



**METROLINK'S**  
***NEW* HIGHWAY-RAIL GRADE CROSSINGS**  
**RECOMMENDED DESIGN PRACTICES**  
**AND STANDARDS MANUAL**



**Item 7. June 12, 2009 P&D MEETING**



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# Presentation Outline

- Background - SCRRRA Highway-Rail Grade Crossings
- Need, Purpose and Use for the New Manual
- Development of the Manual
- Content in the Manual



# SCRRA Highway-Rail Grade Crossings

## 460 + Operated Over by 149 daily trains

Crossing Type	Owner and/or Operator/Maintenance Responsibility			
	Metrolink	BNSF	UPRR	NCTD
Public Vehicle (w ped)	255	64	66	3
Pedestrian only	10	2	0	0
Private	29	1	5	0
Pedestrian Private	0	0	0	0
Station Pedestrian	18	3	8	0
<b>Total</b>	<b>312</b>	<b>70</b>	<b>79</b>	<b>3</b>



# SCRRA Highway-Rail Grade Crossings Need and Purpose for the New Manual

## ➤ Need

- ✓ Very large number of SCRRA crossings
- ✓ Metropolitan service territory with high traffic volumes of all types— train, vehicle, pedestrians
- ✓ Jurisdiction is split among multiple parties
- ✓ Some crossings and highway approaches approaching end of functional life
- ✓ Changes in technology and regulations
- ✓ No such Manual currently exists



# SCRRA Highway-Rail Grade Crossings Need and Purpose and Use for the New Manual

## ➤ Purpose and Use

- ✓ Enhance safety and operations, reduce risk
- ✓ Apply “best practices” and consistent design
- ✓ Apply latest proven technology and regulations
- ✓ Educate all users on SCRRA design practices
- ✓ Use – Manual applied whenever a *significant change* is proposed for an SCRRA highway-rail grade crossing or the highway approach



## *Purpose of the Manual*

Enhance the Safety, Reduce the Risk for  
Incidents at SCRRRA Crossings



# SCRRA Highway-Rail Grade Crossings Development of the New Manual

- 2 year process
- Technical Advisory Group (TAG)
  - ✓ SCRRA - signal, track, civil engineers
  - ✓ City of Los Angeles and Metro (LA-MTA)
  - ✓ California Public Utilities Commission
  - ✓ Civil and Signal consultants
- Regional and nationwide inspections
- Review of all available technical literature



# Inspection of Transit Systems



# Inspection of East & West Coast Railroads



# Review of Technical Literature



# SCRRRA Highway-Rail Grade Crossings Recommended Design Practices and Standards

## ➤ “The Manual” - *by the numbers*

- ✓ 10 chapters – 130 pages, 44,000 words
- ✓ 11 Appendices – 160 pages
- ✓ 42 Figures, 8 Tables

## ➤ Extensive reviews

- ✓ Engineering Staff
- ✓ Safety and risk management
- ✓ Legal



# SCRRRA Highway-Rail Grade Crossings Recommended Design Practices and Standards

- Content – major areas addressed
  - ✓ Applicable regulations
  - ✓ Highway and railroad geometric design
  - ✓ Medians
  - ✓ Traffic Signals
  - ✓ Preemption of traffic signals
  - ✓ Railroad and traffic signal interconnection
  - ✓ Exit gates
  - ✓ Pedestrian-rail grade crossings
  - ✓ Pedestrian-rail station crossings



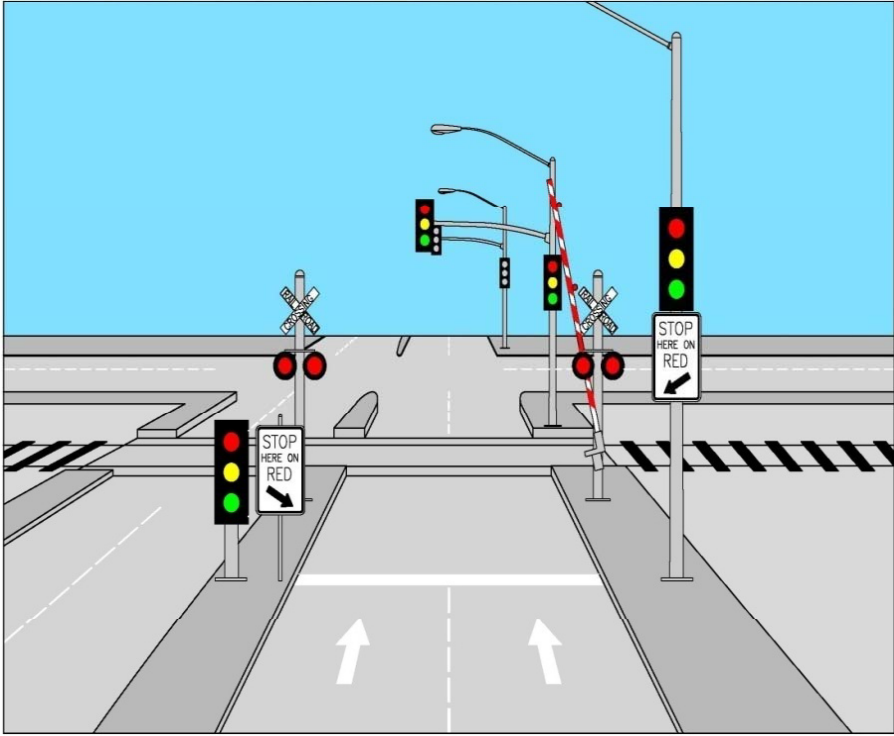
# Geometric Design



Flower Street, Glendale



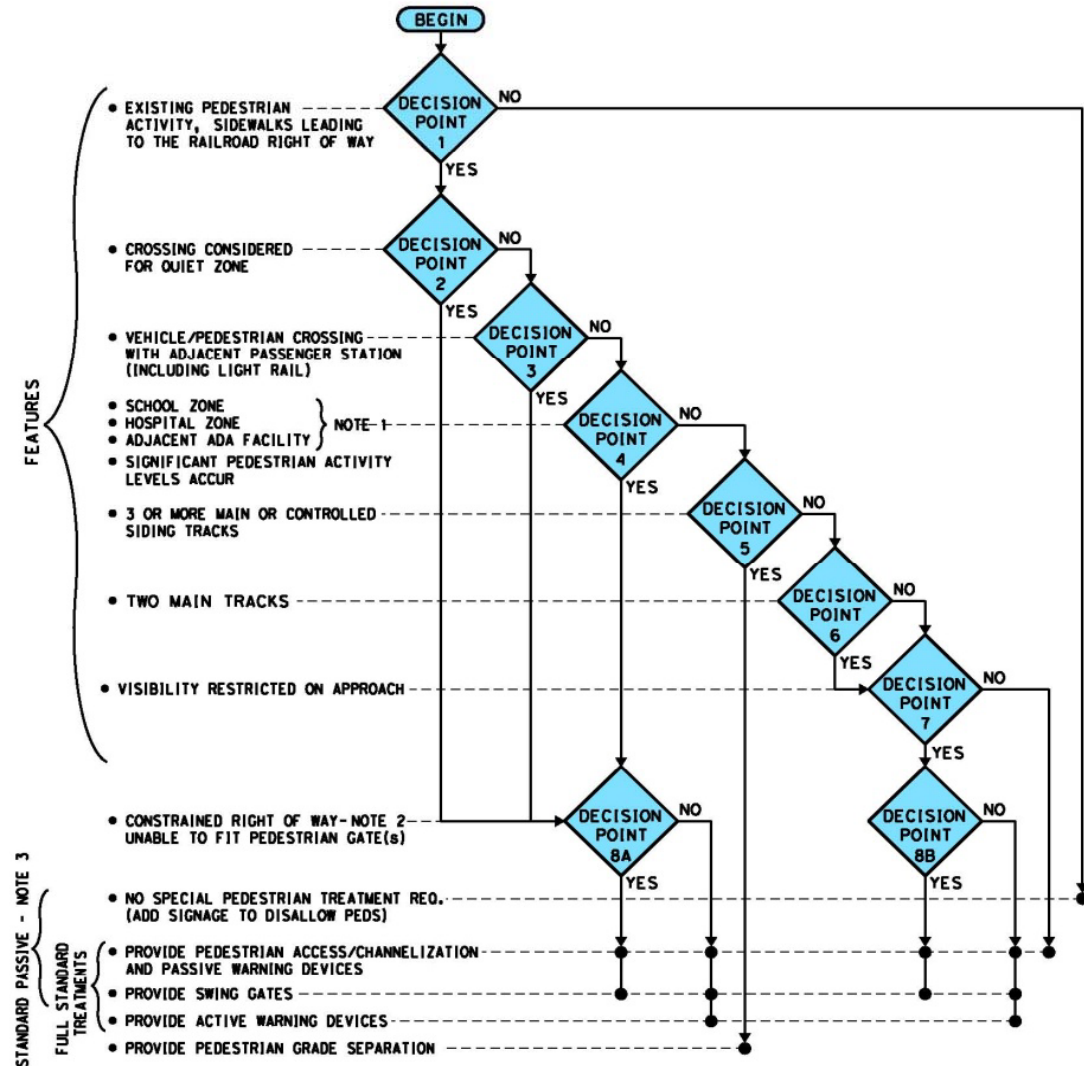
# Pre-Signals



# Design of Pedestrian Treatments



# Pedestrian Crossing Design Consideration Table



**NOTES:**

- TEN MINUTE WALK RULE - CROSSING LOCATED WITHIN TEN MINUTES WALK ( $\frac{1}{3}$  TO  $\frac{1}{2}$  MILE WALK).
- SCRRA APPROVAL REQUIRED.
- FOR PASSIVE WARNING DEVICES, THE DESIGNER SHALL USE THE FOLLOWING ORDER FROM LEAST THE MOST:
  - SIGNAGE (IF NO SIDEWALKS ARE PRESENT OR PLANNED).
  - SIGNAGE AND DETECTABLE STRIP.
  - SIGNAGE, DETECTABLE STRIPS AND SWING GATES.
  - SIGNAGE, DETECTABLE STRIPS, SWING GATES AND CHANNELIZATION.



# Pedestrian-Rail Station Crossings



No Train approaching

Train approaching



# SCRRRA Highway-Rail Grade Crossings Recommended Design Practices and Standards

- Interim version of the Manual used for Orange County (OCX) and Glendale -Flower Street Design
- Final Version Issued this month
- Outreach program planned
- Questions ?

