



The National Transportation Systems Center

Clear Signal for Action: Behavior-Based Safety, Continuous Improvement, and Safety Leadership Methods to Improve Railroad Safety

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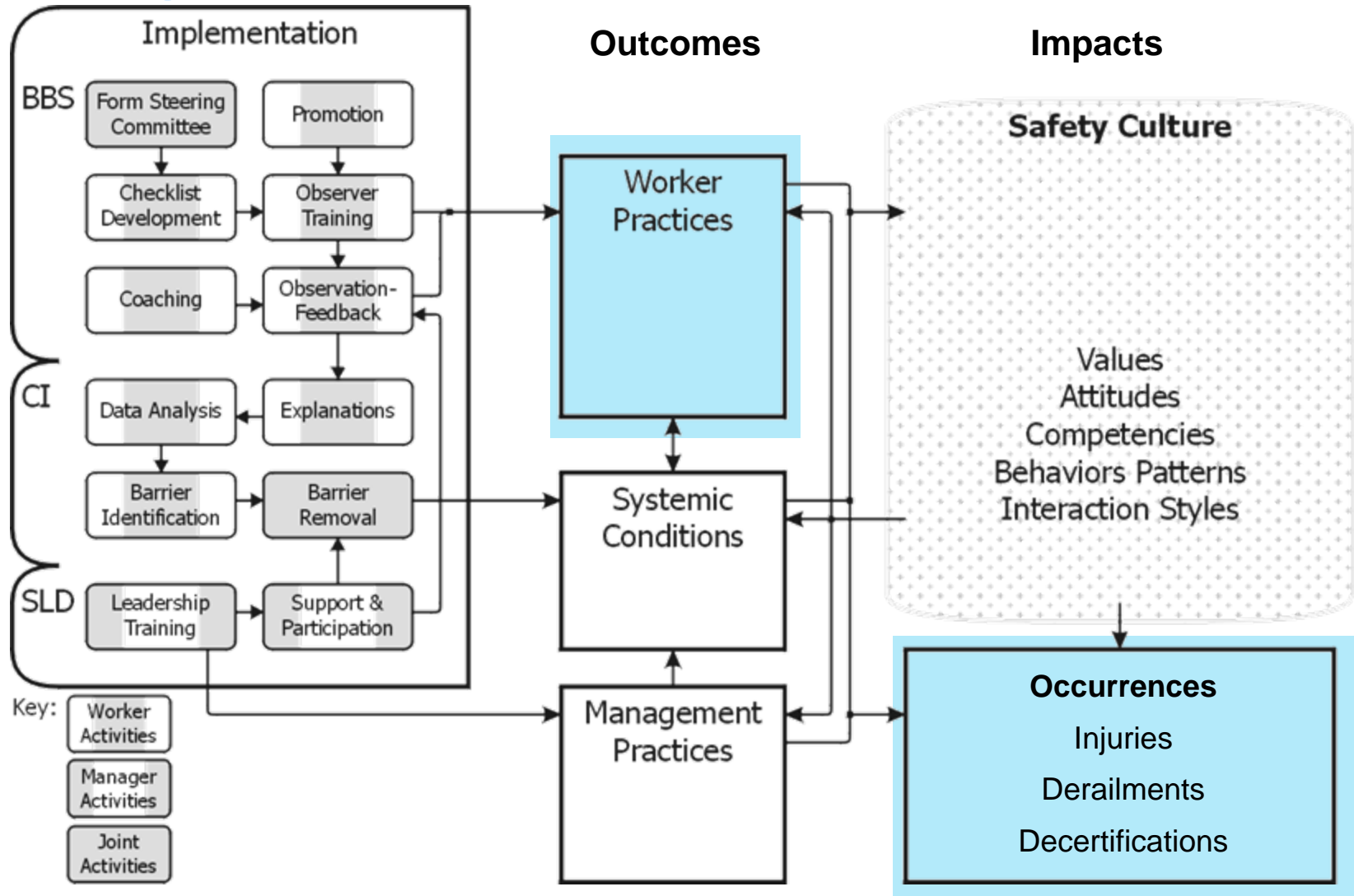
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INTRODUCTION

Clear Signal for Action: Three Demonstration Pilots

Location	Name	Type of Work	Evaluation Period
Amtrak, Chicago	EAGLES	Baggage	2001-2005
UP, San Antonio	CAB	Road & Yard	2005-2007
UP, Livonia	STEEL	Yard	2006-2009

FRA's Clear Signal for Action (CSA) Theory of Change



AMTRAK'S EMPLOYEE ALLIANCE FOR GREAT LEVELS OF EXCELLENCE IN SAFETY (EAGLES)

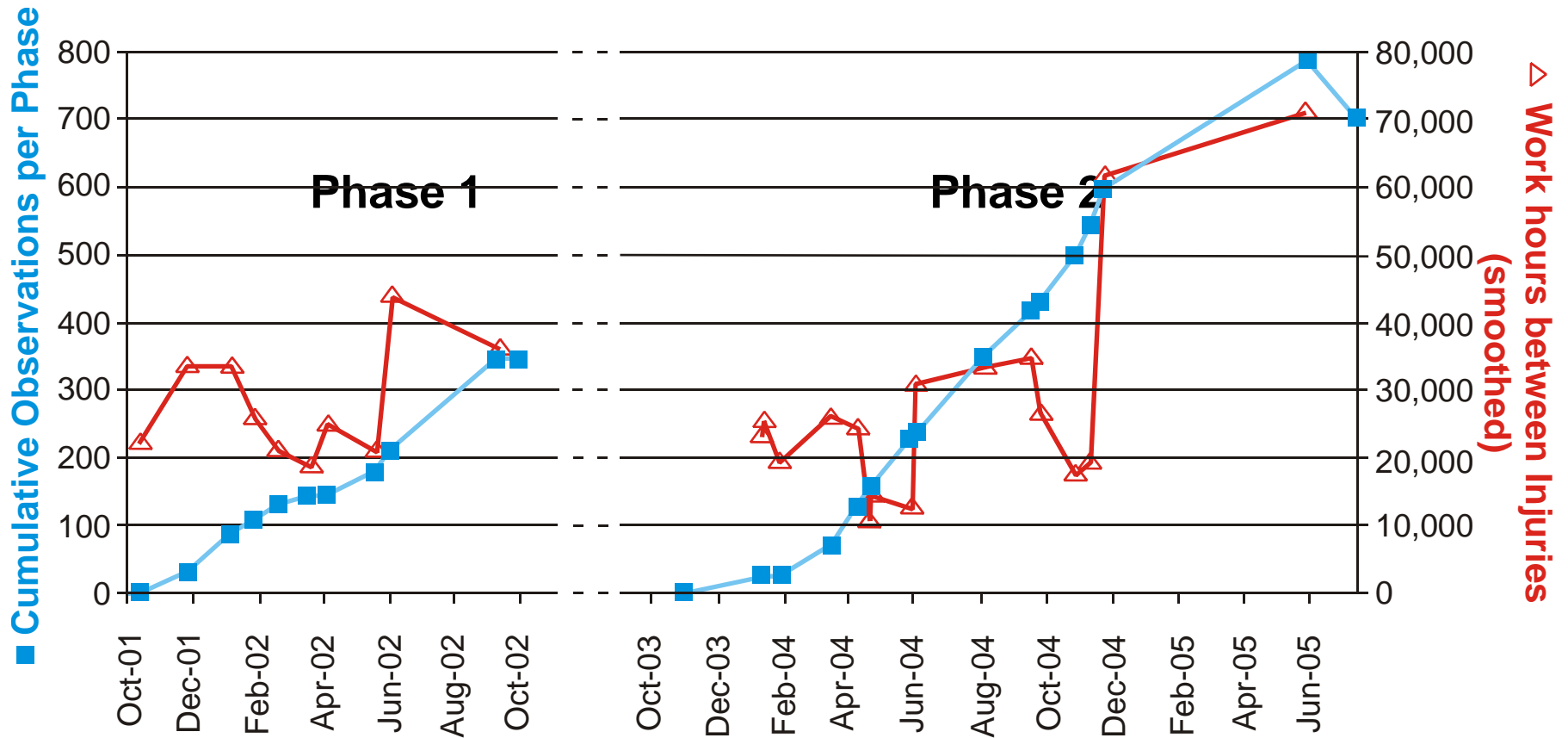
Checklist of Behaviors and Conditions



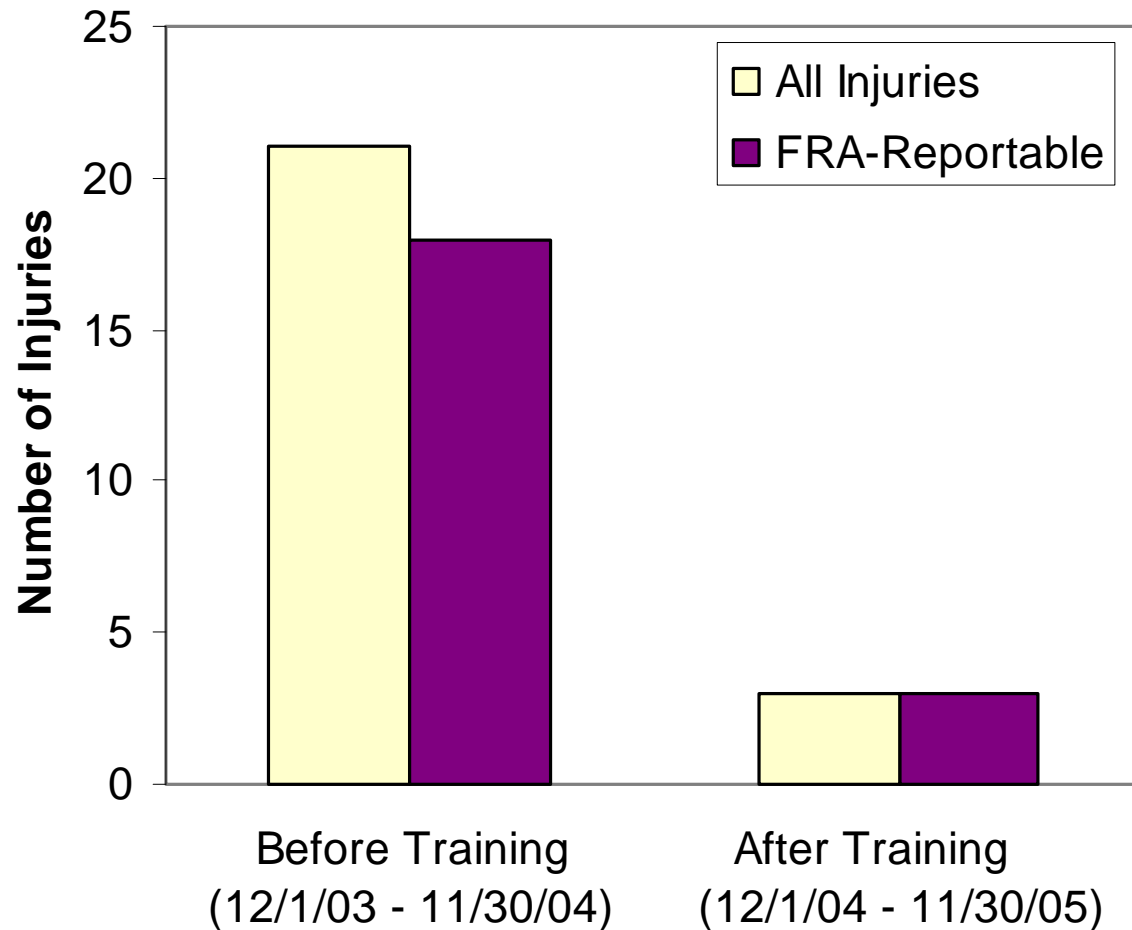
EAGLES (Amtrak, Chicago)

- Study Site: Chicago Union Station
- Cohort Population: 220 employees
 - Station Services
 - Baggage, Red Caps, Ticket Agents, Gate Agents, Customer Services
 - Mail and Express
- Labor Affiliation: Transportation Communication Union (TCU)

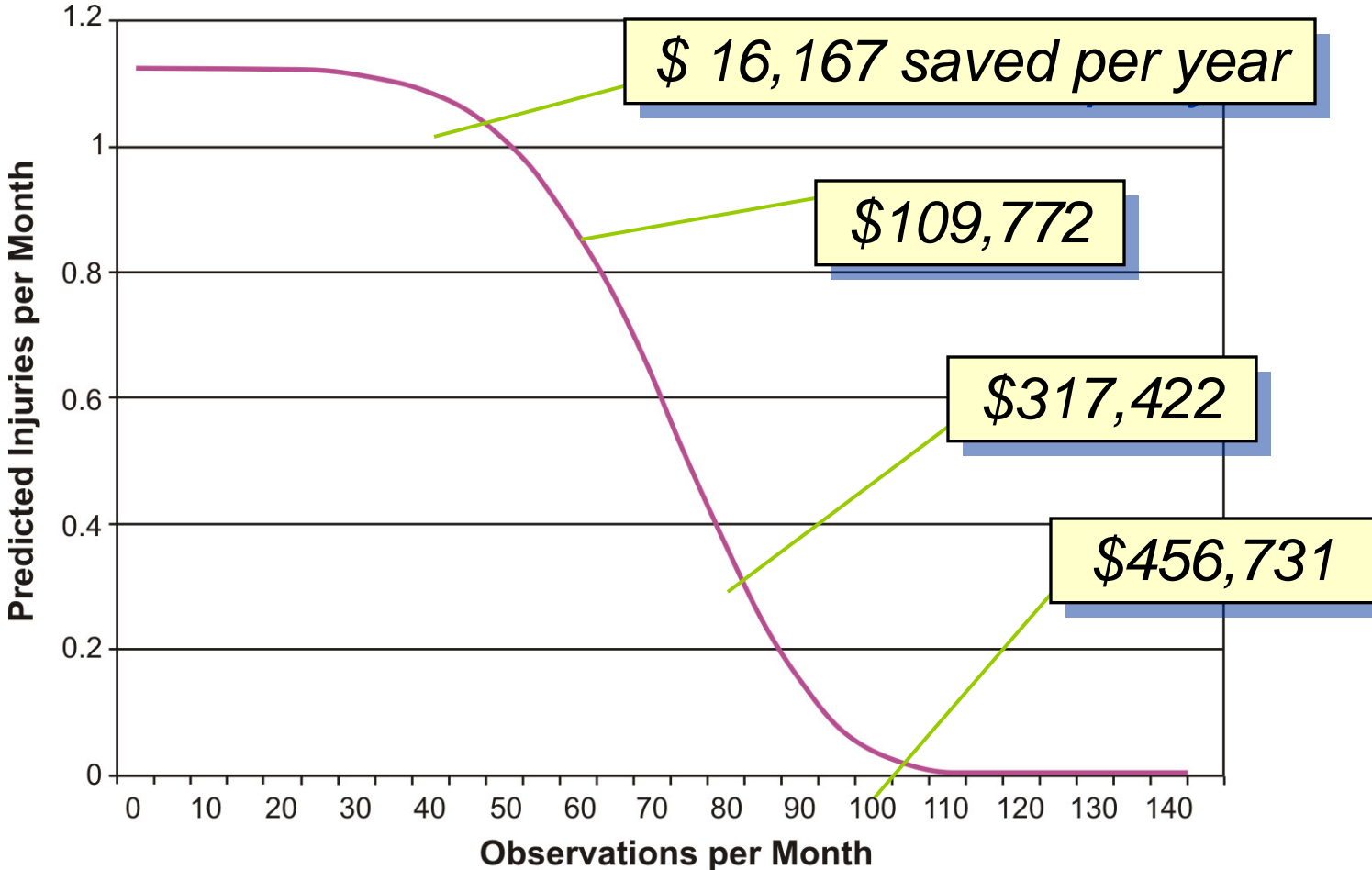
EAGLES: More Work Without Injuries as Observation-Feedback Sessions Accumulate



EAGLES: Injury Rates Decreased by 80% from the Year Before Training to the Year After Training



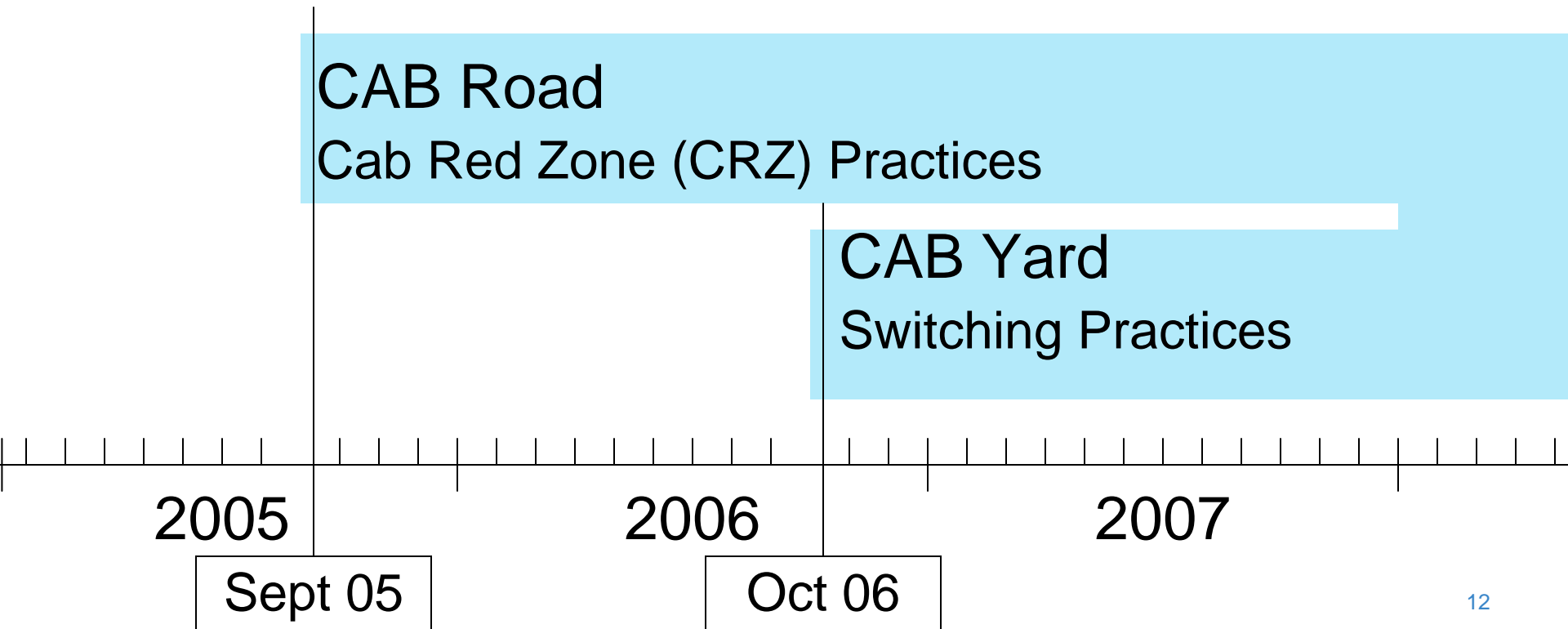
EAGLES: Savings in Injuries Alone Pays for Process



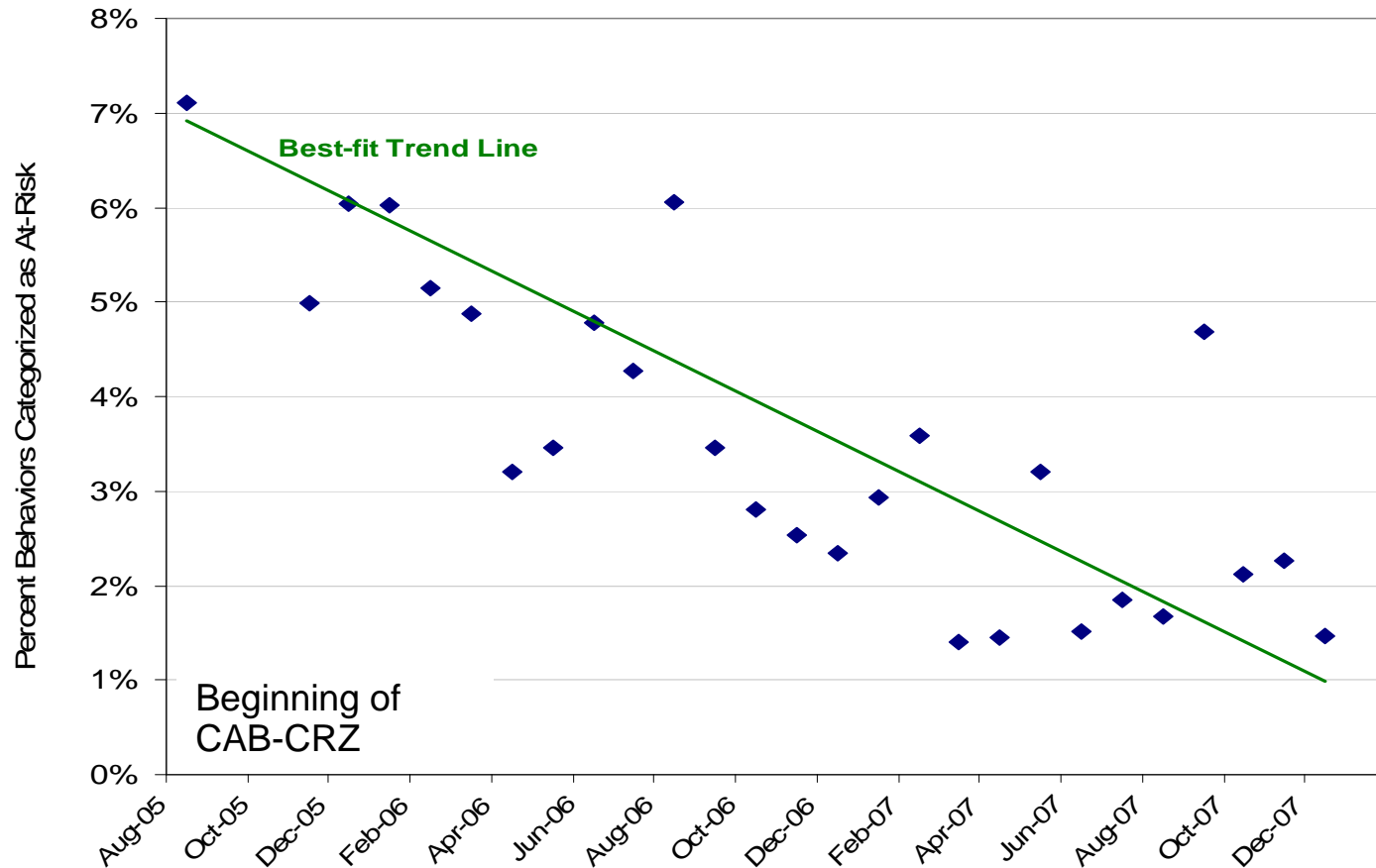
CHANGING AT-RISK BEHAVIOR (CAB)

CAB (UP San Antonio Service Unit)

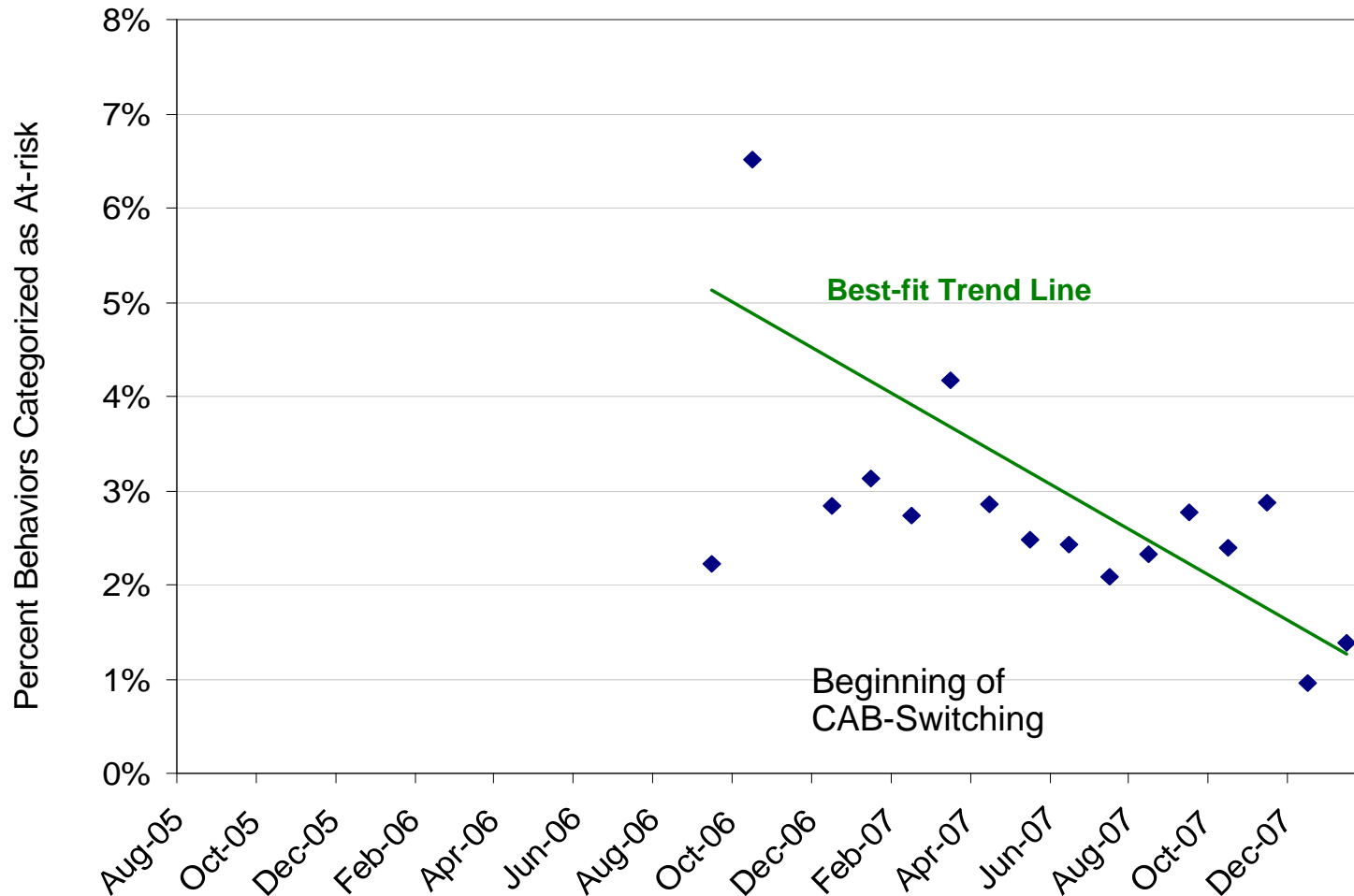
- Cohort Population: ~1100 employees
- Labor Affiliation: BLET & UTU



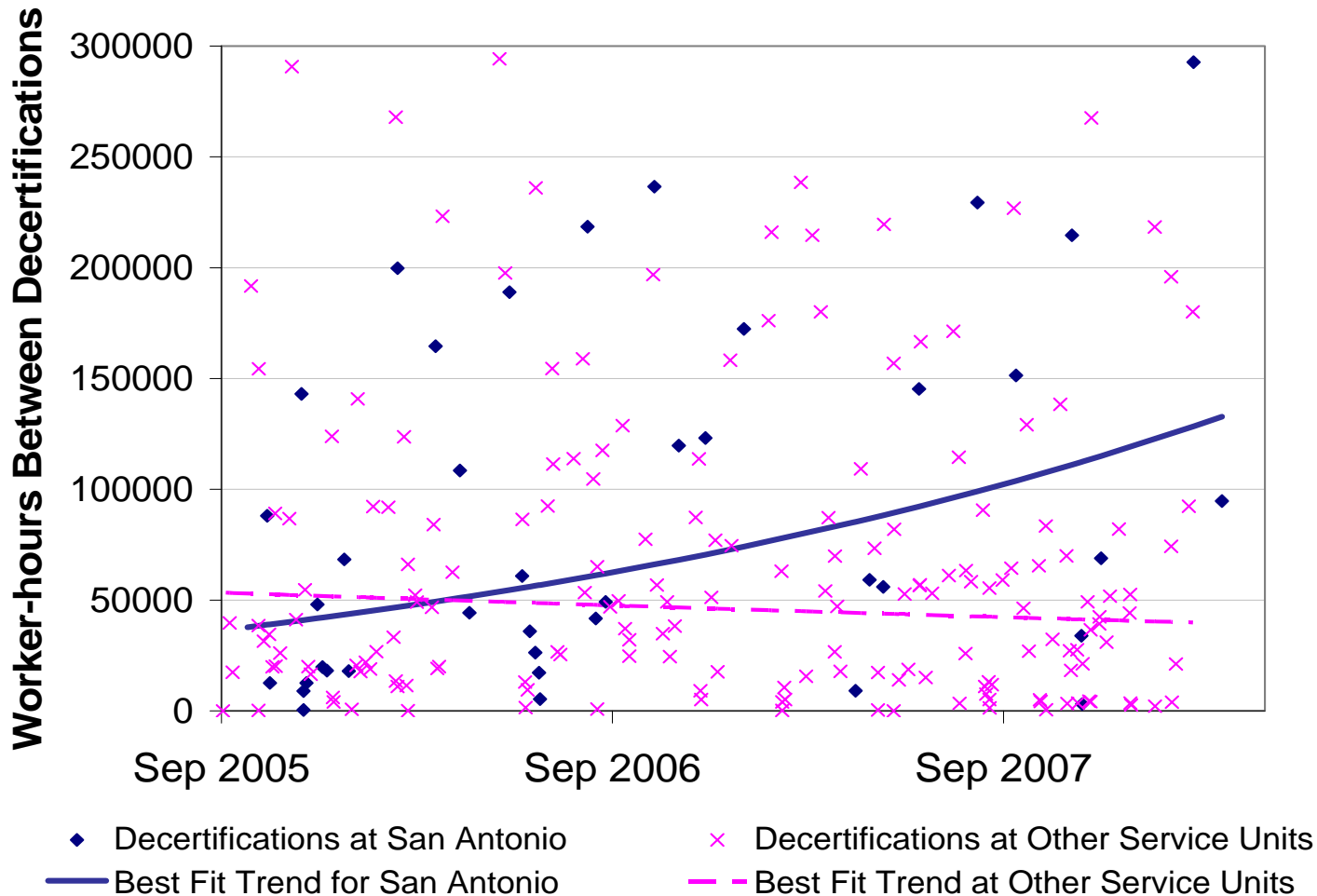
CAB: More Safe and Less At-Risk CRZ Behavior and Conditions for Road Employees



CAB: Yard Employees also Showing More Safe and Less At-Risk Behavior and Conditions



CAB: CRZ-Related Decertifications Improving at SASU, Not Elsewhere



HF Incident Data Comparisons

Stations in SASU	Implementation	Effect Expected
Eagle Pass	Very Strong	High
San Antonio Complex	Moderate	Moderate
Other	None	Low

CAB: Fewer Incidents in Yard with Most Concentrated Implementation

Car-moves between incidents, yard & industry track only

Yard	Before CAB	During CAB	Percent Improved
Eagle Pass	10,931	45,785	319%**
San Antonio	8,939	11,733	31%
Other locations*	457,997	752,190	64%

* Includes locations that have high traffic but little actual switching; thus the relatively high average moves between incidents both before and during CAB.

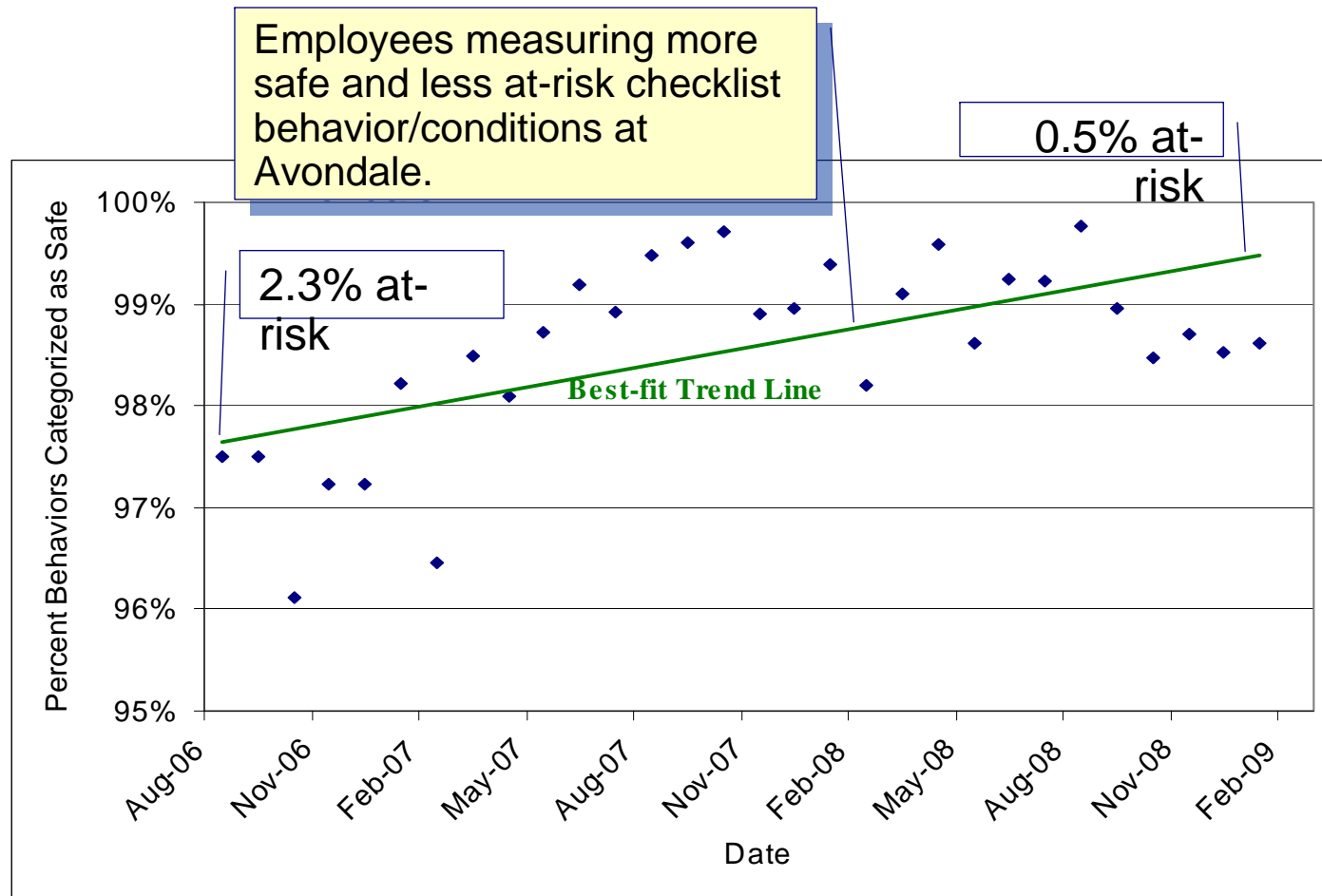
** Statistically significant change ($p < 0.05$).

SAFETY THROUGH EMPLOYEES EXERCISING LEADERSHIP (STEEL)

STEEL (UP Livonia Service Unit)

- Study Site: Avondale Yard, Louisiana
- Cohort Population: ~140 employees
- Labor Affiliation
 - Brotherhood of Locomotive Engineers and Trainmen (BLET)
 - United Transportation Union (UTU)

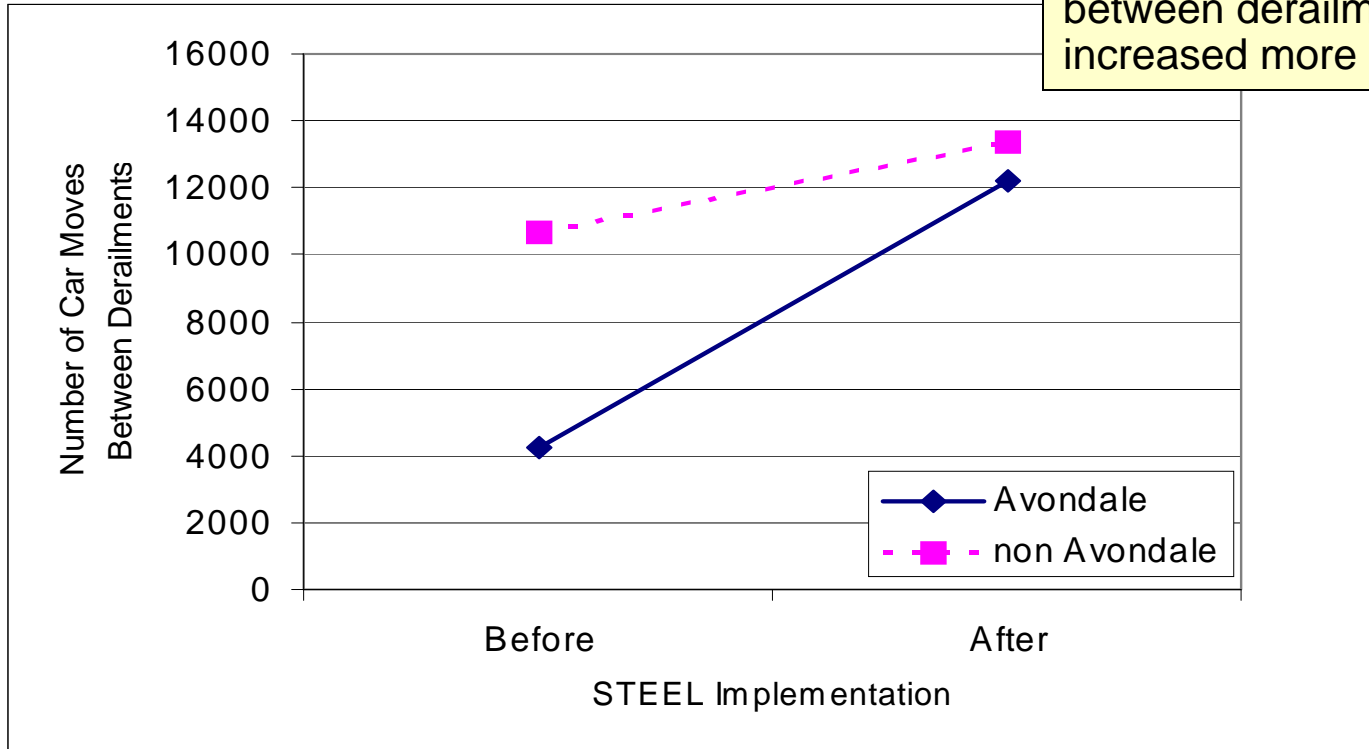
Sampling Data Show Significant Improvement Over Time



Note: data from Avondale only.

Number of Switched Cars between Derailments Has Increased More than Other Yards

Positive evidence at Avondale: number of switched cars between derailments has increased more at Avondale.



Note: Beaumont and Lake Charles are excluded from the analysis.

SUMMARY

CSA Case Studies: Summary of Results

- EAGLES (Amtrak Chicago, station services)
 - 80% drop in injury rates (all injuries)
 - 76% drop in FRA reportable injuries
- CAB (UP San Antonio, road and yard)
 - 72% drop in L.E. decertification rates
 - 69% drop in HF yard derailments
- STEEL (UP Livonia SU, yard)
 - 86% reduction in at-risk yard behaviors
 - 67% reduction in derailments

Conditions that Contributed to Successful CSA Implementations

- ☐ Strong cooperation and mutual respect between labor and management
- ☐ Voluntary, confidential, non-punitive participation
- ☐ Systematic and objective data gathering, analysis, and reporting
- ☐ Local problem solving, corrective actions, with escalation options
- ☐ Communication to local workforce on at risk trends and countermeasures
- ☐ Long-term sustaining mechanisms

Acknowledgments

The workers and managers at:

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