



**Calhoun: The NPS Institutional Archive**

---

Theses and Dissertations

Thesis Collection

---

1999-03

An analysis of commercial railroad congestion and  
its resultant impact on fort-to-port transportation efforts

Hillis, Shaun A.

Monterey, California: Naval Postgraduate School

---

<http://hdl.handle.net/10945/13613>



Calhoun is a project of the Dudley Knox Library at NPS, furthering the precepts and goals of open government and government transparency. All information contained herein has been approved for release by the NPS Public Affairs Officer.

**Dudley Knox Library / Naval Postgraduate School**  
**411 Dyer Road / 1 University Circle**  
**Monterey, California USA 93943**

<http://www.nps.edu/library>

**NAVAL POSTGRADUATE SCHOOL  
Monterey, California**



**THESIS**

**AN ANALYSIS OF COMMERCIAL RAILROAD  
CONGESTION AND ITS RESULTANT IMPACT ON  
FORT-TO-PORT TRANSPORTATION EFFORTS**

by

Shaun A. Hillis

March 1999

Principal Thesis Advisor:  
Associate Thesis Advisor:

David F. Matthews  
Ira A. Lewis

19990406 052

**Approved for public release; distribution is unlimited.**

# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington DC 20503.

1. AGENCY USE ONLY (Leave blank)

2. REPORT DATE  
March 1999

3. REPORT TYPE AND DATES COVERED  
Master's Thesis

4. TITLE AND SUBTITLE : AN ANALYSIS OF COMMERCIAL RAILROAD  
CONGESTION AND ITS RESULTANT IMPACT ON FORT-TO-PORT  
TRANSPORTATION EFFORTS

5. FUNDING NUMBERS

6. AUTHOR(S)  
Hillis, Shaun A.

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)  
Naval Postgraduate School  
Monterey, CA 93943-5000

8. PERFORMING  
ORGANIZATION REPORT  
NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING /  
MONITORING  
AGENCY REPORT  
NUMBER

## 11. SUPPLEMENTARY NOTES

The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION / AVAILABILITY STATEMENT  
Approved for public release; distribution is unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT (maximum 200 words) The United States Army is heavily-dependent upon commercial railroad transportation assets for the movement of cargo and equipment from Continental United States (CONUS) installations to Seaports of Embarkation during unit mobilizations. With the withdrawal of forces from overseas installations, this dependence upon commercial rail assets has grown dramatically in the past few years.

Due to a series of consolidations and mergers, the CONUS rail infrastructure has reached full capacity and is straining to meet civilian demands for rail services. If an environment of congestion, resulting in unanticipated delays, were to develop anywhere within the CONUS rail infrastructure, the movement of military unit cargo and equipment in response to a crisis mobilization or deployment would be severely impacted.

This thesis examines the impact of rail congestion on U.S. Army crisis mobilization transportation efforts. Analysis and recommendations are provided to assist DoD planners in alleviating the impact of rail congestion on crisis transportation efforts.

14. SUBJECT TERMS  
Defense Transportation System, Rail Transportation, Logistics, Mobilization, Congestion

15. NUMBER OF  
PAGES  
187

16. PRICE CODE

17. SECURITY  
CLASSIFICATION OF REPORT  
Unclassified

18. SECURITY CLASSIFICATION  
OF THIS PAGE  
Unclassified

19. SECURITY CLASSIFICATION  
OF ABSTRACT  
Unclassified

20.  
LIMITATION OF  
ABSTRACT  
UL





Approved for public release; distribution is unlimited.

**AN ANALYSIS OF COMMERCIAL RAILROAD CONGESTION AND ITS  
RESULTANT IMPACT ON FORT-TO-PORT TRANSPORTATION EFFORTS**

Shaun A. Hillis  
Lieutenant, United States Navy  
B.A., University of Washington, 1991

Submitted in partial fulfillment of the  
requirements for the degree of

**MASTER OF SCIENCE IN MANAGEMENT**

from the

**NAVAL POSTGRADUATE SCHOOL  
March 1999**

Author:

[Redacted]

Shaun A. Hillis

Approved By:

[Redacted]

David F. Matthews, Principal Thesis Advisor

[Redacted]

Ira A. Lewis, Associate Thesis Advisor

[Redacted]

Reuben Harris, Chairman  
Department of Systems Management



## ABSTRACT

The United States Army is heavily dependent upon commercial railroad transportation assets for the movement of cargo and equipment from Continental United States (CONUS) installations to Seaports of Embarkation during unit mobilizations. With the withdrawal of forces from overseas installations, this dependence upon commercial rail assets has grown dramatically in the past few years.

Due to a series of consolidations and mergers, the CONUS rail infrastructure has reached full capacity and is straining to meet civilian demands for rail services. If an environment of congestion, resulting in unanticipated delays, were to develop anywhere within the CONUS rail infrastructure, the movement of military unit cargo and equipment in response to a crisis mobilization or deployment would be severely impacted.

This thesis examines the impact of rail congestion on U.S. Army crisis mobilization transportation efforts. Analysis and recommendations are provided to assist DoD planners in alleviating the impact of rail congestion on crisis transportation efforts.



## TABLE OF CONTENTS

<b>I. INTRODUCTION.....</b>	<b>1</b>
A. DISCUSSION.....	1
B. AREA OF RESEARCH.....	2
C. SCOPE OF THE THESIS .....	2
D. RESEARCH QUESTIONS .....	3
E. ORGANIZATION.....	4
<b>II. BACKGROUND: RAILROADS AND THE MILITARY .....</b>	<b>5</b>
A. INTRODUCTION .....	5
B. OPERATION DESERT SHIELD/DESERT STORM .....	6
C. WESTERN UNITED STATES RAILROADS.....	8
1. Burlington Northern Santa Fe .....	9
2. Union Pacific Railroad.....	10
D. REPRESENTATIVE MOTIVE POWER .....	13
1. GE AC4400CW.....	14
2. GE C44-9.....	14
3. GE C40-8W.....	15
4. EMD SD70MAC.....	15
5. EMD SD60M .....	16
6. EMD SD40-2.....	16
E. REPRESENTATIVE RAILCARS .....	17
1. General-Purpose Railcars .....	17
2. Bi-Level Railcars.....	21
3. Intermodal Railcars .....	22
F. DEFENSE FREIGHT RAILWAY INTERCHANGE FLEET.....	24
G. CONCLUSION .....	25
<b>III. RAIL CONGESTION.....</b>	<b>27</b>
A. INTRODUCTION .....	27
B. UNION PACIFIC RAILROAD CONGESTION .....	28
C. CONCLUSION .....	38
<b>IV. SIMULATION.....</b>	<b>39</b>
A. INTRODUCTION .....	39
B. "NOTIONAL" ARMORED DIVISION .....	40
C. SIMULATION PLANNING FACTORS .....	45
D. SIMULATIONS .....	47
1. Fort Hood, Texas to Beaumont, Texas (Baseline) .....	47
2. Fort Hood, Texas to Beaumont, Texas (14.23 MPH System Speed).....	49
3. Fort Hood, Texas to Beaumont, Texas (14.1 MPH System Speed).....	50

4.	Fort Hood, Texas to Beaumont, Texas (17.3 MPH System Speed).....	51
5.	Fort Hood, Texas to Beaumont, Texas (12.0 MPH System Speed).....	53
6.	Fort Hood, Texas to Oakland, California (Baseline) .....	54
7.	Fort Hood, Texas to Oakland, California (14.23 MPH System Speed).....	55
8.	Fort Hood, Texas to Oakland, California (14.1 MPH System Speed).....	57
9.	Fort Hood, Texas to Oakland, California (17.3 MPH System Speed).....	58
10.	Fort Hood, Texas to Oakland, California (12.0 MPH System Speed).....	59
E.	SIMULATION FINDINGS .....	60
F.	CONCLUSION.....	62
<b>V.</b>	<b>SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS .....</b>	<b>63</b>
A.	SUMMARY .....	63
B.	CONCLUSIONS AND RECOMMENDATIONS.....	65
C.	RECOMMENDATIONS FOR FURTHER STUDY .....	67
<b>APPENDIX A.</b>	<b>STB DECISION EX. PARTE 573.....</b>	<b>69</b>
<b>APPENDIX B.</b>	<b>UNION PACIFIC SERVICE RECOVERY REPORTS.....</b>	<b>73</b>
<b>APPENDIX C.</b>	<b>ACRONYMS AND ABBREVIATIONS.....</b>	<b>163</b>
<b>LIST OF REFERENCES.....</b>		<b>167</b>
<b>INITIAL DISTRIBUTION LIST .....</b>		<b>173</b>

## LIST OF FIGURES

1. BURLINGTON NORTHERN SANTA FE SYSTEM MAP.....	9
2. UNION PACIFIC RAILROAD SYSTEM MAP .....	11
3. BI-LEVEL RAILCAR .....	22
4. DOUBLESTACK INTERMODAL RAILCAR .....	23
5. MULTIPLE LAUNCH ROCKET SYSTEM ON 89-FOOT DODX FLATCAR.....	41
6. MILITARY UNIT TRAIN WITH M1A1 ABRAMS TANKS .....	43
7. M1A1 ABRAMS TANKS ON 68-FOOT DODX FLATCARS .....	43
8. MILITARY VEHICLES ON COMMERCIAL FLATCARS .....	44
9. M2 BRADLEY FIGHTING VEHICLES ON 60-FOOT HTTX FLATCAR.....	44
10. FORT HOOD RAIL TRANSPORTATION ROUTING .....	46





## LIST OF TABLES

1. BNSF FACTS SNAPSHOT .....	10
2. UP FACTS SNAPSHOT .....	12
3. GE AC4400CW CHARACTERISTICS .....	14
4. GE C44-9 CHARACTERISTICS .....	14
5. GE C40-8W CHARACTERISTICS.....	15
6. EMD SD70MAC CHARACTERISTICS.....	15
7. EMD SD60M CHARACTERISTICS .....	16
8. EMD SD40-2 CHARACTERISTICS .....	16
9. TYPICAL RAILCAR CHARACTERISTICS .....	18
10. FUTURE GENERAL-PURPOSE RAILCAR INVENTORY .....	20
11. FUTURE M2 BFV-COMPATIBLE RAILCARS .....	21
12. COMMERCIAL RAILCARS FOR 20-FOOT CONTAINERS.....	24
13. DFRIF GOVERNMENT-OWNED FLATCARS (MILITARY MOVEMENT).....	24
14. UP STB FILINGS STATISTICAL SUMMATION .....	31
15. UP TRAINS HELD FOR POWER, CREWS AND CONGESTION .....	32
16. UP SYSTEM TRAIN SPEED, SIDINGS AND MULTIPLE MAINS BLOCKED.....	34
17. UP SYSTEM CAR INVENTORIES AND TEXAS/LOUISIANA CAR INVENTORIES.....	36
18. ARMORED DIVISION RAIL MOVEMENT REQUIREMENTS .....	42
19. TRANSIT SPEED CONGESTION SIMULATION RETURNS .....	61



## I. INTRODUCTION

### A. DISCUSSION

The United States Army is heavily dependent upon commercial railroad transportation assets for the movement of tracked and wheeled vehicles from origin to Seaports of Embarkation (SPOE's) during unit mobilizations. Upon arrival at the SPOE, the transported equipment is staged and ultimately loaded onto Military Sealift Command (MSC) organic or contractual assets for further transportation to the Theater of Operations (TOO). During Operation Desert Shield/Desert Storm, the Military Traffic Management Command (MTMC) routed 1.2 million tons of unit cargo and equipment to U.S. SPOE's on nearly 16,000 commercial rail cars [Ref. 1:p. 166]. Additionally, the Defense Freight Railway Interchange Fleet (DFRIF) of approximately 1500 heavy-duty flatcars was used extensively to transport heavy tracked equipment such as the M1 Abrams and M60 tanks.

Shortly after the merger of the Union Pacific and Southern Pacific railroads in 1997, severe rail congestion began to affect rail operations in the Western United States. Shippers within the state of Texas experienced delays ranging from days to several weeks. Delays of seven to ten days were experienced in California. These delays caused by rail congestion would have a significant impact on the movement of military unit cargo and equipment to SPOE's.

## **B. AREA OF RESEARCH**

This thesis will identify and evaluate the effects of railroad congestion on Department of Defense (DoD) transportation efforts. The objective is to clearly present the Fort-to-Port transportation process and the detrimental effect railroad congestion has on this effort. Department of Defense transportation efforts in the Eastern United States will not be addressed as these transportation efforts and requirements are similar in nature to those being presented here. Each service in DoD utilizes rail in daily operations however the U.S. Army is singularly the dominant user of rail assets. It is for this reason that U.S. Army mobilization requirements for railroad transportation are analyzed and presented.

## **C. SCOPE OF THE THESIS**

This thesis will present and analyze the rail transportation requirements of a notional U.S. Army Armored Division located at Fort Hood, Texas, in the context of severe railroad congestion. The transportation requirements for such a unit would be representative of those found during a Major Regional Contingency / Major Theater of War mobilization. Additionally, due to the large number of armored vehicles in such a unit, the need for specialized heavy-duty flatcars adds an additional level of complexity to the transportation effort. The rail transportation requirements of this notional unit will be analyzed from a point of origin, Fort Hood, Texas, to two geographically separated SPOE's. The two SPOE's will be the Port of Beaumont in Beaumont, Texas, and the

Port of Oakland in Oakland, California. Each of these ports has been utilized in previous DoD mobilization transportation efforts.

The intention of this thesis is to examine the effects of railroad congestion on the transportation efforts of the U.S. Army and to provide recommendations to offset or avoid this congestion during future mobilizations.

#### **D. RESEARCH QUESTIONS**

The primary question addressed by this thesis is:

- Given a congested railroad environment during Fort-to-Port transportation efforts, will DoD mobilization timelines be significantly impacted?

The secondary questions addressed by this thesis are:

1. What commercial railroads are involved in DoD transportation efforts in the Western United States?
2. What is the level of rail transportation required by DoD forces?
3. What rolling stock is required to meet the transportation requirements of DoD?
4. What rolling stock is government-owned and available for these transportation efforts?
5. Is the amount of rolling stock available to DoD sufficient to meet transportation efforts?
6. How have the commercial railroad industry's modernization efforts impacted DoD?
7. Does railroad congestion truly exist?
8. What factors contribute to railroad congestion?

## **E. ORGANIZATION**

This thesis is organized into five chapters and three appendixes. Chapter I serves as an introduction to the research issues.

Chapter II provides background information on DoD use of commercial railroads during previous force mobilizations. The two principal Western United States Class I railroads are discussed. Additionally, the different types of railroad rolling stock and motive power utilized in DoD transportation efforts will be introduced to the reader. Chapter II will conclude with a presentation of DoD rolling stock assets.

Chapter III discusses railroad congestion in the Western United States. Historical data will be presented and analyzed to validate the existence of railroad congestion in the Western United States.

Chapter IV examines and presents the force structure and rail transportation requirements for a notional Armored Division stationed at Fort Hood, Texas. Utilizing the presented force structure, a simulation will be conducted consisting of a baseline analysis and four delay variables with a single origin and two destinations. The impact of each delay variable will be compared to the baseline to determine the effect on the overall transportation effort. The intent of this simulation is to analyze the effects of railroad congestion on the Fort-to-Port transportation effort.

Chapter V provides a concise overview of my conclusions concerning the impact of railroad congestion on DoD transportation efforts, as well as my recommendations for dealing with current and anticipated problems arising from this congestion.

## II. BACKGROUND: RAILROADS AND THE MILITARY

### A. INTRODUCTION

Logistics provides the means to create and support combat forces. Logistics is the bridge between the national economy and the operation of combat forces. Thus, in its economic sense it limits the combat forces, which can be created; and in its operational sense it limits the forces which can be employed. Thus strategy and tactics are always limited and at times are determined by logistic factors. Obviously, therefore, in order to support the combat requirements of strategy and tactics the objective of all logistics efforts must be the attainment of sustained combat effectiveness in operating forces [Ref. 2: p. xxiii]

**Rear Admiral Henry E. Eccles, USN**

The United States military relies heavily upon the railroad industry within the continental United States for movement of unit equipment and supplies in response to current or future crisis mobilizations and deployments. Operation Desert Shield/Desert Storm is the most recent example of a large-scale reliance upon the commercial railroad sector. Vast amounts of unit equipment and sustainment cargoes were expeditiously and safely moved from various military installations to seaports of embarkation throughout the United States. On arrival at the seaport, the equipment was loaded onto awaiting shipping for transportation to the Arabian Gulf.

To move these vast amounts of unit equipment in the Western United States, the Department of Defense relies on two Class I railroads: the Burlington Northern Santa Fe (BNSF) and the Union Pacific Railroad (UP). These two railroads are the most recent incarnation of western railroading as railroads throughout the United States continue to

merge hoping to realize the economies of scale necessarily inherent to such large organizations.

The BNSF and UP railroads require large numbers of both motive power and rolling stock to move military unit equipment. Additionally, the U.S. Army due to its large inventory of tracked and wheeled equipment requires large numbers of specialized and general-purpose flatcars for the deployment from installation to seaport of embarkation. These numbers are offset slightly by the Defense Freight Railway Interchange Fleet (DFRIF). The DFRIF consists of specially designed heavy-duty flatcars for the transportation of heavy U.S. Army tracked equipment such as the M1/M1A Abrams Main Battle Tank and the Multiple Launch Rocket System (MLRS).

The intent of this chapter is to provide a brief overview of the use of commercial railroads during times of national crisis, the players in the commercial industry, and the equipment necessary to move such large amounts of equipment and cargo.

## **B. OPERATION DESERT SHIELD/DESERT STORM**

The Military Traffic Management Command relied heavily upon the commercial sector for overland transportation services in support of Operation Desert Shield/Desert Storm.

The commercial sector's response to the Operation Desert Shield/Desert Storm mobilization and deployment manifested itself in several ways. Burlington Northern Railroad (BN) created a train service dedicated to military cargo. Throughout Operation Desert Shield/Desert Storm, BN moved 1,500 carloads of food, ammunition, jet fuel, and



other military impedimenta. Consolidated Rail Corporation (Conrail) moved 474 carloads of M1 tanks directly from manufacturing facilities to the port at Bayonne, New Jersey. Conrail also transported 276 carloads of new "Hummer" utility vehicles and 1,209 carloads of new five-ton trucks from the production line to air and seaports of embarkation. Santa Fe and Union Pacific moved 3,851 and 2,000 carloads respectively in support of Operation Desert Shield/Desert Storm. [Ref. 1: p. 166]

The Association of American Railroads (AAR) recorded that, in descending order, CSX Transportation (CSX), Union Pacific (UP), Southern Pacific Transportation Co. (SP), and Atchison, Topeka and Santa Fe Railway (Santa Fe) were the major haulers of military equipment during Operation Desert Shield/Desert Storm. CSX estimated it had moved 13,000 carloads of unit equipment and general cargo. CSX also estimated that it operated 1,500 trains dedicated solely to the military in support of Operation Desert Shield/Desert Storm. [Ref. 1: p. 167]

A close examination conducted by the railroad industry of the Operation Desert Shield/Desert Storm mobilization and deployment noted several areas of concern. These concerns are presented below.

- "Short lead times" and "inflated requirements" by the military greatly complicated the industry's ability to allocate scarce rail resources.
- The railroads' lack of information relative to military intentions early in the mobilization and deployment hindered their ability to respond promptly and efficiently.
- 60-foot and 89-foot flatcars were especially hard to acquire for military transportation needs.

- The lack of future incentives for commercial rail companies to maintain in their inventories low revenue-producing cars and other equipment specially constructed for the military.
- In the presence of a stronger national economy, the rail industry would have been hard pressed to meet the military's requirements during Operation Desert Shield/Desert Storm.

In addition to the above concerns, Operation Desert Shield/Desert Storm clearly demonstrated the reliance of military units on rail transportation for surge operations. This reliance will continue to grow in the future as the United States reduces its overseas installations. It is truly imperative for the United States to maintain a healthy surface transportation industry to support the increased CONUS military presence. [Ref. 1: p. 175]

### **C. WESTERN UNITED STATES RAILROADS**

The past several years have seen a rapid consolidation of the nation's Class I (\$50 million in gross revenues annually) railroads. During the early 1990's, four Class I railroads provided rail services in the western United States. These four railroads were the Burlington Northern Railroad Company, the Atchison, Topeka and Santa Fe Railway Company, the Union Pacific Railroad Company and the Southern Pacific Transportation Company.

The present day railroading industry in the Western United States is quite different than that presented in the early 1990's. As a result of consolidation and merger, just two Class I railroads continue to operate in the Western United States. These two remaining

railroads are the Burlington Northern Santa Fe and the Union Pacific Railroad, which acquired Southern Pacific in 1996.

### 1. Burlington Northern Santa Fe

The Burlington Northern and Santa Fe Railway Company operates one of the largest railroad networks in North America. (See Figure 1) BNSF has 34,000 route miles covering 28 states and two Canadian provinces. This rail network spans the western two-thirds of the United States, stretching from major Pacific Northwest and Southern California ports to the Midwest, Southeast and Southwest, and from the Gulf of Mexico to Canada. [Ref. 4]

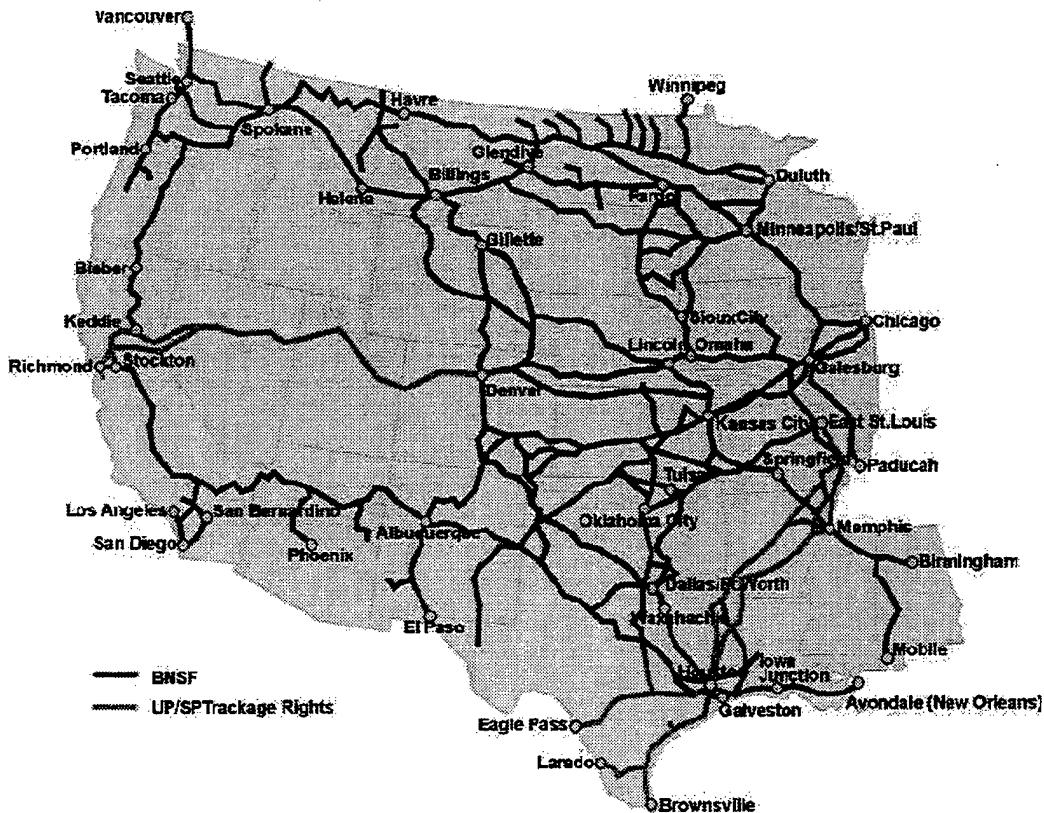



Figure 1. Burlington Northern Santa Fe System Map [Ref. 3]

BNSF was created on September 22, 1995, from the merger of Burlington Northern Inc. (parent company of Burlington Northern Railroad) and Santa Fe Pacific Corporation (parent company of the Atchison, Topeka and Santa Fe Railway) [Ref. 4]. Table 1 provides a snapshot of BNSF operations.

	Route Miles	34,000
	Number of Employees	44,500
	Locomotives	5,000
	Freight Cars in Service	90,000

**Table 1. BNSF Facts Snapshot [Ref. 5]**

In 1997, BNSF invested over \$2 billion in capital investments with another \$2 billion planned for 1998. BNSF has received over 1000 new locomotives since its inception four years ago. Additionally, 500 more locomotives are scheduled for delivery during 1999. With these new locomotives in its roster, 25 per cent of BNSF's locomotive fleet will be less than five years old. [Ref. 6]

## **2. Union Pacific Railroad**

The Union Pacific Railroad is an operating subsidiary of Union Pacific Corporation. It is the largest railroad in North America, operating in the western two-thirds of the United States. Union Pacific serves 23 states, linking every major West Coast and Gulf Coast seaport. (See Figure 2) Union Pacific has over 36,000 route miles of track connecting the United States, Canada and Mexico. [Ref. 8]

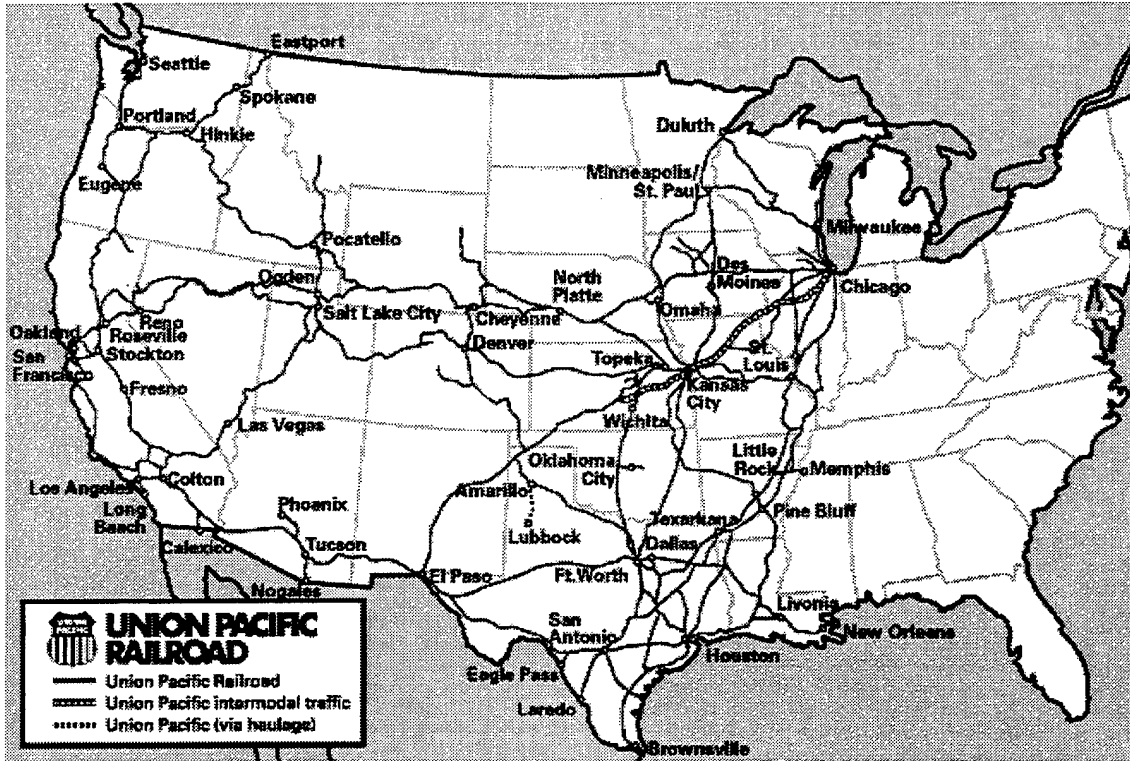



Figure 2. Union Pacific Railroad System Map [Ref. 7]

The existing Union Pacific Railroad was formed in 1996 when Union Pacific Railroad merged with San Francisco, California, based Southern Pacific Railroad (SP). The addition of SP provided an additional 13,000 miles of track throughout the West and Northwestern United States. More importantly, it provided an additional 3,898 miles of track in the profitable California corridor, with access to the major intermodal facilities at Long Beach, Oakland, Stockton, and Los Angeles, California. Table 2 provides a snapshot of UP operations.

	<b>Route Miles</b>	<b>36,026</b>
	<b>Number of Employees</b>	<b>52,081</b>
	<b>Locomotive</b>	<b>7,100</b>
	<b>Freight Cars In Service</b>	<b>146,013</b>

**Table 2. UP Facts Snapshot [Ref. 8]**

Throughout 1997, UP spent over \$2 billion on capital improvements.

Additionally, another \$2.4 billion was earmarked for capital improvements throughout 1998. Some of these improvements included:

- The complete rebuilding of the Roseville, California, freight yard.
- Expansion of the Livonia, Louisiana, classification yard.
- Construction of a new intermodal facility in Marion, Arkansas.
- Upgrading of existing rail lines and building of additional sidings and rail siding extensions on the Kansas Pacific Route (Denver to Kansas City). [Ref. 9]

In addition to these projects, UP has targeted Houston and the surrounding vicinity for major capital investment projects. Additional capital investments are planned for 1999-2002. UP warned that completion of its whole laundry list of capital improvement projects would take several years. [Ref. 10]

#### **D. REPRESENTATIVE MOTIVE POWER**

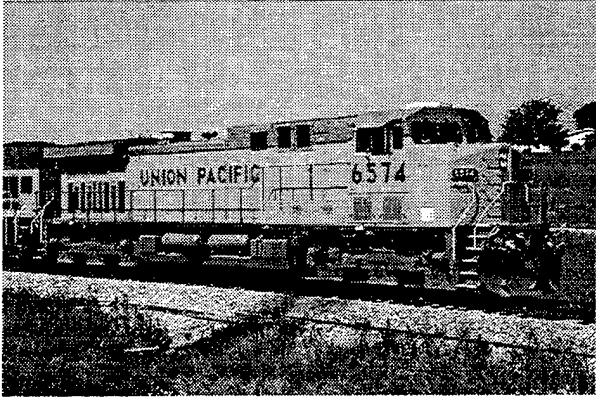
The number and variety of locomotives available to United States railroads is quite large and diverse. BNSF and UP have over 12,000 locomotives available for road service.

Currently, there are two principal locomotive producers in the United States, General Motors' Electro-Motive Division (EMD), and General Electric Transportation Systems (GE). Each of these locomotive manufacturers is operating at full capacity fulfilling orders for motive power by U.S. railroads.

The technology of locomotion has changed remarkably in the last few years. The industry has seen the introduction of computer technology and a new type of traction motor system based upon alternating current (AC) instead of direct current (DC) technology. The introduction of AC, along with computer control and other features, has essentially doubled the pulling ability or "tractive effort" of a 4,000 horsepower diesel engine in a locomotive. Typical AC locomotives run approximately \$2.5 million each while standard DC locomotives cost approximately \$1.8 million. [Ref. 11: p. 30]

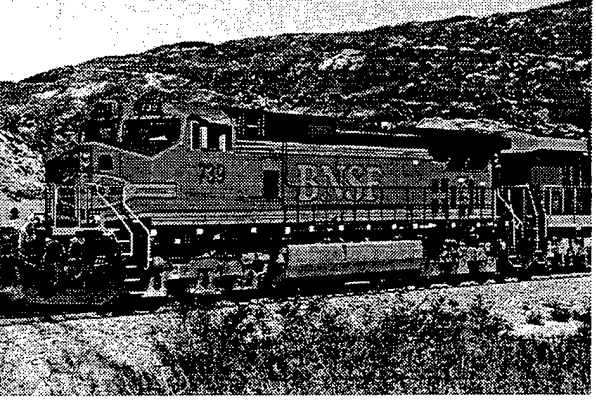
Several examples of typical motive power and their operating characteristics are provided below. Each of these locomotives may be observed providing power for military unit trains. This sampling is not intended to present all locomotives but rather a small portrayal of what may be utilized during unit mobilizations and deployments.

**1. GE AC4400CW**

Horsepower	4,400	
Length	73'-2'	
Wheelbase	158"	
Wheel Diameter	42"	
Weight (loaded)	412,000	
Tractive Effort:		
Continuous:	145,000 lbs.	
Starting:	180,000 lbs.	
Dynamic Braking Effort	98,000 lbs.	
Adhesion (all-weather)	35%	

**Table 3. GE AC4400CW Characteristics [Ref. 12]**


**2. GE C44-9**

Horsepower	4,400	
Length	73'-2'	
Wheelbase	158"	
Wheel Diameter	40"	
Weight (loaded)	408,000	
Tractive Effort:		
Continuous:	118,000 lbs.	
Starting:	159,000 lbs.	
Dynamic Braking Effort	84,000 lbs.	
Adhesion (all-weather)	30%	

**Table 4. GE C44-9 Characteristics [Ref. 12]**

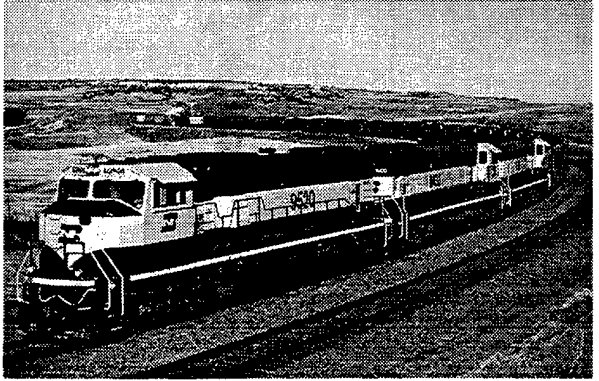


### 3. GE C40-8W

Horsepower	4,000	
Length	70'-10"	
Wheelbase	163"	
Wheel Diameter	40"	
Weight (loaded)	408,000	
Tractive Effort:		
Continuous:	109,000 lbs.	
Starting:	140,000 lbs.	
Dynamic Braking Effort	78,000 lbs.	
Adhesion (all-weather)	26%-28%	


**Table 5. GE C40-8W Characteristics [Ref. 12]**

### 4. EMD SD70MAC

Horsepower	4,000	
Length	74'-0"	
Wheelbase	164"	
Wheel Diameter	42"	
Weight (loaded)	415,000	
Tractive Effort:		
Continuous:	137,000 lbs.	
Starting:	175,500 lbs.	
Dynamic Braking Effort	N/A	
Adhesion (all-weather)	33%	


**Table 6. EMD SD70MAC Characteristics [Ref. 12]**

**5. EMD SD60M**

Horsepower	3,800	
Length	71'-2'	
Wheelbase	163"	
Wheel Diameter	40"	
Weight (loaded)	400,000	
Tractive Effort:		
Continuous:	100,000 lbs.	
Starting:	149,500 lbs.	
Dynamic Braking Effort	N/A	
Adhesion (all-weather)	25%	

**Table 7. EMD SD60M Characteristics [Ref. 12]**

**6. EMD SD40-2**

Horsepower	3,000	
Length	68'-10'	
Wheelbase	163"	
Wheel Diameter	40"	
Weight (loaded)	400,000	
Tractive Effort:		
Continuous:	87,150 lbs.	
Starting:	130,000 lbs.	
Dynamic Braking Effort	N/A	
Adhesion (all-weather)	21%	

**Table 8. EMD SD40-2 Characteristics [Ref. 12]**

## **E. REPRESENTATIVE RAILCARS**

During 1998, the North American railroad freight car-building industry delivered 75,685 new cars [Ref. 13]. These deliveries represented many classes of railcars for a multitude of transportation missions, ranging from boxcars for transporting automotive parts and beer, to the newest articulated-well cars designed for doublestack intermodal operations. From a militarily useful perspective, three general classes of railcars are of import: General-purpose (flatcar) railcars, bi-level railcars, and intermodal railcars. Additionally, DoD manages a fleet of railcars, the Defense Freight Railway Interchange Fleet, designed to supplement commercial railcar sources during unit mobilizations and deployments.

Each of these railcars and their general characteristics are presented below.

### **1. General-Purpose Railcars**

About 95 percent of the railcars used in the CONUS rail deployment of unit equipment during Operation Desert Shield/Desert Storm were standard and multilevel flatcars [Ref. 14: p. 39]. A 1996 study by the Military Traffic Management Command Transportation Engineering Agency (MTMCTEA) reported that there were 11,835 militarily useful general-purpose commercial flatcars in the United States. Furthermore, this study determined that an inventory with 7,500 general-purpose flatcars would be enough to meet current contingency requirements. [Ref. 15: p. 1] Table 9 lists typical militarily useful railcars and their respective characteristics.

Type Railcar and Designation if any <sup>1</sup>	Typical Deck Dimensions Length by Width (ft, mm, in)	Typical <sup>2</sup> Load Limit (lb, kg)	Typical Deck Height Above Top of Rail (ft, mm, in)	Approx. Number Available <sup>3</sup>
<b>Flatcars ITTX and similar</b>	89 by 8.5 27,127 by 2591 1068 by 102	140,000 63,500	3.50 1067 42	1000 <sup>4</sup>
**4-axle, cushioned draft gear flatcar equipped with 3/8-in. chains. Chains have working load limit of 9,000 lb. Also equipped with special adjustable and foldaway pedestals.				
<b>Flatcars TTDX and similar</b>	89 by 8.5 27,127 by 2591 1068 by 102	140,000 63,500	3.50 1067 42	300 <sup>4</sup>
**4-axle, cushioned draft gear flatcar equipped with 1/2-in. chains. Chains have working load limit of 13,750 lb and are proof tested to 27,500 lb.				
<b>Flatcars OTTX and similar</b>	60 by 10.5 18,288 by 3200 720 by 126	144,000 65,300	3.75 1143 45	1800 <sup>4</sup> (1,211)
**4-axle, cushioned draft gear flatcar equipped with 3/8-in. chains. Chains have working load limit of 9,000 lb.				
<b>Flatcars HTTX and similar</b>	60 by 10.5 18,288 by 3200 720 by 126	146,000 66,200	3.75 1143 45	900 <sup>4</sup> (784)
**4-axle, cushioned draft gear flatcar equipped with heavy-duty tiedowns. Equipped with 1/2-in. chains with working load limit of 13,750 lb.				
<b>Flatcars MTTX and similar</b>	60 by 10.5 18,288 by 3200 720 by 126	148,000 67,100	3.50 1067 42	950 <sup>4</sup>
**4-axle, basic multipurpose cushioned draft gear flatcar with plain wood deck but no chains.				
<b>Flatcars DODX 40000 series</b>	68 by 10.4 20,726 by 3175 816 by 125	298,000 135,200	4.08 1245 49	566
**Heavy-duty, 6-axle, cushioned draft gear flatcar with 1/2-in. chains.				
<b>Flatcars DODX 41000 series</b>	68 by 10.5 20,726 by 3200 816 by 126	180,000 81,600	4.17 1270 50	256
**4-axle, steel-deck, cushioned draft gear flatcar equipped with 1/2-in. chains with working load limit of 13,750 lb and lift-up pedestals.				
<b>Flatcars DODX 42000 series</b>	89 by 9.5 27,127 by 2896 1068 by 114	164,000 74,400	4.25 1295 51	334
**4-axle, steel-deck, cushioned draft gear flatcar equipped with 1/2-in. chains with working load limit of 13,750 lb and lift-up container pedestals.				

**Table 9. Typical Railcar Characteristics [Ref. 16: p. 18]**

Type Railcar and Designation if any <sup>1</sup>	Typical Deck Dimensions Length by Width (ft, mm, in)	Typical <sup>2</sup> Load Limit (lb, kg)	Typical Deck Height Above Top of Rail (ft, mm, in)	Approximate Number Available <sup>3</sup>
<b>Flatcars Others (cushioned and standard draft gear)</b>	89.3 by 8.5 to 51.3 by 10.0 27,127 by 2591 to 15,645 by 3200 1072 by 102 to 616 by 126	100,000 to 140,000 45,400 to 63,500	4.17 1270 50	Widely Available <sup>5</sup>
**Flatcars may have standard or cushioned draft gear.				
<b>Boxcars</b>	50.5 by 9.6 to 86.5 by 9.2 15,392 by 2920 to 26,365 by 2896 606 by 115 to 630 by 114	100,000 to 160,000 45,400 to 72,600	4.17 1270 50	Widely Available <sup>5</sup>
**Boxcars may have standard or cushioned draft gear.				
<b>Gondolas</b>	46.0 by 9.6 to 52.5 by 9.5 14,021 by 2920 to 16,002 by 2896 552 by 115 to 630 by 114	140,000 to 200,000 63,500 to 90,700	4.17 1270 50	Widely Available <sup>5</sup>
**Gondolas may have standard or cushioned draft gear.				
<b>COFC (Container on flatcar railcars)</b>	Suitable for 20-ft. and 40-ft. ISO containers.	Limited by container	Variable	32,660
**Of these, 12,872 are double stack cars typically used in special service.				
<b>TOFC (Trailer on flatcar railcars)</b>	Suitable for semi-trailer up to: 53 ft, 16,150 mm, 636 in	140,000 63,503	3.75 1143 45	Widely Available <sup>5</sup>
**Suitable only for semitrailers with 2-inch (50.8 mm) kingpins. Many are only suitable for 102-inch (2590.8 mm) wide semitrailers.				
<sup>1</sup> Lettering appearing on the sides of all freight cars identifying ownership.				
<sup>2</sup> The maximum weight that can be loaded on a railcar.				
<sup>3</sup> Data Source – The Official Railway Equipment Register, RER Publishing Corp., Oct. 97.				
<sup>4</sup> For the ITTX, HTTX, OTTX, and MTTX flatcars, the number given denotes the total number of flatcars that have that or a similar designation. The number in parentheses for the HTTX, OTTX and MTTX denotes the number of flatcars that meet Note 3 in the Trailer Train Company of The Official Railway Equipment Register. Note 3 states, “These 60-ft flatcars are capable of carrying 90% of the load limit over a centered 14 ft.” This means these railcars can transport tanks weighing up to about 64.8 tons. (58,786 kg).				
<sup>5</sup> The term “widely available” means that railcars of this type are abundant; however, a specific car may not be readily available.				

**Table 9. Typical Railcar Characteristics – (Cont.)**

The commercial inventory of general-purpose flatcars can support U.S. force deployment through at least 2002. In general, flatcars built in 1963 and earlier must be retired after 40 years, while flatcars built in and after 1964 may remain in service up to 50 years. The commercial flatcar inventory could remain at least marginally adequate until about 2015, provided that almost all flatcars remain in service until they reach mandatory retirement age. [Ref. 15: p. 1] Table 10 presents projections for future general-purpose flatcar inventories utilizing the twenty-percent decline in inventories observed between 1992 and 1995. Table 11 presents projections for future M2 Bradley Fighting Vehicle (BFV) compatible flatcars.

Year	Twenty-Two Percent Decline (a)			Maximum Service Life (b)		
	Chain-Equipped	Nailable Deck	Total	Chain-Equipped	Nailable Deck	Total
1996 Inventory	7,012	4,823	<b>11,835</b>	7,012	4,823	<b>11,835</b>
1999 Projection	5,469	3,762	<b>9,231</b>	6,873	3,578	<b>10,451</b>
2002 Projection	4,266	2,934	<b>7,200</b>	6,473	3,269	<b>9,742</b>
2005 Projection	3,327	2,289	<b>5,616</b>	6,349	2,978	<b>9,327</b>
2008 Projection	2,595	1,785	<b>4,380</b>	6,349	2,978	<b>9,327</b>
2011 Projection	2,024	1,392	<b>3,416</b>	6,349	2,978	<b>9,327</b>

a – Twenty-two percent decline every 3 years.  
b – Based on flatcars built before 1964 being retired after 40 years; flatcars built in 1964 and later retired after 50 years.

**Table 10. Future General-Purpose Railcar Inventory [Ref. 15: p. 9]**

Year	HMMWV-Compatible Flatcars			M2 BFV-Compatible Flatcars		
	Chain-Equipped	Nailable Deck	Total	Chain-Equipped	Nailable Deck	Total
1996 Inventory	7,012	4,823	11,835	4,488	4,633	9,121
1999 Projection	6,873	3,578	10,451	4,321	3,424	7,745
2002 Projection	6,473	3,269	9,742	4,291	3,140	7,431
2004-2013 Projection	4,918	2,151	9,327	4,275	2,853	7,128

\*Based on maximum (40- or 50-year) service life.

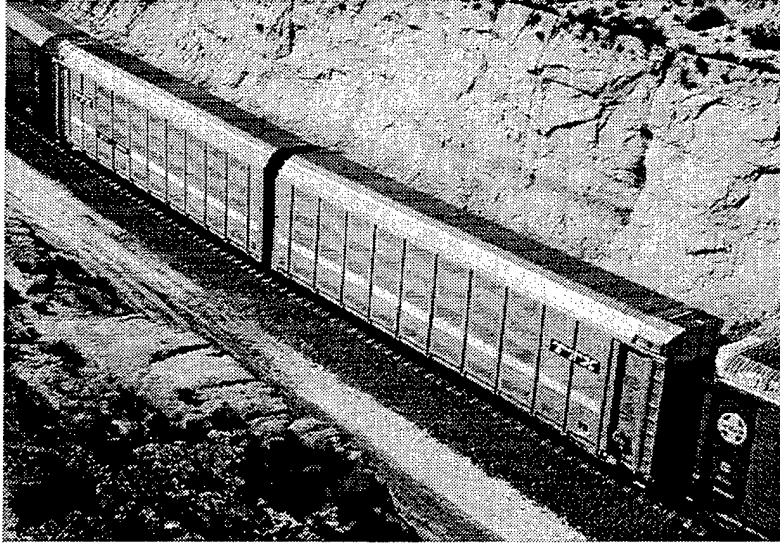
**Table 11. Future M2 BFV-Compatible Railcars [Ref. 15: p. 10]**

## 2. Bi-Level Railcars

Bi-level railcars are a type of specialized flatcar that can carry some military equipment. However, due to internal height restrictions, these railcars lack the flexibility to carry larger military vehicles, and therefore cannot replace the general-purpose flatcars presented in the previous section, other than on a very limited basis. [Ref. 15: p. 12]

Bi-level railcars are designed for the transportation of automobiles, light trucks, or passenger vans. The standard bi-level flatcar does not have chock blocks strong enough for securing military vehicles such as the HMMWV. Chain-equipped bi-levels can carry military vehicles, but because of the second deck, they are restricted to carrying relatively small military vehicles. [Ref. 15: p. 12] Figure 3 shows a typical bi-level railcar.

The current inventory of bi-level railcars (over 20,000) is more than adequate to support military needs. The average bi-level was built or rebuilt after 1970 allowing for a sufficient supply well after 2020. Additionally, bi-level railcars are still in production by a number of North American railcar manufacturers. [Ref. 15: p. 12]



**Figure 3. Bi-Level Railcar**

### **3. Intermodal Railcars**

Intermodal railcars carry cargo in containers or trailers as part of an intermodal journey including more than one mode (ship/rail/truck) of transportation. Intermodal railcars are quite prevalent today and are suitable for transporting military equipment, which has been containerized in 20- or 40-foot ISO containers. However, few intermodal railcars are equipped with chain tiedowns appropriate for carrying military vehicles. [Ref. 15: p. 13]

There are three general types of intermodal railcars. Trailer on flatcar (TOFC), Container on flatcar (COFC), Doublestack railcars and spine cars. TOFC railcars are designed to carry truck semi-trailers. COFC and doublestack railcars are designed to carry standard ISO containers. Doublestack railcars, as their name implies, carry containers stacked two high compared to COFC railcars, which are limited to single level



heights. Spine cars are specially designed articulated railcars consisting of a skeletal spine, container shoes, and in some cases, short platforms to accommodate the wheels of truck semi-trailers [Ref. 15: p. 13]. Figure 4 is an example of a typical doublestack intermodal railcar.



**Figure 4. Doublestack Intermodal Railcar**

Container on flatcar, doublestack and spine cars have a military use as DoD emphasizes the use of containerization to move unit equipment. DoD primarily uses the 20-foot ISO container to transport unit equipment. There are over 30,000 commercial railcars that can carry 20-foot containers [Ref. 15: p. 13]. Table 12 provides a listing of commercial railcars for 20-foot containers.

Type of Railcar	Quantity
Conventional container flatcar	12,846
Single unit doublestack cars (20-foot container compatible*)	3,722
Articulated doublestack cars (20-foot container compatible*)	9,150
Articulated spine cars	6,942
Total, railcars that can carry 20-foot containers	32,660
*Additional doublestack cars are available for carrying 40-foot and larger containers.	

**Table 12. Commercial Railcars For 20-Foot Containers [Ref. 15: p. 14]**

**F. DEFENSE FREIGHT RAILWAY INTERCHANGE FLEET**

The Defense Freight Railway Interchange Fleet (DFRIF) is intended to supplement the commercial railcar fleet during times of crisis. These cars were purchased by DoD and then strategically placed throughout CONUS at military installations. Of particular note is the fact that the DFRIF has the largest number of heavy-duty flatcars capable of transporting the M1/M1A Abrams tank and other similar equipment. These heavy-duty flatcars are designed to carry two M1/M1A Abrams; no commercial flatcar is capable of more than one M1/M1A tank [Ref. 15: p. 15]. Table 13 provides the status of the DFRIF as of October 1998.

Approximate Length (ft)	Approximate Load Limit (lb.)	Quantity	Remarks
68	300,000	566	Purchased to move M1 tanks and similar heavy equipment.
68	180,000	256	Purchased for rapid contingency response
89	165,000	334	Purchased for rapid contingency response
89	150,000	320	COFC
**This table included DoD flatcars that normally move military vehicles. There are other DoD flatcars configured for special purposes in the DFRIF.			

**Table 13. DFRIF Government-Owned Flatcars (Military Movement)**

## **G. CONCLUSION**

The Department of Defense relies upon the commercial railroad industry to move large amounts of unit equipment and cargo during times of crisis. To accomplish this mission, the railroads utilize various railcars and locomotives. While some railcars are specialized and used only for limited tasking, DoD depends upon railcars, which are readily available in the commercial arena. For heavy-duty movements, DoD has supplemented the commercial inventory with the DFRIF to offset the lack of heavy-duty capability in the commercial sector.

The next chapter discusses the topic of congestion and its possible impact on DoD movements during times of crisis. Congestion will be presented in the context of the Union Pacific's traffic problems in Texas and the Gulf Coast region during 1997 and 1998.



### III. RAIL CONGESTION

**con•gest** – vb [L congestus, pp. of congerere to bring together, fr. com- + gerere to bear – more at CAST] (vt) **1:** to cause an excessive fullness of the blood vessels of (as an organ) **2.** CLOG <traffic ~ed the highways> **3:** to concentrate in a small or narrow space ~ (vi): to become congested – **con•ges•tion** (n) – **con•ges•tive** (adj)

#### Webster's New Collegiate Dictionary

##### A. INTRODUCTION

Prompt and sustained transportation efforts are vital to a successful unit mobilization or deployment. This is even more crucial during times of heightened tensions or world crisis. As a result of this need for prompt transportation efforts, the Department of Defense can be severely impacted by rail congestion.

Railroad transportation efforts can be hampered by a number of factors. Shortages of locomotive power, locomotive crews, and system congestion can all impact a rail system's integrity and smooth functioning. Capacity constraints may also lead to congestion. Congestion centered on one region of the country can easily spread to other regions due to the reliance on interchange traffic between railroads. A railroad located in the Eastern United States that is transporting unit equipment to the west coast of the United States must transfer the loaded railcars to a western railroad to complete the transit. Severe congestion results in poor asset utilization. Additionally, locomotive power, rolling stock, and crews are not always located where they are needed due to crews running into the "hours of service" laws (US Code Title 49, Section 21103).

Another factor exacerbating congestion is the use of trackage rights in which one railroad operates over another railroad's tracks to service a region or customer. As one railroad begins to suffer from congestion, another railroad with trackage rights is unable to move freight over the requisite tracks. Delays on one railroad soon begin to impact another. These delays soon ripple throughout the U.S. rail industry impacting all railroads, not just the one where the congestion originated. Congestion in Houston, Texas, can easily impact Southern California ports.

An example of congestion rippling throughout the country can be demonstrated by the congestion that resulted after the Union Pacific Railroad merged with the Southern Pacific railroad. What started out as mild congestion limited to several ex-Southern Pacific rail yards in Houston, Texas, soon crippled rail traffic from Louisiana to Southern California.

#### **B. UNION PACIFIC RAILROAD CONGESTION**

Shortly after the merger between the Union Pacific Railroad and Southern Pacific Railroads was approved in 1996, congestion problems developed in a switching yard in Houston, Texas. These congestion problems in an isolated yard soon resulted in the largest display of rail gridlock in history. Before the congestion eased in late 1998, the Union Pacific initials of UP had become synonymous with "Utterly Pathetic" and "Unlimited Parking." [Ref. 68: p. 24]

The resultant blame for the rail gridlock has been centered on Union Pacific's decision to close two former Southern Pacific rail yards in Houston, Texas, and routing

the rail traffic from these two yards through a single Union Pacific yard, also located in Houston. The Union Pacific yard quickly became overwhelmed by the additional traffic, and, by August 1997, began experiencing delays. Another factor leading to the gridlock was Union Pacific's desire to speed up the merger process with a flurry of cost-cutting measures that resulted in not enough cars, not enough locomotives, not enough crews, and not even enough track space to handle the 340,000 cars demanded by its customers every day. [Ref. 69] The resultant rail traffic gridlock in Houston, Texas, delayed cars moving between the West Coast and the Midwest and Eastern points and quickly spread from there [Ref. 70]. At the height of the congestion, Union Pacific suffered a spate of serious accidents, five in two months, which further aggravated the congestion within its system. [Ref. 71: p. 25] As late as July 1998, Union Pacific was still experiencing significant congestion on former Southern Pacific lines in Southern California and as far east as El Paso, Texas, and beyond. Additionally, in a week's time during the same period, 70 trains were parked at rail sidings between Houston, Texas, and Los Angeles, California. [Ref. 72: p. 29]

As a result of the severe congestion problems, the Surface Transportation Board (STB) issued an administrative decision on October 15, 1997, **STB Ex. Parte No. 573: Rail Service in the Western United States**, requiring Union Pacific to provide weekly reports detailing its service problems. Appendix A contains the full text of decision STB Ex. Parte No. 573. The STB required Union Pacific to submit certain detailed information concerning its system's capabilities and status. The required information consisted of the following UP system-wide information:

1. Major yard/terminal condition report (including port facilities): car capacity at each yard or terminal vs. cars on-hand (specifying loaded or empty) at each terminal.
2. Interchange report: numbers of cars held short of interchange or constructively interchanged by connections due to congestion, (a) on UP/SP, and (b) on other railroads.
3. Siding report: sidings blocked south of Kansas City and mainline sidings system wide vs. the number of those sidings blocked by loaded or empty cars awaiting power, crews, or further disposition.
4. Mainline report: number of mainlines blocked by trains (loaded or empty) awaiting crews or power.
5. Rerouting: number of UP/SP trains and carloads of UP/SP traffic routed over other railroads during the reporting period.
6. Locomotive report: average daily number of locomotives on-hand vs. serviceable locomotives.
7. On-line car inventory: total on-line car inventory, UP/SP ownership on-line, foreign railroad ownership on-line, and private car ownership on-line. [Ref. 17]

Appendix B contains a sampling of the Union Pacific STB report filings for the period covering 10/24/97-01/15/99. Sixty-nine weeks of data are included in 50 reports. . Table 14 provides a concise statistical summation of the UP data reflecting the mean, median, maximum, and minimum values and the number of data points utilized to compute each measure. Tables 15 through 17 contain data callouts for selected data points within the UP STB filings. Table 15 contains data relating to UP Trains Held for Power, Crews, and Congestion. Table 16 contains data relating to UP System Train Speed, System Sidings Blocked, and Multiple Mains Blocked. Table 17 reflects UP System Car Inventories and Texas and Louisiana Only Car Inventories. Additionally,



Table 17 displays the percentage relationship between UP System Car Inventories and Texas and Louisiana Car Inventories.

A close examination of the data shows that during the sixty-nine weeks of observation, Union Pacific's daily average for trains being held due to shortages of power, crews, and congestion was 238. This number reflects a large number of trains that were unable to move due to a saturated rail infrastructure. The statistical median shows a daily average of over 200 trains also. Additionally, Union Pacific was only able to average 14.2 miles-per-hour for trains moving along its rails. The baseline target for Union Pacific was 19 miles-per-hour. This lower than normal speed would have a significant impact on DoD in the event of a unit mobilization or deployment as the current planning factor utilized in deployment planning is 22 miles-per-hour. [Ref. 74: p. 39]. A 7.8 mile-per-hour differential between actual vs. planned speed equates to 187.2 miles not being traveled during a twenty-four hour period.

	Mean	Median	Max. Value	Min. Value	Data Weeks
Trains Held For Power	100	91	237	12	69
Trains Held For Crews	77	75	182	6	69
Trains Held For Congestion	61	53	113	17	44
System Speed (MPH)	14.23	14.1	17.3	12	69
System Sidings Blocked	94	93	197	25	64
System Multiple Mains Blocked	12	12	23	3	64
System Car Inventory	340,559	341,042	357,667	316,698	69
TX,LA Car Inventory	101,103	99,887	110,402	93,347	69
TX,LA % Car Inventory	29.68%	30.04%	31.21%	27.89%	69

**Table 14. UP STB Filings Statistical Summation**

Source Week	Trains Held For Power (Daily Avg.)	Trains Held For Crews (Daily Avg.)	Trains Held For Congestion (Daily Avg.)
19-Sep. 97	237	80	83
26-Sep. 97	223	50	111
03-Oct. 97	228	56	113
10-Oct. 97	217	75	71
17-Oct. 97	157	78	101
24-Oct. 97	168	104	76
31-Oct. 97	160	75	73
07-Nov. 97	225	99	53
14-Nov. 97	188	56	95
21-Nov. 97	139	57	105
05-Dec. 97	92	54	30
12-Dec. 97	65	83	34
19-Dec. 97	84	86	41
26-Dec. 97	59	162	27
02-Jan. 98	76	179	35
09-Jan. 98	54	65	30
16-Jan. 98	66	44	22
23-Jan. 98	97	58	17
30-Jan. 98	91	58	37
06-Feb. 98	123	79	35
13-Feb. 98	130	74	52
20-Feb. 98	129	94	68
27-Feb. 98	164	72	52
06-Mar. 98	164	69	58
13-Mar. 98	171	53	108
20-Mar. 98	188	127	81
27-Mar. 98	189	111	87
03-Apr. 98	165	100	108
10-Apr. 98	128	108	93
17-Apr. 98	123	113	79
24-Apr. 98	102	95	48
01-May 98	98	86	37
08-May 98	109	118	38
15-May 98	84	113	62
22-May 98	105	182	45
29-May 98	75	86	39

**Table 15. UP Trains Held for Power, Crews and Congestion**

Source Week	Trains Held For Power (Daily Avg.)	Trains Held For Crews (Daily Avg.)	Trains Held For Congestion (Daily Avg.)
05-Jun. 98	74	130	48
12-Jun. 98	104	105	35
19-Jun. 98	114	120	36
26-Jun. 98	134	138	48
03-Jul. 98	119	131	56
10-Jul. 98	66	138	48
17-Jul. 98	58	124	70
24-Jul. 98	76	108	87
31-Jul. 98	105	122	N/A
07-Aug. 98	99	132	N/A
14-Aug. 98	85	79	N/A
21-Aug. 98	91	91	N/A
28-Aug. 98	84	44	N/A
04-Sep. 98	89	56	N/A
11-Sep. 98	70	36	N/A
18-Sep. 98	47	42	N/A
25-Sep. 98	51	37	N/A
02-Oct. 98	44	49	N/A
09-Oct. 98	44	36	N/A
16-Oct. 98	39	34	N/A
23-Oct. 98	40	38	N/A
30-Oct. 98	57	29	N/A
06-Nov. 98	55	51	N/A
13-Nov. 98	55	24	N/A
20-Nov. 98	42	28	N/A
27-Nov. 98	29	45	N/A
04-Dec. 98	12	22	N/A
11-Dec. 98	18	15	N/A
18-Dec. 98	27	13	N/A
25-Dec. 98	29	50	N/A
01-Jan. 99	21	32	N/A
08-Jan. 99	33	10	N/A
15-Jan. 99	23	6	N/A

1. Trains held (Power, Crews, Congestion) reflect daily averages for each source week.  
2. Trains held due to congestion not available after 24-Jul. 98 due to revised reporting format.

**Table 15. UP Trains Held For Power, Crews and Congestion – (Cont.)**

Source Week	System Train Speed	System Sidings Blocked	Multiple Mains Blocked
19-Sep. 97	14.0		
26-Sep. 97	13.4		
03-Oct. 97	13.2		
10-Oct. 97	12.8		
17-Oct. 97	12.5		
24-Oct. 97	13.3	140	6
31-Oct. 97	12.7	134	15
07-Nov. 97	12.9	117	11
14-Nov. 97	13.5	111	14
21-Nov. 97	12.7	105	13
05-Dec. 97	13.1	70	6
12-Dec. 97	14.2	86	8
19-Dec. 97	14.1	96	7
26-Dec. 97	13.9	197	18
02-Jan. 98	12.3	126	10
09-Jan. 98	14.6	84	4
16-Jan. 98	15.4	78	8
23-Jan. 98	15.1	83	7
30-Jan. 98	15.1	96	7
06-Feb. 98	14.7	136	11
13-Feb. 98	13.8	146	13
20-Feb. 98	14.2	163	16
27-Feb. 98	13.5	172	16
06-Mar. 98	12.7	168	16
13-Mar. 98	12.0	187	22
20-Mar. 98	12.4	173	22
27-Mar. 98	12.6	157	17
03-Apr. 98	13.2	145	16
10-Apr. 98	12.4	141	20
17-Apr. 98	13.2	102	15
24-Apr. 98	13.5	76	12
01-May 98	14.6	79	9
08-May 98	14.6	77	13
15-May 98	14.5	87	14
22-May 98	13.9	107	18
29-May 98	14.0	111	14

**Table 16. UP System Train Speed, Sidings and Multiple Mains Blocked**

Source Week	System Train Speed	System Sidings Blocked	Multiple Mains Blocked
05-Jun. 98	14.1	103	14
12-Jun. 98	14.1	90	13
19-Jun. 98	14.4	111	17
26-Jun. 98	13.7	105	14
03-Jul. 98	13.5	108	23
10-Jul. 98	13.9	120	17
17-Jul. 98	14.1	114	17
24-Jul. 98	13.4	136	20
31-Jul. 98	13.3	111	18
07-Aug. 98	13.8	100	17
14-Aug. 98	14.1	85	8
21-Aug. 98	14.8	75	10
28-Aug. 98	15.0	51	9
04-Sep. 98	15.0	54	7
11-Sep. 98	15.1	66	8
18-Sep. 98	15.5	61	8
25-Sep. 98	15.5	46	6
02-Oct. 98	15.6	41	11
09-Oct. 98	15.2	54	13
16-Oct. 98	15.4	36	12
23-Oct. 98	15.4	72	8
30-Oct. 98	15.7	50	4
06-Nov. 98	15.9	58	11
13-Nov. 98	14.7	55	10
20-Nov. 98	15.5	38	7
27-Nov. 98	16.4	62	9
04-Dec. 98	16.2	30	3
11-Dec. 98	16.8	26	5
18-Dec. 98	17.1	28	4
25-Dec. 98	15.8	98	23
01-Jan. 99	12.6	48	10
08-Jan. 99	14.5	28	10
15-Jan. 99	17.3	25	6
1. System train speed is in miles-per-hour (MPH).			

**Table 16. UP System Train Speed, Sidings and Multiple Mains Blocked- (Cont.)**

Source Week	Car Inventory (Total)	Car Inventory (TX, LA Only)	TX,LA Only % Of Total
19-Sep. 97	349,956	108,601	31.03%
26-Sep. 97	353,719	110,402	31.21%
03-Oct. 97	356,141	108,822	30.56%
10-Oct. 97	353,742	106,272	30.04%
17-Oct. 97	348,489	105,270	30.21%
24-Oct. 97	345,158	105,412	30.54%
31-Oct. 97	342,361	103,395	30.20%
07-Nov. 97	341,569	103,169	30.20%
14-Nov. 97	339,303	102,280	30.14%
21-Nov. 97	337,217	101,696	30.16%
05-Dec. 97	342,809	101,777	29.69%
12-Dec. 97	342,299	104,093	30.41%
19-Dec. 97	346,179	105,887	30.59%
26-Dec. 97	349,351	106,509	30.49%
02-Jan. 98	350,598	107,438	30.64%
09-Jan. 98	343,021	105,614	30.79%
16-Jan. 98	342,697	104,686	30.55%
23-Jan. 98	343,845	104,882	30.50%
30-Jan. 98	344,646	105,272	30.54%
06-Feb. 98	346,220	105,374	30.44%
13-Feb. 98	350,804	106,281	30.30%
20-Feb. 98	354,178	105,628	29.82%
27-Feb. 98	357,667	107,453	30.04%
06-Mar. 98	354,786	106,830	30.11%
13-Mar. 98	355,032	106,965	30.13%
20-Mar. 98	356,413	105,407	29.57%
27-Mar. 98	356,448	105,935	29.72%
03-Apr. 98	353,642	106,851	30.21%
10-Apr. 98	349,821	105,461	30.15%
17-Apr. 98	345,128	103,846	30.09%
24-Apr. 98	341,293	100,573	29.47%
01-May 98	339,788	99,794	29.37%
08-May 98	338,306	99,467	29.40%
15-May 98	338,921	98,701	29.12%
22-May 98	340,303	99,145	29.13%
29-May 98	340,224	99,435	29.23%

**Table 17. UP System Car Inventories and Texas/Louisiana Car Inventories**

Source Week	Car Inventory (Total)	Car Inventory (TX, LA Only)	TX,LA Only % Of Total
05-Jun. 98	341,432	99,999	29.29%
12-Jun. 98	341,042	99,887	29.29%
19-Jun. 98	341,953	100,296	29.33%
26-Jun. 98	343,557	97,854	28.48%
03-Jul. 98	343,327	97,249	28.33%
10-Jul. 98	340,092	98,694	29.02%
17-Jul. 98	340,352	99,071	29.11%
24-Jul. 98	340,481	99,493	29.22%
31-Jul. 98	341,574	97,737	28.61%
07-Aug. 98	340,020	96,532	28.39%
14-Aug. 98	337,610	95,507	28.29%
21-Aug. 98	336,965	93,972	27.89%
28-Aug. 98	338,194	94,530	27.95%
04-Sep. 98	338,210	95,016	28.09%
11-Sep. 98	339,979	95,301	28.03%
18-Sep. 98	338,704	97,116	28.67%
25-Sep. 98	334,276	95,814	28.66%
02-Oct. 98	332,181	94,204	28.36%
09-Oct. 98	332,804	94,643	28.44%
16-Oct. 98	332,067	94,295	28.40%
23-Oct. 98	331,998	95,656	28.81%
30-Oct. 98	331,561	98,971	29.85%
06-Nov. 98	329,563	99,518	30.20%
13-Nov. 98	329,585	99,155	30.08%
20-Nov. 98	328,421	100,110	30.48%
27-Nov. 98	326,767	99,516	30.45%
04-Dec. 98	324,159	99,245	30.62%
11-Dec. 98	321,508	99,328	30.89%
18-Dec. 98	322,583	97,953	30.37%
25-Dec. 98	323,034	98,254	30.42%
01-Jan. 99	324,246	97,602	30.10%
08-Jan. 99	321,560	95,651	29.75%
15-Jan. 99	316,698	93,347	29.48%

**Table 17. UP System Car Inventories and Texas/Louisiana Car Inventories- (Cont.)**

## C. CONCLUSION

Although the rail congestion experienced by Union Pacific is currently easing, the possibility of a similar situation occurring elsewhere in the United States can not be easily overlooked or dismissed. An isolated occurrence in a single rail facility could easily create a domino effect radiating out over the nation's rail system resulting in rail gridlock. As mergers and consolidations continue throughout the U.S. rail industry, the opportunities for gridlock increase as excess capacity is trimmed in the name of cost-cutting and competitive forces are inherently reduced.

The following chapter will present a series of simulations contrasting the DoD deployment planning speed of 22 miles-per-hour to the computed mean, median, maximum, and minimum speeds for the Union Pacific. (See Table 14) The intention of these simulations is to analyze the impacts of a congested U.S. rail industry on DoD efforts to transport unit equipment and sustainment cargoes during a contingency mobilization or deployment.



## IV. SIMULATION

### A. INTRODUCTION

The movement of unit equipment from Fort-To-Port is a vast undertaking, which can easily be impacted by unanticipated or external factors. Two movement options are available to military planners when planning for CONUS surface movements: The all-rail option and the convoy/motor/rail option. The all-rail option utilizes CONUS rail systems to transport all unit equipment to the SPOE. The convoy/motor/rail option is much more complicated to plan and execute. Utilizing this option, all roadable vehicles move via the military convoy mode. Roadable vehicles are those self-propelled and towed wheeled vehicles, which do not exceed the weight, height, or width restrictions of state highways. Another example of roadable vehicles is unit equipment that is eligible for movement by 40-foot flatbeds, including 20-foot containers, which can be loaded and transported by motor carrier. The remainder of the unit equipment is transported by 60- or 68-foot flatcars. [Ref. 75: p. 10]

The unit equipment organic to a U.S. Army Armored Division requires rail transportation due to the extraordinary weights associated with the armored vehicles. The unit equipment and its associated transport equipment often exceeds the limits for state highway permits. [Ref. 75: p. 10]

The aim of the following simulations is to demonstrate the impact of rail congestion on the Fort-To-Port transportation efforts of a notional Armored Division

located at Fort Hood, Texas, to two seaports of embarkation located in Beaumont, Texas, and Oakland, California.

**B. “NOTIONAL” ARMORED DIVISION**

The unit equipment and support infrastructure associated with an Armored Division is quite varied and diverse. This diversity runs the gamut from M1A1 Abrams Main Battle Tanks weighing nearly 70 tons to AH-64 Cobra Attack Helicopters to the equipment for the Division band. This diversity in equipment requires a wide assortment of railroad rolling stock to accomplish a Fort-To-Port unit movement. Table 18 provides the rail movement requirements for an Armored Division utilizing minimum containerization. Figures 5 through 9 show representative examples of equipment found within an Armored Division.

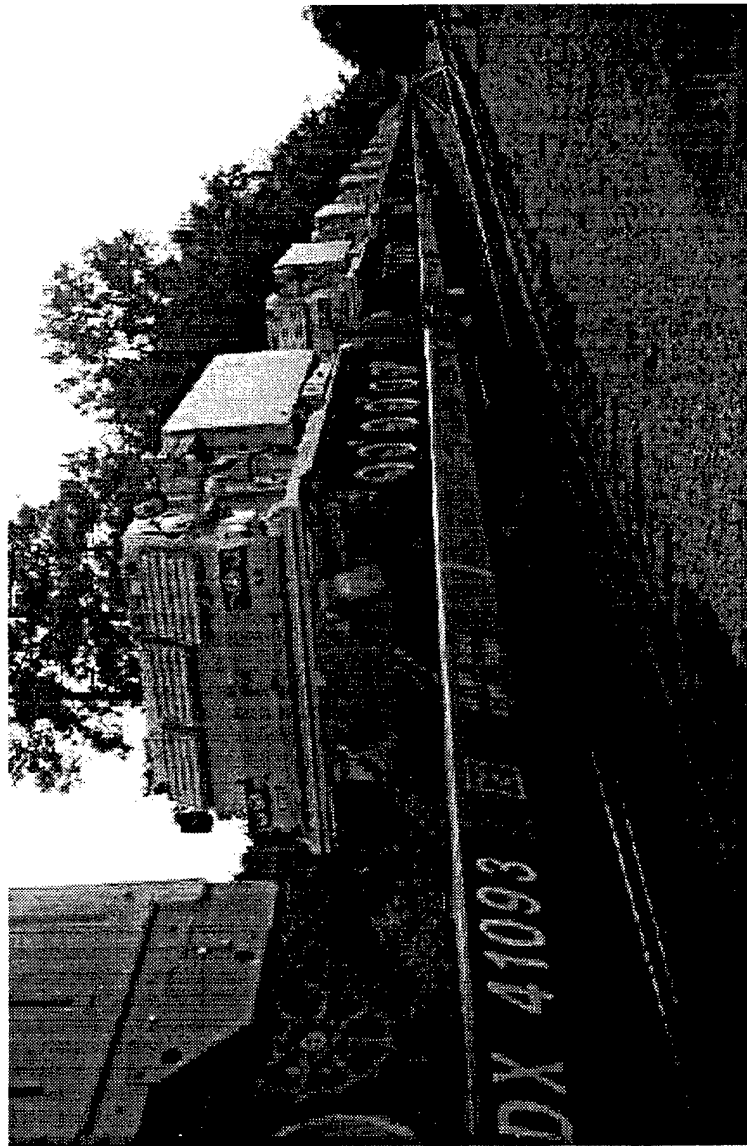


Figure 5. Multiple Launch Rocket System on 89-foot DODX Flatcar [Ref. 76]

Unit Name (Minimum Containerization) <sup>1</sup>	Mult	20-Foot Container <sup>2</sup>	89-Foot Flatcar	60-Foot Flatcar	68-Foot DODX <sup>3</sup>
HHC, DIV AVN BDE (HVY)	1	8	11	0	0
ASSAULT HEL CO (UH-60)	1	16	22	1	0
COMMAND AVIATION COMPANY	1	9	16	1	0
ATTACK HEL BN (AH-64)	1	20	32	2	0
AVN MAINT CO, AH-64, HVY DIV	1	25	34	1	0
CHEMICAL CO, HVY DIV	1	3	24	6	0
HHD, ENGINEER BRIGADE	1	4	4	1	0
ENGR BN, HVY DIV	3	15	39	21	10
HHB DIV ARTY HVY DIV	1	10	20	1	0
TGT ACQ BTRY HVY DIV	1	5	10	0	0
FA BN 155 SP HVY DIV (3X8)	1	21	43	39	2
FA BN 155 SP HVY DIV (3X8)	1	20	44	39	2
FA BN 155 SP HVY DIV (3X8)	1	21	45	39	2
FA BTRY MLRS	1	9	18	6	1
INF BN (MECH)	4	12	53	42	4
6 NODE DIV SIG BN (MSE)	1	44	123	0	0
DIVISION & ARMY BAND (DS)	1	3	1	0	0
DIV CAV SQDN	1	25	53	26	16
TANK BATTALION (HVY DIV)	5	10	48	6	33
MP CO HVY DIV	1	8	15	0	0
MI BN (CEWD) HVY DIV	1	19	57	4	0
ADA BN HVY DIV	1	23	56	17	2
HHC/MMC, SPT CMD, HVY DIV	1	9	19	0	0
FWD SPT BN (2X1) HVY DIV	1	10	82	5	1
FWD SPT BN (1X2) HVY DIV	2	10	82	5	1
MAIN SUPPORT BN, HVY DIV	1	19	206	32	1
HHC, HVY DIV (ARMOR)	1	10	26	1	0
HHC ARMOR DIV (ARMOR) BDE	2	5	7	2	1
HHC INF DIV (MECH) BDE	1	5	7	2	1
REAR OPNS CENTER (DIV)	1	3	2	0	0
TOTAL		522	1717	498	243
1. Minimum Containerization – Use of 20-foot containers to transport eligible equipment. Excludes vehicles and helicopters. 2. All 20-foot containers are loaded onto 89-foot flatcars (4 per flatcar). 3. 68-foot DODX – Department of Defense owned 140-ton capacity rail flatcar.					

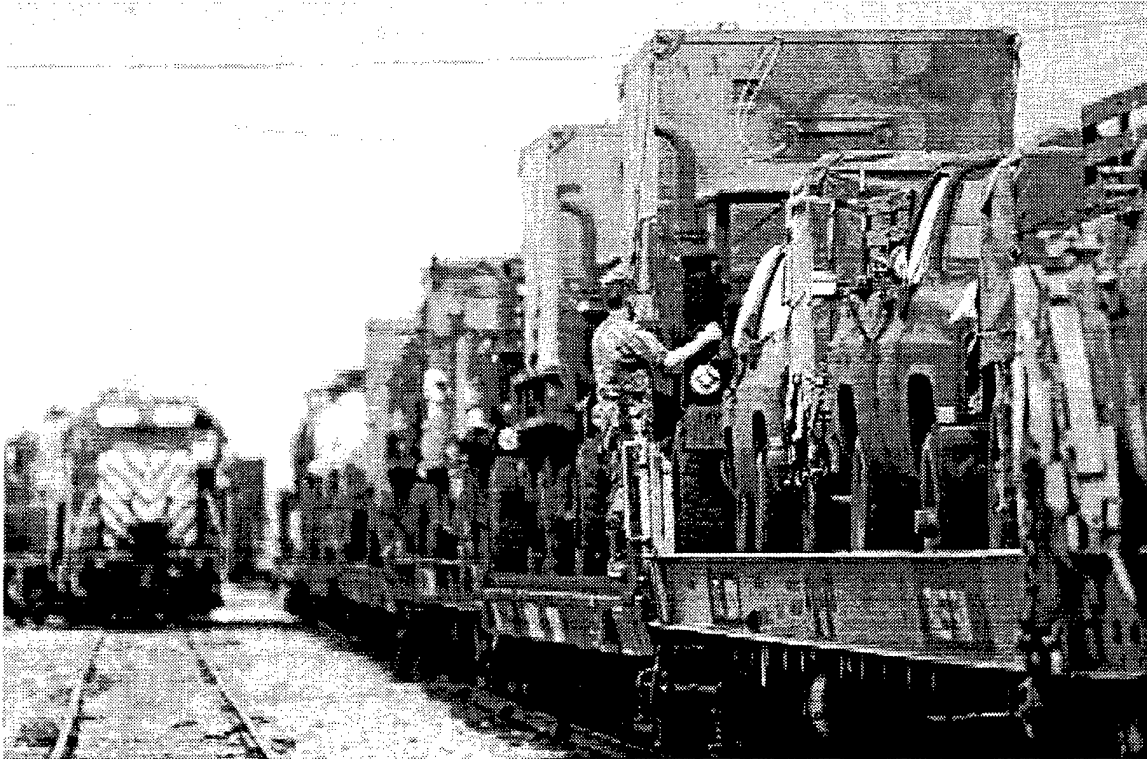
**Table 18. Armored Division Rail Movement Requirements [Ref. 75: p. C-4]**



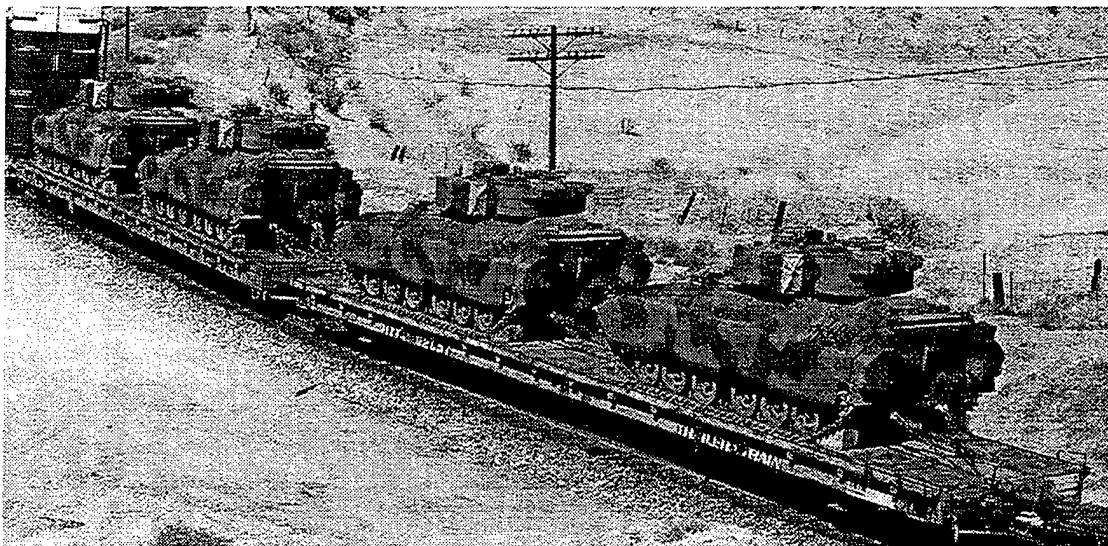
**Figure 6. Military Unit Train with M1A1 Abrams Tanks [Ref. 76]**



**Figure 7. M1A1 Abrams Tanks on 68-foot DODX Flatcars [Ref. 76]**



**Figure 8. Military Vehicles on Commercial Flatcars [Ref. 76]**

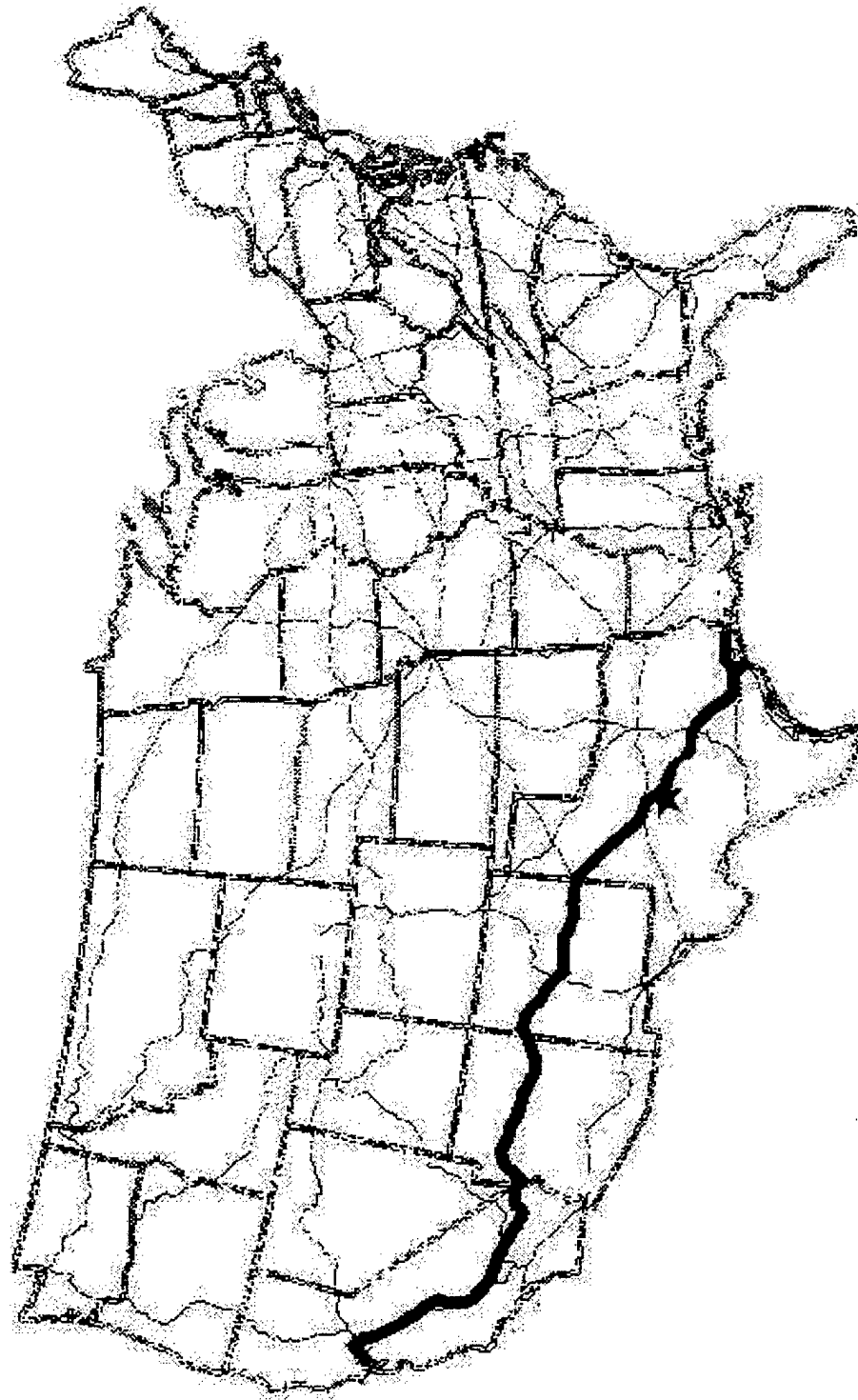


**Figure 9. M2 Bradley Fighting Vehicles on 60-foot HTTX Flatcar [Ref. 77]**

### C. SIMULATION PLANNING FACTORS

To simulate the movement of the notional Armored Division's equipment presented in Table 18, the following planning factors will be utilized:

1. Baseline system train speed of 22 MPH. [Ref. 76: p. 39]
2. Congestion train speeds of 14.23 MPH (Mean), 14.10 MPH (Median), 17.30 MPH (Maximum), and 12.0 MPH (Minimum). (See Table 14)
3. Congestion train speed will be applied to both Fort-To-Port and Port-To-Fort movement phases.
4. Trains greater than or equal to 50 cars will travel as unit trains. Trains 49 cars or shorter will travel as Carload (CL) shipments. [Ref. 76: p. 39]
5. Maximum of two 60-car unit trains per day will depart Fort Hood, Texas for selected SPOE.
6. Motive power and crews are available as needed for movement from Fort-To-Port and Port-To-Fort phases.
7. Total of four trains available for Fort Hood to Beaumont movement.
8. Total of eight trains available for Fort Hood to Oakland movement.
9. Distance between Fort Hood, Texas and Beaumont, Texas equals 274 miles. Distance between Fort Hood, Texas and Oakland, California equals 1,837 miles. (See Figure 10) [Ref. 78: p. A-10-3]
10. Optimization of loaded railcars by Fort Hood personnel is assumed (i.e., two M1A1's or equivalent per 68-foot DODX flatcar, four 20-foot ISO containers per 89-foot flatcar, etc.)
11. Sixty railcars are staged and ready for loading at simulation commencement (T+0).
12. Offload operations at SPOE require 12 hours per train.



**Figure 10. Fort Hood Rail Transportation Routing [Ref. 78]**



The intention of the following simulations is to demonstrate the adverse cumulative effects of rail congestion during the Fort-To-Port and Port-To-Fort movement phases. To accomplish this, various system transit speeds computed from the Union Pacific STB filings will be compared against a baseline analysis utilizing the planning factor speed of 22 MPH. Delays encountered during movement operations other than transit to and from the SPOE are neither addressed nor accounted for.

**D. SIMULATIONS**

**1. Fort Hood, Texas to Beaumont, Texas (Baseline)**

Distance: 274 Miles

Rail Transit Time @ 22 MPH: 12.45 Hours

Total Elapsed Time: 513.55 Hours (21.4 Days)

Train	Depart Fort Hood (T+ )	Railcars Left To Transport	Arrive SPOE (T+ )	Depart SPOE (T+ )	Return Fort Hood (T+ )
1-1	12.00	2398	24.45	36.45	48.91
2-1	24.00	2338	36.45	48.45	60.91
3-1	36.00	2278	48.45	60.45	72.91
4-1	48.00	2218	60.45	72.45	84.91
<hr/>					
1-2	60.91	2158	73.36	85.36	97.82
2-2	72.91	2098	85.36	97.36	109.82
3-2	84.91	2038	97.36	109.36	121.82
4-2	96.91	1978	109.36	121.36	133.82
<hr/>					
1-3	109.82	1918	122.27	134.27	146.73
2-3	121.82	1858	134.27	146.27	158.73
3-3	133.82	1798	146.27	158.27	170.73
4-3	145.82	1738	158.27	170.27	182.73
<hr/>					
1-4	158.73	1678	171.18	183.18	195.64
2-4	170.73	1618	183.18	195.18	207.64
3-4	182.73	1558	195.18	207.18	219.64
4-4	194.73	1498	207.18	219.18	231.64

1-5	207.64	1438	220.09	232.09	244.55
2-5	219.64	1378	232.09	244.09	256.55
3-5	231.64	1318	244.09	256.09	268.55
4-5	243.64	1258	256.09	268.09	280.55
1-6	256.55	1198	269.00	281.00	293.45
2-6	268.55	1138	281.00	293.00	305.45
3-6	280.55	1078	293.00	305.00	317.45
4-6	292.55	1018	305.00	317.00	329.45
1-7	305.45	958	317.91	329.91	342.36
2-7	317.45	898	329.91	341.91	354.36
3-7	329.45	838	341.91	353.91	366.36
4-7	341.45	778	353.91	365.91	378.36
1-8	354.36	718	366.82	378.82	391.27
2-8	366.36	658	378.82	390.82	403.27
3-8	378.36	598	390.82	402.82	415.27
4-8	390.36	538	402.82	414.82	427.27
1-9	403.27	478	415.73	427.73	440.18
2-9	415.27	418	427.73	439.73	452.18
3-9	427.27	358	439.73	451.73	464.18
4-9	439.27	298	451.73	463.73	476.18
1-10	452.18	238	464.64	476.64	489.09
2-10	464.18	178	476.64	488.64	501.09
3-10	476.18	118	488.64	500.64	513.09
4-10	488.18	58	500.64	512.64	525.09
1-11	501.09	0	513.55		

**2. Fort Hood, Texas to Beaumont, Texas (14.23 MPH System Speed)**

Distance: 274 Miles

Rail Transit Time @ 14.23 MPH: 19.3 hours

Total Elapsed Time: 656.36 Hours (27.35 Days)

Train	Depart Fort Hood (T+ )	Railcars Left To Transport	Arrive SPOE (T+ )	Depart SPOE (T+ )	Return Fort Hood (T+ )
1-1	12.00	2398	31.26	43.26	62.51
2-1	24.00	2338	43.26	55.26	74.51
3-1	36.00	2278	55.26	67.26	86.51
4-1	48.00	2218	67.26	79.26	98.51
1-2	74.51	2158	93.77	105.77	125.02
2-2	86.51	2098	105.77	117.77	137.02
3-2	98.51	2038	117.77	129.77	149.02
4-2	110.51	1978	129.77	141.77	161.02
1-3	137.02	1918	156.28	168.28	187.53
2-3	149.02	1858	168.28	180.28	199.53
3-3	161.02	1798	180.28	192.28	211.53
4-3	173.02	1738	192.28	204.28	223.53
1-4	199.53	1678	218.79	230.79	250.04
2-4	211.53	1618	230.79	242.79	262.04
3-4	223.53	1558	242.79	254.79	274.04
4-4	235.53	1498	254.79	266.79	286.04
1-5	262.04	1438	281.30	293.30	312.55
2-5	274.04	1378	293.30	305.30	324.55
3-5	286.04	1318	305.30	317.30	336.55
4-5	298.04	1258	317.30	329.30	348.55
1-6	324.55	1198	343.81	355.81	375.06
2-6	336.55	1138	355.81	367.81	387.06
3-6	348.55	1078	367.81	379.81	399.06
4-6	360.55	1018	379.81	391.81	411.06
1-7	387.06	958	406.32	418.32	437.57
2-7	399.06	898	418.32	430.32	449.57
3-7	411.06	838	430.32	442.32	461.57
4-7	423.06	778	442.32	454.32	473.57
1-8	449.57	718	468.83	480.83	500.08
2-8	461.57	658	480.83	492.83	512.08
3-8	473.57	598	492.83	504.83	524.08

4-8	485.57	538	504.83	516.83	536.08
1-9	512.08	478	531.34	543.34	562.59
2-9	524.08	418	543.34	555.34	574.59
3-9	536.08	358	555.34	567.34	586.59
4-9	548.08	298	567.34	579.34	598.59
1-10	574.59	238	593.85	605.85	625.10
2-10	586.59	178	605.85	617.85	637.10
3-10	598.59	118	617.85	629.85	649.10
4-10	610.59	58	629.85	641.85	661.10
1-11	637.10	0	656.36		

### 3. Fort Hood, Texas to Beaumont, Texas (14.1 MPH System Speed)

Distance: 274 Miles

Rail Transit Time @ 14.1 MPH: 19.43 Hours

Total Elapsed Time: 660.09 Hours (27.5 Days)

Train	Depart Fort Hood (T+ )	Railcars Left To Transport	Arrive SPOE (T+ )	Depart SPOE (T+ )	Return Fort Hood (T+ )
1-1	12.00	2398	31.43	43.43	62.87
2-1	24.00	2338	43.43	55.43	74.87
3-1	36.00	2278	55.43	67.43	86.87
4-1	48.0	2218	67.43	79.43	98.87
1-2	74.87	2158	94.30	106.30	125.73
2-2	86.87	2098	106.30	118.30	137.73
3-2	98.87	2038	118.30	130.30	149.73
4-2	110.87	1978	130.30	142.30	161.73
1-3	137.73	1918	157.16	169.16	188.60
2-3	149.73	1858	169.16	181.16	200.60
3-3	161.73	1798	181.16	193.16	212.60
4-3	173.73	1738	193.16	205.16	224.60
1-4	200.60	1678	220.03	232.03	251.46
2-4	212.60	1618	232.03	244.03	263.46
3-4	224.60	1558	244.03	256.03	275.46
4-4	236.60	1498	256.03	268.03	287.46
1-5	263.46	1438	282.89	294.89	314.33
2-5	275.46	1378	294.89	306.89	326.33

3-5	287.46	1318	306.89	318.89	338.33
4-5	299.46	1258	318.89	330.89	350.33
1-6	326.33	1198	345.76	357.76	377.19
2-6	338.33	1138	357.76	369.76	389.19
3-6	350.33	1078	369.76	381.76	401.19
4-6	362.33	1018	381.76	393.76	413.19
1-7	389.19	958	408.62	420.62	440.06
2-7	401.19	898	420.62	432.62	452.06
3-7	413.19	838	432.62	444.62	464.06
4-7	425.19	778	444.62	456.62	476.06
1-8	452.06	718	471.49	483.49	502.92
2-8	464.06	658	483.49	495.49	514.92
3-8	476.06	598	495.49	507.49	526.92
4-8	488.06	538	507.49	519.49	538.92
1-9	514.92	478	534.35	546.35	565.79
2-9	526.92	418	546.35	558.35	577.79
3-9	538.92	358	558.35	570.35	589.79
4-9	550.92	298	570.35	582.35	601.79
1-10	577.79	238	597.22	609.22	628.65
2-10	589.79	178	609.22	621.22	640.65
3-10	601.79	118	621.22	633.22	652.65
4-10	613.79	58	633.22	645.22	664.65
1-11	640.65	0	660.09		

**4. Fort Hood, Texas to Beaumont, Texas (17.3 MPH System Speed)**

Distance: 274 Miles

Rail Transit Time @ 17.3 MPH: 15.84 Hours

Total Elapsed Time: 584.6 Hours (24.39 Days)

Train	Depart Fort Hood (T+ )	Railcars Left To Transport	Arrive SPOE (T+ )	Depart SPOE (T+ )	Return Fort Hood (T+ )
1-1	12.00	2398	27.84	39.84	55.68
2-1	24.00	2338	39.84	51.84	67.68
3-1	36.00	2278	51.84	63.84	79.68
4-1	48.00	2218	63.84	75.84	91.68
1-2	67.68	2158	83.51	95.51	111.35

2-2	79.68	2098	95.51	107.51	123.35
3-2	91.68	2038	107.51	119.51	135.35
4-2	103.68	1978	119.51	131.51	147.35
1-3	123.35	1918	139.19	151.19	167.03
2-3	135.35	1858	151.19	163.19	179.03
3-3	147.35	1798	163.19	175.19	191.03
4-3	159.35	1738	175.19	187.19	203.03
1-4	179.03	1678	194.87	206.87	222.71
2-4	191.03	1618	206.87	218.87	234.71
3-4	203.03	1558	218.87	230.87	246.71
4-4	215.03	1498	230.87	242.87	258.71
1-5	234.71	1438	250.54	262.54	278.38
2-5	246.71	1378	262.54	274.54	290.38
3-5	258.71	1318	274.54	286.54	302.38
4-5	270.71	1258	286.54	298.54	314.38
1-6	290.38	1198	306.22	318.22	334.06
2-6	302.38	1138	318.22	330.22	346.06
3-6	314.38	1078	330.22	342.22	358.06
4-6	326.38	1018	342.22	354.22	370.06
1-7	346.06	958	361.90	373.90	389.73
2-7	358.06	898	373.90	385.90	401.73
3-7	370.06	838	385.90	397.90	413.73
4-7	382.06	778	397.90	409.90	425.73
1-8	401.73	718	417.57	429.57	445.41
2-8	413.73	658	429.57	441.57	457.41
3-8	425.73	598	441.57	453.57	469.41
4-8	437.73	538	453.57	465.57	481.41
1-9	457.41	478	473.25	485.25	501.09
2-9	469.41	418	485.25	497.25	513.09
3-9	481.41	358	497.25	509.25	525.09
4-9	493.41	298	509.25	521.25	537.09
1-10	513.09	238	528.92	540.92	556.76
2-10	525.09	178	540.92	552.92	568.76
3-10	537.09	118	552.92	564.92	580.76
4-10	549.09	58	564.92	576.92	592.76
1-11	568.76	0	584.60		

**5. Fort Hood, Texas to Beaumont, Texas (12.0 MPH System Speed)**

Distance: 274 Miles

Rail Transit Time @ 12.0 MPH: 22.83 Hours

Total Elapsed Time: 731.5 Hours (30.48 Days)

Train	Depart Fort Hood (T+ )	Railcars Left To Transport	Arrive SPOE (T+ )	Depart SPOE (T+ )	Return Fort Hood (T+ )
1-1	12.00	2398	34.83	46.83	69.67
2-1	24.00	2338	46.83	58.83	81.67
3-1	36.00	2278	58.83	70.83	93.67
4-1	48.00	2218	70.83	82.83	105.67
1-2	81.67	2158	104.50	116.50	139.33
2-2	93.67	2098	116.50	128.50	151.33
3-2	105.67	2038	128.50	140.50	163.33
4-2	117.67	1978	140.50	152.50	175.33
1-3	151.33	1918	174.17	186.17	209.00
2-3	163.33	1858	186.17	198.17	221.00
3-3	175.33	1798	198.17	210.17	233.00
4-3	187.33	1738	210.17	222.17	245.00
1-4	221.00	1678	243.83	255.83	278.67
2-4	233.00	1618	255.83	267.83	290.67
3-4	245.00	1558	267.83	279.83	302.67
4-4	257.00	1498	279.83	291.83	314.67
1-5	290.67	1438	313.50	325.50	348.33
2-5	302.67	1378	325.50	337.50	360.33
3-5	314.67	1318	337.50	349.50	372.33
4-5	326.67	1258	349.50	361.50	384.33
1-6	360.33	1198	383.17	395.17	418.00
2-6	372.33	1138	395.17	407.17	430.00
3-6	384.33	1078	407.17	419.17	442.00
4-6	396.33	1018	419.17	431.17	454.00
1-7	430.00	958	452.83	464.83	487.67
2-7	442.00	898	464.83	476.83	499.67
3-7	454.00	838	476.83	488.83	511.67
4-7	466.00	778	488.83	500.83	523.67
1-8	499.67	718	522.50	534.50	557.33
2-8	511.67	658	534.50	546.50	569.33
3-8	523.67	598	546.50	558.50	581.33

4-8	535.67	538	558.50	570.50	593.33
1-9	569.33	478	592.17	604.17	627.00
2-9	581.33	418	604.17	616.17	639.00
3-9	593.33	358	616.17	628.17	651.00
4-9	605.33	298	628.17	640.17	663.00
1-10	639.00	238	661.83	673.83	696.67
2-10	651.00	178	673.83	685.83	708.67
3-10	663.00	118	685.83	697.83	720.67
4-10	675.00	58	697.83	709.83	732.67
1-11	708.67	0	731.50		

**6. Fort Hood, Texas to Oakland, California (Baseline)**

Distance: 1,837 Miles

Rail Transit Time @ 22 MPH: 83.5 Hours

Total Elapsed Time: 1,050.5 Hours (43.77 Days)

Train	Depart Fort Hood (T+ )	Railcars Left To Transport	Arrive SPOE (T+ )	Depart SPOE (T+ )	Return Fort Hood (T+ )
1-1	12.00	2398	95.50	107.50	191.00
2-1	24.00	2338	107.50	119.50	203.00
3-1	36.00	2278	119.50	131.50	215.00
4-1	48.00	2218	131.50	143.50	227.00
5-1	60.00	2158	143.50	155.50	239.00
6-1	72.00	2098	155.50	167.50	251.00
7-1	84.00	2038	167.50	179.50	263.00
8-1	96.00	1978	179.50	191.50	275.00
1-2	203.00	1918	286.50	298.50	382.00
2-2	215.00	1858	298.50	310.50	394.00
3-2	227.00	1798	310.50	322.50	406.00
4-2	239.00	1738	322.50	334.50	418.00
5-2	251.00	1678	334.50	346.50	430.00
6-2	263.00	1618	346.50	358.50	442.00
7-2	275.00	1558	358.50	370.50	454.00
8-2	287.00	1498	370.50	382.50	466.00
1-3	394.00	1438	477.50	489.50	573.00
2-3	406.00	1378	489.50	501.50	585.00
3-3	418.00	1318	501.50	513.50	597.00



4-3	430.00	1258	513.50	525.50	609.00
5-3	442.00	1198	525.50	537.50	621.00
6-3	454.00	1138	537.50	549.50	633.00
7-3	466.00	1078	549.50	561.50	645.00
8-3	478.00	1018	561.50	573.50	657.00
<hr/>					
1-4	585.00	958	668.50	680.50	764.00
2-4	597.00	898	680.50	692.50	776.00
3-4	609.00	838	692.50	704.50	788.00
4-4	621.00	778	704.50	716.50	800.00
5-4	633.00	718	716.50	728.50	812.00
6-4	645.00	658	728.50	740.50	824.00
7-4	657.00	598	740.50	752.50	836.00
8-4	669.00	538	752.50	764.50	848.00
<hr/>					
1-5	776.00	478	859.50	871.50	955.00
2-5	788.00	418	871.50	883.50	967.00
3-5	800.00	358	883.50	895.50	979.00
4-5	812.00	298	895.50	907.50	991.00
5-5	824.00	238	907.50	919.50	1003.00
6-5	836.00	178	919.50	931.50	1015.00
7-5	848.00	118	931.50	943.50	1027.00
8-5	860.00	58	943.50	955.50	1039.00
<hr/>					
1-6	967.00	0	1050.50		

**7. Fort Hood, Texas to Oakland, California (14.23 MPH System Speed)**

Distance: 1,837 Miles

Rail Transit Time @ 14.23 MPH: 129.37 Hours

Total Elapsed Time: 1,552.03 Hours (64.67 Days)

Train	Depart Fort Hood (T+ )	Railcars Left To Transport	Arrive SPOE (T+ )	Depart SPOE (T+ )	Return Fort Hood (T+ )
1-1	12.00	2398	141.09	153.09	282.19
2-1	24.00	2338	153.09	165.09	294.19
3-1	36.00	2278	165.09	177.09	306.19
4-1	48.00	2218	177.09	189.09	318.19
5-1	60.00	2158	189.09	201.09	330.19
6-1	72.00	2098	201.09	213.09	342.19
7-1	84.00	2038	213.09	225.09	354.19
8-1	96.00	1978	225.09	237.09	366.19

1-2	294.19	1918	423.28	435.28	564.37
2-2	306.19	1858	435.28	447.28	576.37
3-2	318.19	1798	447.28	459.28	588.37
4-2	330.19	1738	459.28	471.28	600.37
5-2	342.19	1678	471.28	483.28	612.37
6-2	354.19	1618	483.28	495.28	624.37
7-2	366.19	1558	495.28	507.28	636.37
8-2	378.19	1498	507.28	519.28	648.37
1-3	576.37	1438	705.47	717.47	846.56
2-3	588.37	1378	717.47	729.47	858.56
3-3	600.37	1318	729.47	741.47	870.56
4-3	612.37	1258	741.47	753.47	882.56
5-3	624.37	1198	753.47	765.47	894.56
6-3	636.37	1138	765.47	777.47	906.56
7-3	648.37	1078	777.47	789.47	918.56
8-3	660.37	1018	789.47	801.47	930.56
1-4	858.56	958	987.65	999.65	1128.75
2-4	870.56	898	999.65	1011.65	1140.75
3-4	882.56	838	1011.65	1023.65	1152.75
4-4	894.56	778	1023.65	1035.65	1164.75
5-4	906.56	718	1035.65	1047.65	1176.75
6-4	918.56	658	1047.65	1059.65	1188.75
7-4	930.56	598	1059.65	1071.65	1200.75
8-4	942.56	538	1071.65	1083.65	1212.75
1-5	1140.75	478	1269.84	1281.84	1410.93
2-5	1152.75	418	1281.84	1293.84	1422.93
3-5	1164.75	358	1293.84	1305.84	1434.93
4-5	1176.75	298	1305.84	1317.84	1446.93
5-5	1188.75	238	1317.84	1329.84	1458.93
6-5	1200.75	178	1329.84	1341.84	1470.93
7-5	1212.75	118	1341.84	1353.84	1482.93
8-5	1224.75	58	1353.84	1365.84	1494.93
1-6	1422.93	0	1552.03		

**8. Fort Hood, Texas to Oakland, California (14.1 MPH System Speed)**

Distance: 1,837 Miles

Rail Transit Time @ 14.1 MPH: 130.28 Hours

Total Elapsed Time: 1,565.12 Hours (65.21 Days)

Train	Depart Fort Hood (T+ )	Railcars Left To Transport	Arrive SPOE (T+ )	Depart SPOE (T+ )	Return Fort Hood (T+ )
1-1	12.00	2398	142.28	154.28	284.57
2-1	24.00	2338	154.28	166.28	296.57
3-1	36.00	2278	166.28	178.28	308.57
4-1	48.00	2218	178.28	190.28	320.57
5-1	60.00	2158	190.28	202.28	332.57
6-1	72.00	2098	202.28	214.28	344.57
7-1	84.00	2038	214.28	226.28	356.57
8-1	96.00	1978	226.28	238.28	368.57
1-2	296.57	1918	426.85	438.85	569.13
2-2	308.57	1858	438.85	450.85	581.13
3-2	320.57	1798	450.85	462.85	593.13
4-2	332.57	1738	462.85	474.85	605.13
5-2	344.57	1678	474.85	486.85	617.13
6-2	356.57	1618	486.85	498.85	629.13
7-2	368.57	1558	498.85	510.85	641.13
8-2	380.57	1498	510.85	522.85	653.13
1-3	581.13	1438	711.42	723.42	853.70
2-3	593.13	1378	723.42	735.42	865.70
3-3	605.13	1318	735.42	747.42	877.70
4-3	617.13	1258	747.42	759.42	889.70
5-3	629.13	1198	759.42	771.42	901.70
6-3	641.13	1138	771.42	783.42	913.70
7-3	653.13	1078	783.42	795.42	925.70
8-3	665.13	1018	795.42	807.42	937.70
1-4	865.70	958	995.99	1007.99	1138.27
2-4	877.70	898	1007.99	1019.99	1150.27
3-4	889.70	838	1019.99	1031.99	1162.27
4-4	901.70	778	1031.99	1043.99	1174.27
5-4	913.70	718	1043.99	1055.99	1186.27
6-4	925.70	658	1055.99	1067.99	1198.27
7-4	937.70	598	1067.99	1079.99	1210.27
8-4	949.70	538	1079.99	1091.99	1222.27

1-5	1150.27	478	1280.55	1292.55	1422.84
2-5	1162.27	418	1292.55	1304.55	1434.84
3-5	1174.27	358	1304.55	1316.55	1446.84
4-5	1186.27	298	1316.55	1328.55	1458.84
5-5	1198.27	238	1328.55	1340.55	1470.84
6-5	1210.27	178	1340.55	1352.55	1482.84
7-5	1222.27	118	1352.55	1364.55	1494.84
8-5	1234.27	58	1364.55	1376.55	1506.84
1-6	1434.84	0	1565.12		

**9. Fort Hood, Texas to Oakland, California (17.3 MPH System Speed)**

Distance: 1,837 Miles

Rail Transit Time @ 17.3 MPH: 106.18 Hours

Total Elapsed Time: 1,300.03 Hours (54.17 Days)

Train	Depart Fort Hood (T+ )	Railcars Left To Transport	Arrive SPOE (T+ )	Depart SPOE (T+ )	Return Fort Hood (T+ )
1-1	12.00	2398	118.18	130.18	236.37
2-1	24.00	2338	130.18	142.18	248.37
3-1	36.00	2278	142.18	154.18	260.37
4-1	48.00	2218	154.18	166.18	272.37
5-1	60.00	2158	166.18	178.18	284.37
6-1	72.00	2098	178.18	190.18	296.37
7-1	84.00	2038	190.18	202.18	308.37
8-1	96.00	1978	202.18	214.18	320.37
1-2	248.37	1918	354.55	366.55	472.74
2-2	260.37	1858	366.55	378.55	484.74
3-2	272.37	1798	378.55	390.55	496.74
4-2	284.37	1738	390.55	402.55	508.74
5-2	296.37	1678	402.55	414.55	520.74
6-2	308.37	1618	414.55	426.55	532.74
7-2	320.37	1558	426.55	438.55	544.74
8-2	332.37	1498	438.55	450.55	556.74
1-3	484.74	1438	590.92	602.92	709.11
2-3	496.74	1378	602.92	614.92	721.11
3-3	508.74	1318	614.92	626.92	733.11
4-3	520.74	1258	626.92	638.92	745.11
5-3	532.74	1198	638.92	650.92	757.11

6-3	544.74	1138	650.92	662.92	769.11
7-3	556.74	1078	662.92	674.92	781.11
8-3	568.74	1018	674.92	686.92	793.11
1-4	721.11	958	827.29	839.29	945.48
2-4	733.11	898	839.29	851.29	957.48
3-4	745.11	838	851.29	863.29	969.48
4-4	757.11	778	863.29	875.29	981.48
5-4	769.11	718	875.29	887.29	993.48
6-4	781.11	658	887.29	899.29	1005.48
7-4	793.11	598	899.29	911.29	1017.48
8-4	805.11	538	911.29	923.29	1029.48
1-5	957.48	478	1063.66	1075.66	1181.85
2-5	969.48	418	1075.66	1087.66	1193.85
3-5	981.48	358	1087.66	1099.66	1205.85
4-5	993.48	298	1099.66	1111.66	1217.85
5-5	1005.48	238	1111.66	1123.66	1229.85
6-5	1017.48	178	1123.66	1135.66	1241.85
7-5	1029.48	118	1135.66	1147.66	1253.85
8-5	1041.48	58	1147.66	1159.66	1265.85
1-6	1193.85	0	1300.03		

**10. Fort Hood, Texas to Oakland, California (12.0 MPH System Speed)**

Distance: 1,837 Miles

Rail Transit Time @ 12.0 MPH: 153.08 Hours

Total Elapsed Time: 1815.92 Hours (75.66 Days)

Train	Depart Fort Hood (T+ )	Railcars Left To Transport	Arrive SPOE (T+ )	Depart SPOE (T+ )	Return Fort Hood (T+ )
1-1	12.00	2398	165.08	177.08	330.17
2-1	24.00	2338	177.08	189.08	342.17
3-1	36.00	2278	189.08	201.08	354.17
4-1	48.00	2218	201.08	213.08	366.17
5-1	60.00	2158	213.08	225.08	378.17
6-1	72.00	2098	225.08	237.08	390.17
7-1	84.00	2038	237.08	249.08	402.17
8-1	96.00	1978	249.08	261.08	414.17
1-2	342.17	1918	495.25	507.25	660.33

2-2	354.17	1858	507.25	519.25	672.33
3-2	366.17	1798	519.25	531.25	684.33
4-2	378.17	1738	531.25	543.25	696.33
5-2	390.17	1678	543.25	555.25	708.33
6-2	402.17	1618	555.25	567.25	720.33
7-2	414.17	1558	567.25	579.25	732.33
8-2	426.17	1498	579.25	591.25	744.33
<hr/>					
1-3	672.33	1438	825.42	837.42	990.50
2-3	684.33	1378	837.42	849.42	1002.50
3-3	696.33	1318	849.42	861.42	1014.50
4-3	708.33	1258	861.42	873.42	1026.50
5-3	720.33	1198	873.42	885.42	1038.50
6-3	732.33	1138	885.42	897.42	1050.50
7-3	744.33	1078	897.42	909.42	1062.50
8-3	756.33	1018	909.42	921.42	1074.50
<hr/>					
1-4	1002.50	958	1155.58	1167.58	1320.67
2-4	1014.50	898	1167.58	1179.58	1332.67
3-4	1026.50	838	1179.58	1191.58	1344.67
4-4	1038.50	778	1191.58	1203.58	1356.67
5-4	1050.50	718	1203.58	1215.58	1368.67
6-4	1062.50	658	1215.58	1227.58	1380.67
7-4	1074.50	598	1227.58	1239.58	1392.67
8-4	1086.50	538	1239.58	1251.58	1404.67
<hr/>					
1-5	1332.67	478	1485.75	1497.75	1650.83
2-5	1344.67	418	1497.75	1509.75	1662.83
3-5	1356.67	358	1509.75	1521.75	1674.83
4-5	1368.67	298	1521.75	1533.75	1686.83
5-5	1380.67	238	1533.75	1545.75	1698.83
6-5	1392.67	178	1545.75	1557.75	1710.83
7-5	1404.67	118	1557.75	1569.75	1722.83
8-5	1416.67	58	1569.75	1581.75	1734.83
<hr/>					
1-6	1662.83	0	1815.92		

## E. SIMULATION FINDINGS

The simulation results clearly demonstrate the impact of congestion and the resultant delays on the mobilization and deployment of unit equipment to different SPOE's. Table 19 provides the simulation results versus the baseline calculation

utilizing the planning factor speed of 22 MPH. The computed transit speeds equated to the mean and median values are statistically significant as they represent the entire 69 weeks of population data. Hypothesis testing is not required as a sample of the population is not utilized.

	Beaumont, Texas			Oakland, California		
	Hours	Days	Change From Baseline	Hours	Days	Change From Baseline
22.00 MPH Baseline	573.55	21.40	--	1050.50	43.77	--
14.10 MPH Transit Speed	660.09	27.35	15.09%	1565.12	64.67	48.99%
14.23 MPH Transit Speed	656.36	27.50	14.44%	1552.03	65.21	47.74%
17.30 MPH Transit Speed	584.60	24.39	1.93%	1300.03	54.17	23.75%
12.00 MPH Transit Speed	731.50	30.48	27.54%	1815.92	75.66	72.86%

**Table 19. Transit Speed Congestion Simulation Returns**

Table 19 clearly shows that delays associated with congestion have a much more significant impact on longer distance transportation efforts than shorter movements. However, the shorter transportation movement from Fort Hood, Texas, to Beaumont, Texas, was also impacted by the delays. Utilizing a 12 MPH transit speed, the entire transportation movement to Oakland, California takes approximately half again as long as the same deployment to Beaumont, Texas.

Although the above simulations utilize an average system transit speed to determine the impact of congestion, similar results can be obtained by using the data for Trains Held for Power, Trains Held for Crews, or Trains Held for Congestion. Additionally, variables accounting for Multiple Mains Blocked and Blocked Sidings

could also be utilized to demonstrate the impacts of congestion on the Fort-To-Port transportation effort.

## **F. CONCLUSION**

Due to the unique dimensional and weight characteristics of U.S. Army equipment and sustainment cargo, it must be transported to SPOEs via rail transportation. The Department of Defense is reliant upon the CONUS rail infrastructure to provide this transportation. If this infrastructure were to become congested due to shortages of locomotive power, crews, or inadequate infrastructure, the resultant delays could severely impact a crisis deployment or mobilization.

Utilizing the data provided by a 69-week population, it has been clearly demonstrated that delays caused by congestion, or congestion related factors, can and do have a significant impact upon DoD Fort-To-Port and Port-To-Fort transportation efforts.

The previous simulations focused only upon the transportation efforts of a single installation. During a major national crisis such as that seen during Operation Desert Shield/Desert Storm, multiple installations would be transporting large amounts of equipment and supplies to SPOEs, further tasking an already overburdened rail infrastructure. If this deployment were to occur during a particularly heavy shipping season, or during a particularly heavy winter, the resultant delays could result in the inability to deliver U.S. Army equipment and supplies to the requisite SPOEs in time to join up with their designated sealift.



## **V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

The final chapter of this thesis provides a summary, conclusions, and recommendations based on the author's research and analysis of CONUS railroad congestion and its resultant impact on the Fort-To-Port transportation effort.

### **A. SUMMARY**

Consolidations and mergers in the U.S. rail industry have resulted in a very different CONUS rail infrastructure compared to that which supported the massive rail transportation effort associated with Operation Desert Shield/Desert Storm. This consolidation within the rail industry, has resulted in a rail transportation infrastructure that does not have any excess capacity. This lack of excess capacity has resulted in delays attributable to shortages of locomotive power, locomotive crews, and finally in massive rail congestion.

During the Autumn and Fall of 1997 and throughout 1998, the United States was witness to the most severe example of rail congestion in the history of modern railroading. A simple decision by Union Pacific to close a rail terminal acquired during the acquisition of Southern Pacific Transportation, resulted in rail gridlock from Louisiana to California. This gridlock was not just limited to the Union Pacific, but soon impacted all the railroads within the United States as they were unable to interchange cars or utilize trackage rights. Just as a domino impacts the next domino in-line, so to did the Union Pacific impact all other CONUS railroads.

Additional factors are also impacting the CONUS rail industry. Intermodalism is now a major focus of American railroading. Intermodal traffic has become the fastest-growing business segment of CONUS railroads. Unfortunately, the rolling stock and terminal facilities for handling intermodal traffic are not compatible with the U.S. Army's armored and tracked vehicles. These items require flatcars for transportation due to their dimensional sizes and weights. Currently, there are adequate numbers of flatcars in the U.S. inventory. However, as the older cars reach the end of their service lives and are retired, the U.S. Army could face a critical shortage of flatcars required in the event of a crisis or surge mobilization.

As the Department of Defense redeploys its overseas forces to CONUS installations, its reliance upon rail transportation grows. This growing reliance is occurring at the same time that the CONUS rail industry is shifting its focus to intermodalism.

Additionally, the large open spaces at ocean terminals that facilitated military equipment staging during transportation efforts in support of Operation Desert Shield/Desert Storm are no longer available. These areas are now covered with intermodal containers awaiting delivery to businesses and customers throughout the world.

It is vitally important that military leaders realize the indispensability of rail transportation to the overall combat responsiveness of U.S. forces. An agile and robust rail infrastructure within the United States may very well be critical to the successful outcome of future contingency responses. It is imperative that military leaders maintain a

critical watch on the CONUS rail industry. When addressing the issue of Strategic Mobility, military leaders must include the CONUS rail industry in their equation.

## **B. CONCLUSIONS AND RECOMMENDATIONS**

### **1. Conclusion: Rail congestion has a detrimental effect on Fort-To-Port transportation efforts.**

This was clearly demonstrated by the use of simulations using recent performance data of the Union Pacific Railroad. During this period, U.S. Army transportation efforts would have been severely and negatively impacted. Fort Hood, Texas would have been particularly impacted as the congestion was particularly acute in the state of Texas.

### **Recommendation: Closely monitor U.S. railroad operations for signs of developing congestion.**

By closely monitoring the status of CONUS railroads, military leaders can modify and adapt existing operational plans and procedures to optimize the movement efforts of unit equipment and sustainment cargoes. This pre-planning and adaptation would prevent and alleviate the inevitable confusion, which would occur during a large mobilization confronted with a congested environment.

### **2. Conclusion: CONUS rail industry consolidations and mergers have resulted in rail capacity shortfalls.**

Due to the capital-intensive nature of the railroad industry, existing railroads are striving for economies of scale by merging with other railroads and eliminating non-

profitable lines. Duplication of rail services is being eliminated as a product of these mergers. The loss of these redundant rail services has significantly impacted the overall throughput capacity of the U.S. rail infrastructure. Additionally, demand is growing annually for increased intermodal service within the United States, further stressing rail capacity.

**Recommendation: Military leaders must stress the importance of rail transportation to military effectiveness.**

Military leaders must work closely with the CONUS rail industry to ensure that the necessary reserve capacity to meet surge or mobilization transportation requirements exists. Military leaders must support the CONUS rail industry in its attempts to expand rail infrastructure, even if faced with local community opposition to the expansion.

**3. Conclusion: The 22 mile-per-hour planning factor specified in the MTMCTEA Deployment Planning Guide is overly optimistic.**

A statistical analysis of the Union Pacific Service Recovery Report data reveals that the Union Pacific railroad was unable to meet this speed for a period of 69 consecutive weeks. The data shows an actual average and median speed below 15 miles-per-hour.

**Recommendation: MTMCTEA should revise the Deployment Planning Guide to reflect a more realistic planning factor.**

A statistical analysis of all CONUS railroad performance factors would provide an accurate planning figure for future contingency plans.

**4. Conclusion: CONUS rail industry emphasis on intermodal traffic may result in a shortage of militarily useful flatcars.**

As railroads retire or convert non-revenue-producing flatcars, the number of militarily useful flatcars available during a crisis or contingency response may not be adequate. Commercial industry is relying upon long-term contracts with railcar providers to obtain flatcar services. Due to these long-term contracts, although reflected as being active within the U.S. inventory, these flatcars are not available to Department of Defense agencies to support unit deployments or mobilizations.

**Recommendation: DoD should purchase additional flatcar assets for the DFRIF.**

The purchase of additional flatcar assets, along with the strategic positioning of these same assets, will ensure DoD's ability to conduct prompt and sustained rail transportation of U.S. Army height and width dimensionally restricted equipment.

**C. RECOMMENDATIONS FOR FURTHER STUDY**

1. Could a similar congestion scenario, as demonstrated by the Union Pacific in Texas, occur in the Eastern United States as a result of the Norfolk Southern/CSX acquisition of CONRAIL?
2. What would be the cost of purchasing and maintaining additional flatcar assets for the DFRIF?

3. Given that the commercial sector is emphasizing intermodal movements, what is the feasibility of U.S. Army units utilizing max-containerization for all unit movements to take advantage of this trend in the commercial sector?
4. Should containerization capability be a factor in the design and acquisition of new military weapon systems and support equipment?
5. If U.S. Army units were to adopt max-containerization, what would be the financial impact to the U.S. Army and installation operators?
6. As U.S. port facilities expand in response to increased intermodal demands, what is the impact on their military-usefulness for large-scale mobilizations and deployments?
7. Given a CONUS rail industry with limited capacity, is it necessary for the Military Sealift Command to maintain as large a number of surge sealift vessels in ROS-4/5 (Reduced Operating Status)? Would ROS-7 be a more accurate target for military material to begin arriving at SPOE's?
8. What would be the overall impact of maintaining fewer vessels in an ROS-4/5 status?

**APPENDIX A. STB DECISION EX. PARTE 573**

**SURFACE TRANSPORTATION BOARD DECISION STB EX. PARTE NO. 573  
RAIL SERVICE IN THE WESTERN UNITED STATES**

**Decided: October 15, 1997**

In a notice issued October 2, 1997, we instituted a proceeding and scheduled a public hearing to provide interested persons the opportunity to report on the status of rail service in the western United States and to review proposals for solving the service problems that exist. We set the hearing for October 27, 1997, and we provided for the filing of speakers' written statements by October 23, 1997.

In a letter dated October 8, 1997, the National Industrial Transportation League (NITL) has asked us to require the Union Pacific Railroad Company/Southern Pacific Transportation Company (UP/SP) to provide, by October 20, 1997, 11 categories of information that reflect the condition of UP/SP's rail service. In a response dated October 14, 1997, UP/SP states that it intends to file, by October 23, 1997, information in 12 specific categories that would similarly show changes in service quality. UP/SP asserts that its 12 informational categories are designed to serve the same ends as the 11 categories of information suggested by NITL, but that the information that UP/SP intends to provide is more readily available and more directly informative than the information sought by NITL.

We appreciate the thoughtful suggestions by both NITL and UP/SP, which reflect constructive efforts to identify ways in which to chart UP/SP's operations and to facilitate the resumption of normal service patterns on the railroad. As between the two

approaches, we will permit UP/SP to use the reporting format that it has advanced. We note that both proposals represent good starting points; this hearing, however, is being held on very short notice, and we are demanding substantial input from UP/SP and the other parties in a very short period of time. Much of the information that NITL seeks is included in UP/SP's proposal, and the remaining information, which, according to UP/SP, is not readily available, seems not sufficiently related to UP/SP's service problems to facilitate a solution.

As we have noted, UP/SP's proposal represents a good starting point. It does not, however, give us all of the information that we believe we need to evaluate whether or not UP/SP's actions to resolve its service problems are in fact producing the desired results. In our view, additional information relating specifically to UP/SP's system wide service recovery plan is necessary to determine the extent to which overall conditions affecting service are improving. Therefore, in addition to the 12 categories of information that UP/SP has suggested, we will require the carrier to provide the following system wide information:

1. Major yard/terminal condition report (including port facilities): car capacity at each yard or terminal vs. cars on-hand (specify loaded or empty) at each terminal.
2. Interchange report: number of cars held short of interchange or constructively interchanged by connections due to congestion, (a) on UP/SP, and (b) on other railroads.
3. Siding report: item 5 of the UP/SP suggested reporting format indicating sidings blocked south of Kansas City should be expanded to reflect the number of mainline sidings system wide vs. the number of those sidings blocked by loaded or empty cars awaiting power, crews, or further disposition.



4. Mainline report: number of mainlines blocked by trains (loaded or empty) awaiting crews or power.
5. Rerouting: number of UP/SP trains and carloads of UP/SP traffic routed over other railroads during the reporting period.
6. Locomotive report: average daily number of locomotives on-hand vs. serviceable locomotives.
7. On-line car inventory: item 1 of the UP/SP suggested reporting format indicating total on line car inventory should be expanded to reflect UP/SP ownership on line, foreign railroad ownership on line, and private car ownership on line.

We also note that NITL has asked that UP/SP produce the information weekly beginning October 20, 1997, while UP/SP proposes that it produce the information monthly or bi-weekly beginning October 23, 1997. So that other participants will be able to review the first report before they file their pre-hearing statements, we will require that UP/SP produce the information described in this decision beginning on October 20, 1997. Moreover, given the serious nature of the current service problems, we do not believe that monthly or bi-weekly updates would be adequate. Therefore, we will require UP/SP to provide the prescribed information on a weekly basis. Reports shall reflect the most current information for the reporting period.

It is ordered:

1. UP/SP shall provide the information described in this decision on a weekly basis beginning on October 20, 1997.
2. UP/SP shall serve its weekly reports on all parties to this proceeding.

3. This decision is effective on the date of service.

By the Board, Chairman Morgan and Vice Chairman Owen.

Vernon A. Williams  
Secretary

[Ref. 17]

**APPENDIX B. UNION PACIFIC SERVICE RECOVERY REPORTS**

<b>WEEK</b>	<b>DATE</b>	<b>NOTE</b>	<b>WEEK</b>	<b>DATE</b>	<b>NOTE</b>
2	10/24/97	Weekly	28	04/24/98	Weekly
3	10/31/97	Weekly	29	05/01/98	Weekly
4	11/07/97	Weekly	30	05/08/98	Weekly
5	11/14/97	Weekly	31	05/15/98	Weekly
6	11/21/97	Weekly	32	05/22/98	Weekly
8	12/05/97	Weekly	33	05/29/98	Weekly
9	12/12/97	Weekly	34	06/05/98	Weekly
10	12/19/97	Weekly	35	06/12/98	Weekly
11	12/26/97	Weekly	36	06/19/98	Weekly
12	01/02/98	Weekly	37	06/26/98	Weekly
13	01/09/98	Weekly	38	07/03/98	Weekly
14	01/16/98	Weekly	39	07/10/98	Weekly
15	01/23/98	Weekly	40	07/17/98	Weekly
16	01/30/98	Weekly	41	07/24/98	Weekly
17	02/06/98	Weekly	44	08/14/98	Bi-Weekly
18	02/13/98	Weekly	46	08/28/98	Bi-Weekly
19	02/20/98	Weekly	48	09/11/98	Bi-Weekly
20	02/27/98	Weekly	50	09/25/98	Bi-Weekly
21	03/06/98	Weekly	52	10/09/98	Bi-Weekly
22	03/13/98	Weekly	54	10/23/98	Bi-Weekly
23	03/20/98	Weekly	56	11/06/98	Bi-Weekly
24	03/27/98	Weekly	58	11/20/98	Bi-Weekly
25	04/03/98	Weekly	60	12/04/98	Bi-Weekly
26	04/10/98	Weekly	62	12/18/98	Bi-Weekly
27	04/17/98	Weekly	66	01/15/99	4 Weeks

**Service Recovery Report: Week 2**

**Top 10 Terminal Condition Report**

Daily average for week ending October 24, 1997.

Location	60' Car			Cars On Hand		
	Capacity	Loads	Empty	Total	Empty	Total
Houston-Englewood (SP)	8,535	3,301	2,878	6,179		
Houston-Settegast	3,675	1,421	1,197	2,618		
Ft. Worth-Centennial	4,481	1,193	1,233	2,426		
Livonia	3,869	1,195	978	2,173		
N. Little Rock	5,741	1,417	1,388	2,805		
Pine Bluff	3,559	1,463	1,421	2,884		
Kansas City-Neff	3,520	1,495	1,187	2,682		
North Platte-East	4,588	1,022	931	1,953		
North Platte-West	8,128	1,948	2,022	3,970		
Proviso	7,019	1,247	1,388	2,635		
<b>Totals</b>	<b>53,117</b>	<b>15,702</b>	<b>14,623</b>	<b>30,325</b>		

**Surface Transportation Board Weekly Service Measurements**

	Baseline		Week Ending						
	Jan 97	19-Sep	19-Sep	26-Sep	3-Oct	10-Oct	17-Oct	24-Oct	
<b>Car Inventory</b>	<b>Total</b>	308,264	349,956	353,719	356,141	353,742	348,489	345,158	
	System	N/A	106,208	106,386	107,564	107,224	105,927	105,184	
	Foreign	N/A	53,230	54,535	55,321	55,088	53,706	52,460	
	Private	N/A	190,518	192,798	193,255	191,429	188,857	187,514	
	<b>TX, LA Only</b>	N/A	108,601	110,402	108,822	106,272	105,270	105,412	
<b>Interchange Offered &amp; Refused*</b>	<b>Cars Offered by UP/SP</b>	83	136	88	122	159	209	115	
	<b>Cars Offered to UP/SP</b>	80	448	346	419	435	396	378	

\*Numbers do not include private cars.

<b>Velocity*</b>	<b>Car Terminal Dwell</b>	33.6	42.4	43.5	43.3	42.7	41.4	41.5
	<b>System Train Speed</b>	17.9	14.0	13.4	13.2	12.8	12.5	13.3
	<b>Sidings Blocked</b>							
	<b>KC South Only</b>	N/A	N/A	136	103	99	91	87
	<b>System Total</b>	N/A	N/A	N/A	N/A	N/A	N/A	140
	<b>Multiple Mains Blocked</b>	N/A	N/A	N/A	N/A	N/A	N/A	6
<b>Trains Held</b>	<b>Trains</b>							
	<b>Power</b>	94	237	223	228	217	157	168
	<b>Crews</b>	17	80	50	56	75	78	104
	<b>Congestion</b>	10	83	111	113	71	101	76
	<b>Hours</b>							
	<b>Power</b>	1,121	3,824	3,526	3,702	3,706	2,495	2,314
<b>Locomotives</b>	<b>Crews</b>	116	1,083	649	782	1,051	926	1,190
	<b>Congestion</b>	109	1,432	2,000	1,850	1,117	1,494	984
	<b>Fleet Size (Frt units only)</b>	6,044	6,196	6,199	6,204	6,204	6,228	6,228
	<b>Stored</b>							
	<b>Unserviceable</b>	29	23	24	26	28	30	32
	<b>Productivity GTMs per HP day</b>	121.2	108.5	106.5	105.9	105.9	108.5	112.4
<b>Re-routes</b>	<b>Trains</b>	0	11	5	25	36	30	19
	<b>Cars</b>	0	588	376	1,745	2,866	2,513	1,483

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 18]

**Service Recovery Report: Week 3**

**Top 10 Terminal Condition Report**

Daily averages for week ending October 31, 1997, except West Colton and Englewood throughput numbers, which are daily averages for the month of October.

Location	60' Car		Cars On Hand			Throughput		Trains Held		
	Capacity	Loads	Empty	Total	Switch	Thru	Power	Crew	Cong.	
Houston-Englewood (SP)	8,535	3,234	2,632	5,866	1,172	524	2.7	0.0	0.0	
Houston-Settegast	3,675	1,578	1,367	2,945	1,194	552	0.7	1.0	1.7	
Ft. Worth-Centennial	4,481	1,075	1,219	2,294	1,212	1,071	3.7	0.0	0.0	
Livonia	3,869	1,143	1,056	2,199	1,298	152	1.3	0.0	0.3	
N. Little Rock	5,741	1,502	1,521	3,023	1,727	2,303	0.0	0.3	0.3	
Pine Bluff	3,559	1,455	1,513	2,968	1,008	180	0.3	0.0	0.0	
Kansas City-Neff	3,520	1,334	1,165	2,499	1,167	3,288	2.0	1.0	0.5	
North Platte-East	4,588	829	809	1,638	1,097	2,649	1.7	0.0	0.0	
North Platte-West	8,128	1,574	2,002	3,576	1,403	2,500	4.0	0.0	0.0	
Proviso	7,019	1,423	1,650	3,073	1,379	1,465	4.0	0.0	1.0	
West Colton (SP)	5,578	2,532	2,045	4,577	852	600	0.0	0.0	0.0	
<b>Totals</b>	58,695	17,679	16,979	34,658	13,509	15,284	20	2	4	

**Surface Transportation Board Weekly Service Measurements**

Car Inventory	Baseline		Week Ending						
	Jan 97	19-Sep	26-Sep	3-Oct	10-Oct	17-Oct	24-Oct	31-Oct	
<b>Total</b>	308,264	349,956	353,719	356,141	353,742	348,489	345,158	342,361	
System	N/A	106,208	106,386	107,564	107,224	105,927	105,184	104,813	
Foreign	N/A	53,230	54,535	55,321	55,088	53,706	52,460	52,067	
Private	N/A	190,518	192,798	193,255	191,429	188,857	187,514	185,481	
<b>TX, LA Only</b>	N/A	108,601	110,402	108,822	106,272	105,270	105,412	103,395	

<b>Train Volume</b>	<b>Through Trains Terminated</b>	557	530	537	533	538	553	549	513
	<b>Through Train Crew Starts</b>	2,458	2,626	2,620	2,586	2,553	2,615	2,492	2,337
<b>Velocity*</b>	<b>Car Terminal Dwell</b>	33.6	42.4	43.5	43.3	42.7	41.4	41.5	42.2
	<b>System Train Speed</b>	17.9	14.0	13.4	13.2	12.8	12.5	13.3	12.7
	<b>Coal Cycle Days</b>	6.1	7.0	6.5	6.3	6.8	6.8	6.5	6.2
	<b>Sidings Blocked</b>								
	<b>KC South Only</b>	N/A	N/A	136	103	99	91	87	49
	<b>System Total</b>	N/A	N/A	N/A	N/A	N/A	N/A	140	134
	<b>Multiple Mains Blocked</b>	N/A	N/A	N/A	N/A	N/A	N/A	6	15
<b>Trains Held</b>	<b>Trains</b>								
	<b>Power</b>	94	237	223	228	217	157	168	160
	<b>Crews</b>	17	80	50	56	75	78	104	75
	<b>Congestion</b>	10	83	111	113	71	101	76	73
	<b>Hours</b>								
	<b>Power</b>	1,121	3,824	3,526	3,702	3,706	2,495	2,314	2,277
	<b>Crews</b>	116	1,083	649	782	1,051	926	1,190	947
	<b>Congestion</b>	109	1,432	2,000	1,850	1,117	1,494	984	1,080
<b>Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,044	6,196	6,199	6,204	6,204	6,228	6,228	6,239
	<b>Stored Unserviceable</b>	29	23	24	26	28	30	32	30
	<b>Productivity GTMs per HP day</b>	121.2	108.5	106.5	105.9	105.9	108.5	112.4	101.7
<b>Re-routes</b>	<b>Trains</b>	0	11	5	25	36	30	19	6
	<b>Cars</b>	0	588	376	1,745	2,866	2,513	1,483	473

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 19]

**Service Recovery Report: Week 4**

**Major Terminal Condition Report**

Daily averages for week ending November 7, 1997.

Location	60' Car		Cars On Hand			Throughput		Trains Held		
	Capacity	Loads	Empty	Total	Switch	Thru	Power	Crew	Cong.	
Houston-Englewood (SP)	8,535	3,342	2,571	5,913	1,092	373	1.6	0.0	0.0	
Houston-Settegast	3,675	1,424	1,353	2,777	1,091	381	0.4	0.0	1.2	
Ft. Worth-Centennial	4,481	1,071	1,122	2,193	1,299	1,352	1.0	0.0	0.0	
Livonia	3,869	1,261	1,123	2,384	1,260	154	0.8	0.4	0.2	
N. Little Rock	5,741	1,413	1,307	2,720	1,753	2,159	0.4	0.0	0.0	
Pine Bluff	3,559	1,443	1,577	3,020	971	110	0.4	0.0	0.0	
Kansas City-Neff	3,520	1,299	1,066	2,365	1,081	4,660	3.2	0.0	0.0	
North Platte-East	4,588	1,081	894	1,975	1,281	3,841	1.6	0.0	0.0	
North Platte-West	8,128	1,584	1,870	3,454	1,620	3,323	5.4	0.0	0.0	
Proviso	7,019	1,655	1,618	3,273	1,414	1,539	0.4	0.0	0.0	
West Colton (SP)	5,578	2,439	2,202	4,641	808	469	0.0	0.0	0.0	
<b>Totals</b>	<b>58,695</b>	<b>18,012</b>	<b>16,703</b>	<b>34,715</b>	<b>13,670</b>	<b>18,361</b>	<b>15.2</b>	<b>0.4</b>	<b>1.4</b>	

**Surface Transportation Board Weekly Service Measurements**

Car Inventory	Baseline		Week Ending						
	Jan 97	19-Sep	26-Sep	3-Oct	10-Oct	17-Oct	24-Oct	31-Oct	7-Nov
<b>Total</b>	<b>308,264</b>	<b>349,956</b>	<b>353,719</b>	<b>356,141</b>	<b>353,742</b>	<b>348,489</b>	<b>345,158</b>	<b>342,361</b>	<b>341,569</b>
System	N/A	106,208	106,386	107,564	107,224	105,927	105,184	104,813	104,388
Foreign	N/A	53,230	54,535	55,321	55,088	53,706	52,460	52,067	51,963
Private	N/A	190,518	192,798	193,255	191,429	188,857	187,514	185,481	185,218
<b>TX, LA Only</b>	<b>N/A</b>	<b>108,601</b>	<b>110,402</b>	<b>108,822</b>	<b>106,272</b>	<b>105,270</b>	<b>105,412</b>	<b>103,395</b>	<b>103,169</b>



Through Train Volume	Through Trains Terminated	557	530	537	533	538	553	549	513	535
Velocity*	Through Train Crew Starts	2,458	2,626	2,620	2,586	2,553	2,615	2,492	2,337	2,467
	Car Terminal Dwell	33.6	42.4	43.5	43.3	42.7	41.4	41.5	42.2	41.2
	System Train Speed	17.9	14.0	13.4	13.2	12.8	12.5	13.3	12.7	12.9
	Coal Cycle Days	6.1	7.0	6.5	6.3	6.8	6.8	6.5	6.2	8.4
	<b>Sidings Blocked</b>									
	KC South Only	N/A	N/A	136	103	99	91	87	49	63
	System Total	N/A	N/A	N/A	N/A	N/A	N/A	140	134	117
	<b>Multiple Mains Blocked</b>	N/A	N/A	N/A	N/A	N/A	N/A	6	15	11
	<b>Trains Held</b>									
	Power	94	237	223	228	217	157	168	160	225
	Crews	17	80	50	56	75	78	104	75	99
	Congestion	10	83	111	113	71	101	76	73	53
	<b>Hours</b>									
	Power	1,121	3,824	3,526	3,702	3,706	2,495	2,314	2,277	3,335
	Crews	116	1,083	649	782	1,051	926	1,190	947	1,269
	Congestion	109	1,432	2,000	1,850	1,117	1,494	984	1,080	814
	<b>Fleet Size (Frt units only)</b>	6,044	6,196	6,199	6,204	6,204	6,228	6,228	6,239	6,229
	<b>Stored Unserviceable</b>	29	23	24	26	28	30	32	30	28
	<b>Productivity GTMs per HP day</b>	121.2	108.5	106.5	105.9	105.9	108.5	112.4	101.7	105.5
	<b>Trains</b>	0	11	5	25	36	30	19	6	5
	<b>Cars</b>	0	588	376	1,745	2,866	2,513	1,483	473	436

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 20]

**Service Recovery Report: Week 5**

**Major Terminal Condition Report**

Daily averages for week ending November 14, 1997.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Crew	Power	Cong.
Houston-Englewood (SP)	8,535	3,208	2,523	5,731	0.0	3.3	0.0
Houston-Settegast	3,675	1,355	1,320	2,675	0.3	1.3	0.5
Ft. Worth-Centennial	4,481	1,051	1,043	2,094	0.0	0.3	0.0
Livonia	3,869	1,194	1,140	2,334	0.0	0.7	0.2
North Little Rock	5,741	1,174	1,127	2,301	0.0	1.3	0.0
Pine Bluff (SP)	3,559	1,037	1,336	2,373	0.0	0.5	0.0
Kansas City-Neff	3,520	1,267	1,072	2,339	0.0	4.2	1.2
North Platte-East	4,588	986	752	1,738	0.2	1.2	0.0
North Platte-West	8,128	1,479	1,697	3,176	0.3	3.0	0.0
Chicago-Proviso	7,019	1,901	1,686	3,587	0.3	2.2	0.3
West Colton (SP)	5,578	2,437	2,477	4,914	0.0	1.8	0.0
<b>Totals</b>	58,695	17,089	16,173	33,262	1.1	19.8	2.2

**Surface Transportation Board Weekly Service Measurements**

Car Inventory	Baseline	Week Ending									
	Jan 97	19-Sep	26-Sep	3-Oct	10-Oct	17-Oct	24-Oct	31-Oct	7-Nov	14-Nov	
<b>Total</b>	308,264	349,956	353,719	356,141	353,742	348,489	345,158	342,361	341,569	339,303	
System	N/A	106,208	106,386	107,564	107,224	105,927	105,184	104,813	104,388	103,644	
Foreign	N/A	53,230	54,535	55,321	55,088	53,706	52,460	52,067	51,963	52,075	
Private	N/A	190,518	192,798	193,255	191,429	188,857	187,514	185,481	185,218	183,584	
<b>TX, LA Only</b>	N/A	108,601	110,402	108,822	106,272	105,270	105,412	103,395	103,169	102,280	

Through Train Volume	Through Trains Terminated	557	530	537	533	538	553	549	513	535	542
Velocity*	Through Train Crew Starts	2,458	2,626	2,620	2,586	2,553	2,615	2,492	2,337	2,467	2,486
	Car Terminal Dwell	33.6	42.4	43.5	43.3	42.7	41.4	41.5	42.2	41.2	40.1
	System Train Speed	17.9	14.0	13.4	13.2	12.8	12.5	13.3	12.7	12.9	13.5
	Coal Cycle Days	6.1	7.0	6.5	6.3	6.8	6.8	6.5	6.2	8.4	7.8
	<b>Sidings Blocked</b>										
	KC South Only	N/A	N/A	136	103	99	91	87	49	63	43
	System Total	N/A	N/A	N/A	N/A	N/A	N/A	140	134	117	111
	Multiple Mains Blocked	N/A	N/A	N/A	N/A	N/A	N/A	6	15	11	14
<b>Trains Held</b>	<b>Trains</b>										
	Power	94	237	223	228	217	157	168	160	225	188
	Crews	17	80	50	56	75	78	104	75	99	56
	Congestion	10	83	111	113	71	101	76	73	53	95
	<b>Hours</b>										
	Power	1,121	3,824	3,526	3,702	3,706	2,495	2,314	2,277	3,335	2,614
	Crews	116	1,083	649	782	1,051	926	1,190	947	1,269	604
	Congestion	109	1,432	2,000	1,850	1,117	1,494	984	1,080	814	1,559
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,044	6,196	6,199	6,204	6,204	6,228	6,228	6,239	6,229	6,247
	Stored										
	Unserviceable	29	23	24	26	28	30	32	30	28	28
	Productivity GTMs per HP day	121.2	108.5	106.5	105.9	105.9	108.5	112.4	101.7	105.5	109.4
<b>Re-routes</b>	<b>Trains</b>	0	11	5	25	36	30	19	6	5	2
	<b>Cars</b>	0	588	376	1,745	2,866	2,513	1,483	473	436	93

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 21]

**Service Recovery Report: Week 6**

**Major Terminal Condition Report**

Daily averages for week ending November 21, 1997.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	3,087	2,613	5,700	0.3	0.0	0.0
Houston-Settegast	3,675	1,461	1,271	2,732	0.3	0.3	0.3
Ft. Worth-Centennial	4,481	1,046	1,018	2,064	2.0	0.2	0.0
Livonia	3,869	1,175	1,049	2,224	0.0	0.3	0.3
North Little Rock	5,741	1,271	1,227	2,498	0.3	0.0	0.0
Pine Bluff (SP)	3,559	898	1,058	1,956	0.5	0.0	0.0
Kansas City-Neff	3,520	1,121	1,057	2,178	1.2	0.2	1.7
North Platte-East	4,588	1,030	903	1,933	1.2	0.0	0.2
North Platte-West	8,128	1,639	1,712	3,351	5.0	0.0	0.0
Chicago-Proviso	7,019	1,520	1,576	3,096	0.5	0.0	0.2
West Colton (SP)	5,578	2,325	2,272	4,597	0.2	0.0	0.0
Totals	58,695	16,573	15,756	32,329	11.5	1.0	2.7

**Surface Transportation Board Weekly Service Measurements**

	Baseline		Week Ending									
	Jan 97	19-Sep	26-Sep	3-Oct	10-Oct	17-Oct	24-Oct	31-Oct	7-Nov	14-Nov	21-Nov	
Car Inventory	308,264	349,956	353,719	356,141	353,742	348,489	345,158	342,361	341,569	339,303	337,217	
Total	N/A	106,208	106,386	107,564	107,224	105,927	105,184	104,813	104,388	103,644	103,338	
System	N/A	53,230	54,535	55,321	55,088	53,706	52,460	52,067	51,963	52,075	51,086	
Foreign	N/A	190,518	192,798	193,255	191,429	188,857	187,514	185,481	185,218	183,584	182,793	
Private	N/A	108,601	110,402	108,822	106,272	105,270	105,412	103,395	103,169	102,280	101,696	
TX, LA Only												

Through Train Volume	Through Trains Terminated	557	530	537	533	538	553	549	513	535	542	547
Velocity*	Through Train Crew Starts	2,458	2,626	2,620	2,586	2,553	2,615	2,492	2,337	2,467	2,486	2,487
	Car Terminal Dwell	33.6	42.4	43.5	43.3	42.7	41.4	41.5	42.2	41.2	40.1	39.5
	System Train Speed	17.9	14.0	13.4	13.2	12.8	12.5	13.3	12.7	12.9	13.5	12.7
	Coal Cycle Days	6.1	7.0	6.5	6.3	6.8	6.8	6.5	6.2	8.4	7.8	7.6
	<b>Sidings Blocked</b>											
	KC South Only	N/A	N/A	136	103	99	91	87	49	63	43	43
	System Total	N/A	N/A	N/A	N/A	N/A	N/A	140	134	117	111	105
	Multiple Mains Blocked	N/A	N/A	N/A	N/A	N/A	N/A	6	15	11	14	13
	<b>Trains Held</b>											
	Power	94	237	223	228	217	157	168	160	225	188	139
	Crews	17	80	50	56	75	78	104	75	99	56	57
	Congestion	10	83	111	113	71	101	76	73	53	95	105
	<b>Hours</b>											
	Power	1,121	3,824	3,526	3,702	3,706	2,495	2,314	2,277	3,335	2,614	1,710
	Crews	116	1,083	649	782	1,051	926	1,190	947	1,269	604	513
	Congestion	109	1,432	2,000	1,850	1,117	1,494	984	1,080	814	1,559	1,641
Freight Locomotives	Fleet Size (Frt units only)	6,044	6,196	6,199	6,204	6,204	6,228	6,228	6,239	6,229	6,247	6,269
	Stored Unserviceable	29	23	24	26	28	30	32	30	28	28	24
	Productivity GTMs per HP day	121.2	108.5	106.5	105.9	105.9	108.5	112.4	101.7	105.5	109.4	107.9
Re-routes	Trains	0	11	5	25	36	30	19	6	5	7	6
	Cars	0	588	376	1,745	2,866	2,513	1,483	473	436	395	361

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 22]

**Service Recovery Report: Week 8**

**Major Terminal Condition Report**

Daily averages for week ending December 5, 1997.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,367	2,097	4,464	0.0	0.0	0.0
Houston-Settegast	3,675	1,305	1,215	2,520	0.3	0.3	0.1
Ft. Worth-Centennial	4,481	1,095	1,016	2,111	0.9	0.0	0.0
Livonia	3,869	761	782	1,543	0.0	0.0	0.3
North Little Rock	5,741	1,276	1,310	2,586	0.9	0.0	0.0
Pine Bluff (SP)	3,559	595	811	1,406	0.1	0.0	0.0
Kansas City-Neff	3,520	1,099	978	2,077	0.9	0.0	0.0
North Platte-East	4,588	1,203	1,034	2,237	0.6	0.0	0.4
North Platte-West	8,128	1,663	1,664	3,327	1.4	0.0	0.0
Chicago-Proviso	7,019	1,561	1,590	3,151	0.3	0.0	0.0
Yermo	1,440	Available starting next week.					
West Colton (SP)	5,578	2,344	2,207	4,551	0.0	0.0	0.0
<b>Totals</b>	60,135	15,269	14,704	29,973	5.4	0.3	0.8

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of December 1997, and subsequent months thereafter.

Car Inventory	Baselines		Week Ending
	Dec 96	Jan 97	
<b>Total</b>	310,616	308,264	<b>5 Dec</b>
System	N/A	N/A	332,482
Foreign	N/A	N/A	101,141
Private	N/A	N/A	49,975
<b>TX, LA Only</b>	N/A	N/A	181,366
			101,777

<b>Through Train Volume Velocity*</b>	<b>Through Trains Terminated</b>	542	557	570
	<b>Through Train Crew Starts</b>	2,451	2,458	2,592
	<b>Car Terminal Dwell</b>	34.7	33.6	40.6
	<b>System Train Speed</b>	17.7	17.9	13.1
	<b>Coal Cycle Days</b>	6.0	6.1	6.8
	<b>Sidings Blocked</b>			
	<b>Houston-Beaumont</b>	N/A	N/A	Begins next week.
	<b>Tucson-W. Colton</b>	N/A	N/A	Begins next week.
	<b>KC South Only</b>	N/A	N/A	34
	<b>System Total</b>	N/A	N/A	70
<b>Trains Held</b>	<b>Multiple Mains Blocked</b>	N/A	N/A	6
	<b>Trains</b>			
	<b>Power</b>	75	94	92
	<b>Crews</b>	N/A	17	54
	<b>Congestion</b>	N/A	10	30
	<b>Hours</b>			
	<b>Power</b>	749	1,121	1,054
	<b>Crews</b>	N/A	116	445
	<b>Congestion</b>	N/A	109	371
	<b>Fleet Size (Frt units only)</b>	6,017	6,044	6,311
<b>Freight Locomotives</b>	<b>Stored Unserviceable</b>	35	29	20
	<b>Productivity GTMs per HP day</b>	117.2	121.2	113.1
	<b>Trains</b>	0	0	8
<b>Re-routes</b>	<b>Cars</b>	0	0	629

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 23]

**Service Recovery Report: Week 9**

**Major Terminal Condition Report**

Daily averages for week ending December 12, 1997.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,231	2,021	4,252	0.3	0.0	0.0
Houston-Settegast	3,675	1,659	1,267	2,926	0.3	0.3	0.0
Ft. Worth-Centennial	4,481	1,218	1,158	2,376	0.7	0.0	0.0
Livonia	3,869	1,090	696	1,786	0.0	0.1	0.0
North Little Rock	5,741	1,374	1,423	2,797	0.4	0.0	0.0
Pine Bluff (SP)	3,559	695	959	1,654	0.0	0.0	0.0
Kansas City-Neff	3,520	1,280	1,144	2,424	2.1	0.3	0.0
North Platte-East	4,588	1,065	841	1,906	0.4	0.1	0.4
North Platte-West	8,128	1,640	1,693	3,333	0.9	0.0	0.3
Chicago-Proviso	7,019	1,387	1,548	2,935	0.3	0.1	0.0
Yermo	1,440	619	506	1,125	0.8	1.2	0.0
West Colton (SP)	5,578	2,224	2,190	4,414	0.1	0.0	0.0
<b>Totals</b>	60,135	16,482	15,446	31,928	6.3	2.1	0.7

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of December 1997, and subsequent months thereafter.

Car Inventory	Baselines			Week Ending	
	Dec 96	Jan 97	5 Dec	12 Dec	
<b>Total</b>	310,616	308,264	332,482	333,247	
System	N/A	N/A	101,141	99,997	
Foreign	N/A	N/A	49,975	50,065	
Private	N/A	N/A	181,366	183,185	
<b>TX, LA Only</b>	N/A	N/A	101,777	104,093	



<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	542	557	570	551
<b>Velocity*</b>	<b>Through Train Crew Starts</b>	2,451	2,458	2,592	2,543
	<b>Car Terminal Dwell</b>	34.7	33.6	40.6	40.9
	<b>System Train Speed</b>	17.7	17.9	13.1	14.2
	<b>Coal Cycle Days</b>	6.0	6.1	6.8	5.8
	<b>Sidings Blocked</b>				
	Houston-Beaumont	N/A	N/A	N/A	4
	Tucson-W. Colton	N/A	N/A	N/A	3
	KC South Only	N/A	N/A	34	48
	System Total	N/A	N/A	70	86
	<b>Multiple Mains Blocked</b>	N/A	N/A	6	8
<b>Trains Held</b>	<b>Trains</b>				
	Power	75	94	92	65
	Crews	N/A	17	54	83
	Congestion	N/A	10	30	34
	<b>Hours</b>				
	Power	749	1,121	1,054	621
	Crews	N/A	116	445	909
	Congestion	N/A	109	371	446
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,017	6,044	6,311	6,319
	<b>Stored Unserviceable</b>	35	29	20	20
	<b>Productivity</b>				
	GTM per HP day	117.2	121.2	113.1	109.8
<b>Re-routes</b>	<b>Trains</b>	0	0	8	9
	<b>Cars</b>	0	0	629	567

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 24]

**Service Recovery Report: Week 10**

**Major Terminal Condition Report**

Daily averages for week ending December 19, 1997.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,333	2,032	4,365	0.5	0.0	0.0
Houston-Settegast	3,675	1,844	1,490	3,334	0.7	0.5	0.0
Ft. Worth-Centennial	4,481	1,260	1,203	2,463	0.0	0.0	0.0
Livonia	3,869	1,274	1,149	2,423	0.0	0.2	0.0
North Little Rock	5,741	1,187	1,303	2,490	0.0	0.2	0.0
Pine Bluff (SP)	3,559	743	1,016	1,759	0.2	0.0	0.0
Kansas City-Neff	3,520	1,265	981	2,246	2.3	0.0	0.0
North Platte-East	4,588	935	771	1,706	0.0	0.0	0.2
North Platte-West	8,128	1,507	1,799	3,306	0.2	0.0	0.0
Chicago-Proviso	7,019	1,478	1,528	3,006	3.0	0.0	0.0
Yermo	1,440	465	567	1,032	1.8	0.2	0.0
West Colton (SP)	5,578	2,069	2,050	4,119	0.5	0.0	0.0
<b>Totals</b>	60,135	16,360	15,889	32,249	9.2	1.1	0.2

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of December 1997 and subsequent months thereafter.

Car Inventory	Baselines					
	Dec 96			Jan 97		
	Dec 96	Jan 97	5 Dec	12 Dec	19 Dec	
<b>Total</b>	310,616	308,264	332,482	333,247	336,863	
System	N/A	N/A	101,141	99,997	100,874	
Foreign	N/A	N/A	49,975	50,065	50,326	
Private	N/A	N/A	181,366	183,185	185,662	
<b>TX, LA Only</b>	N/A	N/A	101,777	104,093	105,887	

<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	542	557	570	551	540
<b>Velocity*</b>	<b>Through Train Crew Starts</b>	2,451	2,458	2,592	2,543	2,533
	<b>Car Terminal Dwell</b>	34.7	33.6	40.6	40.9	42.1
	<b>System Train Speed</b>	17.7	17.9	13.1	14.2	14.1
	<b>Coal Cycle Days</b>	6.0	6.1	6.8	5.8	5.8
	<b>Sidings Blocked</b>					
	Houston-Beaumont	N/A	N/A	N/A	4	4
	Tucson-W. Colton	N/A	N/A	N/A	3	1
	KC South Only	N/A	N/A	34	48	53
	System Total	N/A	N/A	70	86	96
	<b>Multiple Mains Blocked</b>	N/A	N/A	6	8	7
<b>Trains Held</b>	<b>Trains</b>					
	Power	75	94	92	65	84
	Crews	N/A	17	54	83	86
	Congestion	N/A	10	30	34	41
	<b>Hours</b>					
	Power	749	1,121	1,054	621	1,009
	Crews	N/A	116	445	909	884
	Congestion	N/A	109	371	446	541
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,017	6,044	6,311	6,319	6,329
	<b>Stored Unserviceable</b>	35	29	20	20	17
	<b>Productivity GTMs per HP day</b>	117.2	121.2	113.1	109.8	111.3
<b>Re-routes</b>	<b>Trains</b>	0	0	8	9	10
	<b>Cars</b>	0	0	629	567	786

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 25]

**Service Recovery Report: Week 11**

**Major Terminal Condition Report**

Daily averages for week ending December 26, 1997.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,422	1,988	4,410	2.0	2.0	2.0
Houston-Settegast	3,675	1,593	1,217	2,810	0.3	1.0	0.2
Ft. Worth-Centennial	4,481	1,481	1,268	2,749	0.2	0.2	0.3
Livonia	3,869	1,413	1,150	2,563	1.0	0.2	1.3
North Little Rock	5,741	1,478	1,470	2,948	0.0	1.8	0.0
Pine Bluff (SP)	3,559	1,105	1,269	2,374	0.3	0.0	0.3
Kansas City-Neff	3,520	1,484	1,125	2,609	1.3	3.2	0.2
North Platte-East	4,588	1,070	909	1,979	0.0	0.0	0.0
North Platte-West	8,128	1,690	1,958	3,648	0.5	1.3	0.0
Chicago-Proviso	7,019	1,411	1,547	2,958	0.8	0.0	0.0
Yermo	1,440	493	553	1,046	1.0	0.3	0.0
West Colton (SP)	5,578	2,032	2,124	4,156	0.7	0.0	0.0
<b>Totals</b>	<b>60,135</b>	<b>17,672</b>	<b>16,578</b>	<b>34,250</b>	<b>8.1</b>	<b>10.0</b>	<b>4.3</b>

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of December 1997 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending		
	Dec 96	Jan 97	5 Dec	12 Dec	19 Dec	26 Dec
<b>Total</b>	310,616	308,264	332,482	333,247	336,863	339,335
System	N/A	N/A	101,141	99,997	100,874	101,232
Foreign	N/A	N/A	49,975	50,065	50,326	51,231
Private	N/A	N/A	181,366	183,185	185,662	186,872
<b>TX, LA Only</b>	N/A	N/A	101,777	104,093	105,887	106,509

<b>Through Train Volume Velocity*</b>	<b>Through Trains Terminated</b>	542	557	570	551	540	430
	<b>Through Train Crew Starts</b>	2,451	2,458	2,592	2,543	2,533	1,899
	<b>Car Terminal Dwell</b>	34.7	33.6	40.6	40.9	42.1	48.6
	<b>System Train Speed</b>	17.7	17.9	13.1	14.2	14.1	13.9
	<b>Coal Cycle Days</b>	6.0	6.1	6.8	5.8	5.8	6.3
	<b>Sidings Blocked</b>						
	Houston-Beaumont	N/A	N/A	N/A	4	4	7
	Tucson-W. Colton	N/A	N/A	N/A	3	1	2
	KC South Only	N/A	N/A	34	48	53	99
	System Total	N/A	N/A	70	86	96	197
<b>Multiple Mains Blocked</b>							
	N/A	N/A	6	8	7	18	
<b>Trains Held</b>							
Power		75	94	92	65	84	59
Crews		N/A	17	54	83	86	162
Congestion		N/A	10	30	34	41	27
<b>Hours</b>							
Power		749	1,121	1,054	621	1,009	706
Crews		N/A	116	445	909	884	2,036
Congestion		N/A	109	371	446	541	373
<b>Freight Locomotives</b>							
<b>Fleet Size</b> (Frt units only)		6,017	6,044	6,311	6,319	6,329	6,340
<b>Stored Unserviceable</b>		35	29	20	20	17	18
<b>Productivity</b> GTM per HP day		117.2	121.2	113.1	109.8	111.3	100.4
<b>Re-routes</b>							
Trains		0	0	8	9	10	8
Cars		0	0	629	567	786	597

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 26]

**Service Recovery Report: Week 12**

**Major Terminal Condition Report**

Daily averages for week ending January 2, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,141	1,801	3,942	0.3	1.4	0.1
Houston-Settegast	3,675	1,216	1,047	2,263	0.9	3.6	0.0
Ft. Worth-Centennial	4,481	1,477	1,298	2,775	1.1	0.0	0.0
Livonia	3,869	1,195	1,240	2,435	0.0	0.0	0.3
North Little Rock	5,741	1,369	1,316	2,685	0.6	0.0	0.1
Pine Bluff (SP)	3,559	1,040	1,191	2,231	1.1	0.0	0.3
Kansas City-Neff	3,520	1,389	1,068	2,457	2.9	2.3	0.0
North Platte-East	4,588	1,093	794	1,887	0.0	0.3	0.0
North Platte-West	8,128	1,592	1,784	3,376	0.4	0.1	0.4
Chicago-Proviso	7,019	1,257	1,427	2,684	1.3	0.0	0.0
Yermo	1,440	487	585	1,072	0.9	0.0	0.0
West Colton (SP)	5,578	1,764	1,651	3,415	0.7	0.0	0.0
<b>Totals</b>	60,135	16,020	15,202	31,222	10.2	7.7	1.2

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of December 1997 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending			
	Dec 96	Jan 97	5 Dec	12 Dec	19 Dec	26 Dec	2 Jan
<b>Total</b>	310,616	308,264	332,482	333,247	336,863	339,335	340,142
System	N/A	N/A	101,141	99,997	100,874	101,232	100,571
Foreign	N/A	N/A	49,975	50,065	50,326	51,231	51,337
Private	N/A	N/A	181,366	183,185	185,662	186,872	188,234
<b>TX, LA Only</b>	N/A	N/A	101,777	104,093	105,887	106,509	107,438

<b>Through Trains Terminated</b>	542	557	570	551	540	430	512
<b>Through Train Crew Starts</b>	2,451	2,458	2,592	2,543	2,533	1,899	2,287
<b>Car Terminal Dwell</b>	34.7	33.6	40.6	40.9	42.1	48.6	47.6
<b>System Train Speed</b>	17.7	17.9	13.1	14.2	14.1	13.9	12.3
<b>Coal Cycle Days</b>	6.0	6.1	6.8	5.8	5.8	6.3	7.6
<b>Sidings Blocked</b>							
Houston-Beaumont	N/A	N/A	N/A	4	4	7	5
Tucson-W. Colton	N/A	N/A	N/A	3	1	2	2
KC South Only	N/A	N/A	34	48	53	99	82
System Total	N/A	N/A	70	86	96	197	126
<b>Multiple Mains Blocked</b>	N/A	N/A	6	8	7	18	10
<b>Trains</b>							
Power	75	94	92	65	84	59	76
Crews	N/A	17	54	83	86	162	179
Congestion	N/A	10	30	34	41	27	35
<b>Hours</b>							
Power	749	1,121	1,054	621	1,009	706	860
Crews	N/A	116	445	909	884	2,036	2,242
Congestion	N/A	109	371	446	541	373	501
<b>Fleet Size (Frt units only)</b>	6,017	6,044	6,311	6,319	6,329	6,340	6,350
<b>Stored Unserviceable</b>	35	29	20	20	17	18	15
<b>Productivity GTMs per HP day</b>	117.2	121.2	113.1	109.8	111.3	100.4	104.8
<b>Trains</b>	0	0	8	9	10	8	4
<b>Cars</b>	0	0	629	567	786	597	424

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 27]

**Service Recovery Report: Week 13**

**Major Terminal Condition Report**

Daily averages for week ending January 9, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,243	1,851	4,094	0.6	1.3	0.0
Houston-Settegast	3,675	1,160	1,050	2,210	0.4	0.3	0.0
Ft. Worth-Centennial	4,481	1,477	1,436	2,913	1.4	0.0	0.0
Livonia	3,869	1,159	1,067	2,226	0.0	0.0	0.0
North Little Rock	5,741	1,354	1,241	2,595	0.0	0.0	0.0
Pine Bluff (SP)	3,559	651	794	1,445	0.0	0.0	0.6
Kansas City-Neff	3,520	1,221	1,095	2,316	0.6	0.1	0.0
North Platte-East	4,588	1,101	945	2,046	0.4	0.1	0.0
North Platte-West	8,128	1,279	1,883	3,162	1.4	0.0	0.0
Chicago-Proviso	7,019	997	1,346	2,343	0.6	0.0	0.0
Yermo	1,440	778	689	1,467	0.4	0.1	0.0
West Colton (SP)	5,578	1,326	1,041	2,367	0.0	0.0	0.0
<b>Totals</b>	60,135	14,746	14,438	29,184	5.8	1.9	0.6

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of December 1997 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending				
	Dec 96	Jan 97	5 Dec	12 Dec	19 Dec	26 Dec	2 Jan	9 Jan
<b>Total</b>	310,616	308,264	332,482	333,247	336,863	339,335	340,142	333,193
System	N/A	N/A	101,141	99,997	100,874	101,232	100,571	98,753
Foreign	N/A	N/A	49,975	50,065	50,326	51,231	51,337	49,375
Private	N/A	N/A	181,366	183,185	185,662	186,872	188,234	185,065
<b>TX, LA Only</b>	N/A	N/A	101,777	104,093	105,887	106,509	107,438	105,614



Through Train Volume	Through Trains Terminated	542	557	570	551	540	430	512	543
Velocity*	Through Train Crew Starts	2,451	2,458	2,592	2,543	2,533	1,899	2,287	2,386
	Car Terminal Dwell	34.7	33.6	40.6	40.9	42.1	48.6	47.6	39.7
	System Train Speed	17.7	17.9	13.1	14.2	14.1	13.9	12.3	14.6
	Coal Cycle Days	6.0	6.1	6.8	5.8	5.8	6.3	7.6	6.2
	<b>Sidings Blocked</b>								
	Houston-Beaumont	N/A	N/A	N/A	4	4	7	5	3
	Tucson-W. Colton	N/A	N/A	N/A	3	1	2	2	3
	KC South Only	N/A	N/A	34	48	53	99	82	53
	System Total	N/A	N/A	70	86	96	197	126	84
	Multiple Mains Blocked	N/A	N/A	6	8	7	18	10	4
Trains Held	<b>Trains</b>								
	Power	75	94	92	65	84	59	76	54
	Crews	N/A	17	54	83	86	162	179	65
	Congestion	N/A	10	30	34	41	27	35	30
	<b>Hours</b>								
	Power	749	1,121	1,054	621	1,009	706	860	579
	Crews	N/A	116	445	909	884	2,036	2,242	707
	Congestion	N/A	109	371	446	541	373	501	423
Freight Locomotives	Fleet Size (Frt units only)	6,017	6,044	6,311	6,319	6,329	6,340	6,350	6,342
	Stored Unserviceable	35	29	20	20	17	18	15	7
	Productivity GTMs per HP day	117.2	121.2	113.1	109.8	111.3	100.4	104.8	107.4
Re-routes	Trains	0	0	8	9	10	8	4	6
	Cars	0	0	629	567	786	597	424	533

Note: All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 28]

**Service Recovery Report: Week 14**

**Major Terminal Condition Report**

Daily averages for week ending January 16, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,318	1,961	4,279	0.0	0.4	0.1
Houston-Settegast	3,675	1,270	1,087	2,357	0.9	0.0	0.0
Ft. Worth-Centennial	4,481	1,397	1,304	2,701	1.0	0.0	0.0
Livonia	3,869	1,026	1,034	2,060	0.0	0.0	0.0
North Little Rock	5,741	1,562	1,281	2,843	0.9	0.0	0.0
Pine Bluff (SP)	3,559	884	1,076	1,960	0.0	0.0	0.0
Kansas City-Neff	3,520	1,310	1,170	2,480	0.6	0.0	0.0
North Platte-East	4,588	1,140	968	2,108	1.3	0.0	0.3
North Platte-West	8,128	1,235	1,974	3,209	0.9	0.0	0.0
Chicago-Proviso	7,019	1,307	1,550	2,857	1.4	0.0	0.0
Yermo	1,440	566	792	1,358	1.3	0.3	0.0
West Colton (SP)	5,578	1,246	1,510	2,756	0.7	0.0	0.0
<b>Totals</b>	<b>60,135</b>	<b>15,261</b>	<b>15,707</b>	<b>30,968</b>	<b>9.0</b>	<b>0.7</b>	<b>0.4</b>

**Surface Transportation Board Weekly Service Measurements**

**Note:** Figures in the table below are for the weeks of December 1997, and subsequent months thereafter.

Car Inventory	Baselines			Week Ending						
	Dec 96	Jan 97	5 Dec	12 Dec	19 Dec	26 Dec	2 Jan	9 Jan	16 Jan	
<b>Total</b>	310,616	308,264	332,482	333,247	336,863	339,335	340,142	333,193	333,469	
System	N/A	N/A	101,141	99,997	100,874	101,232	100,571	98,753	99,293	
Foreign	N/A	N/A	49,975	50,065	50,326	51,231	51,337	49,375	48,422	
Private	N/A	N/A	181,366	183,185	185,662	186,872	188,234	185,065	185,753	
<b>TX, LA Only</b>	N/A	N/A	101,777	104,093	105,887	106,509	107,438	105,614	104,686	

Through Train Volume	Through Trains Terminated	542	557	570	551	540	430	512	543	555
Velocity*	Through Train Crew Starts	2,451	2,458	2,592	2,543	2,533	1,899	2,287	2,386	2,546
	Car Terminal Dwell	34.7	33.6	40.6	40.9	42.1	48.6	47.6	39.7	38.9
	System Train Speed	17.7	17.9	13.1	14.2	14.1	13.9	12.3	14.6	15.4
	Coal Cycle Days	6.0	6.1	6.8	5.8	5.8	6.3	7.6	6.2	5.8
	<b>Sidings Blocked</b>									
	Houston-Beaumont	N/A	N/A	N/A	4	4	7	5	3	4
	Tucson-W. Colton	N/A	N/A	N/A	3	1	2	2	3	6
	KC South Only	N/A	N/A	34	48	53	99	82	53	43
	System Total	N/A	N/A	70	86	96	197	126	84	78
	Multiple Mains Blocked	N/A	N/A	6	8	7	18	10	4	8
	<b>Trains</b>									
	Power	75	94	92	65	84	59	76	54	66
	Crews	N/A	17	54	83	86	162	179	65	44
	Congestion	N/A	10	30	34	41	27	35	30	22
	<b>Hours</b>									
	Power	749	1,121	1,054	621	1,009	706	860	579	727
	Crews	N/A	116	445	909	884	2,036	2,242	707	439
	Congestion	N/A	109	371	446	541	373	501	423	265
Freight Locomotives	Fleet Size (Frt units only)	6,017	6,044	6,311	6,319	6,329	6,340	6,350	6,342	6,355
	Stored Unserviceable	35	29	20	20	17	18	15	7	10
	Productivity GTMs per HP day	117.2	121.2	113.1	109.8	111.3	100.4	104.8	107.4	113.9
Re-routes	Trains	0	0	8	9	10	8	4	6	7
	Cars	0	0	629	567	786	597	424	533	673

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 29]

**Service Recovery Report: Week 15**

**Major Terminal Condition Report**

Daily averages for week ending January 23, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,282	1,880	4,162	0.1	2.3	0.0
Houston-Settegast	3,675	1,631	1,256	2,887	0.4	1.1	0.1
Ft. Worth-Centennial	4,481	1,454	1,308	2,762	0.6	0.0	0.0
Livonia	3,869	1,186	1,039	2,225	0.1	0.3	0.0
North Little Rock	5,741	1,494	1,260	2,754	0.1	0.1	0.0
Pine Bluff (SP)	3,559	994	1,294	2,288	0.0	0.1	0.0
Kansas City-Neff	3,520	1,242	1,233	2,475	0.7	0.0	0.0
North Platte-East	4,588	1,162	951	2,113	0.6	0.0	0.0
North Platte-West	8,128	1,216	2,073	3,289	0.7	0.0	0.0
Chicago-Proviso	7,019	1,573	1,618	3,191	2.6	0.0	0.0
Yermo	1,440	555	776	1,331	1.3	0.7	0.0
West Colton (SP)	5,578	1,336	1,530	2,866	0.7	0.0	0.0
<b>Totals</b>	<b>60,135</b>	<b>16,125</b>	<b>16,218</b>	<b>32,343</b>	<b>7.9</b>	<b>4.6</b>	<b>0.1</b>

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of December 1997, and subsequent months thereafter.

Car Inventory	Baselines		Week Ending									
	Dec 96	Jan 97	5 Dec	12 Dec	19 Dec	26 Dec	2 Jan	9 Jan	16 Jan	23 Jan		
<b>Total</b>	310,616	308,264	332,482	333,247	336,863	339,335	340,142	333,193	333,469	334,073		
System	N/A	N/A	101,141	99,997	100,874	101,232	100,571	98,753	99,293	100,277		
Foreign	N/A	N/A	49,975	50,065	50,326	51,231	51,337	49,375	48,422	48,163		
Private	N/A	N/A	181,366	183,185	185,662	186,872	188,234	185,065	185,753	185,633		
<b>TX, LA Only</b>	N/A	N/A	101,777	104,093	105,887	106,509	107,438	105,614	104,686	104,882		

Through Train Volume	Through Trains Terminated	542	557	570	551	540	430	512	543	555	572
Velocity*	Through Train Crew Starts	2,451	2,458	2,592	2,543	2,533	1,899	2,287	2,386	2,546	2,593
	Car Terminal Dwell	34.7	33.6	40.6	40.9	42.1	48.6	47.6	39.7	38.9	39.0
	System Train Speed	17.7	17.9	13.1	14.2	14.1	13.9	12.3	14.6	15.4	15.1
	Coal Cycle Days	6.0	6.1	6.8	5.8	5.8	6.3	7.6	6.2	5.8	5.6
	<b>Sidings Blocked</b>										
	Houston-Beaumont	N/A	N/A	N/A	4	4	7	5	3	4	3
	Tucson-W. Colton	N/A	N/A	N/A	3	1	2	2	3	6	6
	KC South Only	N/A	N/A	34	48	53	99	82	53	43	54
	System Total	N/A	N/A	70	86	96	197	126	84	78	83
	<b>Multiple Mains Blocked</b>	N/A	N/A	6	8	7	18	10	4	8	7
<b>Trains Held</b>	<b>Trains</b>										
	Power	75	94	92	65	84	59	76	54	66	97
	Crews	N/A	17	54	83	86	162	179	65	44	58
	Congestion	N/A	10	30	34	41	27	35	30	22	17
	<b>Hours</b>										
	Power	749	1,121	1,054	621	1,009	706	860	579	727	1,250
	Crews	N/A	116	445	909	884	2,036	2,242	707	439	601
	Congestion	N/A	109	371	446	541	373	501	423	265	225
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,017	6,044	6,311	6,319	6,329	6,340	6,350	6,342	6,355	6,357
	<b>Stored Unserviceable</b>	35	29	20	20	17	18	15	7	10	13
	<b>Productivity GTMs per HP day</b>	117.2	121.2	113.1	109.8	111.3	100.4	104.8	107.4	113.9	118.8
<b>Re-routes</b>	<b>Trains</b>	0	0	8	9	10	8	4	6	7	0
	<b>Cars</b>	0	0	629	567	786	597	424	533	673	0

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 30]

**Service Recovery Report: Week 16**

**Major Terminal Condition Report**

Daily averages for week ending January 30, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,332	2,124	4,456	0.6	0.6	0.0
Houston-Settegast	3,675	1,584	1,372	2,956	0.4	0.1	0.0
Ft. Worth-Centennial	4,481	1,512	1,311	2,823	0.4	0.0	0.0
Livonia	3,869	1,209	1,084	2,293	0.0	0.0	0.0
North Little Rock	5,741	1,477	1,379	2,856	1.4	0.0	0.0
Pine Bluff (SP)	3,559	1,186	1,483	2,669	0.1	1.7	0.0
Kansas City-Neff	3,520	1,138	1,121	2,259	2.3	0.0	0.0
North Platte-East	4,588	1,303	900	2,203	0.4	0.0	0.0
North Platte-West	8,128	1,145	1,617	2,762	0.9	0.0	0.0
Chicago-Proviso	7,019	1,476	1,489	2,965	2.6	0.0	0.0
Yermo	1,440	589	867	1,456	0.9	0.1	0.0
West Colton (SP)	5,578	1,119	1,451	2,570	0.4	0.0	0.0
<b>Totals</b>	<b>60,135</b>	<b>16,070</b>	<b>16,198</b>	<b>32,268</b>	<b>10.4</b>	<b>2.5</b>	<b>0.0</b>

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of December 1997, and subsequent months thereafter.

Car Inventory	Baselines				Week Ending							
	Dec 96	Jan 97	5 Dec	12 Dec	19 Dec	26 Dec	2 Jan	9 Jan	16 Jan	23 Jan	30 Jan	
<b>Total</b>	316,292	313,961	342,809	342,299	346,179	349,351	350,598	343,021	342,697	343,845	344,646	
System	N/A	N/A	102,454	100,555	101,536	102,106	101,516	99,527	99,876	100,871	100,689	
Foreign	N/A	N/A	51,899	51,913	52,195	53,182	53,367	51,308	50,279	50,222	50,263	
Private	N/A	N/A	188,456	189,831	192,448	194,063	192,185	192,185	192,541	192,752	193,693	
<b>TX, LA Only</b>	N/A	N/A	101,777	104,093	105,887	106,509	107,438	105,614	104,686	104,882	105,272	

Through Train Volume	Through Trains Terminated	542	557	570	551	540	430	512	543	555	572	575
Velocity*	Through Train Crew Starts	2,451	2,458	2,592	2,543	2,533	1,899	2,287	2,386	2,546	2,593	2,601
	Car Terminal Dwell	34.7	33.6	40.6	40.9	42.1	48.6	47.6	39.7	38.9	39.0	38.8
	System Train Speed	17.7	17.9	13.1	14.2	14.1	13.9	12.3	14.6	15.4	15.1	15.1
	Coal Cycle Days	6.0	6.1	6.8	5.8	5.8	6.3	7.6	6.2	5.8	5.6	5.6
	<b>Sidings Blocked</b>											
	Houston-Beaumont	N/A	N/A	N/A	4	4	7	5	3	4	3	4
	Tucson-W. Colton	N/A	N/A	N/A	3	1	2	2	3	6	6	3
	KC South Only	N/A	N/A	34	48	53	99	82	53	43	54	68
	System Total	N/A	N/A	70	86	96	197	126	84	78	83	96
	<b>Multiple Mains Blocked</b>											
	Multiple Mains Blocked	N/A	N/A	6	8	7	18	10	4	8	7	7
	<b>Trains Held</b>											
	Power	75	94	92	65	84	59	76	54	66	97	91
	Crews	N/A	17	54	83	86	162	179	65	44	58	58
	Congestion	N/A	10	30	34	41	27	35	30	22	17	37
	Terminal Staging	N/A	N/A	109	136	153	144	126	129	129	137	142
	<b>Hours</b>											
	Power	749	1,121	1,054	621	1,009	706	860	579	727	1,250	1,082
	Crews	N/A	116	445	909	884	2,036	2,242	707	439	601	629
	Congestion	N/A	109	371	446	541	373	501	423	265	225	532
Freight Locomotives	Fleet Size (Frt units only)	6,017	6,044	6,311	6,319	6,329	6,340	6,350	6,342	6,355	6,357	6,378
	Stored Unserviceable	35	29	20	20	17	18	15	7	10	13	14
	Productivity GTMs per HP day	117.2	121.2	113.1	109.8	111.3	100.4	104.8	107.4	113.9	118.8	114.4
Re-routes	Trains	0	0	8	9	10	8	4	6	7	0	0
	Cars	0	0	629	567	786	597	424	533	673	0	0

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 31]

**Service Recovery Report: Week 17**

**Major Terminal Condition Report**

Daily averages for week ending February 6, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,191	1,896	4,087	0.3	0.0	0.3
Houston-Settegast	3,675	1,588	1,324	2,912	0.7	0.1	0.0
Ft. Worth-Centennial	4,481	1,516	1,229	2,745	2.4	0.0	0.0
Livonia	3,869	1,211	1,042	2,253	0.0	0.0	0.3
North Little Rock	5,741	1,572	1,234	2,806	0.3	0.6	0.4
Pine Bluff (SP)	3,559	1,180	1,438	2,618	0.4	0.1	0.0
Kansas City-Neff	3,520	1,012	1,121	2,133	1.6	0.0	0.0
North Platte-East	4,588	1,234	1,056	2,290	0.6	0.0	0.0
North Platte-West	8,128	1,368	1,757	3,125	1.9	0.0	0.0
Chicago-Proviso	7,019	1,799	1,853	3,652	2.7	0.0	0.0
Yermo	1,440	627	788	1,415	2.9	0.3	0.0
West Colton (SP)	5,578	1,296	1,165	2,461	1.0	0.3	0.0
<b>Totals</b>	60,135	16,594	15,903	32,497	14.8	1.4	1.0

**Surface Transportation Board Weekly Service Measurements**

**Note:** Figures in the table below are for the weeks of February 1998 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending
	Feb 97	Mar 97	6 Feb	
<b>Total</b>	304,614	303,513		335,032
System	N/A	103,606		99,651
Foreign	N/A	37,650		48,615
Private	N/A	162,257		186,766
<b>TX, LA Only</b>	N/A	N/A		105,374



Through Train Volume	Through Trains Terminated	606	603	553
Velocity*	Through Train Crew Starts	2,690	2,662	2,568
	Car Terminal Dwell	31.3	30.9	40.7
	System Train Speed	18.8	19.1	14.7
	Coal Cycle Days	5.3	5.1	5.9
	<b>Sidings Blocked</b>			
	Houston-Beaumont	N/A	N/A	6
	Tucson-W. Colton	N/A	N/A	3
	KC South Only	N/A	N/A	96
	System Total	N/A	N/A	136
	<b>Multiple Mains Blocked</b>	N/A	N/A	11
<b>Trains Held</b>	<b>Trains</b>			
	Power	94	80	123
	Crews	23	26	79
	Congestion	5	8	35
	<b>Hours</b>			
	Power	972	898	1,535
	Crews	122	144	941
	Congestion	44	73	492
<b>Freight Locomotives</b>	<b>Fleet Size</b> (Frt units only)	6,091	6,125	6,393
	<b>Stored Unserviceable</b>	27	26	12
	<b>Productivity</b> GTM per HP day	131.3	130.6	115.3
<b>Re-routes</b>	<b>Trains</b>	0	0	0
	<b>Cars</b>	0	0	0

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 32]

**Service Recovery Report: Week 18**

**Major Terminal Condition Report**

Daily averages for week ending February 13, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,142	2,013	4,155	0.3	0.3	0.0
Houston-Settegast	3,675	1,604	1,337	2,941	1.4	1.3	0.1
Ft. Worth-Centennial	4,481	1,794	1,208	3,002	1.7	0.1	0.0
Livonia	3,869	1,337	1,106	2,443	0.0	0.0	0.3
North Little Rock	5,741	1,748	1,327	3,075	0.0	0.4	0.3
Pine Bluff (SP)	3,559	1,262	1,582	2,844	0.0	0.0	0.9
Kansas City-Neff	3,520	1,347	1,252	2,599	3.3	0.1	0.0
North Platte-East	4,588	1,233	964	2,197	0.7	0.0	0.0
North Platte-West	8,128	1,556	1,798	3,354	2.9	0.0	0.0
Chicago-Proviso	7,019	1,930	2,076	4,006	1.9	0.0	0.0
Yermo	1,440	781	755	1,536	2.9	0.1	0.0
West Colton (SP)	5,578	1,498	1,962	3,460	2.0	0.0	0.0
<b>Totals</b>	60,135	18,232	17,380	35,612	17.1	2.3	1.6

**Surface Transportation Board Weekly Service Measurements**

**Note:** Figures in the table below are for the weeks of February 1998 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending	
	Feb 97	Mar 97	6 Feb	13 Feb	
<b>Total</b>	304,614	303,513	335,032	338,310	
System	N/A	103,606	99,651	100,359	
Foreign	N/A	37,650	48,615	49,433	
Private	N/A	162,257	186,766	188,518	
<b>TX, LA Only</b>	N/A	N/A	105,374	106,281	

Through Train Volume	Through Trains Terminated	606	603	553	543
Velocity*	Through Train Crew Starts	2,690	2,662	2,568	2,600
	Car Terminal Dwell	31.3	30.9	40.7	42.4
	System Train Speed	18.8	19.1	14.7	13.8
	Coal Cycle Days	5.3	5.1	5.9	5.8
	<b>Sidings Blocked</b>				
	Houston-Beaumont	N/A	N/A	6	3
	Tucson-W. Colton	N/A	N/A	3	1
	KC South Only	N/A	N/A	96	109
	System Total	N/A	N/A	136	146
	<b>Multiple Mains Blocked</b>	N/A	N/A	11	13
<b>Trains Held</b>	<b>Trains</b>				
	Power	94	80	123	130
	Crews	23	26	79	74
	Congestion	5	8	35	52
	<b>Hours</b>				
	Power	972	898	1,535	1,603
	Crews	122	144	941	906
	Congestion	44	73	492	746
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,091	6,125	6,393	6,395
	<b>Stored Unserviceable</b>	27	26	12	14
	<b>Productivity GTMs per HP day</b>	131.3	130.6	115.3	108.0
<b>Re-routes</b>	<b>Trains</b>	0	0	0	0
	<b>Cars</b>	0	0	0	0

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 33]

**Service Recovery Report: Week 19**

**Major Terminal Condition Report**

Daily averages for week ending February 20, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,134	1,915	4,049	0.0	0.5	0.0
Houston-Settegast	3,675	1,401	1,321	2,722	0.8	0.8	0.0
Ft. Worth-Centennial	4,481	1,582	1,155	2,737	0.8	0.2	0.0
Livonia	3,869	1,207	1,112	2,319	0.0	0.0	0.3
North Little Rock	5,741	1,786	1,451	3,237	0.5	0.3	0.8
Pine Bluff (SP)	3,559	1,277	1,487	2,764	0.0	0.2	0.0
Kansas City-Neff	3,520	1,304	1,242	2,546	3.2	0.0	0.0
North Platte-East	4,588	1,371	1,075	2,446	2.0	0.0	0.0
North Platte-West	8,128	1,500	1,805	3,305	5.7	0.0	0.2
Chicago-Proviso	7,019	2,029	2,124	4,153	2.2	0.0	0.0
Yermo	1,440	852	780	1,632	3.5	0.3	0.0
West Colton (SP)	5,578	1,728	1,801	3,529	0.2	0.0	0.0
<b>Totals</b>	60,135	18,171	17,268	35,439	18.9	2.3	1.3

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of February 1998 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending		
	Feb 97	Mar 97	6 Feb	13 Feb	20 Feb	27 Feb
<b>Total</b>	304,614	303,513	335,032	338,310	341,638	341,638
System	N/A	103,606	99,651	100,359	100,918	100,918
Foreign	N/A	37,650	48,615	49,433	50,719	50,719
Private	N/A	162,257	186,766	188,518	190,001	190,001
<b>TX, LA Only</b>	N/A	N/A	105,374	106,281	105,628	105,628

<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	606	603	553	543	555
<b>Velocity*</b>	<b>Through Train Crew Starts</b>	2,690	2,662	2,568	2,600	2,596
	<b>Car Terminal Dwell</b>	31.3	30.9	40.7	42.4	43.1
	<b>System Train Speed</b>	18.8	19.1	14.7	13.8	14.2
	<b>Coal Cycle Days</b>	5.3	5.1	5.9	5.8	5.9
	<b>Sidings Blocked</b>					
	Houston-Beaumont	N/A	N/A	6	3	5
	Tucson-W. Colton	N/A	N/A	3	1	2
	KC South Only	N/A	N/A	96	109	119
	System Total	N/A	N/A	136	146	163
	<b>Multiple Mains Blocked</b>	N/A	N/A	11	13	16
<b>Trains Held</b>	<b>Trains</b>					
	Power	94	80	123	130	129
	Crews	23	26	79	74	94
	Congestion	5	8	35	52	68
	<b>Hours</b>					
	Power	972	898	1,535	1,603	1,887
	Crews	122	144	941	906	1,155
	Congestion	44	73	492	746	1,074
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,091	6,125	6,393	6,395	6,418
	<b>Stored Unserviceable</b>	27	26	12	14	17
	<b>Productivity GTMs per HP day</b>	131.3	130.6	115.3	108.0	113
<b>Re-routes</b>	<b>Trains</b>	0	0	0	0	3
	<b>Cars</b>	0	0	0	0	172

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 34]

**Service Recovery Report: Week 20**

**Major Terminal Condition Report**

Daily averages for week ending February 27, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,124	1,727	3,851	0.1	0.6	0.0
Houston-Setegast	3,675	1,662	1,406	3,068	0.4	1.1	0.0
Ft. Worth-Centennial	4,481	1,633	1,221	2,854	4.1	1.0	0.3
Livonia	3,869	1,276	1,038	2,314	0.0	0.0	0.0
North Little Rock	5,741	1,922	1,569	3,491	0.0	0.3	0.0
Pine Bluff (SP)	3,559	1,373	1,652	3,025	0.0	0.0	0.0
Kansas City-Neff	3,520	1,401	1,194	2,595	4.1	0.1	0.0
North Platte-East	4,588	1,061	901	1,962	1.3	0.0	0.0
North Platte-West	8,128	1,572	1,820	3,392	1.9	0.0	0.1
Chicago-Proviso	7,019	2,092	1,973	4,065	0.9	0.3	0.0
Yermo	1,440	630	795	1,425	1.0	0.0	0.0
West Colton (SP)	5,578	1,830	1,795	3,625	0.1	0.0	0.0
<b>Totals</b>	60,135	18,576	17,091	35,667	13.9	3.4	0.4

**Surface Transportation Board Weekly Service Measurements**

**Note:** Figures in the table below are for the weeks of February 1998 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending			
	Feb 97	Mar 97	6 Feb	13 Feb	20 Feb	27 Feb	
<b>Total</b>	304,614	303,513	335,032	338,310	341,638	345,220	
System	N/A	103,606	99,651	100,359	100,918	101,982	
Foreign	N/A	37,650	48,615	49,433	50,719	51,464	
Private	N/A	162,257	186,766	188,518	190,001	191,774	
<b>TX, LA Only</b>	N/A	N/A	105,374	106,281	105,628	107,453	

<b>Through Train Volume</b>	Through Trains Terminated	606	603	553	543	555	536
<b>Velocity*</b>	Through Train Crew Starts	2,690	2,662	2,568	2,600	2,596	2,514
	Car Terminal Dwell	31.3	30.9	40.7	42.4	43.1	42.6
	System Train Speed	18.8	19.1	14.7	13.8	14.2	13.5
	Coal Cycle Days	5.3	5.1	5.9	5.8	5.9	5.9
	<b>Sidings Blocked</b>						
	Houston-Beaumont	N/A	N/A	6	3	5	6
	Tucson-W. Colton	N/A	N/A	3	1	2	3
	KC South Only	N/A	N/A	96	109	119	122
	System Total	N/A	N/A	136	146	163	172
	<b>Multiple Mains Blocked</b>	N/A	N/A	11	13	16	16
	<b>Trains Held</b>						
	Power	94	80	123	130	129	164
	Crews	23	26	79	74	94	72
	Congestion	5	8	35	52	68	52
	<b>Hours</b>						
	Power	972	898	1,535	1,603	1,887	2,283
	Crews	122	144	941	906	1,155	957
	Congestion	44	73	492	746	1,074	795
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,091	6,125	6,393	6,395	6,418	6,424
	<b>Stored Unserviceable</b>	27	26	12	14	17	15
	<b>Productivity GTMs per HP day</b>	131.3	130.6	115.3	108.0	113.0	104.0
<b>Re-routes</b>	<b>Trains</b>	0	0	0	0	3	0
	<b>Cars</b>	0	0	0	0	172	0

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 35]

**Service Recovery Report: Week 21**

**Major Terminal Condition Report**

Daily averages for week ending March 6, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,045	1,952	3,997	1.1	1.0	0.3
Houston-Settegast	3,675	1,674	1,497	3,171	1.7	0.7	0.0
Ft. Worth-Centennial	4,481	1,527	1,289	2,816	2.1	0.0	0.0
Livonia	3,869	1,213	1,135	2,348	0.0	0.3	0.0
North Little Rock	5,741	1,653	1,295	2,948	1.0	0.0	0.0
Pine Bluff (SP)	3,559	1,465	1,480	2,945	0.4	0.1	0.0
Kansas City-Neff	3,520	1,262	1,285	2,547	3.4	0.0	0.4
North Platte-East	4,588	1,337	958	2,295	1.6	0.0	0.0
North Platte-West	8,128	1,761	1,808	3,569	4.4	0.0	0.0
Chicago-Proviso	7,019	1,879	1,793	3,672	0.9	0.0	0.0
Yermo	1,440	634	977	1,611	1.6	0.1	0.0
West Colton (SP)	5,578	1,740	2,078	3,818	0.4	0.0	0.0
<b>Totals</b>	60,135	18,190	17,547	35,737	18.6	2.2	0.7

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of February 1998 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending			
	Feb 97	Mar 97	6 Feb	13 Feb	20 Feb	27 Feb	6 Mar
<b>Total</b>	304,614	303,513	335,032	338,310	341,638	345,220	342,415
System	N/A	103,606	99,651	100,359	100,918	101,982	101,373
Foreign	N/A	37,650	48,615	49,433	50,719	51,464	50,571
Private	N/A	162,257	186,766	188,518	190,001	191,774	190,471
<b>TX, LA Only</b>	N/A	N/A	105,374	106,281	105,628	107,453	106,830



Through Train Volume	Through Trains Terminated	606	603	553	543	555	536	537
Velocity*	Through Train Crew Starts	2,690	2,662	2,568	2,600	2,596	2,514	2,542
	Car Terminal Dwell	31.3	30.9	40.7	42.4	43.1	42.6	43.9
	System Train Speed	18.8	19.1	14.7	13.8	14.2	13.5	12.7
	Coal Cycle Days	5.3	5.1	5.9	5.8	5.9	5.9	7.4
	<b>Sidings Blocked</b>							
	Houston-Beaumont	N/A	N/A	6	3	5	6	5
	Tucson-W. Colton	N/A	N/A	3	1	2	3	2
	KC South Only	N/A	N/A	96	109	119	122	116
	System Total	N/A	N/A	136	146	163	172	168
	<b>Multiple Mains Blocked</b>	N/A	N/A	11	13	16	16	16
	<b>Trains Held</b>							
	Power	94	80	123	130	129	164	164
	Crews	23	26	79	74	94	72	69
	Congestion	5	8	35	52	68	52	58
	<b>Hours</b>							
	Power	972	898	1,535	1,603	1,887	2,283	2,278
	Crews	122	144	941	906	1,155	957	816
	Congestion	44	73	492	746	1,074	795	939
Freight Locomotives	Fleet Size (Frt units only)	6,091	6,125	6,393	6,395	6,418	6,424	6,432
	Stored Unserviceable	27	26	12	14	17	15	11
	Productivity GTMs per HP day	131.3	130.6	115.3	108.0	113.0	104.0	96.3
Re-routes	Trains	0	0	0	0	3	0	0
	Cars	0	0	0	0	172	0	0

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 36]

**Service Recovery Report: Week 22**

**Major Terminal Condition Report**

Daily averages for week ending March 13, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	2,087	1,622	3,709	0.8	0.2	0.3
Houston-Settegast	3,675	1,493	1,277	2,770	1.3	0.0	0.0
Ft. Worth-Centennial	4,481	1,455	1,081	2,536	1.5	0.0	0.0
Livonia	3,869	1,360	1,171	2,531	1.0	0.2	0.0
North Little Rock	5,741	1,816	1,277	3,093	3.0	0.0	0.0
Pine Bluff (SP)	3,559	1,340	1,448	2,788	0.5	0.0	0.0
Kansas City-Neff	3,520	1,274	1,130	2,404	5.7	0.0	0.0
North Platte-East	4,588	1,385	963	2,348	2.7	0.0	0.0
North Platte-West	8,128	1,436	1,600	3,036	6.5	0.0	0.0
Chicago-Proviso	7,019	1,619	1,684	3,303	2.5	0.0	0.0
Yermo	1,440	656	864	1,520	2.0	0.2	0.0
West Colton (SP)	5,578	1,816	1,868	3,684	0.2	0.0	0.0
<b>Totals</b>	<b>60,135</b>	<b>17,737</b>	<b>15,985</b>	<b>33,722</b>	<b>27.7</b>	<b>0.6</b>	<b>0.3</b>

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of February 1998 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending						
	Feb 97	Mar 97	Mar 97	6 Feb	13 Feb	20 Feb	27 Feb	6 Mar	13 Mar	
<b>Total</b>	304,614	303,513	335,032	338,310	341,638	345,220	342,415	342,048		
System	N/A	103,606	99,651	100,359	100,918	101,982	101,373	101,346		
Foreign	N/A	37,650	48,615	49,433	50,719	51,464	50,571	49,915		
Private	N/A	162,257	186,766	188,518	190,001	191,774	190,471	190,787		
TX, LA Only	N/A	N/A	105,374	106,281	107,453	106,830	106,830	106,965		

<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	606	603	553	543	555	536	537	507
	<b>Through Train Crew Starts</b>	2,690	2,662	2,568	2,600	2,596	2,514	2,542	2,442
<b>Velocity*</b>	<b>Car Terminal Dwell</b>	31.3	30.9	40.7	42.4	43.1	42.6	43.9	43.5
	<b>System Train Speed</b>	18.8	19.1	14.7	13.8	14.2	13.5	12.7	12.0
	<b>Coal Cycle Days</b>	5.3	5.1	5.9	5.8	5.9	5.9	7.4	6.8
	<b>Sidings Blocked</b>								
	Houston-Beaumont	N/A	N/A	6	3	5	6	5	3
	Tucson-W. Colton	N/A	N/A	3	1	2	3	2	7
	KC South Only	N/A	N/A	96	109	119	122	116	115
	System Total	N/A	N/A	136	146	163	172	168	187
	<b>Multiple Mains Blocked</b>	N/A	N/A	11	13	16	16	16	22
<b>Trains Held</b>	<b>Trains</b>								
	Power	94	80	123	130	129	164	164	171
	Crews	23	26	79	74	94	72	69	53
	Congestion	5	8	35	52	68	52	58	108
	<b>Hours</b>								
	Power	972	898	1,535	1,603	1,887	2,283	2,278	2,473
	Crews	122	144	941	906	1,155	957	816	571
	Congestion	44	73	492	746	1,074	795	939	1,799
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,091	6,125	6,393	6,395	6,418	6,424	6,432	6,439
	<b>Stored Unserviceable</b>	27	26	12	14	17	15	11	11
	<b>Productivity GTMs per HP day</b>	131.3	130.6	115.3	108.0	113.0	104.0	96.3	93.7
<b>Re-routes</b>	<b>Trains</b>	0	0	0	0	3	0	0	0
	<b>Cars</b>	0	0	0	0	172	0	0	0

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 37]

**Service Recovery Report: Week 23**

**Major Terminal Condition Report**

Daily averages for week ending March 20, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,736	1,397	3,133	0.0	0.5	0.0
Houston-Settegast	3,675	1,256	1,095	2,351	0.7	0.2	0.0
Ft. Worth-Centennial	4,481	1,525	1,226	2,751	0.5	0.7	0.0
Livonia	3,869	1,221	1,117	2,338	0.0	0.2	0.0
North Little Rock	5,741	1,910	1,423	3,333	1.7	0.0	0.2
Pine Bluff (SP)	3,559	1,269	1,484	2,753	0.3	0.3	0.5
Kansas City-Neff	3,520	1,153	1,171	2,324	3.2	0.3	0.0
North Platte-East	4,588	1,189	964	2,153	1.5	0.0	0.0
North Platte-West	8,128	1,592	1,876	3,468	3.3	0.0	0.3
Chicago-Proviso	7,019	1,935	1,799	3,734	2.5	0.3	0.0
Yermo	1,440	795	736	1,531	1.7	0.2	0.2
West Colton (SP)	5,578	1,534	2,049	3,583	2.3	0.0	0.0
<b>Totals</b>	<b>60,135</b>	<b>17,115</b>	<b>16,337</b>	<b>33,452</b>	<b>17.7</b>	<b>2.7</b>	<b>1.2</b>

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of February 1998 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending						
	Feb 97	Mar 97	Mar 97	6 Feb	13 Feb	20 Feb	27 Feb	6 Mar	13 Mar	20 Mar
<b>Total</b>	304,614	303,513	303,513	335,032	338,310	341,638	345,220	342,415	342,048	345,130
System	N/A	103,606	103,606	99,651	100,359	100,918	101,982	101,373	101,346	101,482
Foreign	N/A	37,650	37,650	48,615	49,433	50,719	51,464	50,571	49,915	51,117
Private	N/A	162,257	162,257	186,766	188,518	190,001	191,774	190,471	190,787	192,531
<b>TX, LA Only</b>	N/A	N/A	N/A	105,374	106,281	105,628	107,453	106,830	106,965	105,407

<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	606	603	553	543	555	536	537	507	537
<b>Velocity*</b>	<b>Through Train Crew Starts</b>	2,690	2,662	2,568	2,600	2,596	2,514	2,542	2,442	2,562
	<b>Car Terminal Dwell</b>	31.3	30.9	40.7	42.4	43.1	42.6	43.9	43.5	42.5
	<b>System Train Speed</b>	18.8	19.1	14.7	13.8	14.2	13.5	12.7	12.0	12.4
	<b>Coal Cycle Days</b>	5.3	5.1	5.9	5.8	5.9	5.9	7.4	6.8	7.1
	<b>Sidings Blocked</b>									
	Houston-Beaumont	N/A	N/A	6	3	5	6	5	3	4
	Tucson-W. Colton	N/A	N/A	3	1	2	3	2	7	6
	KC South Only	N/A	N/A	96	109	119	122	116	115	110
	System Total	N/A	N/A	136	146	163	172	168	187	173
	<b>Multiple Mains Blocked</b>	N/A	N/A	11	13	16	16	16	22	22
<b>Trains Held</b>	<b>Trains</b>									
	Power	94	80	123	130	129	164	164	171	188
	Crews	23	26	79	74	94	72	69	53	127
	Congestion	5	8	35	52	68	52	58	108	81
	<b>Hours</b>									
	Power	972	898	1,535	1,603	1,887	2,283	2,278	2,473	2,576
	Crews	122	144	941	906	1,155	957	816	571	1,655
	Congestion	44	73	492	746	1,074	795	939	1,799	1,411
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,091	6,125	6,393	6,395	6,418	6,424	6,432	6,439	6,453
	<b>Stored Unserviceable</b>	27	26	12	14	17	15	11	11	15
	<b>Productivity GTMs per HP day</b>	131.3	130.6	115.3	108.0	113.0	104.0	96.3	93.7	100.6
<b>Re-routes</b>	<b>Trains</b>	0	0	0	0	3	0	0	3	12
	<b>Cars</b>	0	0	0	0	172	0	0	214	989

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 38]

**Service Recovery Report: Week 24**

**Major Terminal Condition Report**

Daily averages for week ending March 27, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,422	1,395	2,817	0.3	0.0	0.0
Houston-Settegast	3,675	1,272	954	2,226	0.3	1.3	0.0
Ft. Worth-Centennial	4,481	1,502	1,250	2,752	0.9	0.0	0.1
Livonia	3,869	1,187	951	2,138	0.1	0.0	0.4
North Little Rock	5,741	1,771	1,401	3,172	0.3	0.0	0.3
Pine Bluff (SP)	3,559	1,018	1,121	2,139	0.7	0.4	0.4
Kansas City-Neff	3,520	1,298	1,279	2,577	7.4	0.1	0.1
North Platte-East	4,588	1,047	949	1,996	1.0	0.0	0.0
North Platte-West	8,128	1,651	2,006	3,657	4.0	0.0	0.3
Chicago-Proviso	7,019	1,943	1,941	3,884	1.7	0.0	0.0
Yermo	1,440	532	783	1,315	1.9	0.0	0.0
West Colton (SP)	5,578	1,591	1,806	3,397	2.0	0.0	0.0
<b>Totals</b>	<b>60,135</b>	<b>16,234</b>	<b>15,836</b>	<b>32,070</b>	<b>20.6</b>	<b>1.8</b>	<b>1.6</b>

**Surface Transportation Board Weekly Service Measurements**

**Note:** Figures in the table below are for the weeks of February 1998 and subsequent months thereafter.

	Baselines			Week Ending							
	Feb 97	Mar 97	Mar 98	6 Feb	13 Feb	20 Feb	27 Feb	6 Mar	13 Mar	20 Mar	27 Mar
<b>Car Inventory</b>											
<b>Total</b>	310,259	309,210	309,210	346,220	350,804	354,178	357,667	354,786	355,032	356,413	356,448
System	N/A	103,777	103,777	100,673	101,718	102,348	103,358	102,724	102,797	102,517	102,300
Foreign	N/A	38,904	38,904	50,869	51,885	53,160	53,900	52,998	52,542	53,390	53,780
Private	N/A	166,530	166,530	194,678	197,201	198,670	200,409	199,064	199,783	200,506	200,368
<b>TX, LA Only</b>	N/A	N/A	N/A	105,374	106,281	105,628	107,453	106,830	106,965	105,407	105,935

<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	606	603	553	543	555	536	537	507	537	550
<b>Velocity*</b>	<b>Through Train Crew Starts</b>	2,690	2,662	2,568	2,600	2,596	2,514	2,542	2,442	2,562	2,594
	<b>Car Terminal Dwell</b>	31.3	30.9	40.7	42.4	43.1	42.6	43.9	43.5	42.5	40.8
	<b>System Train Speed</b>	18.8	19.1	14.7	13.8	14.2	13.5	12.7	12.0	12.4	12.6
	<b>Coal Cycle Days</b>	5.3	5.1	5.9	5.8	5.9	5.9	7.4	6.8	7.1	6.6
	<b>Sidings Blocked</b>										
	Houston-Beaumont	N/A	N/A	6	3	5	6	5	3	4	1
	Tucson-W. Colton	N/A	N/A	3	1	2	3	2	7	6	7
	KC South Only	N/A	N/A	96	109	119	122	116	115	110	102
	System Total	N/A	N/A	136	146	163	172	168	187	173	157
	<b>Multiple Mains Blocked</b>	N/A	N/A	11	13	16	16	16	22	22	17
<b>Trains Held</b>	<b>Trains</b>										
	Power	94	80	123	130	129	164	164	171	188	189
	Crews	23	26	79	74	94	72	69	53	127	111
	Congestion	5	8	35	52	68	52	58	108	81	87
	Terminal Staging	N/A	N/A	224	234	202	209	228	245	215	187
<b>Hours</b>	<b>Power</b>	972	898	1,535	1,603	1,887	2,283	2,278	2,473	2,576	2,820
	Crews	122	144	941	906	1,155	957	816	571	1,655	1,511
	Congestion	44	73	492	746	1,074	795	939	1,799	1,411	1,393
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,091	6,125	6,393	6,395	6,418	6,424	6,432	6,439	6,453	6,487
	<b>Stored Unserviceable</b>	27	26	12	14	17	15	11	11	15	14
	<b>Productivity GTMs per HP day</b>	131.3	130.6	115.3	108.0	113.0	104.0	96.3	93.7	100.6	110.3
<b>Re-routes</b>	<b>Trains</b>	0	0	0	0	3	0	0	3	12	7
	<b>Cars</b>	0	0	0	0	172	0	0	214	989	562

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 39]

**Service Recovery Report: Week 25**

**Major Terminal Condition Report**

Daily averages for week ending April 3, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,293	1,300	2,593	0.0	0.3	0.0
Houston-Settegast	3,675	1,285	1,081	2,366	0.3	0.1	0.1
Ft. Worth-Centennial	4,481	1,528	1,186	2,714	0.0	0.3	0.0
Livonia	3,869	1,089	919	2,008	0.0	0.1	0.0
North Little Rock	5,741	1,694	1,335	3,029	0.0	0.1	0.0
Pine Bluff (SP)	3,559	846	1,037	1,883	0.0	0.0	0.0
Kansas City-Neff	3,520	1,263	1,243	2,506	5.3	0.7	0.0
North Platte-East	4,588	1,180	1,022	2,202	3.9	0.0	0.0
North Platte-West	8,128	1,779	1,871	3,650	4.3	0.0	0.0
Chicago-Proviso	7,019	1,542	1,555	3,097	0.7	0.0	0.0
Yermo	1,440	442	661	1,103	2.1	0.1	0.0
West Colton (SP)	5,578	1,368	1,723	3,091	1.3	0.0	0.0
<b>Totals</b>	60,135	15,309	14,933	30,242	17.9	1.7	0.1

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of April 1998 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending 3 Apr
	Feb 97	Mar 97	Week Ending 3 Apr	
Total	304,614	303,513	340,774	
System	N/A	103,606	100,261	
Foreign	N/A	37,650	50,802	
Private	N/A	162,257	189,711	
TX, LA Only	N/A	N/A	106,851	



<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	606	603	562
<b>Velocity</b>	<b>Through Train Crew Starts</b>	2,690	2,662	2,614
	<b>Car Terminal Dwell</b>	31.3	30.9	39.7
	<b>System Train Speed</b>	18.8	19.1	13.2
	<b>Coal Cycle Days</b>	5.3	5.1	6.9
	<b>Sidings Blocked</b>			
	Houston-Beaumont	N/A	N/A	2
	Tucson-W. Colton	N/A	N/A	6
	KC South Only	N/A	N/A	99
	System Total	N/A	N/A	145
	<b>Multiple Mains Blocked</b>	N/A	N/A	16
<b>Trains Held</b>	<b>Trains</b>			
	Power	94	80	165
	Crews	23	26	100
	Congestion	5	8	108
	*Terminal Staging	N/A	N/A	176
	<b>Hours</b>			
	Power	972	898	2,268
	Crews	122	144	1,244
	Congestion	44	73	1,679
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,091	6,125	6,504
	<b>Stored Unserviceable</b>	27	26	12
	<b>Productivity GTMs per HP day</b>	131.3	130.6	110.2
<b>Re-routes</b>	<b>Trains</b>	0	0	6
	<b>Cars</b>	0	0	429

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 40]

**Service Recovery Report: Week 26**

**Major Terminal Condition Report**

Daily averages for week ending April 10, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,328	1,331	2,659	0.0	0.7	0.0
Houston-Settegast	3,675	1,144	956	2,100	0.4	0.6	0.0
Ft. Worth-Centennial	4,481	1,461	1,213	2,674	0.0	0.3	0.0
Livonia	3,869	1,120	917	2,037	0.0	0.1	0.0
North Little Rock	5,741	1,524	1,311	2,835	0.7	0.7	0.0
Pine Bluff (SP)	3,559	711	842	1,553	0.7	0.1	0.0
Kansas City-Neff	3,520	1,293	1,252	2,545	4.9	0.0	0.0
North Platte-East	4,588	1,081	1,033	2,114	2.9	0.0	0.0
North Platte-West	8,128	1,609	1,733	3,342	2.0	0.3	3.4
Chicago-Proviso	7,019	1,660	1,420	3,080	0.1	0.4	0.1
Yermo	1,440	428	607	1,035	0.9	0.3	0.0
West Colton (SP)	5,578	1,702	1,896	3,598	0.3	0.0	0.0
<b>Totals</b>	60,135	15,061	14,511	29,572	12.9	3.5	3.5

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of April 1998 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending	
	Apr 97	May 97	May 97	3 Apr	10 Apr
<b>Total</b>	306,635	310,266	310,266	340,774	337,479
System	104,516	102,253	102,253	100,261	99,499
Foreign	37,586	40,239	40,239	50,802	50,028
Private	164,534	167,775	167,775	189,711	187,953
<b>TX, LA Only</b>	N/A	N/A	N/A	106,851	105,461

<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	609	622	562	543
<b>Velocity</b>	<b>Through Train Crew Starts</b>	2,652	2,687	2,614	2,538
	<b>Car Terminal Dwell</b>	30.8	31.5	39.7	40.5
	<b>System Train Speed</b>	18.8	19.0	13.2	12.4
	<b>Coal Cycle Days</b>	5.4	5.1	6.9	6.7
	<b>Sidings Blocked</b>				
	Houston-Beaumont	N/A	N/A	2	1
	Tucson-W. Colton	N/A	N/A	6	7
	KC South Only	N/A	N/A	99	75
	System Total	N/A	N/A	145	141
	<b>Multiple Mains Blocked</b>	N/A	N/A	16	20
<b>Trains Held</b>	<b>Trains</b>				
	Power	61	53	165	128
	Crews	27	31	100	108
	Congestion	6	7	108	93
	*Terminal Staging	N/A	N/A	176	172
	<b>Hours</b>				
	Power	649	552	2,268	1,715
	Crews	114	157	1,244	1,500
	Congestion	53	67	1,679	1,470
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,125	6,057	6,504	6,516
	<b>Stored Unserviceable</b>	30	33	12	12
	<b>Productivity GTMs per HP day</b>	126.8	125.9	110.2	104.5
<b>Re-routes</b>	<b>Trains</b>	0	0	6	12
	<b>Cars</b>	0	0	429	902

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative.

**\*Terminal Staging:** this category was introduced as of April 1998. [Ref. 41]

**Service Recovery Report: Week 27**

**Major Terminal Condition Report**

Daily averages for week ending April 17, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,476	1,456	2,932	0.0	0.1	0.6
Houston-Settegast	3,675	1,033	962	1,995	0.0	0.6	0.0
Ft. Worth-Centennial	4,481	1,446	1,193	2,639	0.4	0.0	0.0
Livonia	3,869	1,104	846	1,950	0.0	0.0	0.0
North Little Rock	5,741	1,422	1,262	2,684	0.6	0.1	0.0
Pine Bluff (SP)	3,559	729	1,017	1,746	0.1	0.0	0.0
Kansas City-Neff	3,520	1,362	1,271	2,633	3.7	0.0	0.0
North Platte-East	4,588	1,132	892	2,024	1.1	0.0	1.1
North Platte-West	8,128	1,750	1,784	3,534	2.9	0.1	1.3
Chicago-Proviso	7,019	1,536	1,457	2,993	1.6	0.0	0.0
Yermo	1,440	529	564	1,093	2.1	0.6	0.0
West Colton (SP)	5,578	1,874	1,791	3,665	0.6	0.7	0.0
<b>Totals</b>	60,135	15,393	14,495	29,888	13.1	2.2	3.0

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of April 1998 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending		
	Apr 97	May 97	3 Apr	10 Apr	17 Apr	24 Apr
<b>Total</b>	306,635	310,266	340,774	337,479	332,105	332,105
System	104,516	102,253	100,261	99,499	98,553	98,553
Foreign	37,586	40,239	50,802	50,028	48,537	48,537
Private	164,534	167,775	189,711	187,953	185,015	185,015
<b>TX, LA Only</b>	N/A	N/A	106,851	105,461	103,846	103,846

<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	609	622	562	543	558
<b>Velocity</b>	<b>Through Train Crew Starts</b>	2,652	2,687	2,614	2,538	2,532
	<b>Car Terminal Dwell</b>	30.8	31.5	39.7	40.5	39.7
	<b>System Train Speed</b>	18.8	19.0	13.2	12.4	13.2
	<b>Coal Cycle Days</b>	5.4	5.1	6.9	6.7	7.1
	<b>Sidings Blocked</b>					
	Houston-Beaumont	N/A	N/A	2	1	1
	Tucson-W. Colton	N/A	N/A	6	7	7
	KC South Only	N/A	N/A	99	75	46
	System Total	N/A	N/A	145	141	102
	<b>Multiple Mains Blocked</b>	N/A	N/A	16	20	15
<b>Trains Held</b>	<b>Trains</b>					
	Power	61	53	165	128	123
	Crews	27	31	100	108	113
	Congestion	6	7	108	93	79
	*Terminal Staging	N/A	N/A	176	172	156
	<b>Hours</b>					
	Power	649	552	2,268	1,715	1,562
	Crews	114	157	1,244	1,500	1,315
	Congestion	53	67	1,679	1,470	1,209
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,125	6,057	6,504	6,516	6,523
	<b>Stored Unserviceable</b>	30	33	12	12	18
	<b>Productivity GTMs per HP day</b>	126.8	125.9	110.2	104.5	107.2
<b>Re-routes</b>	<b>Trains</b>	0	0	6	12	8
	<b>Cars</b>	0	0	429	902	560

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative.

**\*Terminal Staging:** this category was introduced as of April 1998. [Ref. 42]

**Service Recovery Report: Week 28**

**Major Terminal Condition Report**

Daily averages for week ending April 24, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,359	1,268	2,627	0.0	0.5	0.0
Houston-Settegast	3,675	1,287	1,109	2,396	0.0	0.3	0.0
Ft. Worth-Centennial	4,481	1,236	1,188	2,424	0.0	0.8	0.0
Livonia	3,869	1,124	1,001	2,125	0.3	0.5	0.0
North Little Rock	5,741	1,437	1,195	2,632	0.5	0.0	0.0
Pine Bluff (SP)	3,559	721	910	1,631	0.0	0.0	0.0
Kansas City-Neff	3,520	1,298	1,321	2,619	2.7	0.2	0.0
North Platte-East	4,588	932	863	1,795	0.8	0.0	0.0
North Platte-West	8,128	1,408	1,546	2,954	1.8	0.0	0.0
Chicago-Proviso	7,019	1,465	1,520	2,985	1.2	0.2	0.2
Yermo	1,440	517	509	1,026	1.8	0.0	0.0
West Colton (SP)	5,578	2,008	1,939	3,947	0.0	0.0	0.0
<b>Totals</b>	60,135	14,792	14,369	29,161	9.1	2.5	0.2

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of April 1998 and subsequent months thereafter.

Car Inventory	Baselines				Week Ending			
	Apr 97	May 97	3 Apr	10 Apr	17 Apr	24 Apr	31 Apr	7 May
<b>Total</b>	306,635	310,266	340,774	337,479	332,105	328,679	328,679	328,679
System	104,516	102,253	100,261	99,499	98,553	98,428	98,428	98,428
Foreign	37,586	40,239	50,802	50,028	48,537	46,790	46,790	46,790
Private	164,534	167,775	189,711	187,953	185,015	183,461	183,461	183,461
<b>TX, LA Only</b>	N/A	N/A	106,851	105,461	103,846	100,573	100,573	100,573

Through Train Volume	Through Trains Terminated	609	622	562	543	558	576
Velocity	Through Train Crew Starts	2,652	2,687	2,614	2,538	2,532	2,550
	Car Terminal Dwell	30.8	31.5	39.7	40.5	39.7	38.9
	System Train Speed	18.8	19.0	13.2	12.4	13.2	13.5
	Coal Cycle Days	5.4	5.1	6.9	6.7	7.1	7.4
	<b>Sidings Blocked</b>						
	Houston-Beaumont	N/A	N/A	2	1	1	1
	Tucson-W. Colton	N/A	N/A	6	7	7	2
	KC South Only	N/A	N/A	99	75	46	32
	System Total	N/A	N/A	145	141	102	76
	<b>Multiple Mains Blocked</b>	N/A	N/A	16	20	15	12
	<b>Trains Held</b>						
	Power	61	53	165	128	123	102
	Crews	27	31	100	108	113	95
	Congestion	6	7	108	93	79	48
	*Terminal Staging	N/A	N/A	176	172	156	125
	<b>Hours</b>						
	Power	649	552	2,268	1,715	1,562	1,280
	Crews	114	157	1,244	1,500	1,315	1,086
	Congestion	53	67	1,679	1,470	1,209	723
	<b>Fleet Size (Frt units only)</b>	6,125	6,057	6,504	6,516	6,523	6,527
	<b>Stored Unserviceable</b>	30	33	12	12	18	21
	<b>Productivity GTMs per HP day</b>	126.8	125.9	110.2	104.5	107.2	115.8
	<b>Re-routes</b>	0	0	6	12	8	7
	<b>Cars</b>	0	0	429	902	560	564

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative.

**\*Terminal Staging:** this category was introduced as of April 1998. [Ref. 43]

**Service Recovery Report: Week 29**

**Major Terminal Condition Report**

Daily averages for week ending May 1, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,448	1,421	2,869	0.9	0.1	0.0
Houston-Settegast	3,675	1,421	1,257	2,678	0.0	0.3	0.0
Ft. Worth-Centennial	4,481	1,224	1,184	2,408	0.9	0.1	0.3
Livonia	3,869	1,146	1,061	2,207	0.0	0.3	0.0
North Little Rock	5,741	1,320	1,260	2,580	0.1	0.0	0.0
Pine Bluff (SP)	3,559	667	903	1,570	0.1	0.0	0.0
Kansas City-Neff	3,520	1,166	1,233	2,399	2.1	0.0	0.1
North Platte-East	4,588	1,018	915	1,933	1.0	0.3	0.1
North Platte-West	8,128	1,680	1,822	3,502	3.3	0.0	0.0
Chicago-Proviso	7,019	1,517	1,649	3,166	1.6	0.0	0.0
Yermo	1,440	649	382	1,031	2.6	0.9	0.0
West Colton (SP)	5,578	1,847	2,077	3,924	0.0	0.0	0.0
Totals	60,135	15,103	15,164	30,267	12.6	2.0	0.5

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of April 1998 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending				
	Apr 97	May 97	Apr 98	10 Apr	17 Apr	24 Apr	1 May	
Total	306,635	310,266	340,774	337,479	332,105	328,679	327,185	
System	104,516	102,253	100,261	99,499	98,553	98,428	98,653	
Foreign	37,586	40,239	50,802	50,028	48,537	46,790	45,501	
Private	164,534	167,775	189,711	187,953	185,015	183,461	183,031	
TX, LA Only	N/A	N/A	106,851	105,461	103,846	100,573	99,794	



<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	609	622	562	543	558	576	578
<b>Velocity</b>	<b>Through Train Crew Starts</b>	2,652	2,687	2,614	2,538	2,532	2,550	2,598
	<b>Car Terminal Dwell</b>	30.8	31.5	39.7	40.5	39.7	38.9	39.0
	<b>System Train Speed</b>	18.8	19.0	13.2	12.4	13.2	13.5	14.6
	<b>Coal Cycle Days</b>	5.4	5.1	6.9	6.7	7.1	7.4	6.8
	<b>Sidings Blocked</b>							
	Houston-Beaumont	N/A	N/A	2	1	1	1	1
	Tucson-W. Colton	N/A	N/A	6	7	7	2	4
	KC South Only	N/A	N/A	99	75	46	32	36
	System Total	N/A	N/A	145	141	102	76	79
	<b>Multiple Mains Blocked</b>	N/A	N/A	16	20	15	12	9
<b>Trains Held</b>	<b>Trains</b>							
	Power	61	53	165	128	123	102	98
	Crews	27	31	100	108	113	95	86
	Congestion	6	7	108	93	79	48	37
	*Terminal Staging	N/A	N/A	176	172	156	125	104
	<b>Hours</b>							
	Power	649	552	2,268	1,715	1,562	1,280	1,304
	Crews	114	157	1,244	1,500	1,315	1,086	998
	Congestion	53	67	1,679	1,470	1,209	723	507
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,125	6,057	6,504	6,516	6,523	6,527	6,533
	<b>Stored Unserviceable</b>	30	33	12	12	18	21	22
	<b>Productivity GTMs per HP day</b>	126.8	125.9	110.2	104.5	107.2	115.8	120.1
<b>Re-routes</b>	<b>Trains</b>	0	0	6	12	8	7	8
	<b>Cars</b>	0	0	429	902	560	564	452

Note: All numbers are daily averages for the week, except re-routes, which are cumulative.

\*Terminal Staging: this category was introduced as of April 1998. [Ref. 44]

**Service Recovery Report: Week 30**

**Major Terminal Condition Report**

Daily averages for week ending May 8, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,386	1,361	2,747	0.3	0.7	0.0
Houston-Settegast	3,675	1,379	1,178	2,557	0.3	0.4	0.0
Ft. Worth-Centennial	4,481	1,252	1,313	2,565	2.6	0.1	0.3
Livonia	3,869	974	997	1,971	0.3	0.0	0.0
North Little Rock	5,741	1,351	1,207	2,558	0.4	0.0	0.0
Pine Bluff (SP)	3,559	677	877	1,554	0.0	0.0	0.0
Kansas City-Neff	3,520	1,097	1,229	2,326	3.0	0.1	0.0
North Platte-East	4,588	1,151	1,003	2,154	1.3	0.0	0.1
North Platte-West	8,128	1,768	1,779	3,547	3.7	0.0	0.0
Chicago-Proviso	7,019	1,594	1,764	3,358	0.7	0.9	0.0
Yermo	1,440	718	418	1,136	3.4	1.6	0.0
West Colton (SP)	5,578	1,967	1,667	3,634	0.0	0.0	0.0
<b>Totals</b>	60,135	15,314	14,793	30,107	16.0	3.8	0.4

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of April 1998 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending				
	Apr 97	May 97	Apr 98	10 Apr	17 Apr	24 Apr	1 May	8 May
<b>Total</b>	306,635	310,266	340,774	337,479	332,105	328,679	327,185	325,183
System	104,516	102,253	100,261	99,499	98,553	98,428	98,653	98,308
Foreign	37,586	40,239	50,802	50,028	48,537	46,790	45,501	44,870
Private	164,534	167,775	189,711	187,953	185,015	183,461	183,031	182,004
<b>TX, LA Only</b>	N/A	N/A	106,851	105,461	103,846	100,573	99,794	99,467

<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	609	622	562	543	558	576	578	571
<b>Velocity</b>	<b>Through Train Crew Starts</b>	2,652	2,687	2,614	2,538	2,532	2,550	2,598	2,569
	<b>Car Terminal Dwell</b>	30.8	31.5	39.7	40.5	39.7	38.9	39.0	39.7
	<b>System Train Speed</b>	18.8	19.0	13.2	12.4	13.2	13.5	14.6	14.6
	<b>Coal Cycle Days</b>	5.4	5.1	6.9	6.7	7.1	7.4	6.8	6.7
	<b>Sidings Blocked</b>								
	Houston-Beaumont	N/A	N/A	2	1	1	1	1	0
	Tucson-W. Colton	N/A	N/A	6	7	7	2	4	5
	KC South Only	N/A	N/A	99	75	46	32	36	32
	System Total	N/A	N/A	145	141	102	76	79	77
	<b>Multiple Mains Blocked</b>	N/A	N/A	16	20	15	12	9	13
<b>Trains Held</b>	<b>Trains</b>								
	Power	61	53	165	128	123	102	98	109
	Crews	27	31	100	108	113	95	86	118
	Congestion	6	7	108	93	79	48	37	38
	*Terminal Staging	N/A	N/A	176	172	156	125	104	104
	<b>Hours</b>								
	Power	649	552	2,268	1,715	1,562	1,280	1,304	1,238
	Crews	114	157	1,244	1,500	1,315	1,086	998	1,322
	Congestion	53	67	1,679	1,470	1,209	723	507	525
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,125	6,057	6,504	6,516	6,523	6,527	6,533	6,535
	<b>Stored Unserviceable</b>	30	33	12	12	18	21	22	23
	<b>Productivity GTMs per HP day</b>	126.8	125.9	110.2	104.5	107.2	115.8	120.1	117.3
<b>Re-routes</b>	<b>Trains</b>	0	0	6	12	8	7	8	2
	<b>Cars</b>	0	0	429	902	560	564	452	230

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 45]

**Service Recovery Report: Week 31**

**Major Terminal Condition Report**

Daily averages for week ending May 15, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,226	1,273	2,499	0.4	0.0	0.0
Houston-Settegast	3,675	1,125	1,051	2,176	0.0	0.4	0.0
Ft. Worth-Centennial	4,481	1,301	1,260	2,561	3.3	0.4	0.0
Livonia	3,869	874	869	1,743	0.0	0.0	0.0
North Little Rock	5,741	1,320	1,183	2,503	0.1	0.0	0.0
Pine Bluff (SP)	3,559	651	785	1,436	0.0	0.0	0.0
Kansas City-Neff	3,520	1,141	1,312	2,453	2.6	0.1	0.6
North Platte-East	4,588	944	812	1,756	0.1	0.1	0.0
North Platte-West	8,128	1,698	1,707	3,405	1.1	0.9	0.0
Chicago-Proviso	7,019	1,628	1,851	3,479	1.1	0.4	0.0
Yermo	1,440	911	667	1,578	2.3	1.1	0.0
West Colton (SP)	5,578	2,082	1,854	3,936	0.0	0.0	0.0
<b>Totals</b>	60,135	14,901	14,624	29,525	11.0	3.4	0.6

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of April 1998 and subsequent months thereafter.

Car Inventory	Baselines		Week Ending						
	Apr 97	May 97	3 Apr	10 Apr	17 Apr	24 Apr	1 May	8 May	15 May
<b>Total</b>	306,635	310,266	340,774	337,479	332,105	328,679	327,185	325,183	326,158
System	104,516	102,253	100,261	99,499	98,553	98,428	98,653	98,308	98,671
Foreign	37,586	40,239	50,802	50,028	48,537	46,790	45,501	44,870	44,937
Private	164,534	167,775	189,711	187,953	185,015	183,461	183,031	182,004	182,550
<b>TX, LA Only</b>	N/A	N/A	106,851	105,461	103,846	100,573	99,794	99,467	98,701

<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	609	622	562	543	558	576	578	571	568
<b>Velocity</b>	<b>Through Train Crew Starts</b>	2,652	2,687	2,614	2,538	2,532	2,550	2,598	2,569	2,592
	<b>Car Terminal Dwell</b>	30.8	31.5	39.7	40.5	39.7	38.9	39.0	39.7	40.0
	<b>System Train Speed</b>	18.8	19.0	13.2	12.4	13.2	13.5	14.6	14.6	14.5
	<b>Coal Cycle Days</b>	5.4	5.1	6.9	6.7	7.1	7.4	6.8	6.7	6.6
	<b>Sidings Blocked</b>									
	<b>Houston-Beaumont</b>	N/A	N/A	2	1	1	1	1	0	1
	<b>Tucson-W. Colton</b>	N/A	N/A	6	7	7	2	4	5	4
	<b>KC South Only</b>	N/A	N/A	99	75	46	32	36	32	44
	<b>System Total</b>	N/A	N/A	145	141	102	76	79	77	87
	<b>Multiple Mains Blocked</b>	N/A	N/A	16	20	15	12	9	13	14
<b>Trains Held</b>	<b>Trains</b>									
	<b>Power</b>	61	53	165	128	123	102	98	109	84
	<b>Crews</b>	27	31	100	108	113	95	86	118	113
	<b>Congestion</b>	6	7	108	93	79	48	37	38	62
	<b>*Terminal Staging</b>	N/A	N/A	176	172	156	125	104	104	105
	<b>Hours</b>									
	<b>Power</b>	649	552	2,268	1,715	1,562	1,280	1,304	1,238	1,063
	<b>Crews</b>	114	157	1,244	1,500	1,315	1,086	998	1,322	1,349
	<b>Congestion</b>	53	67	1,679	1,470	1,209	723	507	525	951
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,125	6,057	6,504	6,516	6,523	6,527	6,533	6,535	6,527
	<b>Stored Unserviceable</b>	30	33	12	12	18	21	22	23	25
	<b>Productivity GTMs per HP day</b>	126.8	125.9	110.2	104.5	107.2	115.8	120.1	117.3	112.2
<b>Re-routes</b>	<b>Trains</b>	0	0	6	12	8	7	8	2	1
	<b>Cars</b>	0	0	429	902	560	564	452	230	36

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 46]

**Service Recovery Report: Week 32**

**Major Terminal Condition Report**

Daily averages for week ending May 22, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,174	1,393	2,567	0.7	1.6	0.4
Houston-Settegast	3,675	1,201	985	2,186	0.4	0.6	0.0
Ft. Worth-Centennial	4,481	1,357	1,179	2,536	3.3	1.3	0.0
Livonia	3,869	840	766	1,606	0.0	0.6	0.0
North Little Rock	5,741	1,394	1,173	2,567	0.9	0.1	0.0
Pine Bluff (SP)	3,559	591	796	1,387	0.1	0.0	0.0
Kansas City-Neff	3,520	1,083	1,371	2,454	6.0	1.3	0.7
North Platte-East	4,588	1,120	890	2,010	2.1	0.0	0.0
North Platte-West	8,128	1,698	1,757	3,455	2.7	0.1	0.0
Chicago-Proviso	7,019	1,553	1,742	3,295	2.0	0.0	0.0
Yermo	1,440	962	665	1,627	1.6	0.3	0.0
West Colton (SP)	5,578	1,771	2,011	3,782	0.4	0.9	0.0
<b>Totals</b>	60,135	14,744	14,728	29,472	20.2	6.8	1.1

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of April 1998 and subsequent months thereafter.

Car Inventory	Baselines				Week Ending						
	Apr 97	May 97	3 Apr	10 Apr	17 Apr	24 Apr	1 May	8 May	15 May	22 May	
<b>Total</b>	306,635	310,266	340,774	337,479	332,105	328,679	327,185	325,183	326,158	328,123	
System	104,516	102,253	100,261	99,499	98,553	98,428	98,653	98,308	98,671	99,200	
Foreign	37,586	40,239	50,802	50,028	48,537	46,790	45,501	44,870	44,937	45,188	
Private	164,534	167,775	189,711	187,953	185,015	183,461	183,031	182,004	182,550	183,735	
<b>TX, LA Only</b>	N/A	N/A	106,851	105,461	103,846	100,573	99,794	99,467	98,701	99,145	

<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	609	622	562	543	558	576	578	571	568	545
<b>Velocity</b>	<b>Through Train Crew Starts</b>	2,652	2,687	2,614	2,538	2,532	2,550	2,598	2,569	2,592	2,478
	<b>Car Terminal Dwell</b>	30.8	31.5	39.7	40.5	39.7	38.9	39.0	39.7	40.0	39.9
	<b>System Train Speed</b>	18.8	19.0	13.2	12.4	13.2	13.5	14.6	14.6	14.5	13.9
	<b>Coal Cycle Days</b>	5.4	5.1	6.9	6.7	7.1	7.4	6.8	6.7	6.6	7.4
	<b>Sidings Blocked</b>										
	Houston-Beaumont	N/A	N/A	2	1	1	1	1	0	1	1
	Tucson-W. Colton	N/A	N/A	6	7	7	2	4	5	4	5
	KC South Only	N/A	N/A	99	75	46	32	36	32	44	53
	System Total	N/A	N/A	145	141	102	76	79	77	87	107
	<b>Multiple Mains Blocked</b>	N/A	N/A	16	20	15	12	9	13	14	18
<b>Trains Held</b>	<b>Trains</b>										
	Power	61	53	165	128	123	102	98	109	84	105
	Crews	27	31	100	108	113	95	86	118	113	182
	Congestion	6	7	108	93	79	48	37	38	62	45
	*Terminal Staging	N/A	N/A	176	172	156	125	104	104	105	112
	<b>Hours</b>										
	Power	649	552	2,268	1,715	1,562	1,280	1,304	1,238	1,063	1,240
	Crews	114	157	1,244	1,500	1,315	1,086	998	1,322	1,349	2,396
	Congestion	53	67	1,679	1,470	1,209	723	507	525	951	583
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,125	6,057	6,504	6,516	6,523	6,527	6,533	6,535	6,527	6,531
	<b>Stored Unserviceable</b>	30	33	12	12	18	21	22	23	25	30
	<b>Productivity GTMs per HP day</b>	126.8	125.9	110.2	104.5	107.2	115.8	120.1	117.3	112.2	105.1
<b>Re-routes</b>	<b>Trains</b>	0	0	6	12	8	7	8	2	1	6
	<b>Cars</b>	0	0	429	902	560	564	452	230	36	266

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 47]

**Service Recovery Report: Week 33**

**Major Terminal Condition Report**

Daily averages for week ending May 29, 1998.

Location	60' Car		Cars On Hand				Trains Held			
	Standing Capacity	Loads	Empty	Total	Power	Crew	Cong.			
Houston-Englewood (SP)	8,535	1,576	1,564	3,140	0.0	0.3	0.0			
Houston-Settegast	3,675	1,461	1,152	2,613	0.0	0.0	0.0			
Ft. Worth-Centennial	4,481	1,303	1,247	2,550	2.1	0.1	0.0			
Livonia	3,869	865	981	1,846	0.0	0.0	0.0			
North Little Rock	5,741	1,398	1,185	2,583	0.7	0.0	0.0			
Pine Bluff (SP)	3,559	727	977	1,704	0.6	0.0	0.0			
Kansas City-Neff	3,520	1,006	1,115	2,121	0.6	0.3	0.3			
North Platte-East	4,588	1,062	969	2,031	0.3	0.0	0.1			
North Platte-West	8,128	1,650	1,726	3,376	1.0	0.1	0.4			
Chicago-Proviso	7,019	1,584	1,549	3,133	0.1	0.0	0.0			
Yermo	1,440	820	653	1,473	1.3	0.0	0.0			
West Colton (SP)	5,578	1,433	1,745	3,178	0.3	0.3	0.0			
<b>Totals</b>	60,135	14,885	14,863	29,748	7.0	1.1	0.8			

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of April 1998 and subsequent months thereafter.

Car Inventory	Baselines				Week Ending							
	Apr 97	May 97	3 Apr	10 Apr	17 Apr	24 Apr	1 May	8 May	15 May	22 May	29 May	
<b>Total</b>	312,332	315,963	353,642	349,821	345,128	341,293	339,788	338,306	338,921	340,303	340,224	
System	104,687	102,424	101,689	100,913	100,132	99,884	100,087	99,856	100,141	100,497	100,069	
Foreign	38,839	41,492	53,588	52,420	51,044	49,240	47,956	47,410	47,417	47,587	47,666	
Private	168,806	172,048	198,665	196,488	193,952	192,168	191,745	191,040	191,362	192,219	192,490	
<b>TX, LA Only</b>	N/A	N/A	106,851	105,461	103,846	100,573	99,794	99,467	98,701	99,145	99,435	



<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	609	622	562	543	558	576	578	571	568	545	536
<b>Velocity</b>	<b>Through Train Crew Starts</b>	2,652	2,687	2,614	2,538	2,532	2,550	2,598	2,569	2,592	2,478	2,460
	<b>Car Terminal Dwell</b>	30.8	31.5	39.7	40.5	39.7	38.9	39.0	39.7	40.0	39.9	41.3
	<b>System Train Speed</b>	18.8	19.0	13.2	12.4	13.2	13.5	14.6	14.6	14.5	13.9	14.0
	<b>Coal Cycle Days</b>	5.4	5.1	6.9	6.7	7.1	7.4	6.8	6.7	6.6	7.4	7.4
	<b>Sidings Blocked</b>											
	Houston-Beaumont	N/A	N/A	2	1	1	1	1	0	1	1	1
	Tucson-W. Colton	N/A	N/A	6	7	7	2	4	5	4	5	5
	KC South Only	N/A	N/A	99	75	46	32	36	32	44	53	58
	System Total	N/A	N/A	145	141	102	76	79	77	87	107	111
	<b>Multiple Mains Blocked</b>	N/A	N/A	16	20	15	12	9	13	14	18	14
<b>Trains Held</b>	<b>Trains</b>											
	Power	61	53	165	128	123	102	98	109	84	105	75
	Crews	27	31	100	108	113	95	86	118	113	182	86
	Congestion	6	7	108	93	79	48	37	38	62	45	39
	*Terminal Staging	N/A	N/A	176	172	156	125	104	104	105	112	112
	<b>Hours</b>											
	Power	649	552	2,268	1,715	1,562	1,280	1,304	1,238	1,063	1,240	876
	Crews	114	157	1,244	1,500	1,315	1,086	998	1,322	1,349	2,396	1,094
	Congestion	53	67	1,679	1,470	1,209	723	507	525	951	583	568
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,125	6,057	6,504	6,516	6,523	6,527	6,533	6,535	6,527	6,531	6,494
	<b>Stored</b>	30	33	12	12	18	21	22	23	25	30	32
	<b>Unserviceable</b>											
	<b>Productivity GTMs per HP day</b>	126.8	125.9	110.2	104.5	107.2	115.8	120.1	117.3	112.2	105.1	105.3
<b>Re-routes</b>	<b>Trains</b>	0	0	6	12	8	7	8	2	1	6	1
	<b>Cars</b>	0	0	429	902	560	564	452	230	36	266	93

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 48]

**Service Recovery Report: Week 34**

**Major Terminal Condition Report**

Daily averages for week ending June 5, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,461	1,463	2,924	0.6	0.6	0.0
Houston-Settegast	3,675	1,388	1,152	2,540	0.3	0.6	0.0
Ft. Worth-Centennial	4,481	1,430	1,240	2,670	1.9	0.7	0.0
Livonia	3,869	923	994	1,917	0.3	0.0	0.0
North Little Rock	5,741	1,280	1,053	2,333	0.3	0.0	0.0
Pine Bluff (SP)	3,559	535	811	1,346	0.0	0.0	0.0
Kansas City-Neff	3,520	924	891	1,815	2.7	0.3	0.4
North Platte-East	4,588	867	760	1,627	0.1	0.0	0.0
North Platte-West	8,128	1,592	1,743	3,335	0.3	0.1	0.0
Chicago-Proviso	7,019	1,622	1,573	3,195	1.4	0.0	0.0
Yermo	1,440	797	685	1,482	1.9	0.3	0.0
West Colton (SP)	5,578	1,772	2,162	3,934	0.6	0.9	0.0
<b>Totals</b>	60,135	14,591	14,527	29,118	10.4	3.5	0.4

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of June 1998 and subsequent months thereafter.

	Baselines		Week Ending
	Jun 97	Jul 97	
<b>Car Inventory</b>			<b>5 Jun</b>
Total	314,951	320,482	330,312
System	104,529	105,340	99,645
Foreign	40,270	42,140	45,827
Private	170,152	173,003	184,840
<b>TX, LA Only</b>	N/A	N/A	99,999

<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	617	604	552
<b>Velocity</b>	<b>Through Train Crew Starts</b>	2,652	2,669	2,494
	<b>Car Terminal Dwell</b>	31.6	35.3	39.1
	<b>System Train Speed</b>	17.5	16.5	14.1
	<b>Coal Cycle Days</b>	6.2	5.9	6.4
	<b>Sidings Blocked</b>			
	Houston-Beaumont	N/A	N/A	1
	Tucson-W. Colton	N/A	N/A	4
	KC South Only	N/A	N/A	58
	System Total	N/A	N/A	103
	<b>Multiple Mains Blocked</b>	N/A	N/A	14
<b>Trains Held</b>	<b>Trains</b>			
	Power	79	122	74
	Crews	51	78	130
	Congestion	12	32	48
	Terminal Staging	N/A	N/A	111
	<b>Hours</b>			
	Power	942	1,461	923
	Crews	372	783	1,513
	Congestion	149	410	653
<b>Freight Locomotives</b>	<b>Fleet Size</b> (Frt units only)	6,105	6,133	6,495
	<b>Stored Unserviceable</b>	35	31	34
	<b>Productivity</b> GTMs per HP day	120.9	115.1	107.2
<b>Re-routes</b>	<b>Trains</b>	0	0	2
	<b>Cars</b>	0	0	73

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 49]

**Service Recovery Report: Week 35**

**Major Terminal Condition Report**

Daily averages for week ending June 12, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,718	1,577	3,295	0.9	0.7	0.0
Houston-Settegast	3,675	1,310	1,188	2,498	0.3	0.7	0.0
Ft. Worth-Centennial	4,481	1,389	1,246	2,635	1.6	1.6	0.0
Livonia	3,869	1,001	951	1,952	0.0	0.0	0.0
North Little Rock	5,741	1,196	1,070	2,266	0.3	0.1	0.0
Pine Bluff (SP)	3,559	709	951	1,660	0.0	0.0	0.0
Kansas City-Neff	3,520	1,078	1,069	2,147	5.1	0.4	0.1
North Platte-East	4,588	994	732	1,726	0.6	0.0	0.0
North Platte-West	8,128	1,719	1,770	3,489	0.7	0.0	0.0
Chicago-Proviso	7,019	1,657	1,691	3,348	0.6	0.1	0.0
Yermo	1,440	826	781	1,607	2.7	0.0	0.0
West Colton (SP)	5,578	1,784	2,233	4,017	0.6	0.3	0.0
<b>Totals</b>	<b>60,135</b>	<b>15,381</b>	<b>15,259</b>	<b>30,640</b>	<b>13.4</b>	<b>3.9</b>	<b>0.1</b>

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of June 1998 and subsequent months thereafter.

	Baselines			Week Ending	
	Jun 97	Jul 97	5 Jun	12 Jun	
<b>Car Inventory</b>					
<b>Total</b>	314,951	320,482	330,312	330,551	
System	104,529	105,340	99,645	99,685	
Foreign	40,270	42,140	45,827	45,825	
Private	170,152	173,003	184,840	185,041	
<b>TX, LA Only</b>	N/A	N/A	99,999	99,887	

<b>Through Train Volume Velocity</b>	<b>Through Trains Terminated</b>	617	604	552	564
	<b>Through Train Crew Starts</b>	2,652	2,669	2,494	2,609
	<b>Car Terminal Dwell</b>	31.6	35.3	39.1	39.5
	<b>System Train Speed</b>	17.5	16.5	14.1	14.1
	<b>Coal Cycle Days</b>	6.2	5.9	6.4	6.6
	<b>Sidings Blocked</b>				
	Houston-Beaumont	N/A	N/A	1	1
	Tucson-W. Colton	N/A	N/A	4	5
	KC South Only	N/A	N/A	58	46
	System Total	N/A	N/A	103	90
<b>Multiple Mains Blocked</b>	N/A	N/A	14	13	
<b>Trains Held</b>	<b>Trains</b>				
	Power	79	122	74	104
	Crews	51	78	130	105
	Congestion	12	32	48	35
	Terminal Staging	N/A	N/A	111	104
	<b>Hours</b>				
	Power	942	1,461	923	1,184
	Crews	372	783	1,513	1,237
	Congestion	149	410	653	519
	<b>Fleet Size (Frt units only)</b>	6,105	6,133	6,495	6,481
<b>Stored Unserviceable</b>	35	31	34	27	
<b>Productivity GTMs per HP day</b>	120.9	115.1	107.2	109.7	
<b>Re-routes</b>					
Trains	0	0	2	1	
Cars	0	0	73	104	

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 50]

**Service Recovery Report: Week 36**

**Major Terminal Condition Report**

Daily averages for week ending June 19, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,601	1,642	3,243	0.0	0.3	0.0
Houston-Settegast	3,675	1,391	1,144	2,535	0.0	0.0	0.0
Ft. Worth-Centennial	4,481	1,409	1,260	2,669	2.1	0.1	0.0
Livonia	3,869	949	865	1,814	0.0	0.0	0.0
North Little Rock	5,741	1,398	1,097	2,495	0.7	0.0	0.0
Pine Bluff (SP)	3,559	808	1,060	1,868	0.6	0.0	0.0
Kansas City-Neff	3,520	1,067	939	2,006	0.6	0.3	0.3
North Platte-East	4,588	1,185	853	2,038	0.3	0.0	0.1
North Platte-West	8,128	1,740	1,548	3,288	1.0	0.1	0.4
Chicago-Proviso	7,019	1,831	1,843	3,674	0.1	0.0	0.0
Yermo	1,440	618	734	1,352	1.3	0.0	0.0
West Colton (SP)	5,578	1,572	2,109	3,681	0.3	0.3	0.0
<b>Totals</b>	<b>60,135</b>	<b>15,569</b>	<b>15,094</b>	<b>30,663</b>	<b>7.0</b>	<b>1.1</b>	<b>0.8</b>

**Surface Transportation Board Weekly Service Measurements**

**Note:** Figures in the table below are for the weeks of June 1998 and subsequent months thereafter.

Car Inventory	Baselines			Week Ending		
	Jun 97	Jul 97	5 Jun	12 Jun	19 Jun	
<b>Total</b>	<b>314,951</b>	<b>320,482</b>	<b>330,312</b>	<b>330,551</b>	<b>331,477</b>	
System	104,529	105,340	99,645	99,685	99,825	
Foreign	40,270	42,140	45,827	45,825	45,574	
Private	170,152	173,003	184,840	185,041	186,078	
<b>TX, LA Only</b>	<b>N/A</b>	<b>N/A</b>	<b>99,999</b>	<b>99,887</b>	<b>100,296</b>	

<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	617	604	552	564	551
<b>Velocity</b>	<b>Through Train Crew Starts</b>	2,652	2,669	2,494	2,609	2,526
	<b>Car Terminal Dwell</b>	31.6	35.3	39.1	39.5	41.2
	<b>System Train Speed</b>	17.5	16.5	14.1	14.1	14.4
	<b>Coal Cycle Days</b>	6.2	5.9	6.4	6.6	6.5
	<b>Sidings Blocked</b>					
	Houston-Beaumont	N/A	N/A	1	1	0
	Tucson-W. Colton	N/A	N/A	4	5	6
	KC South Only	N/A	N/A	58	46	54
	System Total	N/A	N/A	103	90	111
	<b>Multiple Mains Blocked</b>	N/A	N/A	14	13	17
<b>Trains Held</b>	<b>Trains</b>					
	Power	79	122	74	104	114
	Crews	51	78	130	105	120
	Congestion	12	32	48	35	36
	Terminal Staging	N/A	N/A	111	104	104
	<b>Hours</b>					
	Power	942	1,461	923	1,184	1,571
	Crews	372	783	1,513	1,237	1,586
	Congestion	149	410	653	519	544
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,105	6,133	6,495	6,481	6,478
	<b>Stored Unserviceable</b>	35	31	34	27	27
	<b>Productivity GTMs per HP day</b>	120.9	115.1	107.2	109.7	107.7
<b>Re-routes</b>	<b>Trains</b>	0	0	2	1	0
	<b>Cars</b>	0	0	73	104	0

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 51]

**Service Recovery Report: Week 37**

**Major Terminal Condition Report**

Daily averages for week ending June 26, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,280	1,426	2,706	0.0	0.3	0.0
Houston-Settegast	3,675	1,325	1,148	2,473	0.0	0.1	0.0
Ft. Worth-Centennial	4,481	1,404	1,164	2,568	2.3	0.0	0.0
Livonia	3,869	728	724	1,452	0.0	0.0	0.0
North Little Rock	5,741	1,513	1,153	2,666	0.7	0.0	0.0
Pine Bluff (SP)	3,559	986	1,235	2,221	0.1	0.0	0.0
Kansas City-Neff	3,520	1,050	1,025	2,075	7.0	0.1	0.1
North Platte-East	4,588	1,121	942	2,063	0.4	0.0	0.0
North Platte-West	8,128	1,677	1,735	3,412	4.6	0.0	0.0
Chicago-Proviso	7,019	1,714	1,890	3,604	2.7	0.6	0.0
Yermo	1,440	572	570	1,142	1.4	0.6	0.0
West Colton (SP)	5,578	1,715	2,060	3,775	0.4	1.9	0.3
<b>Totals</b>	60,135	15,085	15,072	30,157	19.6	3.6	0.4

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of June 1998 and subsequent months thereafter.

Car Inventory	Baselines					
	Jun 97	Jul 97	5 Jun	12 Jun	19 Jun	26 Jun
<b>Total</b>	314,951	320,482	330,312	330,551	331,477	333,516
System	104,529	105,340	99,645	99,685	99,825	100,427
Foreign	40,270	42,140	45,827	45,825	45,574	46,123
Private	170,152	173,003	184,840	185,041	186,078	186,966
<b>TX, LA Only</b>	N/A	N/A	99,999	99,887	100,296	97,854



<b>Through Train Volume</b>	Through Trains Terminated	617	604	552	564	551	550
<b>Velocity</b>	Through Train Crew Starts	2,652	2,669	2,494	2,609	2,526	2,577
	Car Terminal Dwell	31.6	35.3	39.1	39.5	41.2	41.1
	System Train Speed	17.5	16.5	14.1	14.1	14.4	13.7
	Coal Cycle Days	6.2	5.9	6.4	6.6	6.5	6.8
	<b>Sidings Blocked</b>						
	Houston-Beaumont	N/A	N/A	1	1	0	0
	Tucson-W. Colton	N/A	N/A	4	5	6	10
	KC South Only	N/A	N/A	58	46	54	40
	System Total	N/A	N/A	103	90	111	105
	<b>Multiple Mains Blocked</b>	N/A	N/A	14	13	17	14
	<b>Trains</b>						
	Power	79	122	74	104	114	134
	Crews	51	78	130	105	120	138
	Congestion	12	32	48	35	36	48
	Terminal Staging	N/A	N/A	111	104	104	120
	<b>Hours</b>						
	Power	942	1,461	923	1,184	1,571	1,782
	Crews	372	783	1,513	1,237	1,586	1,826
	Congestion	149	410	653	519	544	695
<b>Freight Locomotives</b>	<b>Fleet Size</b> (Frt units only)	6,105	6,133	6,495	6,481	6,478	6,470
	<b>Stored Unserviceable</b>	35	31	34	27	27	23
	<b>Productivity</b> GTM per HP day	120.9	115.1	107.2	109.7	107.7	104.3
<b>Re-routes</b>	<b>Trains</b>	0	0	2	1	0	2
	<b>Cars</b>	0	0	73	104	0	87

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 52]

**Service Recovery Report: Week 38**

**Major Terminal Condition Report**

Daily averages for week ending July 3, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,269	1,369	2,638	0.0	0.0	0.0
Houston-Settegast	3,675	1,415	1,136	2,551	0.1	0.0	0.0
Ft. Worth-Centennial	4,481	1,444	1,240	2,684	1.3	0.0	0.0
Livonia	3,869	736	607	1,343	0.0	0.1	0.0
North Little Rock	5,741	1,408	1,162	2,570	0.6	0.1	0.0
Pine Bluff (SP)	3,559	1,083	1,316	2,399	0.1	0.0	0.0
Kansas City-Neff	3,520	966	1,026	1,992	5.7	0.1	0.1
North Platte-East	4,588	1,127	1,105	2,232	0.3	0.0	0.0
North Platte-West	8,128	1,480	1,653	3,133	3.0	0.3	0.0
Chicago-Proviso	7,019	1,470	1,523	2,993	2.4	0.3	0.0
Yermo	1,440	762	515	1,277	3.3	1.1	0.0
West Colton (SP)	5,578	1,968	1,904	3,872	0.7	1.6	0.0
<b>Totals</b>	<b>60,135</b>	<b>15,128</b>	<b>14,556</b>	<b>29,684</b>	<b>17.5</b>	<b>3.6</b>	<b>0.1</b>

**Surface Transportation Board Weekly Service Measurements**

**Note:** Figures in the table below are for the weeks of June 1998 and subsequent months thereafter.

	Baselines				Week Ending			
	Jun 97	Jul 97	5 Jun	12 Jun	19 Jun	26 Jun	3 Jul	
<b>*Car Inventory</b>								
<b>Total</b>	320,878	327,471	341,432	341,042	341,953	343,557	343,327	
<b>System</b>	104,768	105,932	100,620	100,527	100,632	101,111	101,531	
<b>Foreign</b>	41,550	43,564	48,080	47,794	47,731	48,217	47,563	
<b>Private</b>	174,560	177,975	192,732	192,541	193,591	194,230	194,233	
<b>TX, LA Only</b>	N/A	N/A	99,999	99,887	100,296	97,854	97,249	

Through Train Volume	Through Trains Terminated	617	604	552	564	551	550	550
Velocity	Through Train Crew Starts	2,652	2,669	2,494	2,609	2,526	2,577	2,567
	Car Terminal Dwell	31.6	35.3	39.1	39.5	41.2	41.1	38.5
	System Train Speed	17.5	16.5	14.1	14.1	14.4	13.7	13.5
	Coal Cycle Days	6.2	5.9	6.4	6.6	6.5	6.8	7.4
	<b>Sidings Blocked</b>							
	Houston-Beaumont	N/A	N/A	1	1	0	0	0
	Tucson-W. Colton	N/A	N/A	4	5	6	10	16
	KC South Only	N/A	N/A	58	46	54	40	42
	System Total	N/A	N/A	103	90	111	105	108
	<b>Multiple Mains Blocked</b>	N/A	N/A	14	13	17	14	23
<b>Trains Held</b>	<b>Trains</b>							
	Power	79	122	74	104	114	134	119
	Crews	51	78	130	105	120	138	131
	Congestion	12	32	48	35	36	48	56
	Terminal Staging	N/A	N/A	111	104	104	120	103
	<b>Hours</b>							
	Power	942	1,461	923	1,184	1,571	1,782	1,652
	Crews	372	783	1,513	1,237	1,586	1,826	1,716
	Congestion	149	410	653	519	544	695	777
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,105	6,133	6,495	6,481	6,478	6,470	6,471
	<b>Stored Unserviceable</b>	35	31	34	27	27	23	25
	<b>Productivity GTMs per HP day</b>	120.9	115.1	107.2	109.7	107.7	104.3	105.4
<b>Re-routes</b>	<b>Trains</b>	0	0	2	1	0	2	1
	<b>Cars</b>	0	0	73	104	0	87	51

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 53]

**Service Recovery Report: Week 39**

**Major Terminal Condition Report**

Daily averages for week ending July 10, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,357	1,460	2,817	0.0	0.0	0.0
Houston-Settegast	3,675	1,613	1,509	3,122	0.3	0.3	0.0
Ft. Worth-Centennial	4,481	1,376	1,143	2,519	2.4	0.0	0.0
Livonia	3,869	775	713	1,488	0.0	0.0	0.0
North Little Rock	5,741	1,390	1,207	2,597	0.0	0.0	0.0
Pine Bluff (SP)	3,559	878	1,177	2,055	0.6	0.0	0.0
Kansas City-Neff	3,520	1,114	1,093	2,207	0.4	0.1	0.0
North Platte-East	4,588	1,053	957	2,010	0.6	0.0	0.3
North Platte-West	8,128	1,288	1,564	2,852	0.9	0.0	0.0
Chicago-Proviso	7,019	1,122	1,285	2,407	0.3	0.3	0.0
Yermo	1,440	855	564	1,419	3.3	2.4	0.0
West Colton (SP)	5,578	1,528	1,442	2,970	0.4	1.4	0.0
<b>Totals</b>	<b>60,135</b>	<b>14,349</b>	<b>14,114</b>	<b>28,463</b>	<b>9.2</b>	<b>4.5</b>	<b>0.3</b>

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of June 1998 and subsequent months thereafter.

	Baselines			Week Ending						
	Jun 97	Jul 97	Jun 97	5 Jun	12 Jun	19 Jun	26 Jun	3 Jul	10 Jul	
<b>*Car Inventory</b>										
<b>Total</b>	320,878	327,471	341,432	341,042	341,042	341,953	343,557	343,327	340,092	
System	104,768	105,932	100,620	100,527	100,527	100,632	101,111	101,531	98,843	
Foreign	41,550	43,564	48,080	47,794	47,794	47,731	48,217	47,563	46,964	
Private	174,560	177,975	192,732	192,541	192,541	193,591	194,230	194,233	194,285	
<b>TX, LA Only</b>	N/A	N/A	99,999	99,887	99,887	100,296	97,854	97,249	98,694	

Through Train Volume	Through Trains Terminated	617	604	552	564	551	550	550	472
Velocity	Through Train Crew Starts	2,652	2,669	2,494	2,609	2,526	2,577	2,567	2,351
	Car Terminal Dwell	31.6	35.3	39.1	39.5	41.2	41.1	38.5	41.1
	System Train Speed	17.5	16.5	14.1	14.1	14.4	13.7	13.5	13.9
	Coal Cycle Days	6.2	5.9	6.4	6.6	6.5	6.8	7.4	7.4
<b>Sidings Blocked</b>									
	Houston-Beaumont	N/A	N/A	1	1	0	0	0	0
	Tucson-W. Colton	N/A	N/A	4	5	6	10	16	16
	KC South Only	N/A	N/A	58	46	54	40	42	48
	System Total	N/A	N/A	103	90	111	105	108	120
	Multiple Mains Blocked	N/A	N/A	14	13	17	14	23	17
<b>Trains Held</b>									
	Power	79	122	74	104	114	134	119	66
	Crews	51	78	130	105	120	138	131	138
	Congestion	12	32	48	35	36	48	56	48
	Terminal Staging	N/A	N/A	111	104	104	120	103	79
<b>Hours</b>									
	Power	942	1,461	923	1,184	1,571	1,782	1,652	800
	Crews	372	783	1,513	1,237	1,586	1,826	1,716	1,835
	Congestion	149	410	653	519	544	695	777	831
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,105	6,133	6,495	6,481	6,478	6,470	6,471	6,471
	<b>Stored Unserviceable</b>	35	31	34	27	27	23	25	25
	<b>Productivity GTMs per HP day</b>	120.9	115.1	107.2	109.7	107.7	104.3	105.4	103.0
<b>Re-routes</b>	<b>Trains</b>	0	0	2	1	0	2	1	0
	<b>Cars</b>	0	0	73	104	0	87	51	0

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 54]

**Service Recovery Report: Week 40**

**Major Terminal Condition Report**

Daily averages for week ending July 17, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,211	1,413	2,624	0.1	0.0	0.0
Houston-Settegast	3,675	1,169	1,179	2,348	0.1	0.0	0.0
Ft. Worth-Centennial	4,481	1,316	1,185	2,501	0.9	0.0	0.1
Livonia	3,869	710	698	1,408	0.0	0.0	0.0
North Little Rock	5,741	1,420	1,252	2,672	1.0	0.0	0.0
Pine Bluff (SP)	3,559	719	944	1,663	0.3	0.0	0.0
Kansas City-Neff	3,520	1,025	1,025	2,050	0.0	0.3	0.3
North Platte-East	4,588	651	570	1,221	0.0	0.0	0.0
North Platte-West	8,128	934	1,595	2,529	0.6	0.0	0.0
Chicago-Proviso	7,019	1,078	1,387	2,465	0.3	0.0	0.0
Yermo	1,440	798	562	1,360	2.7	2.1	0.0
West Colton (SP)	5,578	1,686	1,510	3,196	1.1	2.1	0.0
<b>Totals</b>	<b>60,135</b>	<b>12,717</b>	<b>13,320</b>	<b>26,037</b>	<b>7.1</b>	<b>4.5</b>	<b>0.4</b>

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of June 1998 and subsequent months thereafter.

	Baselines			Week Ending						
	Jun 97	Jul 97	Jun 97	5 Jun	12 Jun	19 Jun	26 Jun	3 Jul	10 Jul	17 Jul
<b>*Car Inventory</b>										
<b>Total</b>	320,878	327,471	341,432	341,432	341,042	341,953	343,557	343,327	340,092	340,352
System	104,768	105,932	100,620	100,620	100,527	100,632	101,111	101,531	98,843	99,369
Foreign	41,550	43,564	48,080	48,080	47,794	47,731	48,217	47,563	46,964	46,534
Private	174,560	177,975	192,732	192,732	192,541	193,591	194,230	194,233	194,285	194,448
<b>TX, LA Only</b>	N/A	N/A	99,999	99,999	99,887	100,296	97,854	97,249	98,694	99,071

<b>Through Train Volume</b>	<b>Through Trains Terminated</b>	617	604	552	564	551	550	550	472	501
<b>Velocity</b>	<b>Through Train Crew Starts</b>	2,652	2,669	2,494	2,609	2,526	2,577	2,567	2,351	2,446
	<b>Car Terminal Dwell</b>	31.6	35.3	39.1	39.5	41.2	41.1	38.5	41.1	38.6
	<b>System Train Speed</b>	17.5	16.5	14.1	14.1	14.4	13.7	13.5	13.9	14.1
	<b>Coal Cycle Days</b>	6.2	5.9	6.4	6.6	6.5	6.8	7.4	7.4	7.3
	<b>Sidings Blocked</b>									
	Houston-Beaumont	N/A	N/A	1	1	0	0	0	0	0
	Tucson-W. Colton	N/A	N/A	4	5	6	10	16	16	21
	KC South Only	N/A	N/A	58	46	54	40	42	48	40
	System Total	N/A	N/A	103	90	111	105	108	120	114
	<b>Multiple Mains Blocked</b>	N/A	N/A	14	13	17	14	23	17	17
<b>Trains Held</b>	<b>Trains</b>									
	Power	79	122	74	104	114	134	119	66	58
	Crews	51	78	130	105	120	138	131	138	124
	Congestion	12	32	48	35	36	48	56	48	70
	Terminal Staging	N/A	N/A	111	104	104	120	103	79	84
	<b>Hours</b>									
	Power	942	1,461	923	1,184	1,571	1,782	1,652	800	644
	Crews	372	783	1,513	1,237	1,586	1,826	1,716	1,835	1,640
	Congestion	149	410	653	519	544	695	777	831	1,205
<b>Freight Locomotives</b>	<b>Fleet Size (Frt units only)</b>	6,105	6,133	6,495	6,481	6,478	6,470	6,471	6,471	6,476
	<b>Stored Unserviceable</b>	35	31	34	27	27	23	25	25	33
	<b>Productivity GTMs per HP day</b>	120.9	115.1	107.2	109.7	107.7	104.3	105.4	103.0	103.5
<b>Re-routes</b>	<b>Trains</b>	0	0	2	1	0	2	1	0	0
	<b>Cars</b>	0	0	73	104	0	87	51	0	0

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 55]

**Service Recovery Report: Week 41**

**Major Terminal Condition Report**

Daily averages for week ending July 24, 1998.

Location	60' Car Standing Capacity	Cars On Hand			Trains Held		
		Loads	Empty	Total	Power	Crew	Cong.
Houston-Englewood (SP)	8,535	1,372	1,536	2,908	0.0	0.0	0.0
Houston-Settegast	3,675	987	1,046	2,033	0.0	0.0	0.0
Ft. Worth-Centennial	4,481	1,173	1,138	2,311	0.7	0.1	0.0
Livonia	3,869	717	694	1,411	0.0	0.0	0.0
North Little Rock	5,741	1,360	1,159	2,519	1.4	0.6	0.0
Pine Bluff (SP)	3,559	636	874	1,510	0.0	0.0	0.0
Kansas City-Neff	3,520	1,177	1,160	2,337	1.0	0.0	1.0
North Platte-East	4,588	592	510	1,102	0.3	0.0	0.1
North Platte-West	8,128	745	1,288	2,033	0.6	0.0	0.0
Chicago-Proviso	7,019	989	1,317	2,306	0.7	0.0	0.0
Yermo	1,440	832	688	1,520	4.4	0.0	0.0
West Colton (SP)	5,578	2,048	1,587	3,635	3.4	0.4	0.3
<b>Totals</b>	60,135	12,628	12,997	25,625	12.5	1.1	1.4

**Surface Transportation Board Weekly Service Measurements**

Note: Figures in the table below are for the weeks of June 1998 and subsequent months thereafter.

	Baselines			Week Ending									
	Jun 97	Jul 97	Jun 97	5 Jun	12 Jun	19 Jun	26 Jun	3 Jun	10 Jun	17 Jun	24 Jun		
<b>*Car Inventory</b>													
<b>Total</b>	320,878	327,471	341,432	341,042	341,953	343,327	340,092	340,352	340,481				
System	104,768	105,932	100,620	100,527	100,632	101,111	98,843	99,369	99,259				
Foreign	41,550	43,564	48,080	47,794	47,731	48,217	46,964	46,534	46,186				
Private	174,560	177,975	192,732	192,541	193,591	194,230	194,285	194,448	195,036				
<b>TX, LA Only</b>	N/A	N/A	99,999	99,887	100,296	97,854	98,694	99,071	99,493				



<b>Through Train Volume</b>		617	604	552	564	551	550	550	472	501	484
<b>Through Trains Terminated</b>											
<b>Through Train Crew Starts</b>		2,652	2,669	2,494	2,609	2,526	2,577	2,567	2,351	2,446	2,365
<b>Velocity</b>											
<b>Car Terminal Dwell</b>		31.6	35.3	39.1	39.5	41.2	41.1	38.5	41.1	38.6	38.9
<b>System Train Speed</b>		17.5	16.5	14.1	14.1	14.4	13.7	13.5	13.9	14.1	13.4
<b>Coal Cycle Days</b>		6.2	5.9	6.4	6.6	6.5	6.8	7.4	7.4	7.3	7.0
<b>Sidings Blocked</b>											
<b>Houston-Beaumont</b>		N/A	N/A	1	1	0	0	0	0	0	0
<b>Tucson-W. Colton</b>		N/A	N/A	4	5	6	10	16	16	21	15
<b>KC South Only</b>		N/A	N/A	58	46	54	40	42	48	40	35
<b>System Total</b>		N/A	N/A	103	90	111	105	108	120	114	136
<b>Multiple Mains Blocked</b>		N/A	N/A	14	13	17	14	23	17	17	20
<b>Trains Held</b>											
<b>Power</b>		79	122	74	104	114	134	119	66	58	76
<b>Crews</b>		51	78	130	105	120	138	131	138	124	108
<b>Congestion</b>		12	32	48	35	36	48	56	48	70	87
<b>Terminal Staging</b>		N/A	N/A	111	104	104	120	103	79	84	90
<b>Hours</b>											
<b>Power</b>		942	1,461	923	1,184	1,571	1,782	1,652	800	644	936
<b>Crews</b>		372	783	1,513	1,237	1,586	1,826	1,716	1,835	1,640	1,337
<b>Congestion</b>		149	410	653	519	544	695	777	831	1,205	1,498
<b>Fleet Size (Frt units only)</b>		6,105	6,133	6,495	6,481	6,478	6,470	6,471	6,471	6,476	6,483
<b>Stored Unserviceable</b>		35	31	34	27	27	23	25	25	33	37
<b>Productivity GTMs per HP day</b>		120.9	115.1	107.2	109.7	107.7	104.3	105.4	103.0	103.5	98.7
<b>Re-routes</b>											
<b>Trains</b>		0	0	2	1	0	2	1	0	0	0
<b>Cars</b>		0	0	73	104	0	87	51	0	0	0

**Note:** All numbers are daily averages for the week, except re-routes, which are cumulative. [Ref. 56]

**Service Recovery Report: Week 44**

Includes figures for weeks ending July 31, August 7, and August 14, 1998.

	Week Ending		
	7/31/98	8/7/98	8/14/98
<b>On Line Rail Car Inventory (Total)</b>	341,574	340,020	337,610
System	99,597	99,221	98,568
Foreign	45,738	45,878	45,446
Private	196,240	194,921	193,596
<b>On Line Inventory: TX &amp; LA Only</b>	97,737	96,532	95,507
<b>System Car Terminal Dwell (Hours)</b>	37.9	38.6	38.0
<b>System Train Speed (MPH)</b>	13.3	13.8	14.1
<b>System Coal Cycle Days</b>	7.2	7.0	7.1
<b>Sidings Blocked (System)</b>	111	100	85
Kansas City South	22	19	11
Tucson to West Colton	12	8	6
<b>Multiple Mains Blocked</b>	18	17	8
<b>Trains Held</b>	384	376	291
<b>(Power + Crew + Cong + Staging)</b>			
Power	105	99	85
Crews	122	132	79
<b>Locomotive Fleet Size</b>	6,473	6,468	6,467
<b>GTM's per Horsepower Day</b>	103.8	103.3	109.3

[Ref. 57]

**Service Recovery Report: Week 46**

Includes figures for weeks ending July 31, 1998 and subsequent weeks thereafter.

	Week Ending				
	7/31/98	8/7/98	8/14/98	8/21/98	8/28/98
<b>On Line Rail Car Inventory (Total)</b>	341,574	340,020	337,610	336,965	338,194
System	99,597	99,221	98,568	98,379	99,004
Foreign	45,738	45,878	45,446	45,673	46,022
Private	196,240	194,921	193,596	192,913	193,168
<b>On Line Inventory: TX &amp; LA Only</b>	97,737	96,532	95,507	93,972	94,530
System Car Terminal Dwell (Hours)	37.9	38.6	38.0	39.0	39.1
System Train Speed (MPH)	13.3	13.8	14.1	14.8	15.0
System Coal Cycle Days	7.2	7.0	7.1	6.6	6.7
<b>Sidings Blocked (System)</b>	111	100	85	75	51
Kansas City South	22	19	11	9	17
Tucson to West Colton	12	8	6	3	3
<b>Multiple Mains Blocked</b>	18	17	8	10	9
<b>Trains Held</b>	384	376	291	293	241
<b>(Power + Crew + Cong + Staging)</b>					
Power	105	99	85	91	84
Crews	122	132	79	91	44
<b>Locomotive Fleet Size</b>	6,473	6,468	6,467	6,465	6,463
<b>GTMs per Horsepower Day</b>	103.8	103.3	109.3	111.4	113.3

[Ref. 58]

**Service Recovery Report: Week 48**

Includes figures for weeks ending July 31, 1998 and subsequent weeks thereafter.

	Week Ending						
	7/31/98	8/7/98	8/14/98	8/21/98	8/28/98	9/4/98	9/11/98
<b>On Line Rail Car Inventory (Total)</b>	341,574	340,020	337,610	336,965	338,194	338,210	339,979
System	99,597	99,221	98,568	98,379	99,004	98,258	98,351
Foreign	45,738	45,878	45,446	45,673	46,022	46,417	46,918
Private	196,240	194,921	193,596	192,913	193,168	193,535	194,710
<b>On Line Inventory: TX &amp; LA Only</b>	97,737	96,532	95,507	93,972	94,530	95,016	95,301
System Car Terminal Dwell (Hours)	37.9	38.6	38.0	39.0	39.1	38.6	41.0
System Train Speed (MPH)	13.3	13.8	14.1	14.8	15.0	15.0	15.1
System Coal Cycle Days	7.2	7.0	7.1	6.6	6.7	6.2	6.6
Sidings Blocked (System)	111	100	85	75	51	54	66
Kansas City South	22	19	11	9	17	14	22
Tucson to West Colton	12	8	6	3	*1	3	2
Multiple Mains Blocked	18	17	8	10	9	7	8
<b>Trains Held</b>	384	376	291	293	241	267	219
(Power + Crew + Cong + Staging)							
Power	105	99	85	91	84	89	70
Crews	122	132	79	91	44	56	36
Locomotive Fleet Size	6,473	6,468	6,467	6,465	6,463	6,461	6,458
GTMs per Horsepower Day	103.8	103.3	109.3	111.4	113.3	116.3	110.2

[Ref. 59]

**Service Recovery Report: Week 50**

Includes figures for weeks ending July 31, 1998 and subsequent weeks thereafter.

	Week Ending										
	7/31/98	8/7/98	8/14/98	8/21/98	8/28/98	9/4/98	9/11/98	9/18/98	9/25/98		
<b>On Line Rail Car Inventory (Total)</b>	341,574	340,020	337,610	336,965	338,194	338,210	339,979	338,704	334,276		
System	99,597	99,221	98,568	98,379	99,004	98,258	98,351	97,738	96,953		
Foreign	45,738	45,878	45,446	45,673	46,022	46,417	46,918	46,367	44,668		
Private	196,240	194,921	193,596	192,913	193,168	193,535	194,710	194,599	192,654		
<b>On Line Inventory: TX &amp; LA Only</b>	97,737	96,532	95,507	93,972	94,530	95,016	95,301	97,116	95,814		
System Car Terminal Dwell (Hours)	37.9	38.6	38.0	39.0	39.1	38.6	41.0	38.1	36.0		
System Train Speed (MPH)	13.3	13.8	14.1	14.8	15.0	15.0	15.1	15.5	15.5		
System Coal Cycle Days	7.2	7.0	7.1	6.6	6.7	6.2	6.6	6.5	7.2		
Sidings Blocked (System)	111	100	85	75	51	54	66	61	46		
Kansas City South	22	19	11	9	17	14	22	19	18		
Tucson to West Colton	12	8	6	3	1	3	2	0	1		
Multiple Mains Blocked	18	17	8	10	9	7	8	8	6		
<b>Trains Held (Power + Crew + Cong + Staging)</b>	384	376	291	293	241	267	219	195	196		
Power	105	99	85	91	84	89	70	47	51		
Crews	122	132	79	91	44	56	36	42	37		
<b>Locomotive Fleet Size</b>	6,473	6,468	6,467	6,465	6,463	6,461	6,458	6,409	6,403		
<b>GTM's per Horsepower Day</b>	103.8	103.3	109.3	111.4	113.3	116.3	110.2	108.5	113.4		

[Ref. 60]

**Service Recovery Report: Week 52**

Includes figures for weeks ending October 2, 1998 and subsequent weeks thereafter.

	Week Ending	
	10/2/98	10/9/98
<b>On Line Rail Car Inventory (Total)</b>	332,181	332,804
System	96,581	97,231
Foreign	43,854	43,898
Private	191,747	191,675
<b>On Line Inventory: TX &amp; LA Only</b>	94,204	94,643
<b>System Car Terminal Dwell (Hours)</b>	35.5	35.9
<b>System Train Speed (MPH)</b>	15.6	15.2
<b>System Coal Cycle Days</b>	6.8	7.2
<b>Sidings Blocked (System)</b>	41	54
Kansas City South	11	16
Tucson to West Colton	1	1
<b>Multiple Mains Blocked</b>	11	13
<b>Trains Held</b>		
<b>(Power + Crew + Cong + Staging)</b>	189	171
Power	44	44
Crews	49	36
<b>Locomotive Fleet Size</b>	6,395	6,397
<b>GTM's per Horsepower Day</b>	111.3	108.8

[Ref. 61]

**Service Recovery Report: Week 54**

Includes figures for weeks ending October 2, 1998 and subsequent weeks thereafter.

	Week Ending			
	10/2/98	10/9/98	10/16/98	10/23/98
<b>On Line Rail Car Inventory (Total)</b>	332,181	332,804	332,067	331,998
System	96,581	97,231	97,798	97,689
Foreign	43,854	43,898	43,487	42,739
Private	191,747	191,675	190,781	191,570
<b>On Line Inventory: TX &amp; LA Only</b>	94,204	94,643	94,295	95,656
System Car Terminal Dwell (Hours)	35.5	35.9	34.0	34.5
System Train Speed (MPH)	15.6	15.2	15.4	15.4
System Coal Cycle Days	6.8	7.2	7.4	7.4
Sidings Blocked (System)	41	54	36	72
Kansas City South	11	16	10	48
Tucson to West Colton	1	1	1	0
Multiple Mains Blocked	11	13	12	8
Trains Held	189	171	194	166
(Power + Crew + Cong + Staging)				
Power	44	44	39	40
Crews	49	36	34	38
Locomotive Fleet Size	6,395	6,397	6,399	6,400
GTM's per Horsepower Day	111.3	108.8	114.7	112.6

[Ref. 62]

**Service Recovery Report: Week 56**

Includes figures for weeks ending October 2, 1998 and subsequent weeks thereafter.

	Week Ending					
	10/2/98	10/9/98	10/16/98	10/23/98	10/30/98	11/6/98
<b>On Line Rail Car Inventory (Total)</b>	332,181	332,804	332,067	331,998	331,561	329,563
System	96,581	97,231	97,798	97,689	98,695	98,563
Foreign	43,854	43,898	43,487	42,739	42,228	41,284
Private	191,747	191,675	190,781	191,570	190,638	189,716
<b>On Line Inventory: TX &amp; LA Only</b>	94,204	94,643	94,295	95,656	98,971	99,518
<b>System Car Terminal Dwell (Hours)</b>	35.5	35.9	34.0	34.5	34.5	34.5
<b>System Train Speed (MPH)</b>	15.6	15.2	15.4	15.4	15.7	15.9
<b>System Coal Cycle Days</b>	6.8	7.2	7.4	7.4	6.9	6.6
<b>Sidings Blocked (System)</b>	41	54	36	72	50	58
Kansas City South	11	16	10	48	32	34
Tucson to West Colton	1	1	1	0	0	0
<b>Multiple Mains Blocked</b>	11	13	12	8	4	11
<b>Trains Held</b>						
<b>(Power + Crew + Cong + Staging)</b>	189	171	194	166	169	188
Power	44	44	39	40	57	55
Crews	49	36	34	38	29	51
<b>Locomotive Fleet Size</b>	6,395	6,397	6,399	6,400	6,405	6,440
<b>GTMs per Horsepower Day</b>	111.3	108.8	114.7	112.6	117.7	109.6

[Ref. 63]



**Service Recovery Report: Week 58**

Includes figures for weeks ending October 2, 1998 and subsequent weeks thereafter.

	Week Ending									
	10/2/98	10/9/98	10/16/98	10/23/98	10/30/98	11/6/98	11/13/98	11/20/98		
<b>On Line Rail Car Inventory (Total)</b>	332,181	332,804	332,067	331,998	331,561	329,563	329,585	328,421		
System	96,581	97,231	97,798	97,689	98,695	98,563	98,505	98,216		
Foreign	43,854	43,898	43,487	42,739	42,228	41,284	40,885	40,599		
Private	191,747	191,675	190,781	191,570	190,638	189,716	190,195	189,606		
<b>On Line Inventory: TX &amp; LA Only</b>	94,204	94,643	94,295	95,656	98,971	99,518	99,155	100,110		
System Car Terminal Dwell (Hours)	35.5	35.9	34.0	34.5	34.5	34.5	33.8	33.9		
System Train Speed (MPH)	15.6	15.2	15.4	15.4	15.7	15.9	14.7	15.5		
System Coal Cycle Days	6.8	7.2	7.4	7.4	6.9	6.6	7.3	7.5		
Sidings Blocked (System)	41	54	36	72	50	58	55	38		
Kansas City South	11	16	10	48	32	34	32	25		
Tucson to West Colton	1	1	1	0	0	0	0	0		
<b>Multiple Mains Blocked</b>	11	13	12	8	4	11	10	7		
<b>Trains Held</b>	189	171	194	166	169	188	186	154		
<b>(Power + Crew + Cong + Staging)</b>										
Power	44	44	39	40	57	55	55	42		
Crews	49	36	34	38	29	51	24	28		
<b>Locomotive Fleet Size</b>	6,395	6,397	6,399	6,400	6,405	6,440	6,453	6,477		
<b>GTMs per Horsepower Day</b>	111.3	108.8	114.7	112.6	117.7	109.6	106.1	111.8		

[Ref. 64]

**Service Recovery Report: Week 60**

Includes figures for week ending November 27, 1998 and subsequent weeks thereafter.

	Week Ending	
	11/27/98	12/4/98
<b>On Line Rail Car Inventory (Total)</b>	326,767	324,159
System	97,229	96,348
Foreign	39,844	39,628
Private	189,695	188,183
<b>On Line Inventory: TX &amp; LA Only</b>	99,516	99,245
<b>System Car Terminal Dwell (Hours)</b>	37.2	35.7
<b>System Train Speed (MPH)</b>	16.4	16.2
<b>System Coal Cycle Days</b>	6.8	6.4
<b>Sidings Blocked (System)</b>	62	30
Kansas City South	36	20
Tucson to West Colton	0	0
<b>Multiple Mains Blocked</b>	9	3
<b>Trains Held</b>	144	83
<b>(Power + Crew + Cong + Staging)</b>	29	12
Power	45	22
Crews	6,488	6,496
<b>Locomotive Fleet Size</b>	109.0	106.9
<b>GTM's per Horsepower Day</b>		

[Ref. 65]

**Service Recovery Report: Week 62**

Includes figures for weeks ending November 27, 1998 and subsequent weeks thereafter.

	Week Ending			
	11/27/98	12/4/98	12/11/98	12/18/98
<b>On Line Rail Car Inventory (Total)</b>	326,767	324,159	321,508	322,583
System	97,229	96,348	95,941	96,769
Foreign	39,844	39,628	38,758	38,596
Private	189,695	188,183	186,809	187,218
<b>On Line Inventory: TX &amp; LA Only</b>	99,516	99,245	99,328	97,953
<b>System Car Terminal Dwell (Hours)</b>	37.2	35.7	33.0	33.1
<b>System Train Speed (MPH)</b>	16.4	16.2	16.8	17.1
<b>System Coal Cycle Days</b>	6.8	6.4	6.3	6.3
<b>Sidings Blocked (System)</b>	62	30	26	28
Kansas City South	36	20	17	11
Tucson to West Colton	0	0	0	0
<b>Multiple Mains Blocked</b>	9	3	5	4
<b>Trains Held</b>	144	83	89	103
<b>(Power + Crew + Cong + Staging)</b>				
Power	29	12	18	27
Crews	45	22	15	13
<b>Locomotive Fleet Size</b>	6,488	6,496	6,503	6,511
<b>GTMs per Horsepower Day</b>	109.0	106.9	111.5	112.7

[Ref. 66]

**Service Recovery Report: Week 66**

Includes figures for weeks ending November 27, 1998 and subsequent weeks thereafter.

	Week Ending									
	11/27/98	12/4/98	12/11/98	12/18/98	12/25/98	1/1/99	1/8/99	1/15/99		
<b>On Line Rail Car Inventory (Total)</b>	326,767	324,159	321,508	322,583	323,034	324,246	321,560	316,698		
System	97,229	96,348	95,941	96,769	97,535	98,221	97,576	97,016		
Foreign	39,844	39,628	38,758	38,596	37,950	37,948	38,500	36,982		
Private	189,695	188,183	186,809	187,218	187,549	188,077	185,483	182,699		
<b>On Line Inventory: TX &amp; LA Only</b>	99,516	99,245	99,328	97,953	98,254	97,602	95,651	93,347		
<b>System Car Terminal Dwell (Hours)</b>	37.2	35.7	33.0	33.1	39.8	44.8	40.9	33.7		
<b>System Train Speed (MPH)</b>	16.4	16.2	16.8	17.1	15.8	12.6	14.5	17.3		
<b>System Coal Cycle Days</b>	6.8	6.4	6.3	6.3	7.3	9.1	7.1	7.1		
<b>Sidings Blocked (System)</b>	62	30	26	28	98	48	28	25		
Kansas City South	36	20	17	11	32	15	8	9		
Tucson to West Colton	0	0	0	0	1	1	0	0		
<b>Multiple Mains Blocked</b>	9	3	5	4	23	10	10	6		
<b>Trains Held (Power + Crew + Cong + Staging)</b>	144	83	89	103	155	111	90	79		
Power	29	12	18	27	29	21	33	23		
Crews	45	22	15	13	50	32	10	6		
<b>Locomotive Fleet Size</b>	6,488	6,496	6,503	6,511	6,522	6,520	6,518	6,508		
<b>GTMs per Horsepower Day</b>	109.0	106.9	111.5	112.7	91.7	84.3	92.0	108.4		

[Ref. 67]

## APPENDIX C. ACRONYMS AND ABBREVIATIONS

(1X2)	1 Tank, 2 Infantry Support Teams
(2X1)	2 Tanks, 1 Infantry Support Team
(3X8)	3 Field Artillery Batteries With 8 Cannons Each
AAR	The Association of American Railroads
AC	Alternating Current
ACQ	Acquisition
ADA	Air Defense Artillery
AVN	Aviation
BDE	Brigade
BFV	Bradley Fighting Vehicle
BN	Battalion
BN	Burlington Northern Railroad
BNSF	Burlington Northern Santa Fe
BTRY	Battery
CAV	Cavalry
CEWI	Combat Electronic Warfare Intelligence
CL	Carload
CMD	Command
CO	Company
COFC	Container-On-Flatcar
CONRAIL	Consolidated Rail Corporation
CONUS	Continental United States
CSX	CSX Transportation
DC	Direct Current
DFRIF	Defense Freight Railway Interchange Fleet
DIV	Division
DoD	Department of Defense
DS	Direct Support
EMD	General Motors Electro-Motive Division
FA	Field Artillery
FWD	Forward
GE	General Electric Transportation Systems
GTM	Gross-Ton-Mile

HEL	Helicopter
HHB	Headquarters and Headquarters Battery
HHC	Headquarters and Headquarters Company
HHD	Headquarters and Headquarters Detachment
HMMWV	High-Mobility, Multi-Purpose Wheeled Vehicle
HVY	Heavy
INF	Infantry
ISO	International Standards Organization
MAINT	Maintenance
MECH	Mechanized
MI	Military Intelligence
MLRS	Multiple Launch Rocket System
MMC	Material Management Center
MP	Military Police
MSC	Military Sealift Command
MTMC	Military Traffic Management Command
MTMCTEA	Military Traffic Management Command Transportation Engineering Agency
MULT	Multiple
NITL	National Industrial Transportation League
NS	Norfolk Southern Railway
OPNS	Operations
SANTA FE	Atchison, Topeka and Santa Fe Railway
SIG	Signal
SP	Self-Propelled
SP	Southern Pacific
SPOE	Sea Ports of Embarkation
SPT	Support
SQDN	Squadron
STB	Surface Transportation Board
TGT	Target
TOFC	Trailer-On-Flatcar
TOO	Theater of Operations
TSCS	Transportation System Capability Study
UP	Union Pacific

UP/SP  
USAF

Union Pacific/Southern Pacific  
United States Air Force





## LIST OF REFERENCES

1. Matthews, James K. and Holt, Cora J., *So Many, So Much, So Far, So Fast: United States Transportation Command and Strategic Deployment for Operation Desert Shield/Desert Storm*, Joint History Office, Office of the Chairman of the Joint Chiefs of Staff and Research Center, United States Transportation Command, 1995.
2. Eccles, Henry E., *Logistics in the National Defense*, Naval War College Press, 1997.
3. Burlington Northern Santa Fe Railroad Homepage, [[http://www.bnsf.com/about\\_bnsf/html/division\\_maps.html](http://www.bnsf.com/about_bnsf/html/division_maps.html)], 01 August, 1998.
4. Burlington Northern Santa Fe Railroad Homepage, [[http://www.bnsf.com/media/html/company\\_profile.html](http://www.bnsf.com/media/html/company_profile.html)], 15 January, 1999.
5. Burlington Northern Santa Fe Railroad Homepage, [[http://www.bnsf.com/media/html/bnsf\\_facts.html](http://www.bnsf.com/media/html/bnsf_facts.html)], 15 January, 1999.
6. McDonnell, Greg, *Power and Paint: BNSF Goes Into Overdrive*, *Trains*, March 1999, Volume 59, Number 3.
7. Union Pacific Railroad Homepage, [<http://www.uprr.com/uprr/ffh/maps/sysmap.html>], 15 January, 1999.
8. Union Pacific Railroad Homepage, [<http://www.uprr.com/uprr/ffh/uprrover.shtml>], 15 January, 1999.
9. Union Pacific Railroad Homepage, 1997 Annual Report, [<http://www.uprr.com/investor/97annual/merger.htm>], 15 January, 1999.
10. Burke, Jack, *UP's \$1.4 Billion Decongestant*, *Railway Age*, June 1998, Volume 199, Number 6.
11. Halberstadt, Hans, *Modern Diesel Locomotives*, Motorbooks International, 1996.
12. Ryan, Ed, *General Electric's New AC4400CW*, *Railroad Model Craftsman*, January 1996, Volume 64, Number 8.
13. American Railway Car Institute Homepage, [<http://rpi.org/arcistat.htm>], 1 February 1999.

14. *Logistics Handbook For Strategic Mobility Planning*, Military Traffic Management Command Transportation Engineering Agency, MTMCCTEA Reference 97-700-2, Newport News, VA, August 1997.
15. Dorfman, David P. and Reynolds, R. Bryan, *1996 Flatcar Inventory Study*, Military Traffic Management Command Transportation Engineering Agency, Newport News, VA., 1996.
16. *Interface Standard For Transportability Criteria*, Department of Defense, MIL-STD-1366D, 18 December, 1998.
17. Surface Transportation Board Homepage,  
[<http://www.stb.dot.gov/decisions/ReadingRoom.nsf/51d7c65c6f78e79385256541007f0580/cb0c643e47cb666385256541007176fc?OpenDocument>], 09 January, 99.
18. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk02.shtml>], 09 January, 99.
19. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk03.shtml>], 09 January, 99.
20. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk04.shtml>], 09 January, 99.
21. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk05.shtml>], 09 January, 99.
22. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk06.shtml>], 09 January, 99.
23. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk08.shtml>], 09 January, 99.
24. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk09.shtml>], 09 January, 99.
25. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk10.shtml>], 09 January, 99.
26. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk11.shtml>], 09 January, 99.

27. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk12.shtml>], 09 January, 99.
28. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk13.shtml>], 09 January, 99.
29. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk14.shtml>], 09 January, 99.
30. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk15.shtml>], 09 January, 99.
31. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk16.shtml>], 09 January, 99.
32. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk17.shtml>], 09 January, 99.
33. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk18.shtml>], 09 January, 99.
34. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk19.shtml>], 09 January, 99.
35. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk20.shtml>], 09 January, 99.
36. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk21.shtml>], 09 January, 99.
37. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk22.shtml>], 09 January, 99.
38. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk23.shtml>], 09 January, 99.
39. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk24.shtml>], 09 January, 99.
40. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk25.shtml>], 09 January, 99.

41. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk26.shtml>], 09 January, 99.
42. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk27.shtml>], 09 January, 99.
43. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk28.shtml>], 09 January, 99.
44. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk29.shtml>], 09 January, 99.
45. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk30.shtml>], 09 January, 99.
46. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk31.shtml>], 09 January, 99.
47. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk32.shtml>], 09 January, 99.
48. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk33.shtml>], 09 January, 99.
49. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk34.shtml>], 09 January, 99.
50. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk35.shtml>], 09 January, 99.
51. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk36.shtml>], 09 January, 99.
52. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk37.shtml>], 09 January, 99.
53. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk38.shtml>], 09 January, 99.
54. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk39.shtml>], 09 January, 99.

55. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk40.shtml>], 09 January, 99.
56. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk41.shtml>], 09 January, 99.
57. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk44.shtml>], 09 January, 99.
58. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk46.shtml>], 09 January, 99.
59. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk48.shtml>], 09 January, 99.
60. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk50.shtml>], 09 January, 99.
61. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk52.shtml>], 09 January, 99.
62. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk54.shtml>], 09 January, 99.
63. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk56.shtml>], 09 January, 99.
64. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk58.shtml>], 09 January, 99.
65. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk60.shtml>], 09 January, 99.
66. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk62.shtml>], 09 January, 99.
67. Union Pacific Railroad Homepage,  
[<http://www.uprr.com/uprr/business/srps/srrwk66.shtml>], 15 January, 99.
68. Frailey, Fred W., *Union Pacific and its Comeback Kid*, Trains, November 1998,  
Volume 58, Number 11.

69. Editor, *Freight Rail Meltdown*, The Austin American Statesman, 14 October 97, sec. A, p. 8.
70. Howe, Kenneth and Nolte, Carl, *Transcontinental Rail Gridlock*, The San Francisco Chronicle, 11 October 1997, sec. D, p. 2.
71. Lustig, David, *Accidents, Congestion Snarl Union Pacific*, Trains, November 1997, Volume 57, Number 11.
72. Gallagher, John, *Western Heat*, Traffic World, July 27, 1998, Volume 255, Number 4.
73. Editors, *Webster's New Collegiate Dictionary*, G. & C. Merriam Company, 1979.
74. *Logistics Handbook for Strategic Mobility Planning*, MTMCTEA Reference 97-700-2, Military Traffic Management Command Transportation Engineering Agency, Newport News, Virginia, 1997.
75. *Deployment Planning Guide – Transportation Assets Required for Deployment*, MTMCTEA Reference 97-700-5, Military Traffic Management Command Transportation Engineering Agency, Newport News, Virginia, 1997.
76. United States Transportation Command (USTRANSCOM) Homepage, [<http://ustcweb.safb.af.mil/images/photos/photos.html>], 18 February 99.
77. Panza, Jim, *TTX's 60-foot Flat Cars*, Railroad Model Craftsman, September, 1997, Volume 66, Number 4.
78. Commander, Military Traffic Management Command, *Surface Distribution Plan (SDP) #1*, Headquarters, Military Traffic Management Command, Falls Church, Virginia, 1996.

## INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center..... 2  
8725 John J. Kingman Road, Ste 0944  
Fort Belvoir, VA 22060-6218
  
2. Dudley Knox Library..... 2  
Naval Postgraduate School  
411 Dyer Road  
Monterey, CA 93943-5101
  
3. Defense Logistics Studies Information Exchange..... 1  
U.S. Army Logistics Management College  
Fort Lee, VA 23801-6043
  
4. Commander ..... 1  
Military Traffic Management Command  
5611 Columbia Pike  
Falls Church, VA 22041-5050
  
5. Director ..... 1  
Military Traffic Management Command  
Transportation Engineering Agency  
720 Thimble Shoals Boulevard, Suite 130  
Newport News, VA 23606-2574
  
6. Mr. Chris Thayer (N35X)..... 1  
Military Sealift Command  
Washington Navy Yard  
914 Charles Morris Court SE  
Washington, DC 20398-5540
  
7. CDR Greg Gallagher ..... 1  
Joint Deployment Training Center  
705 Read Road  
Ft. Eustis, VA 23604-1600
  
8. LCDR John G. Meier III ..... 1  
TCJ5-SC  
USTRANSCOM  
508 Scott Drive  
Scott AFB, IL 62225-5357

9.	COL David F. Matthews (Ret), Code (SM/Md) ..... 1 Naval Postgraduate School Monterey, CA 93943-5103	1
10.	Professor Ira A. Lewis, Code (SM/Le) ..... 1 Naval Postgraduate School Monterey, CA 93943-5103	1
11.	Dr. David G. Brown. .... 1 193 College Way Auburn, CA 95603	1
12.	Dr. John M. Woods ..... 1 5907 Boyce Springs Houston, TX 77066	1
13.	Mr. Terry A. Hillis..... 1 3842 N. Hamlin Chicago, IL 60618	1
14	LT Shaun A. Hillis, USN. .... 2 Class 156 Surface Warfare Officers School Command 446 Cushing Rd. Newport, RI 02841-1209	2