

Improving Link light rail reliability

System and operations resiliency update

Rider Experience and Operations Committee

3/6/2025



Why we're here

- Follow up on Link 1 and 2 Line operational reliability issues discussed at December REO.
- Provide an overview of Link's unique operating model.
- Share findings from recent system assessment.
- Discuss immediate, near-, and long-term work to improve resilience, reliability, safety, and passenger information.

Update only, no Board action required

Defining reliability and resiliency

Reliability of Link service

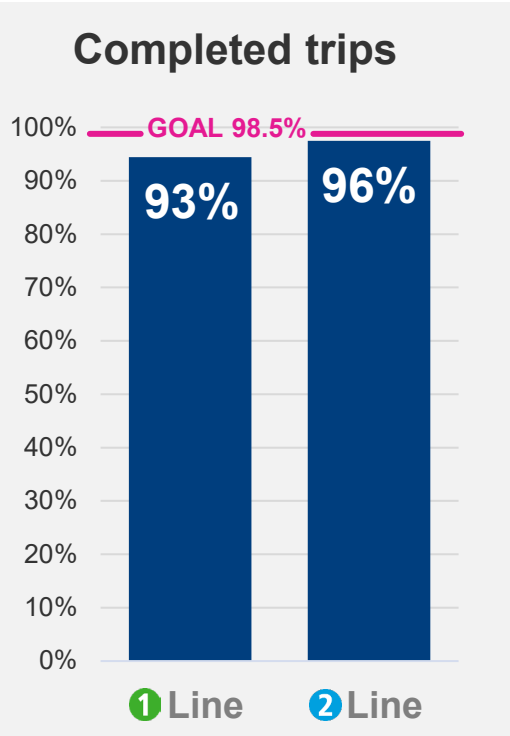
- Measured quantifiably by metrics and qualitatively by user experience: Can our riders rely on an on-time and predictable trip?
- Impacted by system resiliency, but also other factors (LRV reliability, right-of-way delays, operating conditions, emergencies, etc.)

Resiliency of the Link system

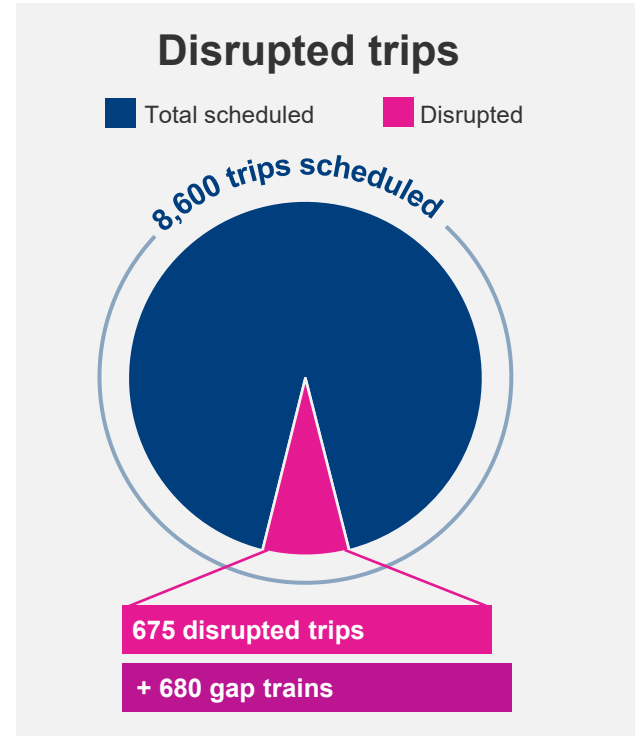
- The ability for the light rail system to withstand pressure.
- The state of our assets and ability to “deal with” unforeseen stress, challenges, or extensions.

Link reliability challenges

Sound Transit passengers deserve predictable service

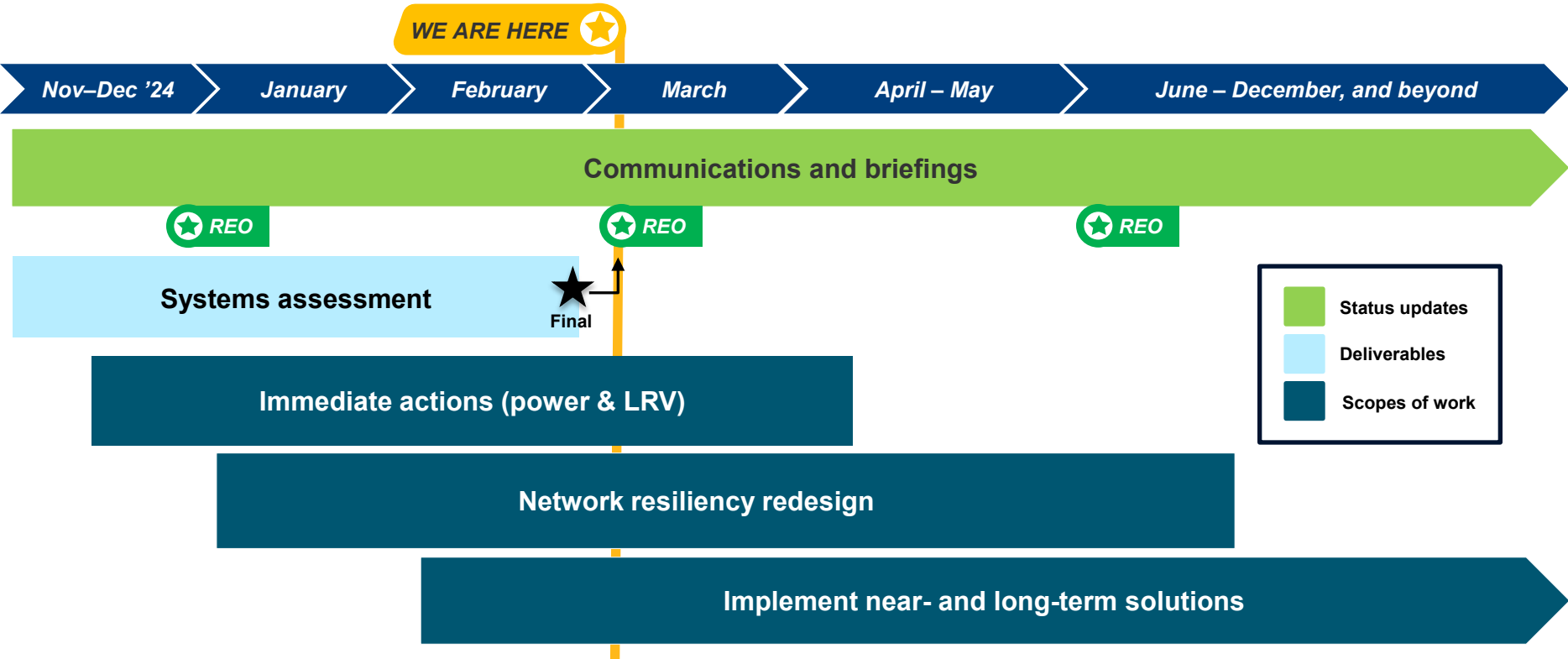


- Performance declined after recent extensions and openings.
- **1 in 14 trips** on the 1 Line were not running as scheduled in Nov. '24, **a decrease in reliability from 1 in 30 trips** in March '24.
- “Gap trains” make up the difference, but create an unstable and unpredictable experience for riders.



*Recap and
background*

Timeline: Link operating resiliency work



A unique operating model

Intergovernmental agreements for 1 Line and 2 Line ops

Sound Transit: Owner

- Funds operations
- Manages security, fare ambassadors, wayfinding, signage, passenger information, marketing, and service characteristics (frequency, span, etc.)

King County Metro Rail: Operator

- Hires, trains and manages all operators, control center, and maintenance personnel
- Maintains 200+ light rail vehicles

IGAs renegotiated every few years, including at present

Why this model? A natural partnership

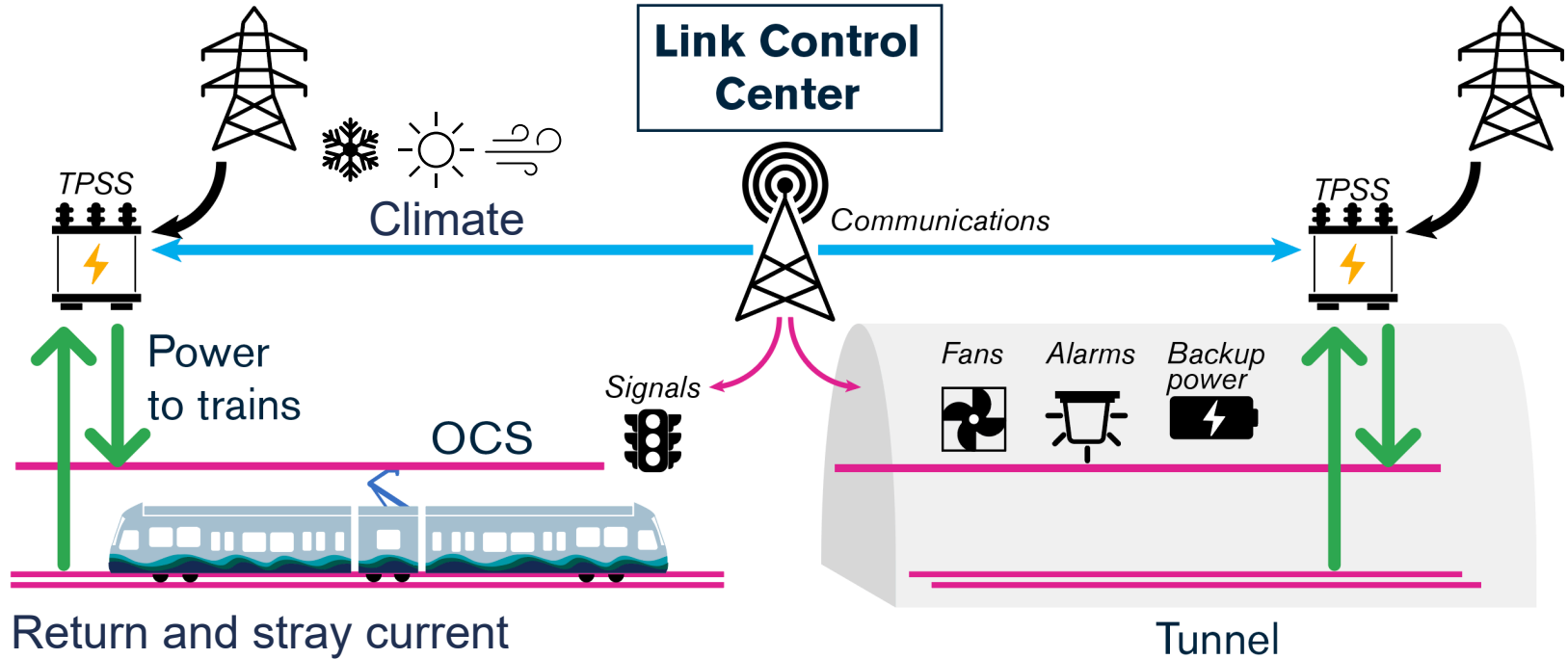
Inception: Best model for a startup agency to focus on system expansion, while leveraging existing operating expertise at King County.

2009-2019: Buses and Link trains shared the Downtown Seattle Transit Tunnel, a facility Metro had owned and operated since 1990.

Until 2024: Link operated fully within King County, until service extended to Lynnwood.



Link system overview



***Work completed
since December***

Recent improvements since Q4



Backup power

- Improved our response to loss of power.



Traction power substations

- Standardized requirements to improve system safety and efficiency.
- Completed track cleaning to enhance electrical isolation.
- Conducted overhead catenary system inspections, addressed repair backlog.



Train signals

- Conducted signal system inspections, addressed repair backlog.

Recent improvements since Q4



Operational & organizational changes

- Identified single-point accountability for assets
- Changed how to test new extensions, to reduce confusion and improve decision-making



Series 2 light rail vehicles

- Trained operators on brake fault response to efficiently clear faults and minimize disruption time
- Rolled out new software update for brake system valve leak detection

Passenger support

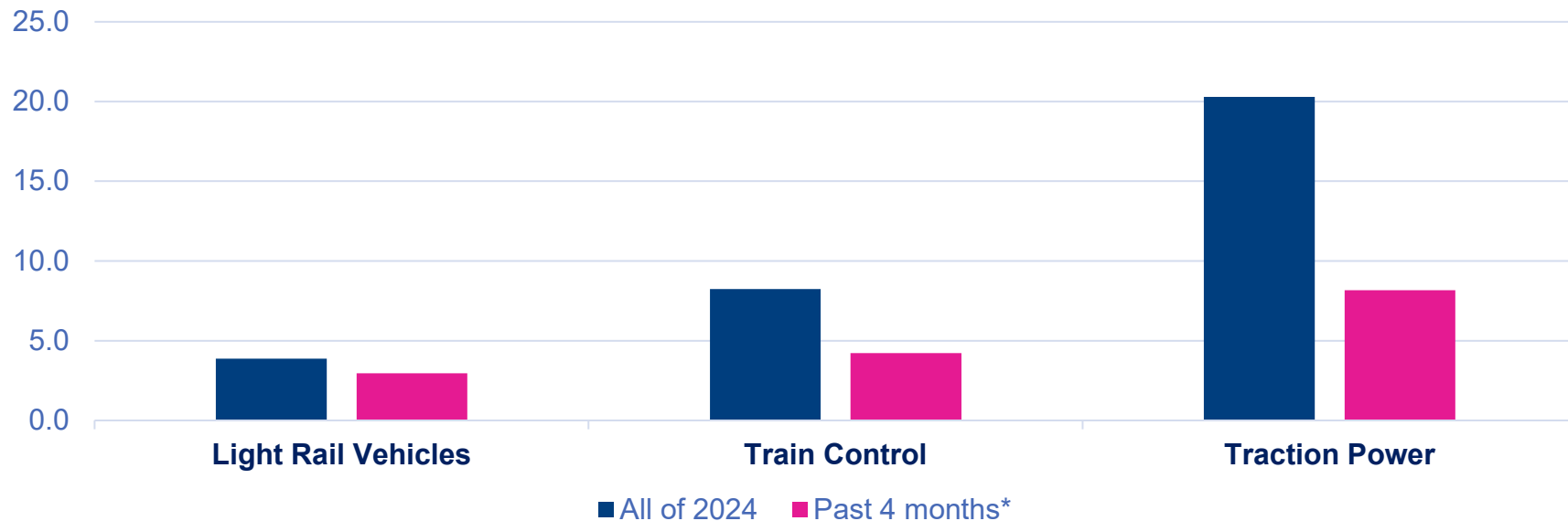


- Process improvements for digital rider alerts
- Provide alternative options during service disruptions
- Integrate security into passenger experience to improve passenger support

Recent improvement: Disruption time

All of 2024: average
32.4 hours per month or 5.3%

Past 4 months* average
15.4 hours per month or 2.5%

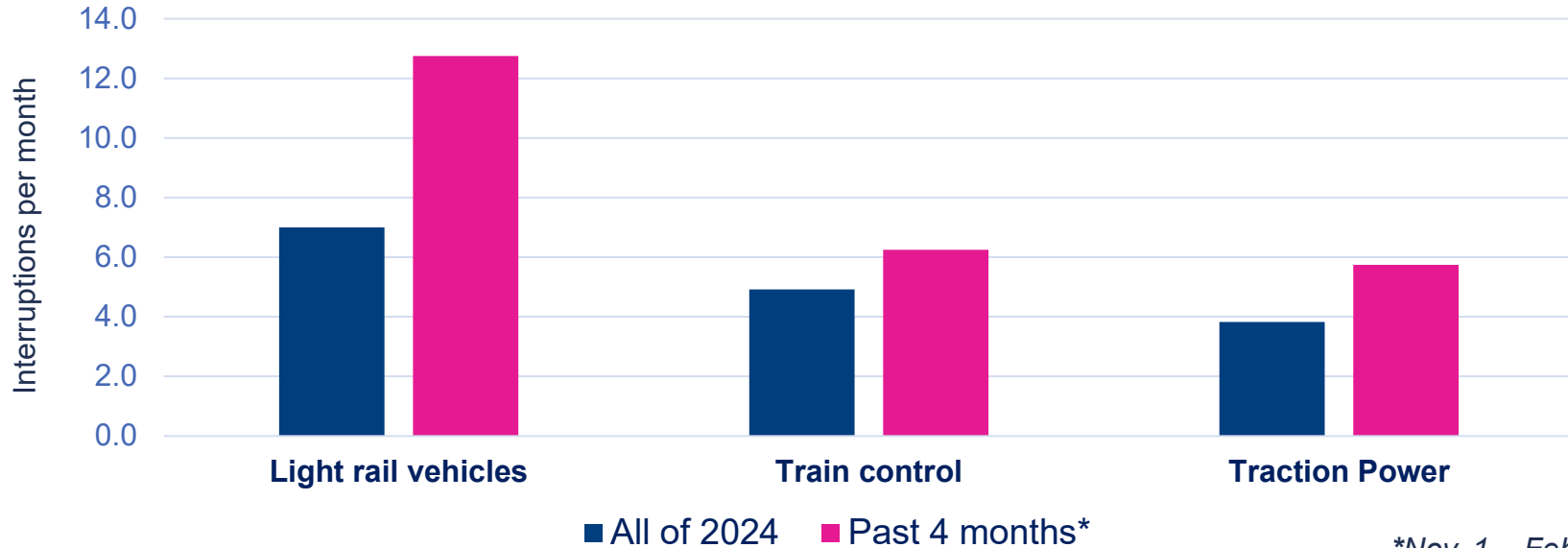


*Nov. 1 – Feb. 19

Number of disruptions

All of 2024: average
15.8 interruptions per month

Past 4 months*: average
24.8 interruptions per month†



*Nov. 1 – Feb. 19

†Tracking method changed

***Systems assessment
findings and response***

Systems assessment: Six focus areas

**Asset
Management**

**Standards &
procedures**

**Operational
Networks**

**Long-range
planning**

**Projects in
construction
(Rail Activation)**

**Operating
partnership &
organizational
changes**

Asset management

Desired outcome: Maintaining state of good repair

- 27 report recommendations
- *Example: Expand the capabilities with the asset management system.*

Standards & procedures

Desired outcome: Codifying lessons to help us better design and maintain the Link system

- 18 report recommendations
- *Example: Perform a systemwide traction power study.*



OCS repair work at UW in February

Operational networks

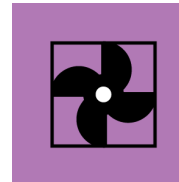
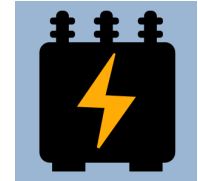
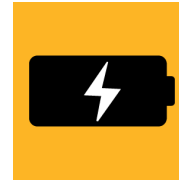
Desired outcome: A strong, resilient backbone connects all our operating systems

- Six report recommendations
- *Example: Upgrade network configuration from Tier 2 to Tier 3.*

Long-range planning

Desired outcome: Adaptations and retrofits to make operations more flexible and service more reliable for passengers

- 12 report recommendations
- *Example: Identify track configuration improvements*



Projects in construction

Desired outcome: Lessons learned inform what we're building next

- 5 report recommendations
- *Example: Testing new extensions under degraded conditions.*

Operating partnership & organizational changes

Desired outcome: The agency and its partnerships are structured to maximize operating effectiveness

- 10 report recommendations
- *Example: Clearly defining roles and decision-making processes.*



Workplan phases and timelines

	SYSTEMS ASSESSMENT	IMMEDIATE ACTIONS	NETWORK RESILIENCY	NEAR- & LONG-TERM SOLUTION IMPLEMENTATION
	December - February	December - March	January - August	April - January '26 and beyond
Activities	<ul style="list-style-type: none"> ✓ Maintenance records review 	<ul style="list-style-type: none"> ✓ Track cleaning 	<ul style="list-style-type: none"> ✓ Network assessment 	<ul style="list-style-type: none"> ✓ System improvement implementation plan
	<ul style="list-style-type: none"> ✓ Site inspections 	<ul style="list-style-type: none"> 🔄 Inspection and repairs of OCS 	<ul style="list-style-type: none"> 🔄 Review of network projects and design 	<ul style="list-style-type: none"> 🔄 Asset management actions
	<ul style="list-style-type: none"> ✓ Field investigation 	<ul style="list-style-type: none"> 🔄 Inspection and repairs of signals 	<ul style="list-style-type: none"> • Prioritization of upgrades and scope 	<ul style="list-style-type: none"> 🔄 Standards actions
	<ul style="list-style-type: none"> ✓ Stakeholder interviews 	<ul style="list-style-type: none"> ✓ Trained operators on LRV brake fault resets 	<ul style="list-style-type: none"> • Procurement, costs, schedules, and risks 	<ul style="list-style-type: none"> 🔄 Long-range plan actions
	<ul style="list-style-type: none"> ✓ Final report 	<ul style="list-style-type: none"> 🔄 Software update for LRV breaks 	<ul style="list-style-type: none"> • Program Management Plan 	<ul style="list-style-type: none"> 🔄 Projections in construction actions 🔄 Partnerships and org change actions

What's next

- **Work continues:** We are aggressively moving forward on the recommendations and are developing completion schedules.
- **We will return in Q2** with an update on progress for network resiliency definitions and provide a status update on the implementation of near- and long-term solutions.

Thank you.



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