



Glendale, California  
January 28, 2000





# On-Scene Staff

Ron Robinson

IIC

Rivy Oseni

Highway

Gary Van Etten

Motor Carrier

Ted Turpin

Railroad



# Report Development Staff

Paula Sind-Prunier Human Performance

Meg Sweeney Human Performance  
& Accident Statistics

Hank Hughes Survival Factors

Mike O'Neill Recommendations



# Staff Continued

Shane Lack      Visualization

Kristin Bolte      Visualization

Larry Jackson      Visualization



# Staff Continued

Gina John

Graphics

Robert Accetta

Graphics

Mary Ann Ferencz

Editor

Michele McMurtry

Project Manager



# Visualization

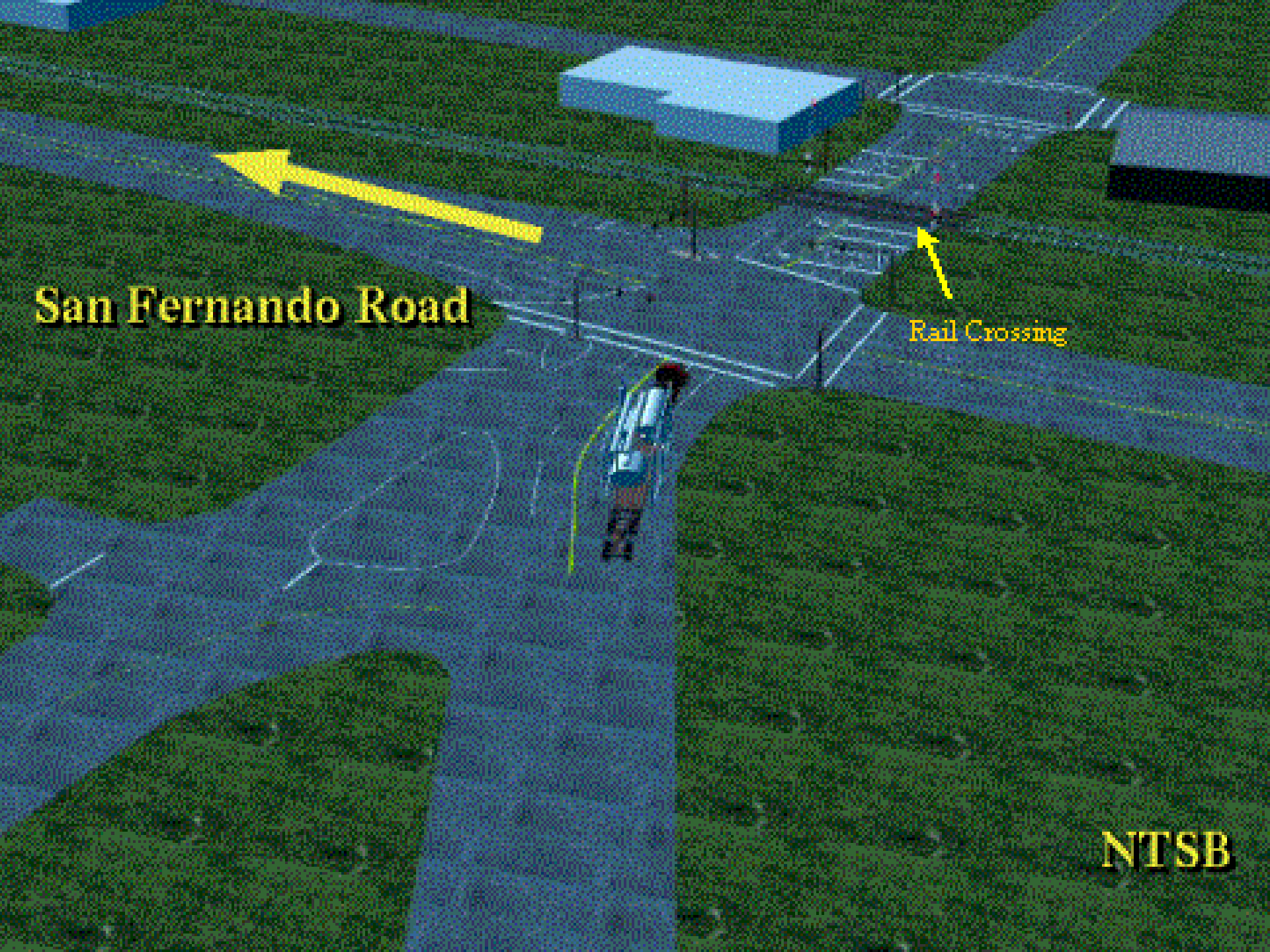




# Primary Objective:

To illustrate the path of the tractor-combination vehicle

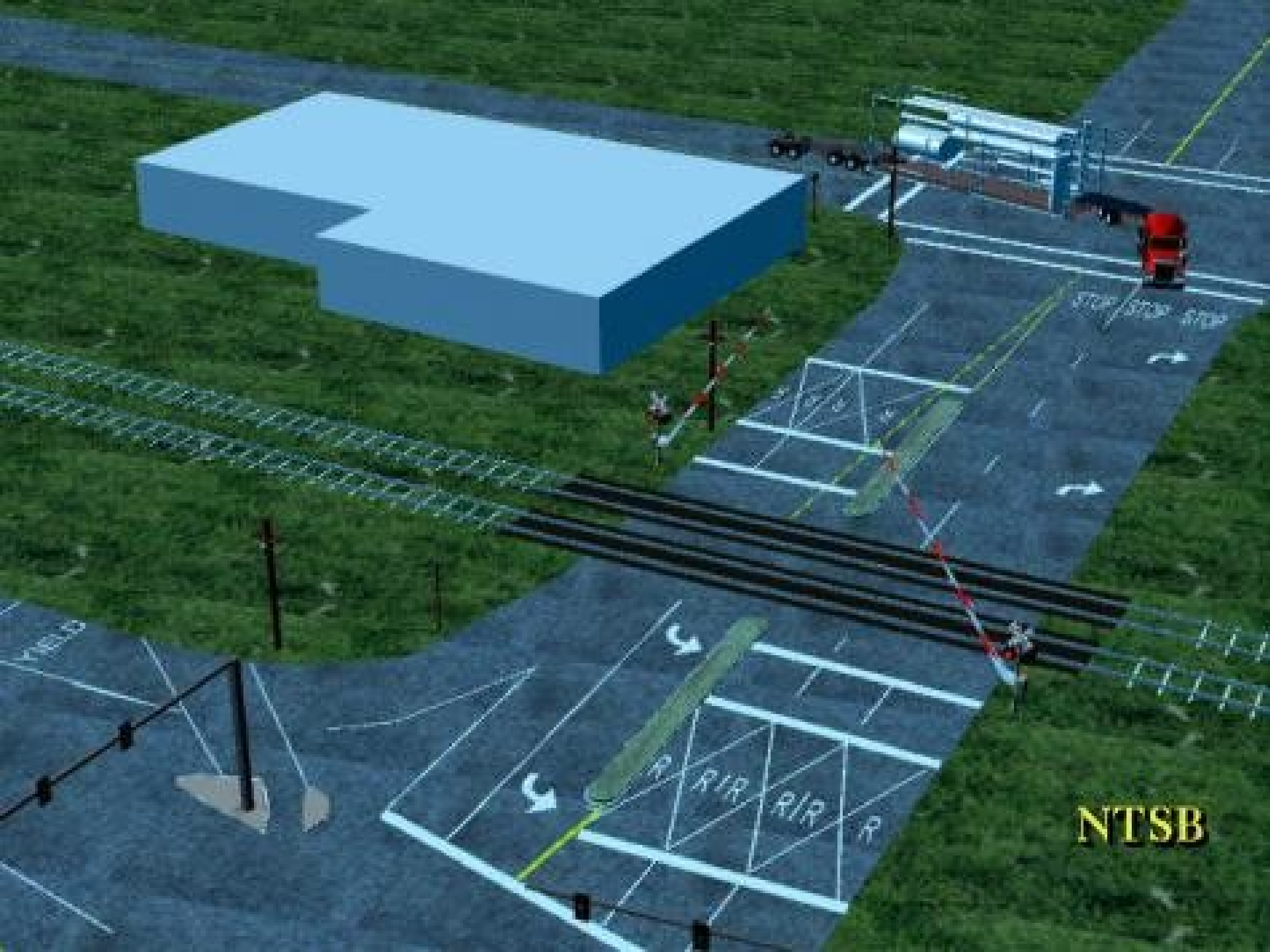




**San Fernando Road**

**Rail Crossing**

**NTSB**



**NTSB**



**NTSB**



**NTSB**

- Truck = 55 mph  
Bus = 55 mph

NTSB







# Issues

- Actions of the truckdriver, pilot car drivers, and police escorts
- Trip planning, coordination, and execution
- Pilot car driver and truckdriver fatigue
- The lack of low-clearance warning signs



Specialized Moving Permit  
Permits Obtained  
Details Of Accident Trip



# Specialized Moving Permit



LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS  
TRANSPORTATION PERMIT

IN COMPLIANCE WITH YOUR REQUEST AND SUBJECT TO ALL OF THE TERMS, CONDITIONS AND RESTRICTIONS SET FORTH HEREON AND THE STANDARD TERMS, PERMISSION IS HEREBY GRANTED TO:		PERMIT NUMBER: 8887282 DATE: 07/26/2006
NAME: [REDACTED]		
ADDRESS: [REDACTED]		
CITY/STATE: [REDACTED]		
PHONE: (213) 438-4760		SPECIAL NOTES: YES
SPECIAL COMMENTS AND HOLDINGS: [REDACTED]		

Travel dates and times

Size and weight of vehicle and load

TYPE OF LOAD	N/A		LEGAL VEHICLE LENGTH	1350'	EXCEEDS PERMIT	N/A	RESTRICTIONS	N/A
EXCEEDS PERMITTING AGENCY'S LIMIT ON WEIGHTS AND LENGTHS EXCEEDS BELOW ARE NOT ALLOWED								
MAX HEIGHT	889"	MAX WIDTH	150"	MAX OVERALL LENGTH	1350'	MAX OVERHANG	LEGAL	
AXLE WEIGHT								
AXLE SPACING								
WHEEL WEIGHT								
WEIGHT	12,500	47,200	46,725	46,725	46,725			

Route to be followed

Pilot car requirement

ROUTE: HWY 10

PERMIT NO: 8887282

ROAD - SIERRA HWY - TO SANTA CLARITA - FROM SANTA CLARITA - SIERRA HWY - TO L.A. CITY - FROM HUNTINGTON PARK - ALAMEDA ST - TO CITY OF COMPTON - FROM CITY OF COMPTON - ROSECR.

WCS  
(626)930-9292

Route survey

Additional requirements on attachments

PERMITTEE ASSUMES RESPONSIBILITY FOR ALL OVERLOAD AND CLEARANCE

DATE: [REDACTED]

ISSUED BY: [REDACTED]



# Permits Obtained

- 



# State Permits

Texas

New Mexico

Arizona

California



# Local California Permits

San Bernardino County  
City of Adelanto  
City of Santa Clarita  
City of Burbank  
City of Compton

City of Victorville  
Los Angeles County  
City of Los Angeles  
City of Huntington Park  
City of El Segundo

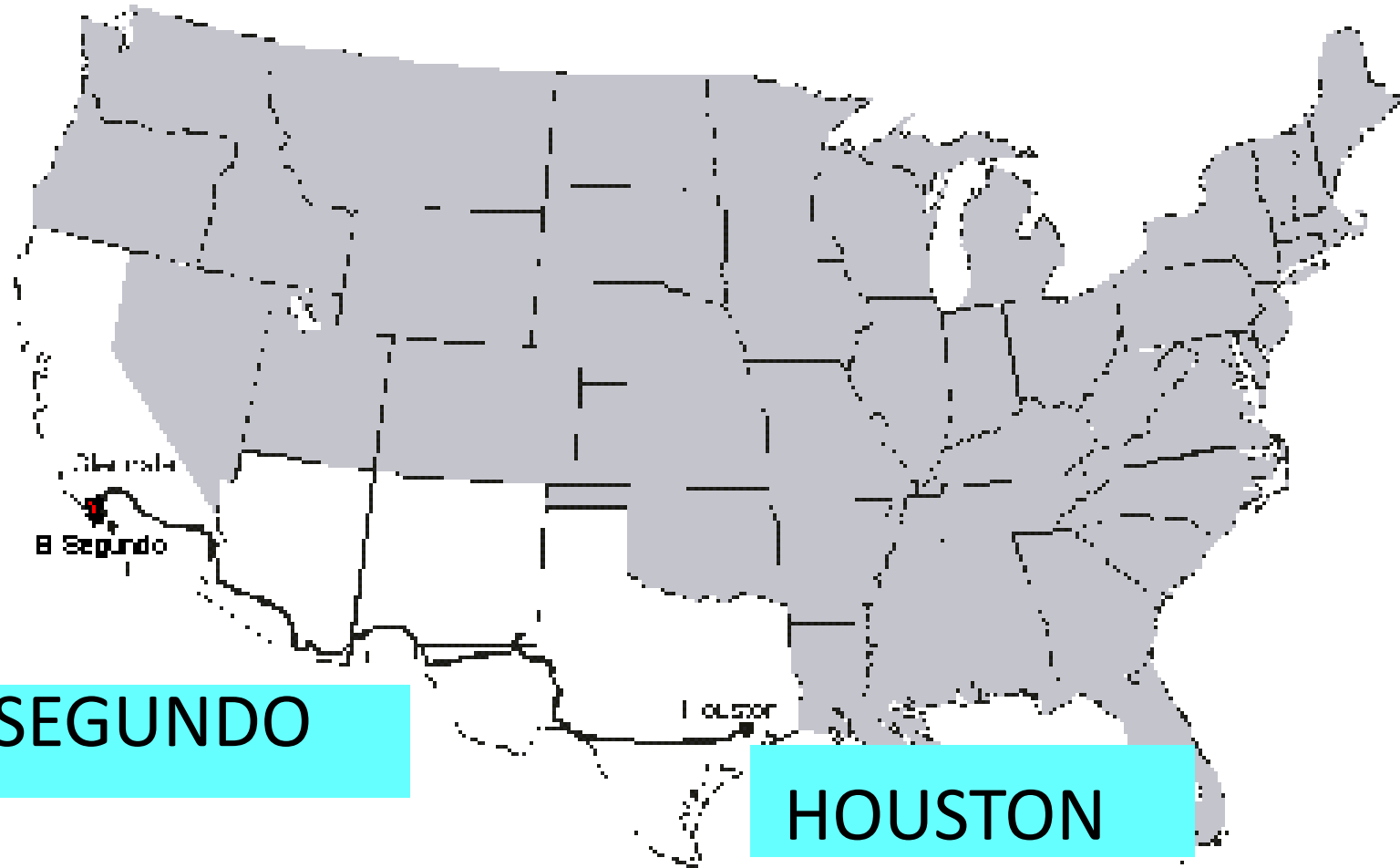
## Invalid Permits

City of Glendale

City of Hawthorne



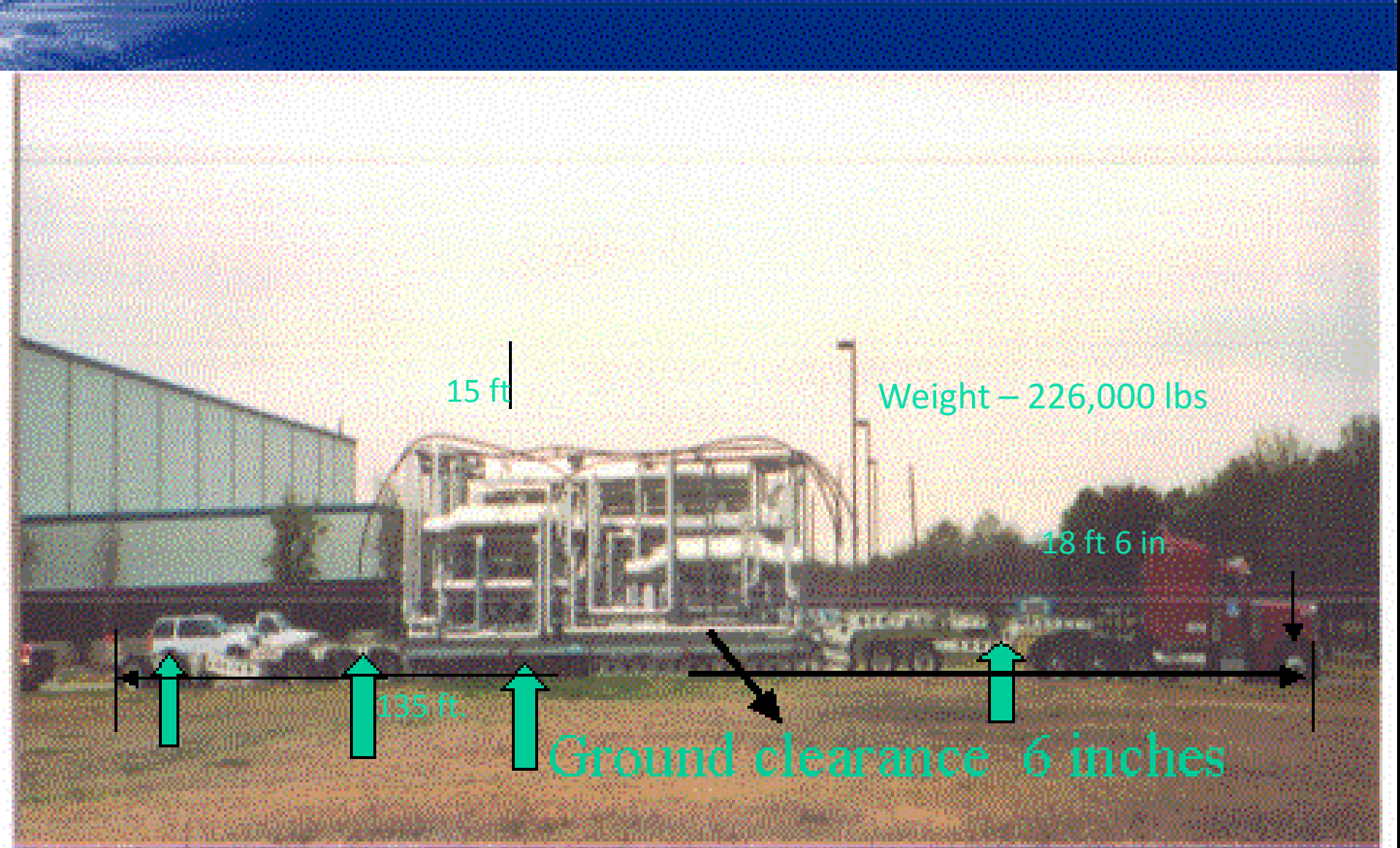
# Details Of The Trip

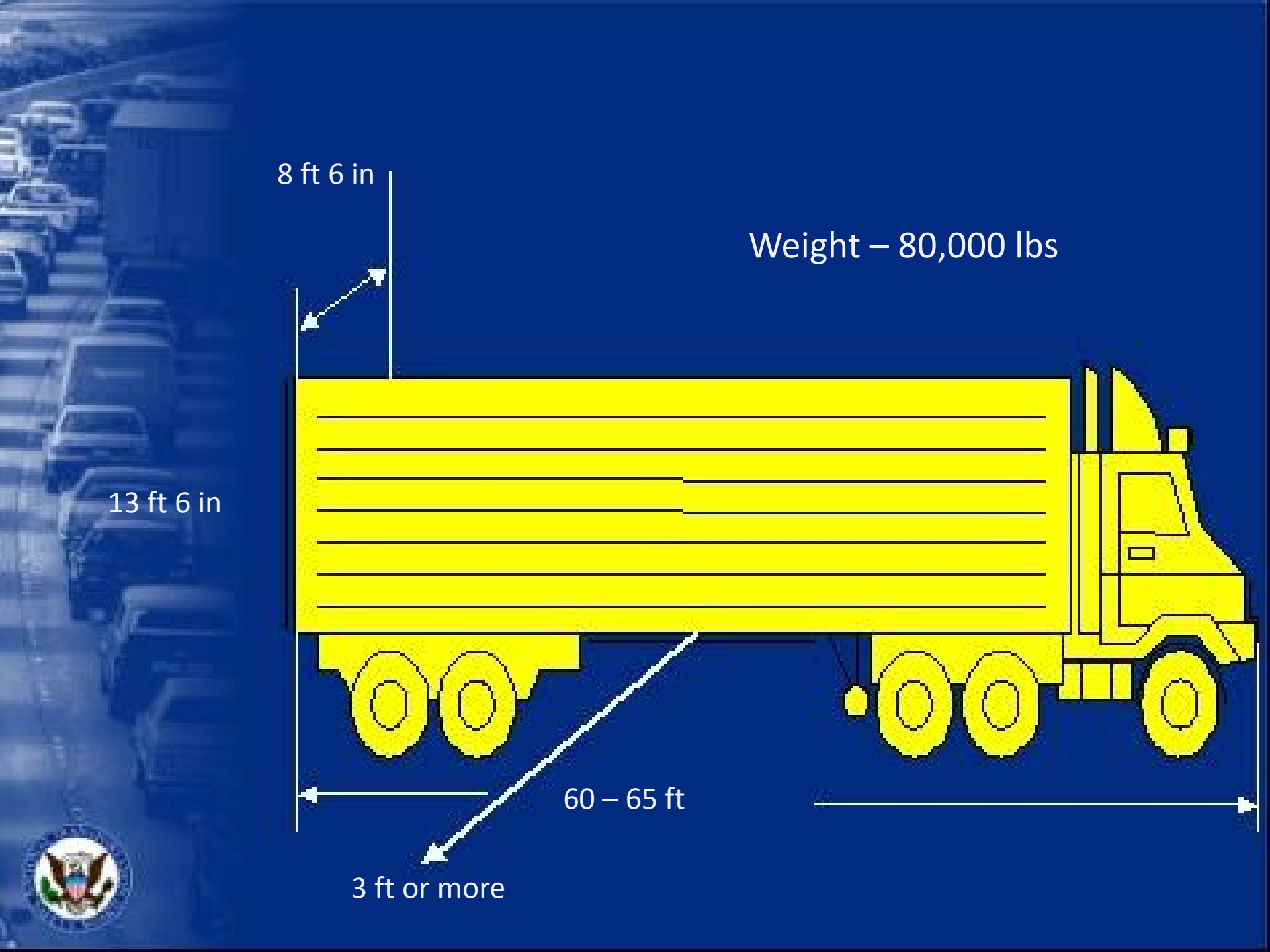


EL SEGUNDO

HOUSTON



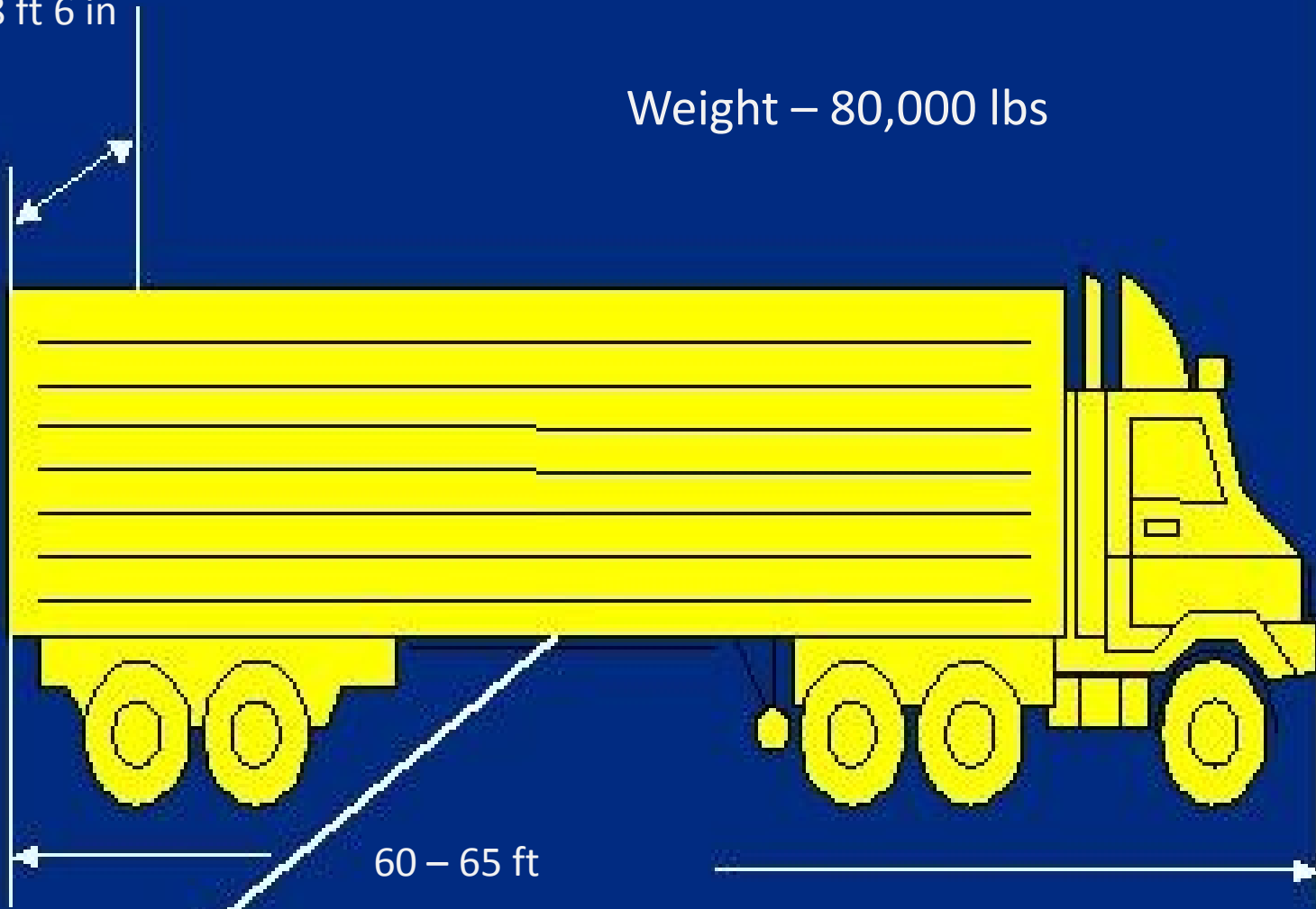




8 ft 6 in

Weight – 80,000 lbs

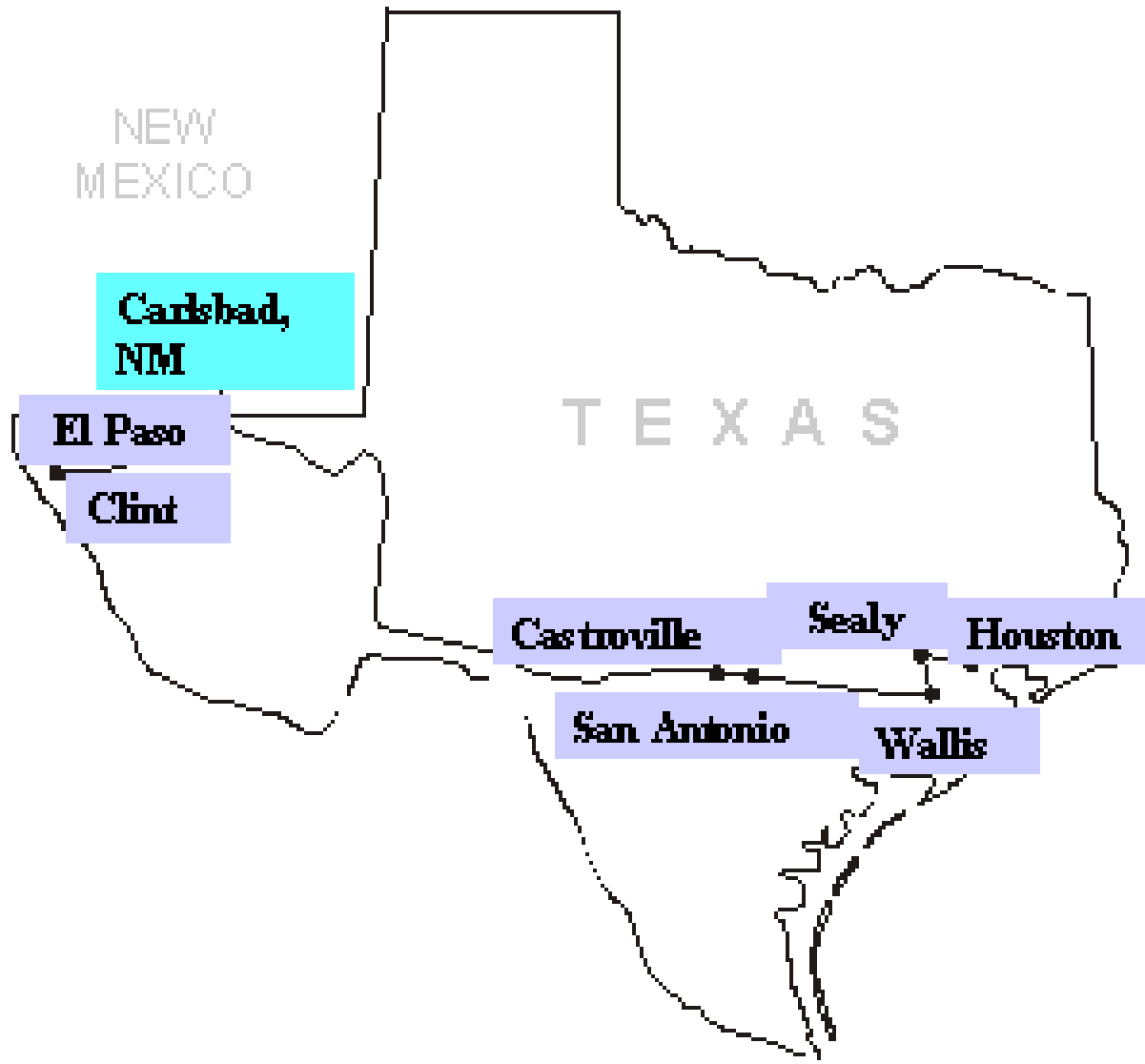
13 ft 6 in



60 – 65 ft

3 ft or more





NEW  
MEXICO

**Carlsbad,  
NM**

**El Paso**

**Clint**

T E X A S

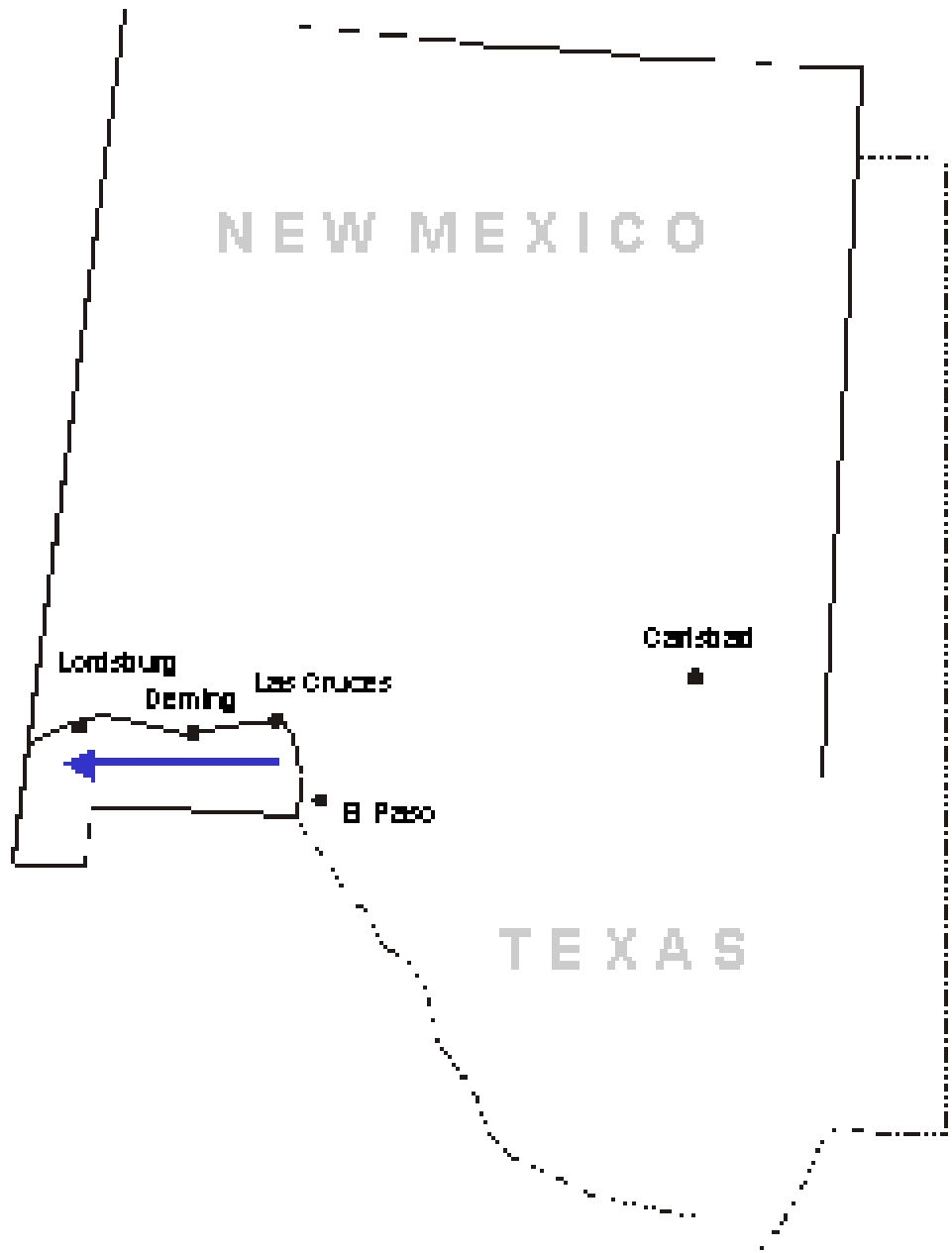
**Castroville**

**Sealy**

**Houston**

**San Antonio**

**Wallis**



NEW MEXICO

TEXAS

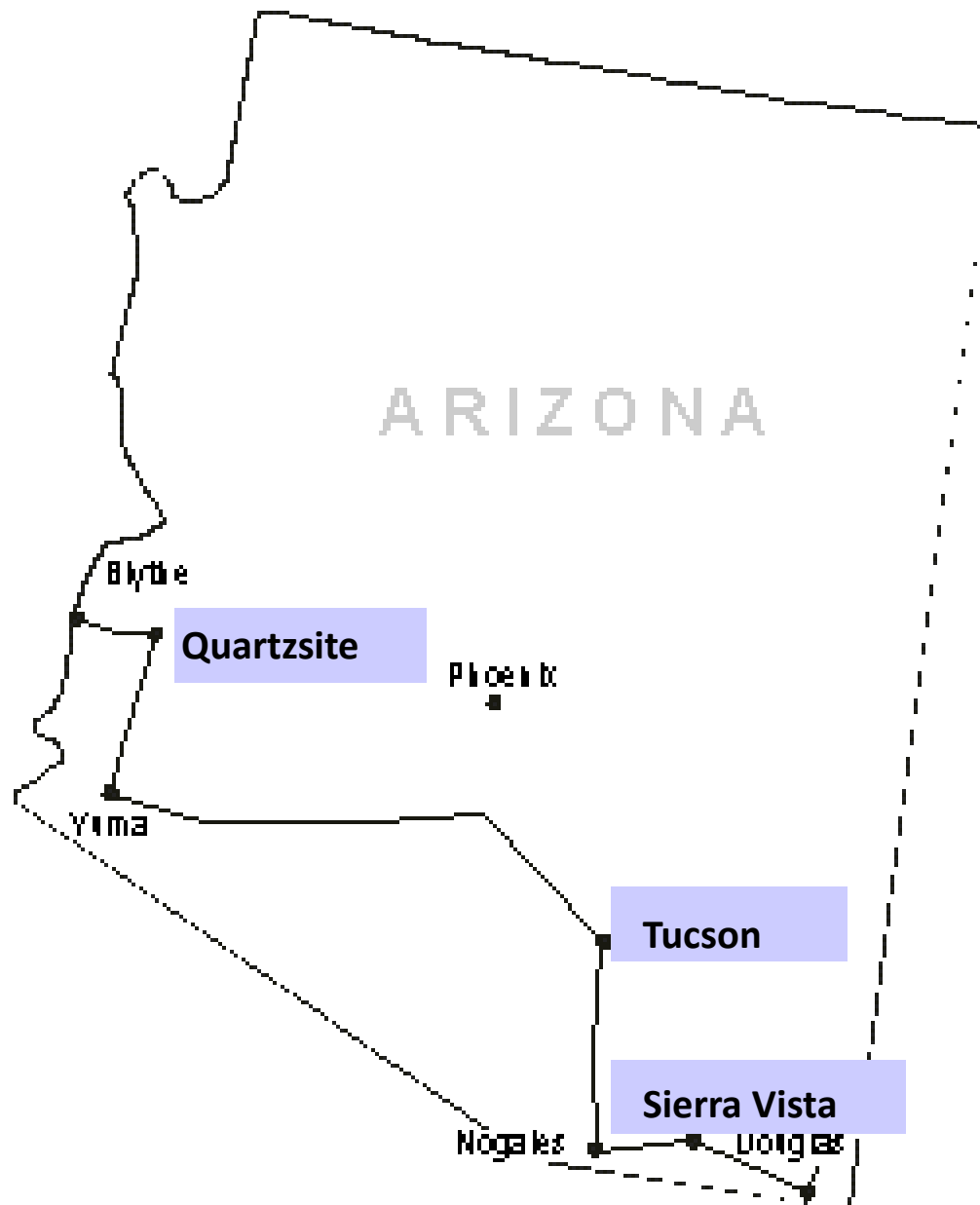
Lordsburg

Deming

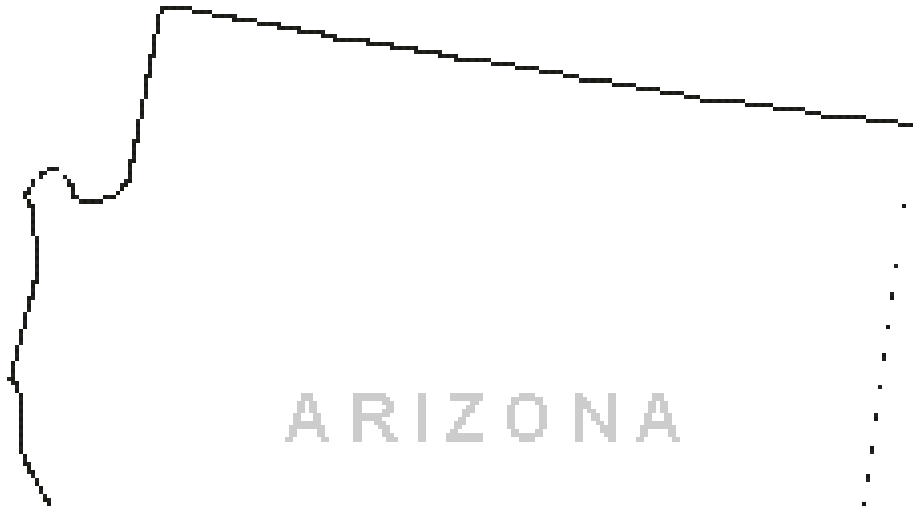
Las Cruces

Carlsbad

El Paso



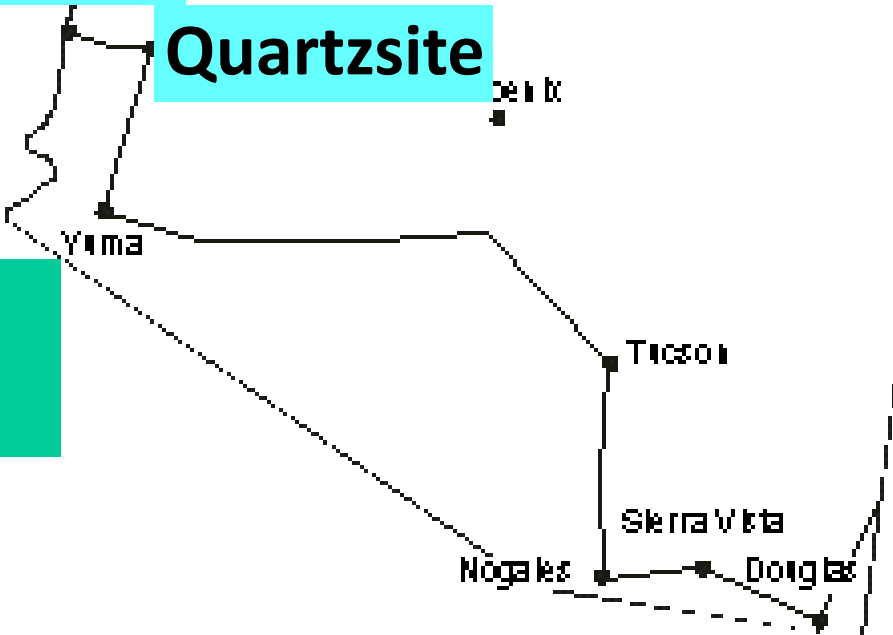


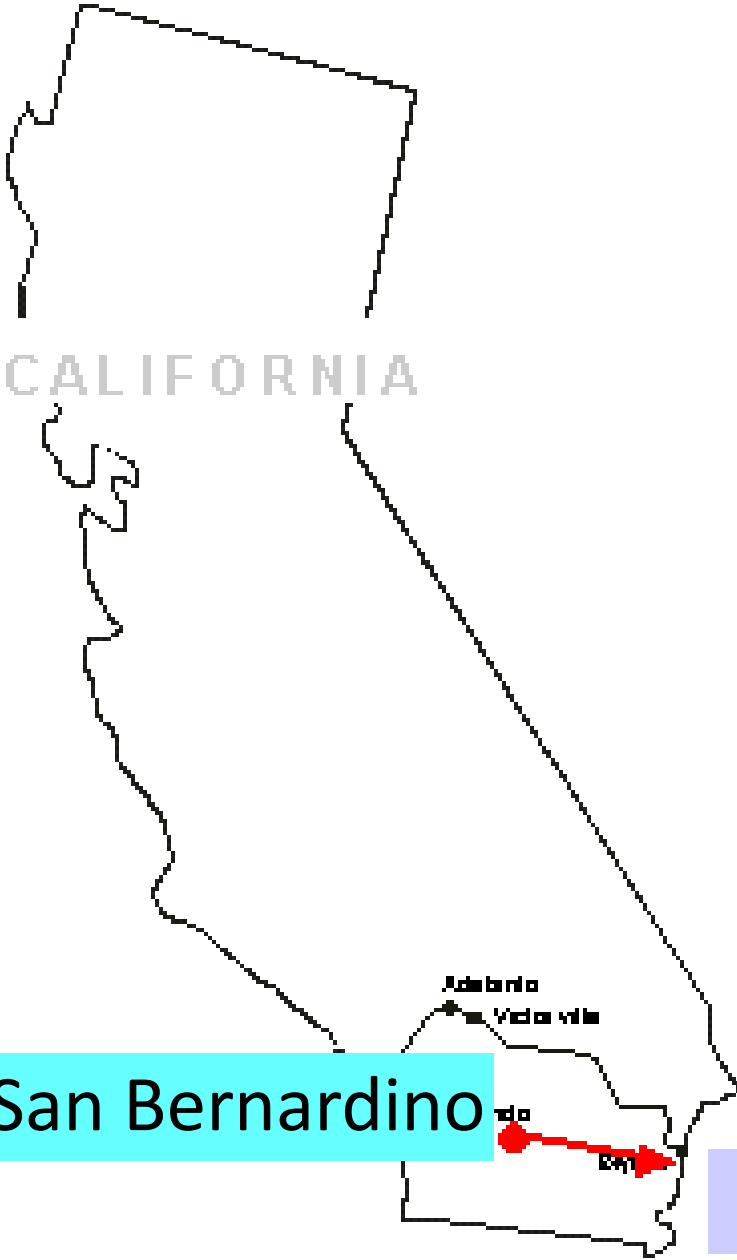


**Blythe**

**Quartzsite**

45 miles  
round trip





San Bernardino

Blythe



# Driving Time

Truckdriver	Lead Pilot Car Driver
	3 hours



# ARIZONA

Arrive 8:00 am (PST)

Depart 8:00 am (MST)

Blythe

Quartzsite

Phoenix

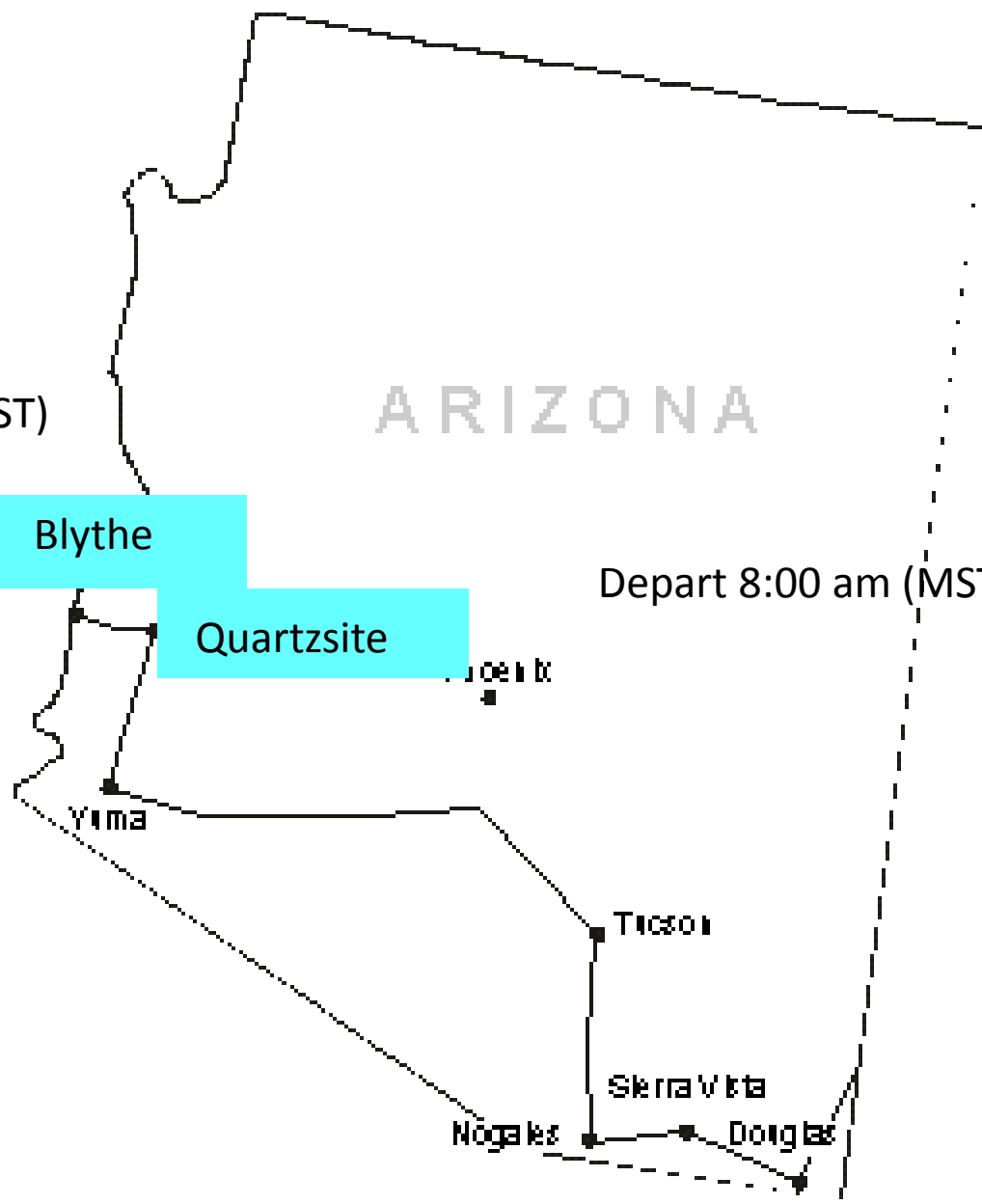
Yuma

Tucson

Sierra Vista

Nogales

Douglas



# Driving Time

Truckdriver	Lead Pilot Car Driver
1 hour	3 hours





CALIFORNIA

Depart 8:30 am  
Arrive 5:00 pm

**Adelanto**

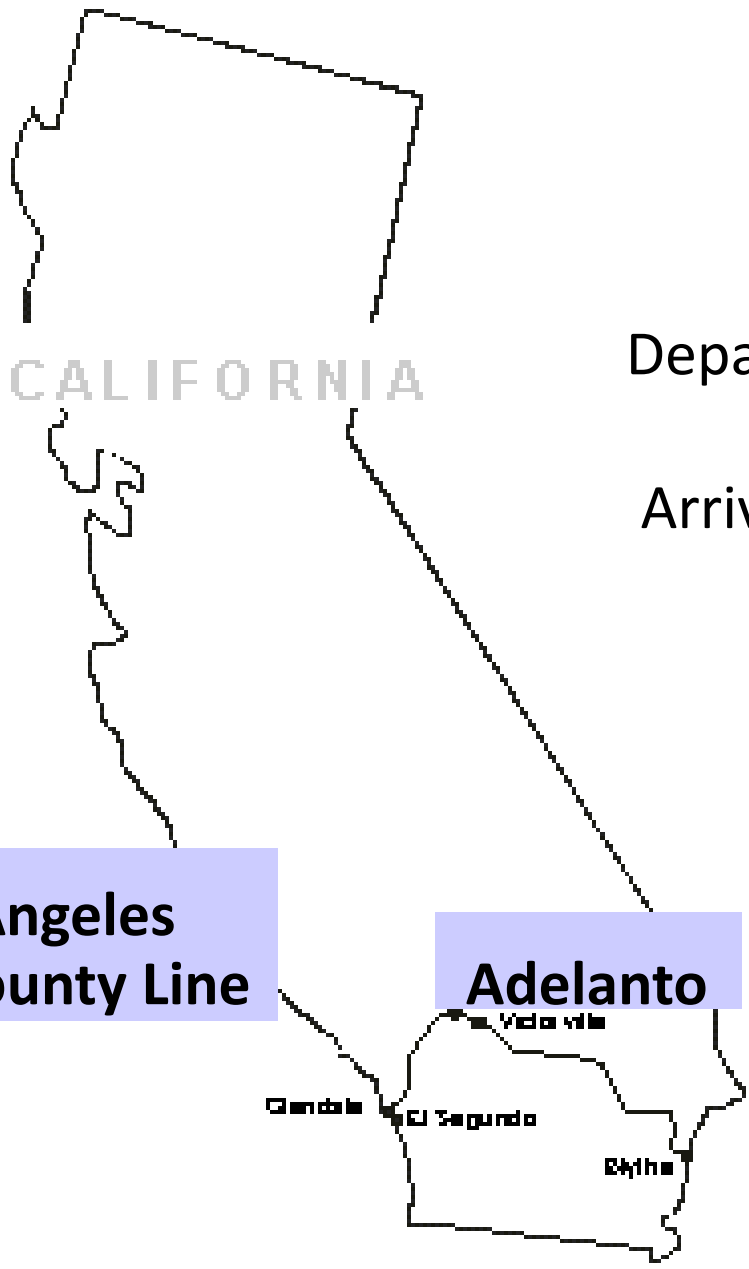
Glendale El Segundo

**Blythe**

# Driving Time

Truckdriver	Lead Pilot Car Driver
1 hour 8 ½ hours	3 hours 8 ½ hours





CALIFORNIA

Depart 9:30 pm

Arrive 1:30 am

**Los Angeles  
County Line**

**Adelanto**



Glendale

El Segundo

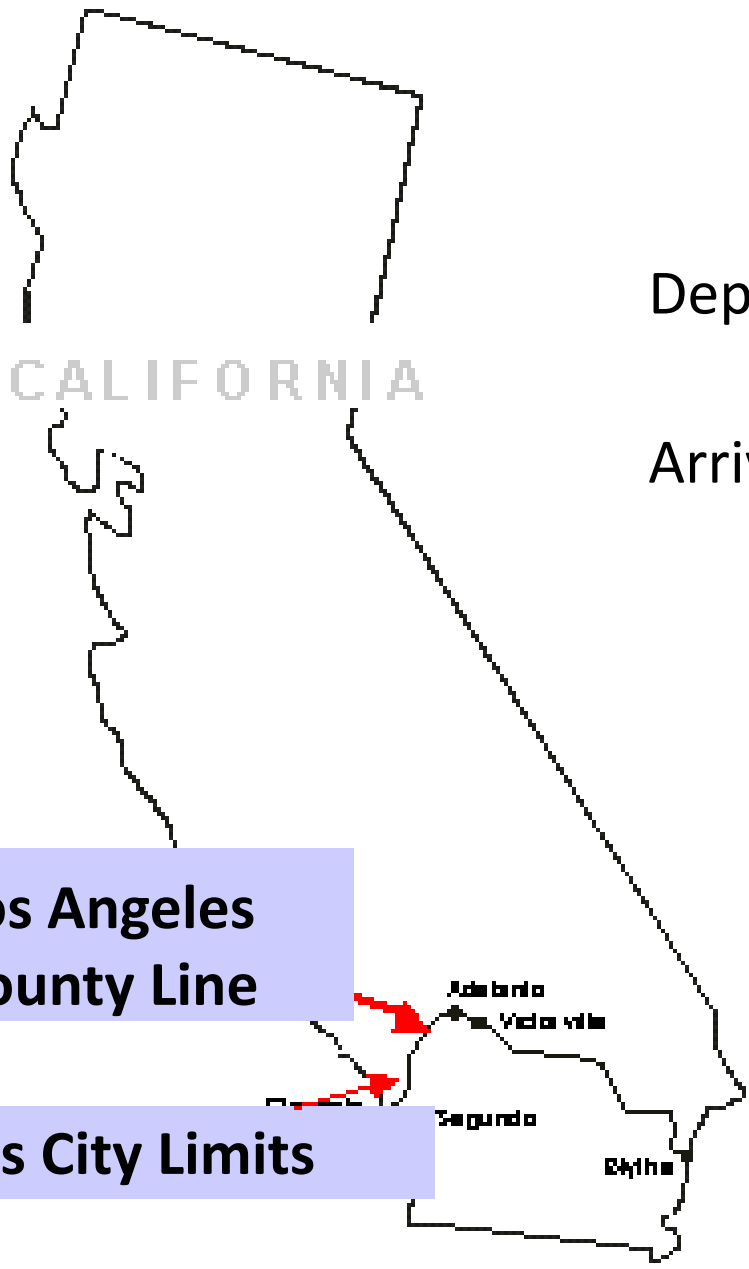
Victorville

Blythe

# Driving Time

Truckdriver	Lead Pilot Car Driver
1 hour 8 ½ hours 4 hours	3 hours 8 ½ hours 4 hours





Depart 1:30 am

Arrive 4:20 am

**Los Angeles  
County Line**

**Los Angeles City Limits**

Adiantum  
San Vicente

Segundo

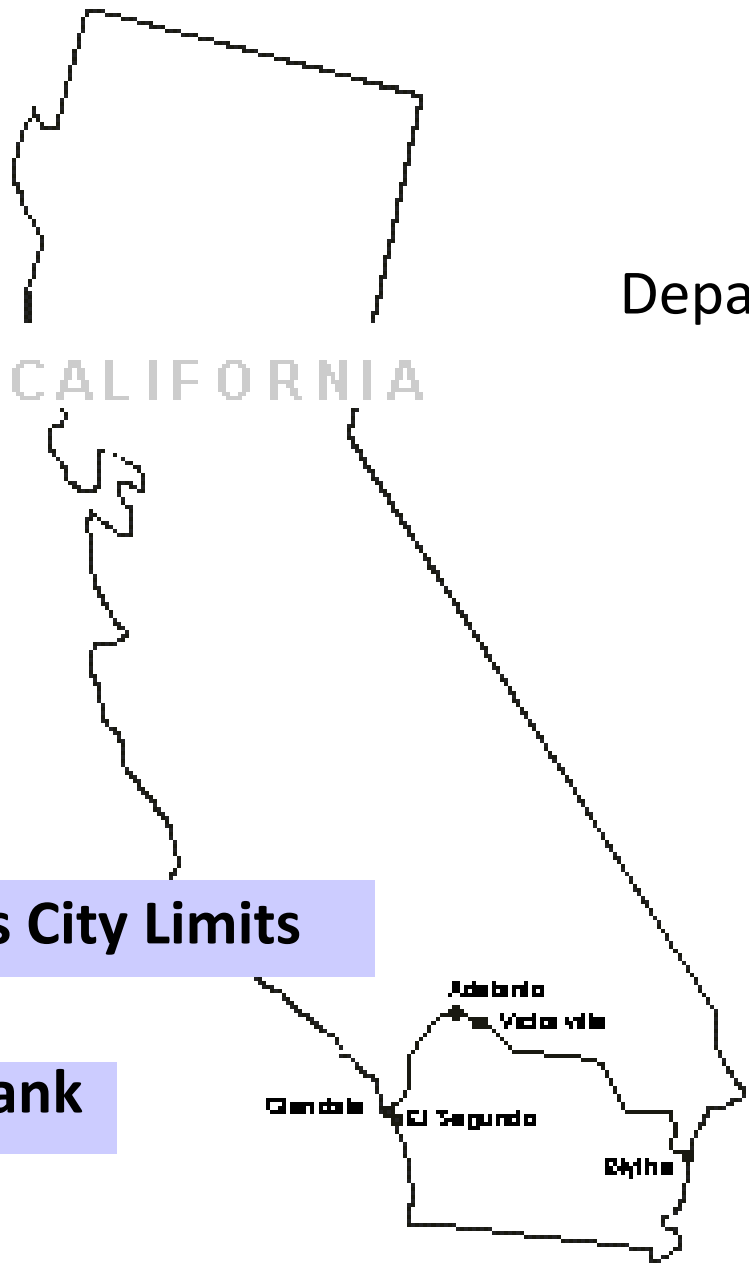
Bayha



## Driving Time

Truckdriver	Lead Pilot Car Driver
1 hour	3 hours
8 ½ hours	8 ½ hours
4 hours	4 hours
2 hours 50 min	2 hours 50 min





Depart 4:20 am

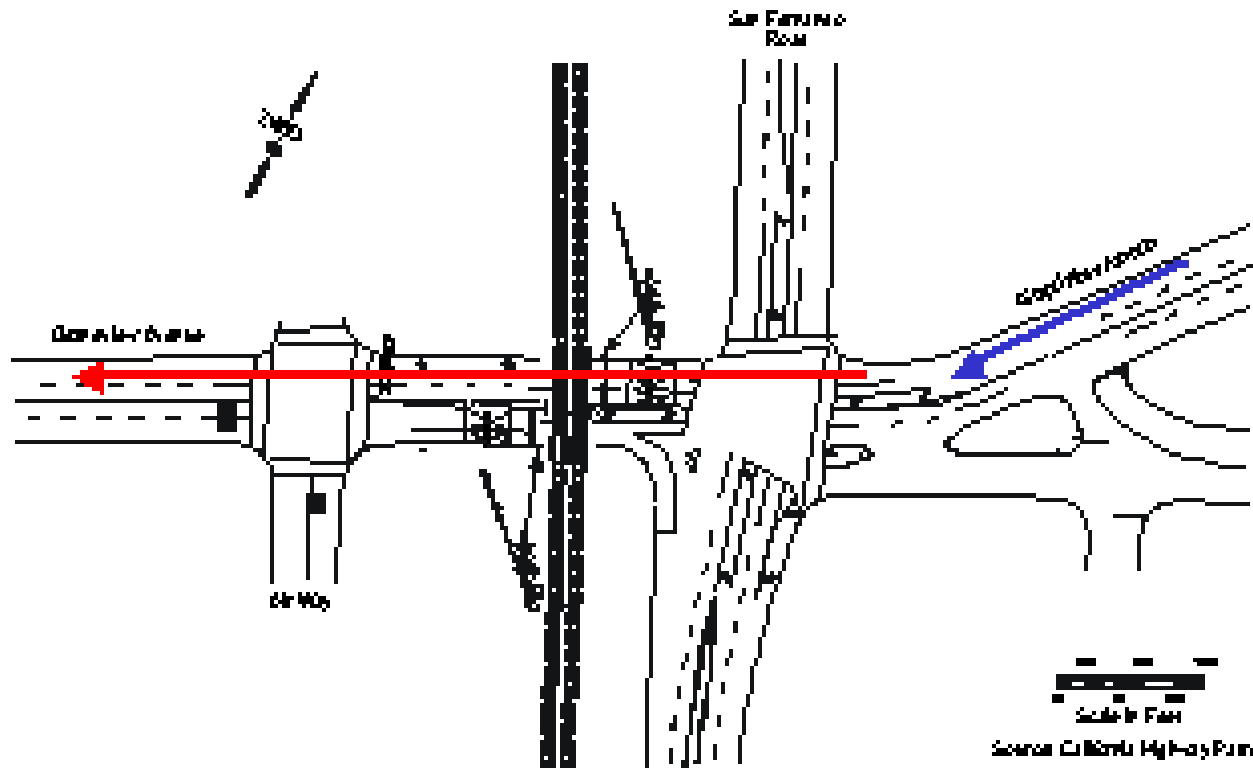
CALIFORNIA

**Los Angeles City Limits**

**City of Burbank**

Glendale  
Burbank  
Van Nuys  
El Segundo  
Bayh





# Driving Time

Truckdriver	Lead pilot car driver
1 hour 8 ½ hours 4 hours 2 hours 50 min 1 hour 36 min	3 hours 8 ½ hours 4 hours 2 hours 50 min 1 hour 36 min
18 hours	20 hours
Awake 22 hours	Awake 27 hours



# Pilot Car Driver Training And Certification

2,000 – 3,000 pilot car operators  
in the United States



# Pilot Car Driver Responsibilities

Provide advanced warning  
Follow vehicle and ensure safety  
Traffic control  
Routing information  
Turning and parking  
Other safety activities



# Pilot Car Driver Skills

Vehicle and personal equipment

Routing reviews

Testing of communication equipment

Proper use of lights

Flagging procedures

Driving techniques





# Pilot Car Driver Skills

Railroad grade crossing

Passing vehicles

Placement of pilot cars

Evaluation of roadway hazards

Reporting of traffic accidents



**Yellow lights**

**Oversize load signs and flags**

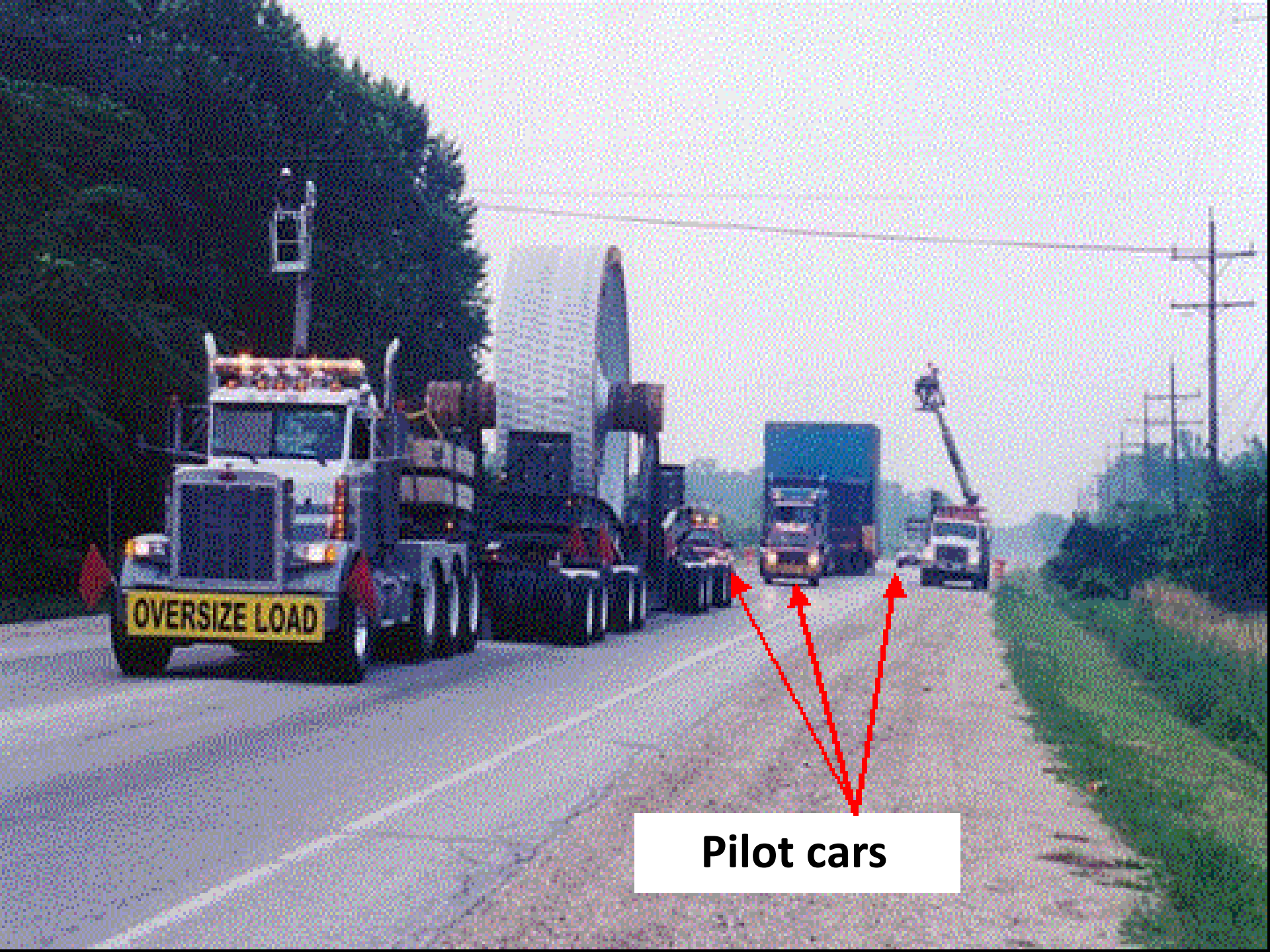


**SUVs**

**Passenger cars**

**Pick-up trucks**

**Variety of Vehicles**



OVERSIZE LOAD

Pilot cars

# States Requiring Certification

Virginia

Utah

Oklahoma

Florida

Colorado

New York

Kansas



# Truckdriver Training







OVERSIZE LOAD



Double track crossing on Route 62  
in the California desert





Polk Street crossing  
city of Los Angeles

# Sycamore, South Carolina Recommendations

American Trucking Associations

American Association of Motor  
Vehicle Administrators

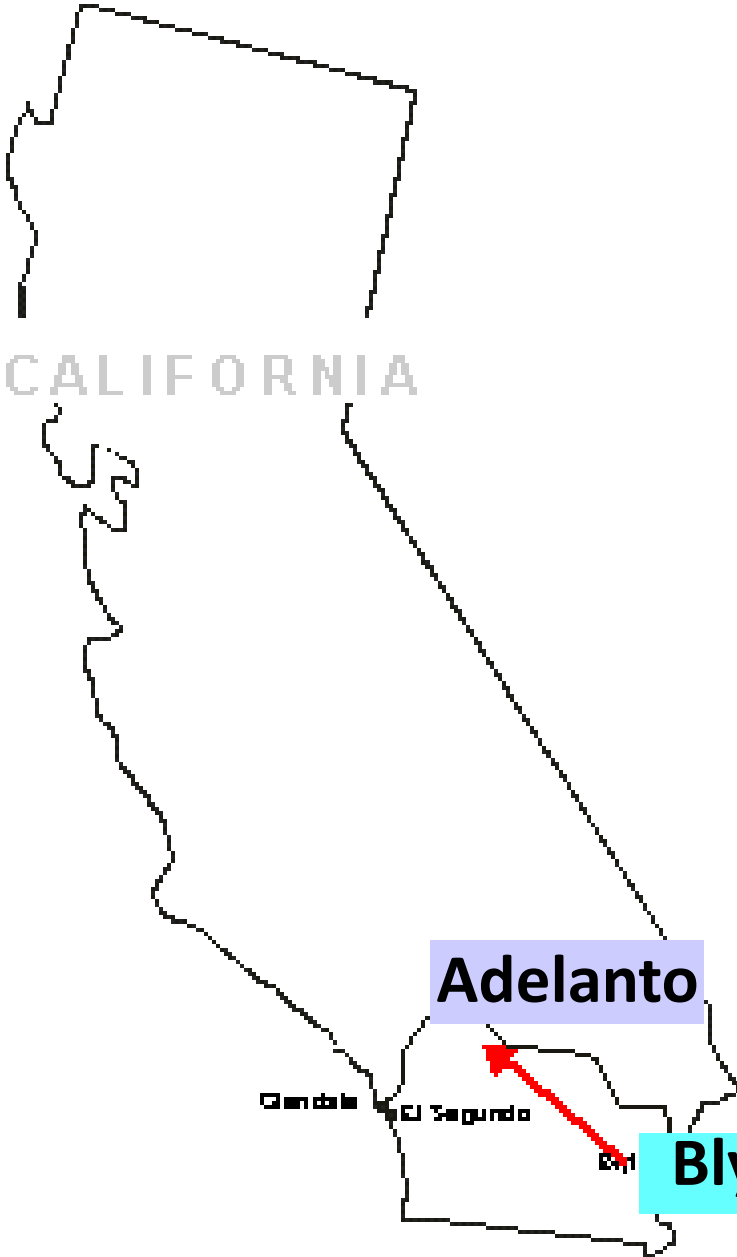
Truckdriver training on the hazards  
of low-ground clearance vehicles at  
high profile grade crossings

Specialized Carriers & Rigging  
Association



# Police Escort Training



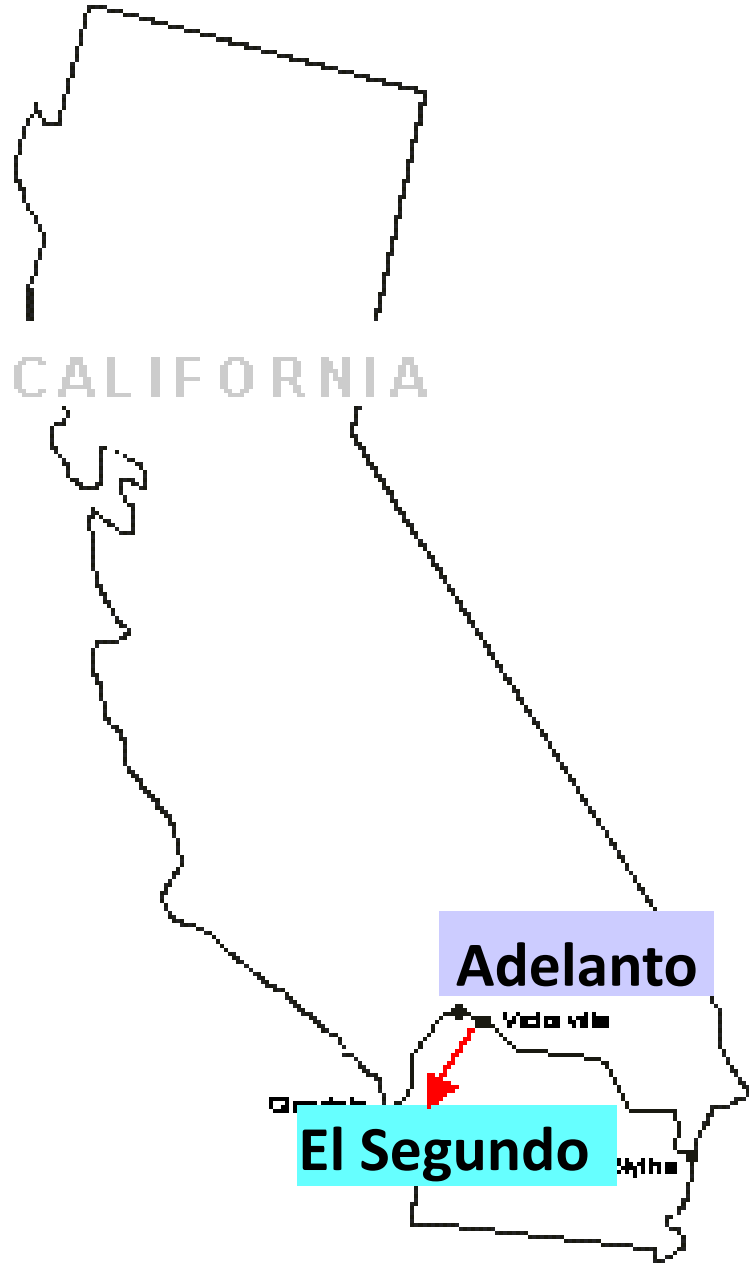


CALIFORNIA

**Adelanto**

Glendale El Segundo

**Blythe**



CALIFORNIA

Adelanto

El Segundo

Victorville

lythe

# California Highway Patrol Policies

- Condition of the vehicle
- Truckdriver's duty status
- Placement of pilot cars
- Permit documentation
- No specific policies or training for escorting such vehicles



# The Omissions of the California Highway Patrol Escorts

Did not thoroughly inspect the vehicle and load for compliance with law

Did not review the truckdriver's log for hours of service

Did not thoroughly examine permits



# New California Highway Patrol Escort Policies

Compare the route survey and permitted routes

Hold safety briefings to discuss routing and special conditions of the permits before the move begins

Park the load if it becomes off route





1. Overview of the heavy haul industry

2. The weaknesses in the

- Planning
- Coordination
- Execution of this  
oversize/overweight movement



# Heavy Haul Industry

- Defined as having a gross vehicle weight greater than 80,000 pounds
- Less than 1% of the truck fleet
- 1997 Vehicle Inventory and Use Survey
- 70,000 vehicles operate over 3.8 billion miles each year
- Increased 40% and 52%, respectively, since 1992



# Permits Issued

- States issue 3 million  
oversize/overweight permits a year
- California issued 181,000 in 2000



# Superloads

- Subset of permitted loads
- Definition varies among the States
- Heavier, taller, wider, and longer than normal permitted load



# California

- 15 feet wide
- 17 feet high
- 135 feet long



# Federal Highway Administration Data

- In FY 2001
- 36 States reporting
- 123,000 superload permits
- 4,000 in California



# Accidents

- 6 Safety Board investigations
- 12 additional accidents



# Results

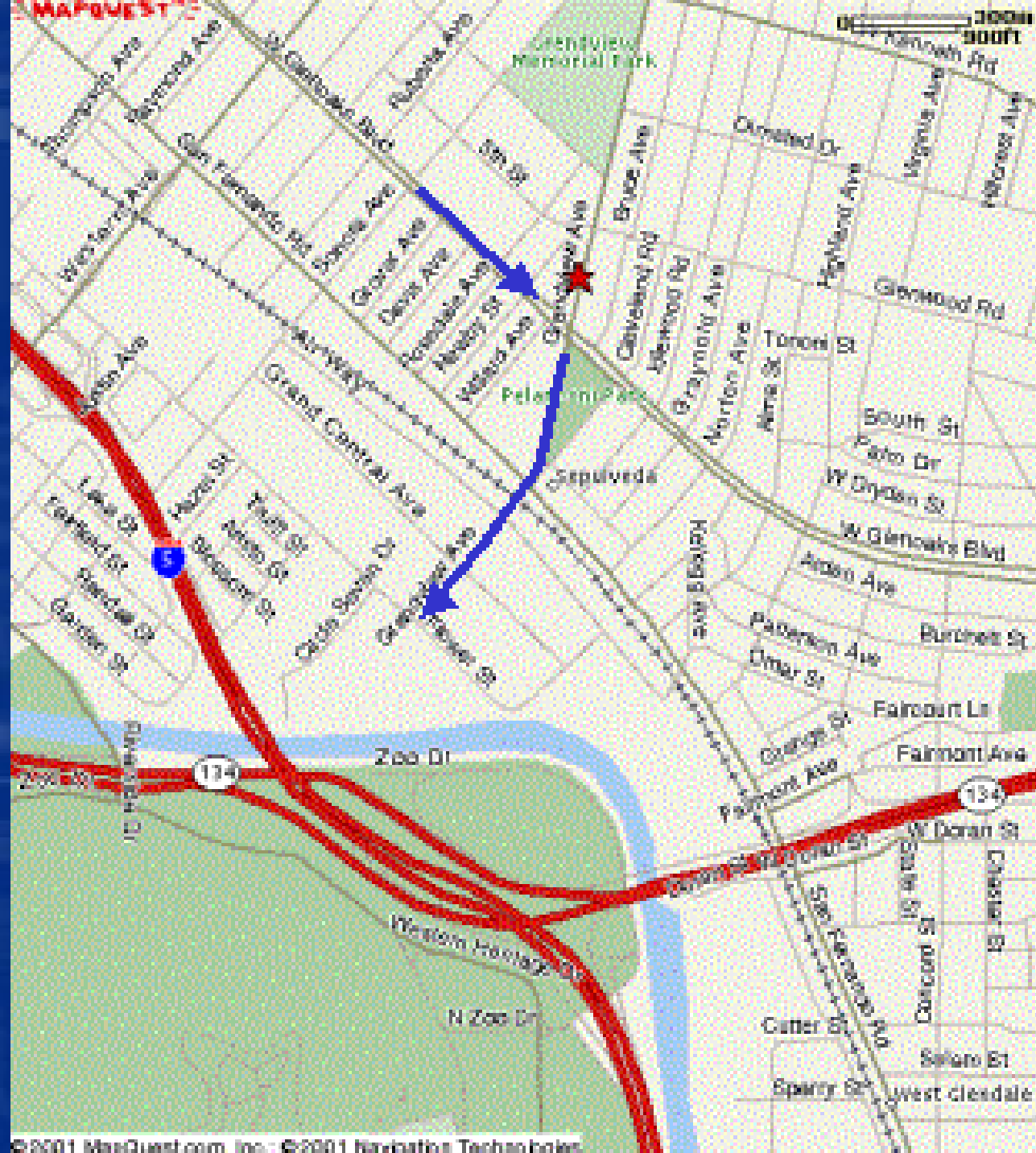
- 6 fatalities
- 3 serious injuries
- \$ 2,074,339 in property damage
- Unknown societal costs due to infrastructure damage





# Preparation and Planning





# Preparation and Planning

- Received the permits 1 day before
- Did not have a copy of the route survey
- Did not provide copies of master route plan to others in the convoy



# Missed Opportunities

- Master route plan had not been prepared in advance
- Driver had not driven the intended route before the movement
- Master route plan had not been provided to the others in the convoy
- To identify the transcription error at the onset of the movement and to recognize the error once on Grandview Avenue



# Permit Errors

## Texas

- Grade crossing that the truck could not go over
- Bridge and power lines that it could not go under
- Intersection that it could not negotiate
- A permitting process grounded in safety should preclude such occurrences



# Permit Errors (continued)

## California

- Turn that the truck could not make
- Railroad bridge that the load could not go under
- Detouring around the bridge resulted in a delay of several hours.



# Coordination

- Permits did not correspond to the actual route taken
- Discrepancies caused delays
- Truckdriver, pilot car drivers, and police escorts did not share information
- Exhibited a lack of safety awareness regarding the movement of oversize/overweight vehicles over grade crossings



# Communication

- Motor carrier
- Permitting officials
- Truckdriver
- Pilot car drivers
- Police escorts

Must communicate effectively to coordinate their efforts





# Missed Opportunities for Communication

- Hours of service
- Los Angeles County Department of Public Works
- Los Angeles City Department of Public Works
- Load had bottomed out



# Reasons for Poor Communication

- Private citizens defer to authority of police
- Power imbalance



# Accident Demonstrates

- Fragmented permitting and route planning process
- Poor communication can lead to catastrophe
- States require permits
- No overall guidance is available



Low-Ground Clearance  
Warning Railroad/Highway  
Grade Crossing Sign





San Fernando Road

Final rest of train and condenser


Airway Street

Grandview Avenue Grade Crossing





Grandview Avenue crossing  
from San Fernando Road  
approach grade + 3.26%



Grandview Avenue crossing  
from Airway Street  
approach grade + 3.02%

# 1954 American Association State Highway Officials Standards

- Crossing approach and departure grades of 3% to 6%
- Glendale crossing 3.26% and 3.02%
- In compliance when built





# Current Standards

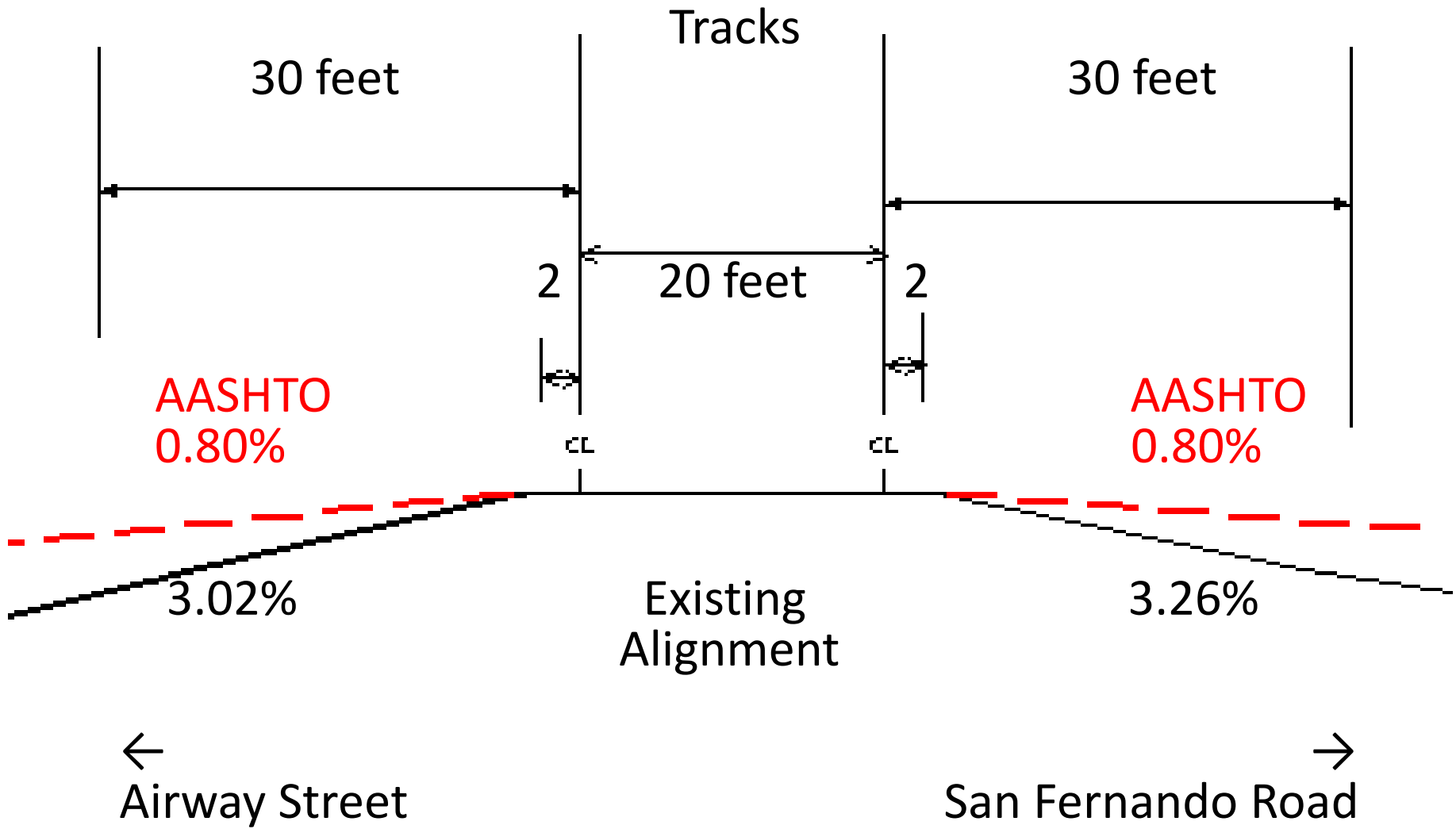
- American Railroad Engineering Association Guideline
- American Association of State Highway and Transportation Officials (AASHTO)



# American Association of State Highway and Transportation Officials 2001 Standards

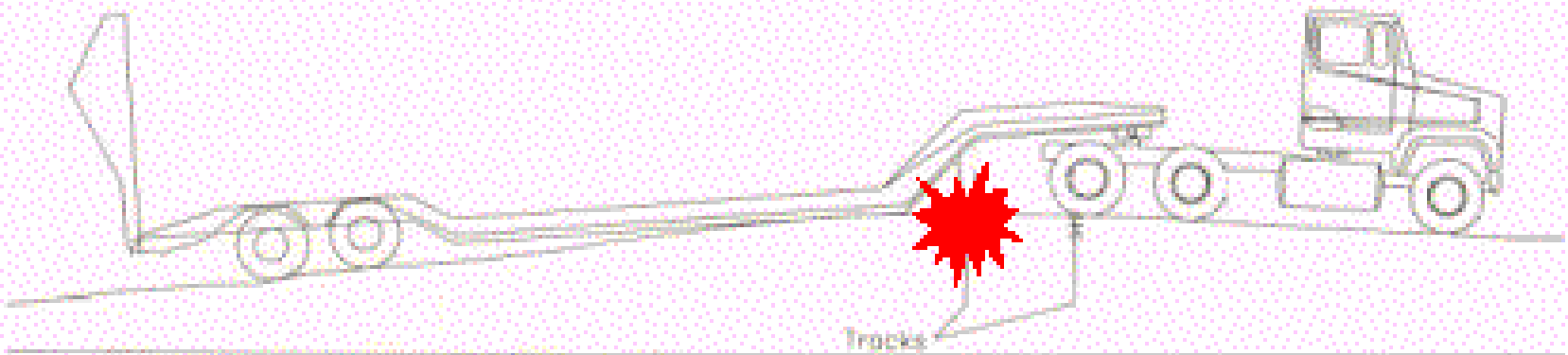
- Level at 2-feet from rail
- + or - 3 inches (0.80%)





Sycamore, South Carolina  
May 2, 1995





Sycamore, South Carolina





Low-ground clearance warning sign





Grandview Avenue Crossing