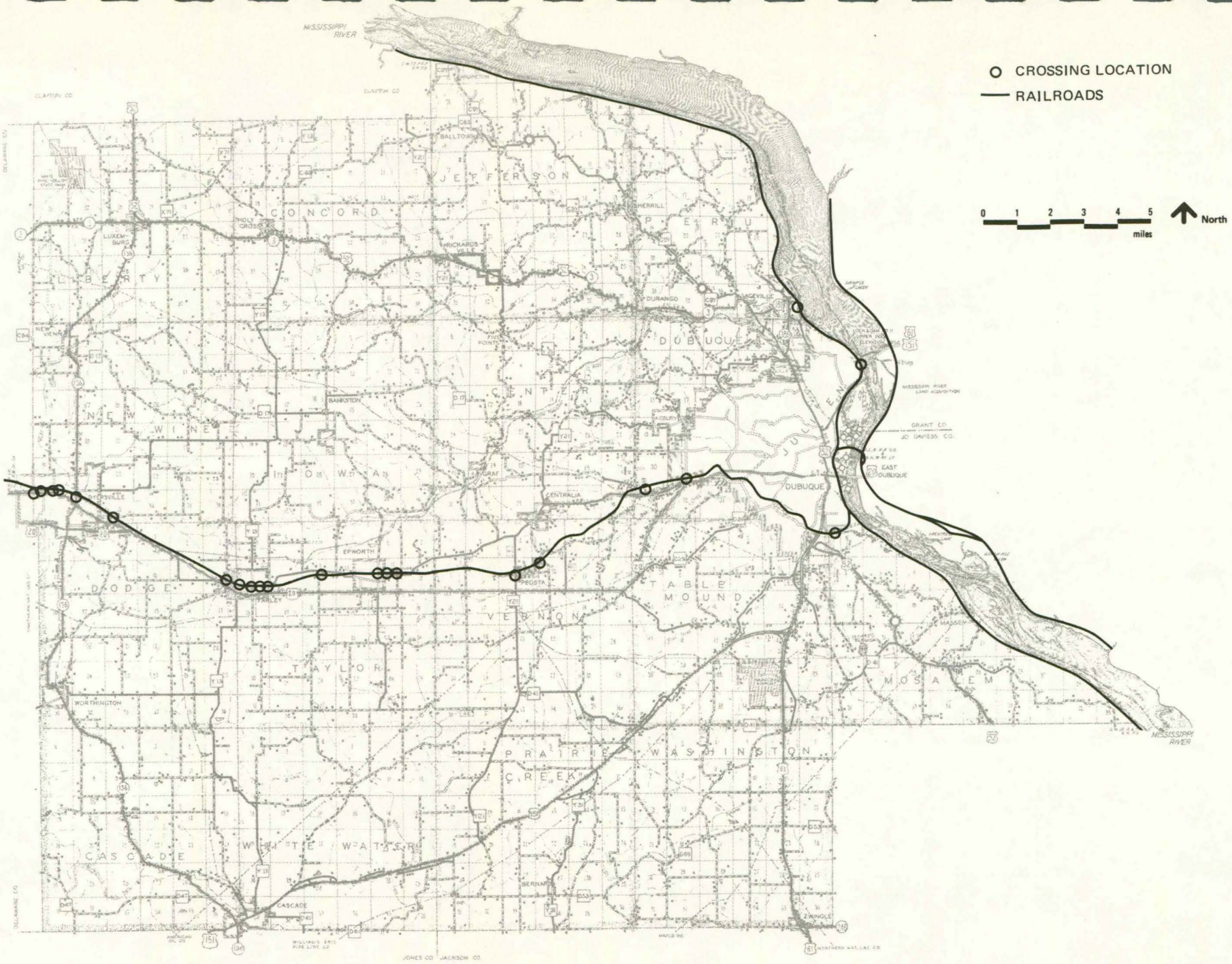



**Figure 6**
AT GRADE CROSSINGS LOCATION PLAN DUBUQUE COUNTY

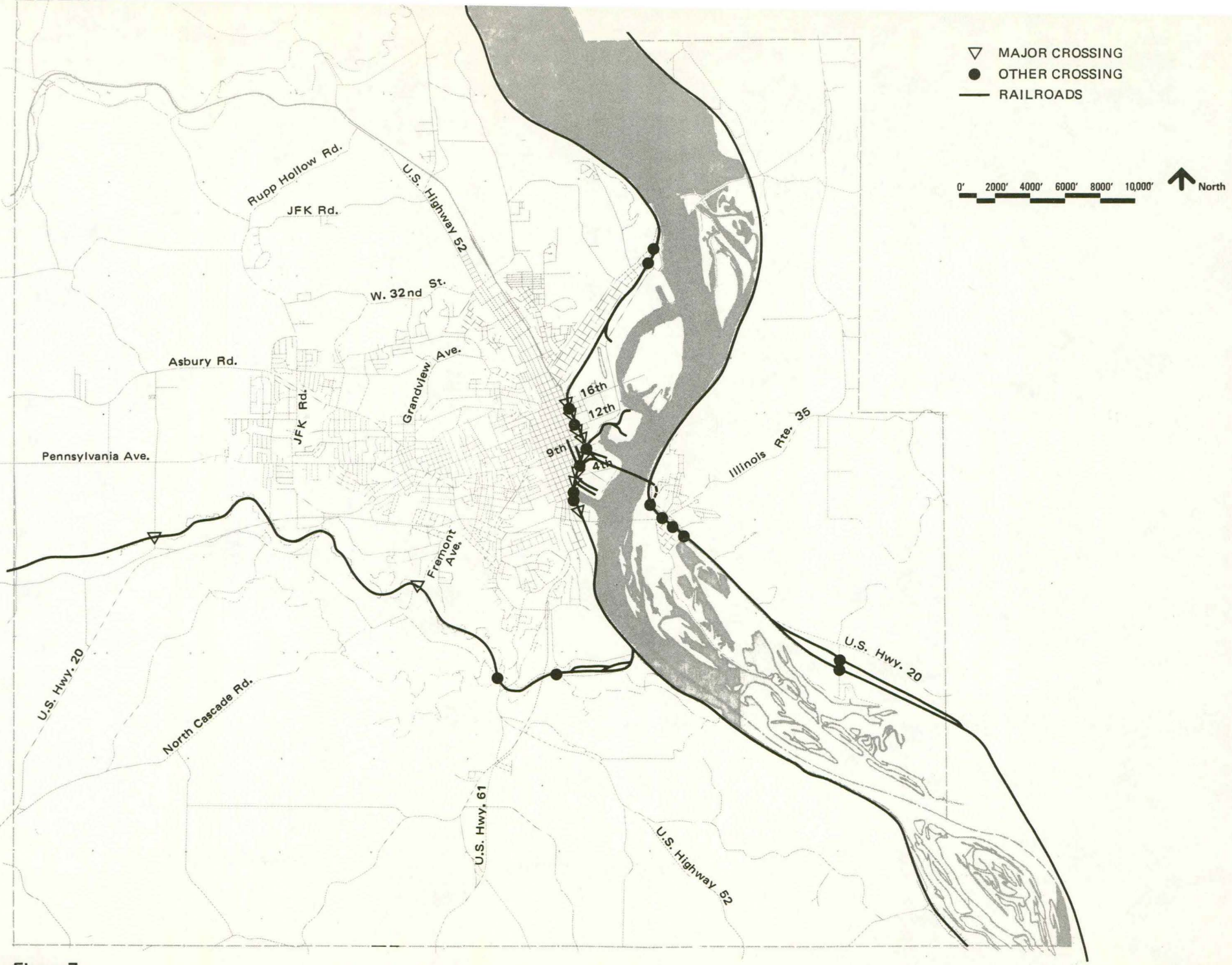



**Figure 7**
**AT GRADE CROSSING LOCATION PLAN CITY OF DUBUQUE**

Another important parameter that was included in the inspection was the estimated sight distance looking left and right down the rails from varying reference points near the crossing. At several crossings in commercial and industrial areas, adjacent buildings or yard fences restricted drivers' views of the rail line. Several crossings in rural areas had visual access to the rail corridor encumbered by steep embankments or dense trees or other ground cover. A copy of the inspection form is included in the Appendix.

**Summary of Crossing Conditions**

After the 49 crossings were evaluated and all pertinent data entered on the report forms, the intersections were ranked relative to their potential for vehicle-train accidents. The Iowa DOT has an established program of ranking at-grade crossings throughout the state, which was followed for this study. One additional parameter included in this study, which is not a part of the State of Iowa evaluation, is the quality of the surface material in the crossing. Each parameter was assigned point values of varying magnitude and these were multiplied together to acquire a rank value. This method of ranking is dependent on the daily volume of vehicular traffic crossing the intersection. Therefore, it is expected that the crossings with the highest rank would be those with the highest vehicular movements; and level of investment for improvements would also be higher for higher ranked crossings. The latter hierarchy is shown via the use of warning gates for high ranked crossings, flashing lights for mid-rank crossings, and only signs and markings for low ranked crossings.

Listed in Table 2 is the "classification value" or rank of the top 20 at-grade crossings of the 49 crossings reviewed in this project. The location of each of these 20 crossings is noted in the table, along with a selected improvement for each crossing. These top 20 crossings represent varied locations throughout the project area, extending from Farley to East Dubuque, Illinois. Each of the selected crossing improvements was reviewed with the engineer or public works director from the respective communities in order to minimize any conflicts with other proposed plans for those crossings. All of the selected improvements were agreeable to the city or county representatives contacted.

Once the proposed improvement was selected, the revised "classification value" or rank for the same 20 crossings was recalculated. The new classification is shown in Table 2 in the right-hand column. The majority of the improvements include the addition of new warning devices as the primary means to reduce accident potential. However, in three instances, the recommended improvement was to close the intersection completely and reroute vehicular traffic to nearby crossings. Such recommendations were made for Third and Fourth Streets and Radford Road in the City of Dubuque. These crossings are in relatively poor condition, and improved traffic patterns could be established when these routes are closed. Further elaboration follows.

1. *Radford Road.* Radford Road traffic can now traverse the same route from Pennsylvania Avenue to US Highway 20 by using the nearby parallel Northwest Arterial. The need for a second route between these two roads is minimal, especially considering the poor approach grades and limited sight distances on Radford Road at the existing rail crossing. City planners have been considering closing this crossing and using Radford Road for local use only. It is recommended that this action be taken.

Table 2
CLASSIFICATION VALUE OF TOP 20 AT-GRADE CROSSINGS

| Classification Value | Location | Selected Improvements | New Classification |
|---|---|---|---|
| 1 (16,994) | 9th Street, Dubuque | Add gates with lights | 2,832 |
| 2 (10,735) | 16th Street, Dubuque | Add gates with lights | 1,789 |
| 3 (10,158) | 11th Street, Dubuque | Add gates with lights | 1,693 |
| 4 ( 6,989) | 14th Street, Dubuque | Add advance RR crossing signs and pavement markings | 4,659 |
| 5 ( 5,706) | 3rd Street, Dubuque | Close crossing route traffic to 2nd St. | 0 |
| 6 ( 5,529) | Frentress Lake Drive, East Dubuque, Illinois | Add advance warning signs and pavement markings (EB main line) | 3,686 |
| 7 ( 5,529) | Frentress Lake Drive, East Dubuque, Illinois | Add advance warning signs and pavement markings (WB main line) | 3,686 |
| 8 ( 4,987) | Jones Street, Dubuque | Add lane markings on west | 3,989 |
| 9 ( 4,834) | Hawthorne Street, Dubuque | Check traffic since old bridge closed, it must be less | |
| 10 ( 3,855) | 15th Street, Dubuque | Brighter streetlight needed | 3,855 |
| 11 ( 3,751) | Radford Road, Dubuque | Close; timing to be coordinated with other city actions | 3,751-0 |
| 12 ( 3,143) | Fremont Avenue, Dubuque | Add pavement markings, place stop-lines 150 feet back from tracks | 2,619 |
| 13 ( 2,304) | Lincoln Street, Dubuque | Add flashing light at crossing | 2,074 |
| 14 ( 2,270) | Peru Road, Dubuque | Add pavement markings | 2,017 |
| 15 ( 2,184) | 6th Street, Dubuque | Add flashing lights | 1,310 |
| 16 ( 1,999) | 5th Street, NW, Farley | Add pavement markings | 1,799 |
| 17 ( 1,985) | 4th Street, Dubuque | Close; route traffic to 6th Street | 1,985-0 |
| 18 ( 1,848) | North End, East Dubuque, Illinois | None; for convenience of residents, provide timer on bell | 1,848 |
| 19 ( 1,767) | 1st Street, NE, Farley | Place pavement markings | 1,472 |
| 20 ( 1,493) | 7th Street, Dubuque | Add advance warning signs and bright streetlight | 1,244 |

2. *Fourth Street.* The Fourth Street crossing in Dubuque was evaluated by the Iowa DOT as having the highest probability for a vehicle-train accident of all at-grade crossings in Dubuque County. There are many conditions at this crossing that add to the potential for an accident, including:
   a. Three rail companies use a total of seven tracks within this crossing.
   b. The Milwaukee Road main line intersects the alignment of US 52/151 at a confusing angle, which can distract even local drivers as they start across the intersection.
   c. Traffic patterns are not well defined due to the limited sight distance, horizontal curves, and the mixture of one-way and two-way traffic lanes. This results in many drivers making lane changes too quickly, following the wrong road, or forgetting to observe the rail traffic at the crossing.
3. *Third Street.* The Third Street crossing could be closed by transferring all vehicular access to the Second Street crossing. At present, Third Street provides vehicular access to the historic area along the Ice Harbor. Similar access can be provided via Second Street with minimal modification to the existing land features. An easement or right-of-way would be required from the BN to accommodate the rerouting of traffic. Furthermore, the closing of the Third Street and Fourth Street crossings conforms with the future plans for the construction of Relocated 61 in this vicinity of Dubuque.

Several less significant modifications are recommended for the remaining 17 of the top 20 at-grade crossings in the study area. These range from the placement of mechanical gates at Ninth, 11th, and 16th Streets to simply adding brighter streetlighting at Seventh and 15th Streets in Dubuque. At many locations, the safety of the crossing could be enhanced by adding pavement markings or placing signs as advance warnings to vehicular traffic of the upcoming rail crossing.

A possible alternative to some of the crossings in downtown Dubuque involves automating the crossing signals. Currently, First, Second, Third, and Fourth are controlled by a tower operator. The ICG has proposed to automate them. These plans have been deferred pending the outcome and detailed design for Relocated 61. This would represent a more costly improvement, but a desirable one.

These recommendations are not to be interpreted as deficiencies in the standard safety features associated with at-grade crossings. The liability of any party involved in an accident at any of the crossings in this study area cannot be determined by the existence or lack of any of these noted improvements designated in Table 2.

**Analysis of 10 Critical Crossings**

Ten of the 49 crossings in the study were selected as critical, requiring more detailed analysis. These 10 were preselected by the Rail Advisory Committee prior to initiation of the project. These 10 crossings are located within the City of Dubuque at the following streets: Radford Road, Fremont Avenue, Jones Street, Third Street, Fourth Street, Seventh Street, Ninth Street, 11th Street, 14th Street, and 16th Street.

*Procedures*

The above 10 crossings were selected for a variety of reasons. Several were in a segment of the city zoned for industry and were encountering heavy truck traffic. Others were close to major US

highway routes through the city and had been subject to vehicular congestion during periods when the crossings were closed by train movements. Still others were selected because of the large traffic volumes over the crossing. Each crossing was unique with regard to its potential for developing a problem with rail or vehicular traffic. To accumulate additional data for these 10 intersections, the field work included (a) conducting 24-hour traffic counts at the crossings, (b) projecting the possible total number of vehicles delayed at a crossing during peak traffic periods, (c) observing driver reaction at intersections that were congested due to train movements, and (d) developing recommended improvements for the crossings, consistent with city goals and objectives.

*Traffic Analysis*

An electronic, fully-automated, mechanical traffic counter was used to record the vehicular traffic crossing the rail intersection at 15-minute intervals. Tapes from the counters documented the traffic patterns for a 24-hour period. All information on the tapes was then transferred to a standard form for volume comparisons. These forms are not included with this report, but can be presented upon request. Figure 8 was prepared, based on the data obtained in the traffic counts. The bar graphs in Figure 8 project the approximate number of vehicles delayed at each of the 10 major crossings. It was assumed that a train one mile long passed through each crossing studied at a speed of 10 mph.

An average traffic period of 8:00 A.M. to 9:00 A.M. was selected for each of the 10 crossings. The peak traffic period for each crossing also was evaluated to indicate approximately the maximum number of cars that could be delayed if a train closed the crossing at the peak period. These vehicle delay times are projections of the data required, since at the time this study was performed, the railroads were not consistent with train schedules or train lengths and, thus, field data acquired at the time was not representative of the average conditions. However, the extrapolation of the data appeared to be relatively accurate, based on spot checks of two crossings for vehicular delays. Fremont Avenue and Jones Street were both checked on randomly selected days during midweek. Results from each crossing were recorded and compared to the table and found to be within a 10 percent range of the anticipated results.

## SPECIFIC RECOMMENDATIONS FOR IMPROVEMENT

Three of the 10 major intersections have been evaluated and recommended for closure. These are Radford Road, Fourth Street, and Third Street. Radford Road is recommended for closure not only by the study team, but by the city planners who believe that this road could be utilized better as a local access road than as a through street. Due to the severe approach grade south of the rail crossing, it would not be easy to improve Radford Road to handle large volumes of traffic. Rather than invest money to rectify a poor condition on Radford Road and maintain two means of access between Pennsylvania Avenue and US 20, it would be logical to encourage traffic to travel the Northwest Arterial and close Radford Road at the rail crossing. This would permit local residents access to their property and a secondary means of entry or egress to or from the developing Dubuque Industrial Center.

Radford Road could be closed at any time that is consistent with the plans of the city. The Third and Fourth Street crossings can be kept open if the city so desires until Relocated 61 construction begins, at which time the roads would be closed as required under the final environmental impact statement prepared by the state.

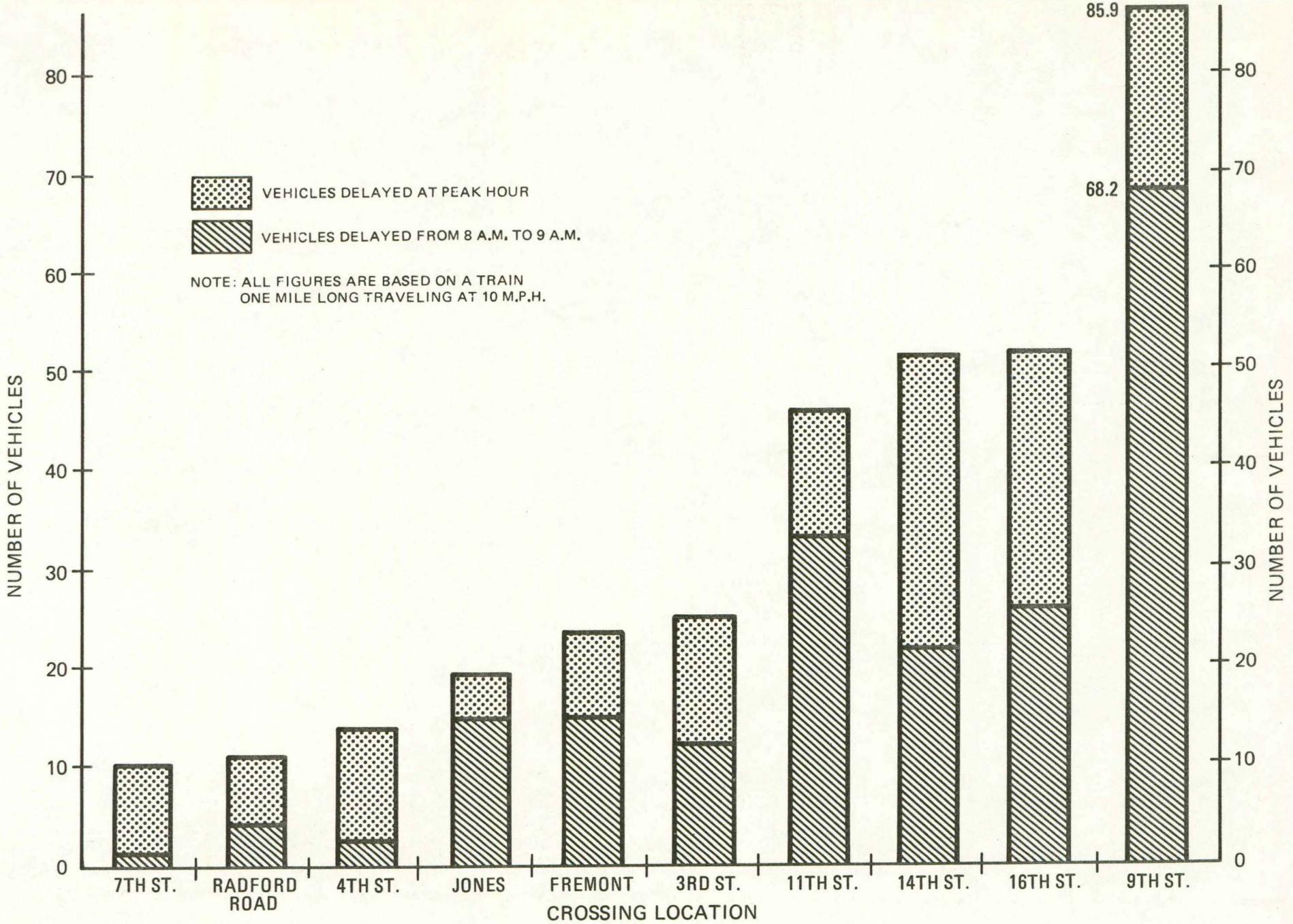



**Figure 8**
**VEHICULAR DELAY AT GRADE CROSSING**

The crossings at Ninth, 11th, and 16th Streets are subject to use by a larger number of vehicles. At present, these crossings are provided with flashing lights on crossbucks. They could be improved by the installation of crossing gates that would be lowered during the time train movements occurred in the intersection. The crossing surfaces were recently improved by the Milwaukee Road. The existing signal systems were appropriate for the traffic volumes that existed prior to the opening of the new Dubuque/Wisconsin bridge. However, since additional new bridge traffic is now being funneled through this area of Dubuque, upgrading the warning devices at these crossings should be considered. Any improvements undertaken could be financed by the three parties involved: the Milwaukee Road, the Federal Railway Administration, and the City of Dubuque. Similar negotiations occurred when the new rubberized crossing mats were placed at Ninth and 11th Streets during the Summer of 1982. However, one criterion to consider in upgrading these three crossings is that with the completion of Relocated 61, the traffic volumes on two of these crossings should decrease dramatically. The 16th Street crossing, however, should maintain a fairly constant level of traffic due to the continued operation of FDL Foods and access to the bridge. Therefore, consultation with Iowa DOT engineers on the status of the construction schedule for Relocated 61 should be completed prior to preparing plans for the resignalization of Ninth and 11th Streets. If the schedule for the construction of Relocated 61 continues at the present pace, it may not be cost effective to anticipate upgrading the warning systems at Ninth or 11th Streets.

Finally, safety improvements were recommended for the last four of the 10 major crossings. These involve adding advance warning signs or pavement symbols along the streets. The improvements are incidental maintenance items and do not represent a major cost to the city. However, they would increase driver awareness of the crossing and the possible occurrence of train movements.

## IMPACT OF HIGHWAY IMPROVEMENTS ON THE RAIL SYSTEM

Figure 9 indicates the proposed location of future highways and arterials within the Dubuque urban area. Of primary importance is the Relocated 61 corridor location, which was transposed from the *Final Environmental Impact Statement* prepared by Iowa DOT. The impact on the existing rail system is minimal, with few exceptions.

The selected route of the highway was reviewed in this report, and the proposed alignment was then superimposed on a copy of the rail study base map of the north and south sectors of the City of Dubuque.

Upon completion of the drafting of the superimposed highway plan, those areas of the existing rail trackage that would most likely be affected by the new highway could be determined. Final plans for Relocated 61 are presently being prepared by the State of Iowa and were not available at this writing for review. Consequently, the following comments are relative to a preliminary highway plan, but may not be pertinent to the latest design plans being prepared for the Relocated 61 improvement. Information indicates that the highway design is being prepared for minimal impact to the existing rail system. However, there are still some basic changes that should be considered by the rail companies as the plans proceed for the construction of Relocated 61. The context of this report will address those changes.

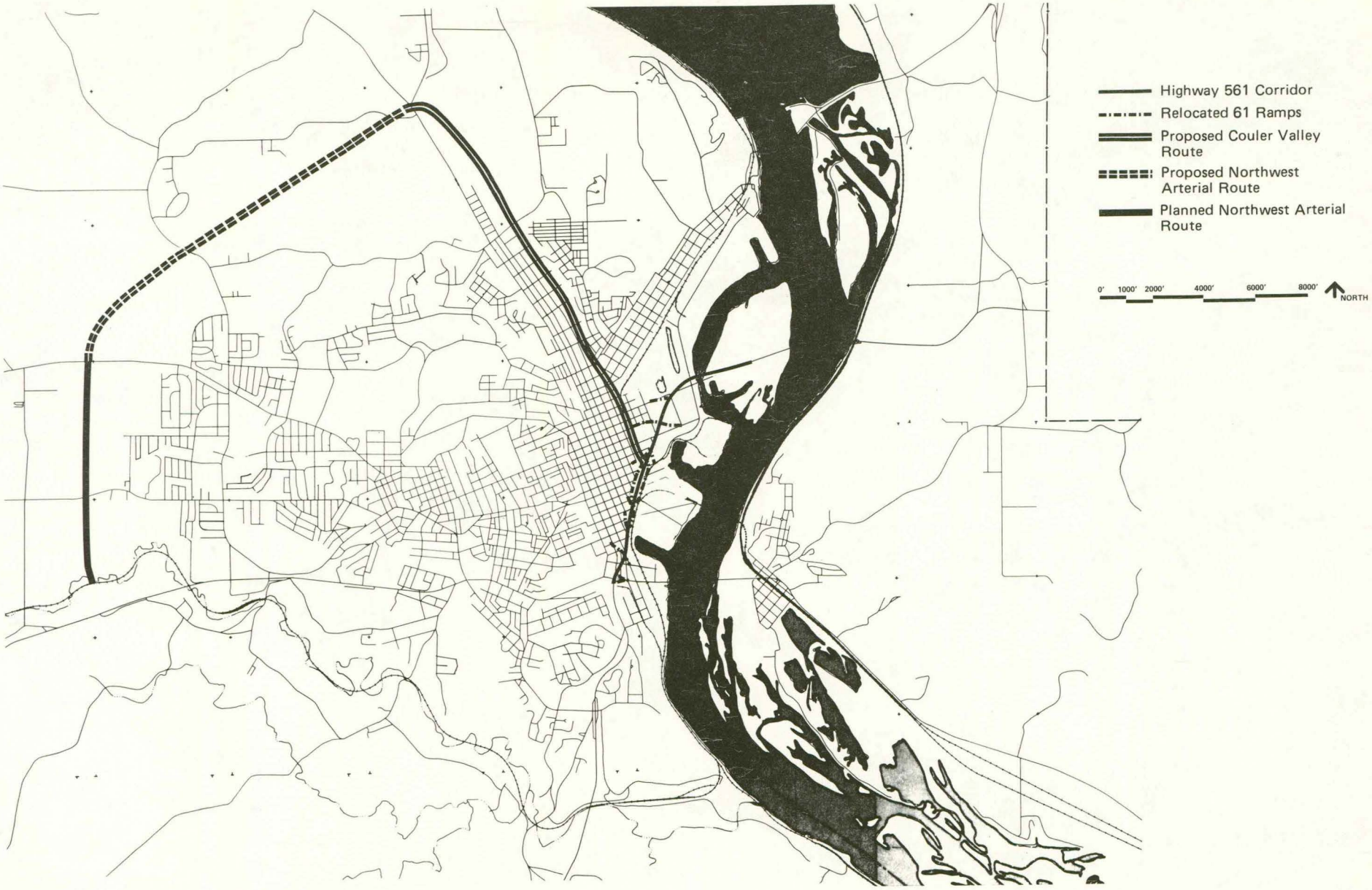



**Figure 9**

**PROPOSED EXPRESSWAY AND URBAN ARTERIAL PLAN**

Of the three rail companies operating within the City of Dubuque, the construction of Relocated 61 will impact more on the BN trackage than on the others. The position of Relocated 61 by itself does not pose that much of a problem; it is the interconnecting ramps and side street modifications associated with the highway that will impact the rail system. The following list defines those sections most likely to be disturbed by the proposed construction:

1. Adjacent to the westerly end of the Ice Harbor, in the vicinity of First and Second Streets, a new side street would be built along the easterly side of Relocated 61. This street would provide a link between First, Second, and Third Streets. Unfortunately, it would also mean that the state may acquire some of the land now used for rail lines. There does not appear to be enough land available to relocate the same number of tracks in the remaining corridor. Hence, a consolidation of track ownership or use would be needed to provide access to the rails from the three rail companies. Since the rail closest to the Ice Harbor is owned by the BN, it would be the most afflicted of the three and would very probably require the BN to start any of the negotiations for consolidation.

   There is not sufficient data available to evaluate the impact of the above construction on the location of the BN terminal and truck loading facility north of the terminal. It would seem probable that the new First Street to Third Street link would restrict any expansion plans for the terminal or rail yard of the BN. Also, truck access to the piggyback loading facility of the BN would be less direct after the construction of Relocated 61 than the method of access currently available.

2. Between Third and Fourth Streets and Iowa Street and Central Avenue, an off-ramp is planned for northbound traffic on Relocated 61 to exit onto White Street. The construction of the ramp could infringe on the rail lines between Third and Fourth Streets and again pose a need for the consolidation of rail use. At this location, it would be the Milwaukee Road trackage that is most likely to be disturbed by the highway.

3. Another ramp is proposed along the easterly side of Relocated 61. This would be for northbound traffic to connect with the proposed Couler Valley Expressway. Information on this segment of the highway construction is limited to the preliminary sketches shown in the final Environmental Impact Statement. The plan includes a ramp sweeping easterly of and then under the elevated segment of the highway. This ramp may be far enough east of the highway to infringe on the present rail alignment of the Milwaukee Road. From the data shown in the Environmental Impact Statement, this aspect was anticipated. However, from further review of this particular area shown on the plan for the Fourth Street Extension Redevelopment, it appears that the above-mentioned ramp should be able to fit in horizontally and vertically without any infringement onto the present rail alignment near the Seventh to 10th Streets area of Dubuque.

   Whenever the future improvements to the Couler Valley Expressway are constructed northerly of 11th Street, there exists a strong probability that encroachment of the expressway onto the Milwaukee Road corridor could occur. This infringement would exist between 11th and 17th Streets with minimal or no further infringement occurring beyond 17th Street.

   At the time that Relocated 61 plans are in final form, the above-noted conflicts should be re-evaluated to confirm what modifications may be required to the present rail trackage to comply with the highway improvements.

4. A new access road is presently proposed as the extension of Fifth Street to the city's industrial area located easterly of the proposed highway corridor and between the Dove Harbor and the Ice Harbor. This road would be under the elevated section of Relocated 61 and would proceed easterly to intercept the present alignment of Sixth Street. Unfortunately, the Fifth Street extension would create a considerable problem for all three rail companies because a complex array of switches and cross-over tracks exists in the vicinity. Movement of these switches and interconnecting tracks would be a considerable expense and cause significant redesign of all rails within the area. As an alternative, consideration should be given to the improvement of the Sixth Street roadway into the industrial area. This road presently enters the area and could be widened and resurfaced to provide the access necessary to meet the needs of the city. These improvements to Sixth Street would not conflict with the rails and would minimize the rail and highway conflicts. Potential problems include the vertical clearance requirements between Sixth Street and the descending exit ramp from the expressway. The ramp may need to be kept fully elevated longer to meet the clearance requirements, or the horizontal path of Sixth Street could be slightly modified southerly to avoid further elevation of the ramp.

Vehicular access to the riverfront industrial area should not be impaired following the completion of Relocated 61. Rail access to the same area should likewise suffer little from the construction. There appears to be enough latitude available to the highway design engineers to shift the highway alignment and associated ramps to minimize probable conflicts with the rail system. Input from the city to the design team should be made early to properly address the above-mentioned aspects of the rail sytem. Failure to inform the Department of Transportation of these concerns could result in unnecessary expenditures by all involved.

Following the completion of Relocated 61, there would be several parcels of industrial area of the city that could be reindustrialized. This means that once the existing industry has been removed and the highway built, there will be excess land adjacent to the highway that could support small industry or expansion within from an adjacent industrial concern. This is most evident in the area west of the highway between Sixth and Ninth Streets. One adverse aspect in this area is that the rail spur now in use within Washington Street will not be useable after the highway is built.

The potential becomes greater for reindustrialization of the Fourth Street Peninsula parcel following the completion of the proposed highway. This area could serve industries requiring land area ranging from one or two acres up to as many as 15 acres. Various alternative development concepts are possible for this open industrial area, all being serviceable by rail. The city should take advantage of this prospect by marketing the potential of the area.

With the improved truck access to the riverfront industrial area via Relocated 61 and the potential for enlarging existing railroad yard capacity within the Fourth Street Peninsula parcel, the impact of these two means of shipment of goods could create a solid, positive environment for a business enterprise to make Dubuque a hub in commodity transportation.

Besides Relocated 61, there is another major highway project possible for Dubuque. This is for Highway 520. This would be a bypass or circumferential route providing a new route for US 20 through Dubuque's southern areas. The general location, as shown in transportation plan documents, would not appear to affect rail service or facilities. It is not anticipated that shippers would change mode from rail to truck due to the changed accessibility created by this new highway.

# 4.
# Existing Commodity Demand

The demand for rail service by Dubuque area shippers is the key quantitative element of the rail plan. As indicated earlier in this report, commodity-related data was collected from each railroad. However, the most detailed information was assembled from individual shippers. This was accomplished through a user market survey.

## USER MARKET SURVEY RESULTS

A user market survey was conducted to gather specific information regarding:

- Volume of goods shipped by rail, truck, and barge.
- Transportation service costs by rail, truck, and barge.
- Time distribution of rail user needs.
- Future business outlook concerning rail use.
- Origin or destination of goods received or shipped (by city or market area).
- Perceptions regarding impacts of transportation network changes.
- Attitude toward contributing resources to upgrading the Dubuque rail system or level of service.
- Attitude toward the proper organization for coordinating or managing a local rail improvement program.

### Survey Methodology

The shipper sample comprised 28 shippers of diverse products. However, five shippers declined to participate during the interview/data collection stage of this study. Hence, 23 shippers make up the actual sample set. The survey was conducted in two parts. First, personal interviews were conducted with each shipper using a survey questionnaire developed with and approved by the Rail Advisory Committee. Upon completion of each interview, data forms were left with each shipper to be filled out and mailed to ECIA. Personal interviews were conducted with the traffic/distribution manager (or other company officers in some cases).

The survey form itself had two distinct sections. The first section contained subjective questions designed to determine shippers' reasons for modal choice, their impressions of existing railroad service, and their reactions to various scenarios concerning changes to the existing transportation network. The second section included primarily data acquisition questions to determine volumes of traffic shipped by mode, origin/destination of these goods, and relative transportation costs. (The Appendix contains a sample interview form.)

**Summary of Results**

Results of the survey are presented in the format of the survey questionnaire.

*Objective (Quantitative) Survey*

Tables 3 and 4 summarize traffic volumes, including the number of carloads, truckloads, and barges shipped to and received from six geographic regions of the U.S. The boundaries of these six regions—East/Southeast, Southwest, Gulf Coast, West, Northwest/Plains, and North Central—for purposes of this study are illustrated in Figure 10.

It must be noted that care should be taken when examining this data and other survey results that follow because the data and survey results were collected (1) from only 14 shippers and (2) during a severe recessionary period for the U.S. economy. The poor economic conditions were manifested in the Dubuque area economy by depressed traffic volumes, plant shutdowns, lower production levels, and otherwise reduced or subnormal plant operations.

From the tables, it is apparent that most rail and truck traffic originates or is destined for Region 1 (east and southeast areas) and Region 6 (north central area), while barge traffic usually originates or termiantes in Region 3 (south). Service times were found to be typical for each mode, with truck being the quicket followed by rail and then barge. These times are displayed in Table 5.

The nature of these traffic movements and other important characteristics are discussed in the sections that follow. The survey results from the objective portion are presented by mode and by direction of traffic (outbound/inbound).

1. *Outbound Rail.* Presently, only a low volume of piggyback traffic originates in the Dubuque area. Only four of the shippers interviewed use piggyback, primarily for special movements such as for export or upon customer request. Likewise, shippers seldom use forwarders. Only one shipper plus two warehousers use forwarders. Generally, shippers are currently experiencing depressed shipping volumes, ranging from 20 to 80 percent below normal. Only six shippers indicated normal traffic volumes during 1981 or 1982. Outbound rail shipments are subject to seasonal variation, with shipping peaks in the spring and fall. Eight shippers or diverse products indicate some seasonal variation.
2. *Outbound Truck.* Generally, truck shipments were 25 to 50 percent below normal levels. However, six shippers indicated they currently experienced normal levels of truck shipments and/or receipts. Traffic moving by motor carrier is almost exclusively truckload (TL) as opposed to LTL. Shippers use many types of carriers—common, contract, exempt, private fleet, and customer trucks—to ship their products. Common carriers and private fleets pre-

Table 3
OUTBOUND TRAFFIC VOLUMES[1] BY REGION AND MODE

| Region[2] | Outbound Rail (CL or TOFC) | Outbound Truck[3] (TL) | Outbound Barge (Barges) |
|---|---|---|---|
| 1 | 1,460 | 3,705 | — |
| 2 | 353 | 1,710 | — |
| 3 | 287 | 309 | 957 |
| 4 | 705 | 885 | — |
| 5 | 78 | 385 | — |
| 6 | 1,217 | 28,860 | 60 |
| Total All Regions | 4,100 | 35,854 | 1,017 |

[1] Table includes only data from shippers who returned data forms.

[2] Regions 1 through 6 correspond to those geographic areas designated on the map that accompanies the questionnaire in the Appendix.

[3] Excludes Conti-Carriers data.

Table 4
INBOUND TRAFFIC VOLUMES[1] BY REGION AND MODE

| Region[2] | Inbound Rail (CL or TOFC) | Inbound Truck[3] (TL) | Inbound Barge (Barges) |
|---|---|---|---|
| 1 | 876 | 583 | 98 |
| 2 | 273 | 220 | — |
| 3 | 0 | 3 | 135 |
| 4 | 512 | 26 | — |
| 5 | 121 | 7 | — |
| 6 | 3,123 | 32,701 | 62 |
| Import | 300 | | |
| Total All Regions | 5,205 | 33,540 | 295 |

[1] Table includes only data from shippers who returned data forms.

[2] Regions 1 through 6 correspond to those geographic areas designated on the map that accompanies the questionnaire in the Appendix.

[3] Excludes LTL data from ERTL, data from Conti-Carriers, and data from Flexsteel.

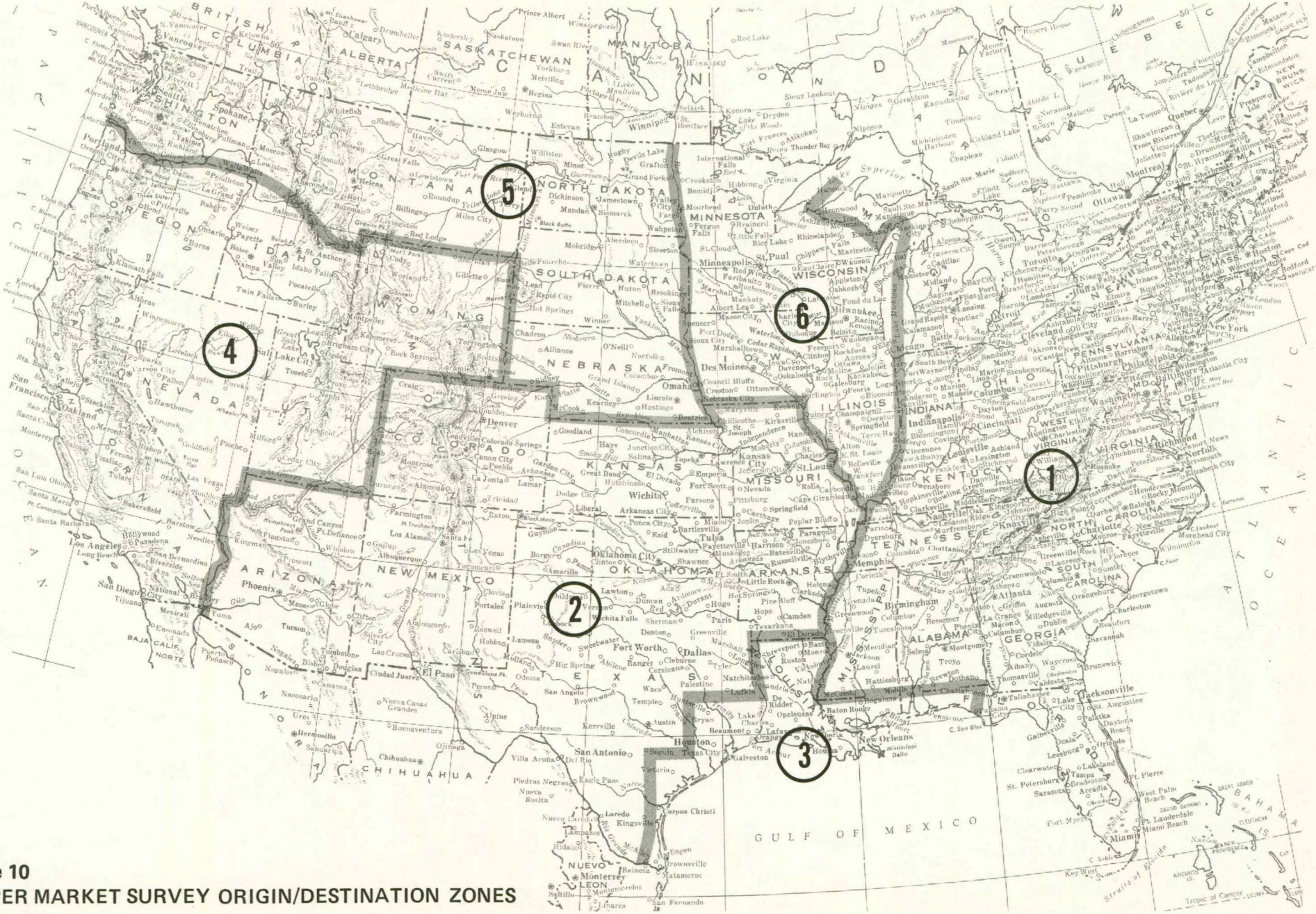



**Figure 10**
**SHIPPER MARKET SURVEY ORIGIN/DESTINATION ZONES**

Table 5
SERVICE TIMES BY MODE

| Mode | Outbound | Inbound |
|---|---|---|
| Rail | 7-10 Days | 5-10 Days |
| Truck | 1-3 Days | 1-2 Days |
| Barge | 14-21 Days<br>2-3 Weeks | 10-21 Days<br>2-3 Weeks |

dominate, however. The most frequently used common carriers (in alphabetical order) are Briggs, Consolidated Freightways, H&W, Pape, and Roadway. Contract carriers used include J.B. Hunt, Noel, North American Van Lines, Pape, Ruan, and Standard Forwarding. In addition to using common or contract carriers, 11 shippers used private fleet and four indicated using customer-owned trucks for some movements.

Some potential exists for diversion of traffic from truck to rail. Seven shippers indicated a significant amount of their truck shipments could be moved by rail under certain conditions. The conditions cited were:

- Movements must be long haul.
- Railroads must establish single-line rates.
- Rail rates must be lower and service better than truck.

(The potential for traffic diversion to rail is treated in detail in a subsequent subsection.)

3. *Outbound Barge.* Only three shippers of grains or chemicals ship via barge. Shipments of grain were reported at normal levels, while shipments of chemicals were depressed. These shipments are not competitive with rail and, therefore, there is no potential for diversion from barge to rail.

4. *Inbound Rail.* Dubuque area shippers have not used forwarders when receiving rail shipments. Only one shipper interviewed indicated receiving commodities by piggyback. Overall, inbound rail traffic was perceived to be down 40 to 75 percent. Four shippers indicated normal levels, while one indicated an increase in inbound shipments. There is a diversity in shipping peaks for inbound rail traffic. These peaks occur during the summer months (navigation season); spring and fall harvests for bulk commodities; and winter and late summer for lumber, toys, and machinery.

5. *Inbound Truck.* Inbound motor carrier traffic was down 10 to 50 percent for most shippers interviewed, although six shippers indicated normal levels. The traffic is primarily TL, but four shippers indicated receiving LTL shipments representing 15 to 40 percent of their total receipts. Of the TL traffic, seven shippers indicated they could use rail instead of truck if the following conditions or traffic characteristics were met:

   - Shipments were long haul.
   - Rail access was available.
   - Volumes were larger.

The actual potential diversion of traffic to rail, however, is minimal because relatively insignificant traffic levels are involved. An estimate of the potential diversion to rail is provided in a later section.

The same motor carriers used for outbound shipments are used on inbound shipments. Common carriers are principally used along with private fleets, with private fleets varying in size from four trucks to 45 tractors and 60 trailers. The norm for private fleets appears to be 10 tractors and 14 trailers.

6. *Inbound Barge.* Only five shippers interviewed, involving two terminals, receive commodities by barge. Of these, two indicated normal volumes of traffic, while the other three experienced depressed volumes. Also, two shippers indicated that their barge shipments were 100 percent competitive with rail, while two others own their barges, and, therefore, their traffic is not competitive with rail.

*Potential for Traffic Diversion*

An important question of the survey concerned the amount of truck and barge traffic that shippers considered competitive with rail; that is, the amount of traffic that would likely be diverted to rail from the other modes if more favorable rates and services were offered by the railroads relative to the other modes. Shippers were asked the percentage of their traffic volume that they considered to be competitive with rail. This percentage was then applied to the quantitative data supplied by the particular shipper. In this way, quantitative estimates were derived for the potential amount of traffic diversion. The estimates are shown in Table 6.

As the numbers suggest, the potential for traffic diversion to rail is not great. Only 750 truckloads outbound and 630 truckloads inbound or a total of 1,380 truckloads appear to be rail competitive. When viewed in relation to the total number of truck outbound and inbound shipments (35,854 and 33,540, respectively), the potential for traffic diversion from truck to rail seems minimal. It must be noted, however, that a significant volume of truck shipments involve the movement of grain and agricultural products to and from the Dubuque river terminals, often over distances up to 100 miles. Diversion to rail is not anticipated because of significant truck rate and service advantages. It is estimated that 45,000 to 50,000 truckloads per year of bulk commodities originate or terminate in the Dubuque terminals. Similarly, rail-competitive barge traffic appears to be small. Only 52 out of a total of 295 inbound barge shipments were considered rail competitive. Factors in the modal choice decision are discussed in a subsequent section.

Table 6
ESTIMATES OF POTENTIAL TRAFFIC DIVERSION

| | Outbound | Inbound | Total |
|---|---|---|---|
| From Truck to Rail (TL/year) | 750 | 630 | 1,380 |
| From Barge to Rail (Barges/Year) | — | 52 | 52 |
| Total Truck Shipments/Receipts | 35,854 | 33,540 | 69,394 |
| Total Barge Shipments in Bargeloads | 1,071 | 295 | 1,312 |

*Opinions and Attitudes about Rail Service*

The second section of the survey involved the perceptions of the shippers regarding their future use of rail, their reasons for present modal choice, and their reactions to hypothetical changes in the present Dubuque transportation network:

1. *Future growth, new plants, and/or products.* As noted previously, most shippers experienced depressed levels of traffic because of poor general economic conditions. Accordingly, these shippers expect their business and traffic to rebound as the economy rebounds and the demand for their products increases. However, a significant number of shippers (nine) anticipate no change or a decline in rail use over the foreseeable future. These expectations are mainly due to such factors as the nature of the products involved, city zoning ordinances, or product exchange agreements between companies.

   Several shippers also indicated that plant expansion either had or will occur. Such plant expansions, however, are not expected to significantly affect rail use, according to traffic personnel. The production of new products (anticipated by nine shippers), however, is expected to favorably affect rail use.

2. *Reasons for present modal choice.* The primary reasons cited by respondents for using or not using rail are listed in Tables 7 and 8, respectively.

Table 7
REASONS CITED FOR USING RAIL

- Long-distance haul.
- Nature of product dictates rail.
- High volume of shipments.
- Lower carload rates/lower long-haul TOFC/COFC rates.
- Customer orders or request.
- Lower labor cost.

Table 8
REASONS CITED FOR NOT USING RAIL

- Lower truck rates.
- Better service from trucks.
- Nature of the product dictates truck.
- Short-haul traffic.
- Insufficient volume.
- Location of customers (not conducive to rail delivery).
- Availability of trucks.
- Use of private fleet.
- Product exchange agreements between shippers.
- Rail ties up inventory.

Of the reasons listed for using rail, the most frequently cited were the nature of the product dictates use of rail, the movements are long-distance hauls, and the movements are high volume. The most frequently cited reasons for not using rail were lower truck rates, better service from trucks, the nature of the product dictates use of truck or barge, short-haul distance, and low volume.

Perceived rate and service advantages influence modal choice and therefore play an important role in the modal choice decision. Rate and service advantages, in turn, depend upon the commodity, distance of haul, and other relevant factors such as customer location. In general, rail holds a rate advantage for long-haul traffic and truck holds a rate advantage for short-haul traffic. Shippers perceived the rate advantage in this manner and split traffic between the modes accordingly. In contrast, trucks were perceived to hold a clear service advantage (here, service is construed as speed of delivery).

From the preceding discussion, it is not surprising to find that improved rates and service head the list of factors that would promote a shift to rail. Similarly, higher rates and poor rail service will promote a shift away from rail use. Other important factors cited that could induce an increase in rail use are improved switching and rail accessibility at both the receiving and shipping ends. Tables 9 and 10 list other factors cited by the shippers interviewed.

3. *Reactions to scenarios.* Various changes in the existing Dubuque transportation network were posited and reactions solicited from the shippers concerning possible effects on their operations. These changes involved mergers or acquisitions between lines and abandonments and/or reductions of service by lines. Results are summarized in Table 11.

   A BN pullout was perceived to be the worst case scenario of those presented. Shippers indicated adverse impacts involving loss of customers, service delays and/or loss of daily service, and becoming captive shippers of a single rail carrier.

   The loss of the Milwaukee Road was the next worst case scenario. In fact, nine shippers stated they would be severely affected by the loss of the Milwaukee Road. Adverse impacts were characterized as "bad" to "disastrous" and included loss of service, becoming captive shippers of a single rail carrier, or being forced out of business.

   Comments concerning the remaining scenarios indicated that these scenarios would produce favorable effects for shippers' operations. A merger of the Milwaukee Road and Grand Trunk Western was perceived by shippers as good, primarily because an infusion of money would allow the Milwaukee Road to survive.

   Piecemeal sale of the ICG to several railroads with acquisition of the Chicago-Omaha line by the Union Pacific Railroad elicited favorable comments, since shippers felt this acquisition would improve service to the West Coast. Likewise, purchase of the ICG by the Canadian Pacific would lead to better service, according to the shippers.

   Proposed construction of Relocated 61 and Highway 520 would impact on 15 of the 23 shippers interviewed. Generally, shippers indicated there would be little impact on rail use, but the highways would afford better truck access to plants. Two shippers noted they would be forced to relocate.

Table 9
FACTORS PROMOTING A SHIFT TO RAIL

- Improved service times/improved reliability of service times.
- Lower railroad rates.
- Improved switching.
- A rail spur at plant/customers with rail access.
- Investment in rail equipment.
- Increased volume of shipments.
- Piggyback carpool in Dubuque.

Table 10
FACTORS PROMOTING A SHIFT AWAY FROM RAIL

- Lower truck/barge rates/high rail rates.
- Better service from trucks/worsening rail service.
- Rail abandonment or cutbacks/nonavailability of rail.
- Specialized trucking equipment.
- Customer preference in mode of delivery.

Table 11
REACTIONS TO HYPOTHETICAL CHANGES TO DUBUQUE TRANSPORTATION NETWORK

| Scenario | Number of Shippers Affected | Nature of Impact on Rail Use | Comments |
|---|---|---|---|
| Merger of Milwaukee Road and Grand Trunk Western. | 7 | Positive | Money would be pumped into Milwaukee Road so that it could survive. |
| Loss of the Milwaukee Road. | 10 | Negative | "Bad."<br>"Disastrous."<br>Loss of service.<br>Captive of BN or ICG.<br>Forced out of business. |
| Piecemeal sale of ICG with acquisition of Chicago-Omaha line by Union Pacific. | 5 | Positive | Better single carrier service to West Coast. |
| Purchase of the ICG by the Canadian Pacific. | 4 | Positive | Better service. |
| BN pullout or reduction of service. | 11 | Negative | Loss of customers.<br>Captive of ICG.<br>Service delays. |
| Construction of Relocated 61 and 520. | 15 | None | Better truck access to plants would force two rail shippers to relocate. |

4. *Other questions.* A variety of responses was made concerning possible actions toward upgrading or operating the Dubuque rail system. Only eight shippers indicated some interest in contributing company resources or would consider some plan toward that end. The most popular ideas were monetary contributions and/or creation of a switching railroad to serve Dubuque shippers. Shippers favoring these two activities numbered three and seven, respectively. Subsidization of a railroad or maintenance of trackage or yards was viewed unfavorably by shippers. The majority of shippers were opposed to any type of participatory rail improvement plan.

   A variety of responses was found regarding which organization should coordinate and manage a local rail improvement program. Table 12 lists the suggestions of the shippers.

   In general, the coordination of a rail improvement program is seen as a function of local government.

5. *Grain shipper questions.* The Dubuque area's two grain terminals were each found to have two berths with the capability to load or unload one barge at a time. Each has a 30-car holding yard, while one terminal has nine barge spaces and the other 13 barge spaces. Both grain shippers indicated they have little room to expand except upward and that capacities may become inadequate if rail volumes continue to increase as in past years. They consider local switching practices adequate, although they consider local yard capacity of the ICG to be inadequate.

   Construction of a new lock and dam (L&D) at Alton, Illinois and development of water power at L&D 11 in Dubuque will not affect shipping operations, according to the traffic managers. They also feel that adequate fleeting space exists (approximately 200 spaces in six areas) and that current fleeting practices in the Dubuque area are satisfactory.

Table 12
SUGGESTED ORGANIZATIONS TO COORDINATE DUBUQUE RAIL IMPROVEMENT PROGRAM

| | |
|---|---|
| Chamber/City Council | 7 |
| Transportation Committee/DMATS | 8 |
| Independent Task Force | 2 |
| New Committee | 2 |
| Total Responses: | 19 |

# 5.
# Future Commodity Demand

The results of the user market survey were used to (1) provide a list of commodities currently moving into and out of the study area by mode, (2) develop future commodity flow projections, (3) estimate future rail service needs, and (4) analyze other potential impacts on rail transportation in the study area. The discussion is divided into 10 subsections, as follows:

- Current Commodity Flows
- Projected Commodity Flows
- Future Grain Movement Analysis
- Future Rail Service Needs
- Milwaukee Road/Grand Trunk Western Merger
- Plan for Intermodal Activities
- Potential Impact of a New Grain Terminal in East Dubuque
- Potential Impact on Rail Traffic if Barge Fleeting is Prohibited
- Potential Impact of Renewed Passenger Train Service
- Feasibility of a Little Maquoketa River Port Facility

## CURRENT COMMODITY FLOWS

A wide variety of commodities is shipped into and out of the Dubuque area. Tables 13 through 18 list the volumes, origins and destinations, and mode of transport of some of these commodities. The tables were prepared on the basis of "normal" year traffic levels reported by shippers in the user market survey. Where "normal" year data was not provided, current year statistics were adjusted by the amount in percentage terms that current levels of traffic were depressed or had increased, according to the shippers.

Rail and truck are the dominant modes of transport. Barge transportation was the mode use principally by two shippers of grain. The principal origins and destinations for the shippers for each mode are given in Table 19.

For rail, inbound and outbound traffic has the same origin and destination regions (1, 4, and 6 —the East/Southeast, West Coast, and North Central areas, respectively). There is significantly more inbound rail traffic, especially from Region 6 (the local area), than outbound.

Table 13
NUMBER OF CARLOADS INBOUND BY REGION; 1980 AND 1990

| Commodity | Region 1 | | Region 2 | | Region 3 | | Region 4 | | Region 5 | | Region 6 | | Import | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 |
| Scrap | - | - | - | - | - | - | - | - | - | - | 493 | 754 | - | - |
| Coke | 168 | 287 | - | - | - | - | - | - | - | - | - | - | - | - |
| Cabs | - | - | 169 | 282 | - | - | - | - | - | - | - | - | - | - |
| Steel | - | - | - | - | - | - | - | - | - | - | 612 | 1,071 | - | - |
| Lube Oil | - | - | 33 | 51 | - | - | - | - | - | - | - | - | - | - |
| Clay | - | - | - | - | - | - | 45 | 70 | - | - | - | - | - | - |
| Liquid Fertilizer | - | - | - | - | - | - | - | - | - | - | 2 | 3 | - | - |
| Animal Fats | - | - | - | - | - | - | - | - | - | - | 12 | 16 | - | - |
| Toys | - | - | - | - | - | - | - | - | - | - | - | - | 300 | 501 |
| Sulfur | - | - | - | - | - | - | - | - | - | - | 102 | 165 | - | - |
| Steel Bed Units | 64 | 107 | - | - | - | - | - | - | - | - | - | - | - | - |
| Lumber | - | - | - | - | - | - | 122 | 185 | 121 | 184 | - | - | - | - |
| White Sand | - | - | - | - | - | - | - | - | - | - | 4 | 6 | - | - |
| Insulation Sheathing | - | - | - | - | - | - | - | - | - | - | 3 | 5 | - | - |
| Corn | - | - | - | - | - | - | - | - | - | - | 1,586 | 2,220 | - | - |
| Beans | - | - | - | - | - | - | - | - | - | - | 1,272 | 1,781 | - | - |
| Pulpboard | 596 | 906 | - | - | - | - | - | - | - | - | - | - | - | - |
| Appliances | - | - | - | - | - | - | - | - | - | - | 600 | 1,002 | - | - |
| Sugar | - | - | - | - | - | - | 16 | 22 | - | - | | | | |
| Tires | 26 | 46 | 62 | 110 | - | - | - | - | - | - | 7 | 12 | - | - |
| Paper | 15 | 23 | - | - | - | - | - | - | - | - | 2 | 3 | - | - |
| Dry Milk | - | - | - | - | - | - | - | - | - | - | 18 | 24 | - | - |
| Fertilizer | - | - | - | - | - | - | - | - | - | - | 60 | 97 | - | - |
| Salt | - | - | - | - | - | - | - | - | - | - | 9 | 14 | - | - |
| Potash | - | - | - | - | - | - | - | - | - | - | 25 | 40 | - | - |
| Meats and Frozen Food | - | - | - | - | - | - | - | - | - | - | 73 | 99 | - | - |
| UF 85 | 10 | 16 | - | - | - | - | - | - | - | - | - | - | - | - |
| Urea | 8 | 13 | - | - | - | - | - | - | - | - | - | - | - | - |
| Chips | - | - | - | - | - | - | 327 | 500 | - | - | - | - | - | - |
| Other (NEC) | 7 | 11 | 9 | 14 | - | - | - | - | - | - | - | - | - | - |
| Total: | 894 | 1,409 | 273 | 457 | - | - | 510 | 777 | 121 | 184 | 4,880 | 7,312 | 300 | 501 |

Table 14
NUMBER OF CARLOADS OUTBOUND BY REGION; 1980 AND 1990

| Commodity | Region 1 | | Region 2 | | Region 3 | | Region 4 | | Region 5 | | Region 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 |
| Industrial Tractors | 639 | 1,125 | 4 | 7 | 249 | 438 | 315 | 554 | - | - | - | - |
| Container Industrial Tractors | - | - | - | - | - | - | - | - | 124 | 218 | 29 | 51 |
| Dried Blood | 55 | 84 | 8 | 12 | - | - | 52 | 80 | - | - | - | - |
| Toys | - | - | 76 | 127 | - | - | 77 | 128 | - | - | - | - |
| Sulfuric Acid | - | - | - | - | - | - | - | - | - | - | 143 | 232 |
| Upholstered Furniture | - | - | 15 | 24 | - | - | 179 | 288 | - | - | - | - |
| Corn | 57 | 80 | - | - | - | - | - | - | - | - | 58 | 93 |
| Beans | - | - | - | - | - | - | - | - | - | - | 306 | 489 |
| Fertilizer | 188 | 305 | - | - | - | - | - | - | - | - | 200 | 320 |
| Box/Bagged Fertilizer | 131 | 212 | - | - | - | - | - | - | - | - | | |
| Boxes/Sheets | - | - | - | - | - | - | - | - | - | - | 48 | 76 |
| Scrap | - | - | - | - | - | - | - | - | - | - | 97 | 155 |
| $NH_3$ | - | - | - | - | - | - | - | - | - | - | 43 | 69 |
| Urea | - | - | - | - | - | - | - | - | - | - | 284 | 454 |
| $CO_2$ | - | - | - | - | - | - | - | - | - | - | 252 | 403 |
| Appliances | 297 | 496 | 262 | 438 | 38 | 63 | 148 | 247 | 5 | 8 | 106 | 177 |
| Tires | 2 | 4 | - | - | - | - | - | - | - | - | | |
| Dry Milk | 3 | 4 | 5 | 7 | - | - | - | - | - | - | 5 | 7 |
| Scrap Foam Rubber | 13 | 21 | - | - | - | - | - | - | - | - | - | - |
| Meats | - | - | - | - | - | - | - | - | - | - | 76 | 103 |
| Doors | 274 | 416 | - | - | - | - | - | - | - | - | - | - |
| Other (NEC) | - | - | - | - | - | - | - | - | - | - | 334 | 511 |
| Total: | 1,659 | 2,747 | 370 | 615 | 287 | 501 | 771 | 1,297 | 129 | 216 | 1,981 | 3,140 |

Table 15
NUMBER OF TRUCKLOADS INBOUND BY REGION; 1980 AND 1990

| Commodity | Region 1 | | Region 2 | | Region 3 | | Region 4 | | Region 5 | | Region 6 | | Imports | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 |
| Sand | - | - | - | - | - | - | - | - | - | - | 1,760 | 2,693 | - | - |
| Stone | - | - | - | - | - | - | - | - | - | - | 135 | 211 | - | - |
| Tires | - | - | - | - | - | - | - | - | - | - | 432 | 769 | - | - |
| Steel | - | - | - | - | - | - | - | - | - | - | 2,506 | 4,385 | - | - |
| Castings | - | - | - | - | - | - | - | - | - | - | 352 | 588 | - | - |
| Cabs | - | - | 200 | 334 | - | - | - | - | - | - | - | - | - | - |
| Imports | - | - | - | - | - | - | - | - | - | - | - | - | 318 | 560 |
| Animal Blood | - | - | - | - | - | - | - | - | - | - | 1,200 | 1,836 | - | - |
| Toy Parts | 175 | 292 | - | - | - | - | - | - | - | - | 176 | 294 | - | - |
| Cloth | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hardware Items | 125 | 191 | - | - | - | - | - | - | - | - | 126 | 193 | - | - |
| Materials | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Foam | 104 | 167 | - | - | - | - | - | - | - | - | 6 | 10 | - | - |
| Roofing | 22 | 33 | - | - | - | - | - | - | - | - | 21 | 38 | - | - |
| Lime/Cement | - | - | - | - | - | - | - | - | - | - | 71 | 109 | - | - |
| Gypsum | - | - | - | - | - | - | - | - | - | - | 113 | 172 | - | - |
| Insulation | 20 | 30 | 20 | 30 | - | - | - | - | - | - | - | - | - | - |
| Lumber/Plywood | - | - | - | - | - | - | 26 | 40 | 7 | 11 | - | - | - | - |
| Pulpboard | 112 | 187 | - | - | - | - | - | - | - | - | - | - | - | - |
| Starch | - | - | - | - | - | - | - | - | - | - | 16 | 24 | | |
| Corn | - | - | - | - | - | - | - | - | - | - | 25,515 | 35,721 | - | - |
| Beans | - | - | - | - | - | - | - | - | - | - | 1,615 | 2,261 | - | - |
| Salt | - | - | - | - | - | - | - | - | - | - | 24 | 37 | - | - |
| Tires | - | - | - | - | - | - | - | - | - | - | 6 | 11 | - | - |
| Paper | 3 | 5 | - | - | - | - | - | - | - | - | 16 | 24 | - | - |
| Dry Milk | - | - | - | - | - | - | - | - | - | - | 60 | 82 | - | - |
| Cans | 5 | 8 | - | - | - | - | - | - | - | - | 181 | 302 | - | - |
| Meats | - | - | - | - | - | - | - | - | - | - | 1,117 | 1,519 | - | - |
| Paint | - | - | - | - | - | - | - | - | - | - | 23 | 37 | - | - |
| Melamine | - | - | - | - | 3 | 5 | - | - | - | - | - | - | - | - |
| Total: | 467 | 913 | 220 | 364 | 3 | 5 | 26 | 40 | 7 | 11 | 32,903 | 51,316 | 318 | 560 |

Table 16
NUMBER OF TRUCKLOADS OUTBOUND BY REGION; 1980 AND 1990

| Commodity | Region 1 | | Region 2 | | Region 3 | | Region 4 | | Region 5 | | Region 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 |
| Industrial Tractors | 3,293 | 5,796 | 1,608 | 2,830 | 265 | 466 | 859 | 1,512 | 383 | 674 | 517 | 910 |
| Export Industrial Tractors | 156 | 275 | 90 | 158 | 42 | 74 | 26 | 46 | - | - | 27 | 48 |
| Liquid Fertilizer | - | - | - | - | - | - | - | - | - | - | 2,400 | 3,672 |
| Salt | - | - | - | - | - | - | - | - | - | - | 1,300 | 1,989 |
| Coal | - | - | - | - | - | - | - | - | - | - | 4,249 | 9,348 |
| Molasses | - | - | - | - | - | - | - | - | - | - | 1,000 | 1,530 |
| Animal Feed | - | - | - | - | - | - | - | - | - | - | 100 | 153 |
| Toys | 162 | 270 | - | - | - | - | - | - | - | - | 306 | 511 |
| Sulfuric Acid | - | - | - | - | | - | - | - | - | - | 822 | 1,332 |
| Boxes/Sheets | - | - | - | - | - | - | - | - | - | - | 369 | 557 |
| $NH_3$ | - | - | - | - | - | - | - | - | - | - | 3,048 | 4,938 |
| Urea | 14 | 23 | - | - | - | - | - | - | - | - | 1,050 | 1,701 |
| $CO_2$ | - | - | - | - | - | - | - | - | - | - | 4,452 | 7,212 |
| Uan | - | - | - | - | - | - | - | - | - | - | 4,492 | 7,277 |
| Appliances | 65 | 108 | 6 | 10 | 2 | 3 | - | - | 2 | 3 | 235 | 392 |
| Tires | 5 | 9 | 6 | 11 | - | - | - | - | - | - | 197 | 351 |
| Cans | - | - | - | - | - | - | - | - | - | - | 175 | 292 |
| Aggregate | - | - | - | - | - | - | - | - | - | - | 622 | 970 |
| DAP | - | - | - | - | - | - | - | - | - | - | 2,236 | 3,622 |
| TSP | - | - | - | - | - | - | - | - | - | - | 309 | 501 |
| Scrap Foam Rubber | - | - | - | - | - | - | - | - | - | - | 500 | 805 |
| Meats | - | - | - | - | - | - | - | - | - | - | 1,160 | 1,578 |
| Doors | 172 | 261 | - | - | - | - | - | - | - | - | - | - |
| Total: | 3,867 | 6,742 | 1,710 | 3,009 | 309 | 543 | 885 | 1,558 | 385 | 677 | 29,105 | 49,689 |

Table 17
NUMBER OF BARGES INBOUND BY REGION; 1980 AND 1990

| | Region 1 | | Region 3 | | Region 6 | |
|---|---|---|---|---|---|---|
| Commodity | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 |
| Coal | 98 | 216 | — | — | 10 | 22 |
| Liquid Fertilizer | — | — | 10 | 16.2 | — | — |
| Salt | — | — | 35 | 54 | — | — |
| Molasses | — | — | 10 | 15 | — | — |
| Fertilizer | — | — | 89 | 144 | — | — |
| Total | 98 | 216 | 144 | 229 | 10 | 22 |

Table 18
NUMBER OF BARGES OUTBOUND BY REGION; 1980 AND 1990

| | Region 1 | | Region 3 | | Region 6 | |
|---|---|---|---|---|---|---|
| Commodity | 1980 | 1990 | 1980 | 1990 | 1980 | 1990 |
| $NH_3$ | — | — | — | — | 25 | 41 |
| Uan | — | — | — | — | 35 | 57 |
| Corn | — | — | 912 | 1,277 | — | — |
| Beans | — | — | 147 | 206 | — | — |
| Total | — | — | 1,059 | 1,483 | 60 | 98 |

Table 19
PRINCIPAL REGIONAL ORIGINS AND DESTINATIONS

| Mode | Inbound Shipments | Outbound Shipments |
|---|---|---|
| Rail[1] | 1, 4, 6 | 1, 4, 6 |
| Truck[1] | 6 | 1, 2, 4, 6 |
| Barge[2] | 1, 3 | 3, 6 |

[1] 500 CL/TL or more.

[2] 50 barges or more.

Key: Region 1, East/Southeast; Region 2, Southwest; Region 3, Gulf Coast; Region 4, West; Region 5, Northwest/Plains; Region 6, North Central.

Most of the truck traffic, both inbound and outbound, occurs in Region 6. There is only a small amount of inbound traffic from the other regions Regions 1, 2, and 4 receive relatively significant amounts of outbound traffic.

Barge traffic, not surprisingly, is largely confined to Regions 3 and 6, the Port of New Orleans and Dubuque, respectively.

Based on the survey traffic data, there is a small volume of TOFC or COFC movements.

From the survey sample data, it is apparent that a wide diversity of commodities exists in the Dubuque economy. The most significant commodities, in terms of shipments, include industrial machinery, chemicals, grains, construction materials, food products, and appliances.

## FUTURE COMMODITY FLOWS

Tables 13 through 18 also contain projected (1990) future commodity flows for the study area. These commodity flow projections were generated by adjusting the current commodity flow data. Surrogate shipment growth factors were derived using (1) 1980 OBERS BEA Economic Projections for Dubuque, Iowa; the State of Iowa; and the United States; (2) the Index of Industrial Production; (3) Department of Commerce statistics on manufacturers' shipments; and (4) shippers' perceptions of future growth. Commodity flows are projected over a 10-year period to 1990. For obvious reasons, the projections cover only the commodity flows of existing Dubuque industrial shippers who participated in the user market survey. No attempt was made to project the shipments of new industries that may be attracted to the Dubuque area.

Although shipments and receipts seem to experience large increases, these increases correspond to historical 10-year gains. More optimistic projections for grain and import/export manufactured goods can be derived by attributing a greater impact to two factors: (1) world currency exchange rates and (2) sales of grain to the Soviet Union. If the dollar weakens against foreign currencies as the recovery gathers momentum, exports will increase. This would favorably affect shipments of a few Dubuque shippers.

Sales of grain to the Soviet Union could have a large effect on grain shipments from Dubuque, particularly if a third terminal is built. Existing terminals also may expand operations for transshipment of grain in such an event. The projections of grain shipments already account for a third grain terminal in Dubuque. Shipments would increase from these levels if new grain sales to the Soviet Union are realized.

Because these projected traffic flows were derived from the original commodity flow tables, only the number of shipments has changed. Other traffic characteristics, such as regional origin and destination, have not changed.

Despite the apparent large increases in inbound and outbound traffic, no extraordinary railroad (or other carrier) service or equipment is expected to be needed. The transportation carriers also will be experiencing growth during the 10-year forecast period so that they will be able to maintain similar levels of service.

## FUTURE GRAIN MOVEMENT ANALYSIS

A significant aspect of this analysis concerned grain movement. A literature search was conducted to obtain data on the future outlook for grain movements and production in the State of Iowa.

Agriculture and economics departments were contacted at both the University of Iowa and Iowa State University. The only applicable work found from these sources was published by a group from Iowa State University. This report, titled *Volume of Grain and Fertilizer Requiring Transportation: Projections to 1984-85 and 1989-90 by Counties in Iowa*, produces estimates of future grain production and fertilizer use and determines the amount of grain available for shipment after subtracting on-farm use. Through other sources, a report titled *Corn Movements in the United States* was found, which estimated inter-regional flow patterns for the movement of corn during 1977. An analysis of the potential for grain movements into Dubuque was attempted using these reports as well as a 1979 grain loading facilities map from the Iowa Department of Transportation and a *Grain Elevator Facilities* listing prepared by the ICG Marketing Department.

Figure 11 shows the location and size of grain elevators in Iowa that are located on rail lines that lead to Dubuque. Figure 12 indicates the 1975 actual corn production by county, which remained after subtracting on-farm use, along with estimates of the potential growth by 1985 and 1990. Quantities are shown only for counties that are served directly by a Dubuque rail carrier or for counties where grain would normally be shipped by truck to Dubuque. Figure 13 shows corresponding figures for soybean production.

Column 1 in Tables 20 and 21 indicates the total corn and soybean production for counties within the Dubuque terminal market area. It is estimated that Dubuque captured a 16 percent share of the total corn market and 11 percent of the total soybean market for Iowa. Computations in the table were performed to refine the approximate market share that the Dubuque grain terminals are capturing. These computations were performed using the 1975 data by counties adjusted by 1977 corn movement report zonal factors. Both the corn and soybean volumes by county were adjusted by the corn movement volumes to approximate zonal movements, since zonal factors for soybeans were not available and soybean markets are often in the same location as corn markets.

The corn movement report divided Iowa into three regions: Region 2803 East, Region 2802 Central, and Region 2801 West. Volumes of corn shipments from each region to other national destinations were presented in the report and summed to produce a total regional volume of shipment. In our analysis, shipments from each Iowa zone to Region 2803 and other destinations served through Region 2803 (such as the Louisiana Gulf) were added together, then divided by the total zonal volume shipped to produce a ratio of potential shipments that may pass through Region 2803 out of the zone under analysis. These ratios were then applied to the grain volumes by county to produce adjusted volumes, which are shown in Column 2. Dubuque terminals captured approximately 32 percent of the adjusted corn market and 25 percent of the adjusted soybean market.

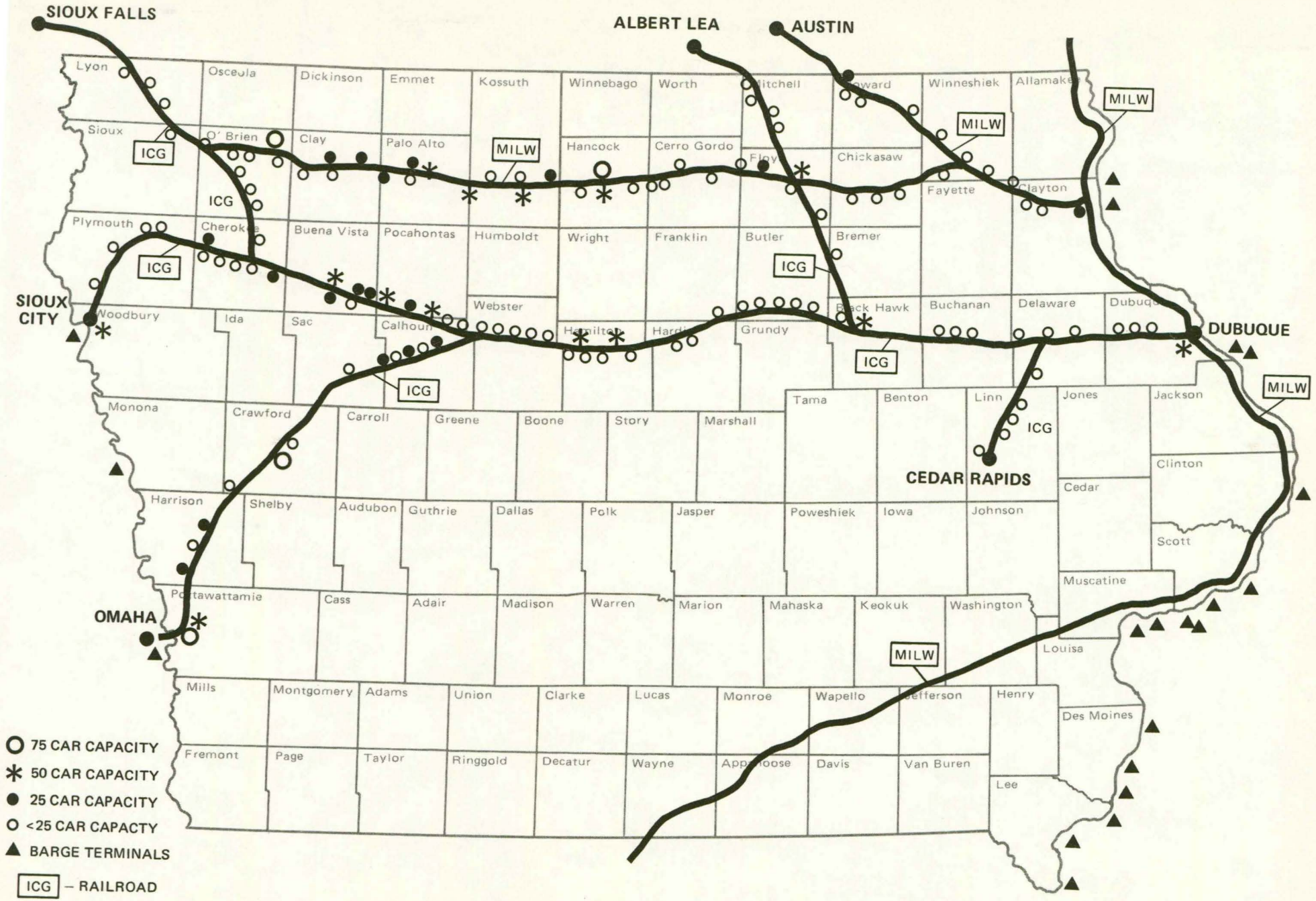
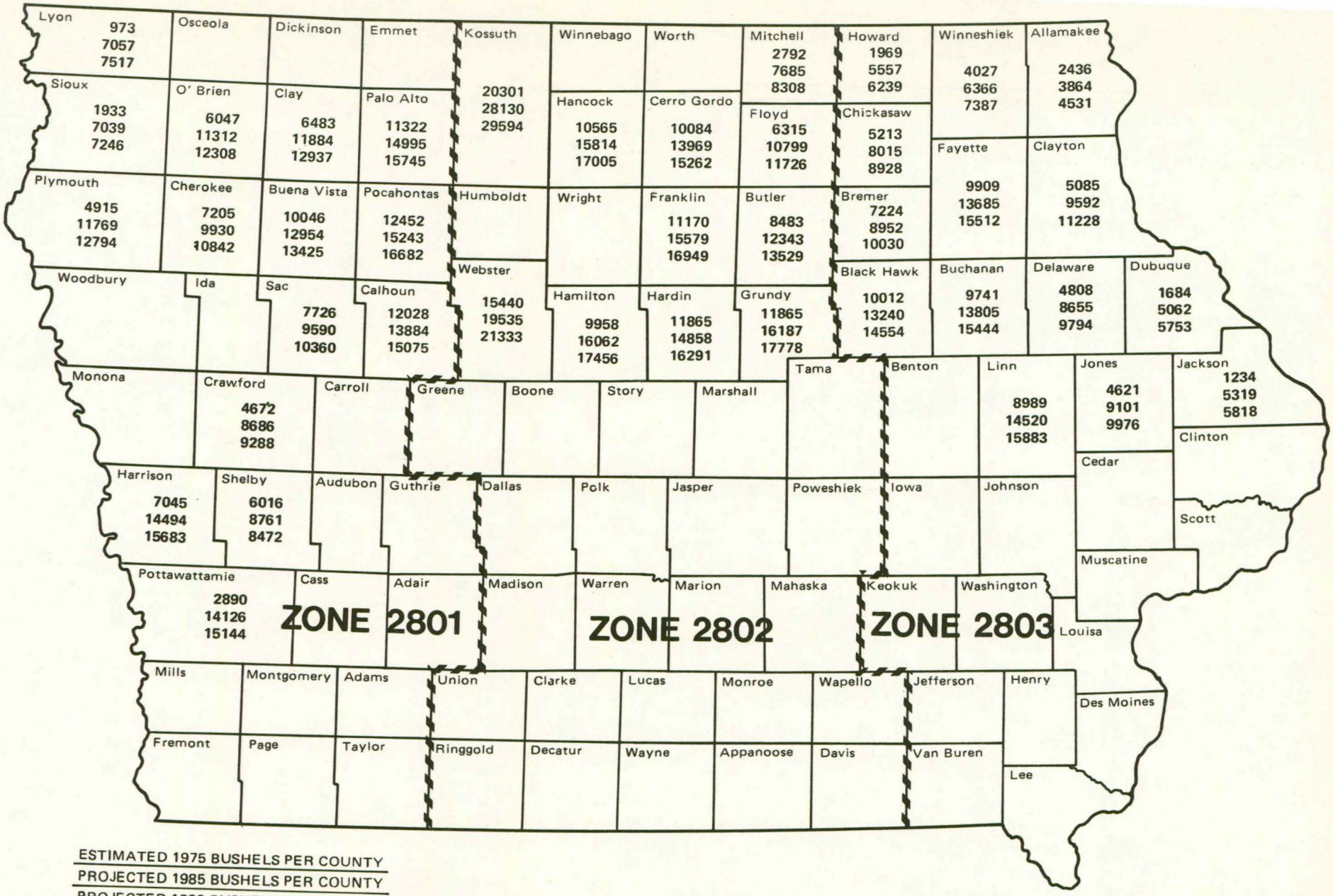


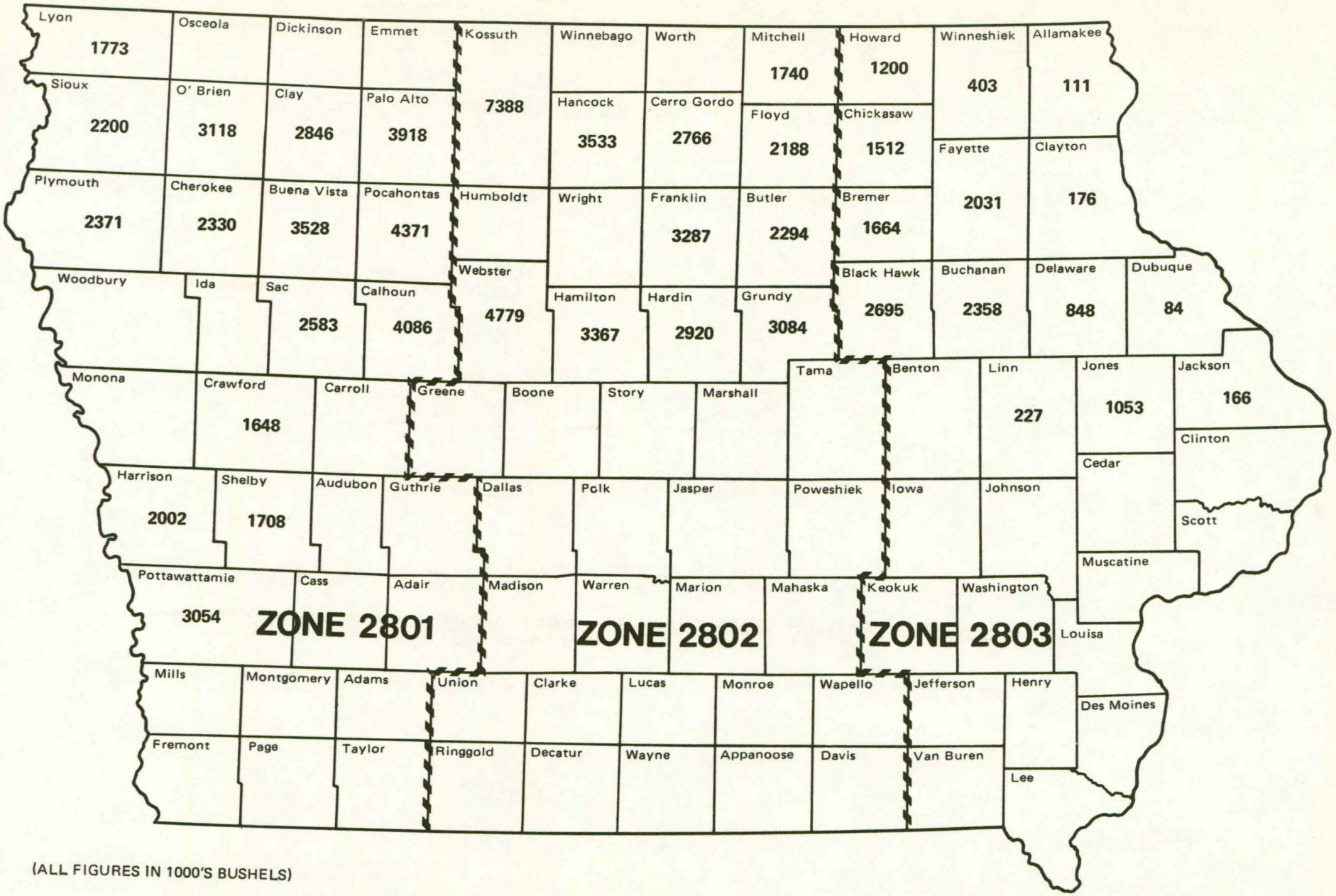

**Figure 11**
**GRAIN LOADING FACILITIES**




ESTIMATED 1975 BUSHELS PER COUNTY
PROJECTED 1985 BUSHELS PER COUNTY
PROJECTED 1990 BUSHELS PER COUNTY

(ALL FIGURES IN 1000'S BUSHELS)

**Figure 12**
**ESTIMATED CORN REMAINING AFTER SUBTRACTING ON-FARM USE, 1985 to 1990 PROJECTIONS, 1975 ESTIMATED**




(ALL FIGURES IN 1000'S BUSHELS)

**ESTIMATED SOYBEANS REMAINING AFTER SUBTRACTING ON-FARM USE, 1975 ESTIMATED**

**Figure 13**

Table 20
ESTIMATED CORN TRANSPORTED TO DUBUQUE AT 1975 PRODUCTION LEVEL

| Zone | County | Estimated 1975 Corn Remaining After On-Farm Usage | Apply Factors From Corn Movement Reports | ICG Maximum Corn | Milwaukee Maximum Corn | Truck Estimated to Dubuque | Total ICG and Truck to Dubuque |
|---|---|---|---|---|---|---|---|
| | | (000 Bushels/County) | | | | | |
| 2803 | Allamakee | 2,436 | 2,373 | - | 0 | - | - |
| | Clayton | 5,085 | 4,953 | - | 0 | 2,477 | 2,477 |
| | Delaware | 4,808 | 4,683 | 2,342 | - | 2,342 | 4,684 |
| | Dubuque | 1,684 | 1,640 | - | - | 1,640 | 1,640 |
| | Jackson | 1,234 | 1,202 | - | - | 601 | 601 |
| | Jones | 4,621 | 4,501 | - | - | 2,251 | 2,251 |
| | Linn | 8,989 | 8,755 | 8,755 | - | - | 8,755 |
| | Buchanan | 9,741 | 9,488 | 3,163 | - | 4,428 | 7,591 |
| | Fayette | 9,909 | 9,651 | - | 1,608 | 1,608 | 1,608 |
| | Winneshiek | 4,027 | 3,922 | - | 1,609 | - | - |
| | Howard | 1,969 | 1,918 | - | 1,918 | - | - |
| | Chickasaw | 5,213 | 5,077 | 1,766 | 3,311 | - | 1,766 |
| | Bremer | 7,224 | 7,036 | 7,036 | - | - | 7,036 |
| | Blackhawk | 10,012 | 9,752 | 9,752 | - | - | 9,752 |
| 2802 | Grundy | 11,865 | 4,473 | 4,473 | - | - | 4,473 |
| | Butler | 8,483 | 3,198 | 3,198 | - | - | 3,198 |
| | Floyd | 6,315 | 2,381 | 998 | 1,075 | - | 998 |
| | Mitchell | 2,792 | 1,053 | 1,053 | - | - | 1,053 |
| | Cerro Gordo | 10,084 | 3,802 | - | 1,037 | - | - |
| | Franklin | 11,170 | 4,211 | 4,211 | - | - | 4,211 |
| | Hardin | 11,865 | 4,473 | 4,473 | - | - | 4,473 |
| | Hancock | 10,565 | 3,983 | - | 2,313 | - | - |
| | Hamilton | 9,958 | 3,754 | 3,754 | - | - | 3,754 |
| | Webster | 15,440 | 5,821 | 5,821 | - | - | 5,821 |
| | Kossuth | 20,301 | 7,653 | - | 1,449 | - | - |
| 2801 | Palo Alto | 11,322 | 2,366 | - | 996 | - | - |
| | Pocahontas | 12,452 | 2,602 | 2,602 | - | - | 2,602 |
| | Calhoun | 12,029 | 2,514 | 2,514 | - | - | 2,514 |
| | Sac | 7,726 | 1,615 | 1,615 | - | - | 1,615 |
| | Buena Vista | 10,046 | 2,100 | 2,100 | - | - | 2,100 |
| | Clay | 6,483 | 1,355 | - | 844 | - | - |
| | O'Brien | 6,047 | 1,264 | 299 | 726 | - | 299 |
| | Cherokee | 7,205 | 1,506 | 753 | - | - | 753 |
| | Crawford | 4,672 | 976 | 337 | - | - | 337 |
| | Shelby | 6,012 | 1,257 | 314 | - | - | 314 |
| | Zone 2256 Illinois | - | 1,354 | 1,354 | - | - | 1,354 |
| | Zone 2705 Minnesota | - | 179 | 179 | - | - | 179 |
| | Total Bushels (000): | 279,773 | 138,841 | 72,862 | 16,886 | 15,347 | 88,207 |
| | Total Carloads/Trainloads: | 87,429 | 43,388 | 22,770 | 5,277 | 16,155 | - |
| | Percent Market Share: | 16.0% | 32.1% | - | - | - | 50.6% |

Table 21
ESTIMATED SOYBEANS TRANSPORTED TO DUBUQUE AT 1975 PRODUCTION LEVEL

| Zone | County | 1975 Estimated Soybeans Remaining After On-Form Usage | Adjust Using Corn Movement Regional Factors | ICG Maximum Soybeans | Milwaukee Maximum Soybeans | Truck Estimated to Dubuque | Total ICG Plus Truck to Dubuque |
|---|---|---|---|---|---|---|---|
| 2803 | Allamakee | 111 | 108 | - | 0 | - | - |
| | Clayton | 176 | 171 | - | 0 | 86 | 86 |
| | Delaware | 848 | 826 | 413 | - | 413 | 826 |
| | Dubuque | 84 | 82 | - | - | 82 | 82 |
| | Jackson | 166 | 162 | - | - | 81 | 81 |
| | Jones | 1,053 | 1,026 | - | - | 513 | 513 |
| | Linn | 2,217 | 2,159 | 2,159 | - | - | 2,159 |
| | Buchanan | 2,358 | 2,297 | 766 | - | 1,072 | 1,838 |
| | Fayette | 2,031 | 1,978 | - | 33 | 330 | 660 |
| | Winneshiek | 403 | 393 | - | 214 | - | - |
| | Howard | 1,200 | 1,169 | - | 1,169 | - | - |
| | Chickasaw | 1,512 | 1,473 | 512 | 961 | - | 512 |
| | Bremer | 1,664 | 1,621 | 1,621 | - | - | 1,621 |
| | Blackhawk | 2,695 | 2,625 | 2,625 | - | - | 2,625 |
| 2802 | Grundy | 3,084 | 1,163 | 1,163 | - | - | 1,163 |
| | Butler | 2,294 | 865 | 865 | - | - | 865 |
| | Floyd | 2,188 | 825 | 346 | 373 | - | 346 |
| | Mitchell | 1,740 | 656 | 656 | - | - | 656 |
| | Cerro Gordo | 2,766 | 1,043 | - | 284 | - | - |
| | Franklin | 3,287 | 1,239 | 1,239 | - | - | 1,239 |
| | Hardin | 2,920 | 1,101 | 1,101 | - | - | 1,107 |
| | Hancock | 3,533 | 1,332 | - | 773 | - | - |
| | Hamilton | 3,367 | 1,269 | 1,269 | - | - | 1,269 |
| | Webster | 4,779 | 1,802 | 1,802 | - | - | 1,802 |
| | Kossuth | 7,388 | 2,785 | - | 523 | - | - |
| 2801 | Palo Alto | 3,918 | 819 | - | 345 | - | - |
| | Pocahontas | 4,371 | 914 | 914 | - | - | 914 |
| | Calhoun | 4,086 | 854 | 854 | - | - | 854 |
| | Sac | 2,583 | 540 | 540 | - | - | 540 |
| | Buena Vista | 3,528 | 737 | 737 | - | - | 737 |
| | Clay | 2,846 | 595 | - | 371 | - | - |
| | O'Brien | 3,118 | 652 | 154 | 367 | - | 154 |
| | Cherokee | 2,330 | 487 | 244 | - | - | 244 |
| | Crawford | 1,648 | 344 | 118 | - | - | 118 |
| | Shelby | 1,708 | 357 | 89 | - | - | 89 |
| | Zone 2256 Illinois | - | - | - | - | - | - |
| | Zone 2705 Minnesota | - | - | - | - | - | - |
| | Total Bushels (000): | 84,000 | 36,469 | 20,187 | 5,413 | 2,577 | 23,100 |
| | Total Carloads/Trainloads: | 28,000 | 12,156 | 6,729 | 1,804 | 2,863 | - |
| | Percent Market Share: | 11.0% | 25.4% | - | - | - | 40.1% |

The final adjustment separated potential ICG shipments from Milwaukee road shipments (which currently pass through Dubuque or move to MacGregor, Iowa) and from truck shipments that move to the Dubuque or MacGregor terminals. This adjustment was made using the relative size (by carloading capacity) and location of grain volumes shown in Figure 11 as a surrogate for grain shipped from each location by each carrier. Truck volumes were assumed from grain elevators not located on rail lines and from other counties within 75 miles of Dubuque that were not served by Dubuque rail carriers.

The results of this analysis indicate that truck traffic into Dubuque terminals is substantially greater than that predicted by this analysis. It was estimated from surveys of grain terminals that approximately 42,000 truckloads of corn and 4,000 truckloads of soybeans were received by Dubuque terminals in 1981. Although on-farm production may have increased between 1977 and 1981, the large differential in estimates probably indicates that grain is shipped by truck from a much greater radius than 75 miles and that trucks may compete with rail at some terminals. Conversely, potential rail shipments of 22,770 carloads of corn and 6,729 carloads of soybeans are substantially greater than the 1,600 carloads of corn and 1,800 carloads of soybeans estimated from shipper surveys.

Column 6 sums the total potential ICG rail and truck movements into Dubuque. The summation by county indicated that Dubuque terminals currently capture 50 percent of the 1975 estimated potential corn market and 40 percent of the estimated potential soybean market.

Competition within this market includes terminals served by the C&NW and corn product plants located in Cedar Rapids and other locations out of state. Thus, Dubuque terminals are capturing a substantial share of the potential market for corn and soybeans. Truck deliveries are probably made from distances greater than 75 miles in some cases where rail may be competitive under normal transportation market conditions (trucking rates are currently depressed because of deregulation and poor economic conditions).

Projections for 1985 and 1990 corn and soybean production were also summarized in the report. Substantial increases above 1975 levels were predicted in each case. However, those levels will probably not be reached because of depressed market conditions worldwide and the Payment in Kind program, which will substantially reduce acreage in production in 1983.

The Iowa State University report also projected fertilizer movements for 1984 and 1989. Table 22 estimates the tons of fertilizer that will be applied in 1984 within the Dubuque market area. Estimates of 1975 fertilizer use were not included in the report.

## FUTURE RAILROAD SERVICE NEEDS FOR DUBUQUE

Significant increases in freight traffic over the railroads serving the Dubuque area are expected in only two market segments: grain and through traffic arising from the impending GTW/Milwaukee Road merger. As noted previously, grain moving into Dubuque area terminals may increase at some point in the future, but predictability of such an increase is clouded by poor economic conditions and the unknown impacts of the recently enacted Payment in Kind agricultural program. Currently during peak grain shipment periods, the local ICG yard cannot handle the

Table 22
PROJECTED TONS OF FERTILIZER TO BE APPLIED IN 1984 BY COUNTY

| County | (Projected Tons to Be Applied) Diammonium Phosphate | Muriate of Potash | Anhydrous Ammonia | Urea | Nitrogen Solutions |
|---|---|---|---|---|---|
| Allamakee | 6,413 | 6,007 | 2,631 | 982 | 2,032 |
| Clayton | 13,482 | 12,594 | 5,634 | 2,103 | 4,351 |
| Delaware | 19,855 | 16,068 | 5,219 | 1,949 | 4,030 |
| Dubuque | 13,065 | 11,225 | 4,391 | 1,639 | 3,391 |
| Jackson | 12,833 | 10,267 | 5,827 | 2,175 | 4,498 |
| Jones | 17,583 | 14,066 | 6,300 | 2,352 | 4,865 |
| Linn | 19,966 | 16,222 | 6,563 | 2,451 | 5,069 |
| Buchanan | 21,284 | 20,402 | 7,105 | 2,653 | 5,487 |
| Fayette | 18,301 | 18,230 | 6,155 | 2,298 | 4,753 |
| Winneshiek | 12,059 | 12,613 | 5,052 | 1,886 | 3,901 |
| Howard | 12,154 | 10,960 | 3,476 | 1,298 | 2,685 |
| Chickasaw | 14,387 | 13,628 | 4,954 | 1,850 | 3,825 |
| Bremer | 12,006 | 11,513 | 4,297 | 1,604 | 3,318 |
| Blackhawk | 17,262 | 16,327 | 5,669 | 2,117 | 4,378 |
| Grundy | 22,354 | 18,545 | 8,569 | 3,199 | 6,617 |
| Butler | 18,818 | 15,479 | 7,131 | 2,662 | 5,507 |
| Floyd | 17,789 | 16,489 | 5,008 | 1,870 | 3,867 |
| Mitchell | 14,009 | 13,154 | 4,344 | 1,622 | 3,355 |
| Cerro Gordo | 22,185 | 20,476 | 6,904 | 2,578 | 5,332 |
| Franklin | 26,031 | 24,090 | 7,718 | 2,882 | 5,960 |
| Hardin | 24,158 | 19,957 | 8,942 | 3,339 | 6,906 |
| Hancock | 21,676 | 21,078 | 8,410 | 3,140 | 6,494 |
| Hamilton | 27,447 | 22,097 | 8,255 | 3,082 | 6,375 |
| Webster | 22,443 | 19,280 | 4,543 | 1,696 | 3,508 |
| Kossuth | 44,405 | 38,431 | 16,291 | 6,082 | 12,581 |
| Palo Alto | 18,774 | 15,793 | 6,914 | 2,581 | 5,339 |
| Pocahontas | 21,662 | 16,329 | 7,033 | 2,626 | 5,431 |
| Calhoun | 18,200 | 15,574 | 8,168 | 3,050 | 6,308 |
| Sac | 22,092 | 14,206 | 7,644 | 2,854 | 5,903 |
| Buena Vista | 21,009 | 14,163 | 8,148 | 3,042 | 6,292 |
| Clay | 17,697 | 12,165 | 6,405 | 2,392 | 4,947 |
| O'Brien | 18,049 | 9,200 | 5,177 | 1,933 | 3,998 |
| Cherokee | 17,904 | 8,399 | 6,267 | 2,340 | 4,840 |
| Crawford | 20,878 | 12,053 | 5,932 | 2,215 | 4,581 |
| Shelby | 17,039 | 10,410 | 7,002 | 2,614 | 5,407 |
| Total: | 665,269 | 547,490 | 228,069 | 85,156 | 176,131 |

volume of shipments, and train units must be temporarily held at Waterloo and Wallace (Freeport, Illinois) yards. Grain trains must be split at the Dubuque yard into maximum 30 car cuts for delivery into the two existing terminals. The ICG has indicated that the system of holding train units at Waterloo and Wallace to reduce pressure on the Dubuque yard is effective and adequate and that expansion of yard facilities in Dubuque is not necessary. Yard capacity could even be augmented by space provided in a Fourth Street Peninsula project, as discussed later in this report.

The Milwaukee Road/GTW merger case currently before the Interstate Commerce Commission is expected to be decided during 1983. If the merger is approved, at least one additional train per day will be added in each direction, thus providing extra line-haul service to Dubuque. The main line as well as the Milwaukee Road yard have adequate capacity to handle this increase, although signaling of the main line may be necessary if a substantial number of additional trains are added in the future.

Shippers have judged that current switching services provided by the three area railroads are generally adequate, with door-to-door delivery times being satisfactory. There have been some problems of coordination between railroads and shippers, particularly when an interchange is necessary. A need for continuing intermodal service exists. Currently, the BN is pursuing a policy of regional hub terminals and plans to abandon its Dubuque terminal, marketing in Dubuque for truck delivery to a future hub terminal at Galesburg, Illinois. The future of the Milwaukee Road piggyback ramp after the GTW merger is unclear. The city and its shippers must carefully study the options available with regard to maintaining a terminal in Dubuque versus drayage to a hub terminal.

Thus, it appears that current overall railroad services provided by the three carriers are adequate and that no additional services or capacity changes will be necessary. The maintenance of the current level of intermodal service may be problematic, and either a modernized intermodal facility or drayage to a hub terminal within the region will be necessary. Some of the detailed aspects of operations could be improved. This would entail better coordination of switching service and renegotiation of interchange fees. Also, consideration could be given to increasing the speed limit within Dubuque from 10 mph to 20 mph. This would reduce delays at grade crossings and generally decrease train trip time. There are potential concerns over increasing accident potential with higher train speeds. The change needs further investigation.

Future rail traffic in the study area is dependent on several key developments mentioned in the preceding discussion. Through traffic will increase on the Milwaukee Road once the merger with the GTW is approved. This traffic will consist of forest products, potash, and grain (including Canadian grain).

BN traffic is dependent on the industrial development of the Fourth Street Peninsula. If the BN builds a yard on the peninsula and firms locate there, traffic on the BN main line would increase.

Rail traffic into Dubuque on the ICG could increase significantly if a third grain terminal is built in East Dubuque or the Fourth Street Peninsula. The grain traffic would originate on the ICG main line west of Dubuque.

The railroads will continue to serve the industrial shippers positioned on their lines so that the relative shares of this traffic should remain the same.

## MILWAUKEE ROAD/GRAND TRUNK WESTERN MERGER

Hearings before the Interstate Commerce Commission regarding the merger of the Milwaukee Road and the Grand Trunk Western Railroad began in Spring, 1983, and a final decision on the merger is expected before the end of 1983. The primary objection to the merger is the controlling interest in the GTW held by the Canadian National Railroad, which is owned by the National Government of Canada.

However, the poor financial condition of the Milwaukee Road probably will lead the Interstate Commerce Commission to a positive decision regarding the merger.

Although the impacts of the merger are numerous, discussions here are limited to impacts of the merger that will directly affect Dubuque and the rail lines serving Dubuque.

The primary initial benefit of the merger to Dubuque wil be the addition of one through train per day in each direction between St. Paul and Kansas City. Each of these new trains will stop in Dubuque to change crews and to pick up and set out blocks of cars. Additional service also will be provided over the east-west line between Chicago and Kansas City through Sabula Junction. Coordination of service between the two train routings was incomplete at the time of the discussions with the GTW.

In the future, trains may be added, including dedicated intermodal trains in the St. Paul-Kansas City corridor. If traffic grows as expected, and if the C&NW acquires and upgrades the former Rock Island main line between Minneapolis and Kansas City via Des Moines, it will be necessary to upgrade the La Crescent-Sabula Junction portion to 50 miles per hour operation with automatic block signaling or centralized traffic control.

The future of Milwaukee Road/GTW intermodal service to Dubuque is somewhat uncertain. Each railroad will continue to control its own operations, but will cooperate on "intraline" movements. The GTW has an excellent intermodal marketing department and uses a major and minor hub terminal concept. The director of intermodal marketing for the GTW indicated that the railroad would be interested in evaluating Dubuque's potential for a minor terminal, but indicated that the final decision would be made by the Milwaukee Road. He indicated that the Milwaukee Road/GTW would be most interested if direct in-city competition for intermodal movements were not present.

## PLAN FOR INTERMODAL ACTIVITIES

A concept for intermodal activities was set forth in the Fourth Street Peninsula conceptual design process. This is illustrated in Figure 14. This is one of several possible alternatives that could be located on the peninsula. The salient feature would be a terminal with an initial capacity of approximately 60 lifts per day and room for expansion which was included in the preliminary layout diagram for development of the peninsula. This preliminary layout was presented to rep-

TRACK INVENTORY

| Track No. | Rail Car Storage | Description |
|---|---|---|
| 1 | 5 | BN Intermodal |
| 2 | 5 | Future Joint Intermodel |
| 3 | 24 | Future BN Engine, Cab, Bad Order |
| 4 | 24 | BN Yard |
| 5 | 22 | BN Yard |
| 6 | 21 | BN Yard |
| 7 | 25 | BN Yard |
| 8 | 21 | ICG/BN Interchange |
| 9 | 17 | Milwaukee/BN Interchange |
| 10 | 51 | Joint Loop |
| 11 | 61 | Future Joint Loop |

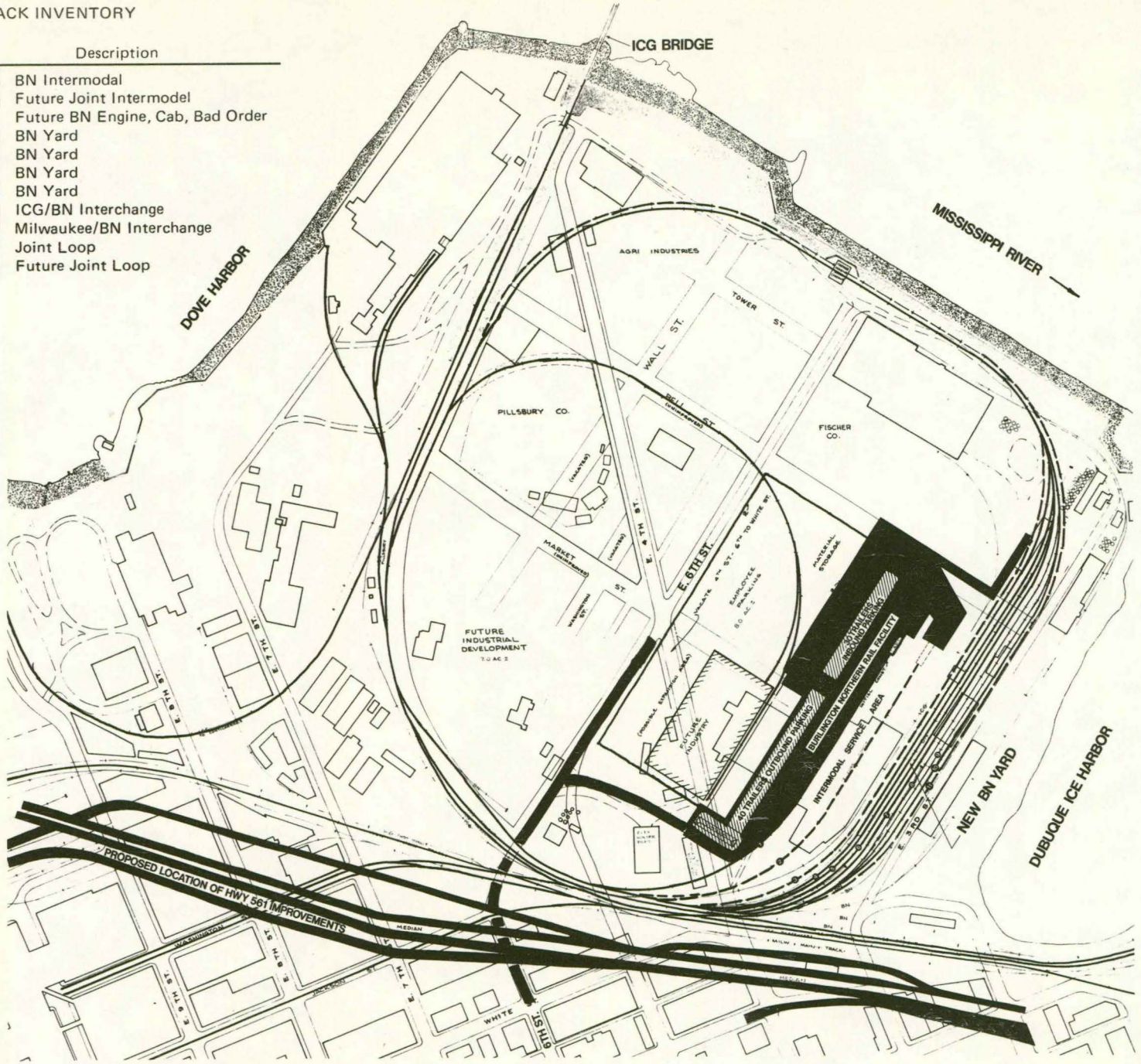



**Figure 14**
**4TH STREET PENINSULA AREA CONCEPT**

resentatives of each railroad. The ICG and BN each indicated they would not be interested in a Dubuque intermodal terminal. The BN will be abandoning its Dubuque intermodal terminal in 1984 or 1985 in favor of a hub terminal to be located at Galesburg, Illinois. The BN plans to market the intermodal services of its Galesburg terminal as far north as Dubuque. The BN feels it can provide better service to the Dubuque shippers through Galesburg than from its terminal located at Dubuque.

The GTW/Milwaukee Road had indicated it has no immediate plans to close its Dubuque facility. The GTW maintains a major hub/minor hub terminal network, and Dubuque may be considered as a minor hub, although the final decision will be made by the Milwaukee Road.

It appears that the best opportunity for continued intermodal service from a Dubuque terminal is from the GTW/Milwaukee Road. It is important that the city indicate its interest and level of support for the development of a modern intermodal terminal if the city wishes to become a minor hub. The GTW has also permitted private operators for intermodal terminals it serves, whereas the BN will not service privately run terminals. The current Milwaukee Road piggyback ramp location would also provide a suitable site for a modernized intermodal terminal.

## POTENTIAL IMPACT OF A NEW GRAIN TERMINAL IN EAST DUBUQUE

A possibility exists that a new grain terminal will be built on the Dubuque Sand and Gravel Company site in East Dubuque. An agricultural concern has expressed interest in this site and in another site on the Fourth Street Peninsula in Dubuque. The East Dubuque site is favored by the facilities planners of the company. Two of the more important advantages of this site are (1) the soil conditions and (2) it can accommodate 30-car trains.

The company plans to operate an inexpensive "over the bank operation." Maximum storage capacity will be approximately one and one-quarter million bushels, and over time the facility will handle 40 million bushels of grain per year. Assuming an operation similar to the two grain handling terminals already operating, 25 percent of the grain throughput is received by rail. If the facility operates at maximum capacity, local rail traffic could increase by approximately 3,200 cars of grain per year. This would entail 32 unit trains of grain per year or approximately three unit trains per month. Since the site is served by the ICG railroad and because the elevators that would supply the grain are located on the ICG line, this traffic would naturally be moved by the ICG railroad to Dubuque. It seems that no additional equipment or service will be necessary other than scheduling of trains into and out of the East Dubuque facility. The ICG feels that its existing system of holding trains in Waterloo and Wallace is effective. It should be noted that some shippers do not believe there is enough yard capacity. This will need further evaluation as demand increases.

These additional trains represent a relatively low volume. They would not cause significant incremental negative impacts for at-grade rail crossings.

A new grain handling terminal also will result in a significant increase in truck shipments of grain. A terminal of the size planned would result in approximately 32,600 truckloads of grain moving into the facility for transshipment (assuming operations similar to the existing grain terminals in Dubuque).

resentatives of each railroad. The ICG and BN each indicated they would not be interested in a Dubuque intermodal terminal. The BN will be abandoning its Dubuque intermodal terminal in 1984 or 1985 in favor of a hub terminal to be located at Galesburg, Illinois. The BN plans to market the intermodal services of its Galesburg terminal as far north as Dubuque. The BN feels it can provide better service to the Dubuque shippers through Galesburg than from its terminal located at Dubuque.

The GTW/Milwaukee Road had indicated it has no immediate plans to close its Dubuque facility. The GTW maintains a major hub/minor hub terminal network, and Dubuque may be considered as a minor hub, although the final decision will be made by the Milwaukee Road.

It appears that the best opportunity for continued intermodal service from a Dubuque terminal is from the GTW/Milwaukee Road. It is important that the city indicate its interest and level of support for the development of a modern intermodal terminal if the city wishes to become a minor hub. The GTW has also permitted private operators for intermodal terminals it serves, whereas the BN will not service privately run terminals. The current Milwaukee Road piggyback ramp location would also provide a suitable site for a modernized intermodal terminal.

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Barge traffic would be augmented by approximately 460 outbound barges if a third grain terminal were built. This traffic would require "fleeting" areas and could have minor impacts on rail movement similar to those described in the following subsection.

## POTENTIAL IMPACT ON RAIL TRAFFIC IF BARGE FLEETING IS PROHIBITED

Fleeting areas are those areas where barges are moored other than at commercial loading facilities, docks, harbors, etc. It is a necessary and indispensable activity for commercial river traffic. It provides an area where barges can be stored while others are being either loaded or unloaded at a dock or terminal. Terminals can only handle a few barges at a time, while a completed tow consists of up to 15 barges. Therefore, fleeting areas serve a purpose similar to railroad switching yards. Without fleeting areas, the commercial traffic could not move with any degree of efficiency unless the terminals themselves were designed to load or unload all the barges in a tow. In most cases, such an arrangement is highly impractical due to other development or use of adjacent areas.

At present, there are six principal fleeting areas in pool 12 (Dubuque area), with a total storage capacity of approximately 210 barges. These areas are listed in Table 23.

Two fleeting areas serve the four public and 10 private terminals. Most of the fleeting areas are non-permitted areas owned by the U.S. Fish and Wildlife Service or the States of Iowa or Illinois. Fleeting areas within the Dubuque city limits (three) are permitted areas. The Iowa legislature has given Dubuque (and other charter cities) control over the river within city limits. The Iowa Conservation Commission has jurisdiction over state lands below the ordinary high water line to the center of the main channel. With this authority comes the responsibility to assure that these lands are used in the best interest of the state. Barge fleeting rules contained in Chapter 54, IAC, provide the mechanism to fulfill that responsibility in regard to barge fleeting. Recently adopted rules provide for a fee schedule for leasing property for barge fleeting purposes. This fee structure may affect the allocation of fleeting sites along the Iowa shoreline. The State of Illinois requires fleeting permits.

Fleeting along the Mines of Spain area on the Iowa side may be prohibited in the future. The Mines of Spain area (river mile 576) is a 900-acre plat of land that the State of Iowa purchased with the intent to develop it as a wildlife refuge.

At present, the site is leased to Cassville River Terminal for five-year periods or until redevelopment occurs. According to Iowa Conservation Commission officials, the property will probably be developed over the next 10 to 15 years, and fleeting will probably be prohibited.

Similarly, an official of the U.S. Fish and Wildlife Service noted that property on the Illinois side of the river from river mile 579 to 557 is designated as a federal wildlife refuge. The U.S. Fish and Wildlife Service is concerned about any fleeting along this area. One particular site in East Dubuque has a special use permit for fleeting, but this permit probably will be cancelled when it expires in October, 1984.

These areas account for more than 60 percent of the total barge spaces in pool 12.

Table 23
BARGE FLEETING SITES

| Pool | Side of River | River Mile | Est. Length | Est. Width | Capacity | Mechanism |
|---|---|---|---|---|---|---|
| 12 | Iowa (3 sites) | 577/580 | 3,000 | 200 | 69 | Deadman Anchor Barge |
| 12 | Iowa | 579 | 600 | 105 | 9 | Spud Barge Piling |
| 12 | Illinois | 578 | 1,400 | 210 | 42 | Trees |
| 12 | Illinois | 576 | 5,000 | 210 | 93 | Trees |

A Wildlife Refuge Master Plan for the Mississippi River is being prepared and will be completed in 1984. Within the master plan, present and future fleeting areas are being identified and examined on a case-by-case basis to determine suitability for fleeting. Existing permitted fleeting areas, except for those indicated, will probably be allowed. However, refuge officials did note that allocation of present and future sites to fleeters may continue under the present leasing and permit scheme or could be subject to a competitive bid system.

The amount of waterborne commerce that occurred in pool 12 for 1982 was 1,417,661 tons and 1,774 empty and loaded barges. This compares with 1,266,689 tons and 1,426 empty and loaded barges in 1980. It is assumed that barges must be handled at least twice so that the number of barges handled (fleeted) in pool 12 in 1982 was 3,548 and in 1980, 2,852. The measure of capacity and demand is the number of barge spaces in fleets. To compare the demand and capacity, it is necessary to convert tonnage into barges and barges into space requirements. Theoretical annual capacity for fleeting in pool 12 can be estimated using the following equation:

$$\text{Theoretical Capacity} = \text{Number of Barge Spaces} \times \text{Seasonal Adjustment} \times \text{Turnover}$$

The seasonal adjustment factor accounts for the variation in tonnage due to seasons. Since no seasonal variations in demand for fleeting service were available, a seasonal adjustment factor based on seasonal variations at Locks and Dams 11 and 12 was used as a proxy for seasonality in the use of fleeting areas.

The turnover of fleeting areas is the number of times that a barge space within a fleet normally will be used. It was calculated by dividing the number of days the fleeting areas can be used by the average stay of a barge in a fleet. The river was assumed to be closed to navigation for a period of 74 days, and the average stay of a barge in a fleet was found to be 7.5 days. Thus, the turnover rate is 39.

The theoretical capacity was further reduced by 20 percent to estimate effective capacity. Effective capacity is the level of utilization at which costs can be expected to increase rapidly as efficiency declines. Under these conditions, extra capacity is likely to be added by operators.

Theoretical annual fleeting capacity is estimated to be:

$$\text{Theoretical Capacity} = 210 \times 0.8 \times 39 = 6{,}552$$
$$\text{Effective Capacity} = 6{,}552 \times 0.8 = 5{,}242$$
$$\text{Theoretical Capacity} = 42 \times 0.8 \times 39 = 1{,}310$$
$$\text{Effective Capacity} = 1{,}310 \times 0.8 = 1{,}048$$

By comparing effective capacity with the number of barges handled (5,242 versus 3,548), it seems that fleeting capacity is adequate. This finding is substantiated by fleet operators who have noted that while they would like more fleeting areas, the existing areas are adequate. Terminal operators, on the other hand, generally feel that more fleeting areas are presently needed.

If fleeting is prohibited in the future in those areas discussed above, a shortfall of available fleeting capacity could occur. A study of fleeting by the Iowa Conservation Commission has estimated that barge fleeting spaces could be reduced by 80 percent. Theoretical capacity would then be 1,048 barges and barges handled 3,548, producing a potential shortfall of 2,500 barge spaces in 1982 figures, or about 100 barge spaces.

The effects of not having fleeting areas in the proximity of the terminals they serve (within five miles) will result in increased cost to the shipper and consumer, greater fuel consumption, and inefficient utilization of equipment. Moreover, because barge loading and unloading activities will require additional time without fleeting within proximity of the terminals, scheduling problems and higher operational costs (i.e., higher towboat and fuel cost charges) will result. Towboat and fuel costs are substantial in barge fleeting. Fuel alone represents approximately 40 percent of operational cost and can have a major effect on rates. Thus, it is desirable to have enough fleeting space near terminals.

Rail traffic should not be affected by the lack of nearby fleeting areas in the Dubuque area. The rate differential between the two modes is wide enough so that, despite higher barge costs, barge transportation still would have a rate advantage. In addition, any increase in barge transportation costs is passed on by the shipper to the consumer. Major shippers by barge in Dubuque indicated that there would be little or no impact on rail use for these reasons. One possible impact is that inbound rail shipments may be restricted or slowed as a result of inadequate fleeting areas.

## POTENTIAL IMPACT OF RENEWED PASSENGER TRAIN SERVICE

In October of 1981, (Illinois) state-subsidized AMTRAK service between Chicago and Dubuque was discontinued. Discontinuation of service was based on declining ridership, particularly by Illinois residents, and subsequent reduction in revenues.

External circumstances, such as poor on-time performance due to poor track condition, also adversely affected the train and its financial performance.

It is conceivable that rail passenger service could be reinstated in the future given more favorable financial conditions and performance. An official of the ICG railroad, on whose tracks the

train was routed, indicated that operation of a similar passenger train would pose only minor scheduling problems, which could be easily worked out. The tracks on which the Blackhawk train ran are still in place. According to an ICG official, there is enough double track and yard track to accommodate a passenger train such as the Blackhawk, a train consisting of four to five cars scheduled once daily.

## FEASIBILITY OF A LITTLE MAQUOKETA RIVER PORT FACILITY

A conceptual plan has been developed for Dubuque County for a port facility to be located west of the John Deere plant near Highway 53. The plan calls for the dredging of a channel approximately two to three miles in length from the mouth of the Little Maquoketa River to the proposed port facility, which would be located immediately east of US Highway 53. This construction would require acquisition of property from the John Deere landholdings.

Construction of a barge channel from the Mississippi River may require the replacement of the Milwaukee Road bridge over the Little Maquoketa River, since the clearance is believed to be inadequate based on visual inspection. Provision of rail service to the proposed port facility would necessitate the construction of a one and one-half to two and one-half mile railroad spur from the Milwaukee Road main line adjacent to the Mississippi River. It would be necessary for such a spur to cross John Deere plant property to service the port.

Discussions with the Iowa Department of Conservation and the U.S. Army Corps of Engineers indicate that channel dredging and construction along the Little Maquoketa River would have possible negative environmental impacts. This situation was encountered when applications for previous and current permits were submitted by the John Deere Company. The firm needs to dredge for water intake and, therefore, requires a Corps of Engineers permit. In this process, environmental objections have been identified.

In addition to potential negative environmental impacts to the Little Maquoketa wetlands, the area does not appear to be a good candidate for future development. Construction cost for the proposed facility would be extremely high. Because of soil conditions, dredging and disposal would have high initial cost and would require significant and regular maintanence efforts.[1] Further, land acquisition is potentially difficult. Other areas, such as the East Dubuque site or the Fourth Street Peninsula, offer better access by both water and rail and could be developed at a much lower cost.

[1] Based on discussions with the Corps of Engineers, Rock Island District, May, 1983.

# 6.
# Dubuque Area Development

As part of the projections for the future, the potential changes in Dubuque area development need to be identified and considered. In light of the objective to stabilize and improve rail service, potential development areas represent locations that can require new rail service and result in higher levels of commodity movement. This could stimulate additional improvements in rail service.

The analysis of development has been undertaken in terms of market potentials, relationships to the need for rail service, and sites for future growth. These results have been used to describe an industrial development strategy.

## INDUSTRIAL MARKET PLAN

Given the identified land resources and rail service, the objective is to establish an industrial development strategy designed to solidify the existing industrial base in Dubuque and to promote expansion of rail-related industries within the community. The preservation and potential expansion of rail-using industry is designed to serve as an incentive to maintain and perhaps improve the level of rail service currently provided in Dubuque. Related objectives of the industrial market plan are to identify prospective industries to which rail-served property may be marketed, as well as to project the prospective demand for rail-served sites.

The following discussion is divided into five major sections. The first section describes recent state and local industrial trends, particularly for rail-related development. The second section reviews salient industrial characteristics of Dubuque and the prospect for growth and expansion of local industries. Based on these prospects, a projection of demand for rail-served industrial land in the Dubuque area is presented in the third section. The fourth section then reviews the inventory of potential and zoned industrial property in the Dubuque area that could be served by rail. The last section describes an industrial development strategy that focuses on local actions that could be undertaken to promote the retention and expansion of industry, particularly rail users, within Dubuque.

### Industrial Development Trends

In the 1980s, transportation, energy, and finance costs are anticipated to be primary determinants of industrial location. Other factors, such as state tax policies and differentials, have had

generally limited influence on industrial location decisions. Still other factors, such as the cost of labor, tend to be levelling on a national scale, which reduces the incentive for some industries to relocate.

The importance of energy and transportation in industrial location decisions has various implications. On one hand, it is asserted that railroad sitings or the possibility of rail service to sites is becoming more important as the cost of rail shipping is not increasing as fast as other forms of transportation that are more energy intensive. On the other hand, the increased use of intermodal transportation reduces the need for some shippers to have rail-served sites. Intermodal transport provides the flexibility and door-to-door service afforded by trucks, while also capitalizing on the lower costs of rail transportation. With the increased use of intermodal transport, trains are carrying a more diverse array of products and are serving a broader range of clients, including some cross-country truckers.

*Iowa Industrial Development Trends, 1970 to 1980*

In the State of Iowa between 1970 and 1980, an average of 78 new[1] industrial facilities was announced annually, as well as 165 expansions of existing firms. Collectively, the new and expanding plants were expected to generate an average of more than 1,100 jobs annually and represent an average annual capital investment exceeding $410 million.

Over the decade, industrial growth and expansion have been concentrated in a few selected areas throughout the state. Figure 15 highlights the areas that have attracted the largest share of recent industrial growth. The largest number of new industries was located in Polk County, which includes the state capital of Des Moines. In addition, many new firms located to the southeast of Des Moines in Marion, Mahaska, and Wapello Counties. Another major location for new industrial growth was the Mason City area, in Cerro Gordo County, and in the surrounding Counties of Floyd, Wright, and Franklin. Collectively, the Des Moines-Polk County and Mason City-Cerro Gordo regions captured about 20 percent of the new industrial growth in the state.

Industrial development also occurred in several other metropolitan areas. The Davenport/Muscatine region captured nearly seven percent of new industrial growth; the Dubuque-Cedar Rapids area captured slightly less than six percent of all new industrial facilities. Other secondary growth regions included the Council Bluffs area (Pottawattamie, Montgomery, and Page Counties), the Sioux City area (Woodbury, Crawford, and Carroll Counties), and the Burlington area (Henry and Lee Counties).

Dubuque County itself was the location for 11 new industries over the period, which represented about one percent of aggregate growth throughout the state. In contrast, Polk County and Cerro Gordo County each captured more than five percent of aggregate new development.

Most of the new firms being established in Iowa since 1970 have been branch plants of industries currently located in the state. A large share of the remaining growth has been stimulated by industries in Illinois and Minnesota.

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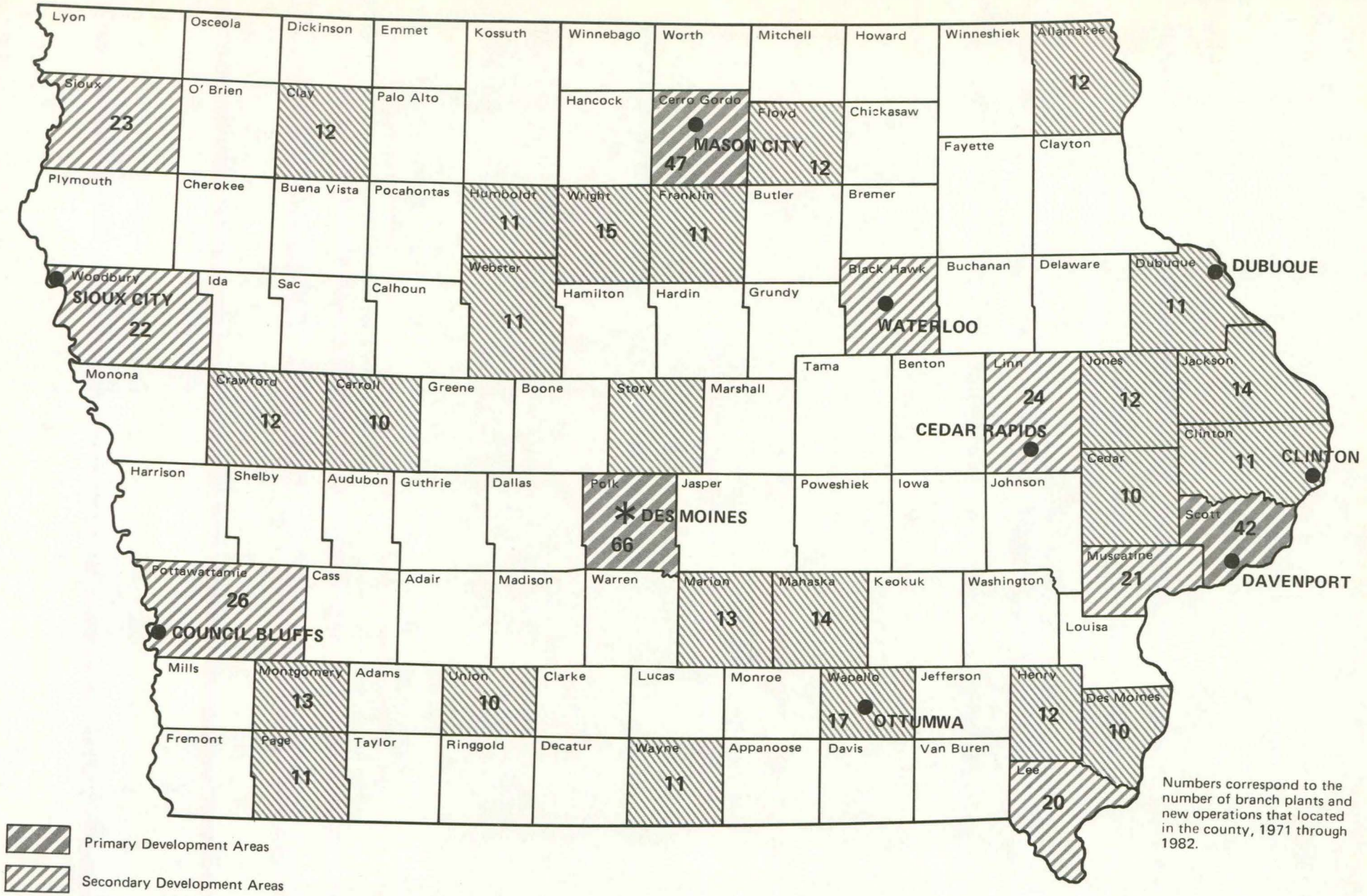
[1] "New" in this context refers to both new and branch facilities.




Numbers correspond to the number of branch plants and new operations that located in the county, 1971 through 1982.

**Figure 15**

**MAJOR INDUSTRIAL DEVELOPMENT AREAS 1971 to 1982**

*Recent Statewide Trends, 1980 to 1982*

During the three years between 1980 and 1982, a total of 628 new plants and industrial expansions occurred in Iowa. Of this development, one-third represented new industries or branch operations; two-thirds of the announcements were expansions of existing firms. In terms of capital investment, new branch operations represented 46 percent of the total and expansions comprised the residual. These figures clearly reflect the importance of existing industries to local and state industrial growth. Firms currently located in Iowa have been responsible for more than one-half of total capital investment between 1980 and 1982.

The average new or branch facility involved a greater capital investment, more land, and more employment than the typical expansion, but less building area. New facilities required, on average, the acquisition or construction of 9,000 square feet of building area, whereas expansions averaged 15,000 square feet. Despite the larger building area, an average expansion created only about 17 jobs, compared to 50 jobs for the typical new facility. Table 24 summarizes some of these recent industrial development statistics.

As shown in Table 24, the land area required for new facilities was considerably greater than the land absorbed for expansions. The average site size for new operations was about 9.4 acres; the average site for expansion was 1.5 acres. The small amount of land required for expansion, despite the higher amount of average building area, reflects the fact that most businesses expand on an existing site and only occasionally require additional property.

Industrial growth and expansion in the State of Iowa between 1980 and 1982 was concentrated in a few selected industrial sectors. The most significant growth occurred in the motor freight, transportation, and warehouse sector, as well as in food and kindred products. Other basic industrial sectors that stimulated some new industrial growth were chemical and allied products, machinery (except electrical), and fabricated metals.

*Rail-Related Industrial Development, 1980 to 1982*

Rail-related industries represented about one-third of total industrial growth in Iowa between 1980 and 1982. Approximately 25 percent of all new and branch facilities were rail-related; more than one-third (36 percent) of industrial firms that expanded were rail users.

During this three-year period, new rail-related industrial growth was concentrated in Des Moines, Waterloo, Oskaloosa, and Ottumwa. No new industries or branches of existing industries that use rail service were located in Dubuque County.

The industrial sectors responsible for a large share of rail-related growth are similar to the sectors experiencing the most growth and expansion statewide. The motor freight, transportation, and warehouse sectors, as well as food and kindred products, are responsible for the largest share of rail-related industrial growth.

The railroad associated with the largest percentage of rail-related industrial growth is the C&NW, which served nearly 40 percent of all new, branch, and expanding industries. The BN served 19

Table 24
IOWA INDUSTRIAL DEVELOPMENT TRENDS, 1980 to 1982

| | Number of Announcements | Aggregate Capital Investment | Average Capital Investment | Total Acres Absorbed | Average Acres per Facility |
|---|---|---|---|---|---|
| New and Branch Facilities | 228 (36%) | $ 597,536,000 (46%) | $2,620,800 | 2,145 (78%) | 9.4 |
| Expansions | 400 (64%) | 693,086,000 (54%) | 1,732,700 | 613 (22%) | 1.5 |
| Overall | 628 | $1,290,622,000 | $2,055,130 | 2,758 | 4.4 |

| | Total Building Area (sq. ft.) | Average Building Area (sq. ft.) | Total Employment (jobs) | Average Employment (jobs) | Percent of Firms Locating in Existing Buildings |
|---|---|---|---|---|---|
| New and Branch Facilities | 2,039,071 (26%) | 8,943 | 11,078 (63%) | 49 | 55% |
| Expansions | 5,944,982 (74%) | 14,862 | 6,554 (37%) | 17 | NA |
| Overall | 7,984,053 | 12,713 | 17,632 | 28 | NA |

percent of the new industries—15 percent of branch locations and nearly 25 percent of expanding industries. The ICG and the Milwaukee Road accommodated most of the remaining new and expanding industries, each serving about 13 percent of new industries and about 10 percent of branch industries and expansions. Regional railroads (e.g., Crandic, Iowa Terminal, etc.) generally served the remainder.

The market share of new industrial growth captured by certain railroads reflects, to some extent, a railroad's marketing efforts within the state. However, a number of other factors also influence the amount of growth experienced along selected railroad lines. Available routes and rate structures, as well as local economic development efforts, are influential in guiding location decisions.

*Summary of Recent Industrial Development Trends*

Some general implications can be drawn from the evaluation of rail-related and general industrial development trends in the State of Iowa. Rail-related industrial growth tends to parallel overall industrial growth throughout the state. This is true relative to the expanding industrial sectors, as well as the general distribution of investment among new, branch, and expansion facilities.

The existing industrial base in any community is the prime generator of subsequent industrial growth and expansion. Expansion of existing firms represents about two-thirds of all industrial projects throughout the state and, specifically, for rail-related industry. Thus, any industrial development strategy must focus first on the existing businesses within the community. Efforts should be made to identify, encourage, and facilitate growth of these local firms.

Industrial sectors tied to the agricultural economy of Iowa traditionally have offered and will continue to offer the most substantial local growth opportunities for rail-using industrial development. These sectors include food and kindred products (e.g., food processing), chemical and allied products (e.g., fertilizers), and some fabricated metal industries and machinery (e.g., farm machinery), except electrical. In addition, motor freight, transportation, and warehousing will remain an important source of industrial demand in the state.

Factors that influence the location of rail-served industrial development include the effectiveness of specific railroad marketing efforts, local economic development capabilities, and the existing pattern of rail lines. Communities that lie at the juncture of major north-south and east-west routes generally have experienced the most dramatic rail-related industrial growth over the last decade. Des Moines, Mason City, and Council Bluffs are located at the junctures of intersecting routes of the C&NW and also are served by at least one other railroad.

**Dubuque Industrial Characteristics**

Historically, the original industries of Dubuque were lead and zinc mining and sawmilling. However, as rail and river transportation developed, the local industrial base became increasingly diversified. Today, Dubuque's industrial economy is dominated by agriculture and construction-related industries. The agriculturally-oriented economic base affords relative stability for the local economy; however, it is not immune from variation. For example, the current Payment in

Kind program initiated by the federal government will reduce grain production and, in turn, reduce demand for farm implements, fertilizers, and seed over the next one to two years. Furthermore, it is likely to influence the volume of local grain shipments.

Construction-related industries, a local industrial sector dominated by the John Deere Dubuque works, is subject to greater volatility associated with trends in residential and non-residential construction. Construction-related industries have been hard hit during the most recent recession, but prospects for recovery are good. Residential construction has begun to recover in 1983, and by 1985, non-residential capital investment is expected to accelerate. Based on information from the U.S. Bureau of Economic Analysis, residential construction is projected to peak in 1987 at levels comparable to those achieved in 1978. Non-residential fixed investment is likely to lag behind the residential recovery because of low utilization levels of existing plants, recently depressed profit margins, and limited funds available for fixed investments.

Based on employment figures from the Dubuque Chamber of Commerce, the dominant industrial sectors in the Dubuque economy are non-electrical machinery manufacturing (e.g., John Deere Dubuque works), food and kindred products (e.g., FDL Foods), fabricated metal parts (e.g., Flexsteel), and printing, publishing, and allied products (e.g., William C. Brown Companies). These four sectors account for more than 60 percent of total industrial employment within the Dubuque area, and each is dominated by a single firm.

For example, John Deere accounted for more than 80 percent of total employment in machinery manufacturing; FDL Foods provided more than two-thirds of total employment in food and kindred products; and Flexsteel accounted for about one-third of total employment in fabricated metal parts.

Dubuque's dominant industrial sectors are those that traditionally use (or could use) rail service. Of all rail-related industrial development occurring in the entire State of Iowa between 1980 and 1982, Dubuque's three dominant industrial categories (non-electrical machinery manufacturing, fabricated metal parts, and food and kindred products) accounted for more than half of all expansions, nearly 40 percent of all branch plants, and more than 25 percent of all new industries. The two industrial sectors that accounted for much of the remaining rail-related industrial growth in the state were chemicals and allied products and motor freight, transportation, and warehousing. These sectors, although not dominant employers in the Dubuque area, constitute a sizeable percentage of local industries.

**Prospective Growth and Expansion of Rail Use in Dubuque**

Increased demand for rail service in the Dubuque area could be generated by four primary sources: (1) growth and expansion of existing Dubuque area industries, (2) location of new rail-using industries in the Dubuque area, (3) increased transshipment of grain through Dubuque, and (4) capture of shipments presently moving via other modes of transportation.

*Growth and Expansion of Existing Local Industries*

The construction of Highway 561 through downtown Dubuque will stimulate and facilitate relocation and expansion of selected industries in the Dubuque area. Some of the rail-users that

will be impacted by the construction project include Ecology Control, Jeld-Wen Fiber Products, Alter Metal, Jacobson Steel, and Spahn & Rose Lumber. Two operations that may use the relocation as an opportunity to expand include Ecology Control and Jeld-Wen; however, both industries require rail service by a specific carrier, and if appropriate property cannot be obtained on favorable terms, the industries may not be retained in the Dubuque area.

Aside from the operations that will be displaced by construction of Relocated 61, several rail users in the Dubuque area have plans to expand on their current sites, as business dictates. These expansions will not create demand for additional rail-served property; however, they should increase demand for rail service from all three carriers in the local area.

*Attraction of New Rail-Using Industry to the Dubuque Area*

Industries most likely to be attracted to the Dubuque area are those that can capitalize on a linkage to an existing local industry (e.g., John Deere Dubuque works), the agricultural base of the surrounding area, or the shipping advantage afforded by the rail and barge interface. Food processing firms in particular could find Dubuque an attractive business location. Grain might be processed into derivative products or ingredients produced and supplied to FDL Foods or other regional food product producers.

Industrial marketing efforts for the local area should attempt to reduce the sensitivity of the local economy to the business cycle. Attracting a food products manufacturer might achieve this objective, whereas attracting firms linked either directly or indirectly to the construction industry could aggravate the existing cyclicality of the local industrial base.

Efforts also should be made to attract other stable and growing industrial operations, such as the manufacture of professional, scientific, and control instruments, particularly those related to medical fields. It is unlikely that Dubuque can participate to any great extent in the rapid growth of electrical equipment and machinery manufacturing. At present, this industrial sector is not well represented in the local economy, and Dubuque does not offer any inherent advantages to a firm of this type. In contrast, growth industries, such as surgical and medical instruments, appliances, and supplies, are likely to represent somewhat greater opportunities. These firms, however, are not major rail users and are not likely to substantially increase demand for rail service.

At present, there are two major terminals in the Dubuque area: Conti and Pillsbury. Both terminal facilities handle incoming shipments of coal, fertilizer, and salt; outbound transportation is provided for corn and soybeans. Currently, about 75 percent of the total capacity of the two terminals is being used. There are no immediate plans for expansion of either terminal, but more storage areas are proposed when justified by business volumes. Pillsbury could expand on its existing site, but Conti would require additional land. The relocation of Dubuque Iron and Metal (Ecology Control) as a result of Relocated 61 construction might provide Conti an opportunity to acquire additional land for expansion purposes.

Even without physical expansion, the terminals could increase grain shipments through Dubuque by increasing the share of direct transfer of grain from trains to barges. This approach provides the most efficient and economically advantageous handling for the terminals.

A third terminal facility has been proposed and initiated in East Dubuque on property owned by Dubuque Sand and Gravel. A plan already has been developed by the ICG to serve the prospective development, and some barge shipments have been moving through the partially dredged channel. Dubuque Sand and Gravel is negotiating with several potential users of the proposed terminal facilities and will proceed with development when commitments are obtained. As proposed, the facilities would be developed by the land owner, and fees would be collected based on a storage or handling charge.

Based on commodity grain movements, the current Conti and Pillsbury operations capture about 50 to 60 percent of the available grain market. Increased penetration of the available market up to a 40 percent level would suggest increased demand for 40 million bushels of capacity. This would represent at most one additional facility, which will likely be provided in the East Dubuque area. The other potential development area for a terminal would be on the Fourth Street Peninsula adjacent to the Pillsbury facility. This property already has been acquired by Agri Industries for a prospective terminal; however, there is substantial skepticism that Agri would proceed with major capital investment in the immediate future because of the uncertain effect of the Payment in Kind program, the lack of real growth in U.S. grain exports since 1980, and the large capital requirements. Nonetheless, one major advantage that the Fourth Street Peninsula affords over the East Dubuque site is the existing availability of utilities.

Increased use of rail instead of trucks by shippers would increase demand for rail service, but would not increase demand for industrial, rail-served property. Successful rail marketing efforts require an aggressive sales effort on behalf of the individual railroads, competitive pricing, and a high level of service. Deregulation affords the railroads latitude in negotiating competitive rates and services; however, recent experience suggests that not all railroads serving Dubuque may be particularly effective in promoting new local business. More aggressive marketing on behalf of selected railroads might increase the level of rail shipments in and through Dubuque.

**Projected Demand for Rail-Served Industrial Land**

Industrial development trends in the Dubuque area have reflected changes in both employment and land-use. These indicators suggest that the area has experienced modest industrial expansion over the last 10 to 15 years. Except for the proposed construction of Relocated 61 and Highway 520, no factors are likely to alter significantly these traditional industrial growth patterns in the Dubuque area. However, the highway construction will provide an opportunity to clear and redevelop selected industrial areas in the central city and to accommodate displaced industries on new or improved industrial land.

In total, an estimated 15 to 20 industrial concerns may have part or all of their operations displaced by the freeway construction. The site requirements for each industry are unknown at the present time, since the alignment of the highway has not been finalized. However, if each firm were assumed to require five acres, total industrial demand created by the highway construction might range from 75 to 100 acres. Rail-served industries represent about seven of the impacted firms and might generate from one-third to one-half of the total demand for industrial land.

Demand for industrial land in the Dubuque area, aside from that generated by highway construction, is modest. The Urban Growth Forecast Study completed in 1976 by the City of Du-

buque documented land-use trends in the Dubuque metropolitan area between 1963 and 1975. Over this 12-year period, the total acreage devoted to industrial development increased from 350 to 472 acres, an increase of 35 percent. Most of this growth occurred between 1963 and 1970, when nearly 100 acres were absorbed for industrial use. On an average basis between 1963 and 1970, industrial development absorbed about 14 acres of land per year; between 1970 and 1975, the annual absorption rate declined to slightly over six acres per year.

Total industrial land requirements over the next 20 years will reflect the relocation effect created by Relocated 61 and Highway 520 as well as natural growth generated by the existing economic base. Taking these two factors into account, aggregate demand for new industrial property is projected in Table 25. Between 1983 and 1990, total industrial land requirements should range between 120 and 170 acres. Between 1990 and the year 2000, an additional 60 to 100 acres of industrial property is likely to be required. Thus, over the next 18 years, an estimated 180 to 270 acres of land may be absorbed by industrial growth, expansion, and relocation. Of this total, rail users are likely to require between 60 and 75 acres by the year 2000. A major share of the demand for rail-served property will be stimulated by the proposed highway improvements. Within the next seven years, between 50 and 55 acres of rail-served property may be required.

Employment trends in the Dubuque area also may be used to project demand for industrial property within the county. However, this methodology becomes increasingly difficult in light of the recent decline in employment in basic manufacturing industries. Nonagricultural employment trends in Dubuque County are shown in Table 26. Employment in the county increased at a three percent compound rate between 1970 and 1980, but since that time, there has been a severe decline in employment. In 1982, the average nonagricultural employment in Dubuque County was 37,600, which is 7,000 less than peak levels achieved in 1980.

The most severe decline has occurred in manufacturing employment. Modest employment growth had occurred between 1970 and 1980, but then it declined by nearly one-third between 1980 and 1982. Substantial losses also were incurred in the construction industries.

The only employment sector that has shown consistent gains over the past 12 years is services. In addition, the finance, insurance, and real estate sector has been stable, maintaining the high employment levels achieved in the early 1980s.

Depressed employment levels in manufacturing industries suggest that many local industrial concerns have excess capacity. Current underutilization of manufacturing facilities generally would defer expansion requirements for affected firms until existing capacity is substantialy absorbed. Assuming that peak employment levels of the 1980s reflect high utilization of plant capacity, employment growth beyond these levels might be associated with industrial land requirements for expansion.

Employment projections and the implied low utilization of current capacity suggest that the industrial land demand between 1983 and 1990 attributed to natural growth and expansion is likely to fall within the lower end of the range reflected in Table 25. An estimated 40 to 55 acres of industrial property would likely accommodate aggregate natural growth and expansion over this seven-year period. Of the total natural demand, nearly one-third could be for rail-served property, or about 12 to 17 acres.

Table 25
AGGREGATE INDUSTRIAL LAND DEMAND—DUBUQUE AREA

| | 1983-1990 (acres) | 1990-2000 (acres) | Total Acres |
|---|---|---|---|
| Natural Growth and Expansion[1] | 42- 70 | 60-100 | 102-170 |
| Industrial Relocation for 15 to 20 Firms[2] | 75-100 | 0 | 75-100 |
| Total Industrial Land Demand | 117-170 | 60-100 | 177-270 |
| Rail-Served Land Demand Natural Growth[3,5] | 13- 21 | 15- 25 | 28- 46 |
| Relocation Demand[4] | 35 | 0 | 35 |
| Total[5] | 48- 56 | 15- 25 | 63- 81 |

[1] Assumes average annual demand of six to 10 acres per year.

[2] Assumes an average site requirement of five acres.

[3] An estimated 30 percent of aggregate industrial demand is assumed to be generated by rail users between 1983 and 1990. With the anticipated increase in importance of intermodal facilities, future demand for rail-served sites should decline. Between 1990 and 2000, rail site demand is estimated to be 25 percent of aggregate demand.

[4] Assumes seven rail shippers are impacted and each would require a five-acre site.

[5] The total natural demand does not include an allocation for a third grain terminal, a facility that might require from 15 to 25 acres of property.

Source: Barton-Aschman Associates, Inc.

Table 26
NONAGRICULTURAL EMPLOYMENT BY SECTOR, 1970-1990—DUBUQUE COUNTY

| | Actual Employment[1] | | | | Projected Employment | | Compound Annual Rate of Change (percent) | |
|---|---|---|---|---|---|---|---|---|
| | 1970 | 1975 | 1980 | 1982 | 1990 | 2000 | 1970-1980 | 1975-1982 |
| Manufacturing | | | | | | | | |
| Durable | 8,200 | 10,600 | 10,300 | 7,600 | 8,900- 9,100 | 10,300-10,800 | 2.6% | -4.0% |
| Non-Durable | 5,400 | 5,300 | 5,200 | 3,300 | 4,300- 4,500 | 4,800- 5,100 | -0.4 | -5.4 |
| Subtotal | 13,700 | 15,900 | 15,500 | 10,900 | 13,200-13,600 | 15,100-15,900 | 1.3% | -4.5% |
| Non-Manufacturing | | | | | | | | |
| Construction | 1,500 | 1,400 | 1,500 | 1,100 | 1,500- 1,700 | 1,500- 1,700 | 0.0% | -3.1% |
| Transportation and Public Utilities | 1,700 | 1,600 | 1,700 | 1,600 | 1,700- 1,800 | 1,700- 1,800 | 0.0 | 0.0 |
| Finance, Insurance, and Real Estate | 1,100 | 1,100 | 1,300 | 1,300 | 1,500- 1,700 | 1,700- 1,900 | 1.8 | 1.8 |
| Retail and Wholesale Trade | 6,600 | 8,000 | 9,300 | 8,600 | 9,600-10,500 | 10,100-10,800 | 4.1 | 1.1 |
| Service and Mining | 6,200 | 8,400 | 10,100 | 10,400 | 12,000-13,000 | 14,500-16,000 | 6.3 | 3.4 |
| Government | 2,700 | 3,500 | 4,000 | 3,800 | 4,100- 4,300 | 4,200- 4,400 | 4.8 | 1.2 |
| Subtotal | 19,800 | 23,900 | 28,100 | 26,800 | 30,400-33,000 | 33,700-36,600 | 4.2% | 1.7% |
| Total Nonagricultural | 33,500 | 39,800 | 43,600 | 37,600 | 43,600-46,600 | 48,800-52,500 | 3.0% | -0.8% |

[1] Source: Iowa Job Service. Columns may not sum to total due to rounding.

Source: Barton-Aschman Associates, Inc.

After 1990, much of the excess capacity in current manufacturing facilities should be absorbed, and the higher range of land requirements for natural growth and expansion should prevail. Between 1990 and the year 2000, up to 100 acres might be required to accommodate growth and expansion of the local industrial base. Of this total, an estimated 15 to 25 acres of rail-served property may be required. This modest increment of rail-served industrial land reflects the growing importance of intermodal transportation: movement of shipments by truck to a hub center, where the flatbed is then loaded on a rail car and transported to its general destination.

## AREAS OF POTENTIAL INDUSTRIAL GROWTH

Although intermodal transportation is likely to reduce the demand for rail-served property, it will not eliminate it. Rail spur access still will be sought by several industries, particularly terminal operators, major carload shippers, and warehousing and distribution centers.

The topography of the Dubuque area imposes considerable limitation on industrial property that can be served by rail. Areas potentially suitable for rail-related industrial development have been identified. The criteria used to identify these areas included (1) current industrial zoning, (2) presence of utilities, (3) highway access, (4) feasibility of access by rail spur, and (5) topographic limitations. Figures 16 and 17 identify the potential industrial areas, which are then keyed to Table 27, which summarizes salient characteristics of the available property, including total area, estimated available land, site sizes, prices, utilities, topography, and transportation access.

Of the 10 potential sites, two offer extremely limited opportunities because they are almost totally developed or committed. These areas are the Kerper Boulevard/16th Street area and the Catfish Creek Valley. The Kerper Boulevard area is an industrial park developed by the city during the 1960s. At present, all property in the industrial park has been optioned or developed. Adjacent to the park, however, is one large parcel controlled by the Milwaukee Road Trust that may be available for development. The parcel now includes a swampy area subject to environmental restrictions, but if environmental approval can be obtained, the site would permit development of industrial land directly served by the Milwaukee Road.

Catfish Creek Valley, an industrial area on the south side of the downtown, also offers little available land. There is a potential 11.5-acre site in the valley, but it may be subject to floodplain restrictions.

The two areas affording some of the most attractive development opportunities within the City of Dubuque are the Caradco/Fourth Street Peninsula area and the Dubuque Industrial Center. The downtown site offers the best potential service to rail shippers because sites may be accessed by all three railroads. The Radford Road site, on the other hand, could provide access only to the ICG main line. One other inherent advantage of the downtown site is that direct access to barge service on the Mississippi River could be provided.

### Caradco/Fourth Street Peninsula

The Caradco/Fourth Street Peninsula includes two distinct areas within the downtown. The Caradco area includes a number of old vacant or underutilized industrial buildings that once were part of the Caradco mill complex. This area, which lies to the west of the proposed corridor for Relocated 61, is served by rail trackage in Washington and Jackson Streets that can be used by all three railroads. The construction of Relocated 61 may involve demolition of several buildings in the Caradco area, which may stimulate and facilitate redevelopment of this industrial area.


**Figure 16**
**EXISTING AND POTENTIAL DUBUQUE METROPOLITAN INDUSTRIAL DEVELOPMENT AREAS**

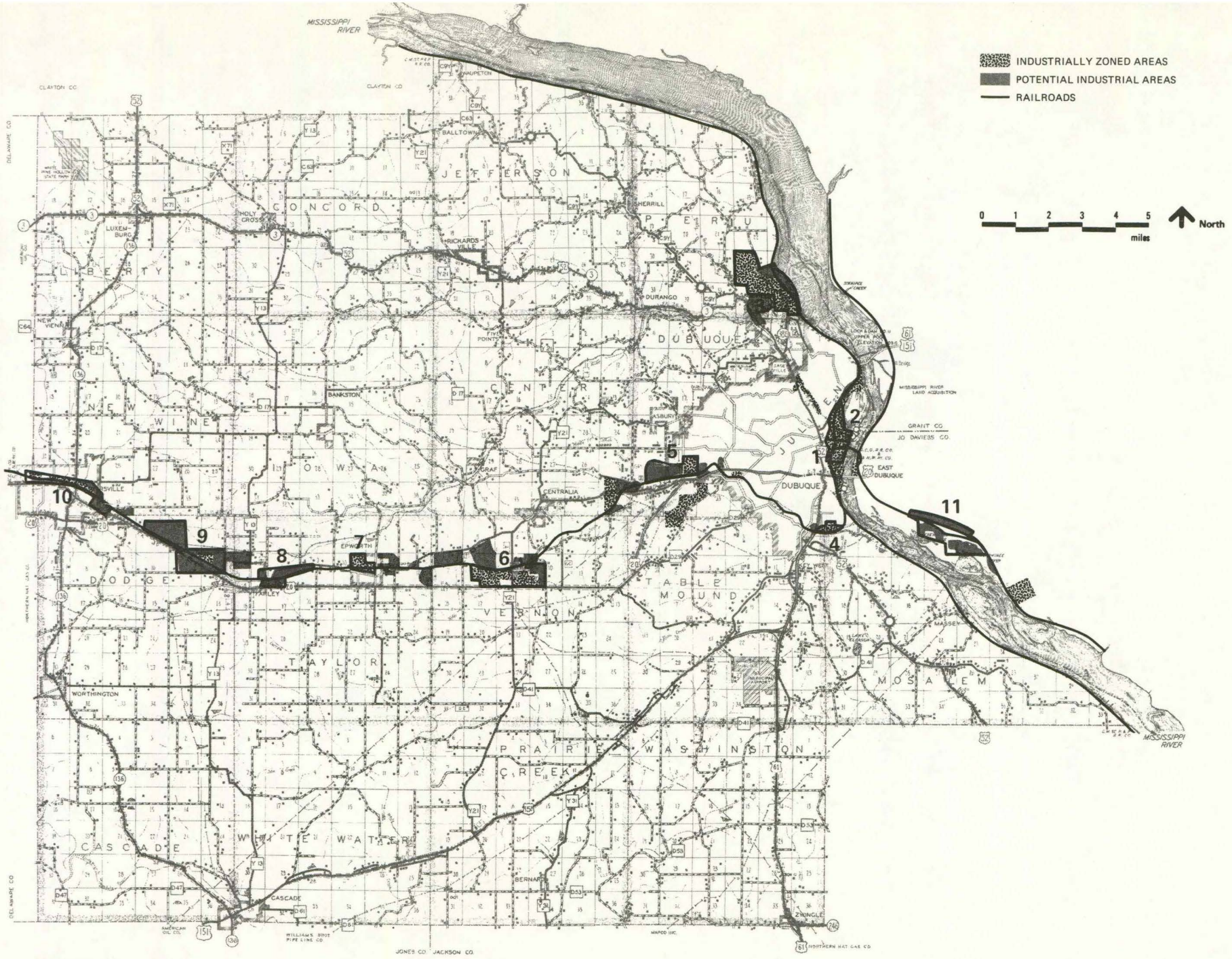



**Figure 17**
**EXISTING AND POTENTIAL DUBUQUE COUNTY INDUSTRIAL DEVELOPMENT AREAS**

Table 27
POTENTIAL RAIL-USER INDUSTRIAL PROPERTY

| Map Key | Owner | Total Area (acres) Zoned | Total Area (acres) Potential | Estimated Available Area (acres) (zoned) | Site Sizes (acres) | Price/ Square Foot (terms) |
|---|---|---|---|---|---|---|
| 1. Caradco/Fourth Street Peninsula | Miscellaneous | 74 | 0 | 45 | 4-7 | ± $.80-$1.00 (sale/lease) |
| 2. Kerper Boulevard/16th Street | Miscellaneous | 270 | 0 | 27 | 2-10 | $.80 (sale/lease) |
| 3. John Deere/Little Maquoketa Barge Canal | John Deere/ Miscellaneous | 1,470/0 | 0/990 | 0/0 | Variable | NA |
| 4. Catfish Creek Valley | Miscellaneous | 20 | 69 | 11.5(1) | 1-11.5 | NA |
| 5. Dubuque Industrial Center | | | | | | |
| a. West Extension | City of Dubuque | 0 | 470 | 0 | 5-15 | |
| b. Industrial Park | City of Dubuque, with Dubuque In-Futuro | 100 | 0 | 40 | 2-9 | $.65-$1.15 (sale/lease) |
| c. Park Extension (east) | Schiltz Devel. Co. | 0 | 52 | 0 | | |
| 6. West Dubuque Industrial Park--Peosta | Dubuque Area Industrial Development Corporation | 396 | 513 | 235 | 1-10 | $.22-$.69 (sale/lease) |
| 7. Epworth | Miscellaneous | 40 | 32 | 3 | 3 | NA |
| 8. Farley | Miscellaneous | 0 | 196 | 0 | Variable | NA |
| 9. Farley-Dyersville Area | Miscellaneous | 9 | 825 | 0 | Variable | $.16-$.34 |
| 10. Dyersville Industrial Park | Joe Ertl, with Dyersville Development Corporation | 82 | 190 | 82 | Variable | $.16-$.34 (trade) |
| 11. East Dubuque | Dubuque Sand and Gravel Floyd Thompson | 125 | 260 | 85 | Variable | $1.50 equivalent (but space will be leased based on storage or handling charge) |

| Map Key | Utilities: Sewer | Water | Gas | Electricity | Telephone | Topography |
|---|---|---|---|---|---|---|
| 1. Cardco/Fourth Street Peninsula | City of Dubuque 8" Main | 10" Main | Peoples Gas Company | Interstate Power Co. 13.8 KV/ 69 KV | Northwestern Bell | Flat; protected by flood wall |
| 2. Kerper Boulevard/16th Street | City of Dubuque 12" Main | 24" Main | Peoples Gas Company | Interstate Power Co. 13.8 KV/ 69 KV | Northwestern Bell | Flat; protected from floods |
| 3. John Deere/Little Maquoketa Barge Canal | None | Wells | Peoples Gas Company | Interstate Power Co. 8,000/ 13.8 KV/ 69 KV | Northwestern Bell | Wooded; rolling |
| 4. Catfish Creek Valley | City of Dubuque 30" Main | 6" Main | Peoples Gas Company 6" H.P. | Interstate Power Co. 8,000/ 13.8 KV/ 69 KV | Northwestern Bell | Flat |
| 5. Dubuque Industrial Center | | | | | | |
| a. West Extension | City of Dubuque 18" Main | | Peoples Gas Company | Interstate Power Co. | Northwestern Bell | Rolling |
| b. Industrial Park | City of Dubuque 18" Main | 2.4 million gallon storage | 6" Main | 13.8 KV/ 69 KV | Northwestern Bell | Rolling |
| c. Park Extension (east) | City of Dubuque 18" Main | 12"-16" service | | | Northwestern Bell | Severe; rolling |

(1) May be subject to floodplain.

NA = Not available.

Source: Barton-Aschman Associates, Inc. and Shive-Hattery Associates.

Table 27 (cont'd)
POTENTIAL RAIL-USER INDUSTRIAL PROPERTY

| Map Key | Utilities | | | | | |
|---|---|---|---|---|---|---|
| | Sewer | Water | Gas | Electricity | Telephone | Topography |
| 6. West Dubuque Industrial Park--Peosta | Septic System | West Dubuque Industrial Park Water Company; 150,000 gallon storage; 8" Main | NA | Interstate Power Co.; 12.5 KV/ 69 KV | Northwestern Bell/ General Telephone Co. | Rolling |
| 7. Epworth | City of Epworth 8" Main | City of Epworth 4" Main | Peoples Gas Company | Interstate Power Co.; 12.5 KV/ 69 KV; 3 Phases | General Telephone Co.; toll free to Dubuque | Flat |
| 8. Farley | Septic System | Wells | Peoples Gas Company | Interstate Power Co.; 12.5 KV/ 69 KV; 3 Phases | General Telephone Co.; toll free to Dubuque | Flat |
| 9. Farley-Dyersville Area | Septic System | Partial area served by 8" main; other area served by wells | Peoples Gas Company | Interstate Power Co.; 12.5 KV/ 69 KV | General Telephone Co. of Midwest | Flat |
| 10. Dyersville Industrial Park | City of Dyersville 8" Main | City of Dyersville 12" Main | Peoples Gas Company | Interstate Power Co.; 12.5 KV/ 69 KV | General Telephone Co. of Midwest | Flat |
| 11. East Dubuque | Septic System | Wells | Northern Ill. Gas Co. | Interstate Power Co.; 8,000/ 13.8 KV/ 69 KV | Northwestern Bell | Flat; no flood wall |

| Map Key | Transportation | | |
|---|---|---|---|
| | Highway | Rail | Barge |
| 1. Caradco/Fourth Street Peninsula | Served by urban streets | BN, ICG, and Milwaukee Road | Direct access adjacent to Mississippi |
| 2. Kerper Boulevard/16th Street | Kerper Boulevard access to Highway 561 | Milwaukee Road main on west side of area | Portion of area lies on Peosta Channel |
| 3. John Deere/Little Maquoketa Barge Canal | Route 386 provides access to Highways 3 and 52 | Milwaukee Road main | Barge canal proposed; area is within one mile of river |
| 4. Catfish Creek Valley | Access to Highways 61/151 via Julien Dubuque Drive | ICG main; Milwaukee Road main along river | Within one mile of river |
| 5. Dubuque Industrial Center<br>a. West Extension<br>b. Industrial Park<br>c. Park Extension (east) | Direct access to Highway 20 via northwest arterial | ICG main on south side of site | Mississippi dock within five miles |
| 6. West Dubuque Industrial Park--Peosta | Direct access to U.S. 20 via County Road | ICG main on north side of site | Mississippi dock within 10 miles |
| 7. Epworth | Direct access to U.S. 20 via local roads | ICG main on south side of site | Mississippi dock within 16 miles |
| 8. Farley | Direct access to U.S. 20 via local roads | ICG main through site | Mississippi dock within 19 miles |
| 9. Farley-Dyersville Area | Direct access to U.S. 20 | ICG main | Mississippi dock within 20 to 25 miles |
| 10. Dyersville Industrial Park | Access to U.S. 20 via 8th St. N.W. | ICG main | Mississippi dock within 28 miles |
| 11. East Dubuque | Direct access to U.S. 20 via access road | ICG main; BN trackage rights | Direct barge access |

NA = Not available.

Source: Barton-Aschman Associates, Inc. and Shive-Hattery Associates.

The Fourth Street Peninsula lies on the east side of the Relocated 61 corridor, bounded on the south by the Ice Harbor, on the east by the Mississippi River, and on the north by the Dove Harbor. At present, the area is underdeveloped, with about 45 acres of open land. Property is controlled by a number of landowners, including several industries now located on the peninsula: Pillsbury, Fischer Cold Storage, Agri Industries (Pickett's Brewery), and the Adams Company. The site is flat, protected by the Dubuque flood wall, and is served by utilities. Also, aside from properties along the joint street trackage (Caradco), this is the only area within the city that can be directly served by all three railroads. It is the only site within the City of Dubuque permitting direct BN access.

The major impediments to development or redevelopment of the Caradco/Fourth Street Peninsula area are land acquisition, demolition, and clearance. Acquisition of land from multiple landowners could increase the high cost of property in the area; costs would be inflated further by any necessary clearance and demolition.

The higher land and site preparation costs on the Fourth Street Peninsula might be partially offset by an injection of public funds or public participation. Public participation may be justified because of the potentially far-reaching implications of the Fourth Street Peninsula project. Improvement of the area could help to retain and attract new industrial investment to the community. Furthermore, it could improve rail access to the central area as well as enhance the tourist activities in the vicinity of the Ice Harbor.

**Dubuque Industrial Center**

The Dubuque Industrial Center, the most recent addition to the stock of industrial land, is an attractive location for industries that do not require rail service. The existing park includes 100 acres of land, of which 40 acres remain available. Providing rail service to the existing industrial park would be a relatively difficult engineering task, as well as expensive because of the grades and rolling terrain. Rail access, however, could be provided more easily to properties on the west side of Radford Road, across the street from the existing industrial park. The extension of the Dubuque Industrial Center might provide one of the most attractive sites for development of industries requiring direct ICG service. The area is fully served by utilities and land costs are competitive.

*John Deere/Little Maquoketa Area*

Although most of the remaining industrial property is west of Dubuque, there is one potential site north of the city. This area, the John Deere/Little Maquoketa site, previously was served by the C&NW until that line was abandoned. Rail access to the property would require a long spur track of approximately two miles that would extend across John Deere Company property from the Milwaukee Road main line. A recent plan for this area also proposed dredging a channel to develop a barge facility west of the Deere property. The project would require a large-scale investment, which would not appear justified by current market conditions. Although the location may provide future development opportunties, at this time it appears noncompetitive with other locations that could be developed as rail/barge facilities, including locations in East Dubuque and the Fourth Street Peninsula.

### Rail-Accessible Industrial Sites West of Dubuque

Several potential rail-served industrial sites are located west of Dubuque along the ICG main line. These include locations in Peosta, Epworth, Farley, and Dyersville. Land costs gradually decline as the distance from Dubuque increases. Based on zoning and levels of utility service, the most attractive development sites are in Dyersville and Peosta at the West Dubuque Industrial Park.

In the West Dubuque Industrial Park, 235 acres are zoned and available for industrial development. The site lies adjacent to the ICG main line, Highway 20, and approximately 10 miles from barge facilities on the Mississippi River. Sewer and natural gas service is not provided at the site, conditions that could limit its attractiveness to selected industries.

Epworth and Farley offer potential, but more limited, development opportunities on property adjacent to the ICG main line. Most of the land is not zoned for industrial use and much of it is served only by septic tanks and wells. Many prospective industrial users would not find this land competitive with property available in the adjacent areas of Dyersville and Peosta.

A substantial amount of potential industrial land is available west of Farley in the Dyersville area. Approximately 82 acres are available in the Dyersville Industrial Park, which generally lies along the ICG main line. The property is served by the City of Dyersville and might be obtained on reasonable terms. Representatives of existing local industries feel that the labor pool available in the Dyersville area is a major asset. Wage rates are perceived as favorable to employers, and productivity tends to be high. Generally, Dyersville is perceived to offer one of the most attractive industrial development opportunities west of Dubuque.

### East Dubuque

Across the Mississippi River from Dubuque, there is one flat area that is appropriate for industrial development along the ICG main line. The site is located southeast of East Dubuque and is largely controlled by Dubuque Sand and Gravel. At present, 85 acres are zoned and available to development west of the ICG tracks. Plans include development of a barge/rail terminal on the Mississippi, and negotiations with potential shippers are underway. A plan also has been developed with the ICG for providing a rail spur onto the site. The major drawback of the site is the absence of sewer and water service. Nonetheless, the East Dubuque site appears to offer one of the best opportunities for development of an additional barge/rail facility in the Dubuque area.

### Summary: Rail-Accessible Industrial Development Opportunties

More than 500 acres of zoned industrial land is available in the Dubuque area to meet the prospective needs of rail-served industry through the year 2000. Of this total area, however, only 45 acres could be provided with direct rail service by all three railroads. The most severe limitations are imposed on firms that require direct service by the BN, because the only site where this can be achieved is the Caradco/Fourth Street Peninsula.

Industrial sites providing direct access to the Milwaukee Road main line also are extremely limited. Except for the Fourth Street Peninsula, the only zoned site offering direct access is the 27-acre parcel off 16th Street. Providing rail service to the John Deere/Little Maquoketa area does not appear practicable or likely in the foreseeable future.

The largest area of rail-served industrial property lies along the ICG, west and east of Dubuque. Locations that offer the greatest potential for rail-served industrial development include the extension of the Dubuque Industrial Center, property in the Dyersville area, and land in East Dubuque associated with the proposed barge/rail facility. Assuming a 50-acre expansion of the Dubuque Industrial Center, these three areas would afford more than 200 acres of potential rail-served industrial land. In addition, the West Dubuque Industrial Park in Peosta now has more than 230 acres of zoned industrial property.

In terms of priorities, it is recommended that improvement of the Caradco/Fourth Street Peninsula area and development of the remaining property in the 16th Street area be promoted to accommodate prospective relocation of major rail shippers. Extension of the Dubuque Industrial Center should proceed on an as-needed basis to shippers requiring ICG service. In East Dubuque, extension of utilities to the Dubuque Sand and Gravel site would support and encourage development of a third barge/rail facility.

## INDUSTRIAL DEVELOPMENT STRATEGY

One of the primary objectives of the Dubuque area rail study has been to define ways in which the community can capitalize on its rail heritage and preserve the existing level of rail service. To accomplish this, serving Dubuque must be economically advantageous to each of the three railroads. Economic viability, in turn, is tied to the level of shipments moving in and out of Dubuque on the different carriers. Efforts must be directed at maintaining and increasing the current level of shipments, particularly on specific carriers. This may be accomplished by enhancing development areas within the community that can be provided with access to certain rail lines.

The industrial development strategy for Dubuque must focus on the assets of the area and, to the extent possible, mitigate less positive factors. The industrial strategy should focus primary attention on retaining existing firms and rail service and then on attracting new rail-using industries.

The major assets of Dubuque area industrial development efforts stem from the fact that the city lies at the junction of several major rail lines and the Mississippi River. This allows for the transshipment of commodities from rail to barge or vice versa. This is particularly advantageous because Dubuque also lies within a prime agricultural area of the midwest. Agricultural products and inputs to agriculture (e.g., fertilizer) are all commodities that typically are shipped by rail and barge.

Another major asset of Dubuque is its existing economic development professional staff. The leadership provided by the Chamber of Commerce staff will be a key to effective implementation of an industrial development effort.

Factors that may impede industrial growth and expansion in the Dubuque area include geographic limitations on the extent of the market area and the absence of interstate highways. The market area for Dubuque is primarily southwestern Wisconsin, Joe Daviess County in Illinois, and northeastern Iowa. Industries with a regional or local orientation have been constrained by limited growth in the market area. Other factors that may discourage or impede local industrial expansion include the existence of a relatively high wage scale in the City of Dubuque and some past labor-management relations. Recent high levels of unemployment, however, have partially mitigated these labor concerns.

The three major elements of the recommended industrial development strategy include (1) establishment of a railroad and industry contact program, (2) development and maintenance of an industrial marketing program, and (3) initiation of near-term industrial development projects that will improve and promote rail-served industrial expansion, relocation, and attraction.

**Railroad and Industry Contact Programs**

Establishment of a Rail Advisory Board to facilitate communication between local rail shippers and the railroads would be a critical part of the contact program. The board could promote the coordination of the three railroad lines and work toward moderation of reciprocal switching charges and fees for crossing the ICG bridge. Such efforts might be instrumental in maintaining BN access to the downtown area.

An additional responsibility of the Rail Advisory Board could be to explore the feasibility and desirability of an independently operated intermodal facility in the downtown. Specific concerns associated with an independent intermodal terminal would be liability considerations and obtaining the cooperation of existing carriers. At present, use of independent intermodal facilities is contrary to prevailing policies of some railroads.

Coordination with the economic development efforts of the Chamber of Commerce and maintaining contacts with the railroad marketing and sales representatives would be another function of the Rail Advisory Board. Coordination among the Chamber of Commerce, the city, and local industries also would be required.

The Chamber of Commerce economic development staff, working in conjunction with public officials, could be instrumental in managing the industrial relocation efforts associated with Relocated 61 and guiding public investment in industrial areas of Dubuque. Regularly scheduled business roundtables might be initiated to maintain frequent contacts with local industries and to provide a forum to permit business persons to air specific concerns and learn about new local programs and development efforts.

**Marketing Program**

The contact program would be targeted at industries already located in the Dubuque area; the marketing program, on the other hand, is designed to reach a broader clientele. The basic elements of a marketing program are (1) product, (2) promotional tools, and (3) a targeting strategy.

Product implies what a community can offer a prospective business. Many factors influence the desirability of an industrial location, including the existing economic base and possible linkages to local firms; the cost of doing business in a community, including taxes, wages, and utility rates; the available labor supply, skill levels, and training opportunties; available financial incentives or assistance; the quality of life and community resources; and the available sites and/or buildings.

Promotion implies the packaging of marketing materials to describe the product available in the Dubuque area. Marketing tools may employ various media, but should allow for flexibility

and updating with relative ease. Written material is essential for mailings to specific industries and responding to inquiries, whereas some form of visual medium, such as a slide presentation, can be an effective tool when industrial prospects visit the community. Also, effective personal presentation and representation are extremely important to the success of an economic development effort.

Targeted marketing is important to preserve both human and financial resources. Based on the assets of Dubuque and the existing industrial base, firms most likely to be attracted to the area are those that either have direct linkages to industries located in Dubuque or would benefit from the geographic location. For example, it might be advantageous to locate another grain terminal or a grain processing plant in Dubuque. The prospects for successfully attracting such a firm, however, would be influenced by the worldwide and/or nationwide demand and supply conditions. In light of the uncertainties created by the Payment in Kind program, major fixed investment in grain terminal facilities in the near term likely will be limited. A grain processing operation might afford a more immediate opportunity, but further investigation of the industry would be required.

Dubuque does not have an established electronics manufacturing base, and it is unlikely that the community could tap this growth market effectively. The area cannot offer any inherent advantages to a firm of this type, nor can it offer an experienced labor force. In contrast, a growth sector that might be attracted to the Dubuque area because there is a precedent (e.g., Thermolyne) is expanded manufacturing of surgical and medical equipment, supplies, and appliances. The industry is characterized by small plants, and barriers to entry by new firms are relatively low. The product is basic to the health care market, and the industry as a whole is fairly recession-proof. The U.S. Bureau of Economic Analysis projects that growth in the industry should approach or exceed six percent annually through 1987, a rate that exceeds anticipated growth in many of the industrial sectors currently represented in Dubuque.

In addition to targeting specific industrial sectors, identifying firms in Iowa (and also in Illinois and Minnesota) that are expansion candidates might produce some viable leads. These three states have generated the greatest demand for new and branch facilities in Iowa over the last decade. Key firms should be made aware of Dubuque's resources and the willingness of the city and local officials to work with the industries to promote local growth and development. Information required to identify these firms might be obtained from documents prepared by the state economic development divisions.

Once the industrial targets have been identified, written inquiries should be directed to each firm. Personal contacts then should be initiated as a follow-up. The personal contacts should be used to obtain a better insight into the firm's expansion plans and to extend an invitation to industry representatives to visit the Dubuque area. Periodic contacts should be maintained with those industries that might be attracted to the Dubuque area.

Advertising in national or regional publications is not recommended as a very cost-effective promotional technique. Based on actual studies in the State of Iowa, ads in most business publications did not stimulate much response.

**Initiation of Near-Term Industrial Development Projects**

The most immediate action that can be initiated by public interests to promote the objectives of the comprehensive rail study is to develop and redevelop the Caradco/Fourth Street Peninsula area of Dubuque. This is the only location in the study area that has direct access to all three railroads, so aggressive efforts should be made to preserve this land for rail shippers and, to the extent possible, accommodate rail shippers being displaced by the Relocated 61 project. In particular, the Jeld-Wen relocation could be instrumental in leading the redevelopment effort and preserving an incentive for direct BN service to Dubuque.

As indicated earlier in this report, a preliminary concept for redevelopment of the Fourth Street Peninsula has been prepared as an added task in this study (see Figure 14). This concept includes a loop track around the entire peninsula which could be used by all three railroads. This plan potentially could accommodate development of a third grain terminal on the Fourth Street Peninsula near Pickett's Brewery. It also would provide direct BN service to a new Jeld-Wen facility on the peninsula.

Another element of the peninsula plan initially was an expanded intermodal facility and yard for the BN. The intermodal facility, however, is not likely to be required by the BN because that railroad is shifting to a hub center concept that would involve closing the Dubuque terminal and consolidating shipments out of Galesburg. A trailer pool would be maintained in Dubuque to provide a level of intermodal service comparable to (or perhaps better than) that which is available today.

The last element of the peninsula plan would be the relocation of BN track to permit the consolidation of tourist-related development on the Ice Harbor. Trains would no longer interefere with tourist movements from the museum to the dock and restaurant area. In recent years, the level of tourist activity has been increasing substantially. Moving the rail yard would be very helpful to this land-use.

The second area that should be targeted for near-term, rail-served industrial development includes a 27-acre parcel off 16th Street. This could provide an excellent location for one or more industries that will be displaced by Relocated 61 and/or require Milwaukee Road service. The property could be effectively incorporated into the existing industrial area around FDL Foods and the Kerper Boulevard Industrial Park. Assistance should be provided in obtaining environmental approvals for continued development of this location.

Collectively, the Fourth Street Peninsula area and the 16th Street area should accommodate most of the projected demand for rail-served industrial property in Dubuque through 1990. Public resources and local economic development efforts should be directed to facilitate and implement these development proposals. Public investment in other rail-served sites might be deferred until these projects are under way. In the future, as industrial demand requires, consideration then could be given to expansion of the Dubuque Industrial Center to provide rail service to the adjoining 50-acre parcel.

# 7.
# Proposed Dubuque Area Rail Plan

Individual aspects of the rail system for the Dubuque area have been discussed in previous chapters of this report. Embodied in the various analyses and discussions are suggestions for improvement or action. This chapter consolidates all of these conclusions in an integrated program as the rail plan for the Dubuque area.

## PHYSICAL PLAN ELEMENTS

The recommended rail plan is illustrated in Figure 18. Individual elements are as follows:

1. *Fourth Street Peninsula rail yard, intermodal facility, and loop track.* The concept for this improvement was illustrated earlier in this report (Figure 14). The concept includes several significant improvements:
   a. New yard for the BN located in the vicinity of East Third Street.
   b. New intermodal terminal.
   c. New loop track to provide access to a potential new grain terminal and other industrial development sites.
   d. New interchange tracks for all three railroads.

   The new yard could have a storage capacity for more than 90 cars. Each of two intermodal tracks could accommodate five cars plus parking space for 70 trailers. One of the loop tracks could handle 50 cars and the second 60 cars. The loop track(s) should be publicly owned in order to ensure equal accessibility by all carriers. Public ownership could also extend to yard tracks and/or the intermodal terminal. This would be an important detail of implementation.

   It should be noted that this plan was one of several alternatives. Other options should be explored with regard to the specific layout of the above-named facilities.
2. *Alternative intermodal facility.* An alternative intermodal site is shown for the existing Milwaukee Road yard north of 16th Street. The need for this site is contingent on the development of an intermodal facility on the Fourth Street Peninsula and the potential decision of the merged GTW/Milwaukee Road system to construct an improved minor hub terminal in Dubuque. It is our understanding that the land adjacent to the current Milwaukee Road intermodal facility will not be conveyed to the railroad in the merger, however.

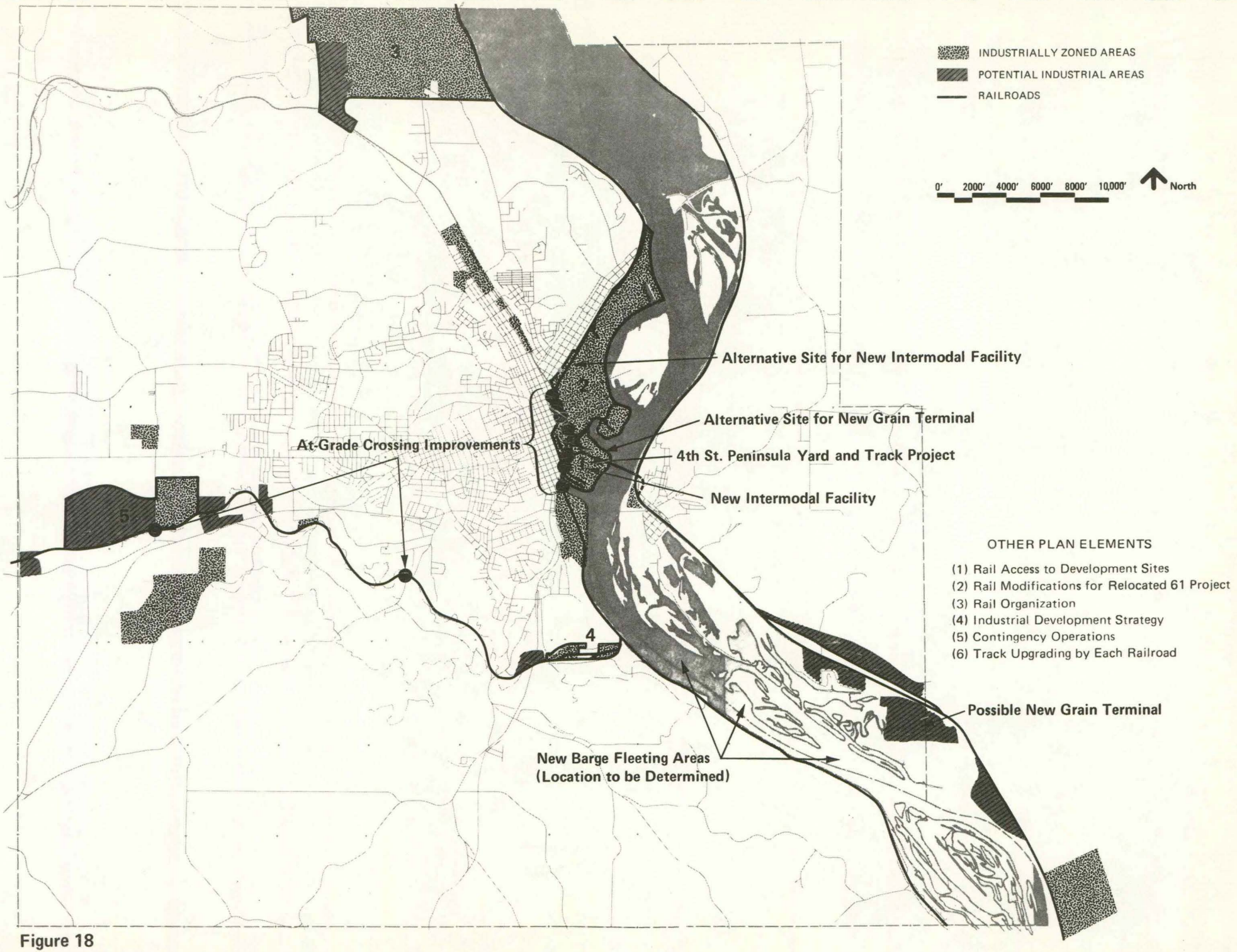



**Figure 18**
**DUBUQUE RAIL PLAN**

3. *New Dubuque grain terminal and associated rail access.* The terminal could be located at several alternative sites. As discussed earlier, the East Dubuque site appears to be very attractive; however, the Fourth Street Peninsula would have significant advantages if the rail improvements were made.
4. *New barge fleeting areas.* While this improvement is for another mode, the adequacy of barge fleeting affects use of rail service. New fleeting areas are shown for general downstream locations. Specific locations would require further analysis. They would have to be compatible with the Mississippi River plan and environmental conditions. Barge fleeting could require as many as 100 spaces.
5. *At-grade rail crossing improvement program.* As summarized previously in Table 2, 20 at-grade rail crossings need certain improvements. Most important, a program affecting 10 crossings would be the first improvement stage. This would include Third Street, Fourth Street, Seventh Street, Ninth Street, 11th Street, 14th Street, 16th Street, Jones Street, Fremont Avenue, and Radford Road. The improvements would include addition of crossing gates with upgraded signals, improvement of road signing and marking, new streetlights, and closure of some crossings.
6. *Addition of new rail access.* As development occurs, new rail access to specific sites would be constricted. These cannot be identified at this time other than the general locations associated with the sites shown in Figures 16 and 17.
7. *Rail modifications due to highway Relocated 61 construction.* The new highway will require changes in the existing rail system. These changes represent an opportunity to consolidate track and to improve the system by:
   a. Eliminating unnecessary trackage in the central area, particularly from ICG yards north to Seventh or Eighth Street.
   b. Improving the quality of trackage via the process of relocation or adjustment.

In addition to the above, other physical changes to the system may occur. These would be implemented by each of the three carriers independently. They would not be an official part of the Dubuque rail plan, but they would have an impact on the area rail system. Improvements or changes could include:

1. Ongoing track maintenance and rehabilitation by each railroad.
2. Relocation of the BN intermodal facility to a Galesburg hub with introduction of new highway service to and from Dubuque.
3. Upgrading of Milwaukee Road tracks to allow substantially higher speed limits.

## MANAGEMENT AND OPERATIONAL PLAN ELEMENTS

In conjunction with improvements to the physical system, certain management and operational improvements are recommended. These affect the need for rail service, the quality of service provided, or how the system is managed.

1. *Rail organization.* This is an essential element of the plan. It represents the organization of principal parties or partners, e.g., local agencies, shippers, railroads and barge operators, into a management group. The responsibility of the group would be to implement the plan, monitor its effectiveness, update the plan, and direct emergency actions.

2. *Industrial development strategy.* While industrial development is a goal of the community at large, it is cited here as an important element of the rail plan. The relationship of retaining good rail service to the volume of business available to carriers has been discussed. The industrial development strategy would be important to sustaining or increasing the volume of commodities shipped by rail.

3. *Negotiation of fees and charges and coordination of switch operations.* Because of the dual objectives of retaining rail service by three carriers and using potential industrial development sites (a limited resource, given topography, infrastructure needs, and environmental considerations), the rail system needs to function in a more unified manner. This requires the most equitable charge structure concerning the use of the ICG bridge, interchange fees, and reciprocal switching charges. Specific rates cannot be suggested here. This and the fees or charges are matters for the rail organization to consider and help negotiate.

   Consideration might even be given to establishing a local terminal operation that would do all switching. By consolidating the demand with one operator, service advantages are possible and cost-effective. The latter could lead to lower costs for shippers. However, this idea has been suggested before and was not favorably received by the railroads. There are potential economic drawbacks for some of the carriers. Also, by transferring switching responsibilities to a local entity, it may diminish the commitment of some carriers to continue Dubuque service.

   Second, the analysis of current operations indicates that switching operations could be better coordinated among railroads and shippers. This could improve the quality of service and reduce service cost. The use of a consolidated switching concept is possible. This was discussed in Phase I of this study; however, there was no strong support for the idea. Preliminary emphasis should be placed on the reduction of reciprocal switching charges to acceptable levels to shippers and comparable to those in other Iowa and midwestern cities.

## CAPITAL COST

The cost to implement the proposed rail plan has been estimated using recent available cost experience. Table 28 summarizes the results.

The at-grade crossing program includes three crossings where gates and improved signals would be installed. These are estimated at $120,000 each. The other seven crossings would entail nominal expenses for each closure (some pavement removal and barricade installation) or for new streetlights.

The cost of the intermodal facility includes the cost for two tracks plus pavement for trailer parking and limited ancillary facilities. A major item is the provision of a piggypacker for handling trailers. The range in cost reflects leasing versus purchase of this equipment. However, a circus ramp would be used initially given likely levels of demand.

The Fourth Street Peninsula improvement includes the construction of approximately 9,000 lineal feet of new welded track for the BN yard plus 7,500 to 8,000 lineal feet for a single loop track and new interchange tracks. The costs include 15 to 20 turnouts and some support facilities.

Table 28
ESTIMATED CAPITAL COSTS

| Plan Element | Cost[1] |
|---|---|
| 1. At-Grade Rail Crossing (10 locations) | $ 360,000 |
| 2. New Intermodal Facility | $ 600,000[2] to $ 950,000[3] |
| 3. Fourth Street Peninsula Yards and Tracks (excluding intermodal and land acquisition) | $2,500,000[4] |
| | $3,460,000 to $3,810,000 |

[1] All figures are in 1983 dollars and reflect recent railroad cost experience.
[2] Assumes leased piggypacker for facility at $5,000 per month, no capital cost.
[3] Assumes new piggypacker purchased for facility at cost of $450,000.
[4] Assumes new 115-pound welded rail and No. 10 turnouts plus $250,000 for support facilities.

In addition to the costs described in Table 28, there would be capital costs associated with new industrial site rail access and track improvements programmed by the individual railroads. The extent of these improvements is not definable at this time.

The responsibility for financing the improvements must be established during the implementation stage of the project. Each improvement represents joint public-private sector action. The relative share of costs needs to be negotiated.

The sources for funds include several federal and state programs. The following section outlines the various mechanisms available for the financing of rail and rail-related improvements. These are categorized in several ways:

**Railroad Project Funding Programs**

1. *Federal Railroad Administration (FRA) state rail assistance grant program.* The FRA grant program is used in Iowa primarily to upgrade railroad branchlines that are candidates for abandonment. Prospects for the future of the FRA program are unclear, inasmuch as the Reagan Administration has proposed to reduce funding.
2. *Iowa Department of Transportation (Iowa DOT) railroad branchline rehabilitation program.* The Iowa DOT railroad branchline rehabilitation program complements the FRA program. However, its scope is broader than that of the FRA program in that it also can be used to fund urban rail yard improvements, a use that is not allowed for the FRA funds. The Iowa DOT program is administered primarily as a loan program. However, Iowa Code Section 327H.20, as amended in 1981, does not require that funds made available under this program be dispensed as loans.
3. *Iowa Railway Finance Authority (IRFA) investment and loan programs.* The IRFA investment and loan programs are funded by the levy of a diesel fuel tax on the railroads operating in Iowa and by a wheel tax on non-railroad-owned rail cars traveling through the state. Because the constitutionality of the diesel fuel tax is being contested in the courts by most of the railroads operating in Iowa, implementation of the IRFA programs has been substan-

tially slowed. If and when the constitutionality of the diesel fuel tax is upheld, IRFA may use its taxing powers to issue $200,000 of revenue bonds to fund acquisitions and rehabilitation of railroad facilities in the State of Iowa. In contrast, the wheel tax is not currently subject to a court test and the IHFA has accumulated over $1,000,000 to assist in the construction and repair of essential railway facilities. The IHFA is also authorized to enter into partnerships with the private sector to purchase, improve, or operate a rail facility.

4. *Railroad company capital improvement budgets.* A fourth source of funding that should be included under the railroad assistance programs category involves the capital improvement budgets of the railroads themselves. This source of funds already is used in conjunction with FRA and Iowa DOT railroad branchline rehabilitation program funds. It should not be ignored as a partial or total funding source for a project that yields benefits to the railroads involved.

**Highway Project Funding Programs**

5. *Federal Highway Administration (FHWA) programs for primary roads, secondary roads, urban highway systems, and highway safety improvements.* The federal aid highway programs are generally restricted to the funding of highway projects. However, where modification of railroad facilities is made necessary by a highway project, federal funds may be applied against the cost of the railroad modification project. Further, it appears from the FHWA administrative guidelines that FHWA program funds may be used to complete a railroad project if undertaking that project makes unnecessary the completion of a more expensive highway project that otherwise would be justified.

   Several FHWA programs that are of particular interest are as follows:

   - Federal Aid Primary (FAP) roads program
   - Federal Aid Secondary (FAS) roads program
   - Federal Aid Urban System (FAUS) program
   - Federal highway-railway crossing safety program

   The FAUS and FAP programs are most applicable to proposed rail-related improvements in the Dubuque area. Use of FHWA's FAUS funds in the Dubuque urbanized area is coordinated through DMATS. Applications are limited to those urban streets included in the FAUS system. Fremont, Third, Seventh, Ninth, and 14 Streets are a few of several Dubuque city streets on the FAUS. Dodge Street and Fourth Street, among others, are on the FAP system.

   The FHWA's highway-railway crossing safety program provides for the funding of highway-railway grade crossing improvements of all types that enhance safety. Projects that are fundable are not restricted to railroad crossings with streets and roads that have been designated as federal aid highways. Also, projects that involve the erection of highway-railway grade separation structures or the relocation of highways or railways may be eligible for funding under this program if the safety benefits are substantial enough. The level of federal assistance in Iowa for the highway-railway grade crossing program is approximately $5,000,000 per year. Federal law requires that at least half of the funds allocated for use in each state be used for the installation of traffic control devices at highway-railway grade crossings. Ninety percent of the cost of the projects will be paid by FHWA and 10 percent must be paid by the local government.

6. *Iowa Department of Transportation (Iowa DOT) and Illinois Department of Transportation (Illinois DOT) highway program.* Iowa and Illinois DOT's highway aid program complements the FHWA, FAP, FAS, and FAUS programs. It should be noted that whereas the focus of the FHWA programs is on investing in improvements to existing highways and in constructing new highways, the first funding priority for the Iowa and Illinois DOT's programs is to maintain and operate the existing highway network.

7. *Iowa Department of Transportation (Iowa DOT) and Illinos Department of Transportation (Illinois DOT) highway/railway grade crossing safety program and IDOT Grade Crossing Surface Repair Fund.* The Iowa and Illinois DOT administers a highway-railway grade crossing upgrading program. This program is used primarily to improve protection devices at highway-railway grade crossings. The Iowa DOT also administers the Grade Crossing Surface Repair Fund. Beginning July 1, 1983, the fund will receive $800,000 each year from the Road Use Tax Fund. The money will be used to pay up to 60 percent of the cost of surface repair of existing crossings if the railroad and the local highway jurisdiction each agree to pay 20 percent of the cost.

**Economic, Industrial, and Urban Development Programs**

Several economic, industrial, and urban development programs of interest include at the federal level the USEDA economic development grant program, the HUD UDAG program, and the HUD CDBG program. In addition, total initiatives are available through various redevelopment, industrial development, and general obligation bond programs of the Iowa state government and various state subdivisions.

8. *U.S. Economic Development Administration (USEDA) economic development grant programs.* One USEDA program of particular interest is the Public Works and Development Facilities Grants Programs. The USEDA is authorized to make these grants to state governments, state government subdivisions, or nonprofit organizations for projects in areas designated by the USEDA as experiencing major unemployment. Projects eligible for funding include most public works that tend to improve the opportunities for successful establishment or expansion of industrial or commercial facilities. Dubuque County and cities are eligible locations for projects funded with USEDA grants. Dubuque received substantial assistance from USEDA to develop the Dubuque Industrial Center. The level of USEDA funds for a particular project in an eligible location is generally limited to 60 percent of project costs; in exceptional instances, this limit is increased to 80 percent.

9. *U.S. Department of Housing and Urban Development (HUD) Urban Development Action Grants (UDAG) program.* The HUD UDAG program is a discretionary grant program whose general goal is to stimulate new development in economically distressed areas. Priority is given by HUD to the funding of projects that have tangible evidence of private participation. Generally, projects will not be considered if more than 20 percent of the financing is expected by the grantee to come from the HUD UDAG program. Currently, only the City of Dubuque is eligible for UDAG funding.

10. *U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant (CDBG) program.* The HUD CDBG program is available to cities and counties for grants for the acquisition, rehabilitation, or construction of public works facilities; relocation payments; and economic development projects.

11. *State and municipal redevelopment and industrial development bond programs.* Local initiatives available for implementation include industrial development revenue bond financing and general obligation bond financing. The former technique has been used in several coastal cities to fund intermodal yards where containers are transferred between container ships and railroad cars. Examples of general obligation bond financing for the development or improvement of railroad facilities are few and far between. Perhaps the most conspicuous instances involved the City of Cincinnati, where votes of the citizenry there in 1869 and again in 1961 authorized the issuance of general obligation bonds to fund the construction (in 1869) and upgrading (in 1961) of a railroad between Cincinnati and Chattanooga. This railroad line is leased by the City of Cincinnati to the Southern Railway System at a rental rate that reimburses the City of Cincinnati for its principal and interest payments and also pays a percentage of the railroad's net profit generated from use of the line.

12. *Urban Revitalization Program.* The Urban Revitalization Act authorizes city councils to designate an area of the city as a revitalization area. Improvements to qualified real estate within these designated areas may then be eligible to receive a total or partial exemption from property taxes for a specified number of years. The exemptions are intended to stimulate private investment by reducing the tax increases that would normally result from making improvements to real estate property. The purpose of the Act, then, is to attract development to specific areas (that might otherwise continue to deteriorate), thereby stabilizing or perhaps even increasing the tax base within those areas.

13. *Urban Renewal.* Under Chapter 403, *Iowa Code,* a city may develop a project based on a general city development plan for the rehabilitation, conservation, or redevelopment of a slum or blighted area. After a hearing on the proposed project (which must be for a public purpose and within an urban renewal area), approval can be given if it conforms to the general development plan for the city and presents a feasible mechanism for displacement of businesses and residents.

    The city may use its condemnation and eminent domain powers to assemble parcels of property needed to carry out a project. Also, the city may own, sell, lease, or dedicate property in the area and offer its services and facilities. Such powers may be administered by an urban renewal agency or be carried out by the council itself.

    To finance an urban renewal project, the city can use portions of its Community Development Block Grants, issue bonds payable from the revenue and funds of the project, utilize the tax increment financing (TIF) concept, or a combination of these.

14. *Tax Increment Financing.* Under Section 403.19, *Iowa Code,* municipalities with urban renewal areas may utilize the tax increment financing (TIF) mechanism. Upon creation of a tax increment district (allowed only within urban renewal areas), the assessment base is frozen and the same amount of tax revenue collected just prior to the creation of the district is guaranteed to each taxing jurisdiction. The increase in tax revenue generated by new development (restricted to public improvements) is paid into a special fund to pay off the bonds issued to finance the development. Once the bonds are paid off, the taxing jurisdictions begin to collect all tax revenue from the district.

Communities should be extremely cautious about using both TIF and urban revitalization in the same area, because one program (urban revitalization) forgives taxes on improvements to property while the other program (TIF) depends upon the additional tax revenue generated by improvements.

15. *Tax Exemptions for Industrial and Commercial Enterprises.* Chapter 427B, *Iowa Code,* allows cities or counties to provide for tax exemptions to improvements on industrial real estate only. The only type of improvement that qualifies is new construction, which can include structures that are built as additions to existing structures. Counties may provide these exemptions only in certain areas, which can be generally summarized as within two miles of any city's boundary. Cities may provide exemptions anywhere within the city limits.

    The general intent is similar to the Urban Revitalization Act, while many of the specific provisions are different. The law prohibits any exemption from being granted if the property has received any other property tax exemption authorized by law. This would bar any city/county from using the law in conjunction with the Urban Revitalization Act. A city could use both pieces of legislation, but not on the same piece of property.

### Illinois Industrial Development Programs

1. *SBA 503.* The SBA 503 Program is designed to provide low interest financial assistance to busineses in an effort to promote job creation through business expansion. Under the program, an SBA Certified Development Company can loan up to 40 percent of the project cost in conjunction with private and bank financing. The program is available on a statewide basis in Illinois through the Small Business Growth Corporation and is available in Dubuque County through ECIA Business Growth.
2. *Designated cities.* The program makes the SBA 7(a) Program more attractive because of potentially lower interest rates.
3. *Enterprise zones.* The State of Illinos has legislated a program providing tax incentives and other benefits to businesses located within enterprise zones. The zone must be established before benefits can be provided. Currently, there are seven zones in the State of Illinois.
4. *Illinois Industrial Development Authority.* The Authority administers an industrial revenue bond program in addition to a direct loan program to businesses throughout Illinois. A city or area must establish eligibility under the program before loans can be received.

## CONTINGENCY PLAN

A special feature of the rail plan concerns the need to establish a contingency response plan. This is deemed necessary due to the risks of rail service interruption associated with closure of the ICG bridge, changes in the rail or highway network during construction of proposed Relocated 61, any future abandonment proceedings, flooding, or a national emergency.

### Continuation of Disrupted Service

There are no predetermined plans to resolve the types of dislocations described above. Except in the event of war, resolution of these dislocations is left up to the railroads. For example, should flooding prevent access to certain industries or passage through certain geographic areas, the affected railroad is responsible for contacting other railroads to negotiate trackage rights so that traffic can be rerouted over other lines.

If a satisfactory resolution is not attained or a national emergency occurs, the affected railroad(s) can contact the ICC for assistance. The ICC has several powers it can invoke in such cases. The ICC has car service authority, whereby it can require railroads to accommodate affected traffic by the best route through reroute orders. Under this same authority, the ICC can direct the flow of equipment, as for example, during a severe grain car shortage. The ICC also has authority to direct another railroad to move the affected traffic. However, even in national emergencies, the ICC may not be called upon. In the recent Mount St. Helens disaster, certain rail branch lines were closed. Competing railroads volunteered to complete shipments, and any adverse impacts were minimized.

In the event of war, the Military Traffic Management Agency becomes involved. The Military Inland Surface Transportation Management section of the agency can prioritize traffic. The Federal Emergency Management Administration also has statutory authority to prioritize traffic in case of a declared national emergency. This power has never been invoked, however.

Thus, there are no specific pre-emergency plans to cope with disruption of rail service, although specific administrative procedures are established. If an emergency occurs for reasons already cited, the problem is first to be resolved within the industry by rerouting traffic over competing rail lines. If this is not possible, the affected railroad has recourse to contact the ICC, which then has authority to direct the rerouting of traffic.

**Strategic Plan to Maintain Existing Rail Network**

As the recent experience with the C&NW abandonment indicated, loss of service is another potential emergency. Perhaps the best way to deal with this is to prevent existing carriers from abandoning service to Dubuque. A key to this strategy is found in the potential improvements on the Fourth Street Peninsula (described in detail previously). The peninsula could be developed as a minor rail hub. The BN yard should be relocated to the Fourth Street Peninsula. A loop track that can accommodate 60-car trains also should be built. However, the city should retain control over the loop track serving the peninsula so that other roads have access to the peninsula. Existing industries that will be dislocated by construction of the new highways should be offered favorable terms to locate on the peninsula. New industries also should be offered incentives to locate on the peninsula. In this way, a traffic base can be established to induce the railroad to continue service to Dubuque. The key to the plan is obtaining a commitment from the carrier that, given these developments, it will continue to serve Dubuque. With this commitment in hand, it is then necessary to line up industries to invest in facilities on the peninsula.

A TOFC facility should be considered for location on the peninsula as part of the hub terminal concept. Such a ramp can be operated privately and provide a hub for TOFC traffic. The GTW/Milwaukee Road has expressed preliminary interest in such a facility.

**National Emergency Plans**

As already mentioned, no pre-emergency plans relating to rail movement exist. In an emergency resulting in disruption of rail service, resolution is, first, a private affair between the car-

riers to reroute traffic. If a satisfactory resolution of the crisis cannot be achieved in this manner, the ICC can reroute traffic or direct the flow of equipment under its car service authority. In the event of a declared national emergency and/or war, FEMA and the U.S. military have statutory power to prioritize traffic.

**Local Emergency**

Besides large-scale emergency situations, more localized emergencies could occur. This could involve the blockage of at-grade rail crossings at a time when emerging vehicles need to cross. This could apply to the Fourth Street Peninsula area in particular. Train delays or breakdowns could happen that would block access to the various land-uses on the peninsula. There are other areas, as identified in Chapter 3, that could also be blocked due to train delays.

In these cases, it may be necessary to break a train in order to allow for needed access or to modify train operations to reduce the delay. The determination of appropriate actions in these cases and their implementation will depend on efficient communication between local public agencies and the railroads. Police and fire officials should be informed as to the regular train schedules and names of proper contacts.

**Local Organization**

Finally, the essential element of any contingency program is creating and maintaining a local organization of interested parties. This group would move into action when problems occur. Rather than requiring individual carriers, shippers, or units of government to deal with a problem affecting rail service, a group would be delegated to be responsible. The rail committee, in conjunction with DMATS and ECIA, represents the core of such an organization. Presumably, the group would have a continuing role to implement the recommendations of this plan, but also could be identified as an emergency response group. Given clearinghouse information (names, phone numbers, who to call, etc.), the group would be knowledgeable about the Dubuque system to determine proper responses to each emergency.

Preliminary discussions with the current Rail Advisory Committee suggests that this new organization have the following attributes:

1. Primary purpose would be to guide and manage the Rail Plan.
2. Be essentially an advisory group, but with certain powers to act in emergency situations.
3. Be accountable to the DMATS Policy Committee.
4. Be limited in number to seven to nine persons with possible representation being:
   a. Railroads—three members.
   b. Shippers—two members.
   c. Local government—two members.
   d. Local civic/business organization—one member.
5. Meet monthly; maintain records.

# 8.
# Implementation

The recommended rail plan should be viewed as a device or tool to guide the evolution of the rail improvements and services. It does not just depict certain end-state conditions, but represents a dynamic situation in which ongoing management skills will be needed. This character should be reflected in the implementation of the plan. Implementation will have two principal components:

1. A staging program for the various improvements.
2. An action program by which the plan can be transformed from a report to actual fact.

## STAGING PROGRAM

A staging program is needed in order to identify the best sequence in which the overall plan should be accomplished. Such a sequence depends on various considerations. However, it is recommended that staging be based on an explicit strategy.

### Staging Strategy

A strategy reflects the general direction of organized actions by which objectives are accomplished. It can be likened to a military campaign in which individual actions are always related to one central theme or purpose. In this case, the strategy for the rail plan should recognize the priorities given to the various objectives to be achieved by the plan.

Based on the results of the reconnaissance phase (Phase I) of this project and the more detailed analyses undertaken in Phase II, it is suggested that the priorities are as follows:

*First (most important objectives) Priority*

1. Maintain rail service by the existing carriers.
2. Maintain existing industrial development by assisting individual firms to meet need for expansion or assisting in necessary relocation (caused by construction of Relocated 61).
3. Maintain the Dubuque area competitive position with respect to grain movement by preserving the capacity of existing barge service. This can be done by assisting in the development of new fleeting areas if current sites are eliminated or capacity is significantly reduced.

4. Create an effective means of communication and unity of purpose via development of a cooperative organization to function as advocate, coordinator, and manager of the area rail system.

*Second Priority*

1. Improve the quality of rail service to existing land-uses and to enhance the potential to attract new industrial development.
2. Achieve a more unified rail operation in the greater Dubuque community in order to minimize financial penalties that could restrict rail service or constrain use of developable land.
3. Attract new industrial development via public-private sector actions to provide attractive sites.

**Staging Plan**

Using this strategy, a three-step staging plan is recommended:

*Step One:* Immediate (up to two years).

a. Set up organization.
b. Negotiate changes to rail system associated with Relocated 61 (most important would be alternatives to the Fifth Street crossing point).
c. Initiate implementation of the Fourth Street Peninsula plan (particularly as it would be an opportunity to aid the Jeld-Wen Company).
d. Initiate industrial development strategy.
e. Develop plan for new barge fleeting areas.
f. Initiate at-grade rail crossing program (five crossings: Radford Road, Fremont Avenue, Jones Street, 14th Street, and 16th Street).

*Step Two:* Short Range (two to five years)

a. Complete implementation of the Fourth Street Peninsula plan (particularly in relation to new BN yard).
b. Place new barge facility areas in operation as necessary.
c. Undertake Relocated 61-related rail changes.
d. Develop intermodal facility.
e. Complete at-grade rail crossing program (five crossings: Third Street, Fourth Street, Seventh Street, Ninth Street, and 11th Street).
f. Provide new rail access as needed.

*Step Three:* Long Range (more than five years)

a. Develop third grain terminal; if the Fourth Street Peninsula is the site, complete the loop track.
b. Provide new rail access as needed.

## ACTION PROGRAM

Using the staging plan to establish an order for the various improvements, a series of actions is needed to initiate the plan. These are as follows:

1. Adoption of the plan by local agencies; this is critical to achieving a legitimacy for the actions to follow.
2. Develop a detailed functional description for the rail organization that will be charged with the responsibility to implement the plan.
3. Appoint members to the rail organization, designate a chairperson, set up operating procedures, and establish a financing plan.
4. Continue dialogue with each railroad, preferably at executive level, to communicate all of the concepts and elements of the rail plan.
5. Establish special task force to aid in negotiations to develop a detailed Fourth Street Peninsula plan; secure commitment by Jeld-Wen to remain in Dubuque; and secure commitment of BN to Fourth Street concept.
6. Initiate discussion with Iowa DOT and design consultant for Relocated 61 to work out the best solution to problems created by impacts on rail service.
7. Develop a specific work plan (CPM-type chart) for the staging plan and assign responsibilities.
8. Develop a financing strategy and plan for the improvement program; identify the need for applications to the State of Iowa or U.S. government; and obtain approval for such applications and file as appropriate.

# Appendix

APPENDIX A

CROSSING INVENTORY FORM
DUBUQUE AREA RAILPLAN STUDY
East Central Intergovernmental Association

I. Locational Information

1. Railroad operating company: _____

2. Street or highway: _____

3. Location (reference to map): _____

II. R.R. Grade Crossing Data

*4. Typical number of train movements per day

| Daylight (6 AM-6 PM) | | Night (6 PM-6 AM) | |
|---|---|---|---|
| thru trains | switching | thru trains | switching |
| _____ | _____ | _____ | _____ |

*5. Speed of trains at crossing: _____

6. Type and number of tracks: no. mainlines _____, other _____

7. Type of warning device (check appropriate type):

| | | | |
|---|---|---|---|
| crossbucks: | | wig wags | ____ |
| reflectorized | ____ | gates | ____ |
| non-reflectorized | ____ | bells | ____ |
| stop sign | ____ | other: | _____ |
| flashing signals | ____ | | _____ |
| no signs or signals | ____ | | |

Is commercial power available? _____

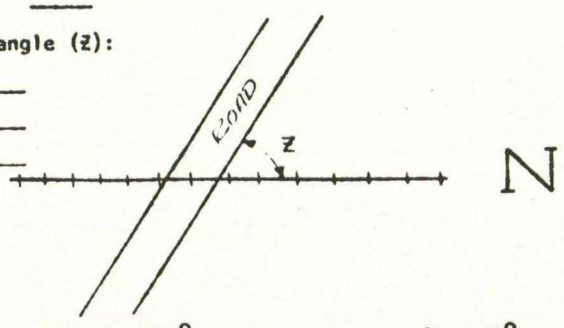
III. Physical Data

8. Development near crossing (check appropriate description):

| | | | |
|---|---|---|---|
| open space | ____ | industrial | ____ |
| residential | ____ | institutional | ____ |
| commercial | ____ | | |

9. Smallest crossing angle (∠):

Crossing width ____
Lane width ____
Shoulder width ____




0 - 29° ____ 30 - 59° ____ 60 - 90° ____

10. Number of traffic lanes crossing R.R.: _____

11. Are truck pullout lanes present? _____

12. Is highway paved? _____



*Information provided by ECIA.

III. Physical Data

13. Pavement markings:

Stoplines _____

R.R. Crossing symbols _____

None _____

14. Are R.R. advance warning signs present? _____

15. Crossing surface (check appropriate description):

| | | | |
|---|---|---|---|
| timber | _____ | rubber | _____ |
| wood plank | _____ | metal | _____ |
| asphalt | _____ | unconsolidated | _____ |
| concrete slab | _____ | other: | _____ |
| concrete pavement | _____ | | _____ |

16. Sight distance evaluation:

(good, fair, poor; describe obstruction)

(1) reference direction _____

(2) _____

_____

_____

(3) _____

_____

_____

(4) _____

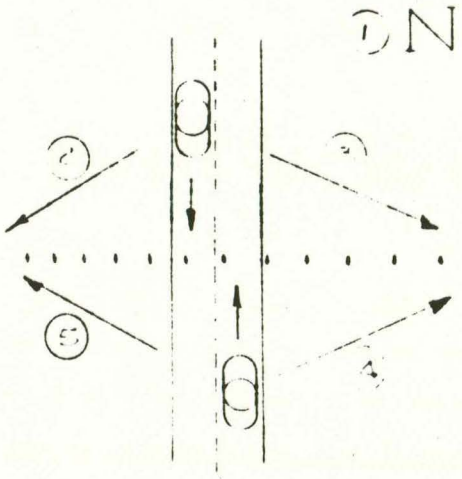
_____

_____

(5) _____

_____

_____




17. Approach grade:

| | | | | |
|---|---|---|---|---|
| A: | Flat ____ | Inclined ____ | Steep ____ | Up or down ____ |
| B: | Flat ____ | Inclined ____ | Steep ____ | Up or down ____ |

*IV. Highway Traffic Data

18. Estimated AADT _____ Percent Trucks _____

19. Is pedestrian volume significant? yes ____ no ____

20. Peak hour volume _____; time of day _____

*Information provided by ECIA.

IV. Highway Traffic Data

21. Accidents at crossing by year

| Year | Number | Year | Number | Year | Number |
|---|---|---|---|---|---|
| ____ | _____ | ____ | _____ | ____ | _____ |
| ____ | _____ | ____ | _____ | ____ | _____ |

Comments on accidents: _____

_____

_____

_____

_____

22. Rank on state list of 800 crossings: _____

Comments: _____

_____

_____

_____

V. General comments: _____

_____

_____

_____

_____

VI. Recommendations: _____

_____

_____

_____

_____

SHIPPER SURVEY QUESTIONNAIRE

I. General Information

A. Company name: _____

B. Location: _____

C. Contact: _____

D. Principal Commodities shipped: _____

_____

E. Principal commodities received: _____

_____

II. Analysis of commodities shipped (outbound)

A. Rail traffic (Use Table 1)

1. For each commodity, provide breakdown by regional destination, volume, rail carrier.

2. Is any portion of rail shipments TOFC/COFC? Provide volume, destinations and plan

3. Are any shipments made thru freight forwarders or shipping associations? Provide volume, destination, plan.

4. Are commodities subject to seasonal variation?

_____

_____

_____

5. Are volumes provided normal or depressed because of economy? Please quantity by year. _____

_____

_____

_____

_____

6. Please provide service times and rates to major destinations.

II. B. Truck and barge traffic (Use Table 2)

1. Principial carriers used and authorities

Common carriers _____

_____

Contract carriers _____

_____

Exempt carriers _____

_____

Private Fleet: Yes ___ No ___ Fleet Size _____

2. For each commodity and mode, provide breakdown by regional destination and volume shipped.

3. Are volumes normal or depressed because of economy? Quantify

4. What portion of barge or truck traffic is competitive/non-competitive with rail? _____

_____

_____

_____

_____

5. What portion of truck movements are LTL? _____

_____

6. What are truck or barge service times and rates to regional destinations? _____

_____

_____

_____

_____

III. Analysis of commodities received (inbound)

A. Rail Traffic (Use Table 3)

1. For each commodity, provide breakdown by regional origin, volume and delivering carrier.

2. Is any portion of rail inbound by TOFC/COFC? Provide volume, regional origin, and plan.

3. Are any inbound deliveries handled by freight forwarders or shipping associations? Provide volume, regional origins and plan.

4. Are commodities subject to seasonal variation?

_____

_____

_____

_____

5. Are volumes provided normal or depressed because of economy? Quantify by year. _____

_____

_____

_____

_____

6. Please provide service times and rates from major origins.

B. Truck and Barge Traffic (Use Table 4)

1. Principal carriers used and authorities

Common carriers _____

_____

Contract carriers _____

_____

Exempt carriers _____

_____

Private fleet Yes _____ No _____

2. For each commodity and mode, provide breakdown by regional origin and volume received.

3. Are volumes normal or depressed because of economy? Quantify

4. What portion of barge or truck traffic is competitive/non-competitive with rail? _____

_____

_____

_____

_____

_____

5. What portion of truck traffic is LTL? _____

_____

6. What are truck or barge service times and rates from regional origins?

IV. Analysis of future growth (short run 5 yrs. long run 20 yrs.)

A. Assess potential for increase or decrease in rail use. _____

_____

_____

_____

_____

_____

B. Are any new plants, plant expansions, plant closings expected which will affect Dubuque area? Describe effect on rail.

C. Are any new products, new markets or market expansion planned? Conversely, are products being eliminated or is market shrinking expected? Describe effect on rail.

D. Any other comments on future growth/shrinkage of traffice volume?

V. Decision criteria for modal choice

A. For what reasons does your firm use or not use rail?

B. Describe rate advantage by mode. Are rate advantages temporary or permanent?

C. Describe service advantages by mode. Are service advantages temporary or permanent?

D. In general, what changes would be necessary to shift more of your traffic to rail or rail/intermodal?

- factors may include (you may suggest to interviewee)
  - improved door to door service times
  - improved reliability of service times
  - improved switching service/switching tariffs
  - changes in rate differential between rail and competing modes
  - improved loss and damage prevention
  - changes in deregulation
  - others or combinations

E. What factors would shift traffic away from rail? (You may suggest to interviewee:)

- changing rate differential in favor of non-rail modes
- corporate concerns over abandonments or service cutbacks
- worsening tariffs

F. Evaluate effects of the following potential scenarios on your use of rail serivce:

(1) Merger of Milwaukee Road and Grand Trunk Western

(2) Loss of the Milwaukee Road and embargoed service

(3) Piecemeal sale of the Illinois Central Gulf to several railroads, with acquisition of the Chicago-Omaha line by the Union Pacific or Chicago and Northwestern.

(4) Purchase of Illinois Central Gulf by the Canadian Pacific (which controls the Soo Line)

(5) Reductions or cessation of service by the Burlington Northern into Dubuque.

(6) Reduction of service by BN into Dubuque, but with improved intermodal facilities.

VI. Special Questions for Particular Shippers

A. All Shippers

(1) Will proposed construction of highways 561 or 520 affect your firm?

Will thereby any impact on rail service?

(2) What is your firm's opinion on contributing resources to upgrading or operating the Dubuque rail system, or improving the level of service?

a. Creation of switching railroad serving Dubuque shippers

b. Subsidizing a railroad to prevent loss of local service

c. Contributing to maintenance of trackage or yards in area

d. Which organization does your firm feel should be responsible for coordinating and managing a local rail improvement program?

B. Grain Shippers

(1 What are carload and barge capacities of your facilities? Loading/unloading capacities? _____

_____

_____

_____

(2 Do you anticipate growth or expansion in the future? Is room available on site? _____

_____

_____

_____

_____

(3 Are current switching practices by railroads adequate? Are yard capacities adequate now and for growth? _____

_____

_____

_____

_____

(4 What will be the effect on your business after completion of L & D 26 at Alton, Ill.? _____

_____

_____

_____

_____

_____

(5 Will proposed development of water power at L & D 11 affect barge traffic on river? _____

_____

_____

_____

_____

(6) Describe fleeting practices in Dubuque area.

_____

_____

_____

_____

_____

Data Collection Table 1

Commodities Shipped By Rail (Outbound)

Annual Volume

| Year | Commodity | Regional* Destination | Carrier | Carloads Shipped | TOFC/COFC Trailers | Shipper Assoc. Forwarder Trailers | Plan | Service Time (Days) | Rate |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| | | | | | | | | | |
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Data Collection Table 2

Commodities Shipped By Truck/Barge (Outbound)

Annual Volume

| Year | Commodity | Regional* Destination | Motor Carriers Trailers | Private Fleet Trailers | Barges | Service Time | Rate or Cost |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
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Instructions:

(1) Please provide data to answer questions in Sections II and III as completely as possible.

(2) Please use as many sheets as required to list each change in year, commodity, destination, or mode factors on a separate line.

(3) Please provide traffic figures for the latest 12 month period, and traffic figures for what you would consider to be a normal 12 month economic period.

*Find regional number on attached map.

Data Collection Table 3

Commodities Received By Rail (Inbound)

Annual Volume

| Year | Commodity | Regional* Origin | Carrier | Carloads Received | TOFC/COFC Trailers | Shipper Assoc. Forwarder Trailers | Plan | Service Time (Days) | Rate |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
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Data Collection Table 4

Commodities Received By Truck/Barge (Inbound)

Annual Volume

| Year | Commodity | Regional* Origin | Motor Carrier Trailers | Private Fleet Trailers | Barges | Service Time | Rate or Cost |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
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Instructions:

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(2) Please use as many sheets as required to list each change in year, commodity, destination, or mode factors on a separate line.

(3) Please provide traffic figures for the latest 12 month period and traffic figures for what you would consider to be a normal 12 month economic period.

*Find regional number on attached map.

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