

# New York City Transit Safety Program and Culture

February 2014



# At NYCT, the safety of our customers and employees is our priority

- Each and every day, our number one responsibility is to ensure that all of our customers and employees get home safely to the person or people who count on them
- We have an uncompromising commitment to safety in everything we do – from protecting our system and community during a major weather event to inspecting every single subway car and bus before it makes service each day
- We share the safety concerns of our community, and it is our responsibility as leaders to fulfill this commitment every day



# Safety is a fundamental part of how we do things at NYCT

NYCT's Safety Culture is the priority we place on employees and public safety, by everyone in every group at every level of NYCT

Safety culture is a commitment to:

- Personal responsibility for safety
- Actions to preserve safety
- Communication of safety concerns
- Adapting and modifying behavior based on lessons learned from mistakes
- Being rewarded in a manner consistent with these values



# Our culture of safety moves us beyond compliance to personal commitment

## Compliance

- Command and control or rules based
- Doing things to avoid punishment
- Breaking of rules when possible
- Safety is a priority when the “bosses are around”
- Production is more important than safety
- “Check the box”

## Commitment

- Safety is a core value
- Practicing safety even when no one is watching
- Identifying ways to eliminate exposure
- Communicating freely with leadership on safety issues
- Helping coworkers when they are exposed
- Safety defines our organization



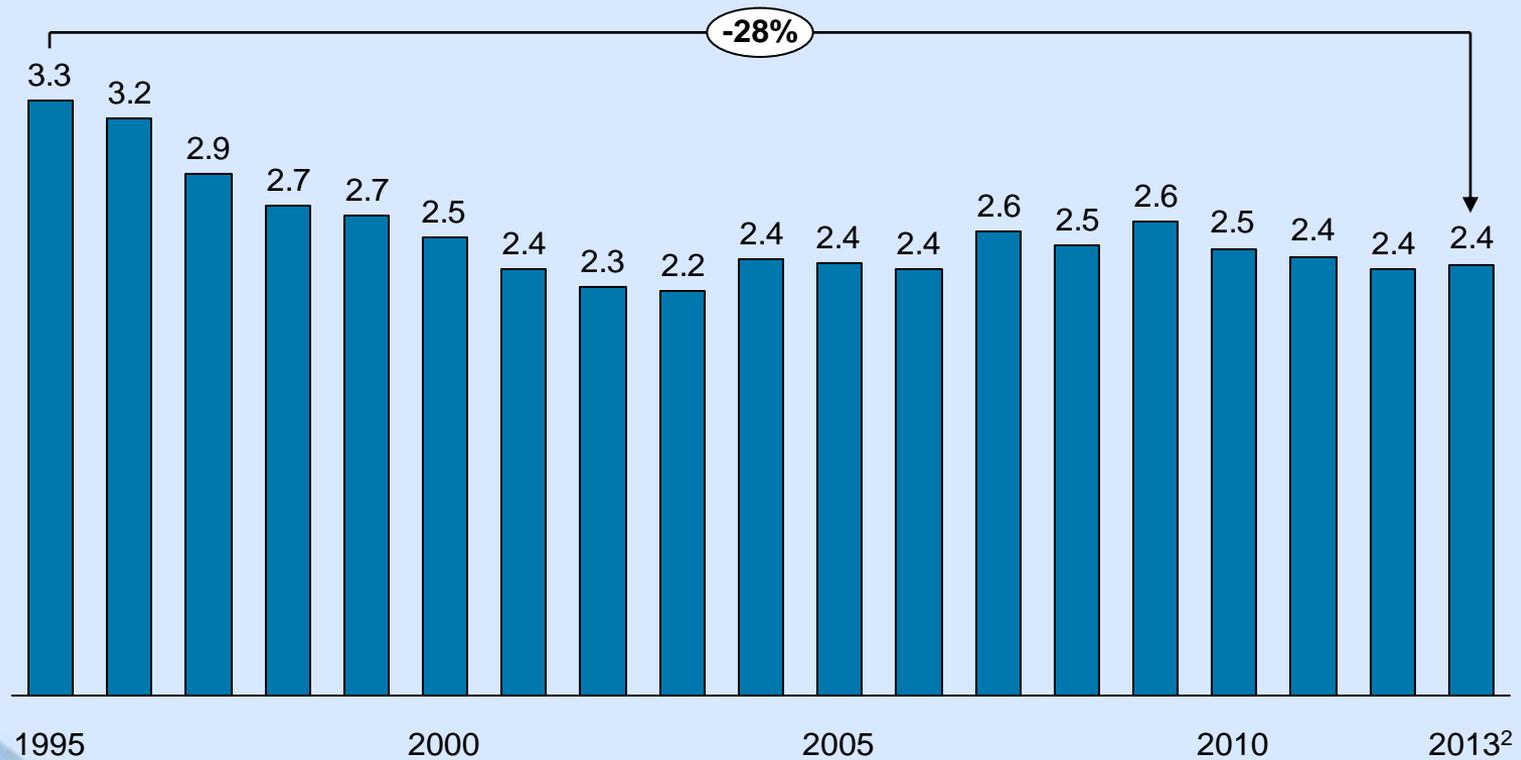
# Safety and productivity are not tradeoffs but go hand-in-hand

- Every supervisor's responsibility is production, quality control and cost control
- However none of the above goals can be achieved without safety
- Safety must be our priority every day in order to successfully deliver service



# NYCT has made great strides in improving the safety of our system...

Annual NYCT Customer Injury Rate<sup>1</sup>



1995

2000

2005

2010

2013<sup>2</sup>

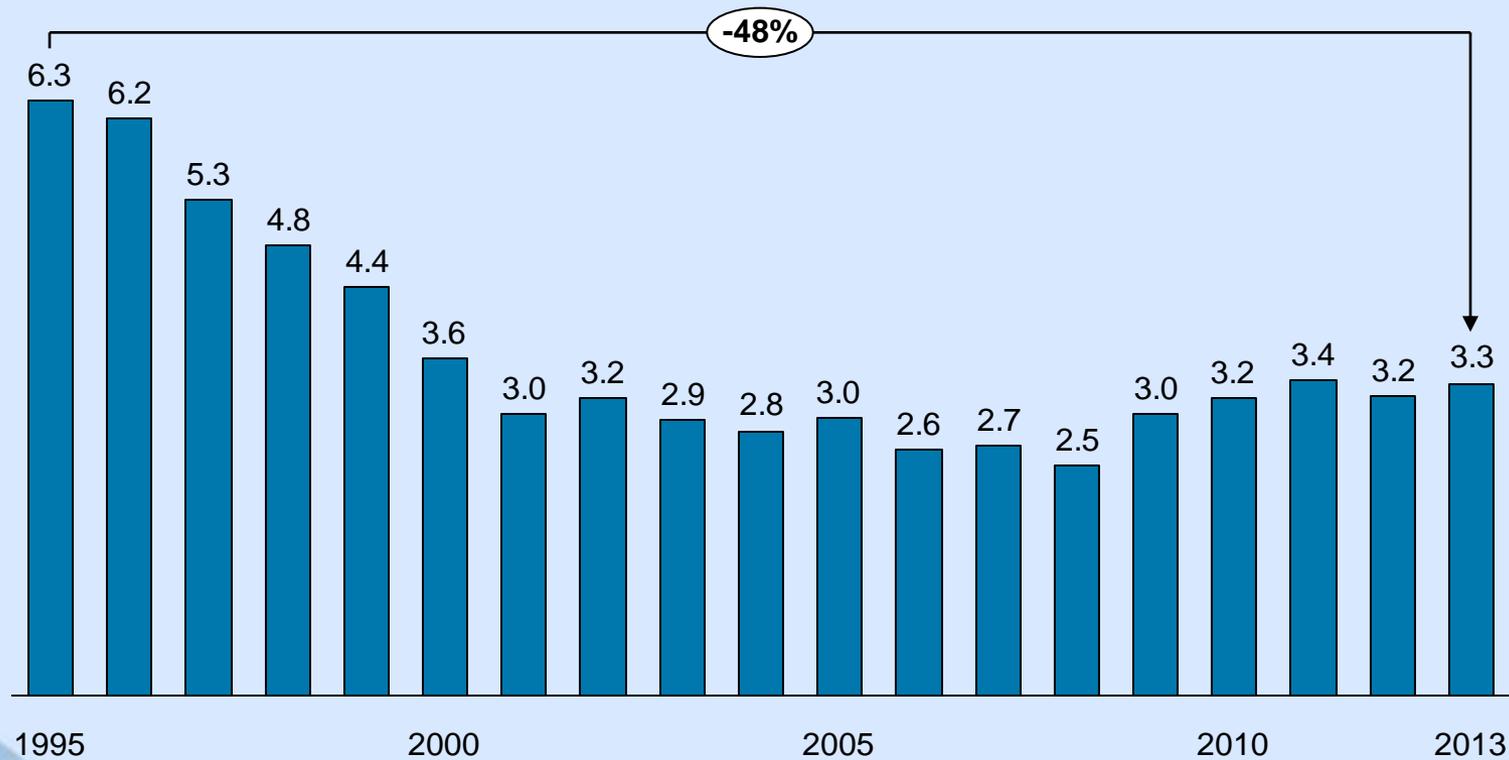
-28%



1 – Subway Customer Accident and Bus Customer Accident (non-collision) Injury rates are calculated per million customers; 2 – 2013 data as presented includes injury rates thru November

# NYCT has made great strides in improving the safety of our system...

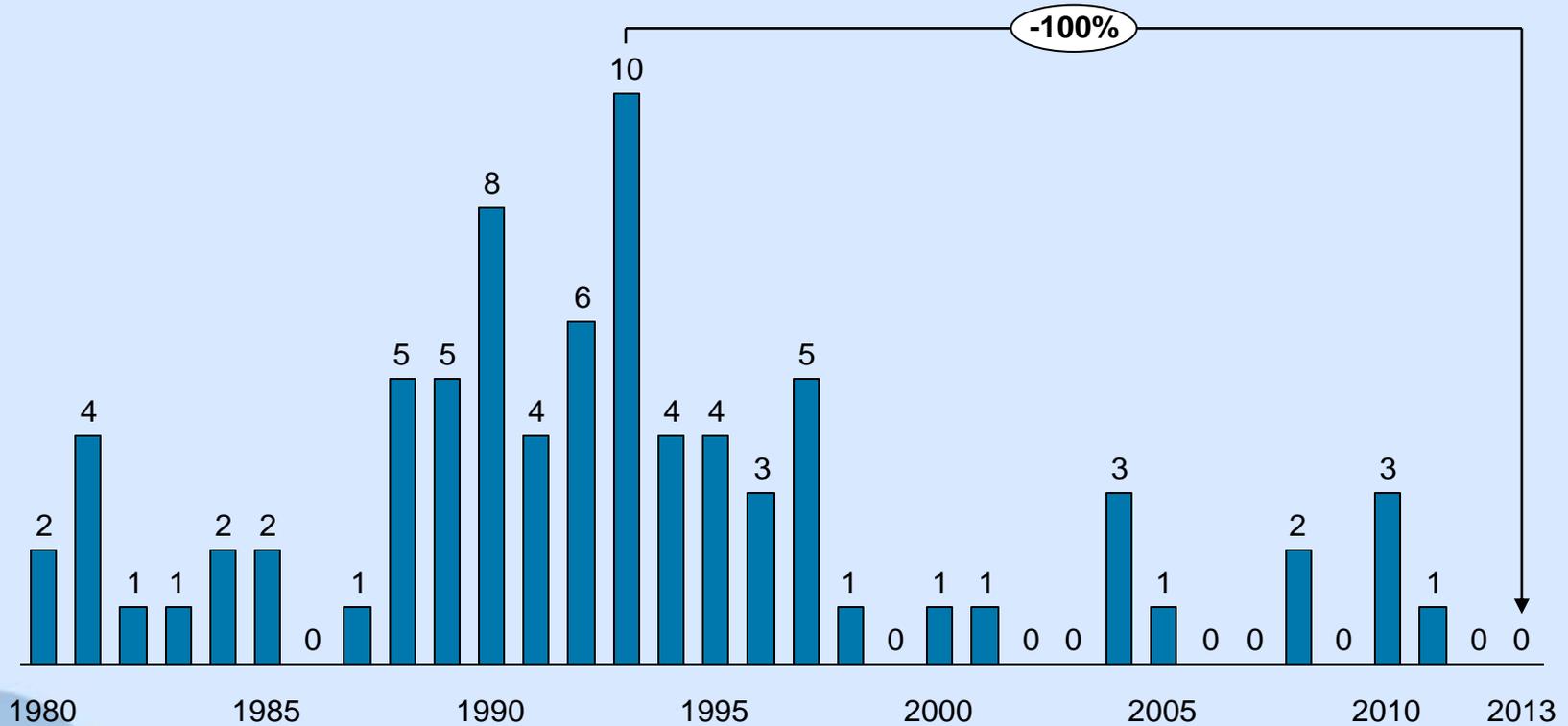
Annual NYCT Lost Time Accident Rate<sup>1</sup>



<sup>1</sup> – Employee Lost Time Accident rates are calculated per 100 employees

# NYCT has made great strides in improving the safety of our system...

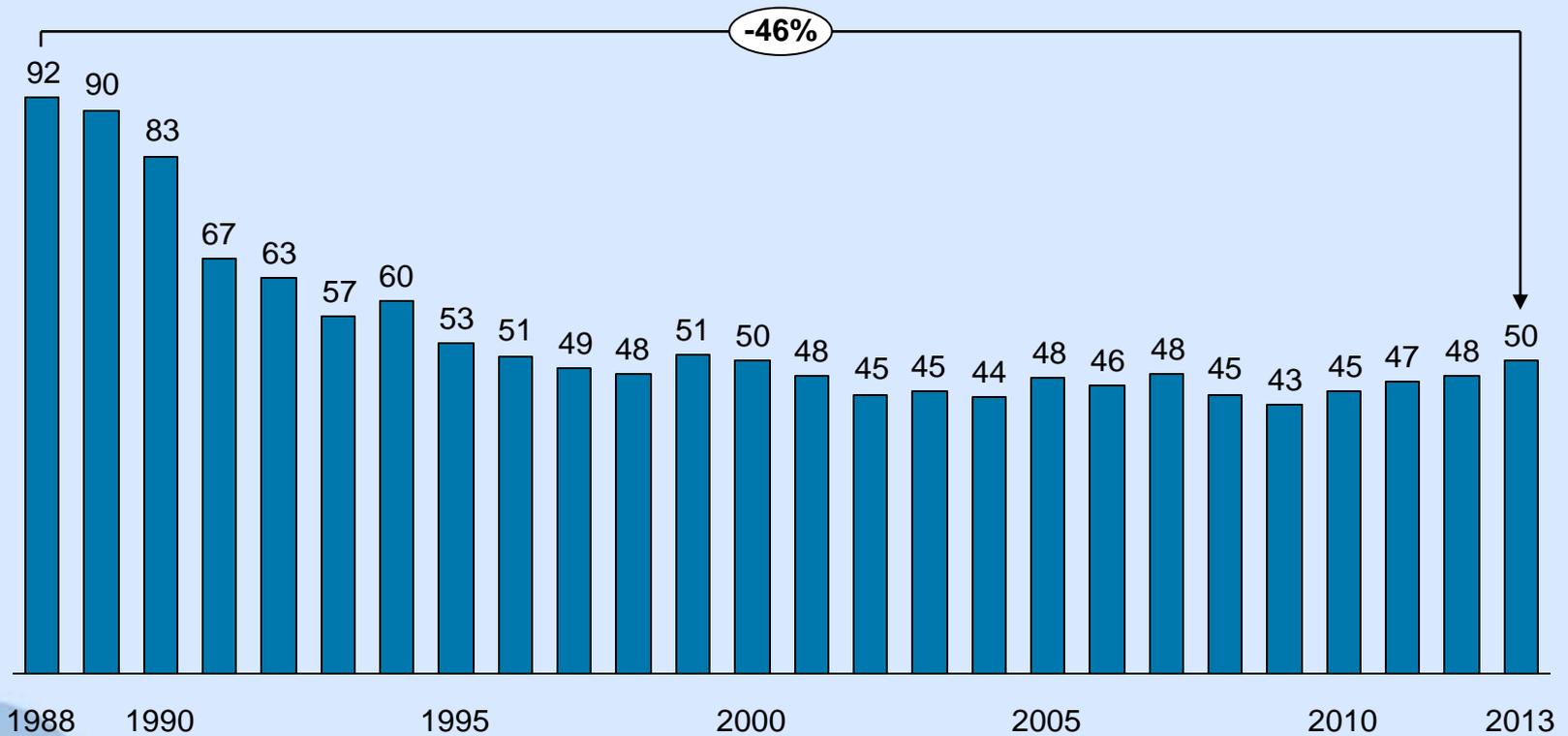
Annual NYCT Subway Mainline Collisions<sup>1</sup>



<sup>1</sup> - Note, data as presented excludes Staten Island Railway given that data is unavailable prior to 1996

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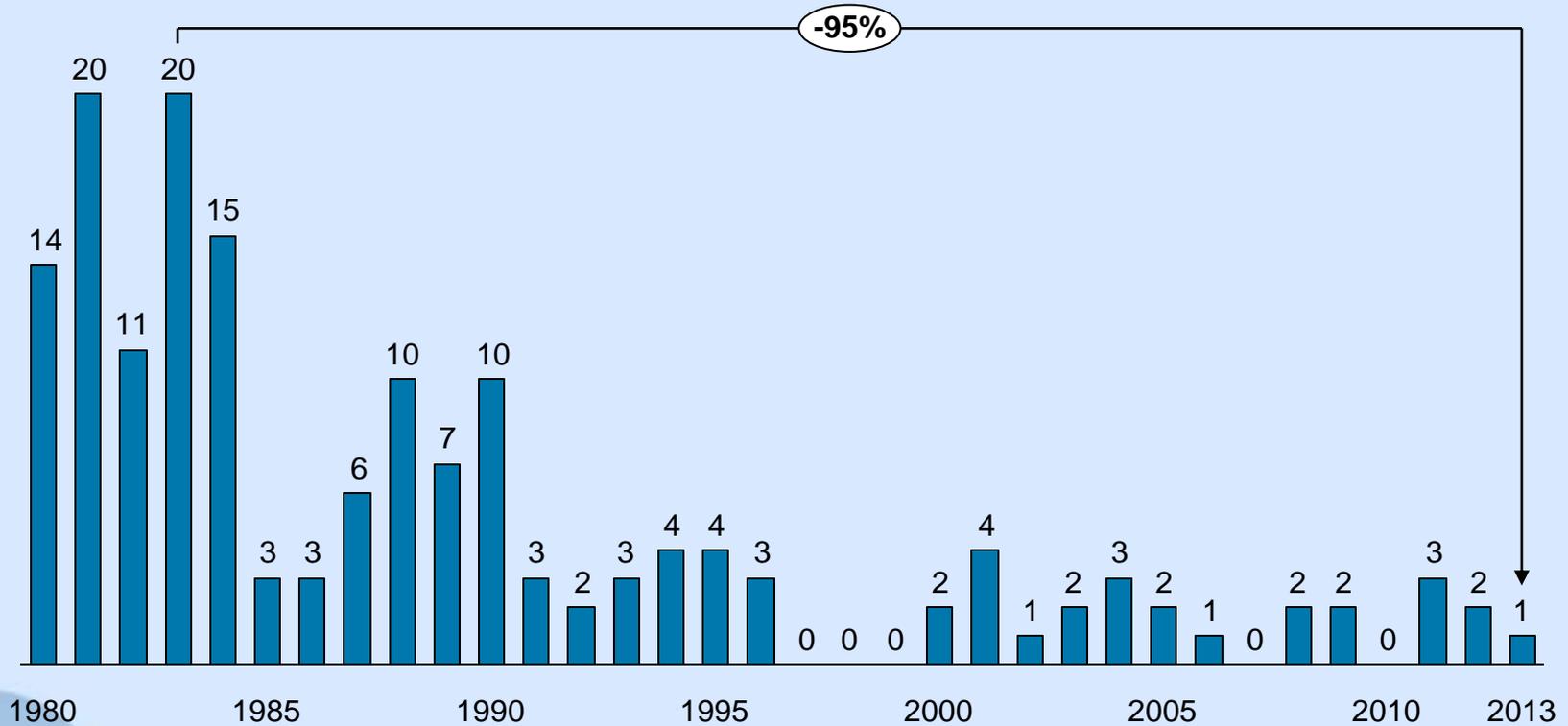
Annual NYCT Bus Collision Rate<sup>1</sup>



<sup>1</sup> – Bus collision rates are calculated per million miles

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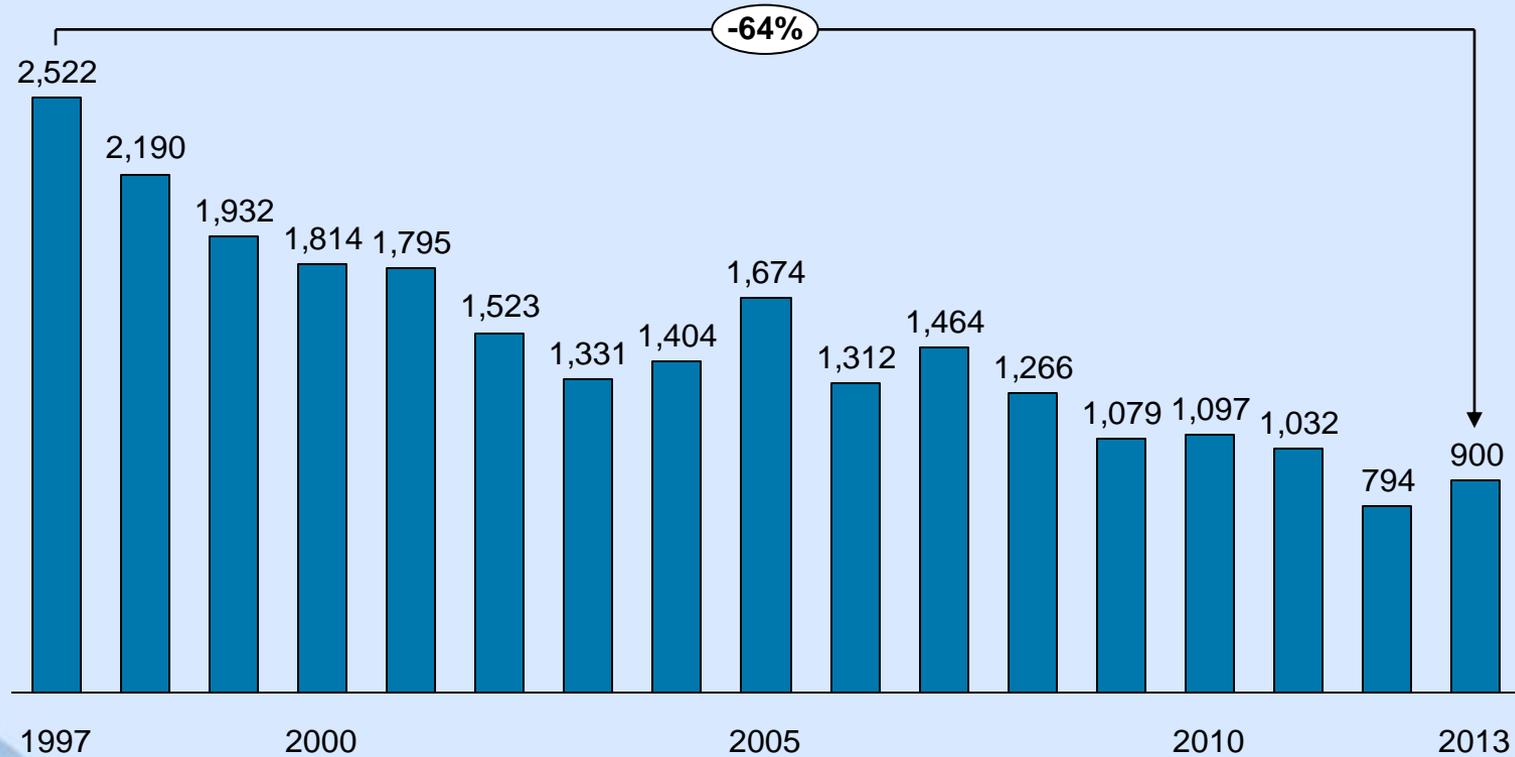
Annual NYCT Subway Mainline Derailments<sup>1</sup>



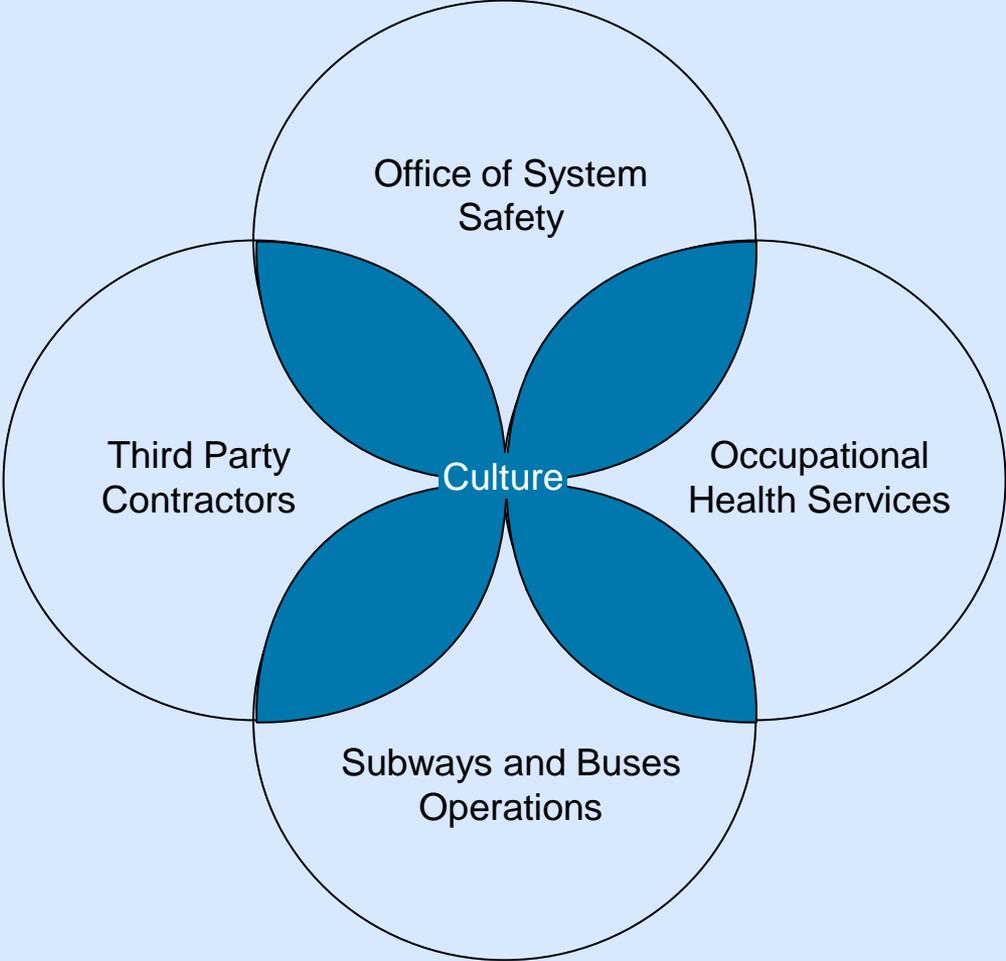
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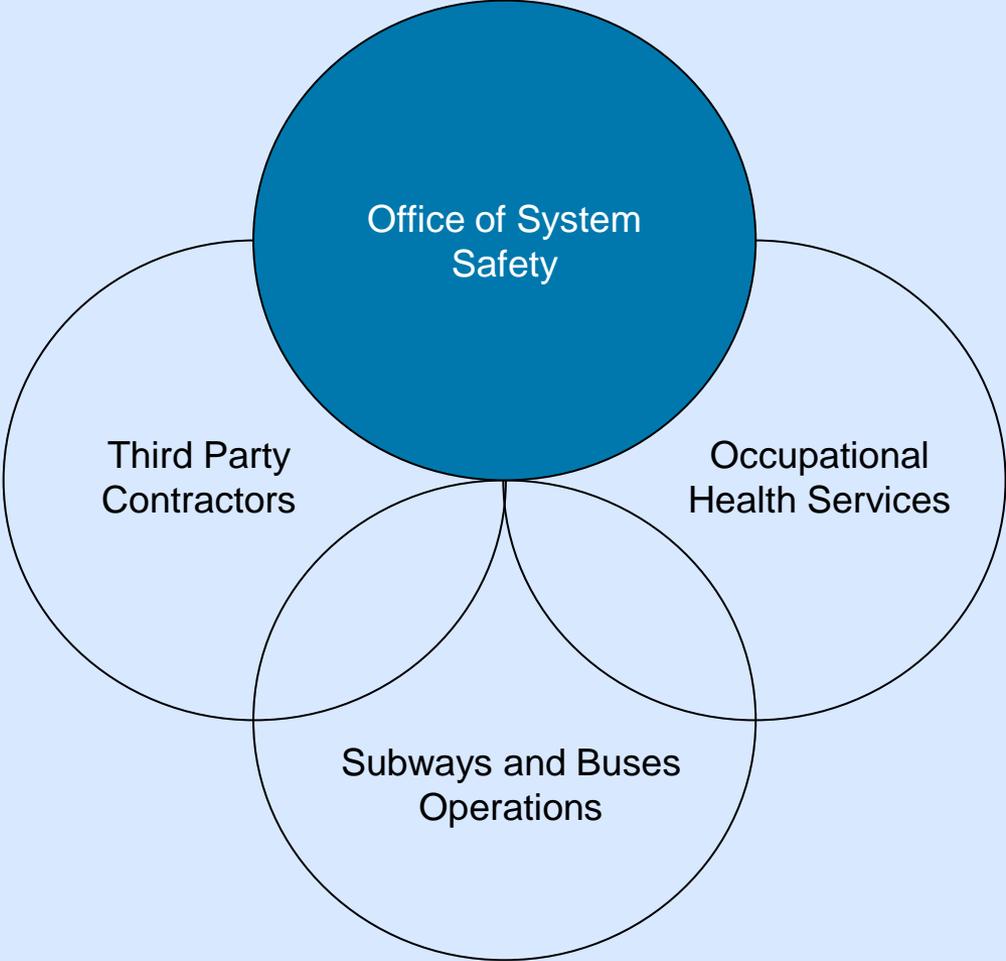
Annual NYCT Subway Fires



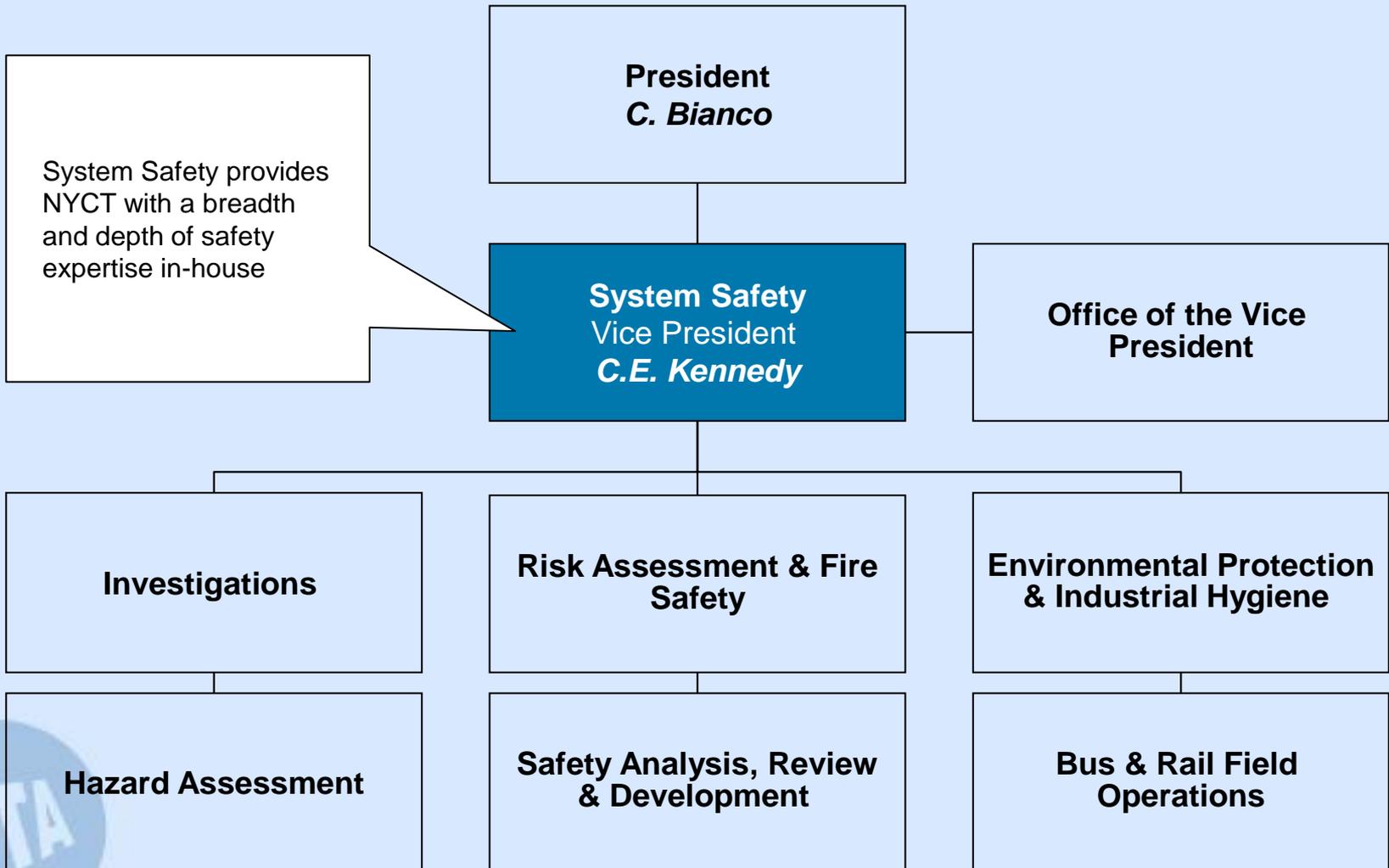
# NYCT deploys a comprehensive, multi-pronged approach to safety



# NYCT deploys a comprehensive, multi-pronged approach to safety



# The Office of System Safety is an independent department that reports directly to NYCT's President



# System Safety personnel are highly credentialed and interface regularly with state and national leaders in safety

Office of System Safety Key Personnel Credentials include:

Certified Safety Professionals, Professional Engineers, Masters and Bachelors Degrees in Safety Management, Industrial Hygiene, Environmental Science, Engineering, Industrial Safety, Fire Safety and other key specialties

Office of System Safety Key Liaison Relationships include:



# System Safety's sole mission is the oversight and facilitation of safety

## Office of System Safety Programs (*not exhaustive*)

- Safety Goal Action Plans for Divisions
- Investigation of major accidents
- Investigation of near miss incidents
- Auditing compliance with safety regulations
- Investigations and review of industrial hygiene health hazards
- Prevention of environmental hazards
- Safety reviews for engineering designs
- Oversight of the Fire Safety Program

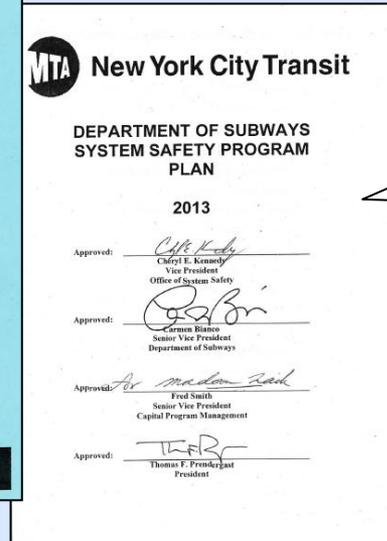
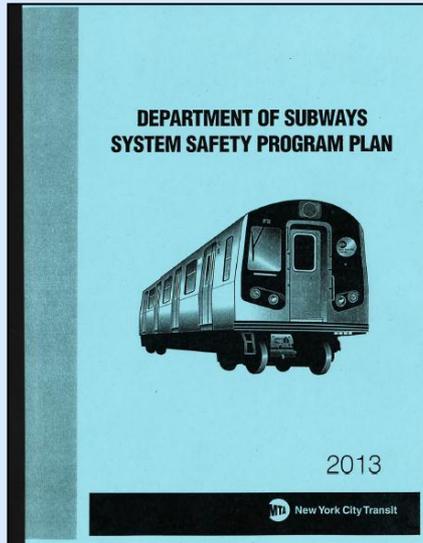
- System Safety Program Plans (SSPP)
- Hazard analysis (Military Standard 882C)
- Roadway Worker Protection

The System Safety concept is the application of a systematic, consistent approach to identify, assess, and resolve hazards throughout the life cycle of a system from design through operation, maintenance and disposal

System Safety develops, facilitates and oversees a robust portfolio of programs for rail and bus to ensure safety in everything we do

To be discussed further

# System Safety Program Plans govern safe practices in Subways and Buses



System Safety Program Plans are required by the Federal Transit Administration and enforced by the NYS Public Transportation Safety Board

Ensures safety is incorporated into all aspects of operations



# Many System Safety programs, such as Hazard Analysis, are nationally recognized

Military Standard 882C

TABLE 1. HAZARD SEVERITY CATEGORIES

Description	Category	Definition
CATASTROPHIC	I	Death, system loss, or severe environmental damage.
CRITICAL	II	Severe injury, severe occupational illness, major system or environmental damage.
MARGINAL	III	Minor injury, minor occupational illness, or minor system or environmental damage.
NEGLIGIBLE	IV	Less than minor injury, occupational illness, or less than minor system or environmental damage.

TABLE 2. HAZARD PROBABILITY LEVELS

Description*	Level	Specific Individual Item	Fleet or Inventory**
FREQUENT	A	Likely to occur frequently	Continuously experienced
PROBABLE	B	Will occur several times in the life of an item.	Will oc
OCCASIONAL	C	Likely to occur some time in the life of an item	Will oc
REMOTE	D	Unlikely but possible to occur in the life of an item	Unlike expecte
IMPROBABLE	E	So unlikely, it can be assumed occurrence may not be experienced	Unlike



- NYCT's hazard analysis is conducted in accordance with Military Standard 882C
- Hazards are identified and evaluated based on severity and probability
- NYCT response actions are aligned with Department of Defense guidance

\*Definitions of descriptive words may have to be modified based on quantity involved.

\*\*The size of the fleet or inventory should be defined.

# Roadway Worker Protection is just one example of System Safety's facilitation and oversight



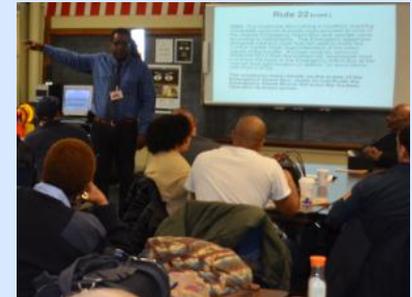
## Policy

- Required 8-hour Track Safety Training and refresher every two years for anyone who enters the right-of-way
- Extensive required track flagging qualification and annual refresher for all flaggers
- Comprehensive track safety and flagging rules



## Partnership

- Quarterly Executive Track Safety Task Force review, including the NY State Department of Transportation, Department of Labor, NYCT President and TWU Local 100 President
- Ongoing Track Safety Task Force review, including management, labor and System Safety

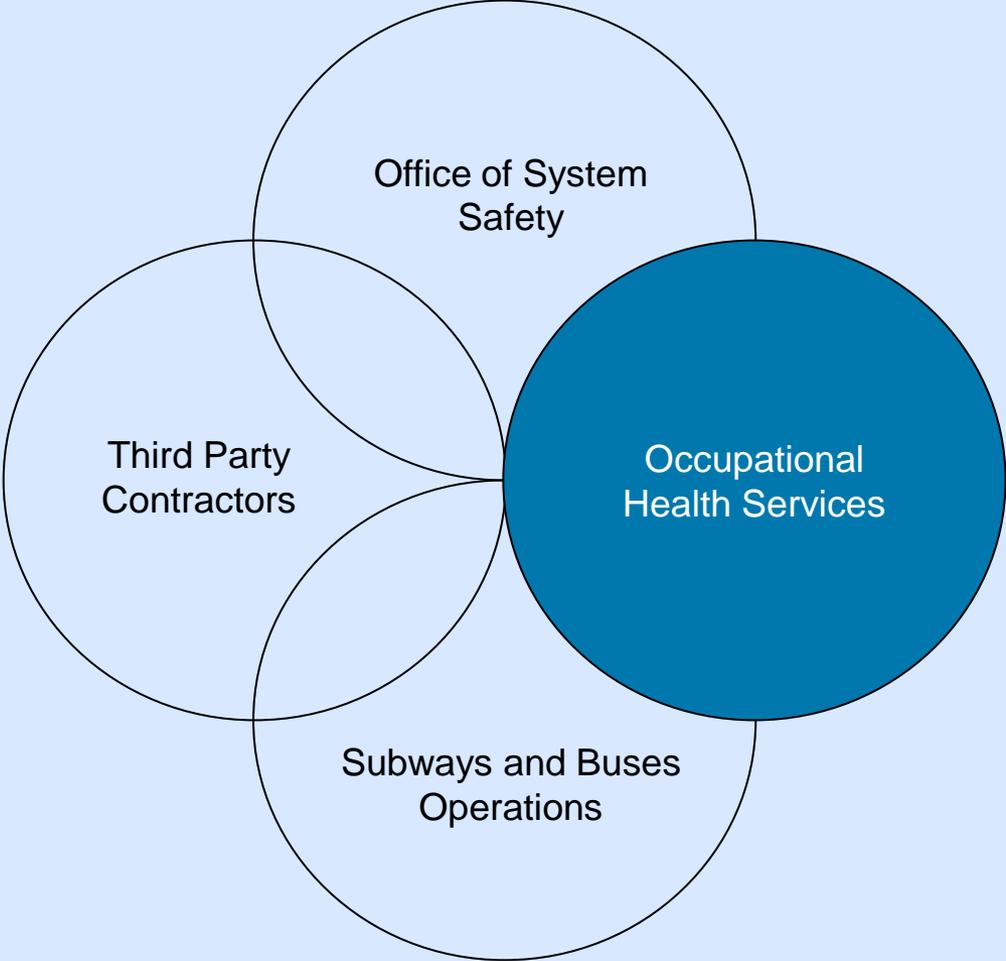


## Oversight

- Investigations of near miss incidents on the right-of-way
- Routine audits of right-of-way work by a joint Labor System Safety team
- Pre-job inspections conducted with labor to identify/address hazards before track work
- Pre-job safety meetings for all track work



# NYCT deploys a comprehensive, multi-pronged approach to safety



# Safety is further supported by Occupational Health Services (OHS), which ensures the health of our employees

## Pre-selection

Occupational Health Services (OHS) performed **4,572** pre-employment medical exams in 2013

## Medical Fitness

OHS completes an average of **70,000** employee medical assessments each year, including approximately **46,000** drug and alcohol tests

## Ongoing Medical Monitoring

OHS also conducts periodic medical evaluations (**7,000** in 2013) as well as visits to help manage chronic conditions (**14,475** in 2013)



# Pre-selection medical exams are based on an externally validated methodology

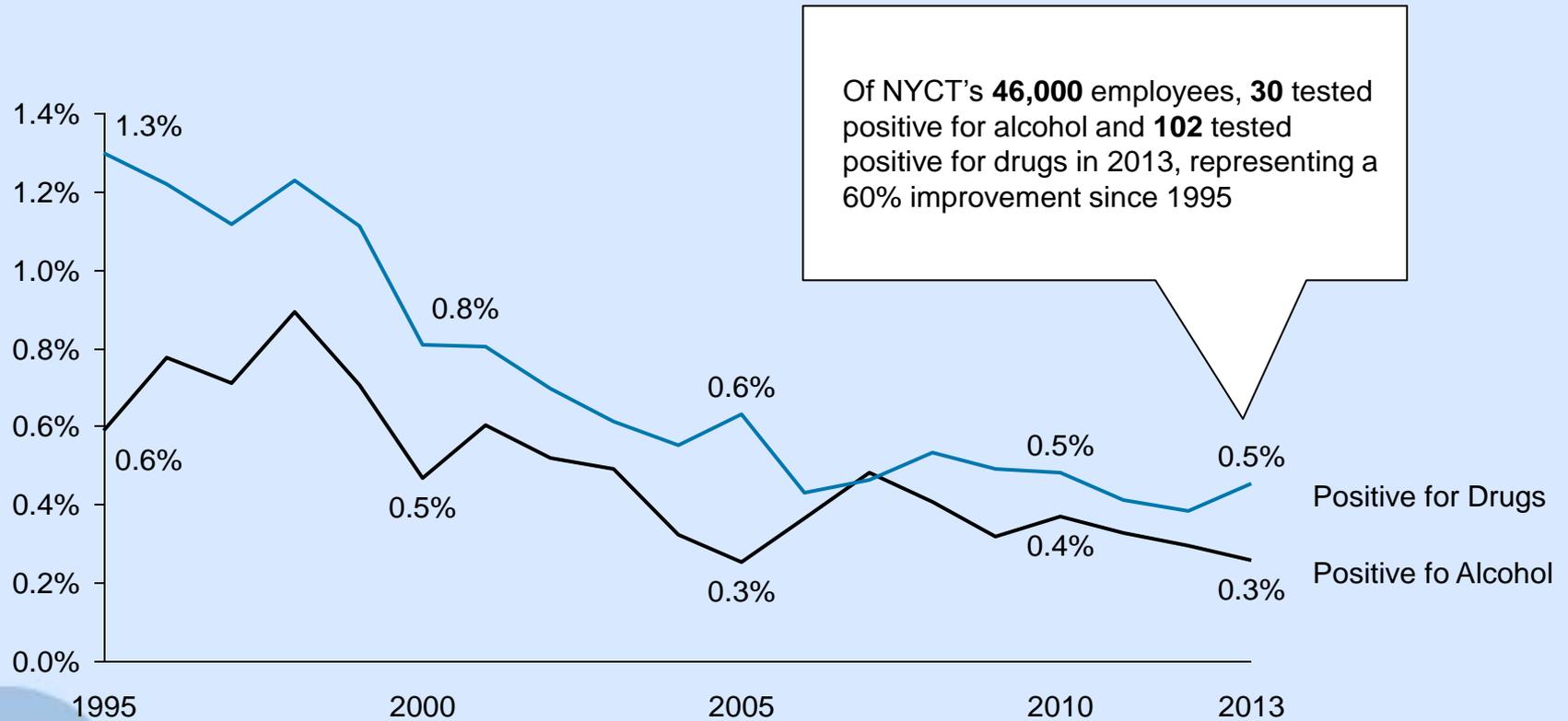


- Pre-employment medical standards were developed and are updated regularly in partnership with an external medical consulting group
- At present, 30 different job profiles require medical screening to confirm fitness for duty
- For example, Bus Operator candidates are evaluated for hand/arm steadiness to steer a vehicle and far vision to detect objects on the road

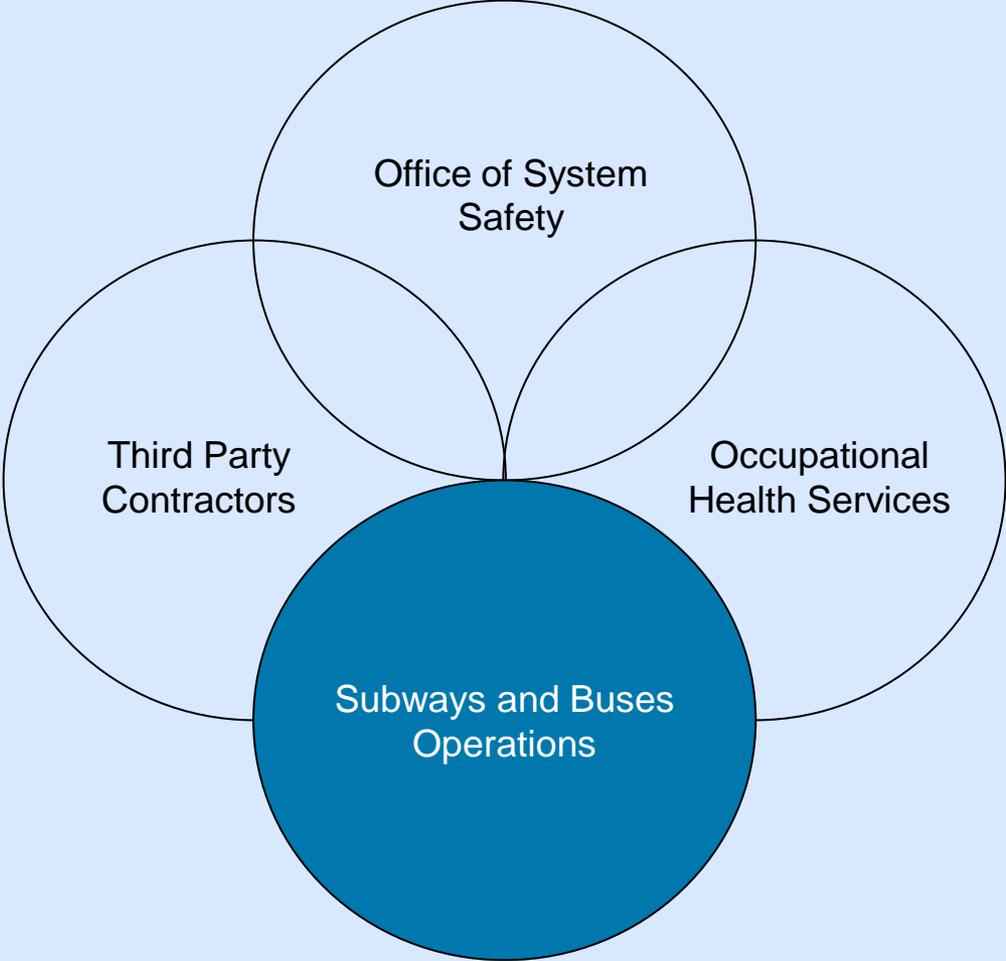


# Medical Fitness drug and alcohol screenings continue to facilitate improved employee health

Percentage of NYCT Employees Testing Positive for Drugs and Alcohol



# NYCT deploys a comprehensive, multi-pronged approach to safety



# Safety in Subways starts at the top, with the commitment of Subways leadership

- Top 50 Subways leaders meet quarterly to discuss safety and organizational priorities
- Subways leadership conducts regular roundtable meetings with front line managers to discuss safe operating concerns
- As part of Roadway Worker Protection, Subways leadership meets monthly with Labor to discuss and address issues affecting track safety

Subways actively reinforces a culture where employees are committed to keeping each other and our customers safe all day, every day



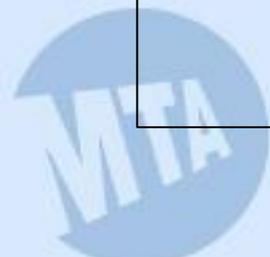
# Subways ensures safe train operations with a robust set of practices

## Personnel Readiness *(not exhaustive)*

- Visual inspections of fitness for duty immediately prior to shifts
- Regular in-service visual inspections of train crews
- Extensive training and safety audits (e.g., train operators complete 85+ days of induction training and refresher training every 3 years)

## Equipment/Asset Readiness *(not exhaustive)*

- Pre-trip inspections of all cars every day
- Ongoing car inspections every 68-78 days or 10-12K miles
- Track inspections, including twice-weekly mainline visual inspections
- Signal inspections that meet or exceed FRA standards



# Speed control is a key focus of safe train operations in Subways

- **Speed Control / Speed Committee:** Established in 1988, the interdepartmental Speed Policy Committee ensures consistent, up-to-date speed policy
- **Time Controlled Signals:** CBTC on the L line as well as wheel detectors and grade time signals at other points in the system detect and direct train speeds as appropriate
- **Radar Checks:** In 2013 over 6,000 speed checks were performed using equipment and processes similar to NYS Highway Patrol
- **Training:** Train Operators are trained via practical and written exams to adhere to speed limits and to recognize restrictive signals
- **Train Operator and Conductor Evaluations:** Regular in-service visual inspections of train crews confirm proper train operation and signal adherence



# Beyond safe train operations, Subways takes extensive steps to ensure the safety of our industrial workers



- **Daily “safety talks”** by supervisors as well as monitoring of safe behavior and personal protective equipment
- **Joint pre-job inspections** by management and labor
- **Monthly “No Meeting Days”** where senior managers spend the day in the field reinforcing safe behavior
- **Occupational safety programs** including Respiratory Protection, Lockout/Tagout, Hazardous Chemical Exposure, Hearing Conservation

# Subways continues to introduce new initiatives to build on existing safety practices

## FasTrack

Planned service suspensions on large subway sections from 10pm to 5am allows for maintenance without subway service



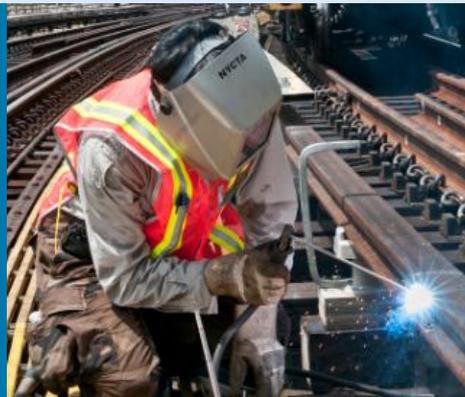
## System Shutdowns

Service suspension during major weather-related events such as floods, hurricanes and snow



## 3rd Rail Protection Boards

Ensures protection boards are reinstalled after construction and prior to returning track to service



## Situational Awareness

Communications campaign to remind employees to pay attention to their surroundings

**WHAT ARE THE RISKS AROUND YOU RIGHT NOW?**



# New technology tools continue to enhance safety oversight in Subways

## Subways Dashboard (excerpt)

### Service & Speed

Wait Assessment  
Number of Trains Delayed  
Number of Incidents  
Terminal On-Time Performance  
Mean Distance Between Failure

### Safety

Derailments & Collisions  
Broken Rails  
Number of Fires  
Flagging Violations  
Potential Employee Contact Incidents  
Employee Lost Time Accidents  
Customer Injury Rate  
Number of Employees out > 150 Days  
Training - Right-to-Know  
Training - Hearing Conservation

### Inspections & Defects

Track - Outstanding Visual Defects (P1)  
Track - Visual Inspections (2x Weekly)  
Track Geometry Car Defects  
Third Rail Defects Eliminated  
Infrastructure - Vent Bay Inspections & Cleaning  
Infrastructure - Outstanding Safety Defects  
Infrastructure - Elevated Defects (A)  
Electrical - Overdue Signal Inspections  
Electrical - Overdue Switch Inspections  
Engineering - Structural Inspections

### Stations

PES - Appearance Indicator  
PES - Equipment Indicator  
PES - Station Information  
MetroCard Vending Machine Availability  
Elevator Availability  
Escalator Availability  
Stations - Defects Repaired Within 24 Hours

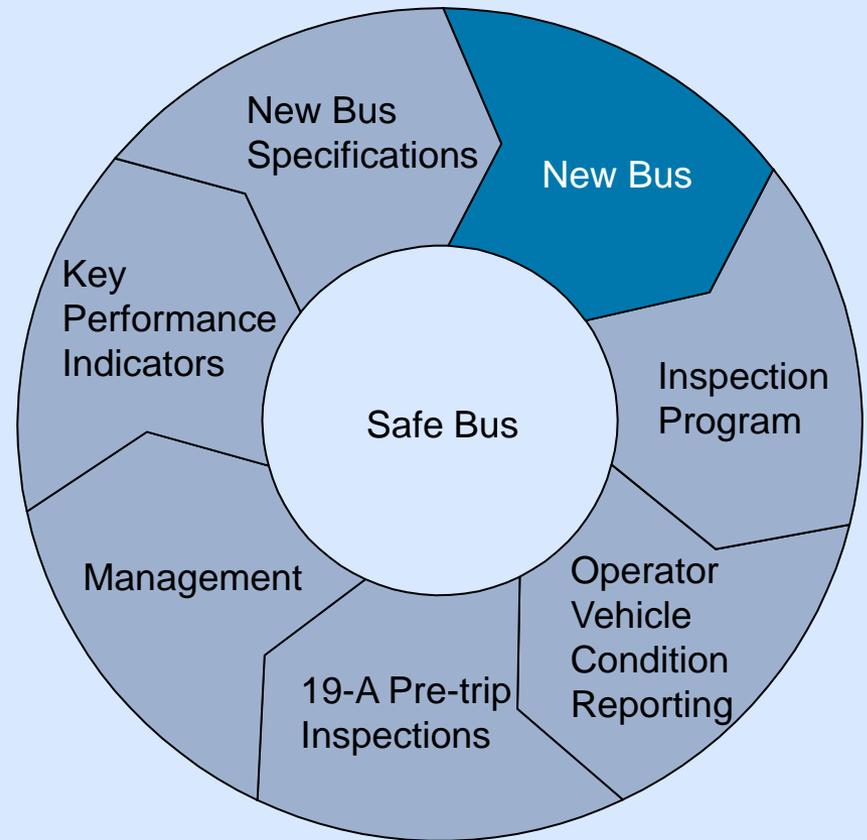
### Maintenance & Cleaning

SMS, No. of Revenue Cars Completed  
Locomotive Mean Time Between Failure  
Work Train Availability  
Percent of Trains Washed  
Jobs Cancelled due to Flagging Availability  
Infrastructure - Water Leaks Eliminated  
Electrical - Overdue Signal Maintenance  
Electrical - Overdue Switch Maintenance  
Track Cleaning, Number of Days Late  
Track Cleaning - In-between Stations  
Track Cleaning - Stations  
Third Rail, Cleaning Underneath  
VacTrain - Miles Worked  
VacTrain - Tonnage Removed

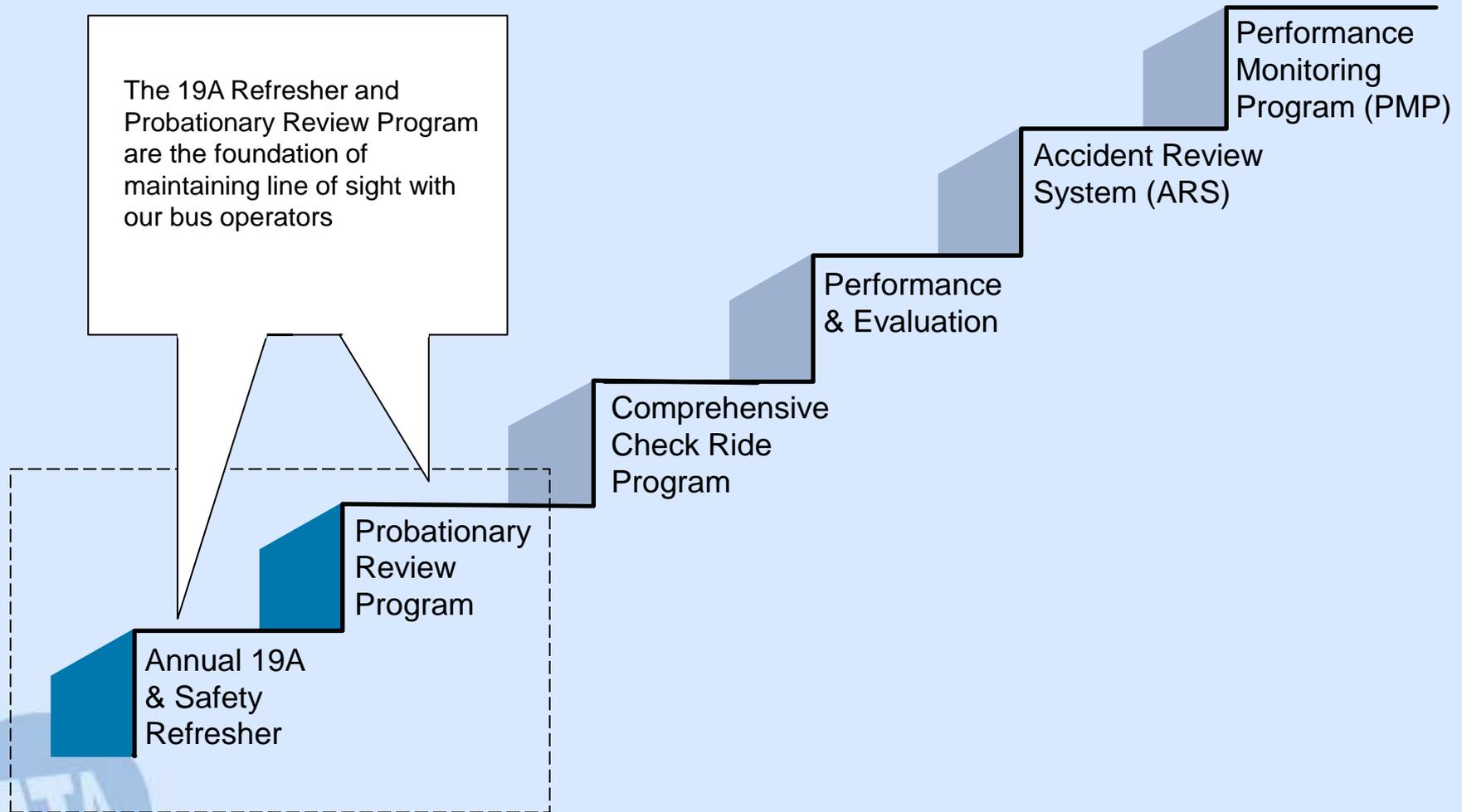
### Finance

Ridership - Weekday  
Passenger Revenue (\$ Millions)  
Overtime Expense (\$ Millions)  
Overtime Hours  
Headcount  
Employee Availability  
Fare Evasion Rate

# Every safe bus ride starts with the holistic management of a fit operator and a safe bus, working together



# Buses has developed a multi-tiered approach of training and performance reviews as part of ensuring fit operators



# Buses further reinforces and refreshes our safety message with consistent communication



## Communication

- Direct, consistent messaging to all Buses employees across Buses training centers, depot operations and road operations
- Ongoing multimedia messaging via newsletters, posters, banners, videos, etc.
- Safety Alert handouts for bus operators, customers and pedestrians

## BASICS

### *Bus Accident Safety Improvement Coordinating System*

- Combined management and labor visit on one route every week
- Provides a constant but not predictable presence to maintain Bus Operator awareness on the road
- Consistent messaging reinforced in a non-disciplinary manner

## Observation Rides

- Expanded undercover observation rides by management
- Targeting of repeat offenders
- Identification of training needs and disciplinary action when appropriate

# As part of confirming every bus is safe every day, Buses completes daily inspections and reviews

MTA NEW YORK CITY TRANSIT  
OPERATOR'S VEHICLE CONDITION REPORT

ROAD CALL

ADDITIONAL BUS OPERATORS COMMENTS & PASS #

BRAKES	KNEEL	WHEELCHAIR
Long <input type="checkbox"/>	Slow <input type="checkbox"/>	Drifting <input type="checkbox"/>
Sharp <input type="checkbox"/>	Not Working <input type="checkbox"/>	Won't Deploy <input type="checkbox"/>
Noisy <input type="checkbox"/>	Won't Raise <input type="checkbox"/>	Won't Retract <input type="checkbox"/>
Push L <input type="checkbox"/> / R <input type="checkbox"/>	HEAT/AC	Restraint <input type="checkbox"/>
Emerg/Park <input type="checkbox"/>	No Oper Heat <input type="checkbox"/>	Lock <input type="checkbox"/>
ENGINE	No Pass Heat <input type="checkbox"/>	DOORS
Accelerator <input type="checkbox"/>	No Oper A/C <input type="checkbox"/>	Front <input type="checkbox"/> Rear <input type="checkbox"/>
Hard Start <input type="checkbox"/>	No Pass A/C <input type="checkbox"/>	Too Fast <input type="checkbox"/>
Smokes <input type="checkbox"/>	Excess Heat <input type="checkbox"/>	Too Slow <input type="checkbox"/>
Overheat <input type="checkbox"/>	No Defroster <input type="checkbox"/>	No Interlock <input type="checkbox"/>
Water Leak <input type="checkbox"/>	LIGHTS	Won't Close <input type="checkbox"/>
Oil Leak <input type="checkbox"/>	Headlight <input type="checkbox"/>	Won't Open <input type="checkbox"/>
Fuel Leak <input type="checkbox"/>	Help Alarm <input type="checkbox"/>	ELECTRICAL
Stalls <input type="checkbox"/>	Interior <input type="checkbox"/>	Pass/Signal <input type="checkbox"/>
EXHAUST	Marker <input type="checkbox"/> Sign <input type="checkbox"/>	Buzzer/Unknown <input type="checkbox"/>
Leaks/Fume <input type="checkbox"/>	Tail <input type="checkbox"/> Brake <input type="checkbox"/>	Horn <input type="checkbox"/>
Noisy <input type="checkbox"/>	Turn Signal <input type="checkbox"/>	WHEELS/TIRES
GAUGES/INDICATOR LIGHTS	BODY	Distorted <input type="checkbox"/>
Volts <input type="checkbox"/>	Body Damage <input type="checkbox"/>	Low <input type="checkbox"/> / Flat <input type="checkbox"/>
Air Low <input type="checkbox"/>	Comp. Doors <input type="checkbox"/>	Warn <input type="checkbox"/>
Oil Low <input type="checkbox"/>	Dirty Interior <input type="checkbox"/>	Lag Loose <input type="checkbox"/> Lug Mas. <input type="checkbox"/>
Hot Engine <input type="checkbox"/>	Floor Mat <input type="checkbox"/>	LRI <input type="checkbox"/> LRO <input type="checkbox"/>
Gen. Stop <input type="checkbox"/>	Steps - Front <input type="checkbox"/>	RFI <input type="checkbox"/> RFO <input type="checkbox"/>
Exit Door <input type="checkbox"/>	Steps - Center <input type="checkbox"/>	LF <input type="checkbox"/> RF <input type="checkbox"/>
Trans <input type="checkbox"/>	Stanchions <input type="checkbox"/>	FARE BOX
Fire <input type="checkbox"/>	Wipers <input type="checkbox"/>	Jammed <input type="checkbox"/>
Coolant Low <input type="checkbox"/>	Visor <input type="checkbox"/>	Loose <input type="checkbox"/>
RADIO	Roof Hatches <input type="checkbox"/>	Not Register <input type="checkbox"/>
Not Working <input type="checkbox"/>	Vandalism <input type="checkbox"/>	Loose Seal <input type="checkbox"/>
Missing <input type="checkbox"/>	Loose <input type="checkbox"/> Missing <input type="checkbox"/>	Lights Out <input type="checkbox"/>
TRANSMISSION	Filter Cap <input type="checkbox"/>	Ped. Loose <input type="checkbox"/>
Noisy <input type="checkbox"/>	Body Leaks <input type="checkbox"/>	MIRRORS
No Power <input type="checkbox"/>	Grab Rail <input type="checkbox"/>	Inside Front <input type="checkbox"/>
No Reverse <input type="checkbox"/>	Accident <input type="checkbox"/>	Inside Center <input type="checkbox"/>
Won't Shift <input type="checkbox"/>	Map Box <input type="checkbox"/>	Outside L <input type="checkbox"/> / R <input type="checkbox"/>
Leaks <input type="checkbox"/>	Reflectors <input type="checkbox"/>	SIGNS
STEERING	Oper Coat Hook <input type="checkbox"/>	Front Dest. <input type="checkbox"/>
Loose <input type="checkbox"/>	WINDOWS	Side Dest. <input type="checkbox"/>
Hard <input type="checkbox"/>	Windshield <input type="checkbox"/>	Rear Dest. <input type="checkbox"/>
Shimmy <input type="checkbox"/>	Door Glass <input type="checkbox"/>	Route Sign <input type="checkbox"/>
Push <input type="checkbox"/>	Passenger's <input type="checkbox"/>	SEATS
Short Turn <input type="checkbox"/>	Operator's <input type="checkbox"/>	Operator <input type="checkbox"/>
SUSPENSION	Broken <input type="checkbox"/>	Passenger <input type="checkbox"/>
Front <input type="checkbox"/> Rear <input type="checkbox"/>	Swinging <input type="checkbox"/>	Broken/Loose <input type="checkbox"/>
Right <input type="checkbox"/> Left <input type="checkbox"/>	Won't Close <input type="checkbox"/>	Air Leak <input type="checkbox"/>
Air Leak <input type="checkbox"/>	Won't Open <input type="checkbox"/>	OTHER
Leaning <input type="checkbox"/>	GRAFFITI	Roaches <input type="checkbox"/>
Noises <input type="checkbox"/>	Interior <input type="checkbox"/> Exterior <input type="checkbox"/>	Comments <input type="checkbox"/>

DEPOT \_\_\_\_\_ DATE \_\_\_\_\_

58-85-1700 (12/06)

SCAN BY MAINT. - RETURN TO TRANS.

- **Every day pre-service**, each bus operator thoroughly inspects his/her bus to ensure operational readiness
- **Every day post-service**, each bus operator documents and triages any/all bus irregularities with depot maintenance (see OVCR card at left)
- **In addition to the above**, buses conducts a robust ongoing maintenance regime including SOs or bus inspections every 3-6K miles and technical audits

# Beyond safe bus operations, Buses takes extensive steps to ensure the safety of our industrial workers



- Ongoing “safety talks” by supervisors and monitoring of safety including appropriate PPE (personal protective equipment)
- Standard Maintainer Overview Training to emphasize safety awareness in daily tasks
- Formal communications including the bi-weekly Maintenance Advisor Newsletter and monthly Fleet Advisor
- Continuous updates and training on maintenance policies (e.g., update hub and drum policy to include safety/tool enhancements)



# New technology tools continue to enhance safety oversight in Buses

## Buses Barometer (excerpt)

Performance Type	Indicator	Dec 2013
Safety	▼ Lost Time Accidents	5.04
	▶ Bronx	2.85
	▶ Brooklyn	5.73
	▶ Manhattan	7.40
	▶ Queens North	6.29
	▶ Queens South	4.89
	▶ Staten Island	1.48
	▶ IOD	0
	▶ Bus Operator Assault/Harassment	126
	▼ Collisions per Million Miles 1	47.54
	▶ Bronx 1	52.73
	▶ Brooklyn 1	50.50
	▶ Manhattan 1	83.75
▶ Queens North 1	42.60	
▶ Queens South 1	34.97	
▶ Staten Island 1	28.98	
▶ Customer Accidents per Million Customers 2	1.13	
Customer Focused	▶ MDBF	5,147
	▶ Trips Operated	98.96%
	▶ Trips Lost	36,068
	▶ Road Calls	5,697
	▶ Miscellaneous	1,020



# Overall, safe operations prioritize the safety of our customers



**Public Awareness Campaigns**



**Platform ADA Strips**



**New Technology**

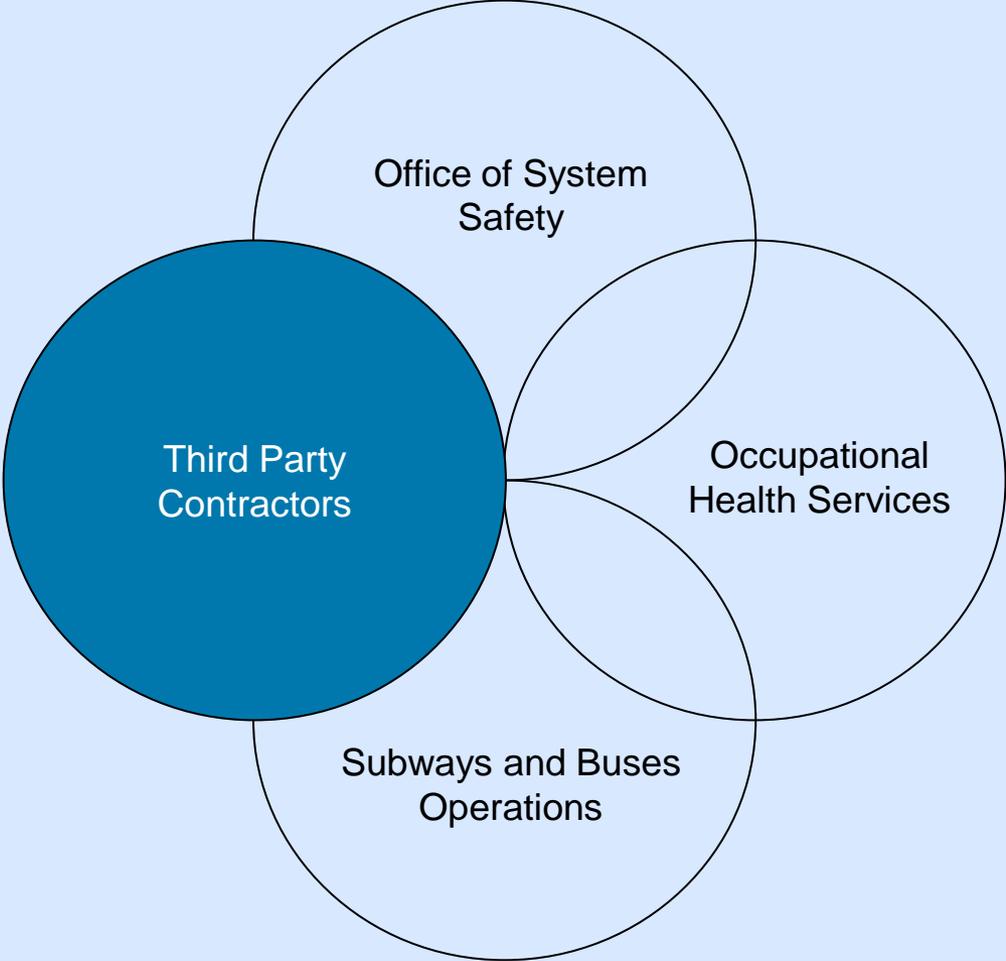


**Public Address Announcements**



**Robust Station Maintenance Regimes**

# NYCT deploys a comprehensive, multi-pronged approach to safety



# NYCT facilitates third party contractor safety with proactive support and oversight programs

## Safety Training & Support (*not exhaustive*)

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- Required track safety and refresher training for contractors working on or near the right-of-way
- Flagging support for contractors working on or near the right-of-way
- Access and protection support as appropriate
- Issuance of Safety Advisories, Alerts, Bulletins, Directives, Reminders, Updates, Safety Talk Posters, etc.

## Safety Oversight (*not exhaustive*)

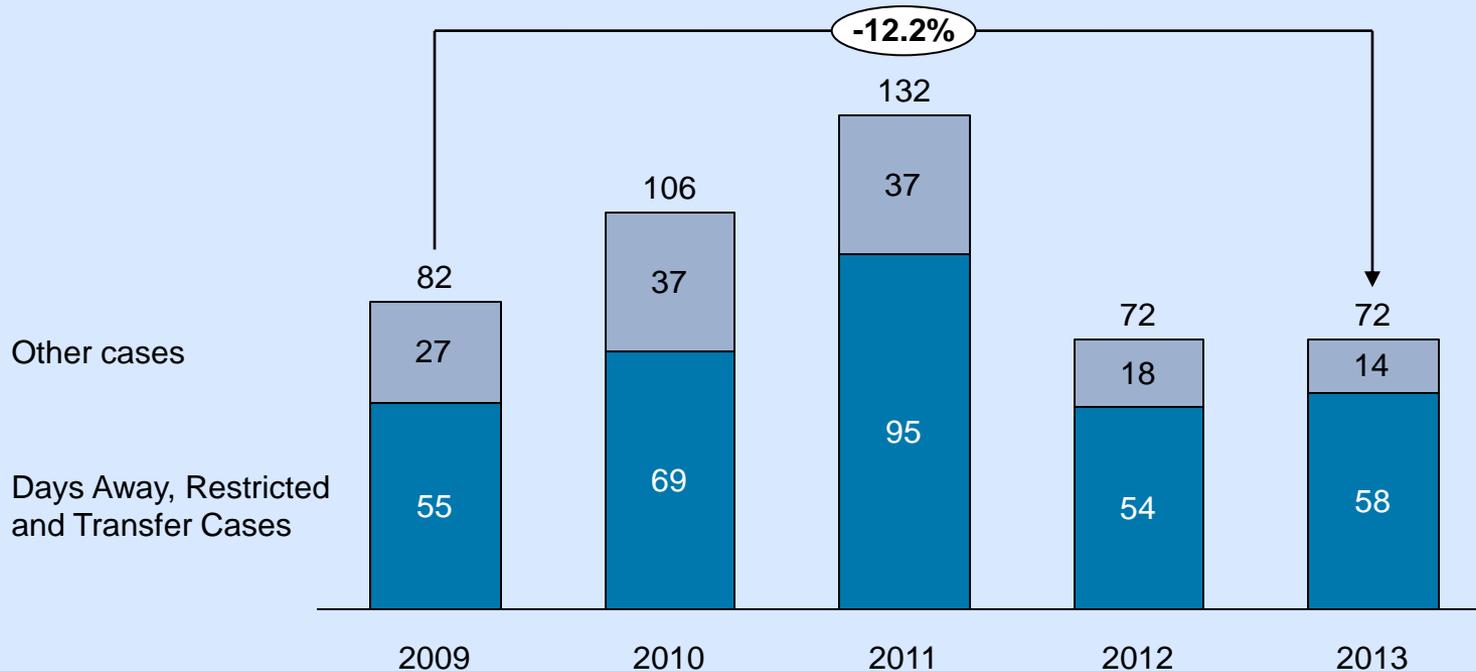
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- ACE (all-agency contractor/ consultant evaluation) safety reviews by NYCT Safety Representatives
- Quarterly independent assessment of contractor safety compliance on construction work sites
- Ongoing partnership with PTSB, System Safety, contractors and manufacturers to enhance safety policies / equipment



# Contractor accident trends have been mixed as NYCT's contractor community grows and evolves

CPM Contractor Injury Cases<sup>1</sup>



Total Budget	\$4.4B	\$4.9B	\$3.8B	\$2.9B	\$3.8B
Project Number	172	188	157	127	170



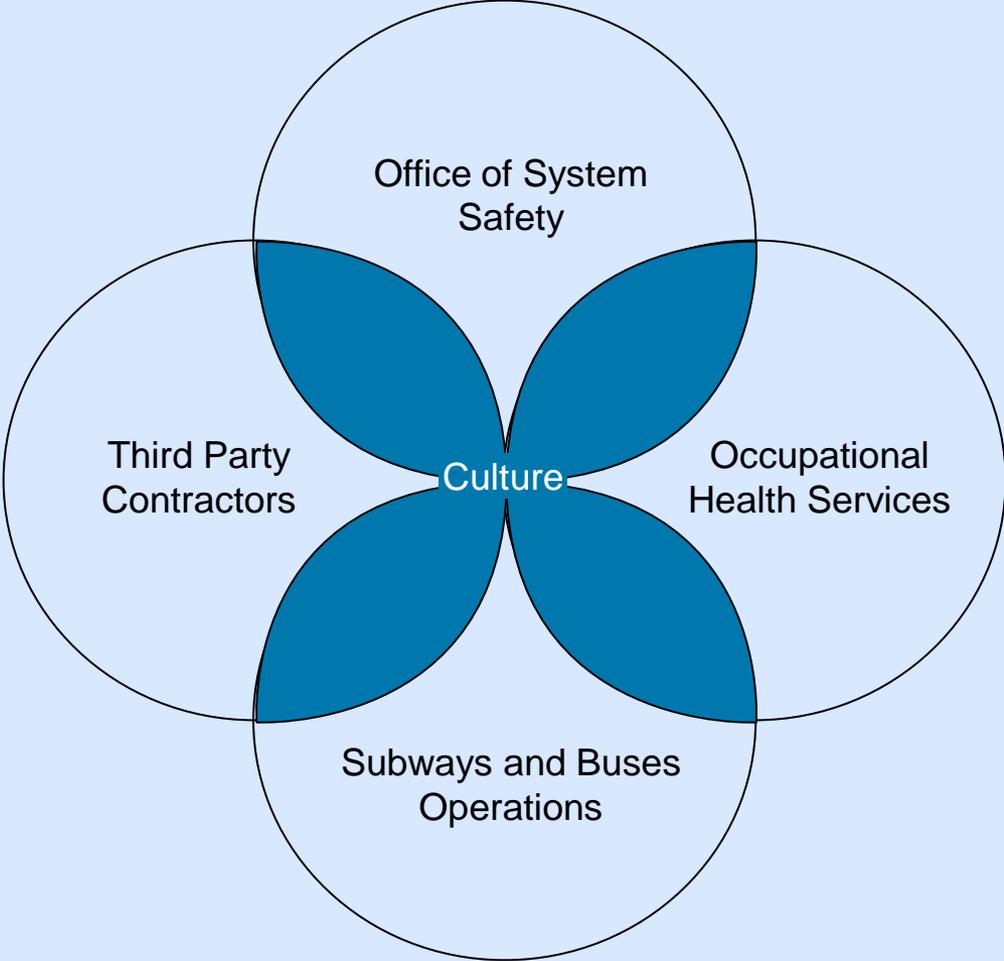
1 – Note, injury numbers are provided by the contractors and are for internal tracking only

# NYCT continues to ensure contractors working in our system are as safe as possible

- Contractor safety ratings are a factor in the determination of construction project awards
- NYCT's internal contractor safety assessments are closely monitored and made available to all MTA agencies
- Safety support and oversight mechanisms are engaged to maintain safe contractor operations overall as well as to partner with contractors who are experiencing high or increasing incident rates



# NYCT deploys a comprehensive, multi-pronged approach to safety



# At NYCT, the safety of our customers and employees is our priority

- NYCT has a comprehensive, multi-pronged approach to safety
- The historic improvements we've made to the safety of our system do not stop us from continuing to review and strengthen our practices
- We will never be satisfied with our safety performance and will continue to strive for an even safer system for our customers and employees

