



Burbank, California
Highway/Rail Grade
Crossing Accident
January 6, 2003

Parties to the Investigation

- Federal Railroad Administration
- California Public Utilities Commission
- Southern California Regional Rail Authority – Metrolink
- City of Burbank Department of Public Works
- Burbank Police Department
- National Railroad Passenger Corporation – Amtrak
- Bombardier Transportation



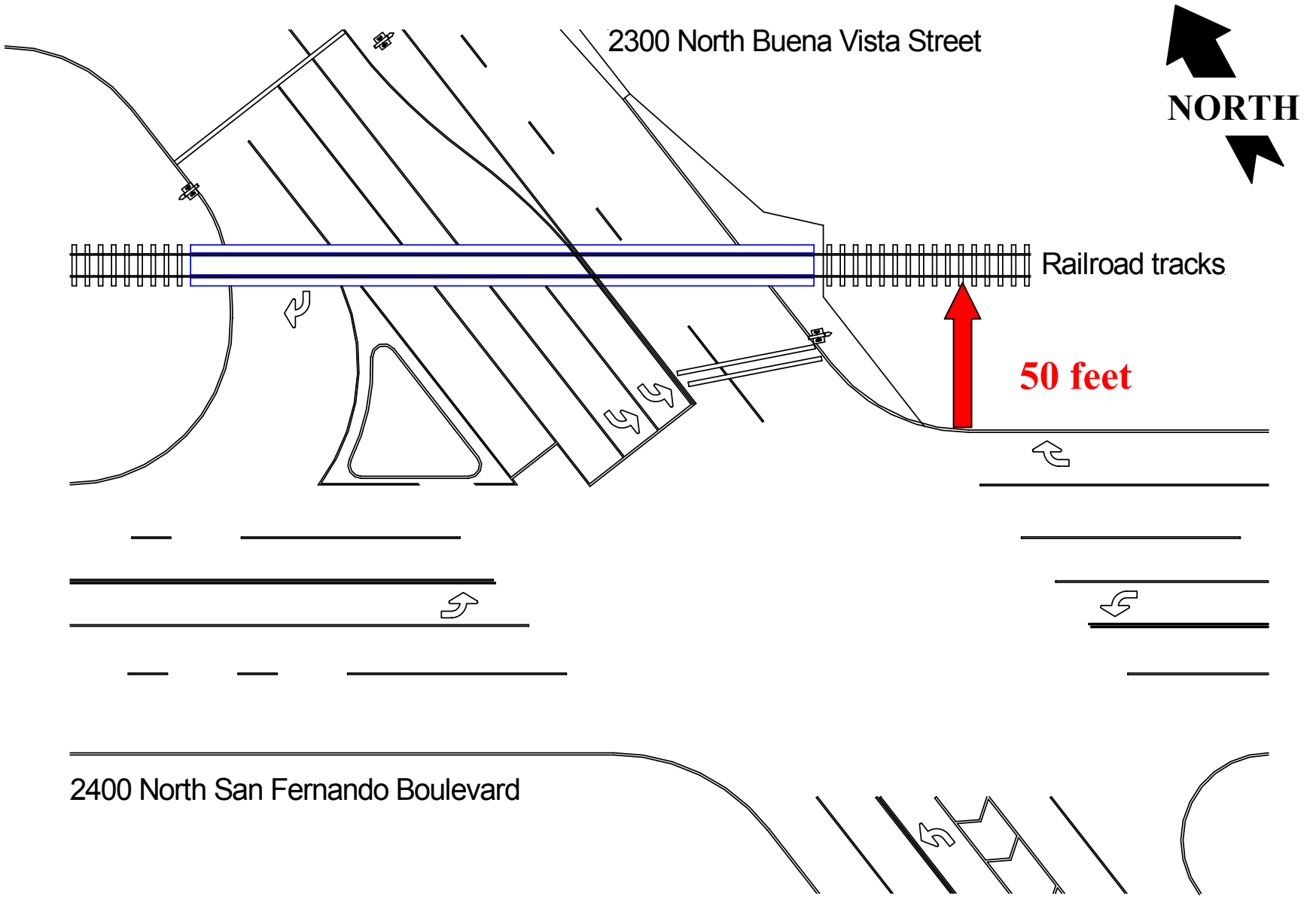
North Buena
Vista Street
grade crossing

Intersection of North
Buena Vista Street and
North San Fernando
Boulevard

Metrolink train
at final rest
position

Source: Burbank Police Dept.







Train Pre-Collision Events

- Made all scheduled stops
- Departed last stop at 9:23 a.m.
- Accelerated to 79 mph
- Sounded cab car's horn while approaching accident crossing





Train traveling at 79 mph

North Buena Vista
Street grade crossing



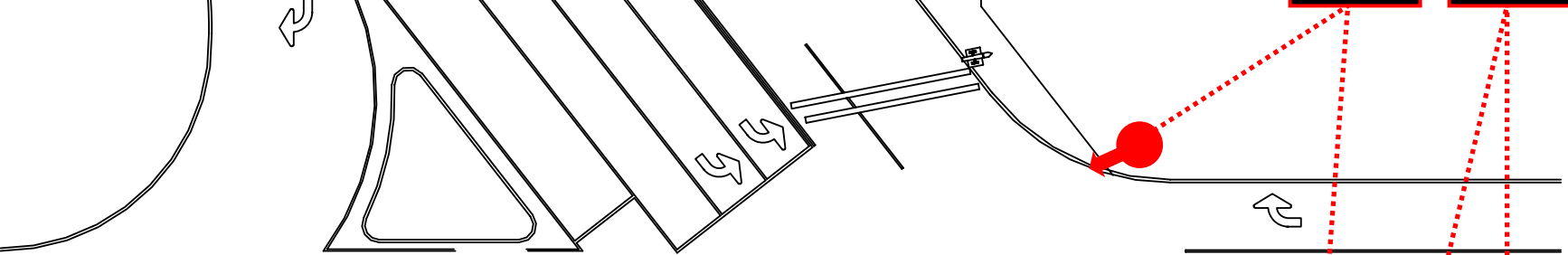
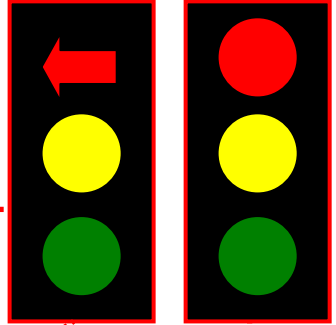
Stopped for
red arrow
traffic signal



2300 North Buena Vista Street

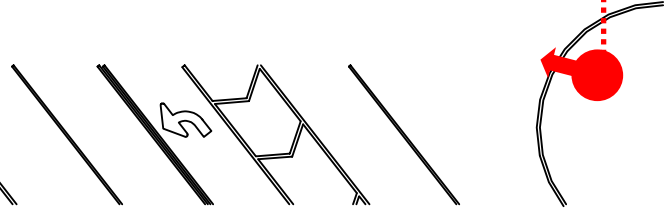
Example of eastbound traffic signal heads

Signal from train



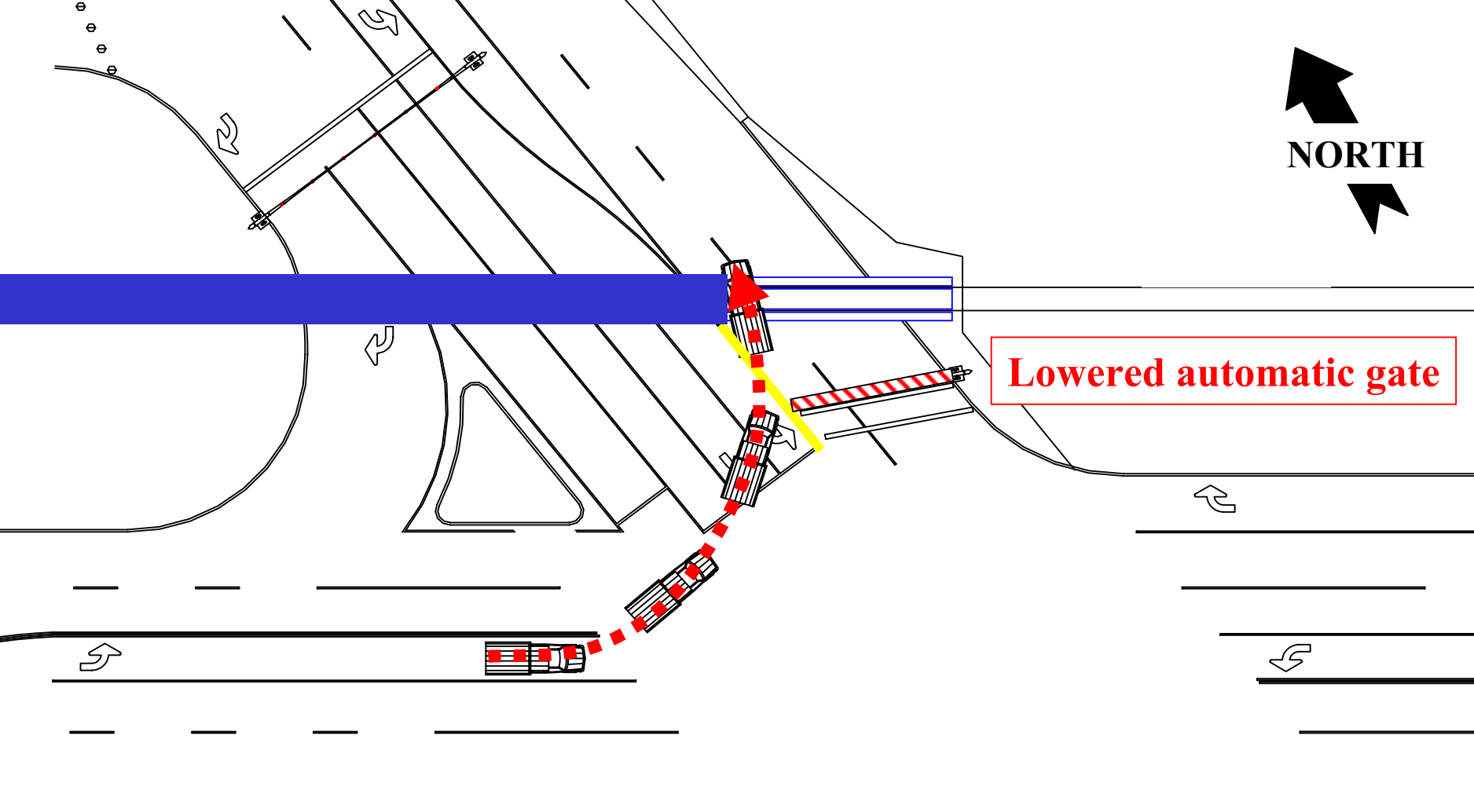
Accident truck 

2400 North San Fernando Boulevard





NORTH



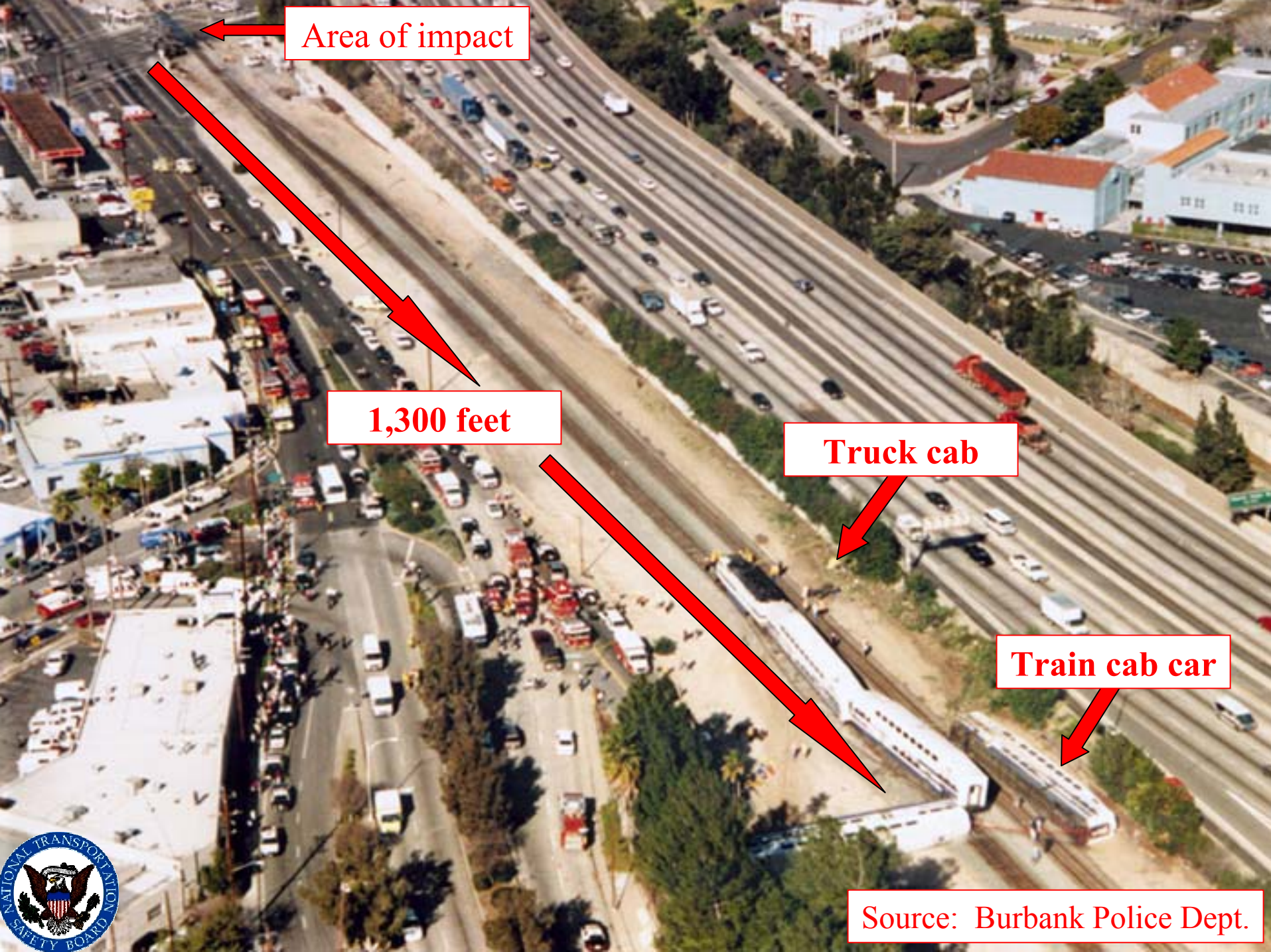
Lowered automatic gate

2400 North San Fernando Boulevard



Burned stake bed





Area of impact

1,300 feet

Truck cab

Train cab car

Source: Burbank Police Dept.



Injuries

- Truckdriver – Fatal
- 1 Train passenger – Fatal
- 12 Train passengers – Transported to area hospitals
- 20 Train passengers – Minor
- 1 Train crew member – Minor
- 1 Train crew member – Serious



Safety Issues

- All-red-flash intervals at signalized highway-rail grade crossings
- Adherence to applicable engineering guidance
- Availability of up-to-date guidance





Highway-Rail Traffic Signals

Mark Bagnard
Office of Highway Safety

Highway Traffic Signal Operations

- Normally function to allow alternating and continuous flow of traffic
- Traffic signals interconnected to railroad tracks
- Approaching train affects operation of traffic signals



Interconnected Highway-Rail Signal System

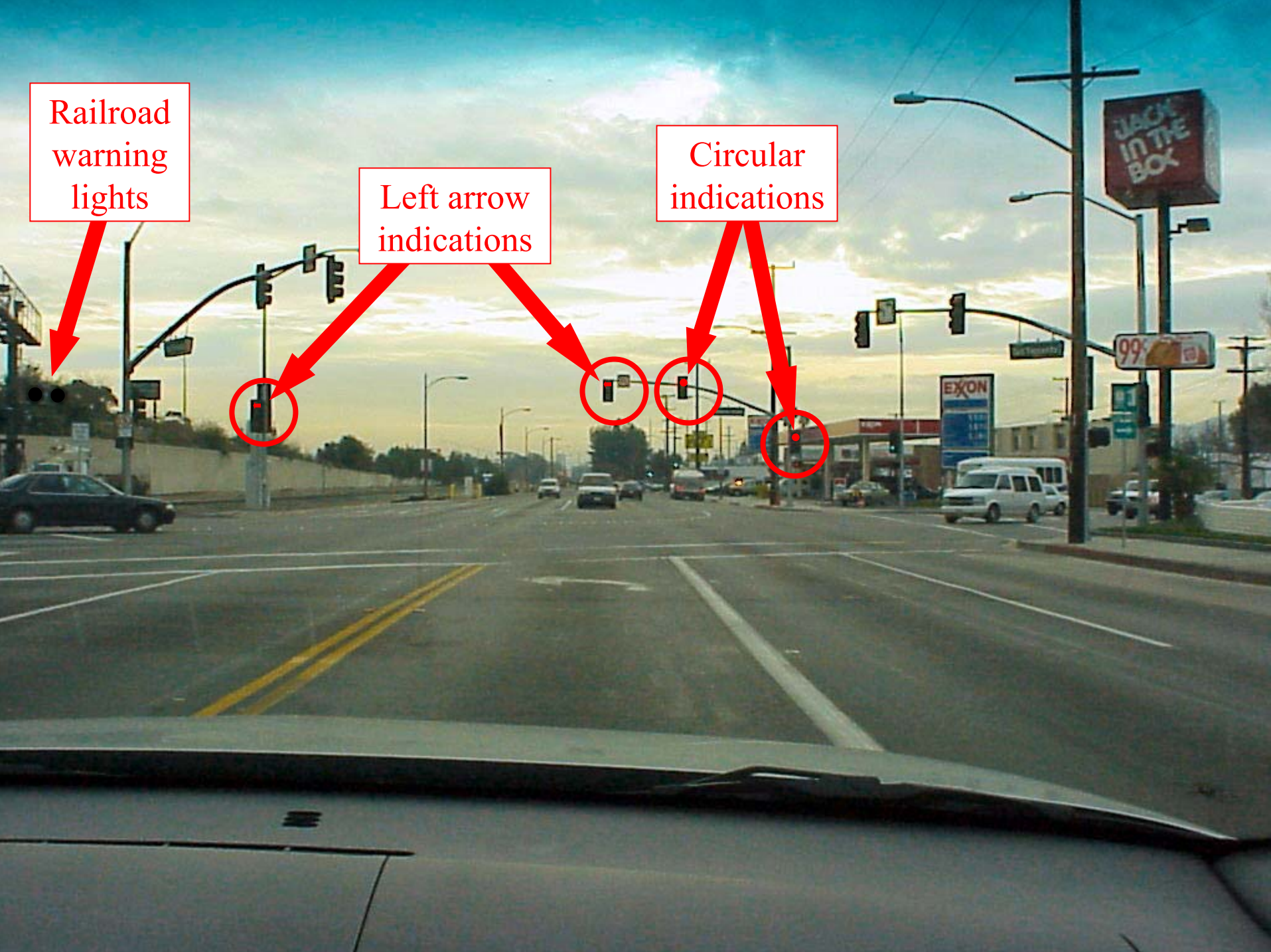
- Installed less than one year prior to accident
- Functioned as designed
- Railroad crossing warning lights activated
- Traffic signals at all highway approaches transitioned to flashing red



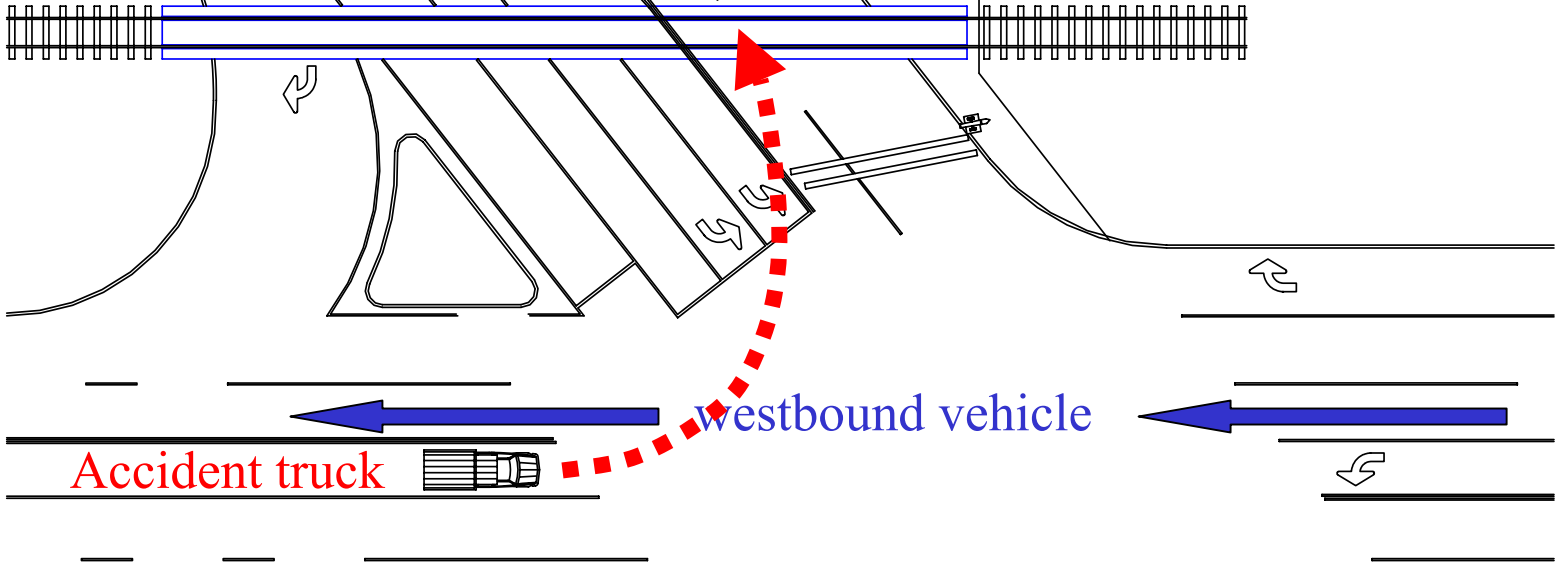
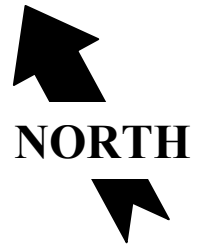
Railroad
warning
lights

Left arrow
indications

Circular
indications



2300 North Buena Vista Street



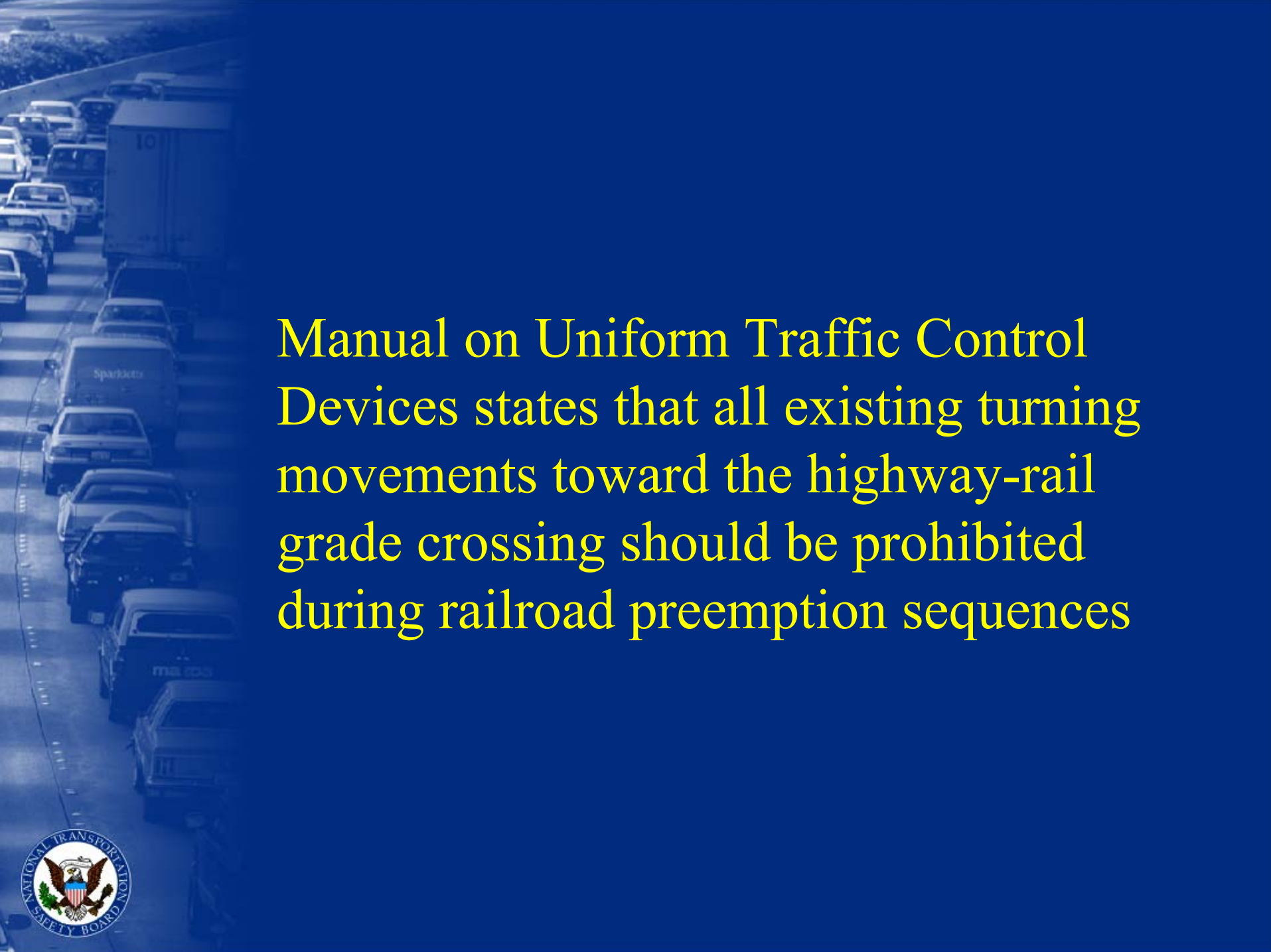
2400 North San Fernando Boulevard



Meanings of Flashing Red Signal Lights

- Highway signals displaying all-red-flash have same meaning as stop sign
“Stop & proceed with caution”
- Railroad signals require stopping until signal is extinguished





Manual on Uniform Traffic Control Devices states that all existing turning movements toward the highway-rail grade crossing should be prohibited during railroad preemption sequences



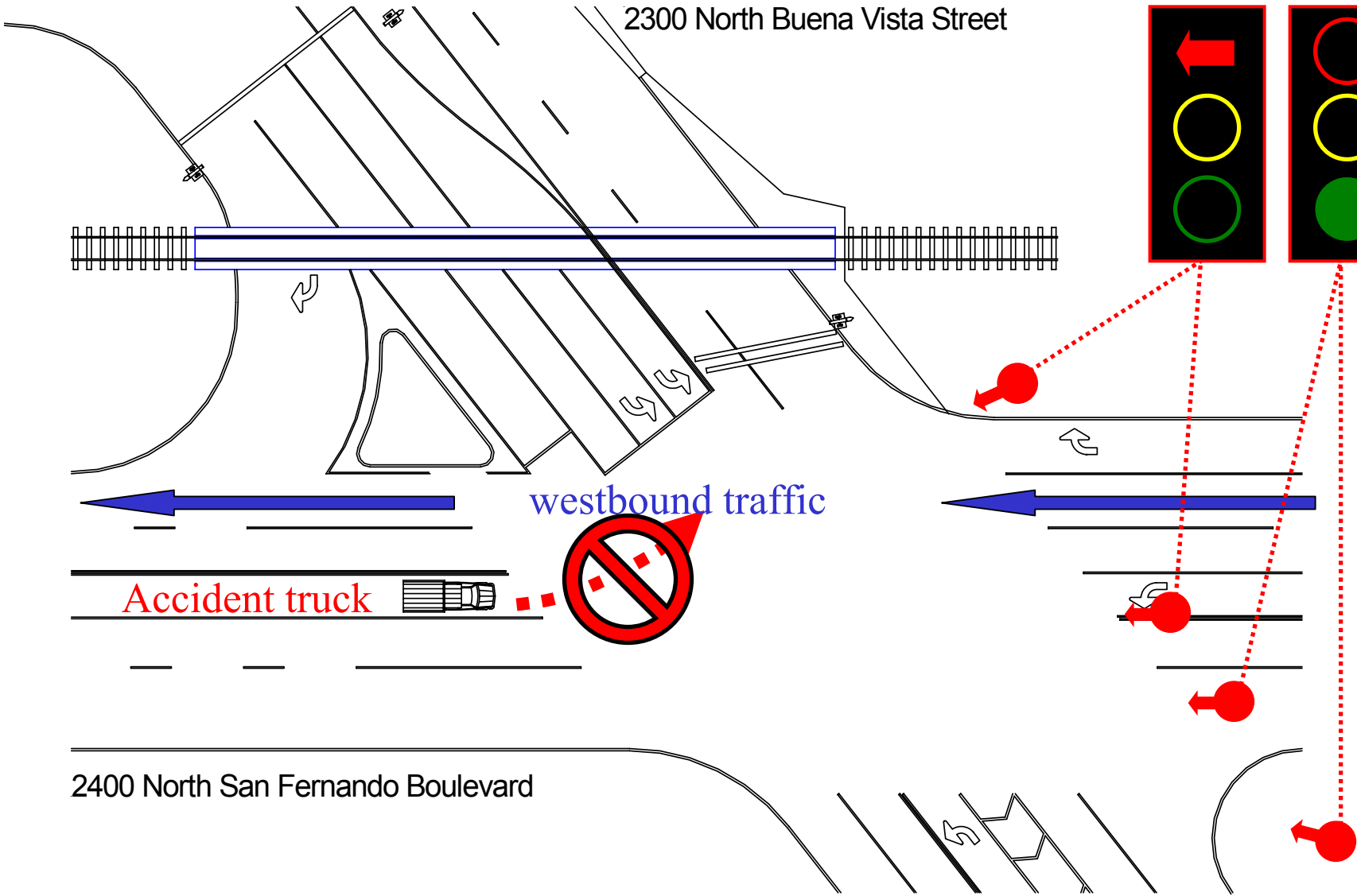
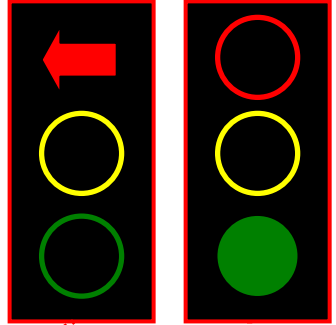
California Department of Transportation Traffic Manual

Establishes guidance for railroad
preemption modes:

- Flashing signal indications at all approaches
or
- Limited operation – prohibits all movements toward the grade crossing



2300 North Buena Vista Street



Accident truck

westbound traffic

2400 North San Fernando Boulevard



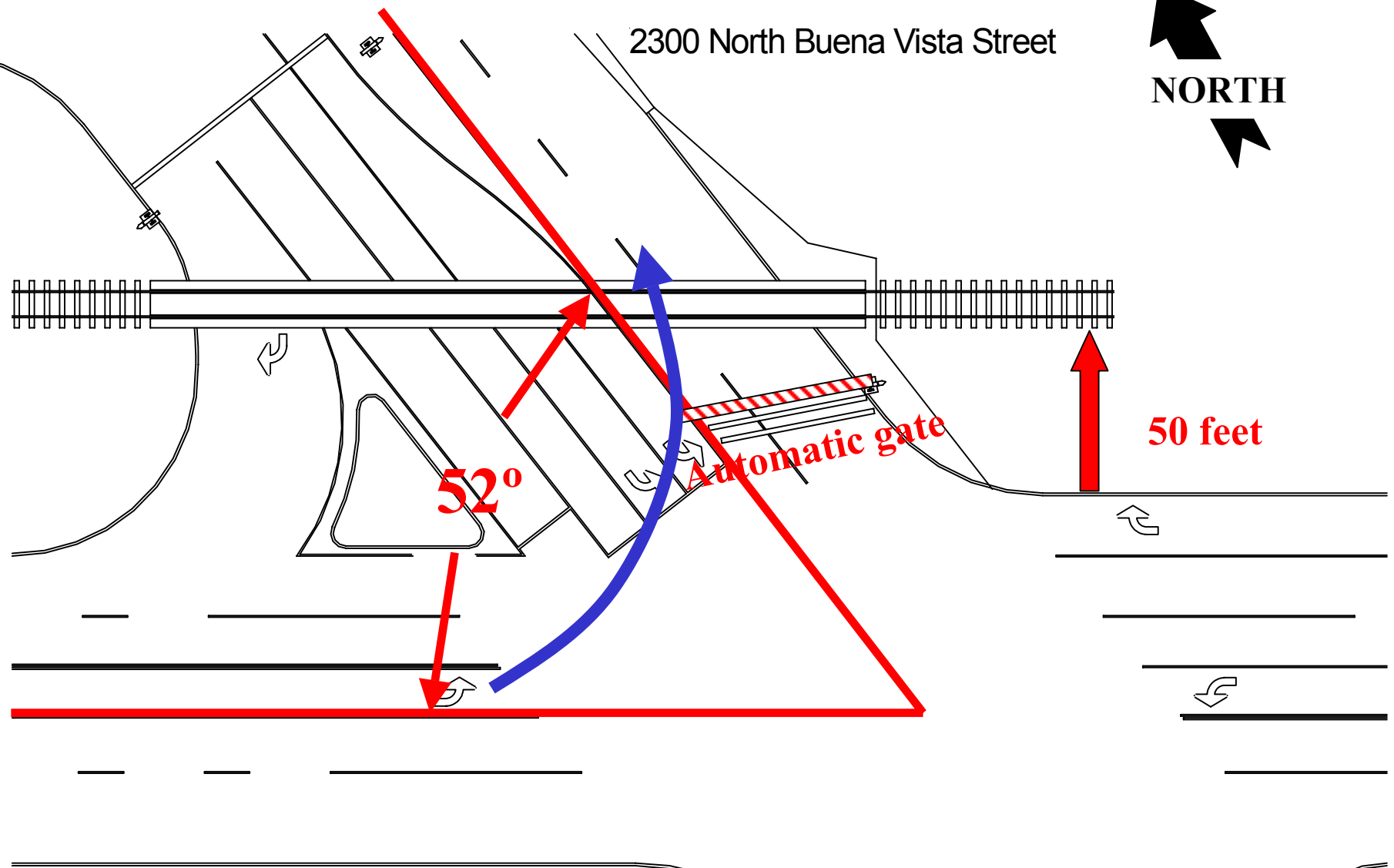


Highway Design

Dan Walsh
Office of Highway Safety



2300 North Buena Vista Street



52°

Automatic gate

50 feet

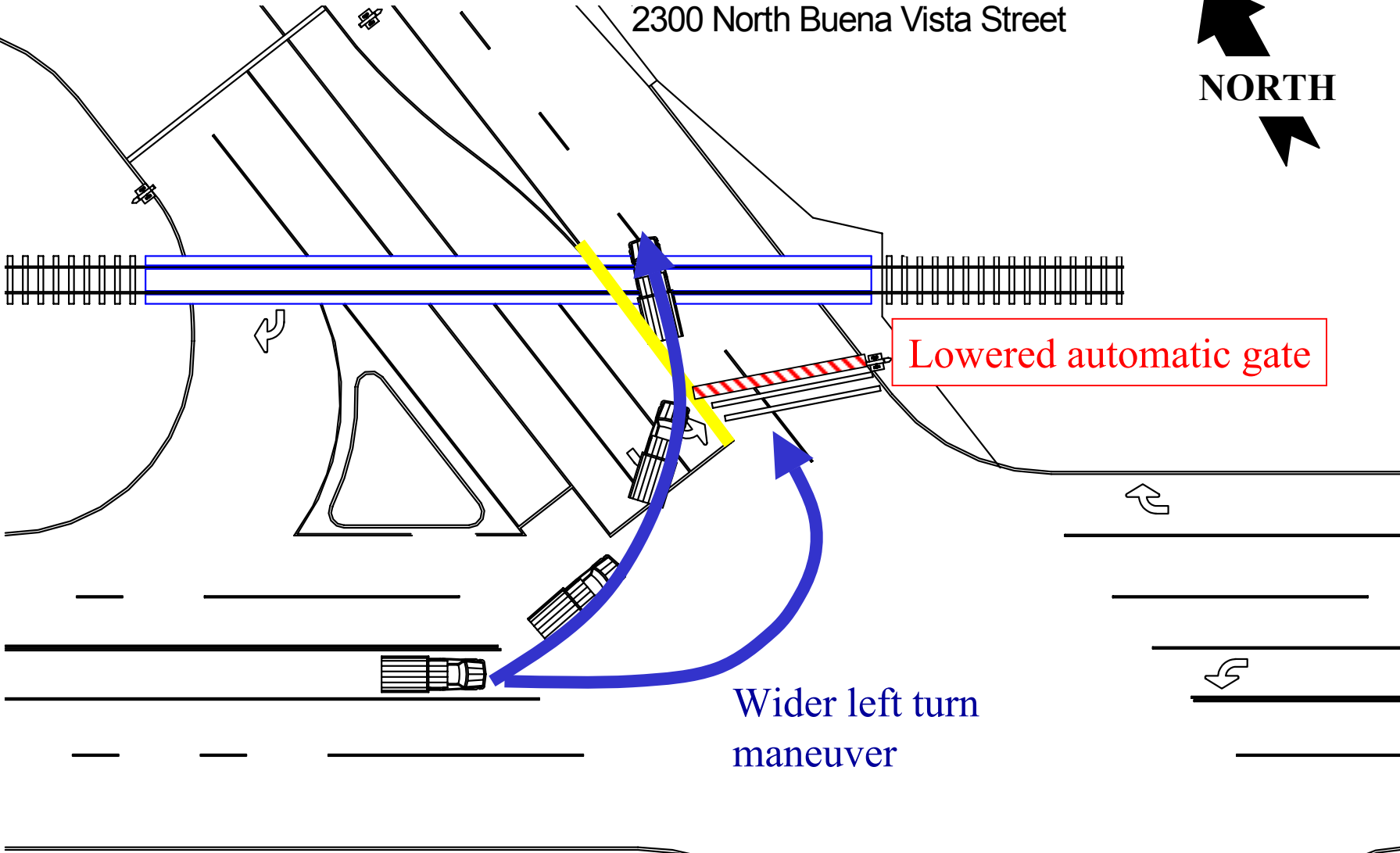
2400 North San Fernando Boulevard



2300 North Buena Vista Street



NORTH



Lowered automatic gate

Wider left turn maneuver

2400 North San Fernando Boulevard





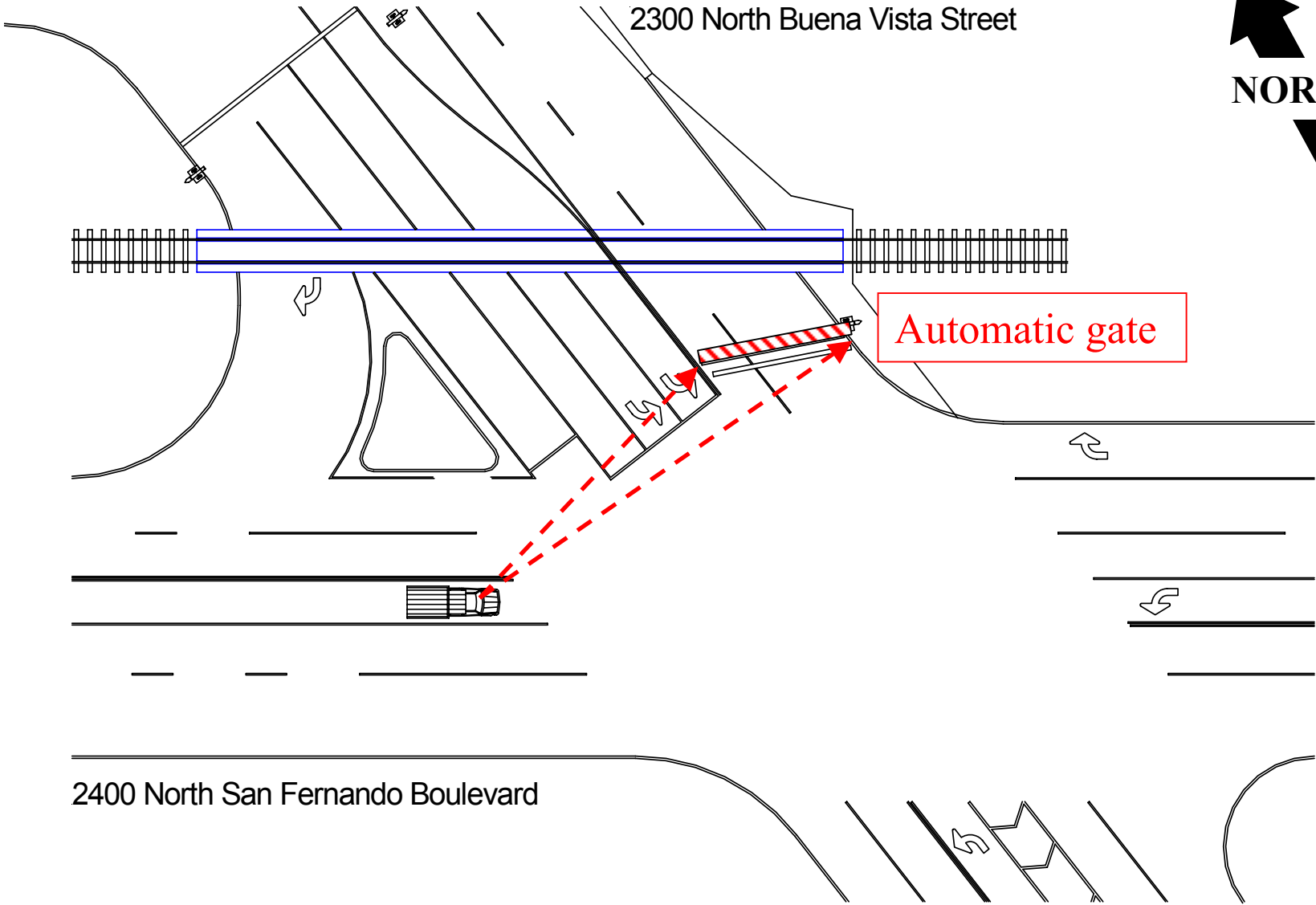
Source: Burbank Police Dept.



2300 North Buena Vista Street



Automatic gate



2400 North San Fernando Boulevard





Automatic gate



Raised Medians

- Typically 6 inches high
- Prevent or discourage motorists from driving around automatic gates



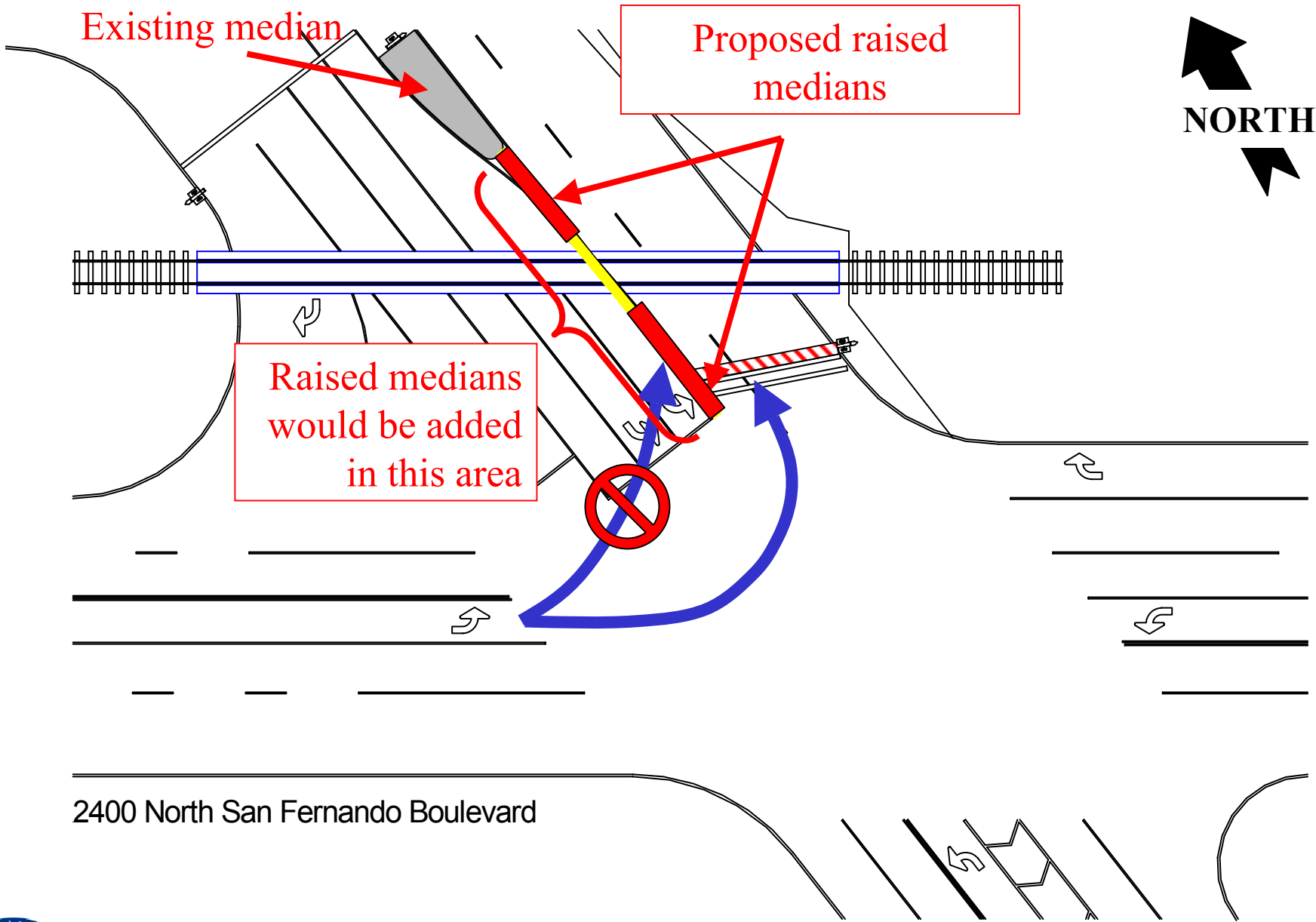
Existing median

Proposed raised medians

Raised medians would be added in this area



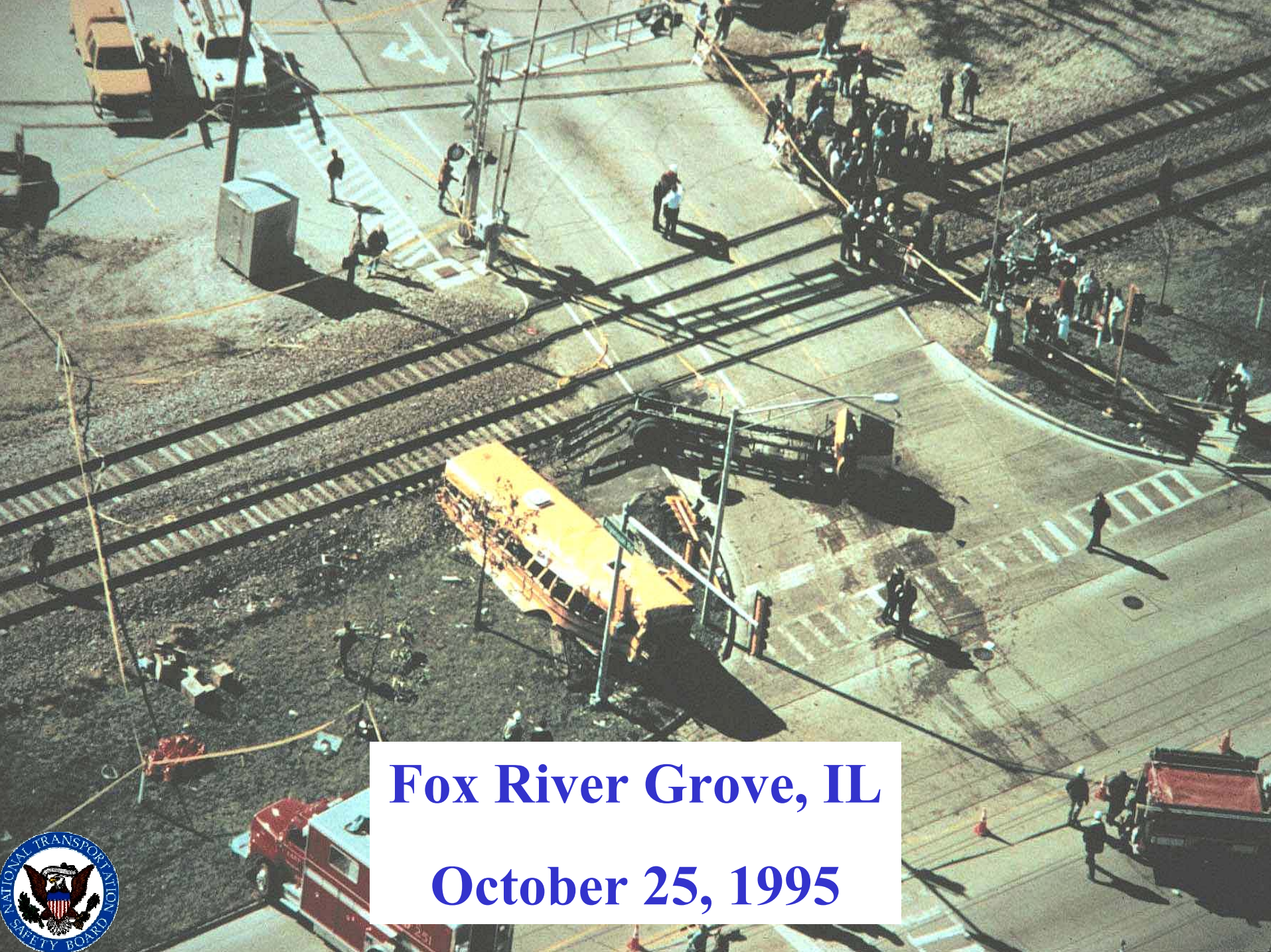
2400 North San Fernando Boulevard





Availability of Engineering Design Information

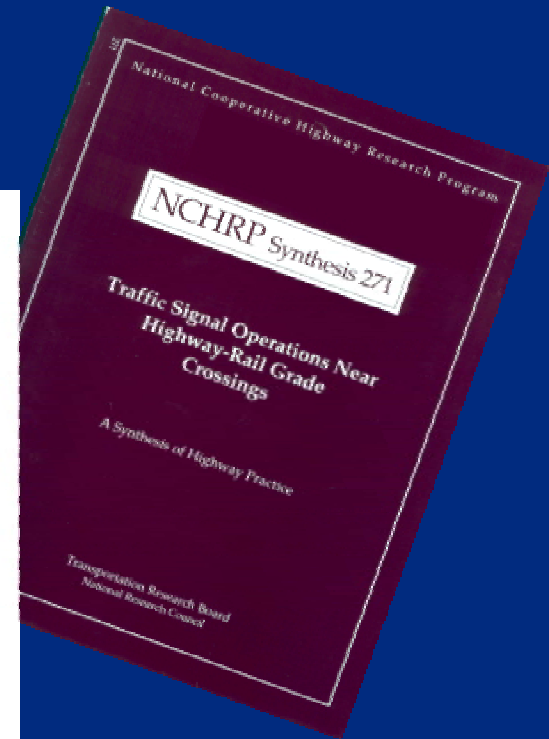
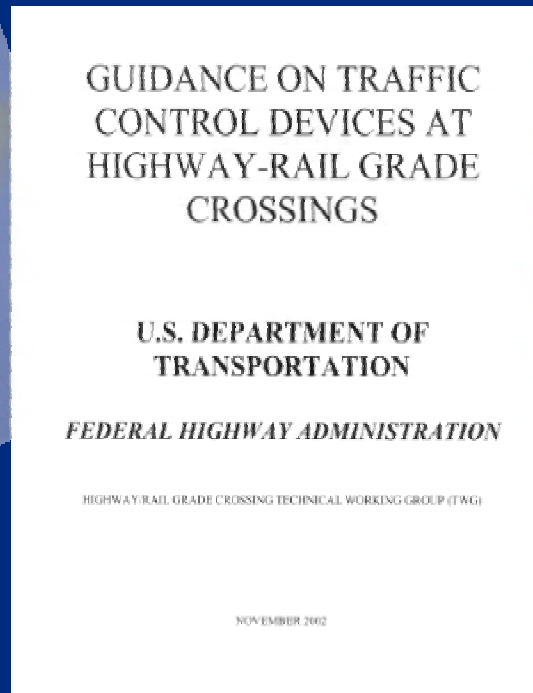
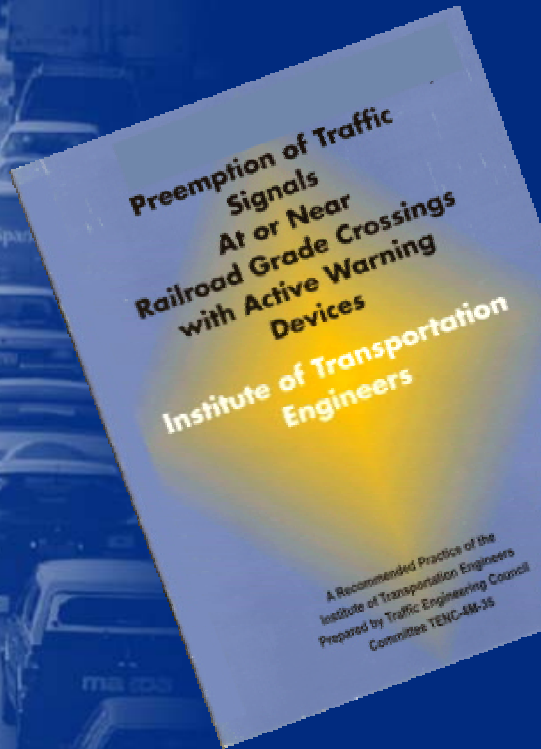
George Black
Office of Highway Safety



Fox River Grove, IL
October 25, 1995



Engineering Design Guidelines



Caltrans Traffic Manual



TRAFFIC OPERATIONS

Office of Signs,
Markings & Permits

SIGNS & WORK ZONES BRANCH

Traffic Manual (Metric) 12/15/1996

[Caltrans](#) > [Traffic Operations](#) > [Signs, Markings & Permits](#) > [Sign & Work Zones](#) > [Traffic Manual](#)

Traffic Manual (HTML Format)

HTML File Description	Last Update
Ch. 1 - General Information	11/78
Ch. 2 - Traffic Volumes Systems	8/79
<u>Ch. 3 - Accident and Roadway Records</u>	8/96
<u>Ch. 4 - Signs</u>	1/96
<u>Ch. 5 - Traffic Controls for Construction and Maintenance Work Zones (Rev. 2)</u>	1/96
<u>Ch. 6 - Markings</u>	9/02
<u>Ch. 7 - Traffic Safety Systems</u>	9/02
<u>Ch. 8 - Regulations</u>	1/96
<u>Ch. 9 - Traffic Signals and Lighting</u>	11/02
<u>Ch. 10 - School Area and Pedestrian Safety</u>	8/96
<u>Ch. 11 - Rules and Regulations</u>	1/96
Ch. 12 - Bikeway Signs and Markings	Not Written




TRAFFIC CONTROL DEVICES HANDBOOK

2001



Institute of Transportation Engineers





**Preemption of Traffic
Signals
At or Near
Railroad Grade Crossings
with Active Warning
Devices**

**Institute of Transportation
Engineers**

A Recommended Practice of the
Institute of Transportation Engineers
Prepared by Traffic Engineering Council
Committee TENC-4M-35



National Cooperative Highway Research Program

NCHRP Synthesis 271

**Traffic Signal Operations Near
Highway-Rail Grade
Crossings**

A Synthesis of Highway Practice

Transportation Research Board
National Research Council





- What's New
- FHWA Programs
- Legislation and Regulations
- Electronic Reading Room/FOIA
- Press Room
- FHWA Web Sites
- About FHWA
- Employee Phone Directories
- Doing Business with FHWA
- Search

Surface T
The United Sta
reauthorization
Congress, Stat
stakeholders to
[Reauthorizati](#)

News:
[Press Release](#)

Environm
President Bush
enhance enviro
process in con
[Environmenta](#)
[Project Review](#)
Executive Orde

FY 2003 P
The FY 2003 F
Administration
and critical ini
and strategies
stewardship an
includes meas
objectives, and
[Read the Plan](#)

Knowledg
FHWA is spon



GUIDANCE ON TRAFFIC CONTROL DEVICES AT HIGHWAY-RAIL GRADE CROSSINGS

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL HIGHWAY ADMINISTRATION

HIGHWAY/RAIL GRADE CROSSING TECHNICAL WORKING GROUP (TWG)

NOVEMBER 2002

Go Links



be the [National Traffic](#)
your second stop should be

a
father of the Interstate
groff's "The Man Who
[y page.](#)

ability Report
and financial highlights are
ntability Report. [Read the](#)
ocument.

ncing

cant cemetery was found in
\$ Route 77 (US 77) in
Texas Department of
track. Read about what
ation and construction in the
:

Act for the 21st
ed June 9, 1998, as Public

Internet



Primary Sources of Design Guidance

- American Association of State Highway and Transportation Officials
- Institute of Transportation Engineers
- Transportation Research Board
- Department of Transportation





MUTCD 2000

Manual on Uniform Traffic Control Devices

millennium edition

December 2000

Incorporating:
Revision No. 1 dated December 28, 2001
Errata No. 1 dated June 14, 2001



US Department
of Transportation
Federal Highway
Administration





U.S. Department of Transportation
Federal Highway Administration



What's New

FHWA Programs

Legislation and Regulations

Surface Transportation Reauthorization

The United States Department of Transportation (DOT) is preparing for the reauthorization of surface transportation programs by working with Congress, State and local officials, tribal governments, and other stakeholders to develop its proposals. Visit the [Surface Transportation Reauthorization web site](#) to find out more.

Employment Opportunities

[Jobs in the Federal Highway Administration](#)

Planning A Trip?

Your first stop should be the [National Traffic and Road Closure Information](#) web site and your second stop should be the [Scenic Byways](#) web site.

The Man Who Changed America

President Dwight D. Eisenhower is called the Father of the Interstate System. You can read why in Richard F. Weingroff's "The Man Who Changed America" on [FHWA's Highway History page](#).

2002 Performance and Accountability Report

The FHWA's recent program accomplishments and financial highlights are described in the 2002 Performance and Accountability Report. [Read the Report on-line](#), or [order a printed copy](#) of the document.

Environmental Streamlining

Preserving History While Advancing Transportation: US 77 in Texas

Work came to a halt when a historically significant cemetery was found in the project right-of-way during an upgrade of US Route 77 (US 77) in Refugio, Texas. But the rapid response of the Texas Department of Transportation (TxDOT) got the project back on track. Read about what happened and find out about balancing preservation and construction in the August issue of "[Successes in Streamlining](#)".

The Transportation Equity Act for the 21st Century (TEA-21)



was created June 9, 1998, as Public Law 105-178

Safety Design Information

Environmental Stewardship

The FHWA issued Executive Order 13274 on September 18, 2002 to promote environmental stewardship and streamline the decision-making process with major transportation projects. Visit the [Environmental Stewardship and Transportation Infrastructure web site](#) to find out more about the implementation of Executive Order 13274.

FY 2003 Performance Plan

The FY 2003 Performance Plan describes the Federal Highway Administration's (FHWA) strategic goals, national performance objectives, and critical initiatives for the coming year. The Vital Few goals, objectives, and strategies for safety, congestion mitigation, and environmental stewardship and streamlining are included in the Plan. A revised format includes measures and annual targets for all of the national performance objectives, and ties the results to FHWA budget accounts and activities. [Read the Plan](#) on-line, or [order a printed copy](#) of the document.

Knowledge Exchange

FHWA is sponsoring web-based communities of practice (CoP's) to

Search



FIDETGOV

