

Vehicle storage shortage & Lynnwood service levels

Rider Experience and Operations Committee

04/06/23

Why we are here

- Briefing only, no action needed today.
- Discuss how increased vehicle usage and insufficient vehicle storage space are constraining near-term light rail service capacity.
- Describe how the Lynnwood extension will open with temporarily reduced capacity.
- Set the stage for additional REO and Board discussions later this year on longer-term fleet planning challenges that pose impacts to service levels and the financial plan.

Issue summary

- We are using more light rail vehicles than planned to maintain current service levels
 - Reasons include added running time, increased use of gap trains, lower than expected Series 2 fleet reliability, and a higher spare ratio.
- Lynnwood was planned to open after East Link, providing 4-minute combined peak service with the 1 Line and 2 Line each running every 8 minutes.
- Without East Link/OMFE being open, the 1 Line Lynnwood extension adds 34% more track miles without adding any base capacity, and OMF Central is already full.
- **Opening Lynnwood prior to East Link/OMFE will require temporarily reduced service levels to match fleet storage limitations.**

Increased vehicle usage

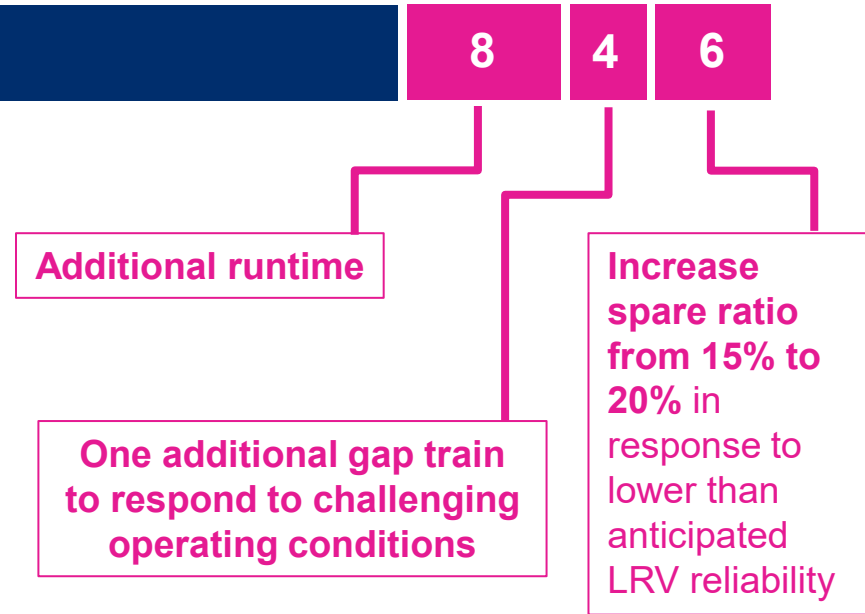
Current fleet requirements: Northgate-Angle Lake

4 car trains, 8-minute peak service

Using 92 vehicles currently

74 vehicles planned

60 peak service
4 for gap trains
10 for 15% spare



Running times

What we've learned

- Changed operating conditions are causing trains to travel slower than originally planned.

How we've responded

- Added time to schedules to improve on-time performance and passenger expectations.
- More trains now required to meet planned service levels.
- More frequent use of gap trains.

+7
min

Added to schedules over the past few years to reflect actual runtimes

50
min

Original planned runtime
Northgate-Angle Lake

***Implications for
Lynnwood service***

Implications for Lynnwood service

- Due to higher vehicle usage and lack of access to OMF-E, we lack enough vehicle storage space to maintain current peak service levels (8-min/4-car trains) when the 1 Line opens to Lynnwood.
 - We have identified some temporary overnight storage outside of OMF-C. While this will backfill some needed capacity, it is not sufficient to achieve 8-minute peak service.
- Off-peak/weekend base service levels (10 minutes) are achievable but are at risk with any further increase in running time.
- Full 2 Line opening will provide opportunity to increase service levels.

Total fleet needs for 8-min Lynnwood service

Active fleet spaces needed

Peak service (22 x 4-car trains)	88
Gap trains (2 x 4-car trains)	8
<u>Increased spare ratio</u>	<u>24</u>
Total revenue fleet spaces	120

Inactive fleet spaces needed

Delivery of new cars	2
Vehicle commissioning	8
Warranty repairs (Series 2)	11
<u>Retrofits, field modification, repair</u>	<u>4</u>
Total non-revenue fleet spaces	25

Total spaces needed for Lynnwood 1 Line service: $120 + 25 = 145$

Overnight vehicle storage options

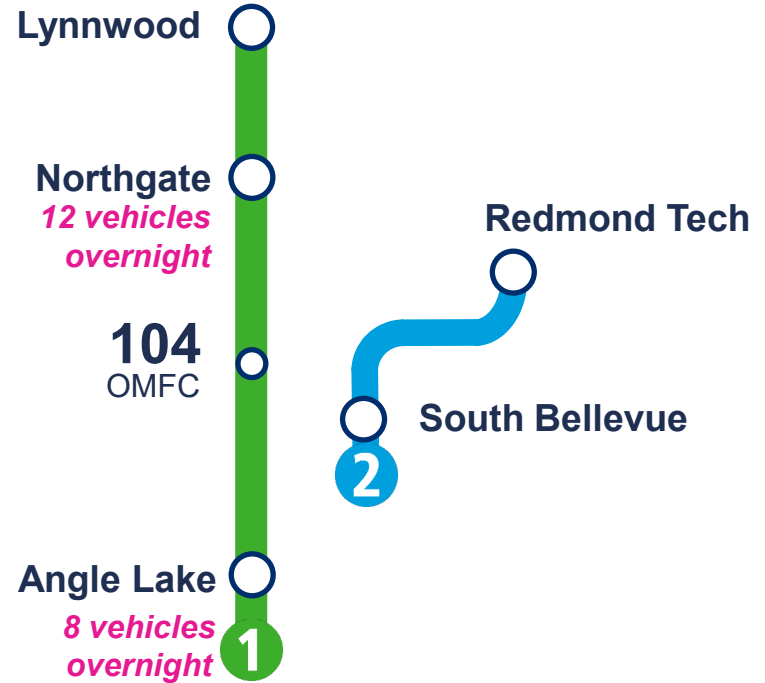
Starter Line fleet needs have no effect on 1 Line service

OMF-C storage capacity **104**
Potential 1 Line storage **20**

Maximum 1 Line LRV space available **124**

Space required for 8-min/4-car Lynnwood service **145**

Storage shortfall 21



Potential changes to 1 Line service

- Potential options include:
 - Operate shorter trains but maintain current 8-minute peak headways.
 - Maintain current 4-car trains but reduce peak headways beyond 8 minutes.
 - Analyze feasibility of providing more frequency in areas with the highest demand.
 - Turnback operations and/or overlay service (not all trains serving the full Lynnwood-Angle Lake line).
 - A mix of these three options.
- All available service options for this temporary period are expected to increase crowding between Northgate–Westlake.

Next steps

- Continue refining service and mitigation options and return to REO in June.
- Coordinate with transit partners to develop integrated service plans that respond to temporary 1 Line capacity constraints.
- Return to REO in June and August with longer-term fleet forecasts and their implications for service levels and the agency financial plan.
- Discuss service priorities in a constrained environment to develop interim operating plan with limited resources.

Thank you.



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