Lifecycle Maintenance and Capital Replacement Plan

Rider Experience and Operations Committee
11/5/2026

SOUNDTRANSIT

Why we are here

To provide an overview of Lifecycle Maintenance and Capital Replacement Plan as promised in the Enterprise Initiative Resolution from May 2026.

Provide context on the need for the scope and scale of state of good repair (SOGR) allocations in a 25-year plan.

State of Good Repair (SOGR) protects the service passengers rely on

Keeping what we have safe, reliable, and working as designed

What it is: renewing and replacing the assets that carry passengers every day (track, power, signals, stations, tunnels, systems, and vehicles) so they keep performing as designed.

1 Reliability

Riders count on service that runs when scheduled. Well-maintained track, power, signals, and vehicles mean fewer delays and outages.

2 Resiliency

Assets in good condition are better able to withstand disruption and to recover quickly when something goes wrong.

3 Proactive asset stewardship

We act on evidence of each asset's condition before it fails, rather than reacting afterward.

SOGR protects both the service and the capital investment already made.

Link will generate the largest SOGR need, but is still a young system

1 Extensive use

Link is the largest share of the SOGR program. While still young, Link trains travel more than 100k miles a year and will run at 55 mph, the upper speed limit for low-floor light rail vehicle (LRV) technology, in what may become the largest passenger capacity LRV system.

2 Limited precedent

Link pushes the performance envelope for a modern low-floor LRV technology, and our system will be more robust than other low-floor light rail networks.

3 Much to learn

We do not yet know how fast every asset will wear. Condition evidence, and the experience of older systems tell us.

Evidence of actual asset condition replaces uncertainty with data, which makes SOGR more important here.

Timely renewal contains long-term cost

Condition evidence lets us invest at the right time, not too early or too late

1

Know condition

Sensors, inspections, and ratings show how each asset is wearing.

2

Renew at the right time

Work is planned and bundled, not rushed.

3

Avoid costly outcomes

Fewer failures, emergency repairs, and disruptions.

4

Lower lifecycle cost

The total cost of owning each asset goes down over time.

Deferral is not savings
A planned cost becomes a larger, less predictable one.

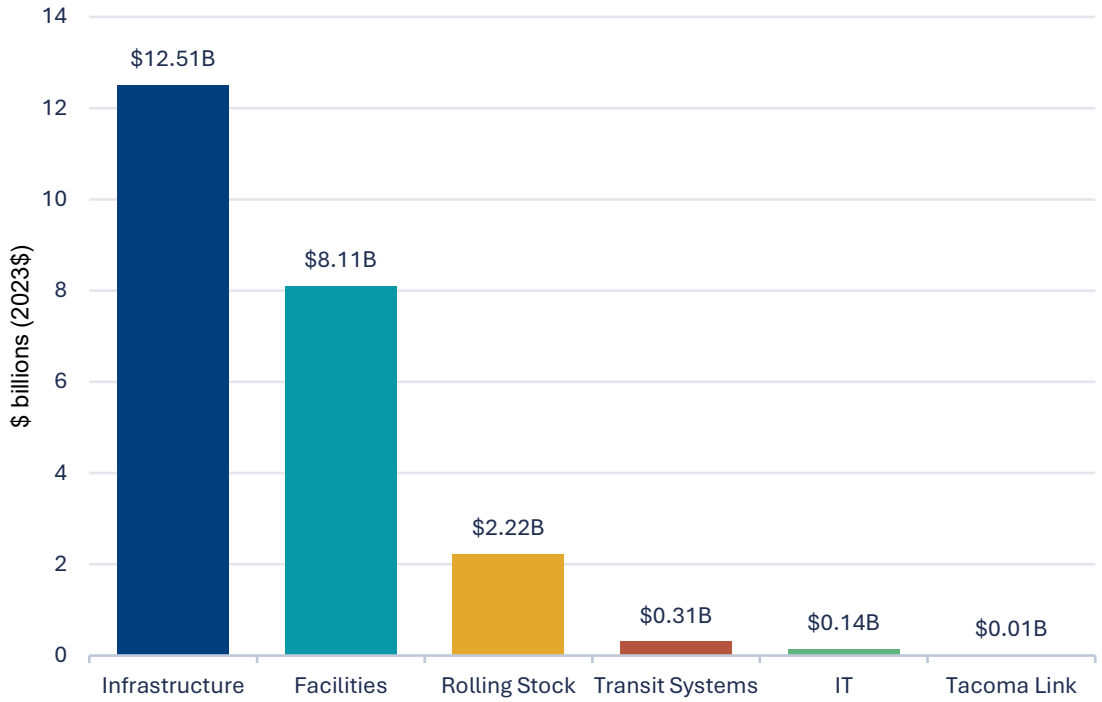
Lifecycle view
Total cost of ownership guides what, when and how we renew.

Reliability · Resiliency · Proactive asset stewardship

A $22.9 billion asset base (2027$)

Facilities and Infrastructure hold about 90% of the value

Asset grouping	Value (2023$)	Share
Infrastructure	$12.51B	53.7%
Facilities	$8.11B	34.8%
Rolling Stock	$2.22B	9.5%
Transit Systems	$0.31B	1.3%
IT	$0.14B	0.6%
Tacoma Link	$0.01B	*nil*
Total	**$23.29B**	**100%**



Asset value is in 2023 dollars and is not directly comparable with the YOE dollars used in the forecast.

Total Cost of Ownership (TCO): a planning tool we can rely on with increasing confidence in the next three years

Test scenarios and find efficiencies quickly, before committing dollars

2027 – Preliminary model
On initial set of assets; will feed the 2028 budget

2028 – Advanced model
On all critical assets; will feed the 2029 budget

2029 – Final model
Will feed the 2030 budget; kept current every year

What it is

The full cost of owning an asset over its life: acquisition, operations and maintenance, overhauls, and renewal. The framework is developed collaboratively by Sound Transit staff and Deutsche Bahn (ongoing).

What it lets us do

Run what-if scenarios on renewal timing, maintenance strategy, and modernization, and compare options quickly instead of rebuilding each analysis. Better condition data makes every scenario more reliable.

First use of TCO: Series 3 light rail vehicles through 2052 (2026$) and TCO is part of car builder evaluation criteria. A tool for proactive stewardship.

Basis for our SOGR Finance Plan forecast

Three numbers frame the SOGR estimate

$6-9M

per route-mile per year of capital renewal or refurbishment (SOGR); we plan around the lower end. Excludes routine maintenance.

$19.7B vs $20.4B

Link forecast vs the $6M baseline, 2027–2052 (YOE $); about 3% apart

3 years

to high-confidence condition ratings for our critical assets

We build on proven practice and add evidence of each asset's condition: less downtime, lower cost, and fewer surprises.

Benchmarks and why we can rely on them

Independent sources point to the same range and the same answer

Peer transit agency review

BART (San Francisco), MBTA (Boston), LA Metro, London Underground, and others: large, long-established networks that have renewed assets through full life cycles, which we adjusted for our alignment mix.

ST and European rail expertise

The lifecycle-cost framework behind our TCO model, from ST in-house expertise and Deutsche Bahn: a structured method from one of the world's largest rail asset owners.

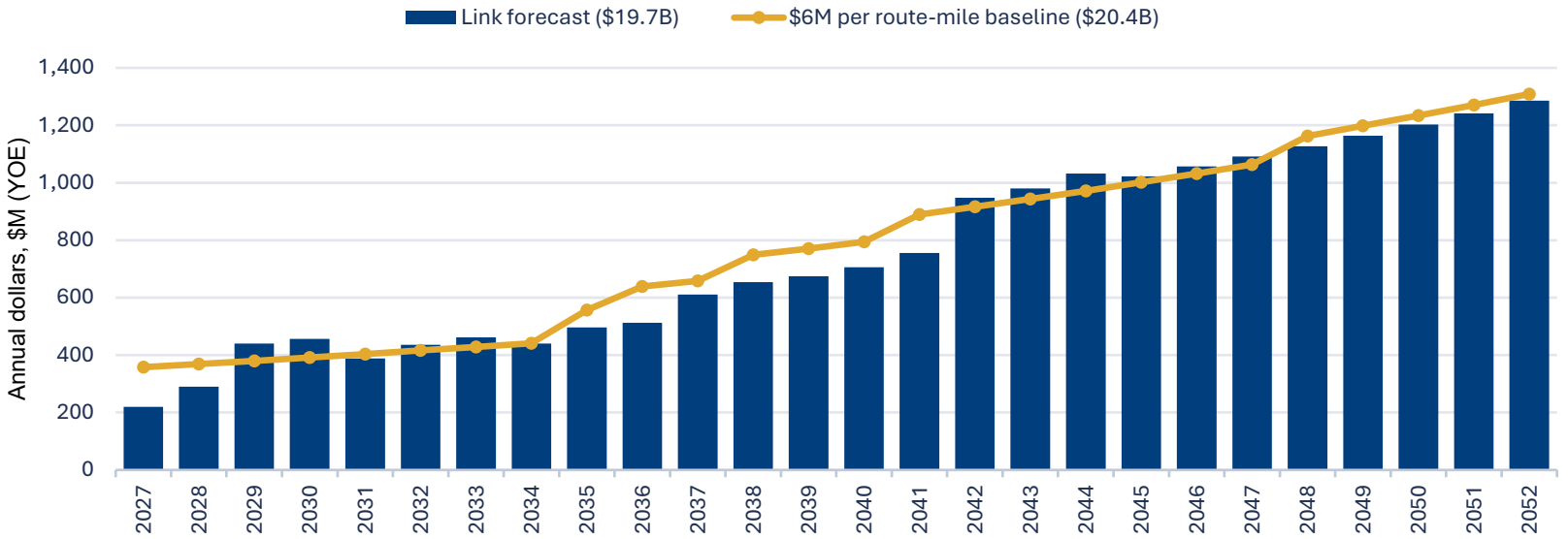
Our own data

Current condition data and preliminary renewal plans for critical assets, which anchor the range to our network.

Credible because independent views agree: the $6M baseline for Link ($20.4B) and the asset-level forecast ($19.7B) are within about 3%. We use the lower end of the range as our assets are young.

The baseline and the forecast for Link tell a consistent story

Two views, built differently, used as a cross-check



About 3%
$19.7B forecast vs $20.4B baseline: totals are close

Timing differs
Forecast below baseline through 2041, close from 2042

YOE dollars. We treat $6M as a reasonable planning basis, not a ceiling, and will test it against condition evidence as that evidence builds.

***Sound Transit Policy**: "ST is committed to asset management, including preventing assets from deteriorating below a state of good repair. The agency must take a lifecycle approach…."*

Condition-based Maintenance (CBM) ratings make the forecast more reliable

Ratings move from age-based to condition-based over the next three years

1

Start with what we have

The 2027 budget uses the age-based ratings available today; a sizable share of assets is already assessed.

2

Standardize and ground in evidence

CBM standardizes ratings across critical assets and bases them on actual condition, raising confidence.

3

Tune sensitivity

A change in rating reflects a meaningful change in need, so ratings correlate well with the financial planning tools.

4

High confidence in 3 years

We aim for high-confidence ratings for critical assets, raising confidence in the SOGR forecast in the financial plan.

Some assets will be healthier than their age suggests and some less so. Ratings let us adjust where and when we invest.

Reviewed annually, validated before budget

Eight months of expert peer review followed by annual independent validation

1 Peer review in progress

Since March 2026, German and Austrian experts who manage lifecycle decisions and SOGR optimization are advising Sound Transit to inform our method, assumptions, and direction. We are also engaging SOGR and CBM experts from Copenhagen and Network Rail.

2 Independent validation each year

Each summer, before the next budget cycle, an independent expert with significant experience managing a comparable portfolio will validate the progress of the work. The first review is in July 2027.

3 Next Board update

We are sharing this plan to the board as baseline information of the action Sound Transit has started and staff will periodically update the board of the progress.
Next update on the progress of this work is expected in Q3 2027 ahead of 2028 Budget Action.

Peer review
now
→
Independent review
July 2027
→
Annual validation
each summer
→
Next budget cycle
informed

Thank you.

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