

# Implementations for Safer Level Crossing

JR EAST Paris Office  
April 22, 2020

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# Overview of JR EAST

## ▶ Operates All Kinds of Railway Transport

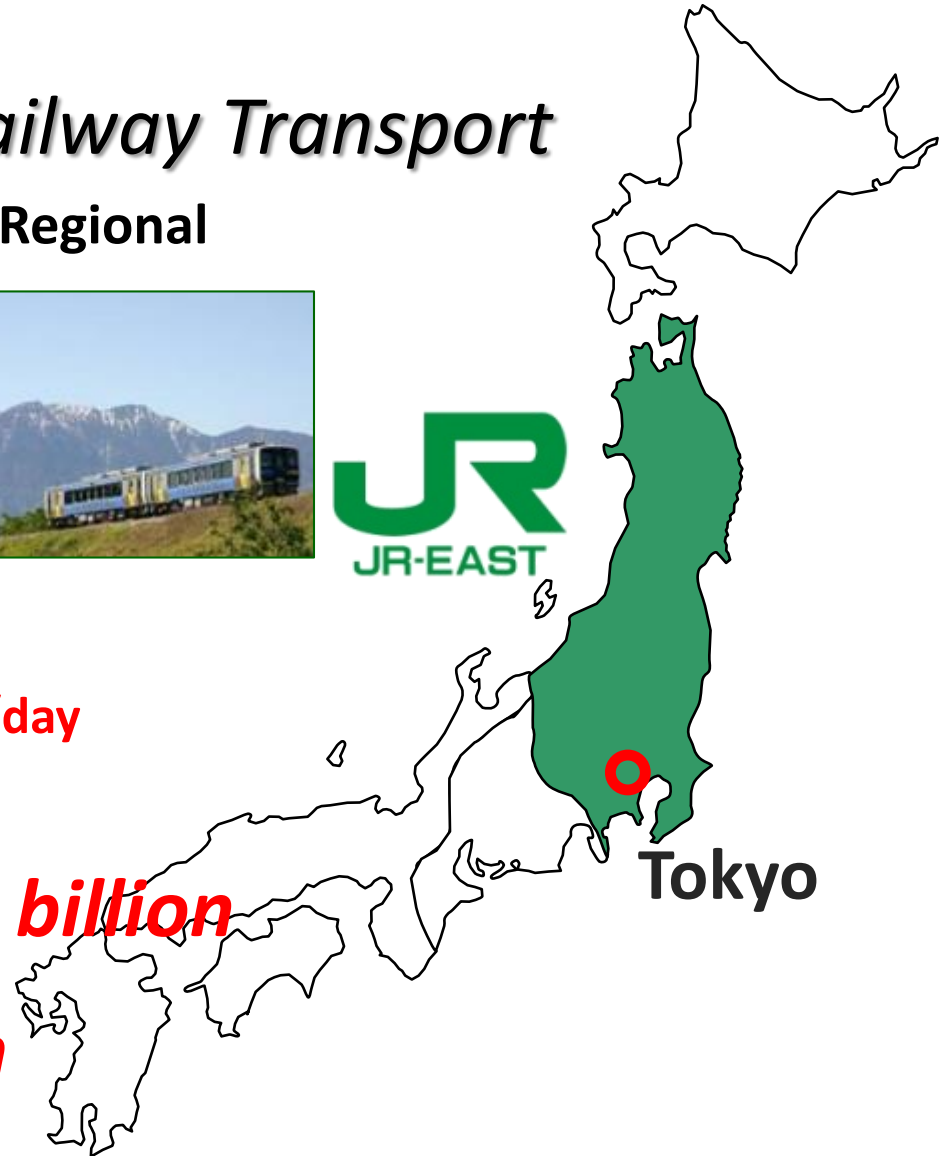
High Speed  
(Shinkansen)



Metropolitan



Regional



Network: **7,457** kilometers

No. of Passengers: **17.5 million** /day

No. of Train Trips: **12,200** /day

Annual Operating Revenue: **€ 23.5 billion**  
(No subsidies from the government)

Net Annual Income: **€ 2.3 billion**

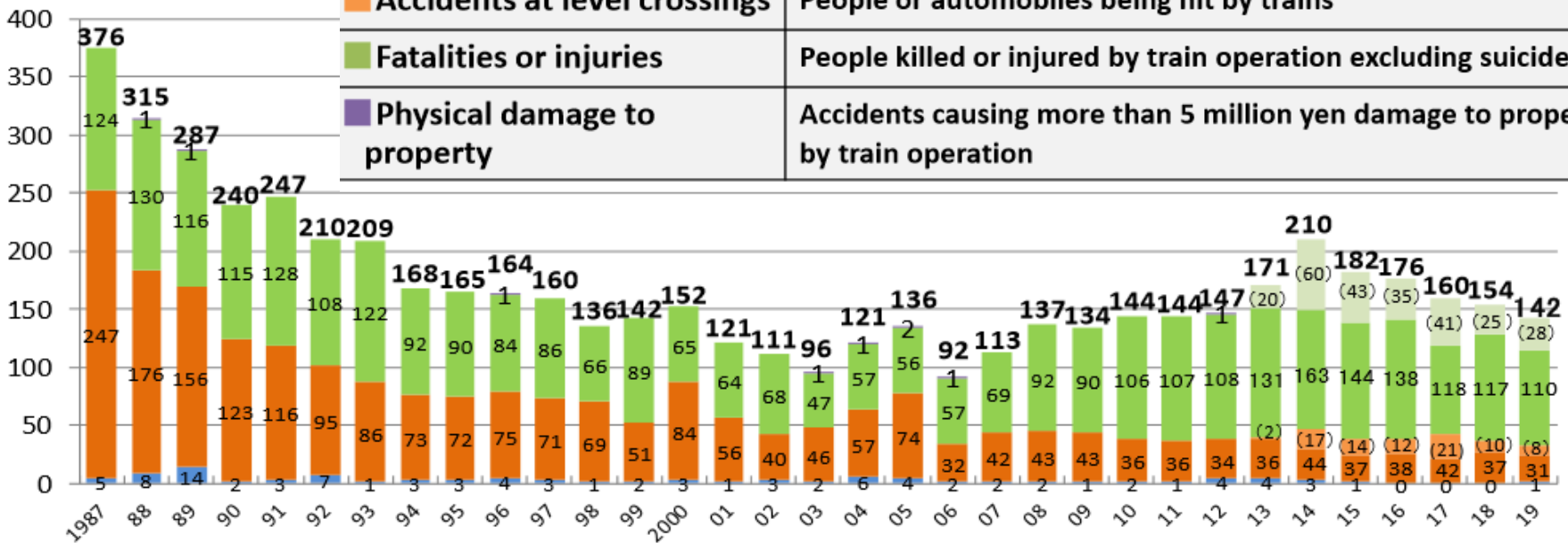
\*Numbers are as of FY ended March 31, 2018

\*\*Calculated by 1€ = 125 JPY



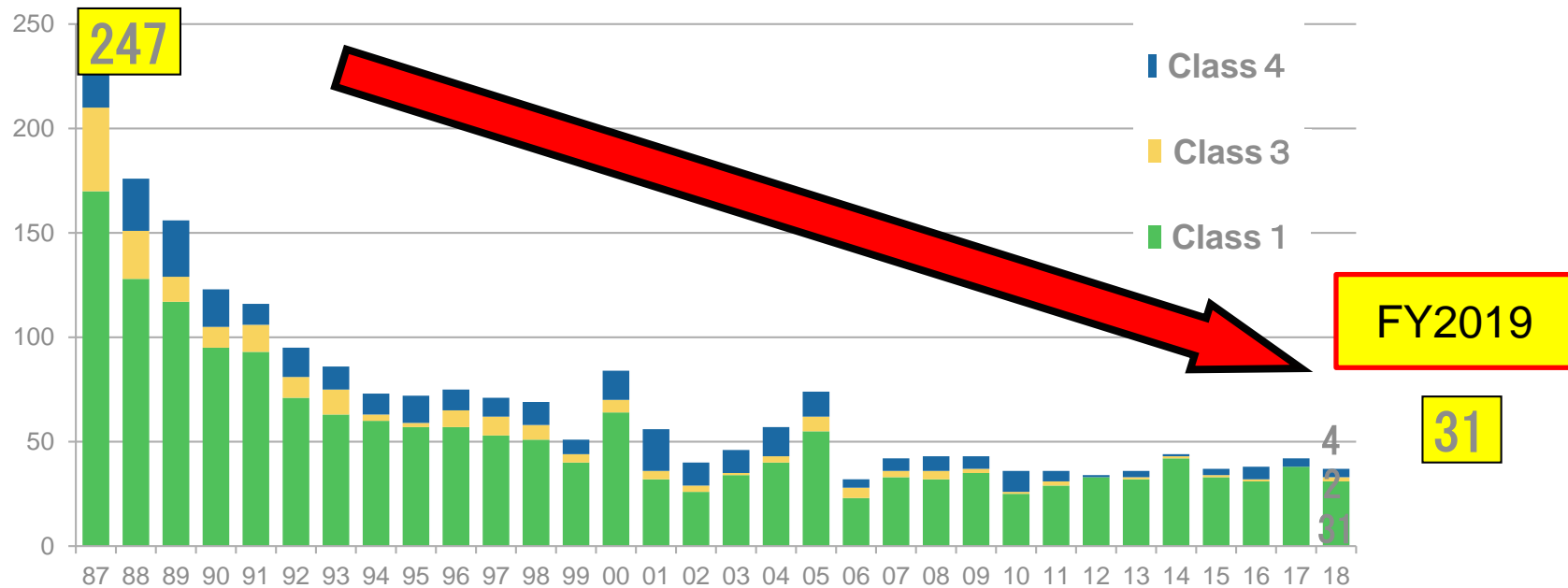
# Number of Railway accidents (categorized by damage)

<span style="color: blue;">■</span> Train accidents	Train collisions, derailments, and train fire
<span style="color: orange;">■</span> Accidents at level crossings	People or automobiles being hit by trains
<span style="color: green;">■</span> Fatalities or injuries	People killed or injured by train operation excluding suicide
<span style="color: purple;">■</span> Physical damage to property	Accidents causing more than 5 million yen damage to property by train operation



Privatized in 1987

# Number of LC accidents (categorized by Class)




Class 1: With alarms and crossing gates (Active LC)  
 Class 3: With alarms No crossing gate (Active LC)  
 Class 4: Neither alarms nor crossing gates (Passive LC)

# Implementations for preventing accident at LC

What kind of implementation does JR EAST do?

# Implementations for preventing accident at LC

- Level crossing : Intersection of railroad and road
- Preventing Accident needs to be considered in both railway and road



① Level crossing alarm system

② Obstacle detectors

③ Omnidirectional warning light

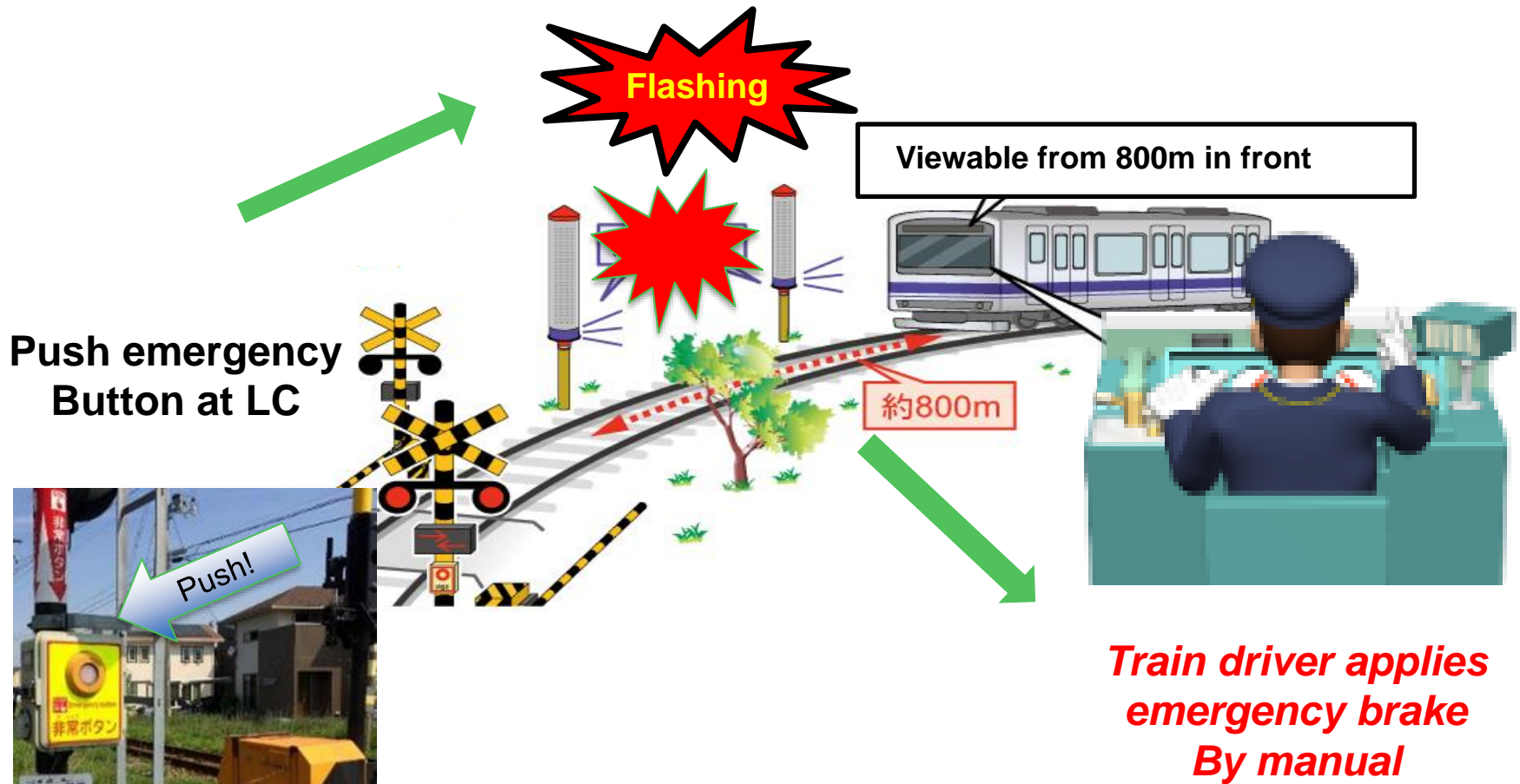
④ Unique measures  
- Road heating system  
- 3D illusion sign  
- Anti weed sheet

⑤ Cooperation with the local government

⑥ Level crossing zero accident promotion

# How to stop train at emergency (1/1)

① Level crossing alarm system Installed 4,837 Level Crossings



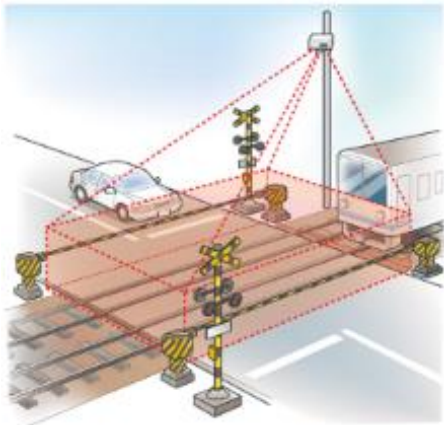
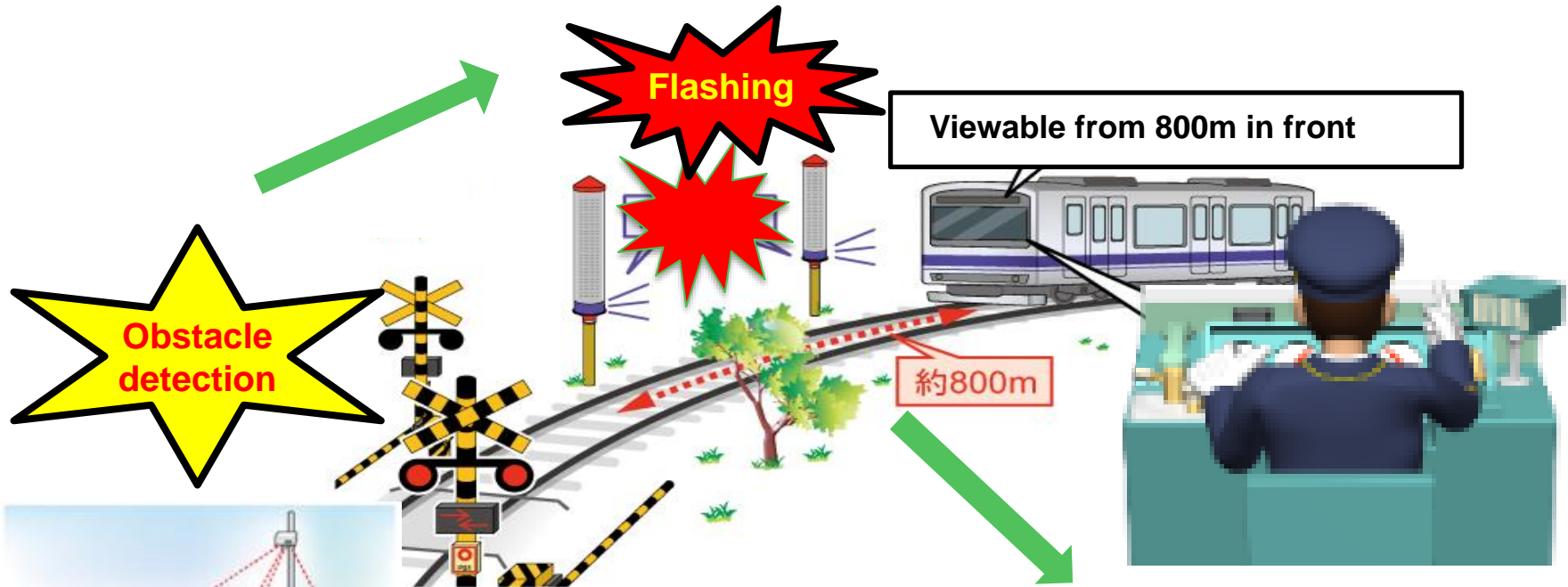
*Train driver applies emergency brake  
By manual*



# How to stop train at emergency (2/2)

## ② Obstacle detectors Installed 2,850 Level Crossings (As of 2020 March)

The detector alerts the train driver when it detects a stuck car or an obstacle at LC



3D Laser Radar type

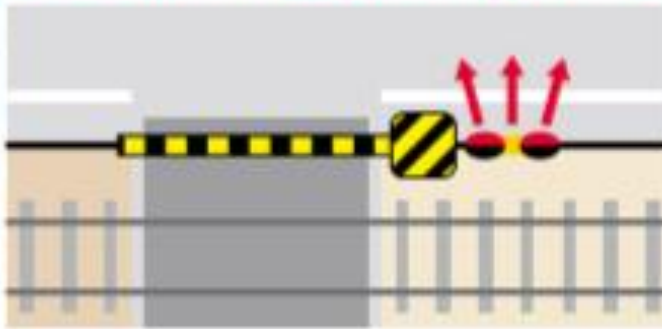
*Train driver applies  
emergency brake  
By manual*

# How to prevent accident/incident at LC

## ③ Omnidirectional warning light    Installed 1,429 Level Crossing



Can be detected from limited directions.



[ Omnidirectional warning light ]



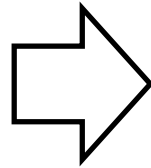
**Can be visible all directions**



# Unique implementations

# Unique measure example (1/3)

## ④ - 1 Other Implementations at heavy snow area



Road heating system for melting snow at LC

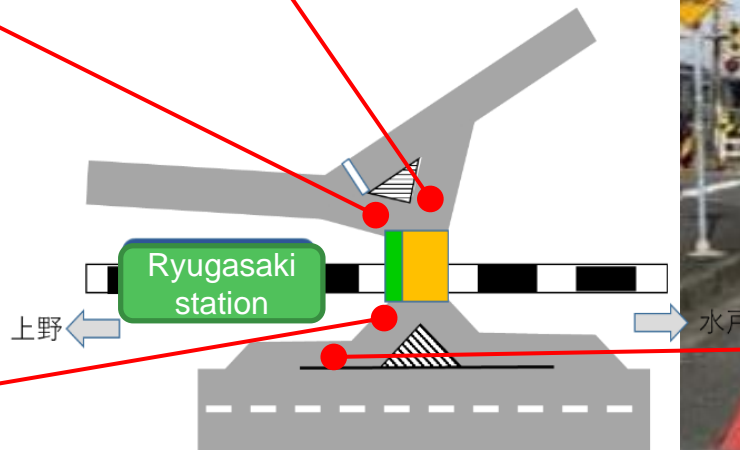
# Unique measure example (2/3)

## ④ - 2 Other Implementations by 3D illusion sign

- Installed to alert pedestrians and car drivers approaching LC to stop temporarily before LC
- First case of implementation in JR EAST



Once alarming LC, never across



# Unique measure example (3/3)

## ④ - 3 Other Implementations by removing natural cause

- Improve the visibility of level crossings for Road users and train driver
- Especially, quite effective for **passive LC**
- **Almost all** nearby passive LC in JR EAST area has already installed it (Total 319, as of 2019 March)
- We achieved **to reduce Fatalities at passive LC** (FY2019 1 case, FY2018 4 cases, )



**After** setting Anti-weed sheet

# Measure by cooperation with local government

## ⑤ Specific example of cooperation with the local government



Abolition of level crossing



Overhead crossing

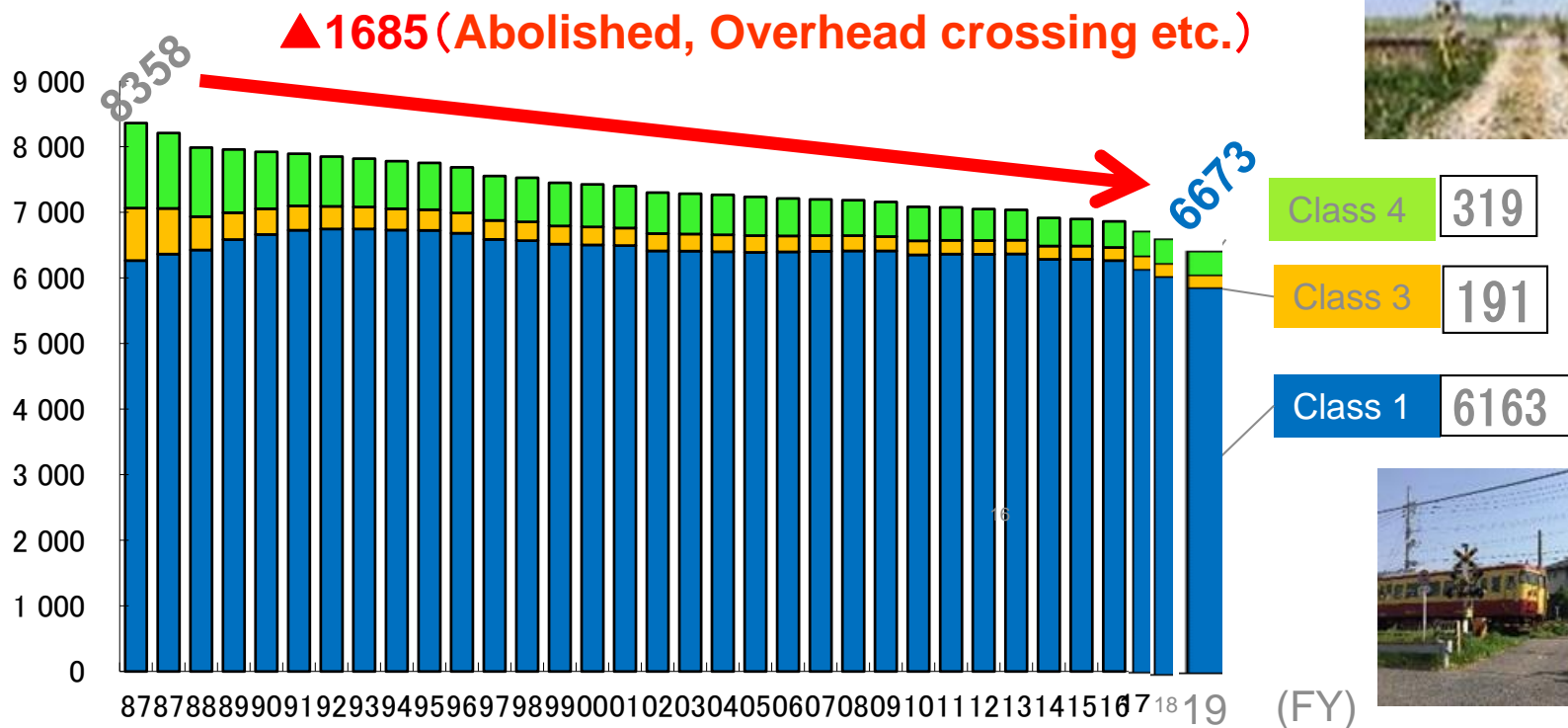


Separation of pedestrians and cars



Railing elevated

# Total number of LC (categorized by class)



1 level crossing exists per about 1km



# Measure on education and cooperation

## ⑥ Level crossing zero accident promotion

(Implemented since 1991)



TV Commercial



Enlightenment activity in elementary school



Poster



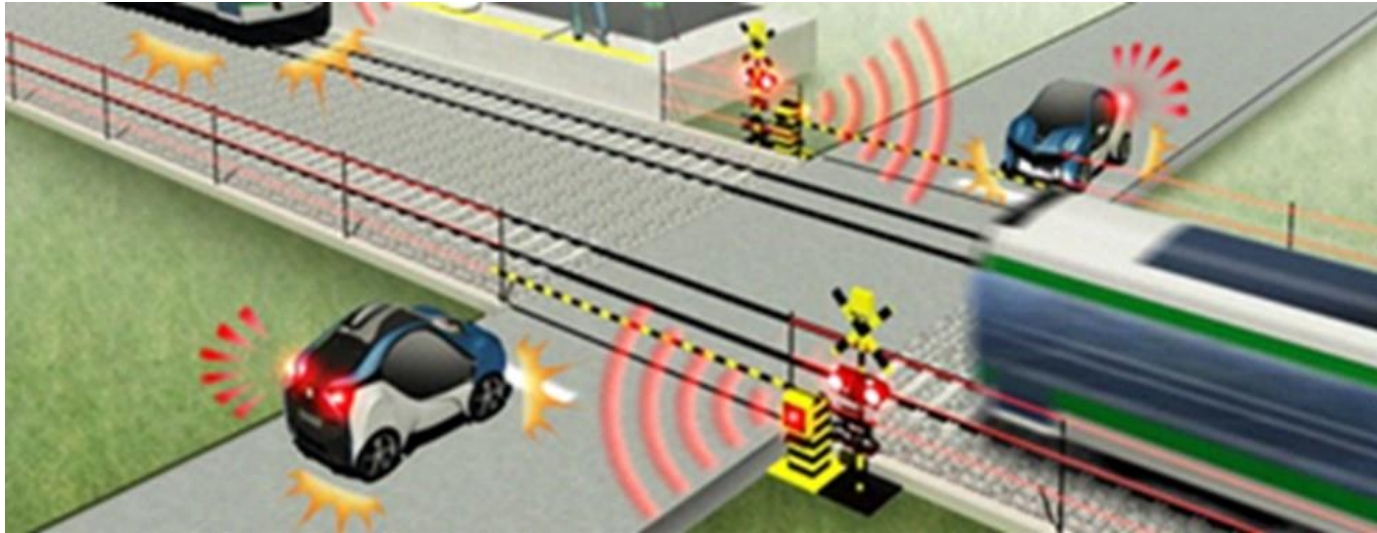
Enlightenment video



Goods distribution to drivers

# Future measure for preventing accident at LC (under study)

Provide cars with the motion of level crossings



Consider providing cars with information of a level crossing  
(e.g. level crossing is open or close)

**THANK YOU FOR  
YOUR KIND  
ATTENTION**

