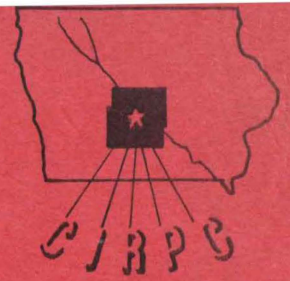


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CENTRAL IOWA  
Regional Planning Commission



# TRUCK TERMINAL INVENTORY

HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
DEPARTMENT OF URBAN AND REGIONAL PLANNING

KANSAS CITY

DES MOINES

WASHINGTON D. C.

4 RESOURCE REPORT

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Mr. Robert W. Mickle, Director  
Central Iowa Regional Planning Commission  
211 Cooper Building  
820 Locust Street  
Des Moines, Iowa 50309


Dear Mr. Mickle:

We are pleased to submit the accompanying Resource Report #4, Truck Terminal Inventory in accordance with our contract dated May 25, 1967. This report contains the results of a sample survey of various types of truck loading, unloading and transfer facilities in the Des Moines Urban Area. The information gathered was in accordance with the requirements of the Transportation Planning Technical Committee. The accompanying report is a part of the body of knowledge assembled to assist in the development of an on-going Urban Transportation Planning Process for the Des Moines Urban Area.

This report was prepared by Mr. A. Clare Russie with the assistance of Mr. Rex O. Parsons and Mr. William L. Edison.

Sincerely yours,

HOWARD, NEEDLES, TAMMEN & BERGENDOFF

  
W. G. Roeseler

bmc;

CENTRAL IOWA REGIONAL PLANNING COMMISSION

RESOURCE REPORT NO. 4

DES MOINES URBAN AREA TRUCK TERMINAL INVENTORY

FEBRUARY 1969

The preparation of this Report was financially aided through a Federal Grant from the Department of Housing and Urban Development under the Urban Planning Assistance Program authorized by Section 701 of the Housing Act of 1954 as amended.

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Project No. P56  
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Prepared under Contract for the ~~Iowa Development~~ Commission under the provisions of Chapter 28, Code of Iowa, as amended.

By  
HOWARD, NEEDLES, TAMMEN & BERGENDOFF  
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CENTRAL IOWA REGIONAL PLANNING COMMISSION  
RESOURCE REPORT NO. 4  
DES MOINES URBAN AREA TRUCK TERMINAL INVENTORY

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GENERAL  
INFORMATION



## GENERAL INFORMATION

The accompanying material is an inventory and resource report on Truck Terminal and Transfer Facilities in the Des Moines Urban Area and part of adjacent Polk County. As such, this report provides an inventory and summary of characteristics of a sample survey of major categories of Terminal and Transfer Facilities, and it becomes part of the body of knowledge assembled to assist in the development of an ongoing Urban Transportation Planning Process for the Study Area. The evaluation and goals contained in this report are incidental to the inventory.

The Central Iowa Regional Planning Commission is engaged in an urban transportation planning program for the Des Moines Urban Area. This program is a Federal requirement as stipulated in the Federal Aid Highway Act of 1962, part of which reads as follows:

"It is declared to be in the national interest to encourage and promote the development of transportation systems embracing various modes of transport in a manner that will serve the States and local communities efficiently and effectively. To accomplish this objective the Secretary shall cooperate with the States, as authorized in this title, in the development of long-range highway plans and programs which are properly coordinated with plans for improvements in other affected forms of transportation and which are formulated with due consideration to their probable effect on the future development of urban areas of more than fifty thousand population. After July 1, 1965, the Secretary shall not approve under Section 105 of this title

any program for projects in any urban area of more than fifty thousand population unless he finds that such projects are based on a continuing comprehensive transportation planning process carried on cooperatively by States and local communities in conformance with the objectives stated in this section."

On June 21, 1967, the Bureau of Public Roads published a policy and procedure memorandum clarifying the requirements of the Urban Transportation Planning process. One of the important requirements of the process is an inventory of truck terminal facilities. As stated in the memorandum:

"The effectiveness and efficiency of the urban transportation system is dependent to a large measure upon the availability of adequate terminal and transfer facilities at trip origins and destination."

This inventory sample is a part of the requirement.



TERMINAL  
INVENTORY

## TERMINAL INVENTORY AND CLASSIFICATION

### Basic Definition: Truck Terminal

Originally, the Truck Terminal Inventory was to be a complete survey of the major Terminal and Transfer Facilities in the area. However, the Transportation Planning Technical Committee determined that a sample survey of various types of truck loading, unloading and transfer facilities would be more meaningful and useful to the Transportation Planning Process. Following this approach, a representative sample list of five basic categories was selected and approved, including over thirty-five firm locations in the Des Moines Urban and adjacent areas.

With this broader study in mind, a more inclusive basic definition of truck terminal was established as follows:

A truck terminal is defined as a breakup and/or assembly point for freight commodities, which enter and/or leave or move within the Urban Area through one of the five major classifications of terminals and using motor vehicle equipment.

Generally, freight arrives at a terminal in one of two ways: (1) by over-the-road trucks from other cities and (2) by local pick-up and delivery trucks bringing freight from local shippers. Freight generally leaves the terminal: (1) by transfer to pick-up and delivery trucks and delivered locally, (2) by interlining to another trucking line for delivery to another city, or (3) by transfer to one of the carrier's own over-the-road trailers bound for another city.



The physical plant of a truck terminal usually consists of a loading dock, a yard or apron for maneuvering, and space for parking tractors, trailers, and employee automobiles. Larger terminals include offices and accessory buildings, such as garages for repairs and refueling facilities. Some terminals have their own railroad sidings. Usually, a two-sided dock is used for all but the smallest terminals. Pick-up and delivery trucks use one side, while over-the-road trucks use the other. Transfer between the two types of vehicles takes place across the dock. Also included in this study are other loading and unloading facilities designated in the five general truck terminal classifications. As used in this survey, a truck terminal may also include the loading and unloading facilities of selected locally based industries.

#### Basic Classifications

Five major truck terminal classifications were utilized in the survey and in the summary of operations and characteristics of truck terminals. These classifications are as follows:

##### Common Carrier:

The common carrier transports goods for more than one agency. Generally, a common carrier will transport freight loads into the study area from beyond the study area limits and will carry freight to destinations beyond the study area.

##### Contract Carrier:

The operation of the contract carrier differs from that of the common carrier in that the contract carrier needs little more than a parking

lot for storing empty trailers and tractors, because this activity consists of picking up shipments from individual shippers and carrying the shipments direct to consignees.

**Local Delivery:**

A third type of carrier examined was that of the local delivery carrier. This classification of trucking agency provides (primarily) local transfer and storage of commodities within the study area, including local pick-up and delivery services, parcel delivery services, etc.

**Consumer Service:**

The consumer service trucking classification consists (primarily) of private firms that maintain their own trucking facilities. These facilities serve as collection and distribution points for goods processed, manufactured, and/or distributed. This classification includes agricultural products, such as dairies and general warehousing and storage.

**Miscellaneous Bulk Transfer:**

This classification includes the terminal loading and unloading activities of bulk and extractive industries, such as oil, sand and gravel operations.

SUMMARY



## SUMMARY: CHARACTERISTICS AND OPERATIONS

### General

This section summarizes the characteristics and operations of selected trucking activities in the Des Moines Study Area. A majority of the truck terminals surveyed were located within the City of Des Moines. The approved list of firms in the sample survey included a total of thirty-eight terminals of all types: seven were classified as Common Carriers; five were Contract Carriers; three were Local Delivery; sixteen were Consumer Service; and seven were classified as Miscellaneous Bulk Transfer. The general location and basic classifications of truck terminals surveyed are illustrated on Plate 1, Truck Terminal Inventory.

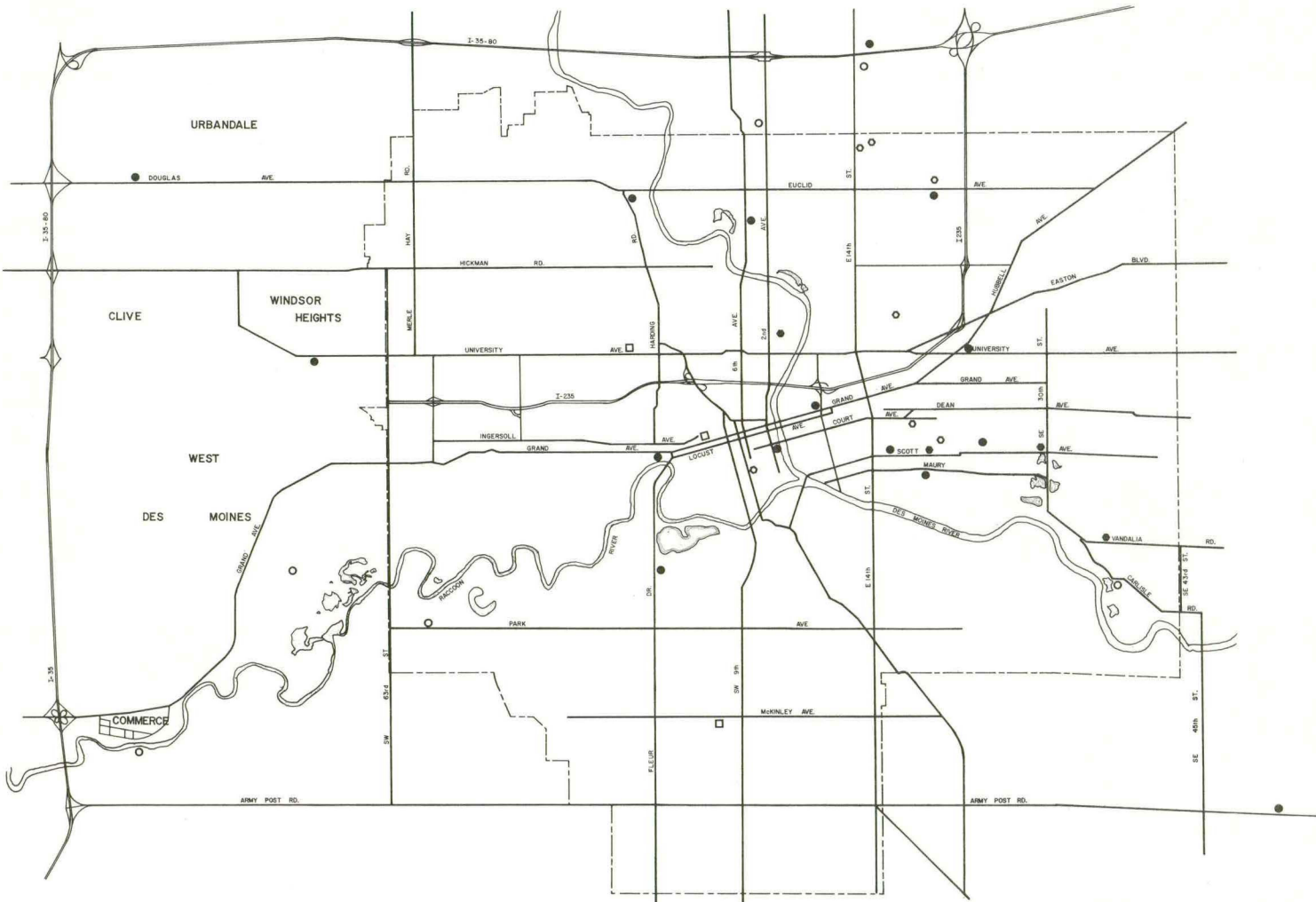
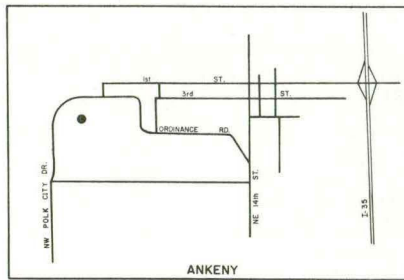
Using the questionnaire form (CIRPC Form 10) Figure 1, each terminal was surveyed by: (1) aerial photo and field survey, and (2) by personal interview with officials of the Firm. The survey was conducted during the latter months of 1968. A summary of inventory findings is presented in the following paragraphs.

### Summary of Characteristics

The following Tables (Tables 1, 2, 3, 4 and 5) summarize (by basic category) the findings of the Truck Terminal Inventory Survey, while Table 6 is a combined summary of the previous Tables.

#### Common Carrier:

As indicated in Table 1, a total of seven truck terminals was surveyed in this category, having a total of 202,570 square feet of building space, occupying 78 acres of land, and employing 670 people. A total of 505 motor vehicle units entered or left the total terminal facilities each day



- LEGEND:**
- COMMON CARRIERS — ○
  - CONTRACT CARRIERS — ●
  - LOCAL DELIVERY — □
  - CONSUMER SERVICE — ●
  - MISCELLANEOUS BULK TRANSFER — ○

## TRUCK TERMINAL SURVEY

DES MOINES URBAN AREA TRANSPORTATION STUDY

CENTRAL IOWA  
Regional Planning Commission



HOWARD NEEDLES TAMMEN & BERGENFELDT  
DEPARTMENT OF URBAN & REGIONAL PLANNING  
KANSAS CITY WASHINGTON D.C.

DES MOINES

THE PREPARATION OF THIS MAP WAS FINANCIALLY  
AIDED THROUGH A FEDERAL GRANT FROM THE  
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT  
LOCAL FUNDS FOR THE DESIGN AND DEVELOPMENT  
PHASES OF THE DES MOINES URBAN AREA  
TRANSPORTATION STUDY. PROJECT NO. 7-10  
DES MOINES URBAN AREA TRANSPORTATION STUDY  
DESIGN OF LOCAL URBAN TRANSPORTATION  
SYSTEMS. PROJECT NO. 7-10



TRUCK TERMINAL INVENTORY  
DES MOINES URBAN AREA TRANSPORTATION STUDY  
Howard, Needles, Tammen & Bergendoff

GENERAL INFORMATION

1. Name of Company \_\_\_\_\_ 2. Address \_\_\_\_\_  
Hdqtrs. Office \_\_\_\_\_  
3. Locator: Tract \_\_\_\_\_ Block \_\_\_\_\_ Parcel \_\_\_\_\_  
4. Number of Employees \_\_\_\_\_ 5. Yr. Facility Built \_\_\_\_\_

BUILDINGS & PHYSICAL SITE

1. Total Site Size (in acres) \_\_\_\_\_ 2. (a) Main Building Size (in sq. ft.) \_\_\_\_\_  
(b) Total Building Size (in sq. ft.) \_\_\_\_\_  
3. Covered Storage Area: (a) Floor Area (in sq. ft.) \_\_\_\_\_ (b) Total Volume  
(in cu. ft.) \_\_\_\_\_  
4. Open Storage Area (in sq. ft.) \_\_\_\_\_ 5. Liquid Storage Area (a) (in sq. ft.) \_\_\_\_\_  
(b) (in gals.) \_\_\_\_\_  
6. Total Storage Area (in sq. ft.)--Total items 3a, 4 & 5a \_\_\_\_\_  
7. Number Off-Street Parking Spaces: (a) Customer/Employee \_\_\_\_\_  
(b) Truck/Trailer \_\_\_\_\_  
8. Total Length Loading/Unloading Docks (in ft.) \_\_\_\_\_ 9. No. Truck Loading Berths \_\_\_\_\_  
10. Building Condition \_\_\_\_\_ 11. Parking/Access Surface Type \_\_\_\_\_

EXTENT OF SERVICE

1. Primary Type of Service Provided \_\_\_\_\_ 2. Type of Activity \_\_\_\_\_  
3. No. Units Entering & Leaving Daily \_\_\_\_\_ 4. % Local Delivery Units \_\_\_\_\_  
% Non-Local Delivery Units \_\_\_\_\_  
5. Peak Hour(s) of Activity \_\_\_\_\_ 6. % Dock Capacity Used at Peak Hour \_\_\_\_\_  
7. Total Ton-Miles or Cargo Tons Hauled (Summarize on an attached sheet)



TERMINAL ACCESS

1. Principal Access Route(s) \_\_\_\_\_  
\_\_\_\_\_

2. Street Access

Terminal Location:

No. Lanes in Access Street \_\_\_\_\_

a. Interstate \_\_\_\_\_

Special Turn Lanes Provided? Yes \_\_\_\_\_

b. Primary Highway \_\_\_\_\_

No \_\_\_\_\_

c. Arterial Street \_\_\_\_\_

d. Local Street \_\_\_\_\_

3. Nearest Interstate Interchange (mi.) \_\_\_\_\_ 4. Ingress & Egress Congestion Factors:

\_\_\_\_\_  
\_\_\_\_\_

for an average of 72 per terminal. The total summary of information of this class of truck terminal is as follows:

TABLE 1

SUMMARY 1			
COMMON CARRIER			
<u>Item</u>		<u>Total</u>	<u>Average</u>
	<u>General</u>		
1.	Number of Firms Surveyed	7	- -
2.	Number of Employees	670	96
	<u>Building and Site</u>		
1.	Year Building Was Built	- -	1953
2.	Site Size (in Acres)	78	11.2
3.	Total Building Size (sq. ft.)	202,570	28,938
4.	Main Building Size (sq. ft.)	104,685	14,955
5.	Liquid Storage (gallons)	27,500	3,924
6.	Parking Spaces		
	A. Customer/Employee	380	54
	B. Truck/Trailer	590	84
7.	Length of Dock (in ft.)	2,290	327
8.	Number of Berths	196	28
9.	Building Condition	- -	New 43% Good 43% Deteriorating 14%
10.	Surface Type	- -	Paved 74% Gravel 26%
11.	Ratio: Site to Building (sq. ft.)		11.3 to 1

TABLE 1 Continued

<u>Item</u>	<u>Total</u>	<u>Average</u>
<u>Extent of Service</u>		
1. Number of Units Entering and Leaving Daily	505	72
2. % Local Delivery	- -	54%
% Non-Local Delivery	- -	46%
3. Peak Hours of Activity	- -	4 P.M. - 11 P.M.
4. Ton Miles of Cargo (a Month)	- -	62, 647, 428
<u>Terminal Access</u>		
1. Nearest Interstate Interchange (Miles)	- -	1.1
2. Number of Lanes on Access Street	- -	30% 4 Lanes 70% 2 Lanes
3. Special Turning Lanes Provided	- -	None
4. Terminal Location	- -	28% Local Street 44% Arterial Street 28% Primary Highway

---

**Contract Carrier:**

The number of firms and/or terminals surveyed in the Contract Carrier classification totaled five. Contract Carriers totaled 139,310 square feet of building, occupied 17 acres of land and employed 336 people (an average of 67 employees per operation). Table 2 presents a more complete summary of data in the Contract Carrier classification.



TABLE 2

SUMMARY 2  
CONTRACT CARRIER

<u>Item</u>	<u>Total</u>	<u>Average</u>
<u>General</u>		
1. Number of Firms Surveyed	5	- -
2. Number of Employees	336	67
<u>Building and Site</u>		
1. Year Building Was Built	- -	1959
2. Site Size (in Acres)	17.0	3.2
3. Total Building Size (sq. ft.)	139,310	27,862
4. Main Building Size (sq. ft.)	49,610	9,922
5. Liquid Storage (gallons)	20,300	4,060
6. Parking Spaces		
A. Customer/Employee	132	26
B. Truck/Trailer	263	54
7. Length of Dock (in ft.)	200 *	200 *
8. Number of Berths	16	16
9. Building Condition	- -	New 40% Good 60%
10. Surface Type	- -	Paved 20% Gravel 80%
11. Ratio: Site To Building (sq. ft.)	- -	5.3 to 1
<u>Extent of Service</u>		
1. Number of Units Entering and Leaving Daily	400	100
2. % Local Delivery	- -	31%
% Non-Local Delivery	- -	69%
3. Peak Hours of Activity	- -	8 A.M. - 6 P.M.

\*Only one firm had a dock and berths

TABLE 2 Continued

<u>Item</u>	<u>Total</u>	<u>Average</u>
4. Ton Miles of Cargo (a Month)	- -	2,719,474
<u>Terminal Access</u>		
1. Nearest Interstate Interchange (Miles)	- -	4
2. Number of Lanes on Access Street	- -	40% 4 Lanes 60% 2 Lanes
3. Special Turning Lanes Provided	- -	None
4. Terminal Location	- -	60% Local Street 40% Arterial Street

---

Local Delivery:

As indicated in Table 3, a small number of local delivery firms were surveyed. This limited sample was considered adequate to provide needed information on local delivery operations. These firms averaged 7 employees, less than 2,500 square feet per building, and approximately 1/2 acre per site.

---

TABLE 3

SUMMARY 3  
LOCAL DELIVERY

<u>Item</u>	<u>Total</u>	<u>Average</u>
<u>General</u>		
1. Number of Firms Surveyed	3	- -
2. Number of Employees	20	7
<u>Building and Site</u>		
1. Year Building Was Built	- -	1948

TABLE 3 Continued

<u>Item</u>	<u>Total</u>	<u>Average</u>
2. Site Size (in Acres)	1.35	.45
3. Total Building Size (sq. ft.)	6,565	2,188
4. Main Building Size (sq. ft.)	6,565	2,188
5. Liquid Storage (gallons)	None	None
6. Parking Spaces		
A. Customer/Employee	4	2
B. Truck/Trailer	8	4
7. Length of Dock (in ft.)	None	None
8. Number of Berths	None	None
9. Building Condition	- -	Good 50% Deteriorating 50%
10. Surface Type	- -	Gravel 100 %
11. Ratio: Site to Building (sq. ft.)		8.2 to 1

Extent of Service

1. Number of Units Entering and Leaving Daily	13	4
2. % Local Delivery	- -	100%
% Non-Local Delivery	- -	0%
3. Peak Hours of Activity	- -	8 A.M. - 5 P.M.
4. Ton Miles of Cargo (a Month)	None	None

Terminal Access

1. Nearest Interstate Interchange (Miles)	- -	2.6
2. Number of Lanes on Access Street	- -	65% 4 Lanes 35% 2 Lanes
3. Special Turning Lanes Provided	- -	None
4. Terminal Location	- -	35% Local Street 65% Arterial Street

Consumer Service:

An extensive survey was conducted for this classification of truck terminals. This category was dominated by food processing firms and manufacturing and/or wholesaling concerns. Sixteen firms were surveyed, including a total of 4,597 employees, total site area of 650.7 acres and 4,713,132 square feet of building space. Table 4 illustrates the results of the survey.

TABLE 4

SUMMARY 4			
CONSUMER SERVICE			
<u>Item</u>		<u>Total</u>	<u>Average</u>
	<u>General</u>		
1.	Number of Firms Surveyed	16	- -
2.	Number of Employees	4,597	288
	<u>Building and Site</u>		
1.	Year Building Was Built	- -	1945
2.	Site Size (in Acres)	650.7	40.6
3.	Total Building Size (sq. ft.)	4,713,132	294,570
4.	Main Building Size (sq. ft.)	3,615,251	229,703
5.	Liquid Storage (gallons)	643,000	160,750
6.	Parking Spaces		
	A. Customer/Employee	4,190	261
	B. Truck/Trailer	217	14
7.	Length of Dock (in ft.)	1,227	122.7
8.	Number of Berths	130	9



TABLE 4 Continued

<u>Item</u>	<u>Total</u>	<u>Average</u>
9. Building Condition	- -	New 12% Good 82% Deteriorating 6%
10. Surface Type	- -	Paved 75% Gravel 25%
11. Ratio: Site to Building (sq. ft.)		14.7 to 1
<u>Extent of Service</u>		
1. Number of Units Entering and Leaving Daily	463	29
2. % Local Delivery	- -	50%
% Non-Local Delivery	- -	50%
3. Peak Hours of Activity	- -	7 A.M. - 8 P.M.
4. Ton Miles of Cargo (a Month)	895,710,058	127,758,580
<u>Terminal Access</u>		
1. Nearest Interstate Interchange (Miles)	- -	3.3
2. Number of Lanes on Access Street	- -	25% 4 Lanes 75% 2 Lanes
3. Special Turning Lanes Provided	- -	None
4. Terminal Location	- -	56% Local Street 6% Arterial Street 38% Primary Highway

---

Miscellaneous Bulk Transfer:

Table 5 illustrates a summary of operations surveyed in the fifth classification - Miscellaneous Bulk Transfer - which, generally, consisted of bulk oil and extractive industries. This category had a total of 109,229

square feet of building, occupying 171 total acres of land and employing a total of 265 people.

TABLE 5

SUMMARY 5

MISCELLANEOUS BULK TRANSFER

<u>Item</u>	<u>Total</u>	<u>Average</u>
	<u>General</u>	
1. Number of Firms Surveyed	7	- -
2. Number of Employees	265	38
	<u>Building and Site</u>	
1. Year Building Was Built	- -	1949
2. Site Size (in Acres)	171	24.3
3. Total Building Size (sq. ft.)	109,229	18,205
4. Main Building Size (sq. ft.)	56,184	9,364
5. Liquid Storage (gallons)	465,000	66,428
6. Parking Spaces		
A. Customer/Employee	172	28
B. Truck/Trailer	142	23
7. Length of Dock (in ft.)	120 <sup>1*</sup>	120 <sup>1*</sup>
8. Number of Berths	5	5
9. Building Condition	- -	New 14% Good 86%
10. Surface Type	- -	Gravel 100%
11. Ratio: Site to Building (sq. ft.)		57.7 to 1

\* Only one firm had one dock.

<u>Item</u>	<u>Total</u>	<u>Average</u>
<u>Extent of Service</u>		
1. Number of Units Entering and Leaving Daily	235	33
2. % Local Delivery	- -	53%
% Non-Local Delivery	- -	47%
3. Peak Hours of Activity	- -	8 A.M. - 3 P.M.
4. Ton Miles of Cargo (a Month)	6,325,500	1,581,375
<u>Terminal Access</u>		
1. Nearest Interstate Interchange (Miles)	- -	4.7
2. Number of Lanes on Access Street	- -	30% 4 Lanes 70% 2 Lanes
3. Special Turning Lanes Provided	- -	None
4. Terminal Location	- -	43% Local Street 14% Arterial Street 43% Primary Highway

---

Combined Classification Summary:

The total summary of all of the five classifications (Tables 1 through 5) is summarized in Table 6. Because Ton Miles are applicable to only three classifications, this item was omitted from the table.

---

TABLE 6

SUMMARY 6		
<u>Item</u>	<u>Total</u>	<u>Average</u>
<u>General</u>		
1. Number of Firms Surveyed	38	- -

TABLE 6 Continued

<u>Item</u>	<u>Total</u>	<u>Average</u>
2. Number of Employees	5,888	155
<u>Building and Site</u>		
1. Year Building Was Built	- -	1950
2. Site Size (in Acres)	918	24.2
3. Total Building Size (sq. ft.)	5,170,806	136,073.8
4. Main Building Size (sq. ft.)	3,832,295	100,849.3
5. Liquid Storage (gallons)	1,155,800	30,415.7
6. Parking Spaces		
A. Customer/Employee	4,878	128
B. Truck/Trailer	1,220	32
7. Length of Dock (in ft.)	3,637	727.4
8. Number of Berths	348	69.6
9. Building Condition	- -	New 22% Good 64% Deteriorating 14%
10. Surface Type	- -	Paved 34% Gravel 66%
11. Ratio: Site to Building (sq. ft.)		19.4 to 1
<u>Extent of Service</u>		
1. Number of Units Entering and Leaving Daily	1,616	42.5
2. % Local Delivery	- -	58%
% Non-Local Delivery	- -	42%
3. Peak Hours of Activity	- -	9 A.M. - 6:30 P.M.
4. Ton Miles of Cargo (a Month)	Not Applicable	Not Applicable
<u>Terminal Access</u>		
1. Nearest Interstate Interchange (Miles)	- -	3.1



TABLE 6 Continued

2.	Number of Lanes on Access Street	- -	38% 4 Lanes 62% 2 Lanes
3.	Special Turning Lanes Provided	- -	None
4.	Terminal Location	- -	44.4% Local Street 33.8% Arterial Street 21.8% Primary Highway

---

#### Evaluation of Existing Terminal Facilities:

Because of the change in the activities and firms surveyed, some of the data items provide specialized information.

Facts were revealed in the summary of the physical inventory which provide a basic evaluation of existing terminals. A summary of the data revealed that nineteen of the terminals surveyed occupied sites that were suitable for future growth and expansion of the facilities; ten were found to be adequate for present operations, while nine were found to be located on minimal sites. These conclusions were derived from an evaluation of the land-to-building ratios, general building conditions, adequacy of parking facilities, and other data taken from the terminal inventory. The primary reason that nine facilities appeared as inadequate was due to the fact that these facilities were mostly Contract Carrier and Local Delivery classifications which do not actually utilize terminals. These facilities were used for the storage of vehicles when not in operation.

Other factors in the inadequacy of existing facilities were: (1) location in congested and blighted area; (2) inadequate site; (3) lack of parking for employees; and (4) inability to acquire land for expansion at the

present site. The most prevalent factor in this inadequacy was the inability to acquire land for existing and possible future expansion.

Sixty-five per cent of the existing facilities surveyed had street or highway access only, while 35 per cent had rail access via an adjacent rail siding. The 35 per cent with rail sidings were largely classified as Consumer Service and Miscellaneous Bulk Transfer. "Piggyback" operations were not included.

Of major significance was the number of round trips (trip destinations) generated by the various classifications of Truck Terminals. Table 7, which follows, illustrates the round trips generated for various classifications of Truck Terminal Facilities:

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TABLE 7

TRIPS GENERATED PER ACRE

	Site (Average)	Building (Average)
Common Carrier	6.5	109.7
Contract Carrier	34.8	- -*
Local Delivery	9.1	7.3
Consumer Service		
A. Food Service	4.9	19.0
B. Manufacturing and Warehousing	0.2	2.6
Miscellaneous Bulk Transfer	1.4	- -*

\* Not Applicable

# GENERAL GOALS

## GENERAL DESIGN AND PLANNING GOALS FOR TRUCK TERMINALS

### General Design Criteria

Sites for new truck terminals should be relatively flat, well drained and have a firm base to allow for economical construction. The site should also have sufficient acreage to meet future expansion needs as they arise. New truck terminals should have relatively direct access to interstate highways and major arterials. Separate, safe points of ingress and egress should be provided for trucks.

A modern truck terminal should facilitate the interchange of commodities between trucks and between trucks and storage areas. The design of the terminal in relationship to the lot should allow free circulation of trucks around the terminal building. While there appears to be no limit to the amount of required open space surrounding the terminal building, studies indicate that a land-to-building ratio of 10:1 is desirable for the modern terminal, while a ratio of 5:1 provides an adequate minimum.

#### Dimensions:

The dock, being the largest part of the terminal, should have floor area large enough to accommodate operations during the peak periods of the day. To accommodate these periods, the dock area should be approximately twice the size of the combined floor area of the trucks. The minimum required for trucks to maneuver in and out of the dock is about 12 feet of dock width. Another factor to be taken into consideration is that of insuring adequate maneuvering space for movement in and out



of the berths. This can be accomplished by providing ample distance between the dock and the nearest obstruction. This area - the apron - should be two to two and one-half times the length of the longest estimated tractor-trailer combination to use the dock.

An important factor that should be taken into consideration in the design of new truck terminals is that new tractor-trailers will be larger than present equipment; therefore they will have a greater load capacity and their longer length will require more room for maneuvering. More land will be required to handle the increase in size of future equipment. Older terminals have felt the effects of equipment size increase even over the past few years. New truck terminals should have well situated space in reserve for future expansion of docks and aprons. Parking should be provided for stored tractors and trailers.

#### Location:

There are some advantages to terminal locations in the Central Business District area, but an increasing number of terminals are locating on the periphery of the urban area. In the early stages of truck terminal development, terminals were located in the warehousing and manufacturing districts of the Central Business District. The reason for this location was the close proximity to customers and industrial and commercial shippers. As the volume of freight increased, it became increasingly necessary to acquire more land for trucking operations. The next step was to move away from the congested Central Business District to the periphery of the urban area. The success of these new terminals has shown that time, not

distance, is a critical factor involved. At present, proximity to the central city and other terminals is a measure of travel time, not physical distance. Freight transfers between lines, close proximity between terminals and efficiency in local deliveries encourages the union terminal concept on the periphery of the Central Business District.

#### General Planning Goals

Basic planning goals for Truck Terminal and truck loading and unloading facilities include the following:

- o Proposals for future Truck Terminals should be included as a part of the Comprehensive Urban Area Plan.
- o Truck Terminals and loading and unloading facilities should be consistent with existing and proposed land development patterns.
- o Truck Terminals should be an integral part of the overall transportation network.
- o The location and design of Truck Terminals should be coordinated with the design of affected arterial streets and major highways, particularly in the vicinity of freeway interchanges and major arterial intersections.
- o The unified Truck Terminal or Terminals should be established on the periphery of the Central Business District in close proximity to freeway access.
- o Specified Truck Terminal Areas should be incorporated into outlying industrial districts, where adequate access is available.

- o Loading and unloading facilities for consumer service and bulk transfer uses should combine existing and projected needs for plant and Truck Terminal facilities.
  
- o Consideration should be given to consolidation of pick-up and delivery services, to ease traffic congestion in intensively developed areas.



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