

Safety Risk Register in Action

July 27, 2022

**Public Transportation Agency Safety Plan
Technical Assistance Center
(PTASP TAC)**



Objectives

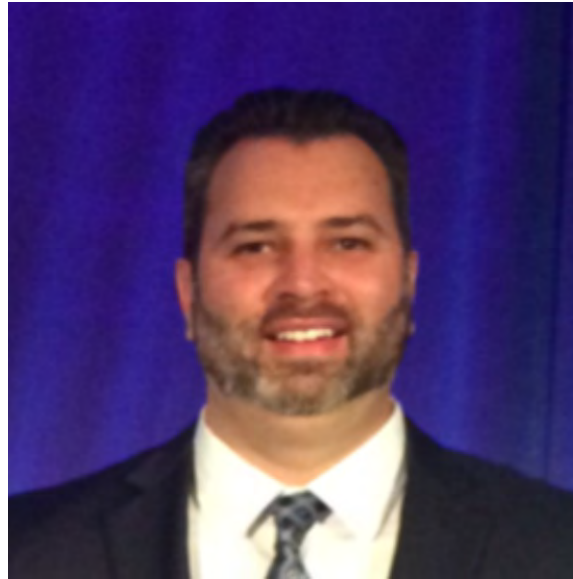
This webinar will demonstrate practices for and provide examples of using safety risk registers to track hazards and mitigations

After this presentation, participants should be able to:

- Describe ways to document and manage information from SRM and SA activities
- Identify methods to prioritize hazards to include in the safety risk register and other forms of documentation
- Describe how to use the documentation tools over time to show how your agency has assessed safety risk, implemented mitigations, and measured the effectiveness of mitigations



Industry Speaker



Jared Garcia – Manager of Safety
San Diego Metropolitan Transit System (MTS)

Agenda

1. Introduction
2. Documenting and managing Safety Risk Management (SRM) and Safety Assurance (SA) information
3. Example: Transit Worker Assault
4. Example: San Diego MTS
5. Considerations for Documentation
6. Q&A



Related Resources

Log onto FTA's PTASP TAC Resource Library for more webinars, tools, and fact sheets related to Safety Risk Management and Safety Assurance

www.transit.dot.gov/PTASP-TAC

**For information related to the Bipartisan Infrastructure Law,
visit www.transit.dot.gov/BIL**

Contact FTA-IIJA@dot.gov with your questions related to the
Bipartisan Infrastructure Law



Feedback

Your feedback helps us deliver the resources and tools that are most relevant to your needs. Based on feedback from the previous webinar surveys, this webinar features:

- Multiple speakers
- Speakers on video
- Integrated audience feedback

Please stay tuned for another survey at the conclusion of this webinar!



Audience Poll



How confident are you that your agency could demonstrate that it is documenting and monitoring the outputs of its SRM and relevant SA processes?

- 43%** Somewhat confident
- 20%** Very confident
- 15%** Neither confident nor unconfident
- 10%** Somewhat unconfident
- 10%** Not applicable
- 2%** Very unconfident

Documenting and Managing SRM and SA Information



Documentation in the PTASP Regulation

Transit agencies must develop and implement an SRM process, including safety risk assessment and mitigation ([§ 673.25](#))



Transit agencies must document the results of their Safety Management System (SMS) processes ([§ 673.31](#))



Documentation in the PTASP Regulation

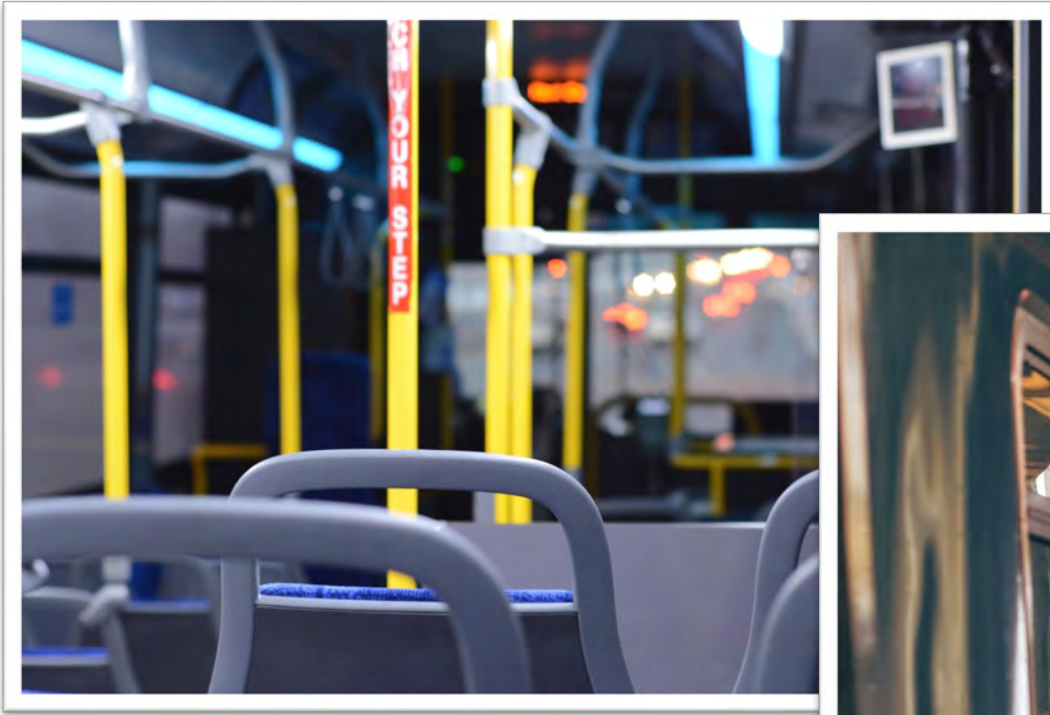
- FTA does not specify how agencies must document these results
- Using a tool like a safety risk register may be helpful
 - A safety risk register is a database for information relevant to a hazard
 - The most basic version is an Excel worksheet
 - Combines relevant information about a hazard into one location/document
 - Demonstrates and captures the flow of information and activity through the SMS process and the agency



Typical Information in a Safety Risk Register



Example: Transit Worker Assault



Example: Transit Worker Assault



Using a Safety Risk Register is Not Required



The following example is just one way that agencies may choose to document their SRM and relevant SA activities

Agencies are not required to use a safety risk register

Employee Safety Reports

Straightline Transit's Safety Department reviews reports submitted through its Employee Safety Reporting Program (ESRP) to identify trends during its monthly meeting

- They noticed an increase in the number of reports relating to threats of assault



Employee Safety Report #601

Employee Safety Report #612

Employee Safety Report #645

Employee Safety Report #653

| | |
|-----------------------------|---|
| <i>Report Date and Time</i> | June 21, 2022, 6:30pm |
| <i>Reporter</i> | Anonymous |
| <i>Description</i> | During my shift last night, a passenger became angry when I asked for his fare and he threatened to hit me. |

Hazard Identification in Safety Risk Register

| Straightline Transit Safety Risk Register | | | | |
|---|-------------|---------------|---|---|
| Hazard Identification | | | | |
| <i>Hazard</i> | <i>Date</i> | <i>Source</i> | <i>Potential Consequence(s)</i> | <i>Existing Mitigation(s)</i> |
| Operators performing rule enforcement | 7/1/22 | ESRP | Transit worker assaulted and injured while operating a vehicle. | 1. Operator training. 2. SOP and rule book provided with training. |



Previous Safety Risk Assessment

The agency previously assessed the safety risk associated with operators performing rule enforcement and determined, at that time, that no further action was necessary

| Straightline Transit Safety Risk Register | | | | | |
|---|-------------|---------------|--|---|--------------------------|
| Hazard Identification | | | | | Safety Risk Assessment |
| <i>Hazard</i> | <i>Date</i> | <i>Source</i> | <i>Potential Consequence(s)</i> | <i>Existing Mitigation(s)</i> | <i>Safety Risk Index</i> |
| Operators performing rule enforcement | 1/6/19 | ESRP | Transit worker assaulted and injured while operating a vehicle | 1. Operator training 2. SOP and rule book provided with training | 2D (Critical and Remote) |



New Safety Risk Assessment

| Straightline Transit Safety Risk Register | | | | | |
|---|-------------|---------------|--|---|--------------------------|
| Hazard Identification | | | | | Safety Risk Assessment |
| <i>Hazard</i> | <i>Date</i> | <i>Source</i> | <i>Potential Consequence(s)</i> | <i>Existing Mitigation(s)</i> | <i>Safety Risk Index</i> |
| Operators performing rule enforcement | 1/6/19 | ESRP | Transit worker assaulted and injured while operating a vehicle | 1. Operator training 2. SOP and rule book provided with training | 2D (Critical and Remote) |
| Operators performing rule enforcement | 7/1/22 | ESRP | Transit worker assaulted and injured while operating a vehicle | 1. Operator training 2. SOP and rule book provided with training | To be determined |



Risk Assessment Matrix

Risk Assessment Matrix

| <i>Likelihood</i> | <i>Severity</i> | | | |
|-------------------|------------------|--------------|--------------|----------------|
| | 1 (Catastrophic) | 2 (Critical) | 3 (Marginal) | 4 (Negligible) |
| A (Frequent) | 1A | 2A | 3A | 4A |
| B (Probable) | 1B | 2B | 3B | 4B |
| C (Occasional) | 1C | 2C | 3C | 4C |
| D (Remote) | 1D | 2D | 3D | 4D |
| E (Improbable) | 1E | 2E | 3E | 4E |



Determining Updated Risk Rating

Risk Assessment Matrix Color Code

Acceptability based on identified severity and likelihood.

| | |
|--------|--|
| Red | Unacceptable under the existing circumstances. |
| Yellow | Acceptable based upon mitigations. |
| Green | Acceptable with senior management approval. |

Documenting New Risk Rating

| Straightline Transit Safety Risk Register | | | | | | |
|---|-------------|---------------|---|---|----------------------------|----------------------------|
| Hazard Identification | | | | | Safety Risk Assessment | Safety Risk Mitigation |
| <i>Hazard</i> | <i>Date</i> | <i>Source</i> | <i>Potential Consequence(s)</i> | <i>Existing Mitigation(s)</i> | <i>Safety Risk Index</i> | <i>Selected Mitigation</i> |
| Operators performing rule enforcement | 7/1/22 | ESRP | Transit worker assaulted and injured while operating a vehicle. | 1. Operator training. 2. SOP and rule book provided with training. | 2B (Critical and Probable) | |



Transit Worker Assault Potential Mitigations

Hire additional security guards to conduct ride-alongs

Provide de-escalation training to operators

Hire fare enforcement officers

Revise rules requiring operators to refuse boarding to anyone who refuses to pay

Introduce/Pilot Contactless or Off-Board Fare Collection to Reduce Contact



Documenting Selected Mitigation

| Straightline Transit Safety Risk Register | | | | | | |
|---|-------------|---------------|--|---|----------------------------|---|
| Hazard Identification | | | | | Safety Risk Assessment | Safety Risk Mitigation |
| <i>Hazard</i> | <i>Date</i> | <i>Source</i> | <i>Potential Consequence(s)</i> | <i>Existing Mitigation(s)</i> | <i>Safety Risk Index</i> | <i>Selected Mitigation</i> |
| Operators performing rule enforcement | 7/1/22 | ESRP | Transit worker assaulted and injured while operating a vehicle | 1. Operator training 2. SOP and rule book provided with training | 2B (Critical and Probable) | 1. Provide de-escalation training to operators 2. Revise rules requiring operators to refuse boarding to anyone who refuses to pay |



Documenting Mitigation Responsibility

| Straightline Transit Safety Risk Register | | | | |
|---|----------------------------|---|---|--------------------------------------|
| Hazard Identification | Safety Risk Mitigation | Safety Risk Assessment | Safety Risk Mitigation | |
| <i>Hazard</i> | <i>Selected Mitigation</i> | <i>Safety Risk Index AFTER Mitigation</i> | <i>Responsible Parties for Implementation</i> | <i>Estimated Implementation Date</i> |

Operators performing rule enforcement

1. Provide de-escalation training to operators
2. Revise rules requiring operators to refuse boarding to anyone who refuses to pay

Risk Assessment Matrix

Risk Assessment Matrix

| <i>Likelihood</i> | <i>Severity</i> | | | |
|-------------------|------------------|--------------|--------------|----------------|
| | 1 (Catastrophic) | 2 (Critical) | 3 (Marginal) | 4 (Negligible) |
| A (Frequent) | 1A | 2A | 3A | 4A |
| B (Probable) | 1B | 2B | 3B | 4B |
| C (Occasional) | 1C | 2C | 3C | 4C |
| D (Remote) | 1D | 2D | 3D | 4D |
| E (Improbable) | 1E | 2E | 3E | 4E |



Determining Post-Mitigation Risk Index

Risk Assessment Matrix Color Code

"Tolerability" based on identified severity and likelihood.

| | |
|--------|--|
| Red | Unacceptable under the existing circumstances. |
| Yellow | Acceptable based upon mitigations. |
| Green | Acceptable with senior management approval. |



Documenting Post-Mitigation Risk Index

| Straightline Transit Safety Risk Register | | | | |
|---|---|---|--|--------------------------------------|
| Hazard Identification | Safety Risk Mitigation | Safety Risk Assessment | Safety Risk Mitigation | |
| <i>Hazard</i> | <i>Selected Mitigation</i> | <i>Safety Risk Index AFTER Mitigation</i> | <i>Responsible Parties for Implementation</i> | <i>Estimated Implementation Date</i> |
| Operators performing rule enforcement | 1. Provide de-escalation training to operators 2. Revise rules requiring operators to refuse boarding to anyone who refuses to pay | 2D (Critical and remote) | 1. Cass Jones, Training Coordinator 2. Seth Ramirez, Chief Safety Officer | 1. 8/25/22 2. 9/15/22 |



Documenting Mitigation Monitoring

| Straightline Transit Safety Risk Register | | | |
|---|--|-------------------------------------|----------------------------------|
| Hazard Identification | Safety Risk Mitigation | Safety Risk Mitigation Monitoring | |
| <i>Hazard</i> | <i>Selected Mitigation</i> | <i>Safety Performance Indicator</i> | <i>Safety Performance Target</i> |
| Operators performing rule enforcement | <ol style="list-style-type: none">1. Provide de-escalation training to operators2. Revise rules requiring operators to refuse boarding to anyone who refuses to pay | | |



Mitigation Monitoring



Documenting Mitigation Implementation

| Straightline Transit Safety Risk Register | | | |
|---|---|---|---|
| Hazard Identification | Safety Risk Mitigation | Safety Risk Mitigation Monitoring | |
| <i>Hazard</i> | <i>Selected Mitigation</i> | <i>Safety Performance Indicator (Implementation)</i> | <i>Safety Performance Target (Implementation)</i> |
| Operators performing rule enforcement | 1. Provide de-escalation training to operators 2. Revise rules requiring operators to refuse boarding to anyone who refuses to pay | 1. Percent of operators trained 2. Rules revised and published within 30 days. | 1. 100% of operators trained over next 45 calendar days 2. Rules revised and published within 45 days. |



Documenting Mitigation Effectiveness

| Straightline Transit Safety Risk Register | | | |
|---|---|--|--|
| Hazard Identification | Safety Risk Mitigation | Safety Risk Mitigation Monitoring | |
| <i>Hazard</i> | <i>Selected Mitigation</i> | <i>Safety Performance Indicator (Effectiveness)</i> | <i>Safety Performance Target (Effectiveness)</i> |
| Operators performing rule enforcement | 1. Provide de-escalation training to operators 2. Revise rules requiring operators to refuse boarding to anyone who refuses to pay | 1. Operator feedback on the training 2. Number of operators reporting physical assaults from passengers | 1. Greater than 95% of operators agree that the training was effective 2. Zero reports of physical assaults on operators over the next six months |



Documenting Mitigation Appropriateness

| Straightline Transit Safety Risk Register | | | |
|---|---|---|--|
| Hazard Identification | Safety Risk Mitigation | Safety Risk Mitigation Monitoring | |
| <i>Hazard</i> | <i>Selected Mitigation</i> | <i>Safety Performance Indicator (Appropriateness)</i> | <i>Safety Performance Target (Appropriateness)</i> |
| Operators performing rule enforcement | 1. Provide de-escalation training to operators 2. Revise rules requiring operators to refuse boarding to anyone who refuses to pay | 1. Operator feedback on the training 2. Number of operators reporting fare disputes onboard vehicles | 1. Greater than 95% of operators agree that the training taught them to de-escalate disputes 2. Zero reports of fare disputes by operators over the next six months |



Documenting Mitigation Responsibility

| Straightline Transit Safety Risk Register | | | |
|---|--|--|-------------------------------------|
| Hazard Identification | Safety Risk Mitigation Monitoring | | |
| <i>Hazard</i> | <i>Safety Performance Indicator (Appropriateness)</i> | <i>Safety Performance Target (Appropriateness)</i> | <i>Responsible Party(ies)</i> |
| Operators performing rule enforcement | 1. Operator feedback on the training | 1. Greater than 95% of operators agree that the training taught them to de-escalate disputes | 1. Debbie Patel, Training Assistant |
| | 2. Number of operators reporting physical assaults from passengers | 2. Zero reports of physical assaults on operators over the next six months | 2. Matt Brooks, Dispatch Supervisor |



Guest Speaker – Jared Garcia



Agency Profile

- San Diego Metropolitan Transit System (MTS)
- Multi-modal agency
- Bus (commuter, fixed route, rural), Light Rail (Trolley), & Paratransit
- Operate throughout 12 cities within San Diego County
- 6 operating divisions (5 bus, 1 rail)
- 50% bus service contracted with Transdev
- Paratransit contracted with First Transit



Primary Hazard Identification Sources

- Accident Investigation
- Employee Safety Committee
- Employee Reporting Program
- Annual Safety Performance Assessment



Risk Register Roundtable

- Meet bi-monthly both internally and with each contractor
- Review severity and probability of hazards
- Focus on mitigation
- Identify responsible parties



Risk Register Roundtable Example

| | |
|--------------------------------------|---|
| Status: | In Progress |
| Hazard Location: | Buses with barriers |
| Date Identified: | 3/1/2021 |
| Description: | Ramp won't deploy with barrier open, operator can't extend hand to warn passengers. |
| Severity: | 3 - Marginal |
| Probability: | B - Probable |
| Corrective Actions Taken: | Updated procedures on ramp deployment. Added topic to annual retraining. Completed reprogramming. |
| Corrective Actions Remaining: | Complete testing. Install update on buses once testing complete. |
| Responsible Parties: | Transportation |



| Hazard Assessment Matrix | | | | |
|--------------------------|------------------|--------------|--------------|----------------|
| | 1 - Catastrophic | 2 - Critical | 3 - Marginal | 4 - Negligible |
| A - Frequent | 1A | 2A | 3A | 4A |
| B - Probable | 1B | 2B | 3B | 4B |
| C - Occasional | 1C | 2C | 3C | 4C |
| D - Remote | 1D | 2D | 3D | 4D |
| E - Improbable | 1E | 2E | 3E | 4E |
| F - Eliminated | N/A | N/A | N/A | N/A |

| Acceptability Levels | |
|----------------------|--------------------------------------|
| High | Unacceptable |
| Serious | Undesirable with management decision |
| Medium | Acceptable with review by management |
| Low | Acceptable without review |

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Wheelchair Ramp Events Inside Bus

2018

2018 – Identification & Mitigation

- 15 events
- 1 non-preventable



Wheelchair Ramp Events Inside Bus

2017 – Baseline Data

- 13 events
- 4 non-preventable

2017 > 2018

2018 – Identification & Mitigation

- 15 events
- 1 non-preventable



Wheelchair Ramp Events Inside Bus

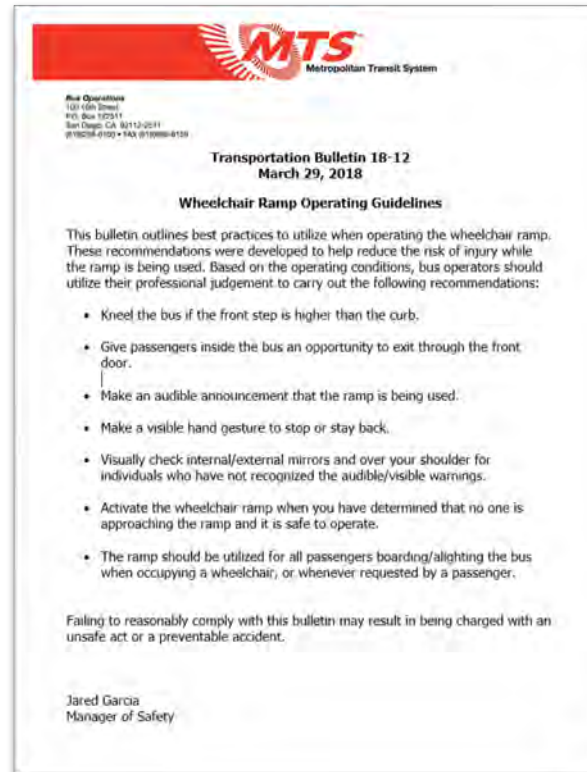
2017 – Baseline Data

- 13 events
- 4 non-preventable

2017 → 2018

2018 – Identification & Mitigation

- 15 events
- 1 non-preventable
- Policy change:
 - Audible announcement
 - Visible hand gesture
- Training



Wheelchair Ramp Events Inside Bus

2017 – Baseline Data

- 13 events
- 4 non-preventable

2019 – Monitoring

- 12 events
- 3 non-preventable
- Training

2017

2018

2019

2018 – Identification & Mitigation

- 15 events
- 1 non-preventable
- Policy change:
 - Audible announcement
 - Visible hand gesture
- Training



Wheelchair Ramp Events Inside Bus

2017 – Baseline Data

- 13 events
- 4 non-preventable

2019 – Monitoring

- 12 events
- 3 non-preventable
- Training

2017

2018

2019

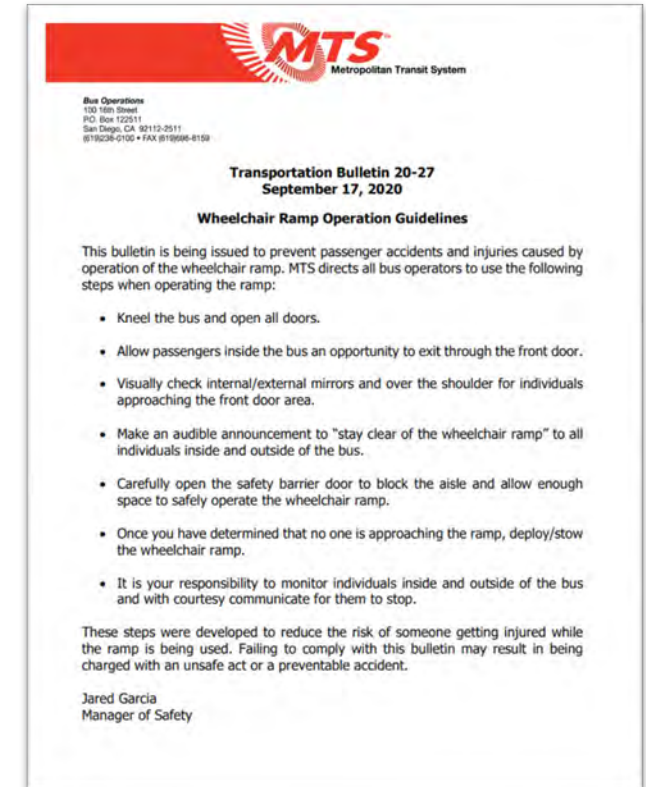
2020

2018 – Identification & Mitigation

- 15 events
- 1 non-preventable
- Policy change:
 - Audible announcement
 - Visible hand gesture
- Training

2020 – Management of Change

- 4 events
- New temporary germ barrier
- Policy change:
 - Audible announcement
 - Open barrier to block aisle
- Training



Wheelchair Ramp Events Inside Bus

2017 – Baseline Data

- 13 events
- 4 non-preventable

2019 – Monitoring

- 12 events
- 3 non-preventable
- Training

2021 – Management of Change

- 5 events
- New permanent barrier:
 - Blocks ramp when open
 - Blocks hand gesture
- Design change needed

2017

2018

2019

2020

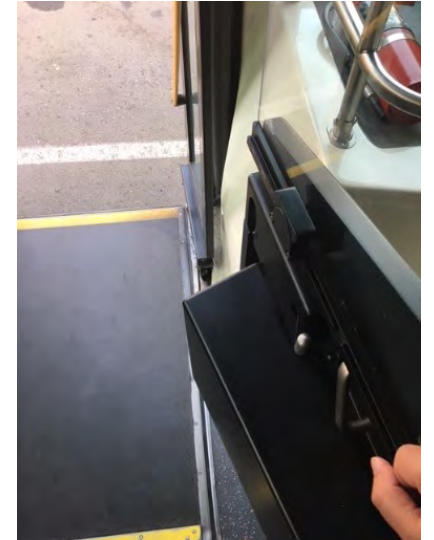
2021

2018 – Identification & Mitigation

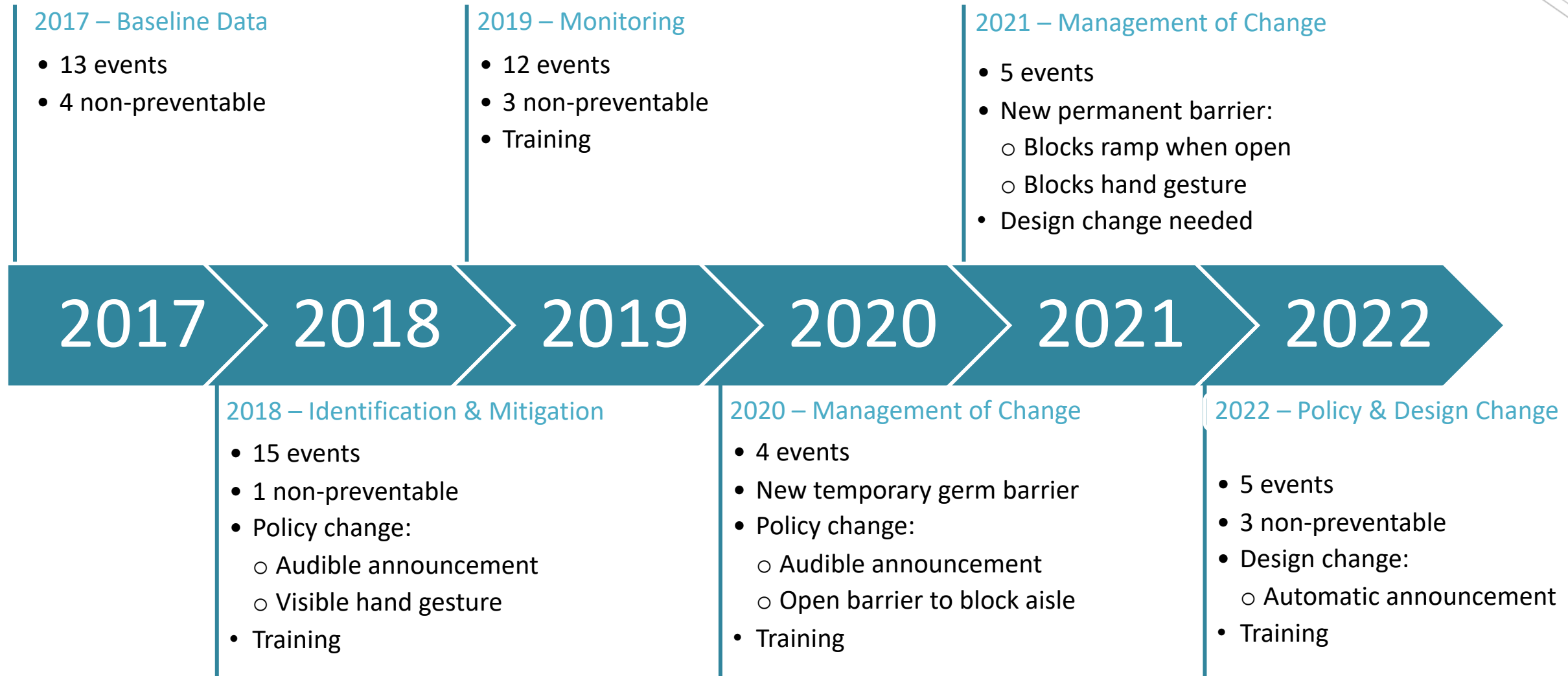
- 15 events
- 1 non-preventable
- Policy change:
 - Audible announcement
 - Visible hand gesture
- Training

2020 – Management of Change

- 4 events
- New temporary germ barrier
- Policy change:
 - Audible announcement
 - Open barrier to block aisle
- Training



Wheelchair Ramp Events Inside Bus



Design Change Testing

- Automated announcement
- Audible & visible
- Triggered by ramp switch



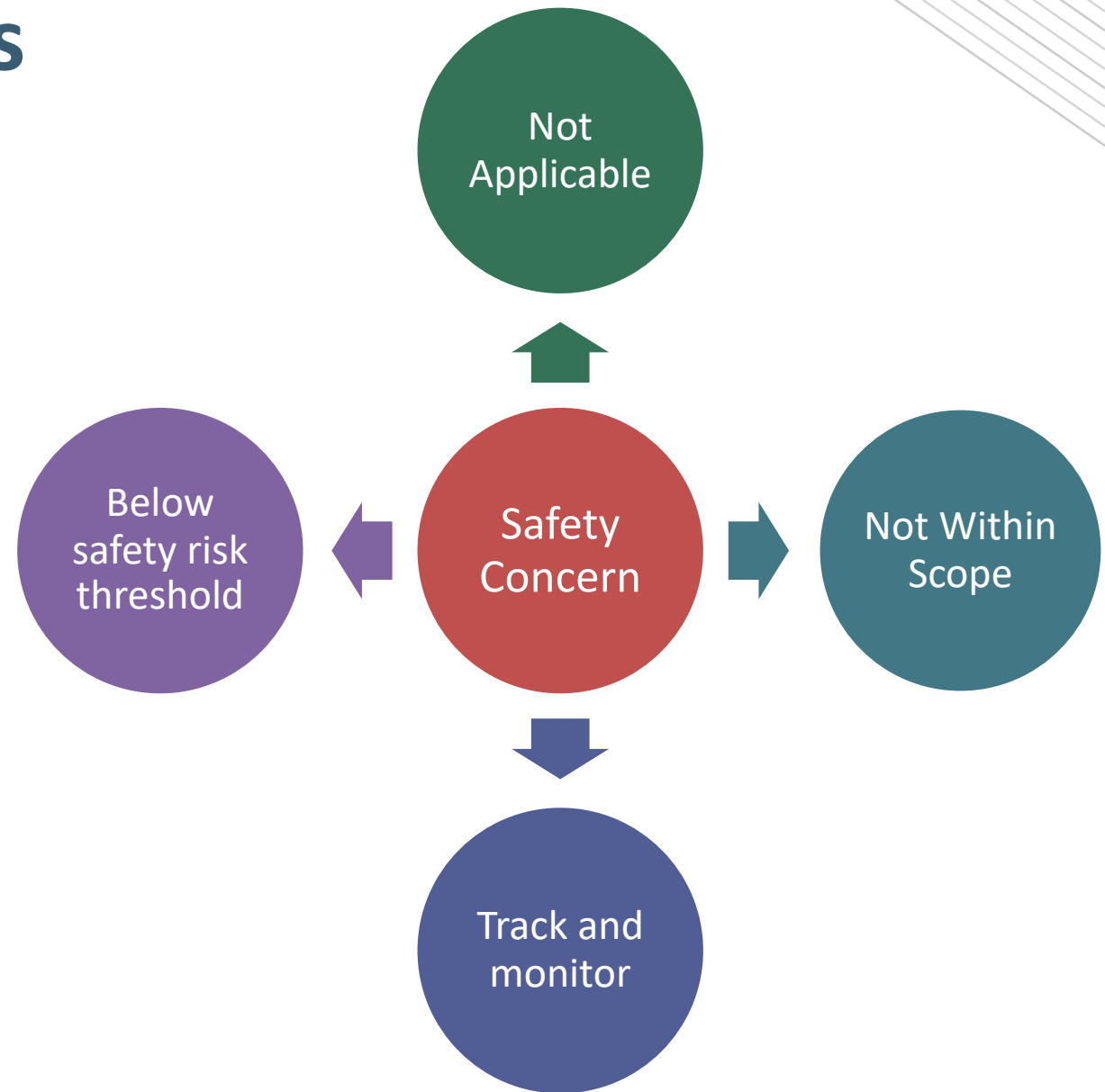
Considerations



Tracking Safety Concerns

Depending on size, complexity, and available resources, agencies may not want to or be able to formally track all safety concerns

- Agencies may establish safety risk thresholds, such as only tracking safety concerns above a certain likelihood and severity
- Agencies may decide that some safety concerns are beyond their span of control and do not warrant more follow up
- Agencies may decide that identified safety concerns are not relevant to their operations
- Agencies may decide to track and monitor all safety concerns



Tracking Safety Concerns

Depending on size, complexity, and available resources, agencies may not want to or be able to formally track all safety concerns – and some safety concerns may be tracked outside of the safety risk register



Documenting Leadership Decision-Making

| Straightline Transit Safety Risk Register | | | | |
|---|--|---|--|---|
| Hazard Identification | Safety Risk Mitigation Monitoring | | | Approvals |
| <i>Hazard</i> | <i>Safety Performance Indicator (Appropriateness)</i> | <i>Safety Performance Target (Appropriateness)</i> | <i>Responsible Party(ies)</i> | <i>Safety Risk or Safety Risk Mitigation Approval</i> |
| Operators performing rule enforcement | 1. Operator feedback on the training 2. Number of operators reporting physical assaults from passengers | 1. Greater than 95% of operators agree that the training taught them to de-escalate disputes 2. Zero reports of physical assaults on operators | 1. Debbie Patel, Training Assistant 2. Matt Brooks, Dispatch Supervisor | Seth Ramirez, Chief Safety Officer Ann Templeton, Accountable Executive <i>Approved Safety Risk Mitigation during 7/3/22 leadership meeting</i> |



Detail in a Safety Risk Register

Our example is just one way to prepare a Safety Risk Register

| Straightline Transit Safety Risk Register | | | | | | | |
|---|------|--------|------------------------|------------------------|------------------------------|--------------------------------|--|
| Hazard Information | | | | Safety Risk | | | |
| Hazard | Date | Source | Potential Consequences | Safety Risk Mitigation | Safety Risk Assessment | Safety Performance Monitoring | Approvals |
| | | | | Selected Mitigation | Safety Risk AFTER Mitigation | SPI SPT Responsible Party(ies) | Safety Risk or Safety Risk Mitigation Acceptance |

Whether your agency chooses to use a Safety Risk Register or other documentation tool, you may choose to meet the documentation requirement with more or less detail than our example

Related Resources

- Today's webinar focused on topics in Safety Risk Management (SRM), and Safety Assurance (SA)
- Log onto FTA's PTASP TAC Resource Library for more webinars, tools, and fact sheets related to SRM and SA

www.transit.dot.gov/PTASP-TAC

**For information related to the Bipartisan Infrastructure Law,
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Bipartisan Infrastructure Law



PTASP Technical Assistance Center

Welcome to the Public Transportation Agency Safety Plan (PTASP) Technical Assistance Center (TAC). We are here to help you meet PTASP regulation requirements.

For information on Bipartisan Infrastructure Law safety requirements, see [FTA's web page](#) or email IIJA@dot.gov.

PTASP Resource Library

Choose your agency type to begin



Small Bus
Transit Provider



Bus Transit
Provider



Rail Transit
Provider



State Department
of Transportation



State Safety
Oversight Agency



Metropolitan
Planning Organization

<https://www.transit.dot.gov/PTASP-TAC>



Bus Transit Providers

FTA developed a host of materials to help large bus transit providers develop Agency Safety Plans.

- [Applicability](#)
- [Plan Development](#)
- [Certification](#)
- [Safety Performance Targets](#)
- [Safety Management Policy](#)
- [Safety Risk Management](#)
- [Safety Assurance](#)
- [Safety Promotion](#)
- [Implementation](#)
- [SMS Records and Documentation](#)
- [Annual ASP Review](#)

<https://www.transit.dot.gov/PTASP-TAC>



Safety Risk Management


Tools

- [Sample Safety Risk Assessment Matrices for Bus Transit Agencies](#)
- [Guide to the Sample Safety Risk Register for Bus Transit Agencies](#)
 - [Sample Safety Risk Register for Bus Transit Agencies](#)

Training

- [PTASP Hazards and Consequences Self Guided Learning Tool](#)

Webinars

- Safety Risk Assessment in Practice: April 27, 2022
[Webinar Presentation](#) | [Webinar Recording](#) 
- Implementing Safety Risk Assessment Approaches: Thursday, June 30, 2021
 - [Webinar Presentation](#)

<https://www.transit.dot.gov/PTASP-TAC>

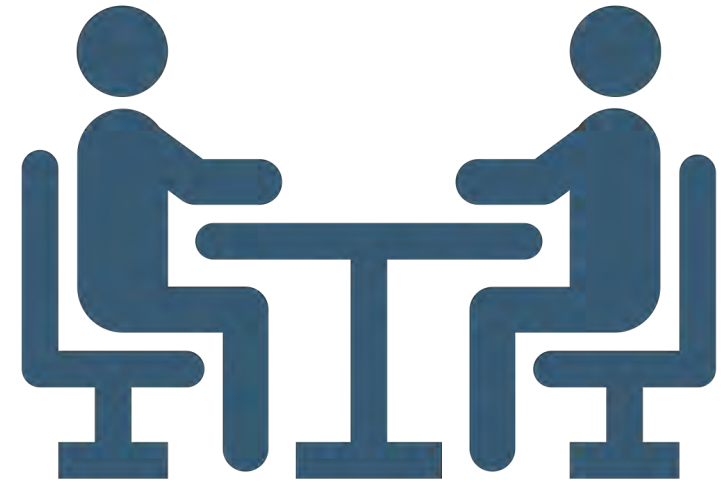


Technical Assistance

- **TAC Website** transit.dot.gov/PTASP-TAC
- **FAQs** transit.dot.gov/PTASP-FAQs

The TAC help desk is available to assist the transit industry with PTASP questions, including questions about ASP development and implementation:

- **Email** PTASP-TAC@dot.gov



Questions and Answers

- Question and Answer session
- For information related to the Bipartisan Infrastructure Law
 - Please visit FTA's [Bipartisan Infrastructure Law](#) webpage
 - Review FTA's March 1, 2022 [Bipartisan Infrastructure Law webinar](#)
 - Contact FTA-IIJA@dot.gov with your questions related to the Bipartisan Infrastructure Law





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