2022 California Transportation Asset Management Plan

Risk Management Workshop – Day 2

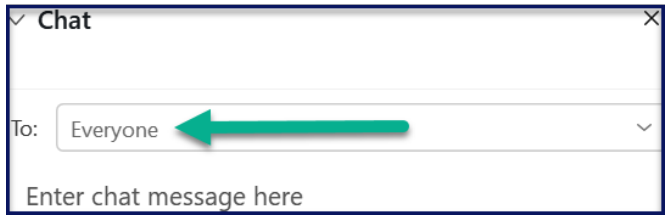
June 30, 2021

Michael B. Johnson
State Asset Management Engineer
Caltrans, HQ Asset Management

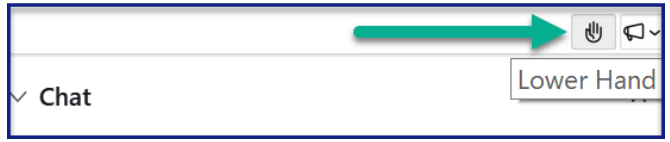
Workshop Quick-Guide

- When joining the workshop, if you clicked on the new “Join by browser” **you will not have sound**. You will need to re-join the webinar by clicking on “Join Now”

- The workshop will be recorded and posted on the Caltrans Asset Management webpage
- Use the Chat to “Everyone” feature to submit questions. We will respond to questions during the workshop as well as a Q&A at the end of the presentation



- Use the “Raise Hand” feature if you would like to communicate with Host. Click the hand again to “Lower Hand”

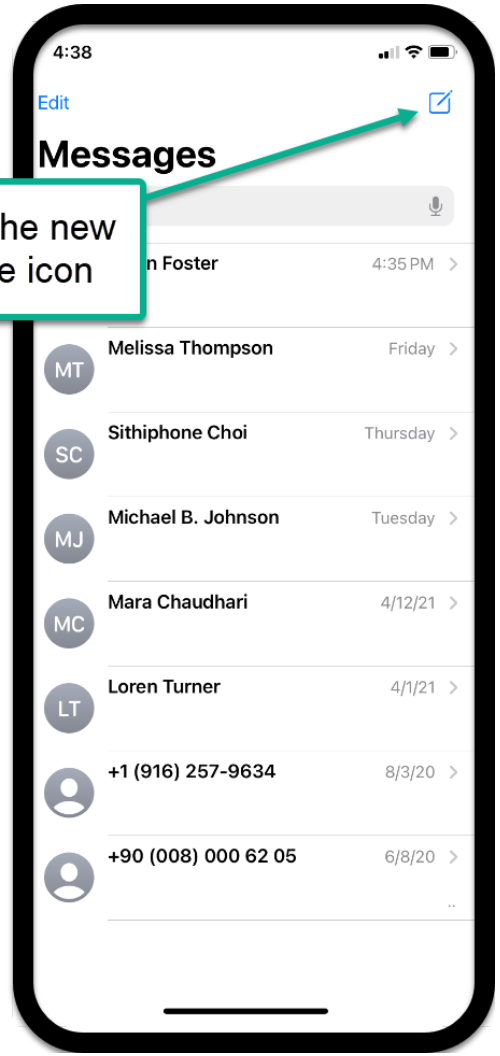


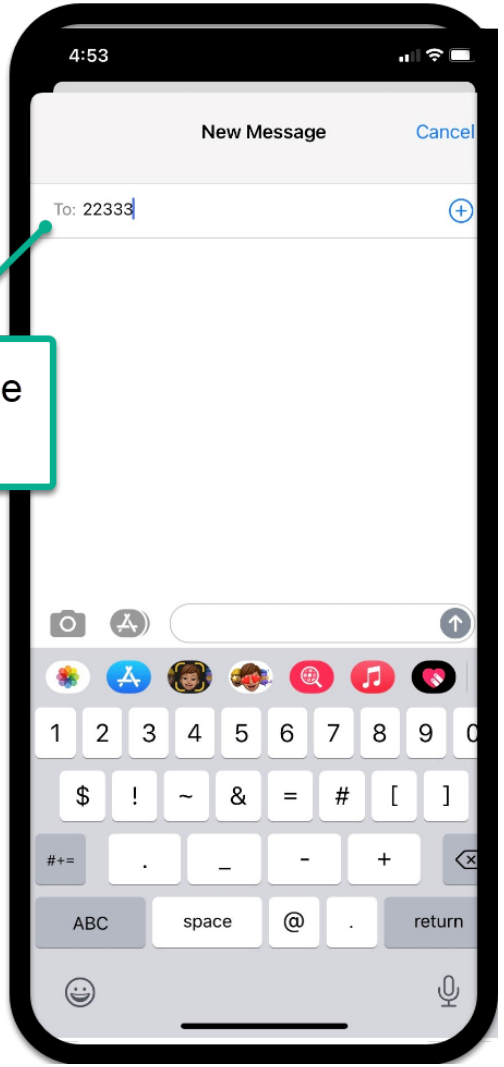
- If you need technical assistance with the workshop or have questions later, you can submit questions via email to: CT-TAM@dot.ca.gov

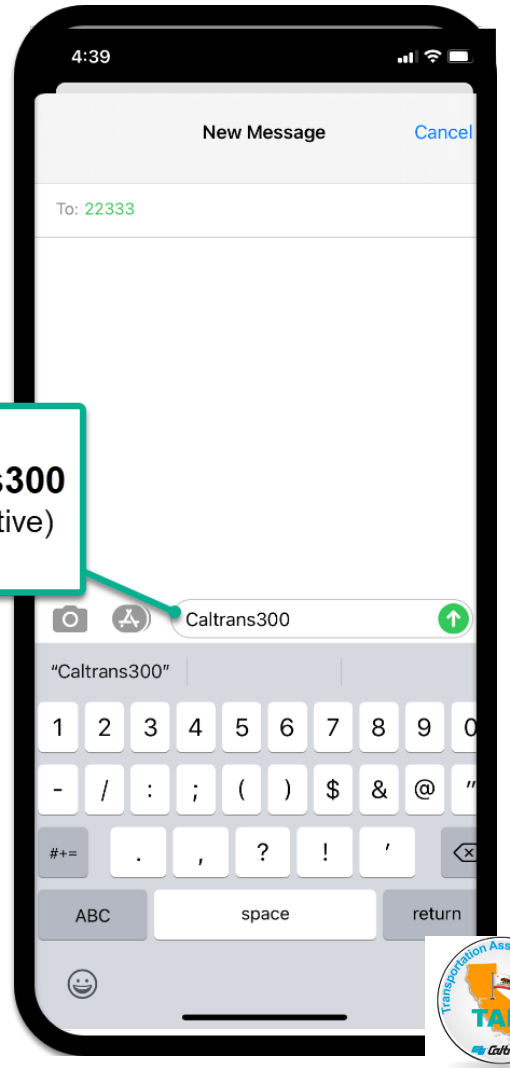
Agenda – Day 2

1:00 P.M.	Welcome & Overview
1:10 P.M.	Recap of Day 1
1:40 P.M.	Complete the 2022 TAMP Risk Assessment
2:30 P.M.	Break-out Session on Risk Mitigation Strategies/Actions
3:50 P.M.	Assets Repeatedly Damaged (23 CFR 667)
3:55 P.M.	Closing Remarks

Poll Instructions







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Recap of Day 1

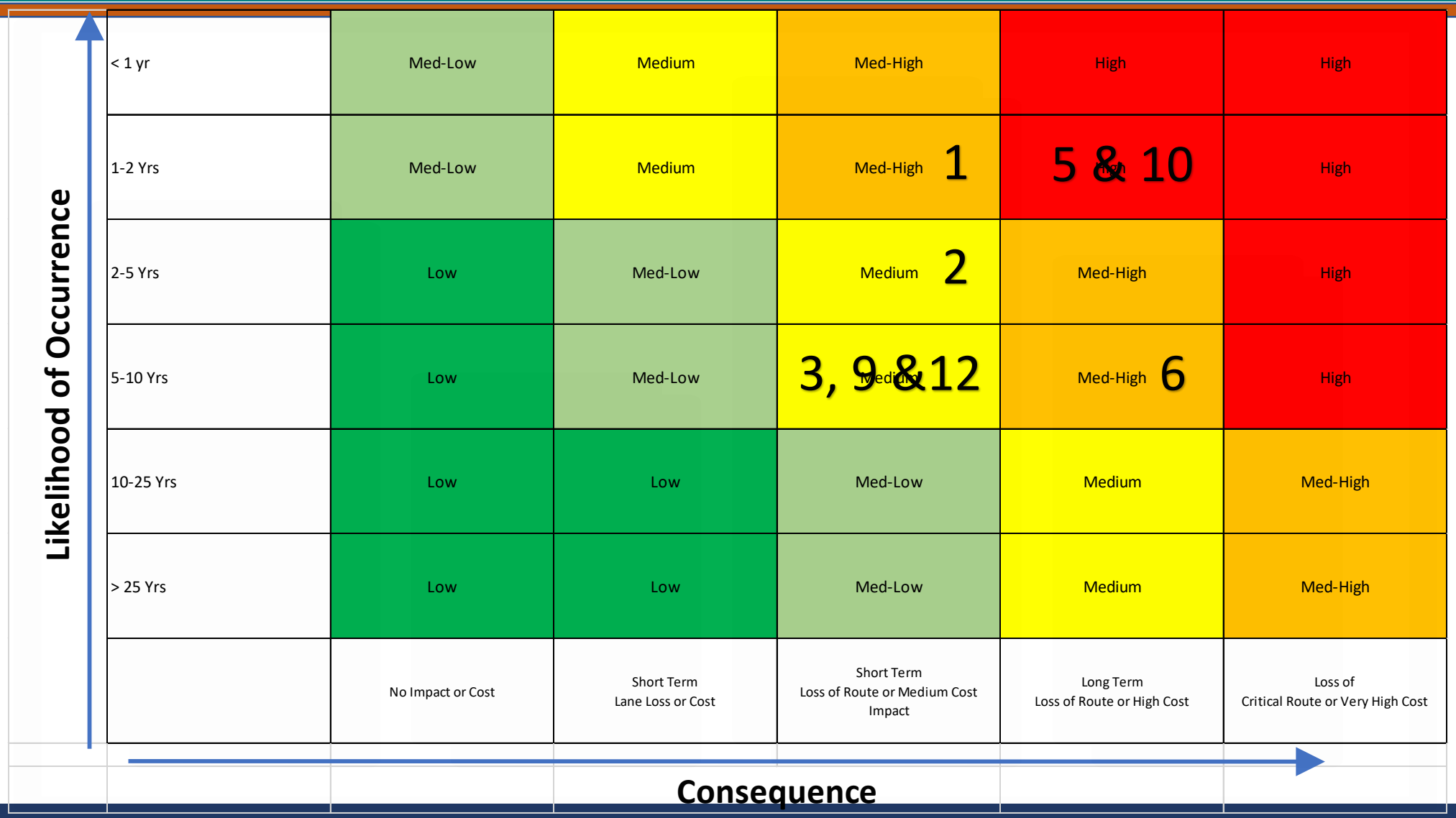
Michael B. Johnson
State Asset Management Engineer
HQ Office of Asset Management, Caltrans

Risk Management Workshop – Day 1

- Reviewed TAM Risk Management requirements
- Completed assessment of 12 Initial TAMP risks
- Risk were assessed in terms of the likelihood of their occurrence and their impact and consequence if they do occur
- Survey sent out to Day 1 participants to identify any new risks

Source: NCHRP Project 20-24(74) Research Report, 2011

Results of Risk Assessment – Risk Matrix



Results of Risk Assessment – Day 1

High Risks:

- **Risk 5:** If accident reporting is not modernized, we may not accelerate some factors of safety improvements.
- **Risk 10:** If the available funding does not cover our needs, then we will still have some deferred maintenance and operation's needs.

Medium-High Risks:

- **Risk 1:** If we make projects more complex (by the addition of multiple assets) and involve complete streets, project delivery may be delayed.
- **Risk 6:** If we don't plan for extreme weather events, then bridges, roadways, and structures will be damaged.

Results of Risk Assessment – Day 1

Medium Risks:

- **Risk 2:** If we do not coordinate the needs of each asset class or project work, we may not be as efficient as possible (e.g., may be removing new pavements to place new culvert).
- **Risk 3:** If we don't include ITS elements into roadway planning, then we may experience increased congestion and reduced freight mobility.
- **Risk 9:** If money is spent on the four core assets (bridge, pavement, culverts, ITS) that are in the most need, then there may not be money for assets later down the road and there may not be enough money to "maintain".
- **Risk 12:** If we do not have reliable asset performance models (including reliable decay rates and reasonable goals, then investment decisions will not be optimal.

Should this risk be included in the TAMP? "If we do not coordinate the needs of each asset class or project work, we may not be as efficient as possible (e.g., may be removing new pavements to place new culvert)."

Yes

No

Should this risk be included in the TAMP? "If we don't include ITS elements into roadway planning, then we may experience increased congestion and reduced freight mobility."

- Yes
- No

Should this risk be included in the TAMP? "If money is spent on the four core assets (bridge, pavement, culverts, ITS) that are in the most need, then there may not be money for assets later down the road and there may not be enough money to "maintain."

Yes

No

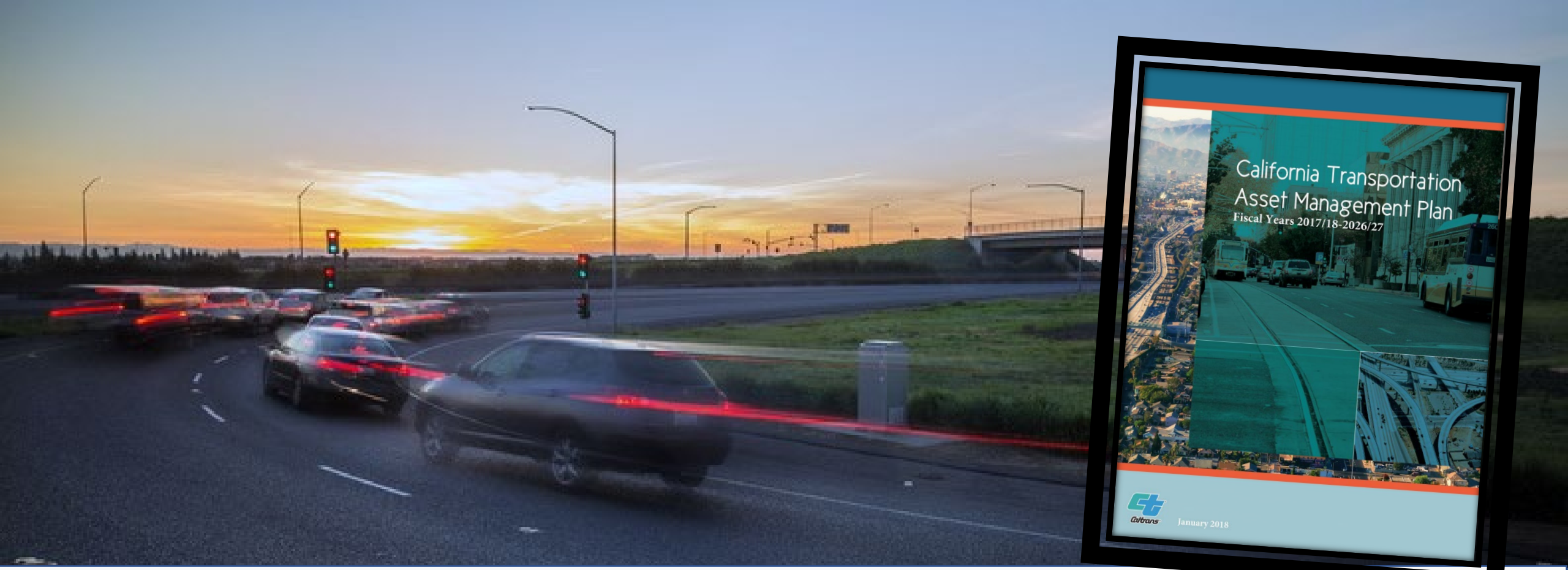
Should this risk be included in the TAMP? "If we do not have reliable asset performance models (including reliable decay rates and reasonable goals, then investment decisions will not be optimal. "

Yes

No

Risk Management Workshop – Day 2

- Need to complete assessment of Initial TAMP risks and any new risks
- Will further discuss high and medium risks in small groups
  - Review and refine risk statements
  - Review and determine risk management strategies
  - For risks needing mitigation, determine appropriate actions/priorities
- Will discuss needed input on repeatedly damaged locations/assets on Local NHS



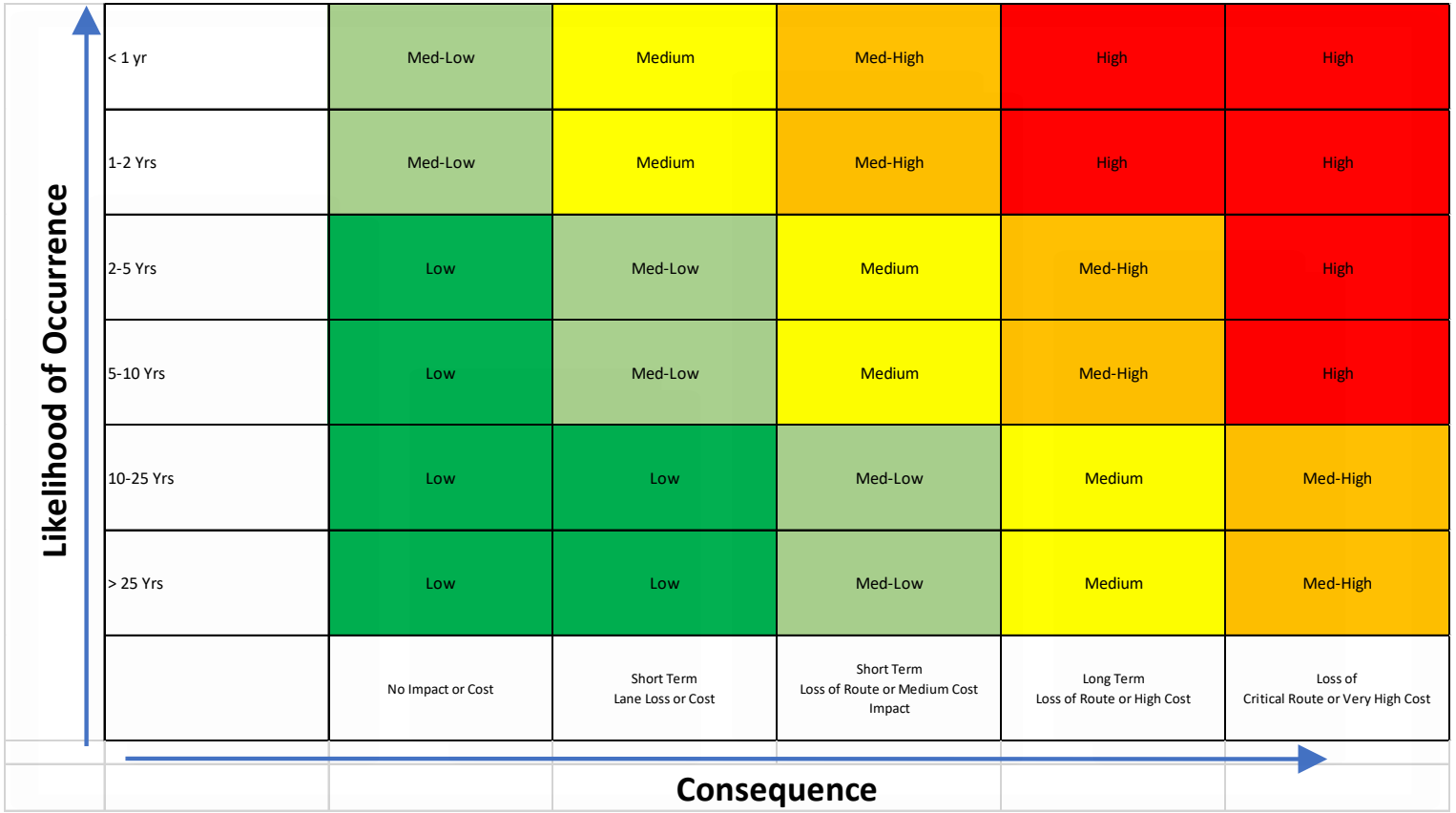
Risk Assessment – Likelihood & Consequence

Dawn Foster
TAMP Manager
HQ Office of Asset Management, Caltrans

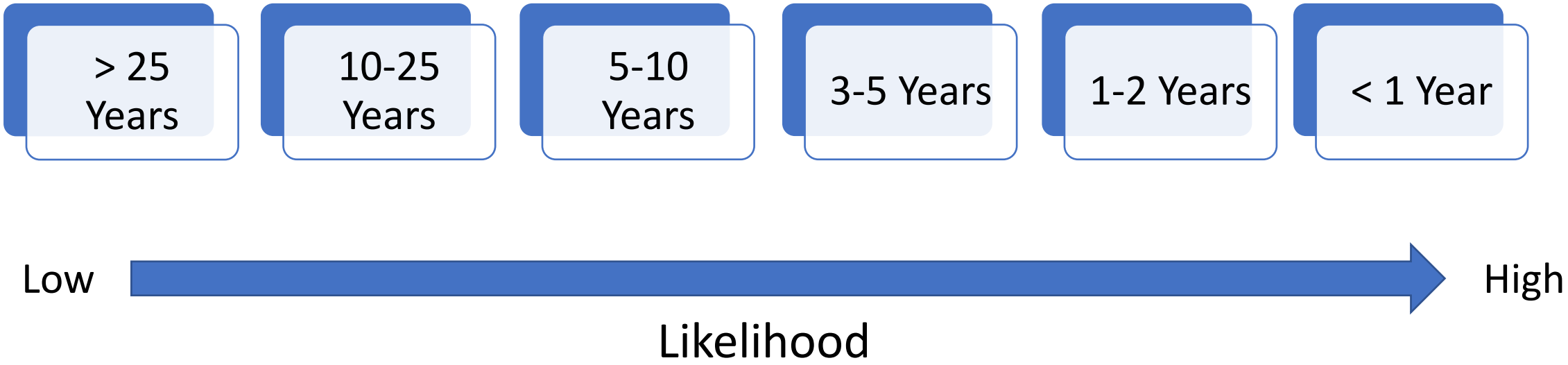
Risk Assessment

A key tool for conducting a risk assessment is the risk consequence matrix

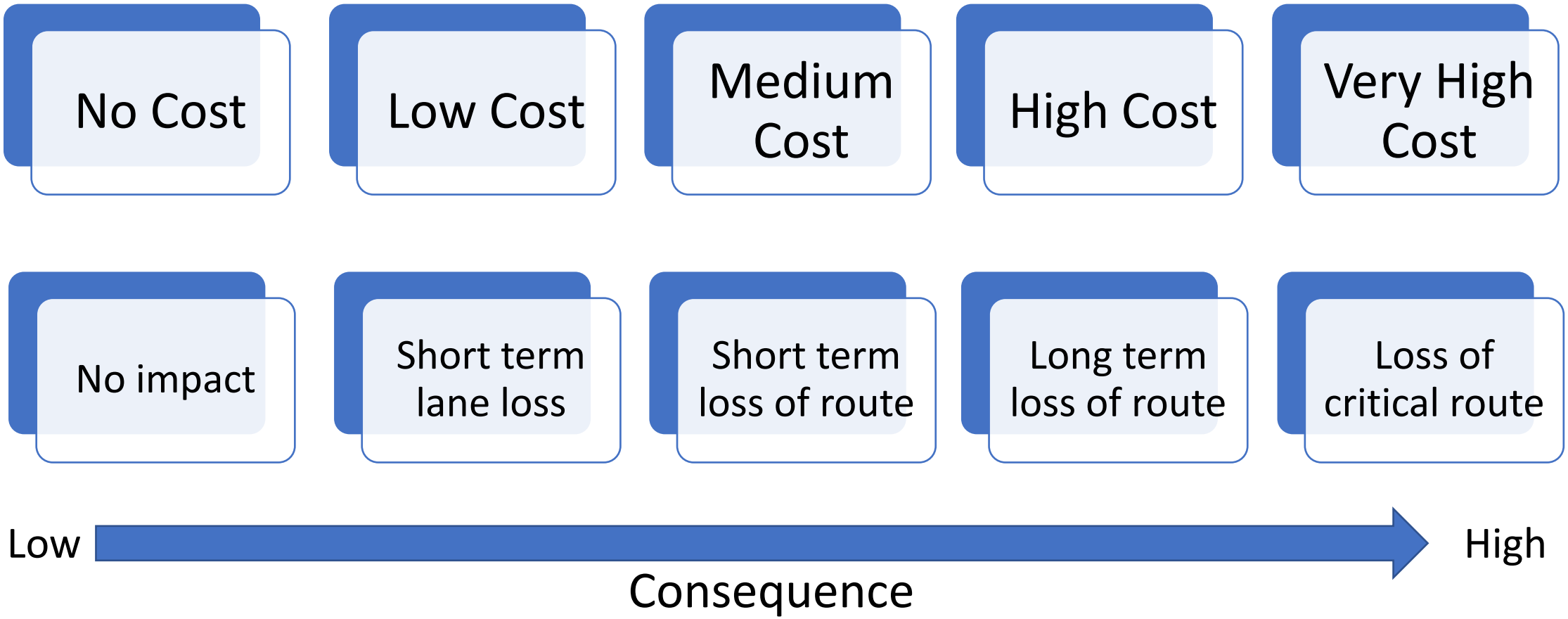
- Provides a common scale by which different groups can assess likelihood and impact of different risks
- A risk's consequence is the product of its likelihood that it will occur times its impact.



Likelihood that a Risk will Occur (in time)



Consequence or Impact to the Transportation System (Options for Consequence)



Review of Each Risk Statement

R relevance: is this risk relevant to your agency today?

I influence: do you think the TAMP should be influenced by this risk?

- It would impact the financial plan and investment strategies

S statement: do you think the risk statement is accurately represented?

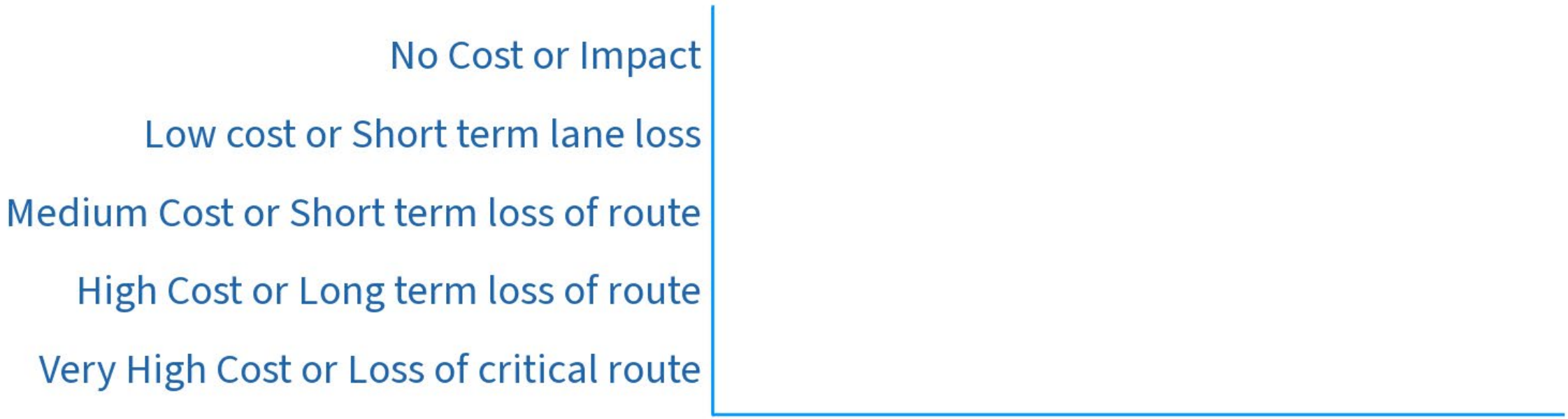
- You will have opportunity to include additional risks during workshop

K keep in mind: a risk statement is formed by an “IF-THEN” statement

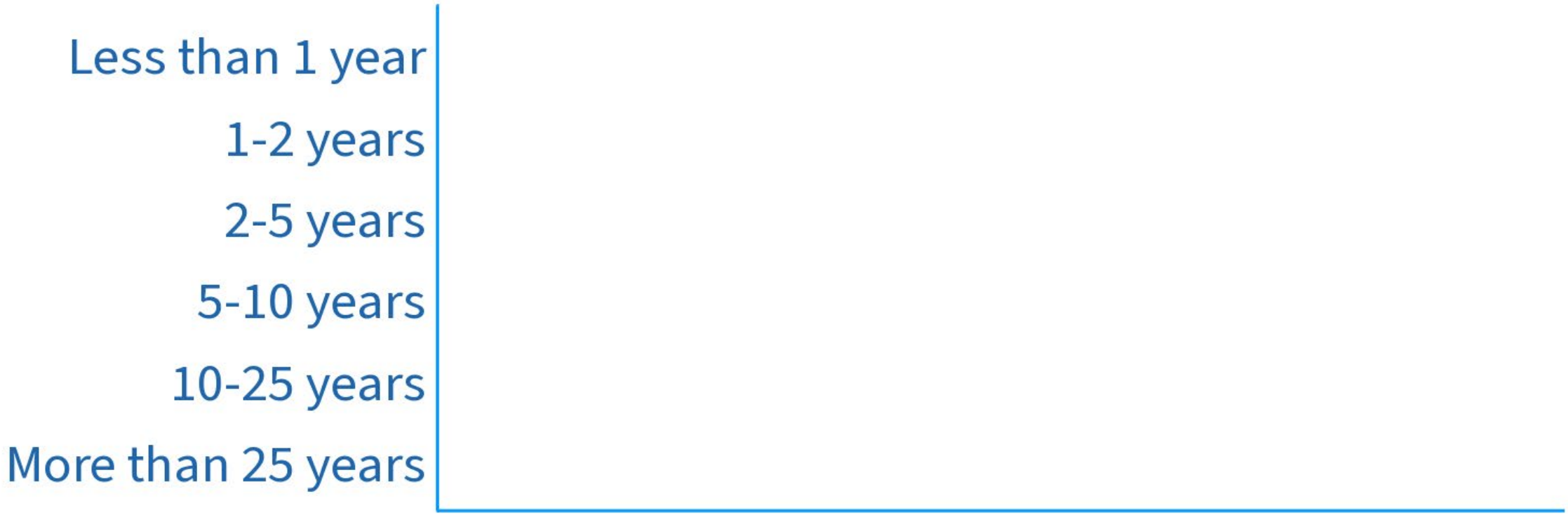
Initial TAMP Risk 13: If we don't incorporate climate change into system planning models, assets may be permanently damaged. Determine likelihood that risk will occur.

- Less than 1 year
- 1-2 years
- 2-5 years
- 5-10 years
- 10-25 years
- More than 25 years

Initial TAMP Risk 13: If we don't incorporate climate change into system planning models, assets may be permanently damaged. Determine consequence to the system.



Initial TAMP Risk 14: If we don't train and mentor employees, then we will have large knowledge gaps in the workforce. Determine likelihood that risk will occur.



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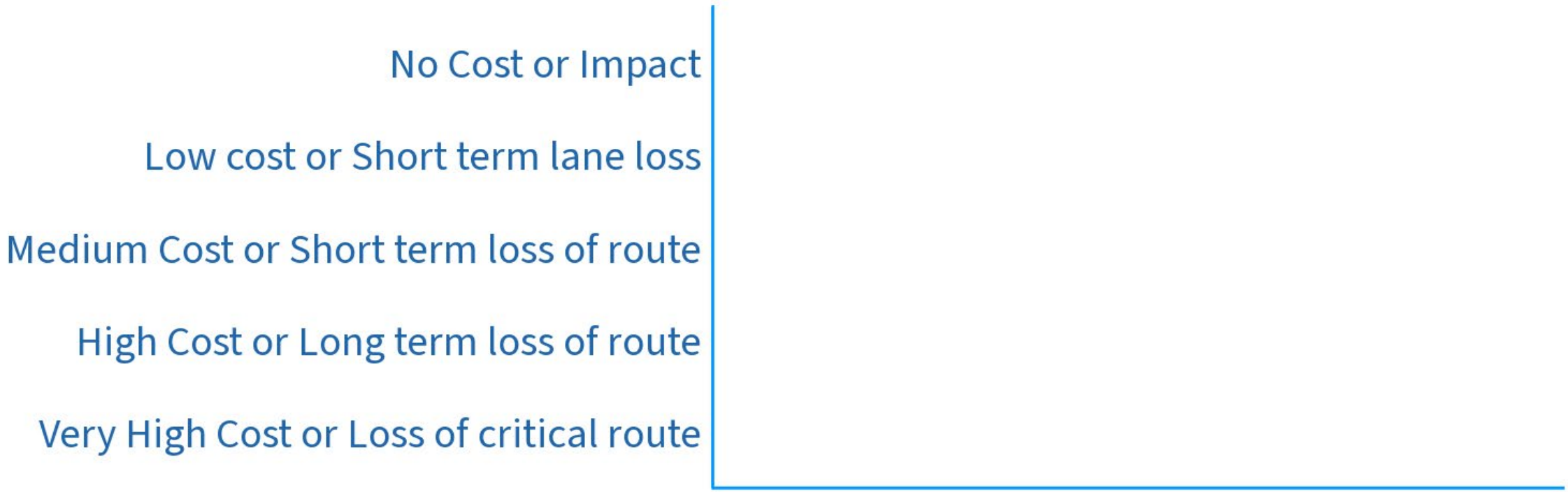
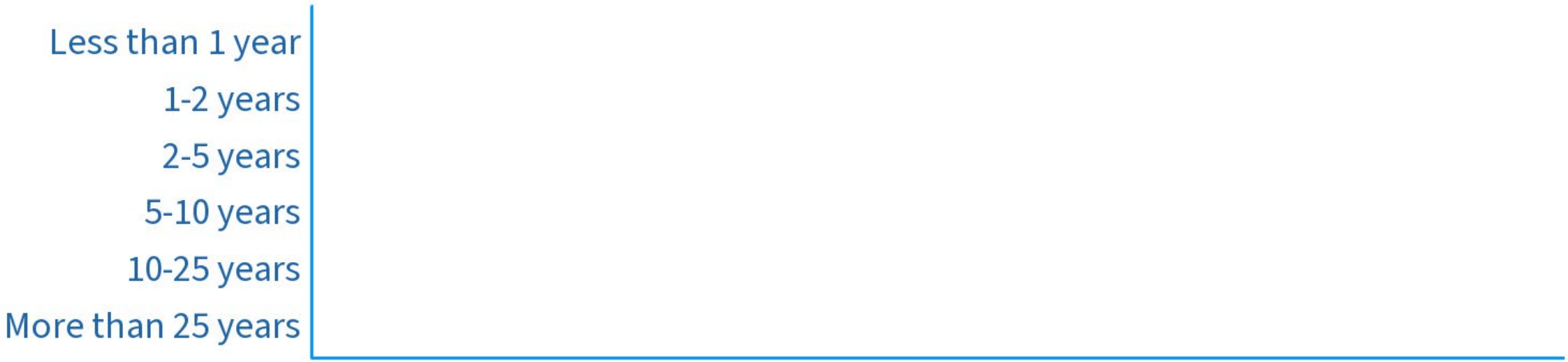


Initial TAMP Risk 15: If the Department and regions are unable to use innovative project delivery tools with the new funding, then it may take longer to deliver needed transportation work. Determine likelihood that risk will occur.



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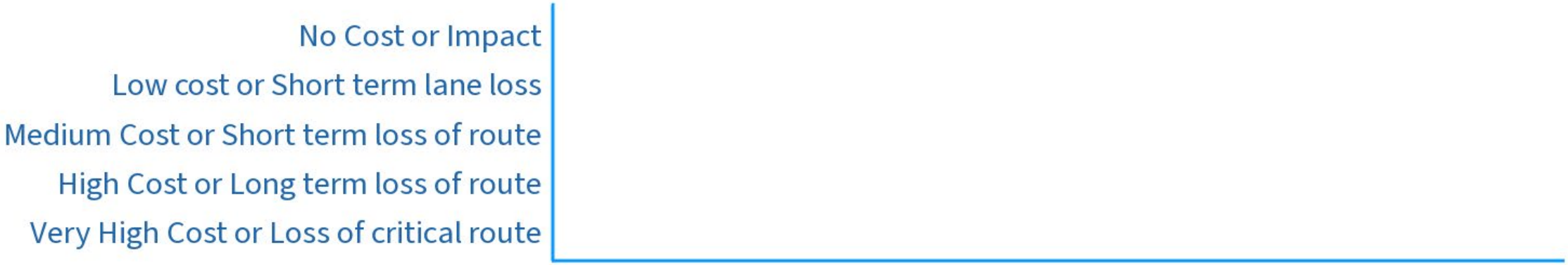
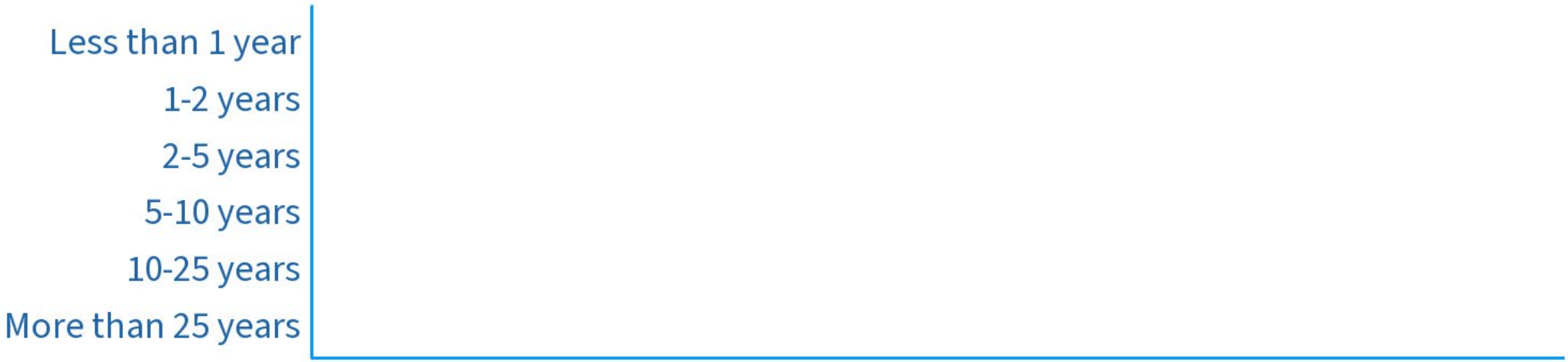


Risk N1: If we don't program projects and expenditures by NHS designation and by the federal work types, then investments in pavement and bridges on the NHS will not be accurately identified. Determine likelihood that risk will occur.



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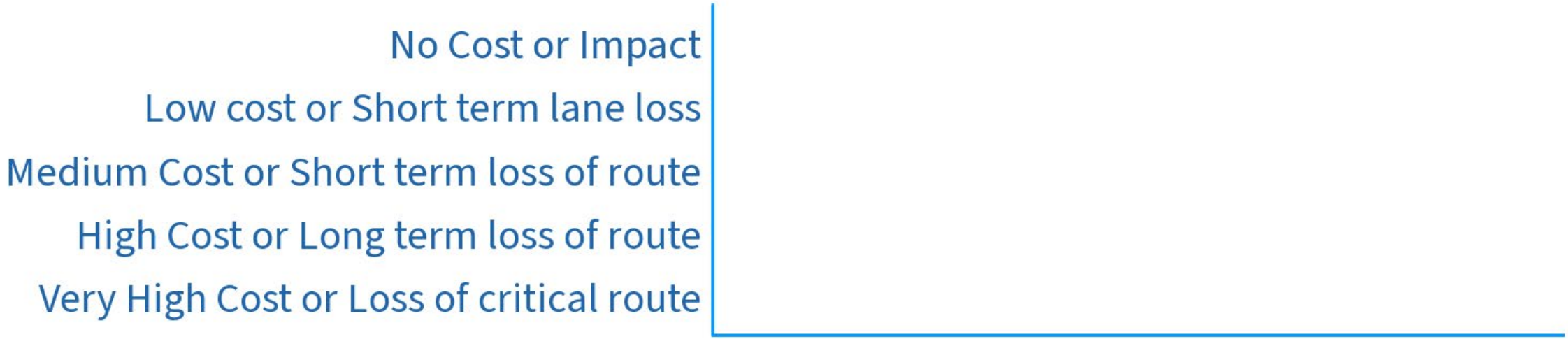
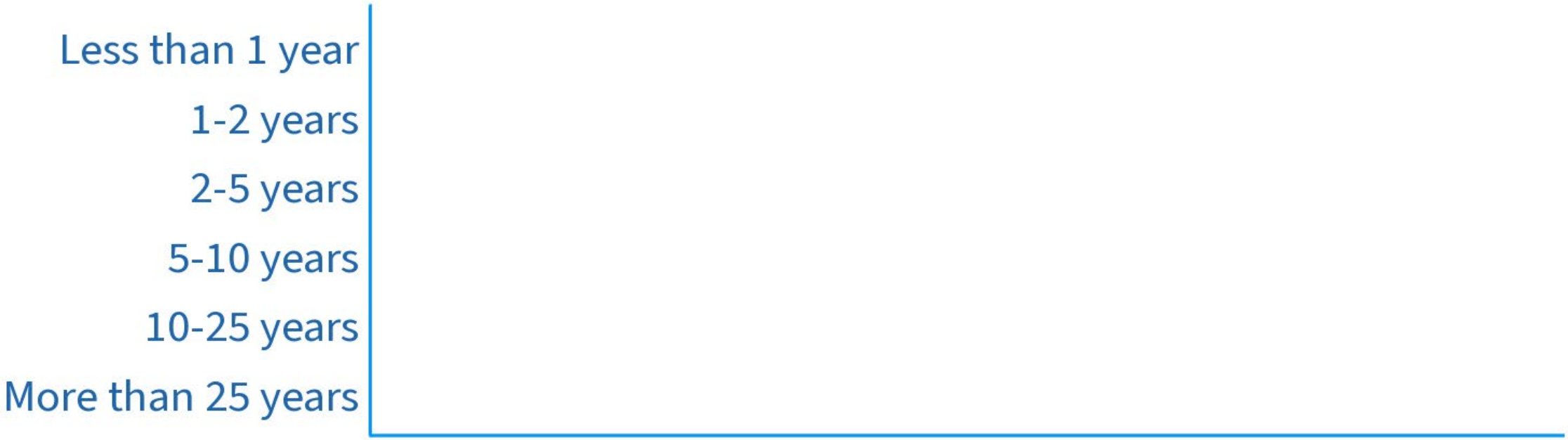


Risk N2: If last minute construction strategies change during a freeway rehab or similar project, then local agency impacts are difficult to evaluate and manage. Determine likelihood that risk will occur.



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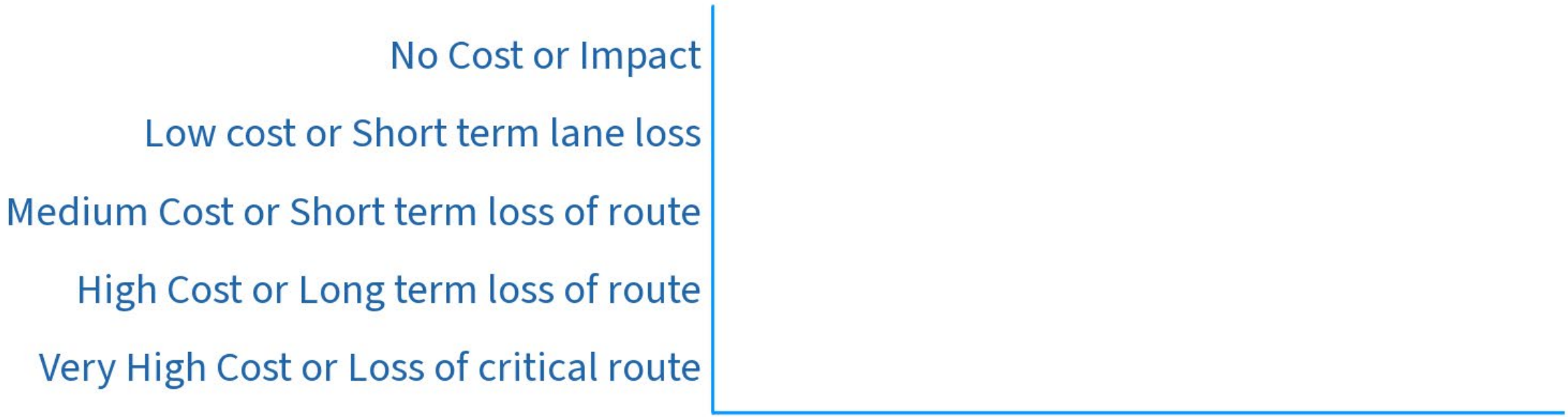
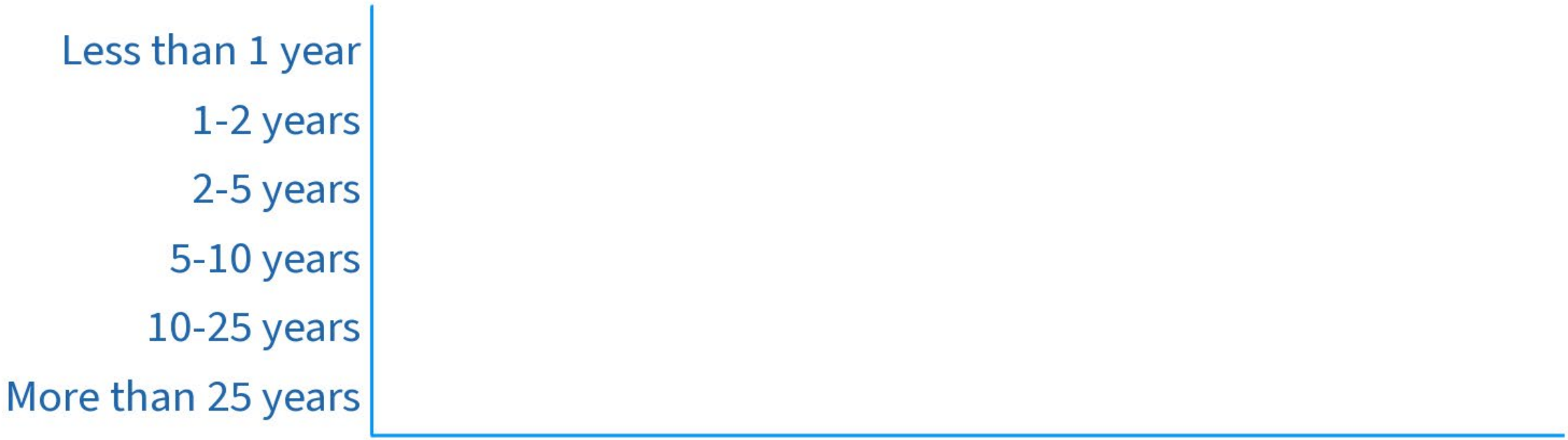


Risk N3: If infrastructure is exposed or vulnerable to IT Security/Ransomware/Hacking issues, then asset or data systems can be out of function for an extended time. Determine likelihood that risk will occur.



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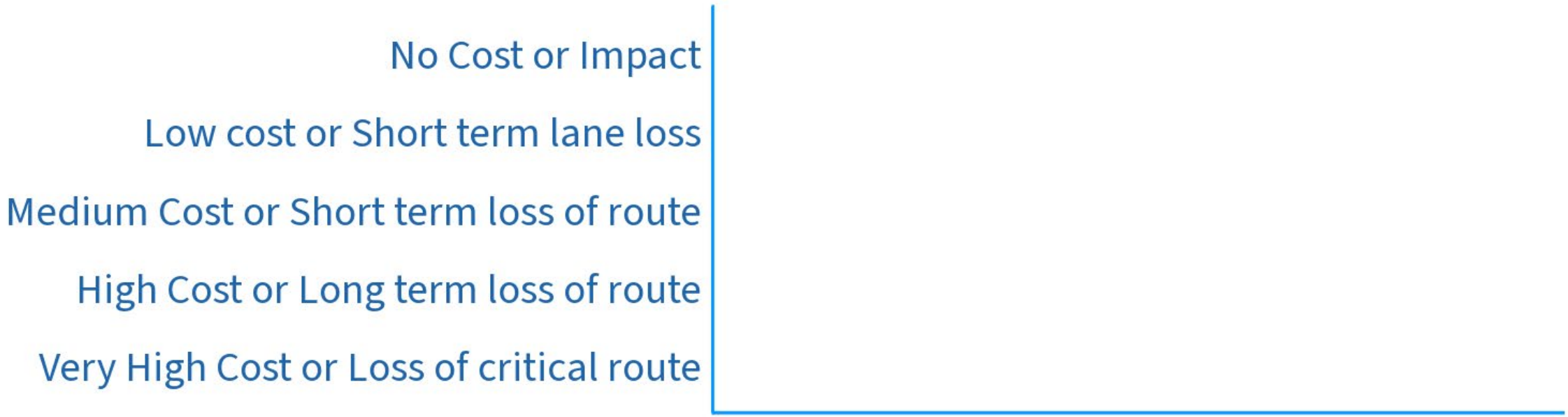
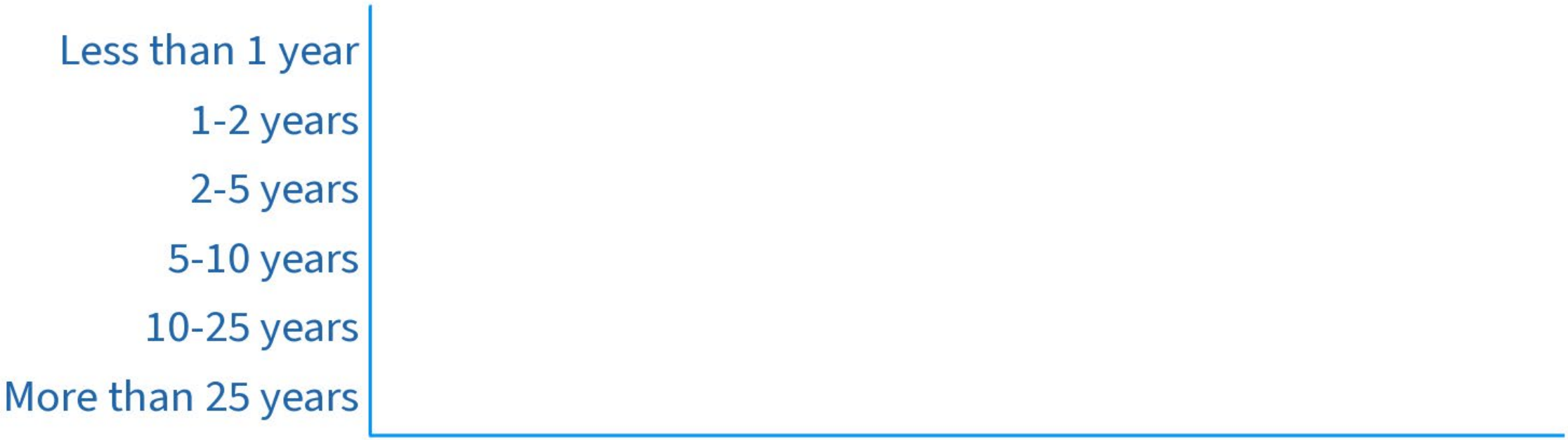


Risk N5: If the transit system is not maintained in a state of good repair, then the highway system will see more impacts to traffic capacity and to preservation of roads and bridges. Determine likelihood that risk will occur.



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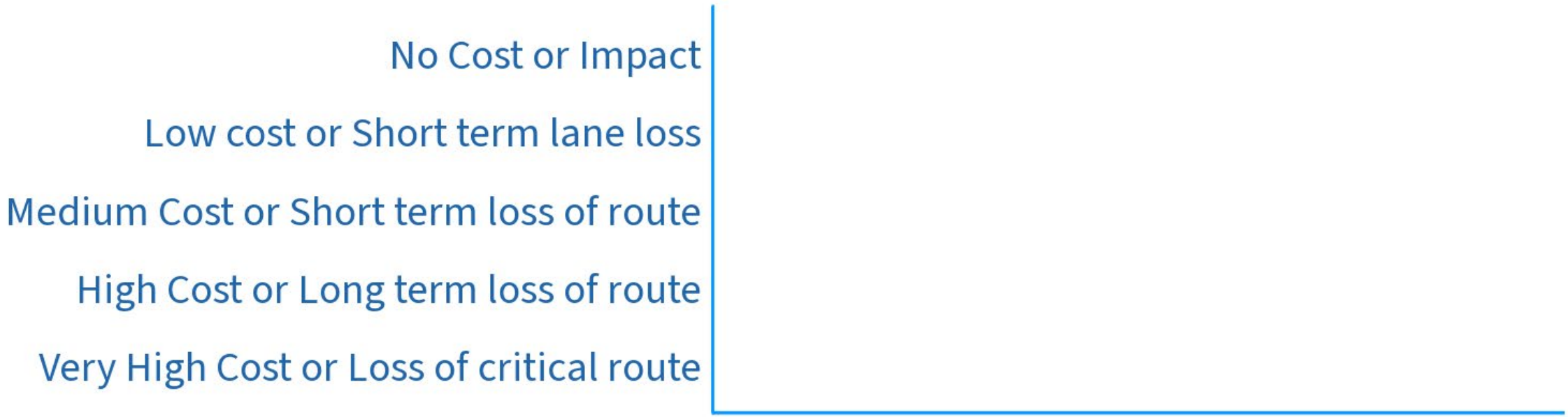
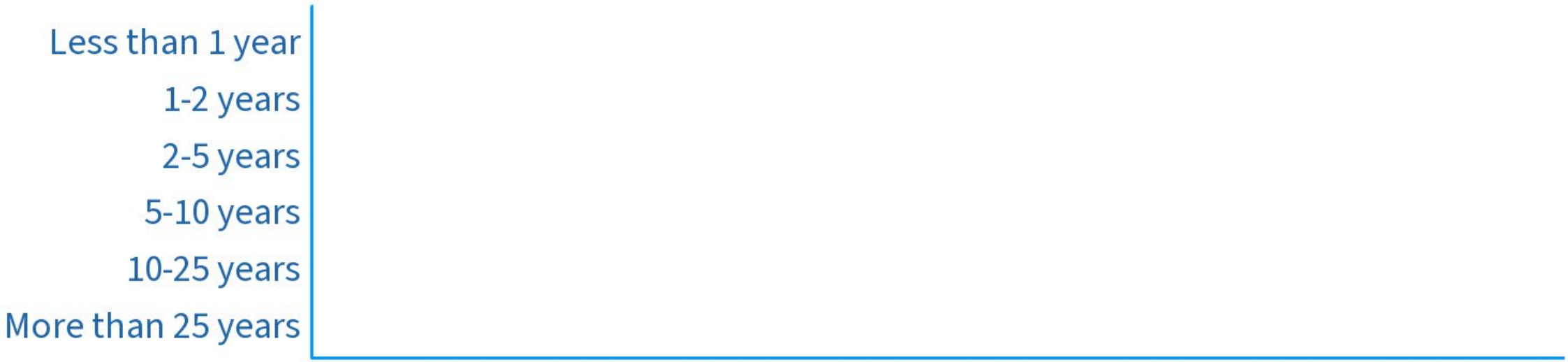


Risk N6: If funding in the Highway Bridge Program continues at the same level for the foreseeable future, then necessary maint. of bridges will be delayed and bridges in good repair could slide into fair and/or poor cond. Determine likelihood will occur.



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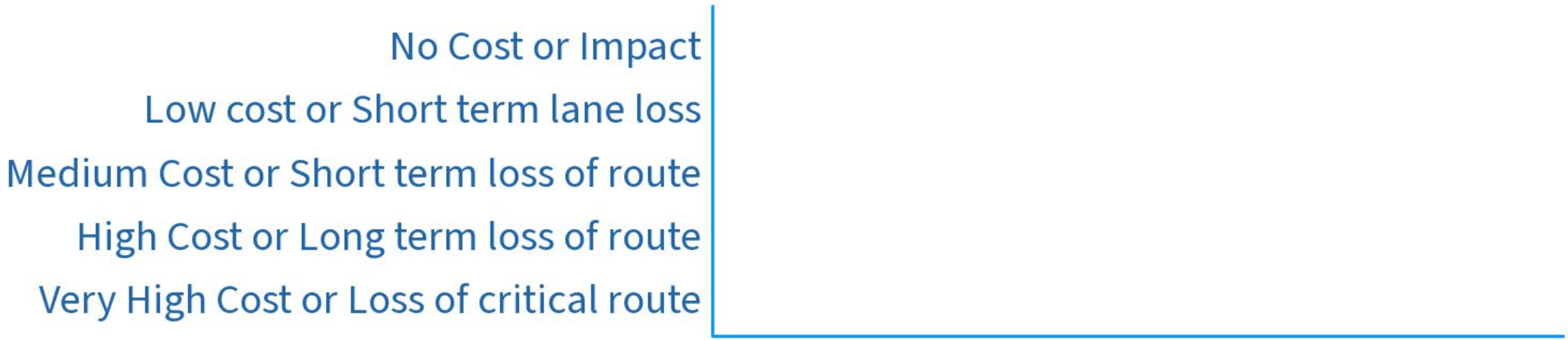


Any Additional TAMP Risks?

Use “Chat Box” to identify additional risks

Risks need to be in the form of a risk statement

Example:

If allowable truck weights increase, then we may need to divert funds to strengthening bridges.

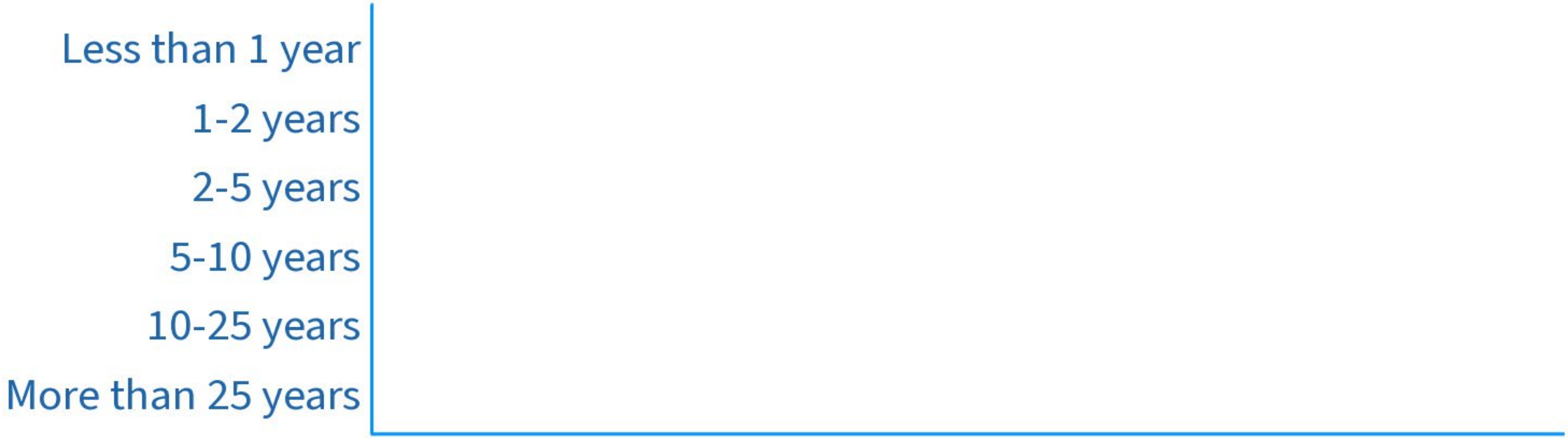
If “X” then “Y”

X = “allowable truck weights increase”

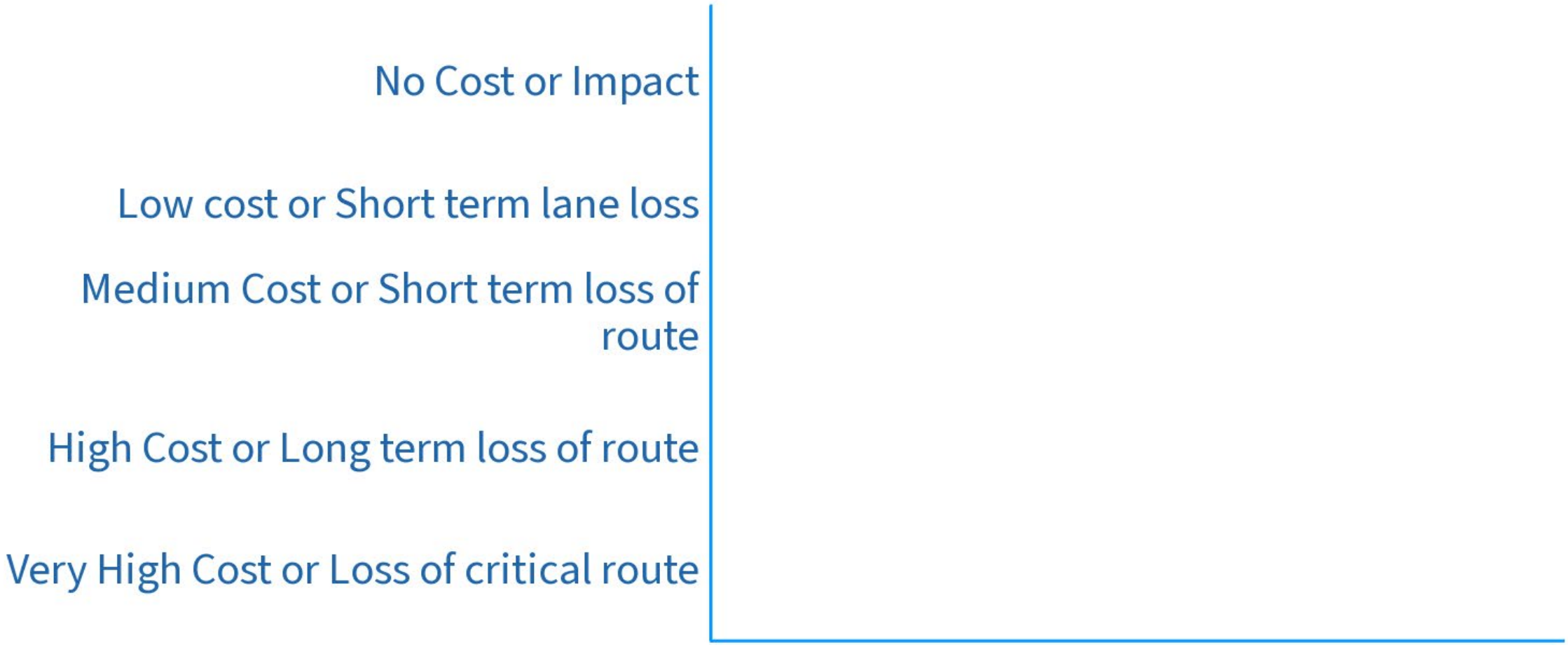
Y = “we may need to divert funds to strengthening bridges”

Additional Risks

Risk A1: Determine likelihood this risk will occur.

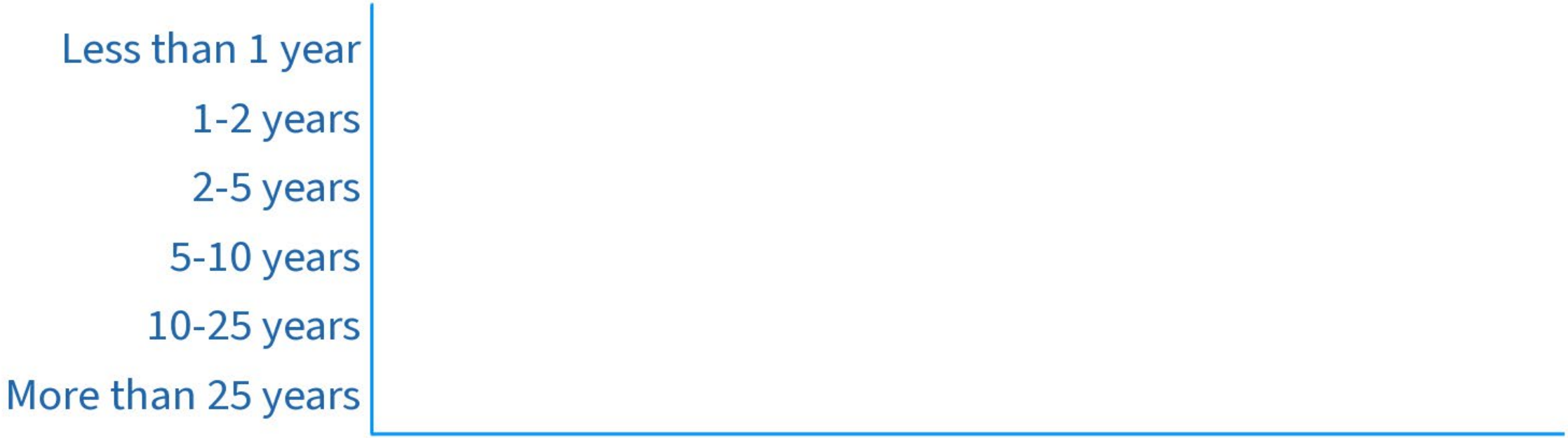


Risk A1: Determine consequence to the system.

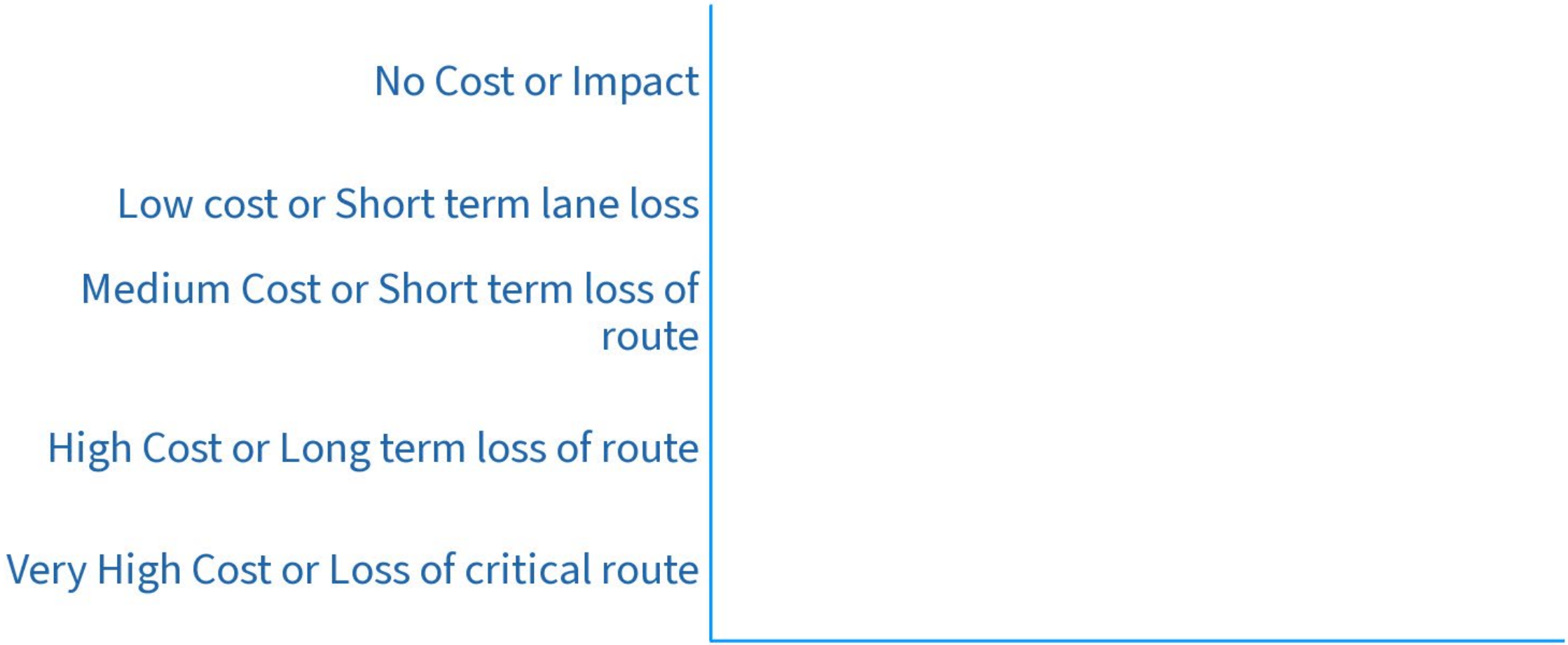


Additional Risks

Risk A2: Determine likelihood this risk will occur.

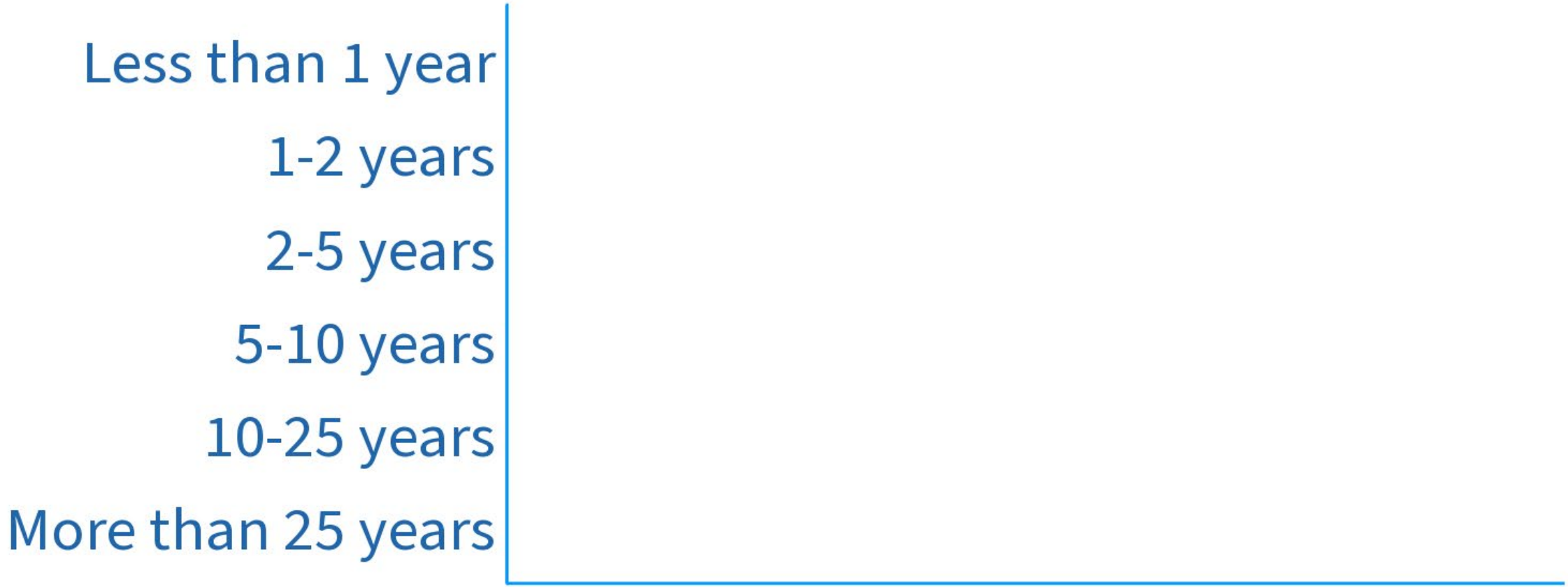


Risk A2: Determine consequence to the system.

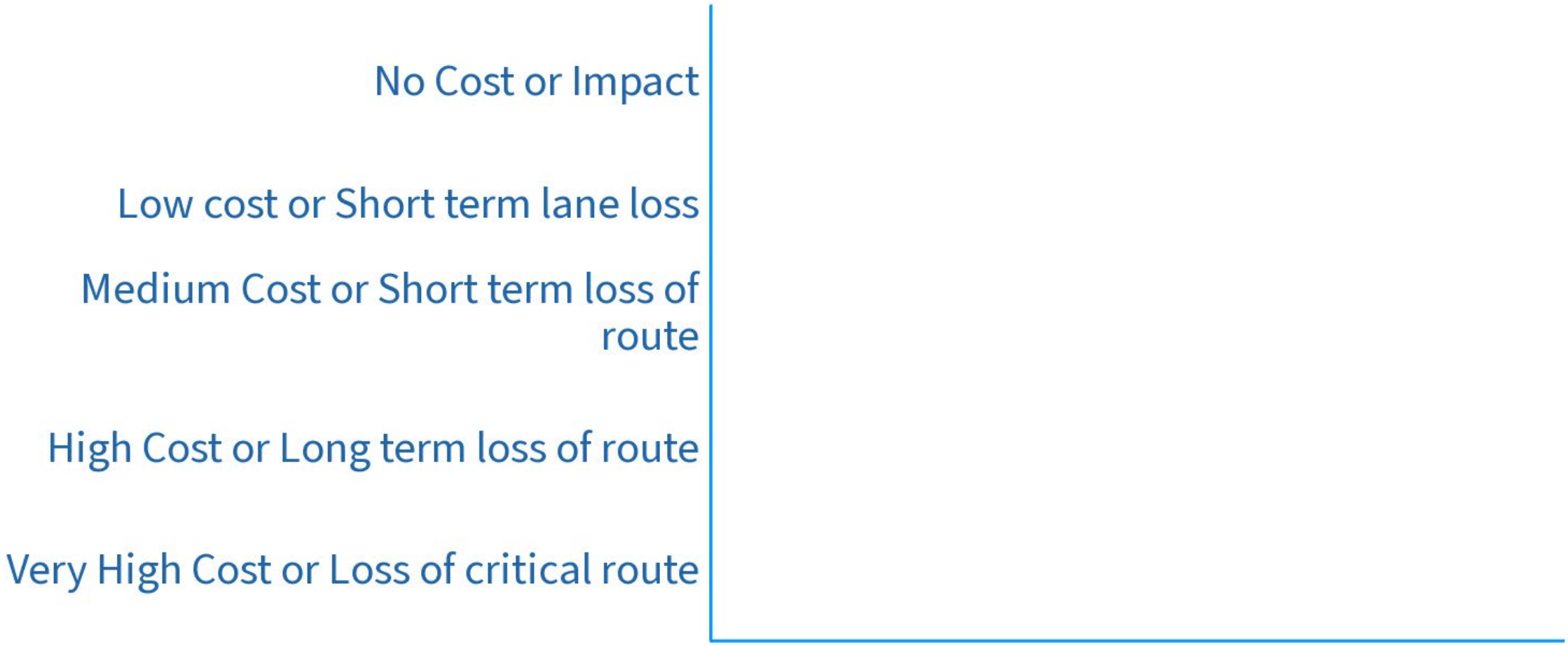


Additional Risks

Risk A3: Determine likelihood this risk will occur.



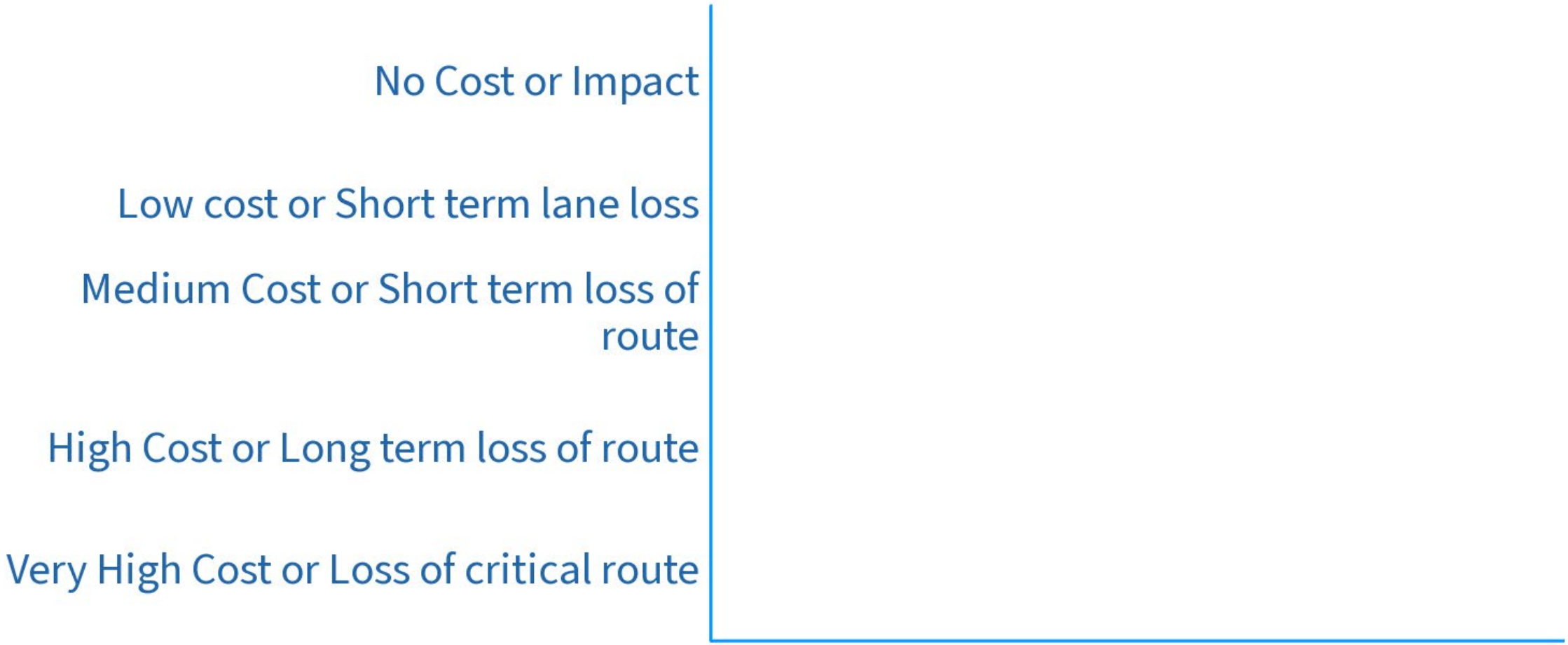
Risk A3: Determine consequence to the system.



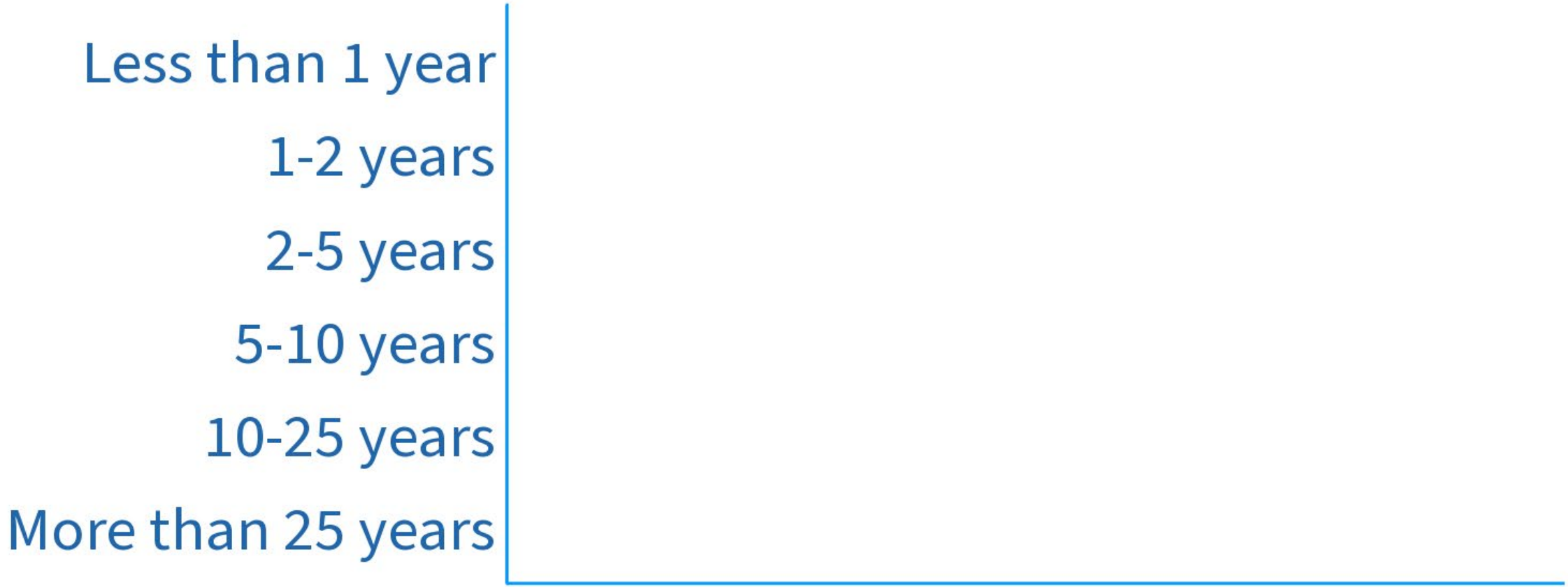
Risk A4: Determine likelihood this risk will occur.

Additional Risks

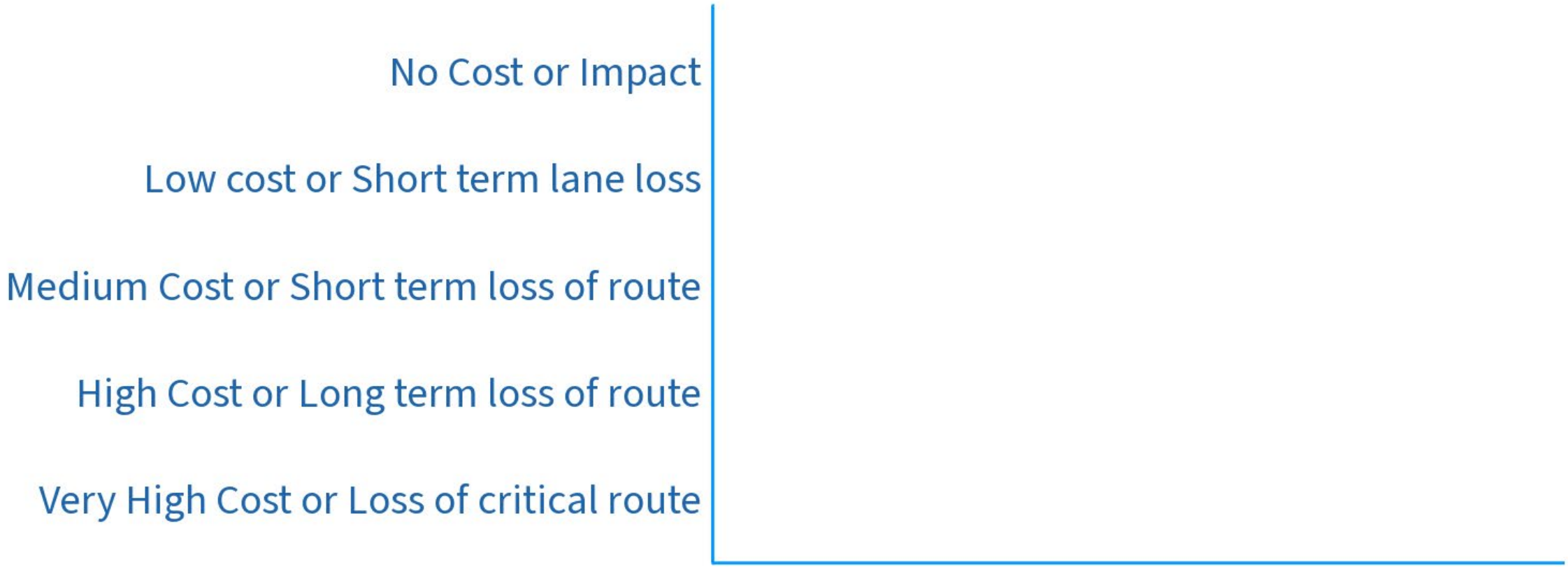
Risk A4: Determine consequence to the system.

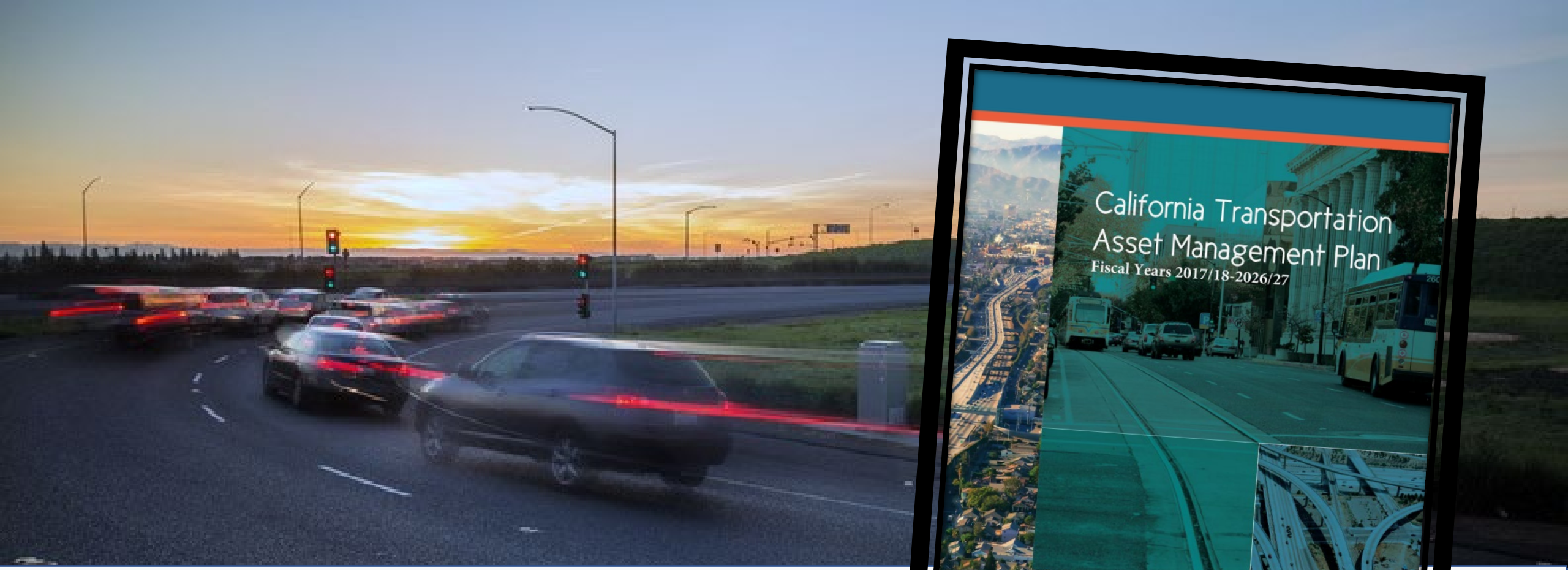


Risk A5: Determine likelihood this risk will occur.



Risk A5: Determine consequence to the system.





Risk Mitigation Strategies

Michael B. Johnson

State Asset Management Engineer

HQ Office of Asset Management, Caltrans

Risk Management Process – Where are we?

Source: NCHRP Project 20-24(74) Research Report, 2011

Risk Mitigation Strategies

- Treat (Mitigate):
  - take actions to reduce risk likelihood and/or consequence
- Tolerate (or Accept):
  - acknowledge risk but take no action
- Terminate (or Avoid):
  - eliminate the threat entirely
- Transfer (Ownership Change):
  - shift ownership and impact of a risk to another party
- Take Advantage (Opportunity):
  - positive effect if risk materializes

Should Risk be included in the TAMP?

Risk Categories	Can it be Anticipated	TAMP Treatment	Within TAMP or Elsewhere?
Succession Planning	Yes	Mitigate	Elsewhere
Continuity of operation	Yes	Mitigate	Elsewhere
Changes in policy or priorities	No	Accept	N/A
Tort Liability	Yes	Mitigate & Accept	TAMP
Sudden Change in Funding	No	Accept	N/A
Gradual Funding Loss - Fed Tax paradox	Yes	Accept & Mitigate	TAMP
Changing legislation	No	Accept	N/A
Scour Vulnerabilities	Yes	Mitigate	TAMP
Seismic Vulnerabilities	Yes	Mitigate	TAMP
Geotechnical Vulnerabilities	Yes	Mitigate	TAMP
Climate Vulnerabilities	Yes	Mitigate	TAMP

Example of Risk Mitigation Approaches

Risk Statement:

If we don't plan for extreme weather events, then pavement and bridges will be damaged

- **Risk Mitigation Approach:** Develop Vulnerability Assessments and Adaptation Plans. Develop priority risks within Agency, Region, District, State and use to prioritize funding/projects

- **Monitoring Approach:** Assign resources and develop implementation plan that includes scope, projects, timeline, costs, etc

Break-Out Session

Break-out Session Overview

Each Break-out Session will last 30 minutes

A Facilitator will be assigned to each session

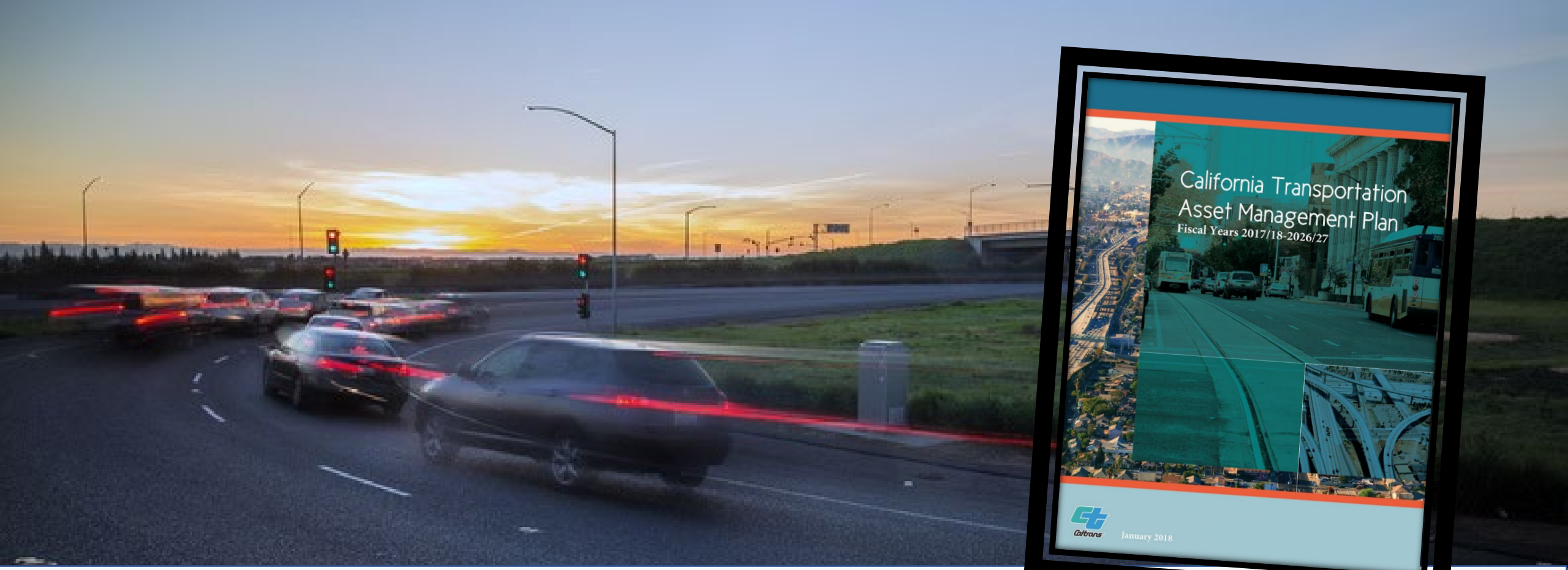
Group participation is needed to make this successful

Results will be presented to everyone after we rejoin the full workshop

Break-out Session Instructions

- For each risk, discuss whether risk statement is appropriate
- Discuss and determine risk management strategy for each risk (5 T's)
- For risks identified for mitigation, discuss and compile appropriate actions
- Determine whether action is high priority for agencies or not
- Determine responsible party and monitoring approach
- Return to workshop and present results

Presentation of Results



Assets Repeatedly Damaged (23 CFR 667)

Dawn Foster
TAMP Manager
HQ Office of Asset Management, Caltrans

Repeatedly Damaged Locations

Repeated Damage on State NHS

Evaluation of State Emergency Relief Projects reviewed/confirmed by Districts

Funding included in State Highway System Management Plan (2021 SHSMP)

TAMP to include those NHS assets identified as part of the SHSMP inventory

Repeated Damage on Local NHS

Caltrans reviewed Local Emergency Relief Projects for repeated locations from 2006-2020

Compiled list for review and confirmation by Locals

Results to be included in TAMP for NHS assets only

Request for Information

Review local ER projects with NHS locations repeatedly identified

Local_Federal Aid Emergency Relief Project Summary Review									
MPO	Agency - County	Location	Asset(s) Damaged	Emergency Event Years	Description	On NHS?	Confirmed?	Damage Mitigated?	Comments
AMBAG	Monterey	Metz Road	embankment and pavement	2015, 2017	damage due to storms				
	Santa Cruz	Soquel Road	embankment and pavement	2006, 2017	damage due to storms	yes			
		Eureka Canyon Road	pavement	2006, 2017	damage due to storms				
		Glenwood Drive	pavement	2011, 2017	damage due to storms				
		Zogante Road	culvert, slope, pavement	2016, 2017	damage due to storms				
		Hazel Dell Road	wall and roadway	2016, 2017	damage due to storms				
Humboldt CAG	Humboldt	Mattole Road	culvert, slope, pavement	2010, 2011, 2017, 2019	damage due to storms				
KCOG	Kern	Caliente Bodfish Road	pavement	2011, 2017	damage due to storms				
MTC	Contra Costa	Saint Mary's and Rheem Blvd	embankment and pavement	2006, 2017	damage due to storms				
	Marin	Sir Francis Drake	pavement	2011, 2017	damage due to storms	yes			
	Napa	Wooden Valley Rd	embankment and pavement	2017, 2018	damage due to storms				
	Sonoma	Stewarts Point, Skaggs Springs Rd	culvert, pavement, embankment	2017, 2019	damage due to storms				
SACOG	Yolo	County Rd 85 & County Rd 87	culvert and pavement	2006, 2017	damage due to storms				
SANDAG	San Diego	Carlsbad Blvd	embankment	2010, 2016	damage due to storms				
SCAG	Los Angeles	Lake Hughes Road	pavement	2015, 2016, 2017	damage due to storms				
		Vasquez Canyon Road	pavement	2008, 2010, 2015, 2017	damage due to storms				
		Angeles Forest Hwy and Big Tejunga	pavement	2010, 2011, 2014, 2017	damage due to storms				
		San Francisquito	pavement	2014, 2015, 2016	damage due to storms				
		Elizabeth Lake	pavement	2014, 2015, 2016	damage due to storms				
		Soledad Canyon Rd	pavement	2014, 2015, 2016	damage due to storms	yes			
		Malibu Canyon Rd	pavement	2008, 2010, 2011, 2017	damage due to storms	yes			
	Orange	Live Oak Canyon and Santiago Rd	embankment and pavement	2008, 2011	damage due to storms	yes			
SLOCOG	San Luis Obispo	Price Canyon Road	embankment, pavement, culvert	2011, 2017	damage due to storms				

Closing Remarks

Michael B. Johnson
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HQ Office of Asset Management, Caltrans

Workshop Summary

- Risks in Initial TAMP and Newly identified risks were assessed in terms of likelihood and consequence
- Management of risks were further analyzed by 5 T's
- Risks identified for mitigation resulted in actions required by state and/or local partners with further discussion on monitoring approaches
- Review of Repeatedly Damaged Assets (23 CFR 667) and request for verification on the Local NHS

In one word, describe what risk mitigation means to you.

Please Join Us for Developing the 2022 TAMP

2022 TAMP Virtual Workshop #4

Investment Strategies

Date: Tuesday, July 20, 2021

An Email from CT-TAM@dot.ca.gov will be sent to you shortly with further details!

Important: Visit Caltrans new TAMP Webpage for a short survey:

https://dot.ca.gov/programs/asset-management/california-transportation-asset-management-plan

Thank You


California Transportation
Asset Management Plan
Fiscal Years 2017/18-2026/27
Caltrans
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