



# **UNION PACIFIC DELIVERS EMISSIONS REDUCTIONS**

**Lanny A. Schmid ~ Union Pacific Railroad Company**

***Faster Freight Cleaner Air 2004 Conference***

***Oakland, California***

***December 8-9, 2004***

# Union Pacific

## Environmental Policy

*Union Pacific Railroad is committed to protecting the environment for our customers, our employees, and the communities in which we live. We strive to meet the highest principles of environmental responsibility in our role as a leader in transportation.*

**“Environmental protection is the responsibility of every UP employee.”**

JIM YOUNG

*Union Pacific employees accomplish this through:*

### Stewardship

- ☑ Protecting the natural resources where we operate
- ☑ Promoting the efficient use of energy
- ☑ Conserving resources through waste minimization, recycling and reuse of materials

### Relationships

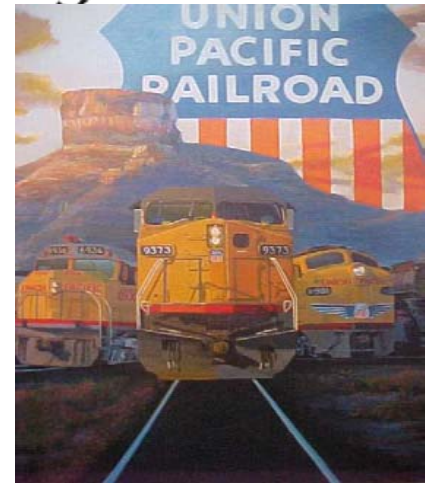
- ☑ Building relationships based on common safety and environmental goals
- ☑ Openly communicating with government agencies and communities

### Process

- ☑ Assessing our environmental performance using measurable business objectives
- ☑ Using assessment results to guide environmental management improvement strategies

### Results

- ☑ Meeting and exceeding compliance standards of environmental laws and regulations
- ☑ Supporting development of effective and balanced environmental laws and regulations
- ☑ Practicing and continually improving healthy work activities



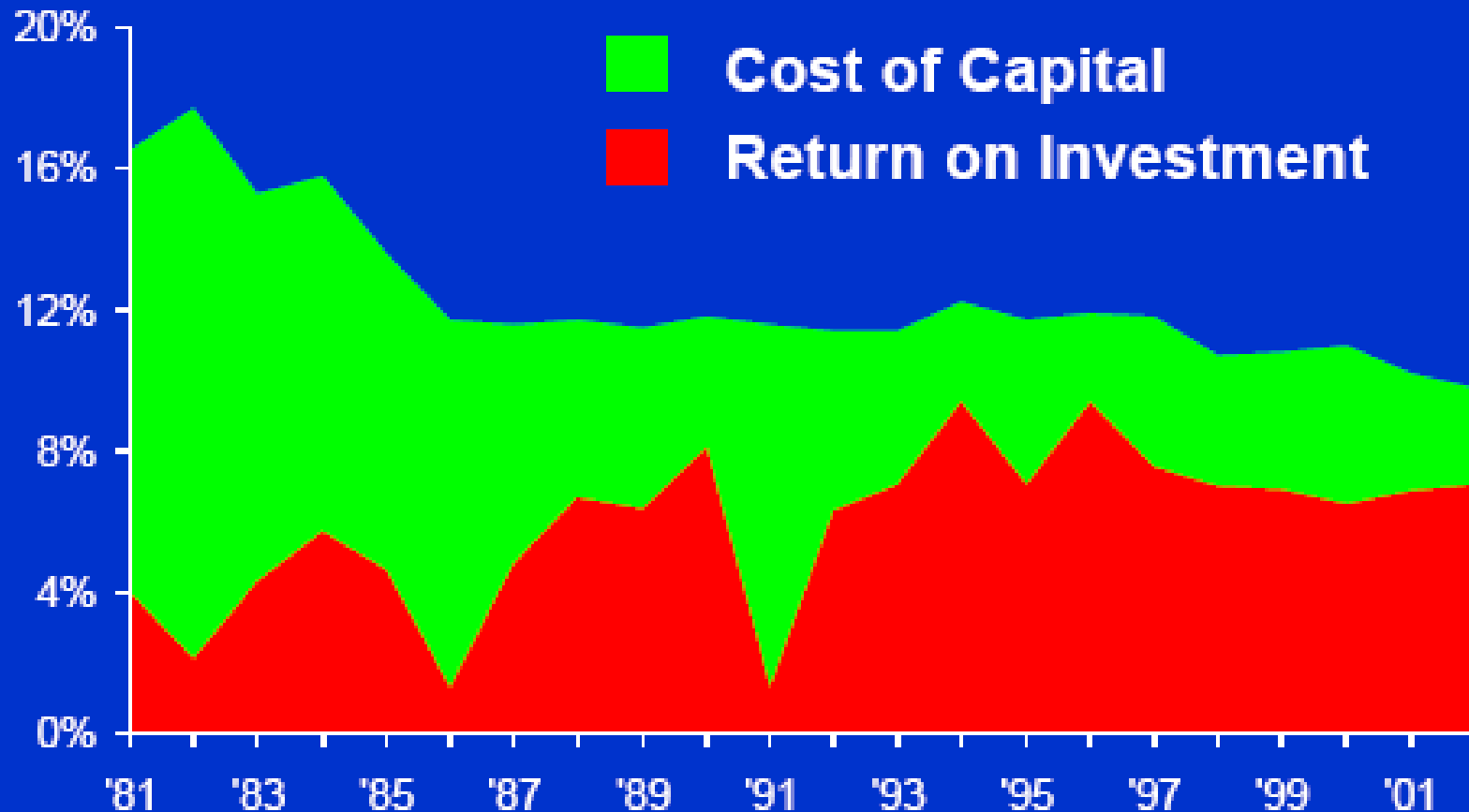
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# U.S. Railroad Performance: 1964-2002 (Index 1981 = 100)



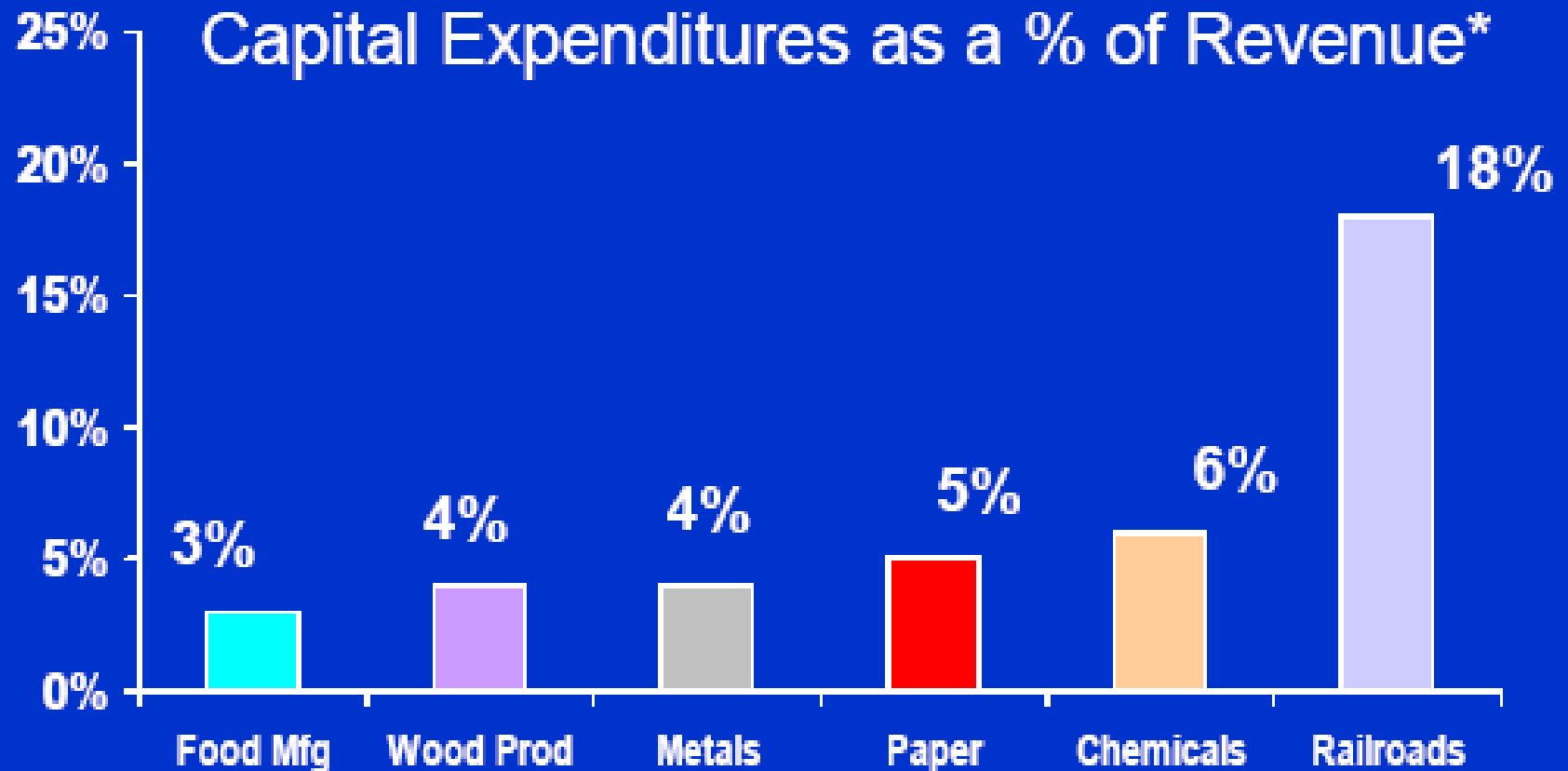
Source: AAR

# Railroad Cost of Capital vs. Return on Investment



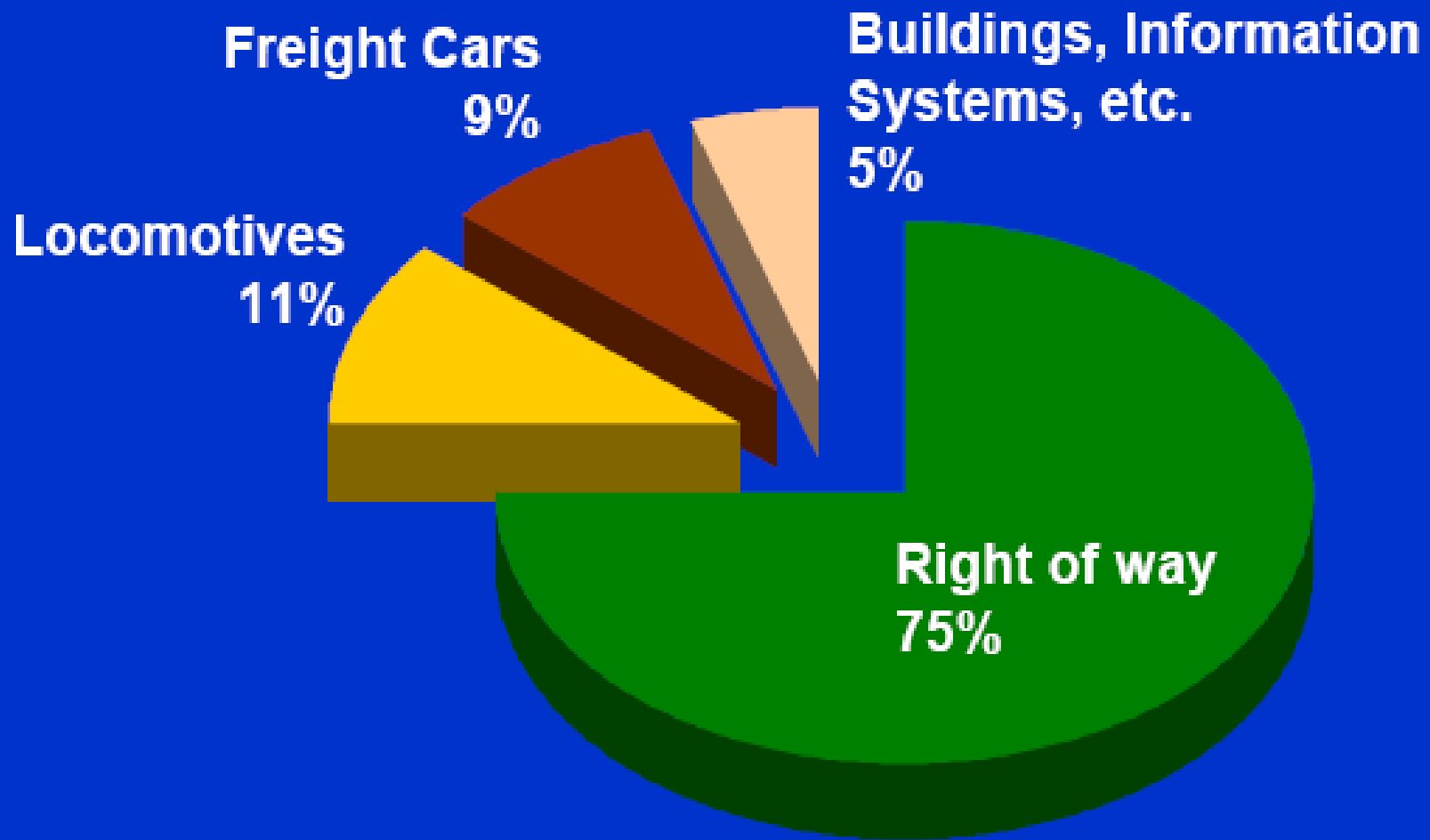
Source: Surface Transportation Board

# Railroading is America's Most Capital-Intensive Industry



\*2000, U.S. Bureau of the Census

# Rail Industry Investments



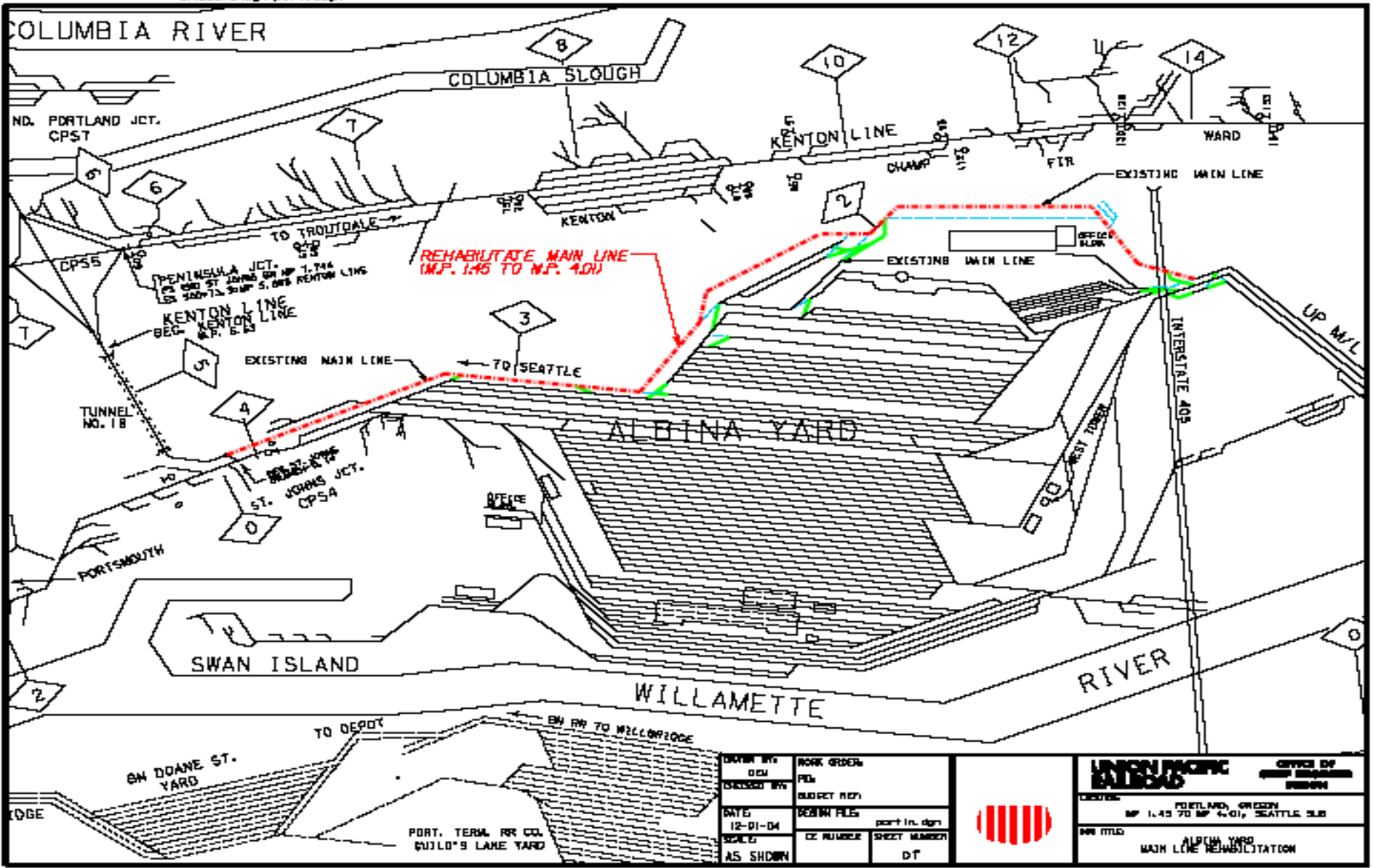
Source: Transmatch Consulting

# PORTLAND, OREGON - Passenger Service

<b>Partners</b>	Oregon DOT and UPRR										
<b>Project</b>	Rehabilitate a 2.5 mile main track through Albina Yard. Reduces arriving/departing passenger train delays and UP operational delays and congestion.										
<b>Result</b>	Six passenger trns/day run on schedule; 20 UP 'through' tr/d clear at Albina 30 minutes (ave) quicker 8 fewer trns/d held & 4 hrs each at Brooklyn Yard										
<b>Time Frame</b>	Signed MOU in 2000; construction to be complete in 2005										
<b>Cost</b>	\$ 9 million, total project; funded by a state and federal funds										
<b>Emissions</b>	Calculations depict only emissions reductions realized by UPRR; Does not include reductions be realized to reduced commuter trips  Reduces locomotive fuel consumption by 230,000 gal per year										
	<table><thead><tr><th>Parameter, tons/ year</th><th>NOX</th><th>CO</th><th>HC</th><th>PM</th></tr></thead><tbody><tr><td><b>TOTALS</b></td><td><b>56.3</b></td><td><b>7.1</b></td><td><b>3.2</b></td><td><b>1.8</b></td></tr></tbody></table>	Parameter, tons/ year	NOX	CO	HC	PM	<b>TOTALS</b>	<b>56.3</b>	<b>7.1</b>	<b>3.2</b>	<b>1.8</b>
Parameter, tons/ year	NOX	CO	HC	PM							
<b>TOTALS</b>	<b>56.3</b>	<b>7.1</b>	<b>3.2</b>	<b>1.8</b>							
<b>Similar Projects</b>	Denver North Yard Bypass Houston Katy Connection										



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DATE: 12-01-04	SCALE: AS SHOWN	DESIGNED BY: DCM	REVISIONS:
		ISSUED BY:	
		DATE:	
		SCALE:	
		AS SHOWN:	



	<b>UNION PACIFIC</b> OFFICE OF GENERAL ENGINEERING PORTLAND
	PORTLAND, OREGON M.P. 1.45 TO M.P. 4.01, SEATTLE, WA
PORT TITLE:	ALBINA YARD MAIN LINE REHABILITATION



# ROSEVILLE, CALIFORNIA - ICD Grant

<b>Partners</b>	<b>Sacramento Metro Air Pollution Control District (SMAPCD) &amp; UPRR</b>										
<b>Project</b>	<b>Retrofit 20 existing LHP locomotives with Idle Control Devices (ICD's – AKA auto start stop equipment). Reduces emissions due to unnecessary idling.</b>										
<b>Result</b>	<b>These locomotives idle approximately 2500 hours (dependent upon job assignment, weather, etc.) each per year more on average than necessary. Agreement requires 1000 hours per year of reduced idle from use of these locomotives in the district.</b>										
<b>Time Frame</b>	<b>Discussions and permitting began in 2000; Contract signed 2003; completed in February 2004</b>										
<b>Cost</b>	<b>\$300k, total project; funded SMAPCD with Moyer funds Actual UPRR expenditure is nearly twice the grant amount</b>										
<b>Emissions</b>	<b>Reduces locomotive fuel consumption by about 8,000 gal per year</b> <table><thead><tr><th><b>Parameter, tons/ year</b></th><th><b>NOX</b></th><th><b>CO</b></th><th><b>HC</b></th><th><b>PM</b></th></tr></thead><tbody><tr><td></td><td><b>50</b></td><td><b>6.0</b></td><td><b>2.0</b></td><td><b>2.0</b></td></tr></tbody></table>	<b>Parameter, tons/ year</b>	<b>NOX</b>	<b>CO</b>	<b>HC</b>	<b>PM</b>		<b>50</b>	<b>6.0</b>	<b>2.0</b>	<b>2.0</b>
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<b>Similar Projects</b>	<b>Houston, Texas; Fort Worth, Texas</b>										
<b>Unique Aspects</b>	<ul style="list-style-type: none"><li><b>• Demonstrates willingness to be a part of the solution</b></li><li><b>• Assumed to be relatively simple to meet the minimum obligation</b></li><li><b>• Reality was that it was not simple given normal operations</b></li><li><b>• Experienced malfunctions, vandalism, and use outside the district</b></li><li><b>• Created need to carefully and routinely track performance</b></li><li><b>• Learned to manage assets differently – may require more locomotives to do the same amount of work due to loss of flexibility</b></li></ul>										



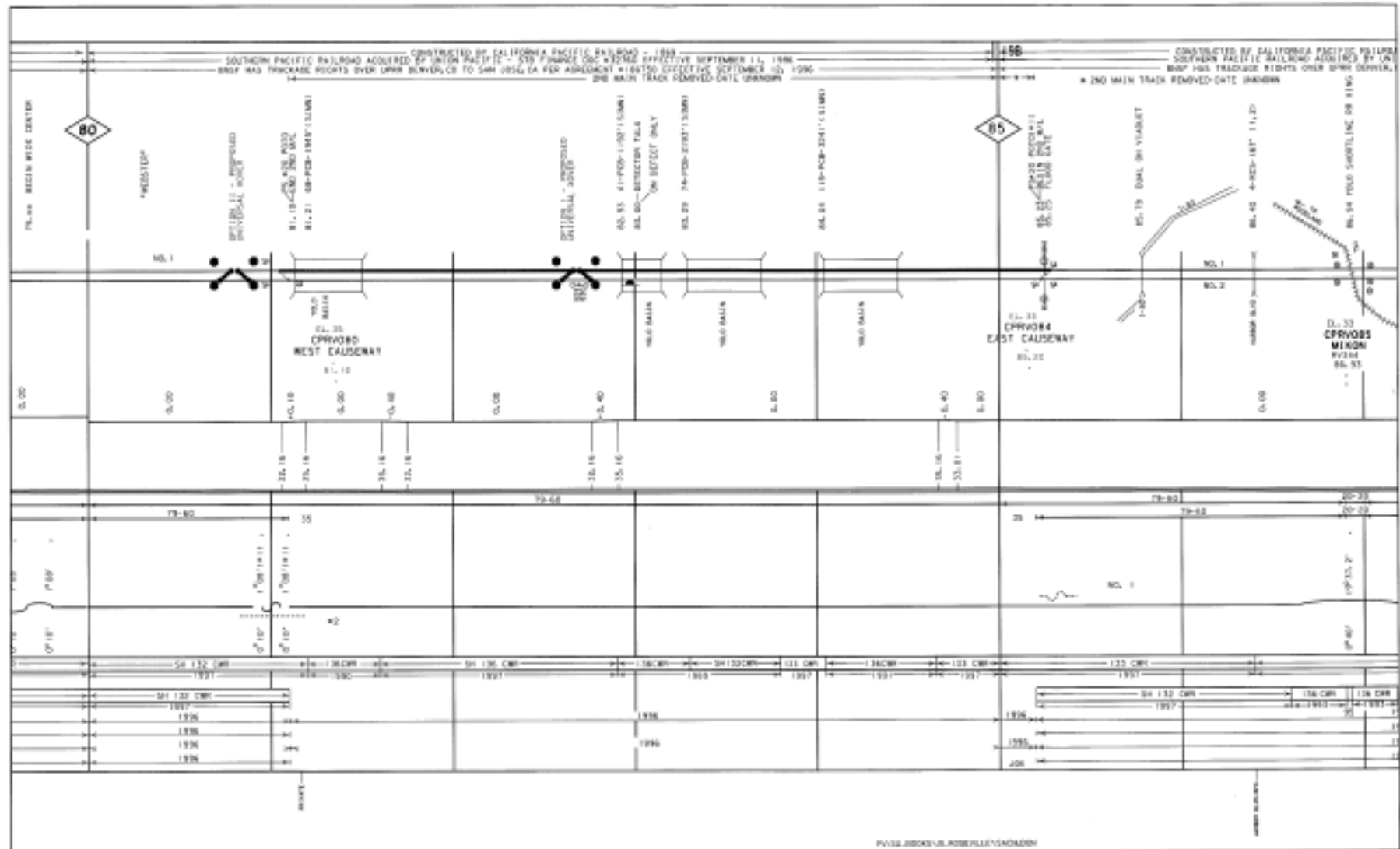
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# SACRAMENTO, CALIFORNIA - Yolo Causeway

<b>Partners</b>	Sacramento Metro Air Pollution Control District (SMAPCD) & UPRR										
<b>Project</b>	Retrofit 20 existing LHP locomotives with Idle Control Devices (ICD's – AKA auto start stop equipment). Reduces emissions due to unnecessary idling.										
<b>Result</b>	These locomotives idle approximately 2500 hours (dependent upon job assignment, weather, etc.) each per year more on average than necessary. Agreement requires 1000 hours per year of reduced idle from use of these locomotives in the district.										
<b>Time Frame</b>	Discussions and permitting began in 2000; Contract signed 2003; completed in February 2004										
<b>Cost</b>	\$300k, total project; funded SMAPCD with Moyer funds Actual UPRR expenditure is nearly twice the grant amount										
<b>Emissions</b>	Reduces locomotive fuel consumption by about 8,000 gal per year <table><thead><tr><th>Parameter, tons/ year</th><th>NOX</th><th>CO</th><th>HC</th><th>PM</th></tr></thead><tbody><tr><td></td><td>50</td><td>6.0</td><td>2.0</td><td>2.0</td></tr></tbody></table>	Parameter, tons/ year	NOX	CO	HC	PM		50	6.0	2.0	2.0
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<b>Similar Projects</b>	Houston, Texas; Fort Worth, Texas										
<b>Unique Aspects</b>	<ul style="list-style-type: none"><li>• Demonstrates willingness to be a part of the solution</li><li>• Assumed to be relatively simple to meet the minimum obligation</li><li>• Reality was that it was not simple given normal operations</li><li>• Experienced malfunctions, vandalism, and use outside the district</li><li>• Created need to carefully and routinely track performance</li><li>• Learned to manage assets differently – may require more locomotives to do the same amount of work due to loss of flexibility</li></ul>										



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REVISION	BY	DATE	DESCRIPTION

DRAWN BY: JSD	EXISTS, TRK... _____
CHECKED BY: _____	PROP. TRK... _____
DATE: _____	RETIRE TRK... _____
DRAWING NAME: _____	

WORK ORDER: _____	UNION PACIFIC RAILROAD	OFFICE OF CHIEF ENGINEER
PROJECT CODE: _____	LOCATION: WILD CAUSEWAY	
	MONTICELI SUB MP 81 - 85.2	
	TITLE: CONSTRUCT SECOND MAIN LINE	

17 JUN 2004

04/2004/2/04/2004/04/04



# ADDITIONAL UPRR PROJECTS

<b>Partners</b>	UPRR efficiency driven initiatives – no outside funds		
<b>Project</b>	Similar efforts that generally result in smoother flow of trains and cars into, through, out of and around our yards and across the 23,000 mile system		
<b>Result</b>	More productive and efficient use of the rail system capacity.		
<b>Time Frame</b>	Varies from one project to the next Can take from 1 to 2 years to more than 10 years (start to finish) Dependent upon permitting process, site conditions, obstructions		
<b>Cost</b>	Variable from \$100k to over \$100 million; funded solely by UPRR		
<b>Emissions</b>	Calculations are dependent upon reduced delays or avoiding extra work in moving trains and handling cars.		
<b>Similar Projects</b>	Roseville, Ca	Rebuild of the J. R. Davis Yard	\$140million
	Chicago, Il	Build Global II Intermodal Yard	
	Livonia, La	Build service facility and switch yard	GT \$100 million
	Memphis, Tn	Build rural Intermodal facility	



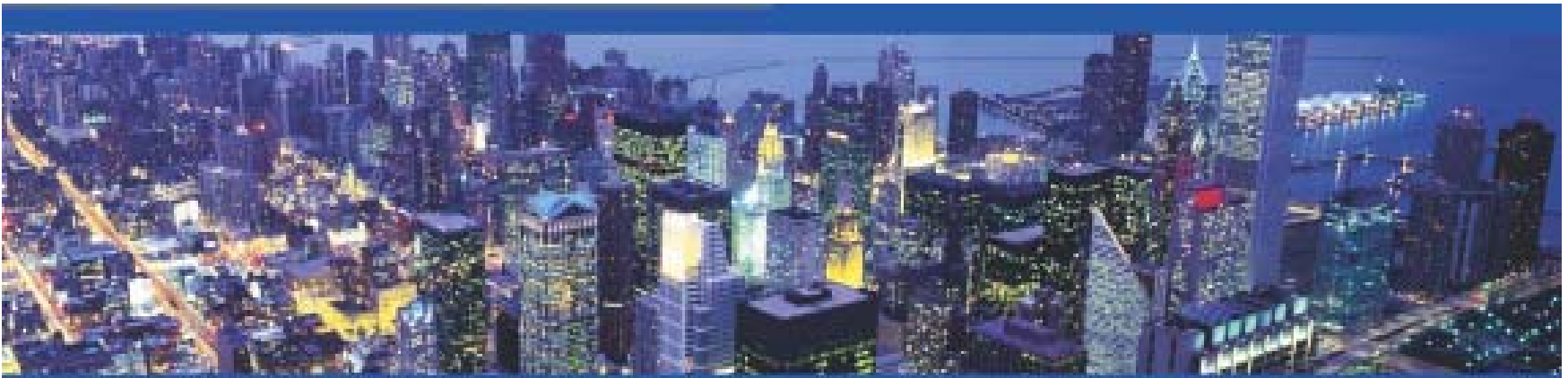
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# CHICAGO, ILLINOIS - Create Project

<b>Partners</b>	Illinois and Chicago DOT and North America Freight Railroads
<b>Project</b>	Rehabilitate a 2.5 mile long main track through the yard at Albina. Reduces delays to passenger trains arriving and departing Portland. Reduces delays to UPRR's normal operations; eliminates and avoids congestion.
<b>Result</b>	The 6 passenger trains/day can run on schedule; 20 UP 'through' tr/d clear the yard at Albina 30 minutes (ave) quicker 8 fewer tns/d held at the UP Brooklyn Yard for 4 hrs each
<b>Time Frame</b>	Begin Engineering 2003 Start construction 2005 Ten year build out
<b>Cost</b>	\$1.5 billion, total project \$212 million funded by freight railroads \$20 million by METRA Federal \$ from Surface Transportation Funding Reauthorization State \$ from "Opportunity Returns" Program  Philosophy - capital contributions will be commensurate with benefits
<b>Benefits</b>	\$3.9 billion, total project \$1.1 billion in air quality improvements \$392 million in avoided motorist and commuter delays \$203 million in accidents and highway construction costs \$2.194 billion in wages, materials
<b>Emissions</b>	Not detailed here



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KEEPING THE GO IN CHICAGO

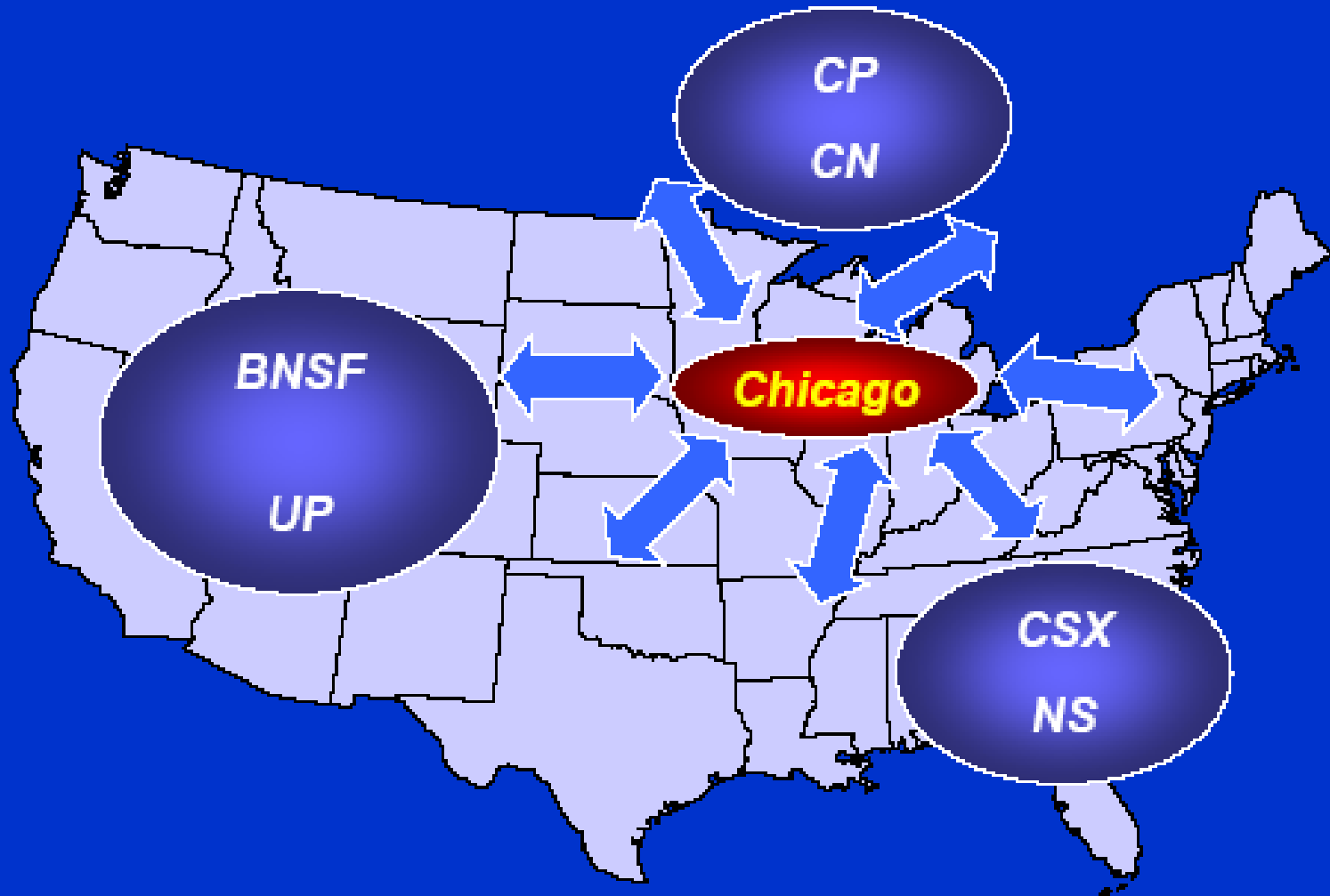


ILLINOIS DEPARTMENT OF TRANSPORTATION  
CHICAGO DEPARTMENT OF TRANSPORTATION  
NORTH AMERICA'S FREIGHT RAILROADS



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# Chicago is North America's Rail Hub



# Chicago's Rail Operations and Infrastructure are Complex

- 1,200 daily trains
- 12 commuter rail routes
- 18 intermodal hubs
- 70 yards and terminals
- 2,800 track miles (excluding yards)
- 900 highway-rail grade crossings
- 132 rail-rail grade crossings





# CREATE Program

- Focuses operation on 5 key corridors
- Builds 6 passenger/freight rail flyovers
- Builds 25 road/rail separations
- Viaduct improvement program
- Grade crossing safety enhancements
- Improves train control system
- Automation of 14 interlockings
- 50 miles of new track on existing right-of-way
- 364 new switches



ILLINOIS DEPARTMENT OF TRANSPORTATION  
CHICAGO DEPARTMENT OF TRANSPORTATION  
NORTH AMERICA'S FREIGHT RAILROADS



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# New or Improved Connection Locations

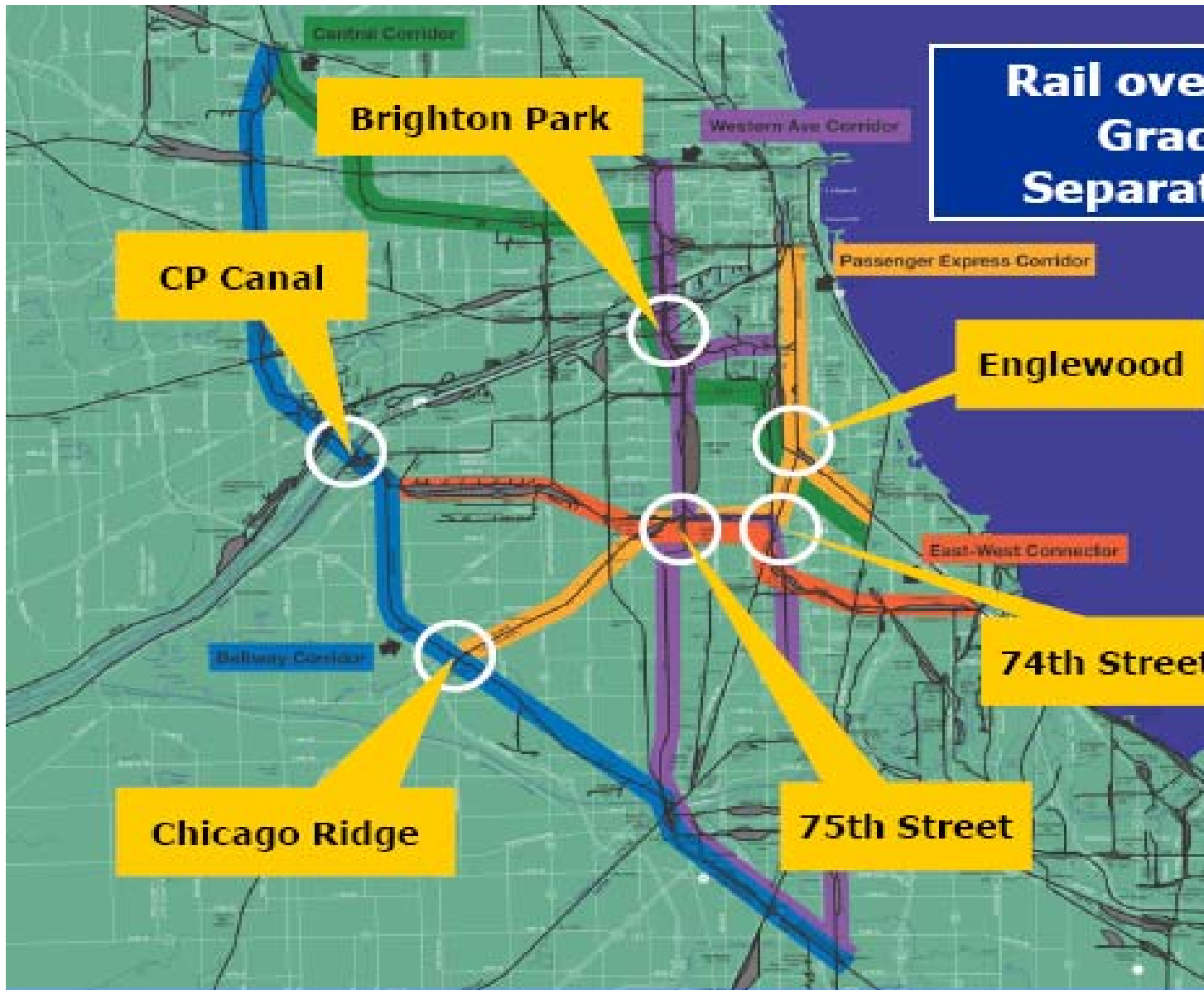


ILLINOIS DEPARTMENT OF TRANSPORTATION  
CHICAGO DEPARTMENT OF TRANSPORTATION  
NORTH AMERICA'S FREIGHT RAILROADS



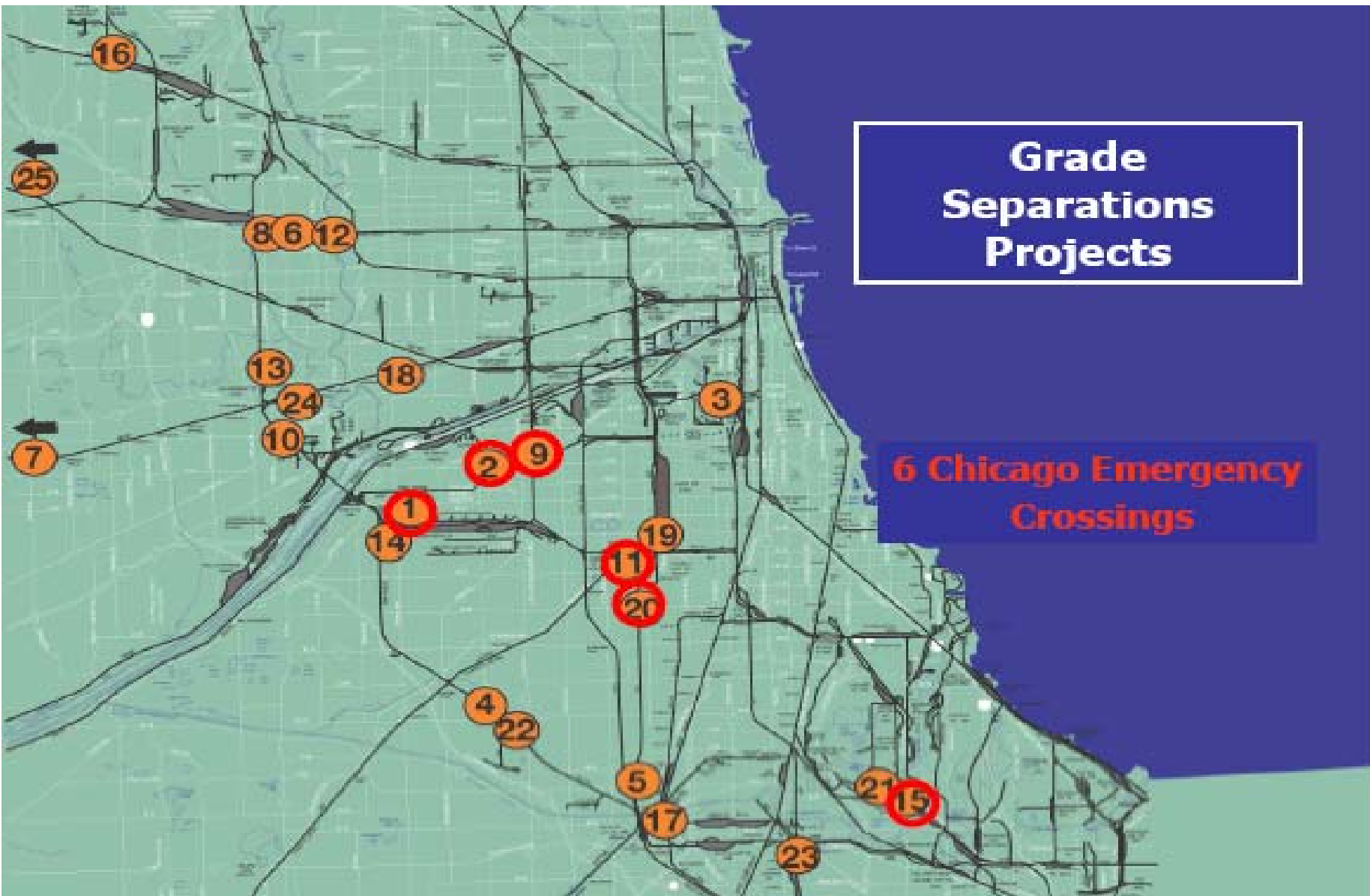
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# Rail over Rail Grade Separations



# Grade Separations Projects

6 Chicago Emergency Crossings



# The National Council for Public-Private Partnerships

## MISSION

The mission of The National Council for Public-Private Partnerships is to advocate and facilitate the formation of public-private partnerships at the federal, state and local levels, where appropriate, and to raise the awareness of governments and businesses of the means by which their cooperation can cost effectively provide the public with quality goods, services and facilities.



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# The National Council for Public-Private Partnerships - continuation

## OBJECTIVES

1. To serve as an advocate of public-private partnerships.
2. To provide complete, objective, timely and useful information on the utilization of public-private partnerships to provide services and facilities to the general public.
3. To facilitate communications between public- and private-sector members with respect to issues related to the implementation of public-private partnerships.
4. To conduct educational, training and other activities on public-private partnerships.
5. To provide input to the public dialogue in support of the use of public-private partnerships and removal of impediments to their implementation.
6. To facilitate an international dialogue on public-private partnerships in support of the foregoing objectives.



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# The National Council for Public-Private Partnerships - continuation

## KEY VALUES

1. Full and open participation by public and private members and encouragement of frank communication between the public and private sectors.
2. Assistance to both the public and private sectors in public-private partnership analysis and implementation.
3. Promotion of member teamwork in fulfilling the Council's mission and achieving its objectives as a non-profit, non-partisan organization.



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# Questions & comments

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**Director Environmental**  
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**1400 Douglas Street,**  
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**Omaha, NE 68179**

**402-544-2262**

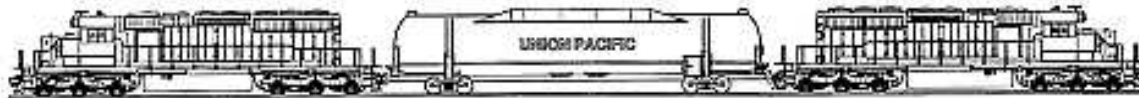
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