

# ***ST2 Light Rail Service and Passenger Experience***

*System Expansion Committee  
9/14/23*

# *Why we are here*

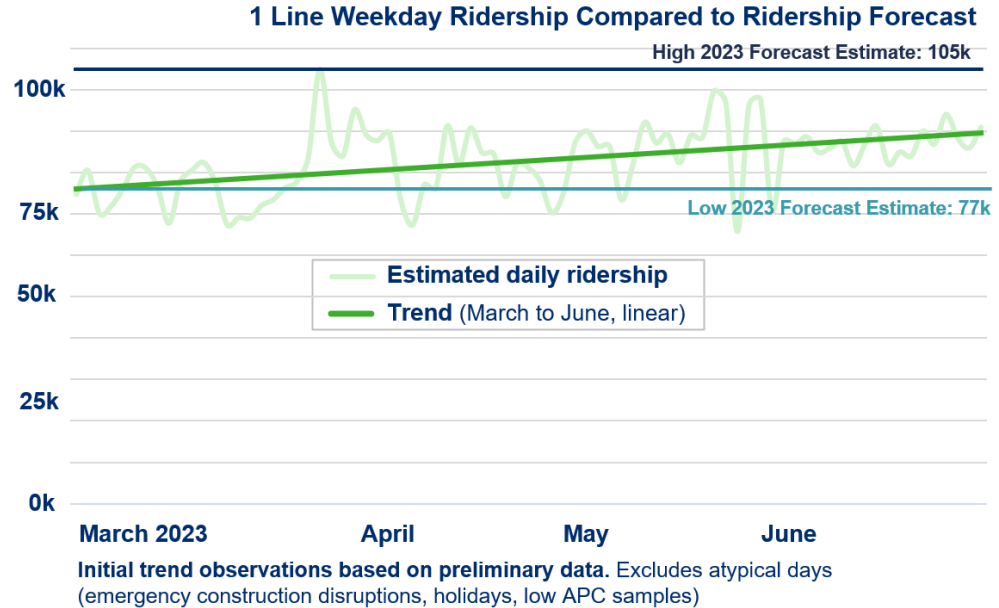
- Discuss service we can provide with available fleet as we complete the light rail system to Lynnwood, Redmond and Federal Way
- Discuss forecast crowding levels
- Briefing only, no action required

# *June briefing recap*

- Light rail fleet is capped at 214 LRVs until early 2030s when more fleet and base capacity become available
- There are not enough LRVs to support originally planned service levels as the ST2 extensions are completed
- We committed to come back with impacts and options for the Board to consider
- We committed to use the latest ridership estimates that account for post-pandemic changes in travel behavior

# Updated ridership forecasts

- Ridership estimates updated in late 2022, as a range
  - High estimate: trends towards pre-pandemic demand and patterns
  - Low estimate: assumes of more working from home and recent changes in trip patterns continue
- Current Link ridership is trending toward high estimate
- There is day to day variability within the range



# *Key analysis questions*

- What service levels can be operated as ST2 extensions open?
- What will passenger loading/crowding conditions look like?
  - PM peak hour, when highest demand and service levels occur
- If there are projected overloads, are there mitigation options that could provide more capacity and alleviate crowding?

# How we think about crowding

- Link is designed as high capacity transit to efficiently carry large numbers of riders
- Service levels are designed & evaluated based on riders per LRV

One LRV carries up to **200** riders with about **74** seats and **~120** spaces for standing

Exact total varies based on how close riders stand, luggage, bikes, etc.



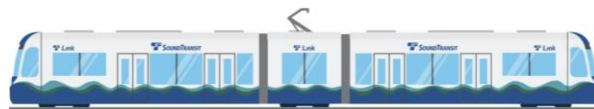
**4** car train can carry about **800** riders.

Total capacity determined by number of LRVs per train.

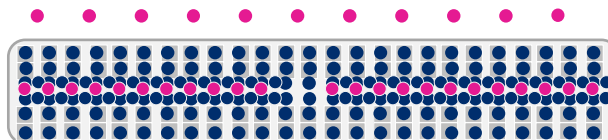
# How we think about crowding

At a car-level

● = one rider

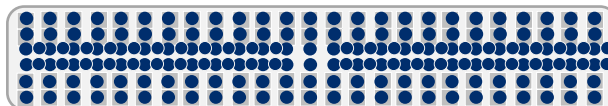


Very crowded, may not be room to board.



74 seats full + more than 120 riders standing

Challenges getting on and off.



74 seats full + 74 - 120 riders standing

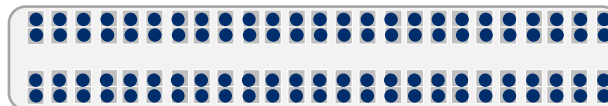
People standing, but you can still get on.



74 seats full + up to 74 riders standing

**Board adopted crowding standard**

Everyone has a seat.



Less than 74 seats full, few people standing

**2024**

***1 Line Angle Lake to Lynnwood***

***2 Line Downtown Redmond to South Bellevue***

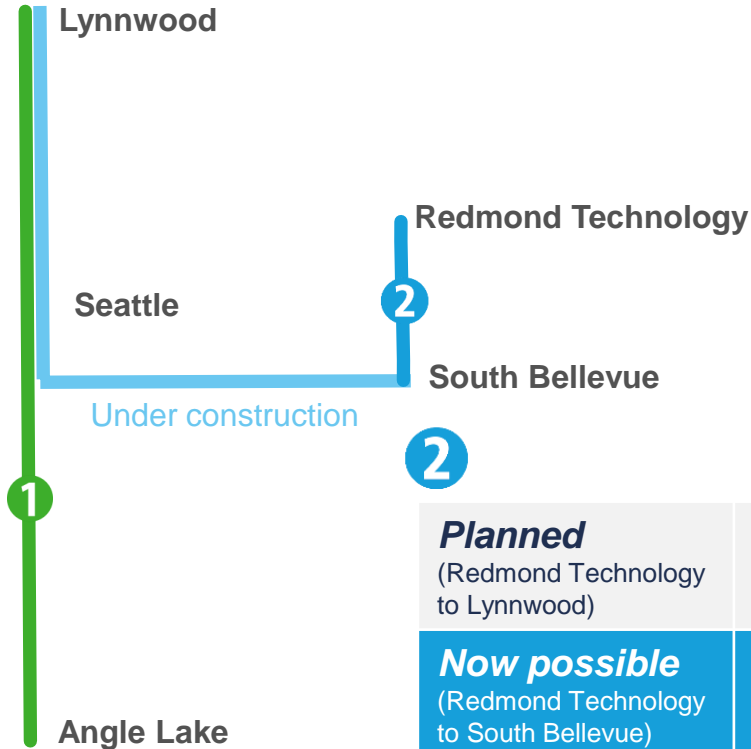


# 2024

## Peak service with available fleet

### 1 Lynnwood to Angle Lake

<b>Planned</b>	<b>8</b> min	<b>4</b> cars
<b>Now possible</b>	<b>10</b> min	<b>3-4</b> cars



<b>Planned</b> (Redmond Technology to Lynnwood)	<b>8</b> min	<b>4</b> cars
<b>Now possible</b> (Redmond Technology to South Bellevue)	<b>10</b> min	<b>2</b> cars

2024

# Northbound 1 Line crowding\*

Trains every 10 mins, 4 car trains

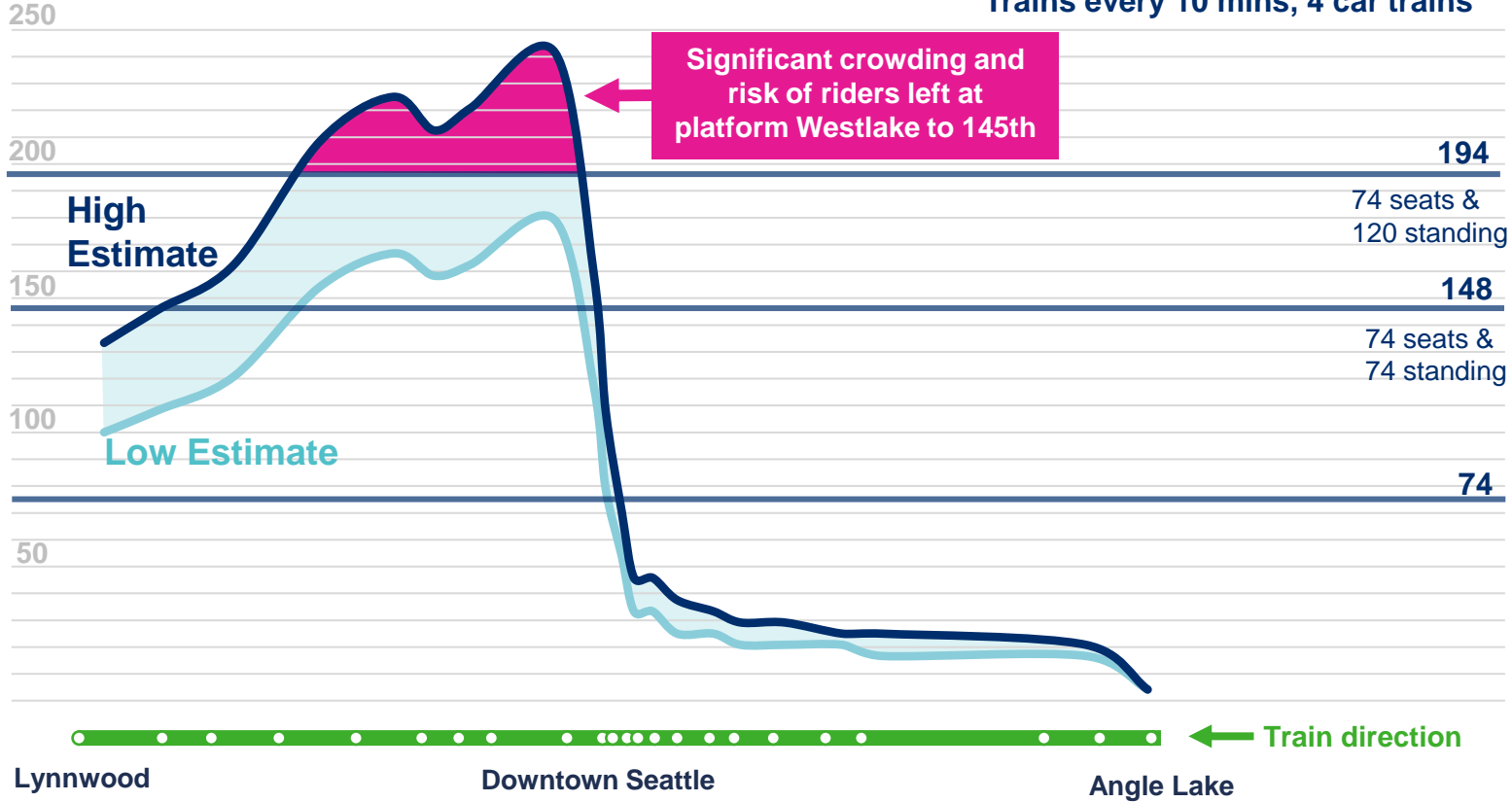
Very crowded, may not be room to board

Significant crowding and risk of riders left at platform Westlake to 145th

Challenges getting on and off

People standing but you can still get on

Everyone has a seat



2024

# Southbound 1 Line crowding\*

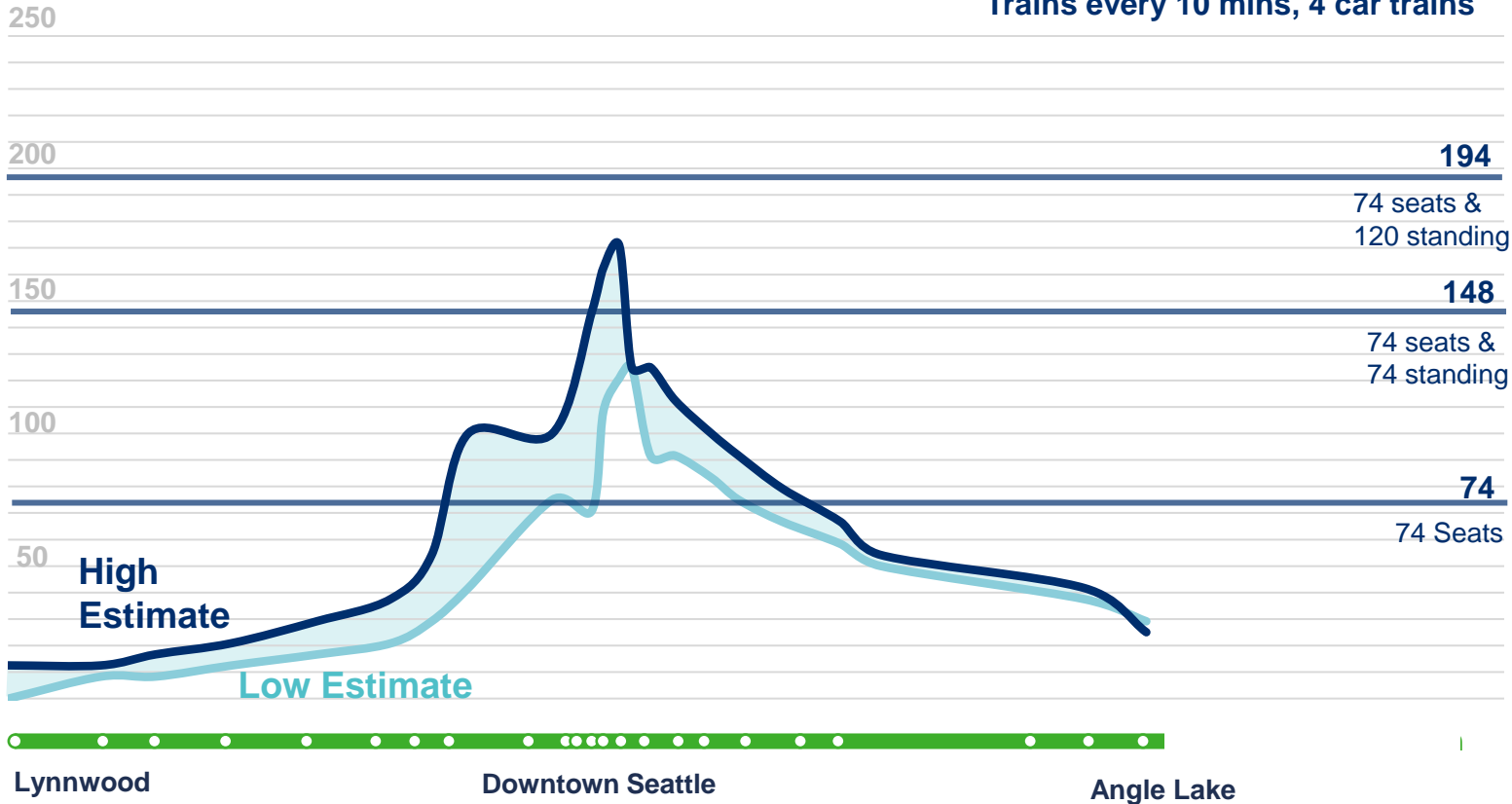
Trains every 10 mins, 4 car trains

Very crowded, may not be room to board

Challenges getting on and off

People standing but you can still get on

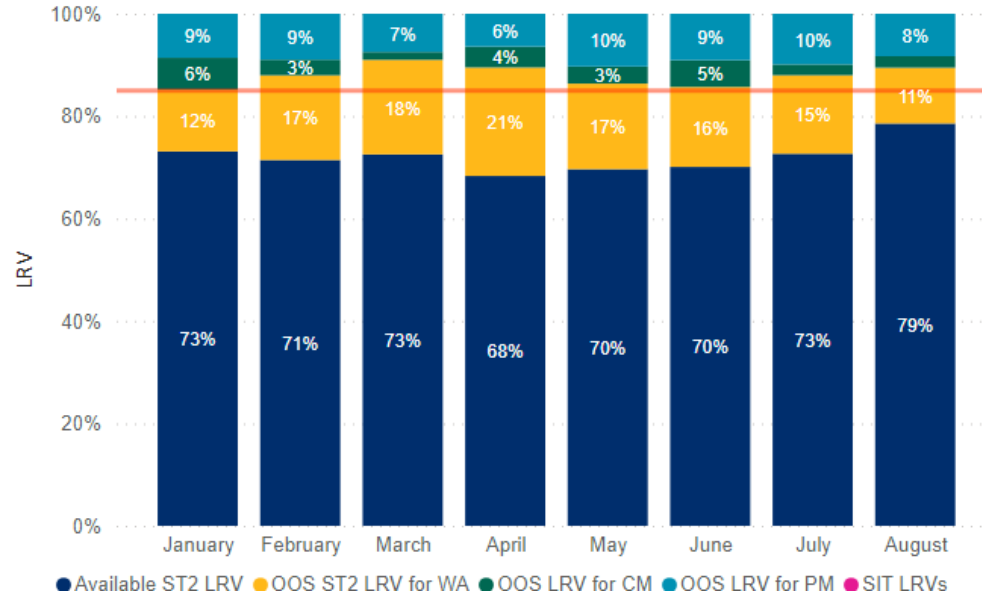
Everyone has a seat



# 2024

## Strategy: Improve fleet availability

- Series 2 (Siemens) fleet availability below 85% standard
- Working to fix warranty and preventative maintenance issues
- Target 80% everyday availability by Q1 2024, 85% by Q3 2024, ahead of Lynnwood Link opening



OOS = Out of Service, WA = Warranty repair, CM = Corrective Maintenance, PM = Preventive Maintenance.

# 2024

## Strategy: Augment Lynnwood Link with ST Express

- Temporarily postpone Lynnwood Link ST Express restructure
- Continue some service to downtown Seattle to provide additional capacity
- Range of options of how far north to operate parallel bus service
- Shorter route = more capacity, fewer direct destinations (Options 1-2)
- Longer route = more destination directly served, lower capacity (Options 3-4)
- **Further evaluation needed**



**2026**

***1 Line Lynnwood to Federal Way***

***2 Line Downtown Redmond to Lynnwood***

***ST2 light rail extensions complete***

# 2026

## Peak service with available fleet

**1 & 2**

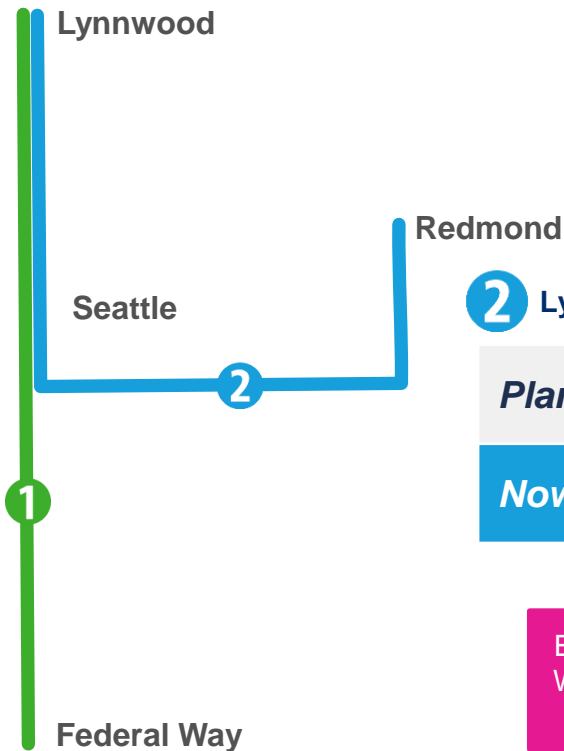
Combined service  
Lynnwood to IDS

<i>Planned</i>	4 min	4 cars
<i>Now possible</i>	5 min	3-4 cars

**1**

Lynnwood to Federal Way

<i>Planned</i>	8 min	4 cars
<i>Now possible</i>	10 min	4 cars



**2**

Lynnwood to Downtown Redmond

<i>Planned</i>	8 min	4 cars
<i>Now possible</i>	10 min	3 cars

Extending 1 Line to Federal Way requires limiting 2 Line to 3 car trains

2026

# Northbound 1 Line crowding\*

① Trains every 10 mins, 4 car trains

② Trains every 10 mins, 3 car trains

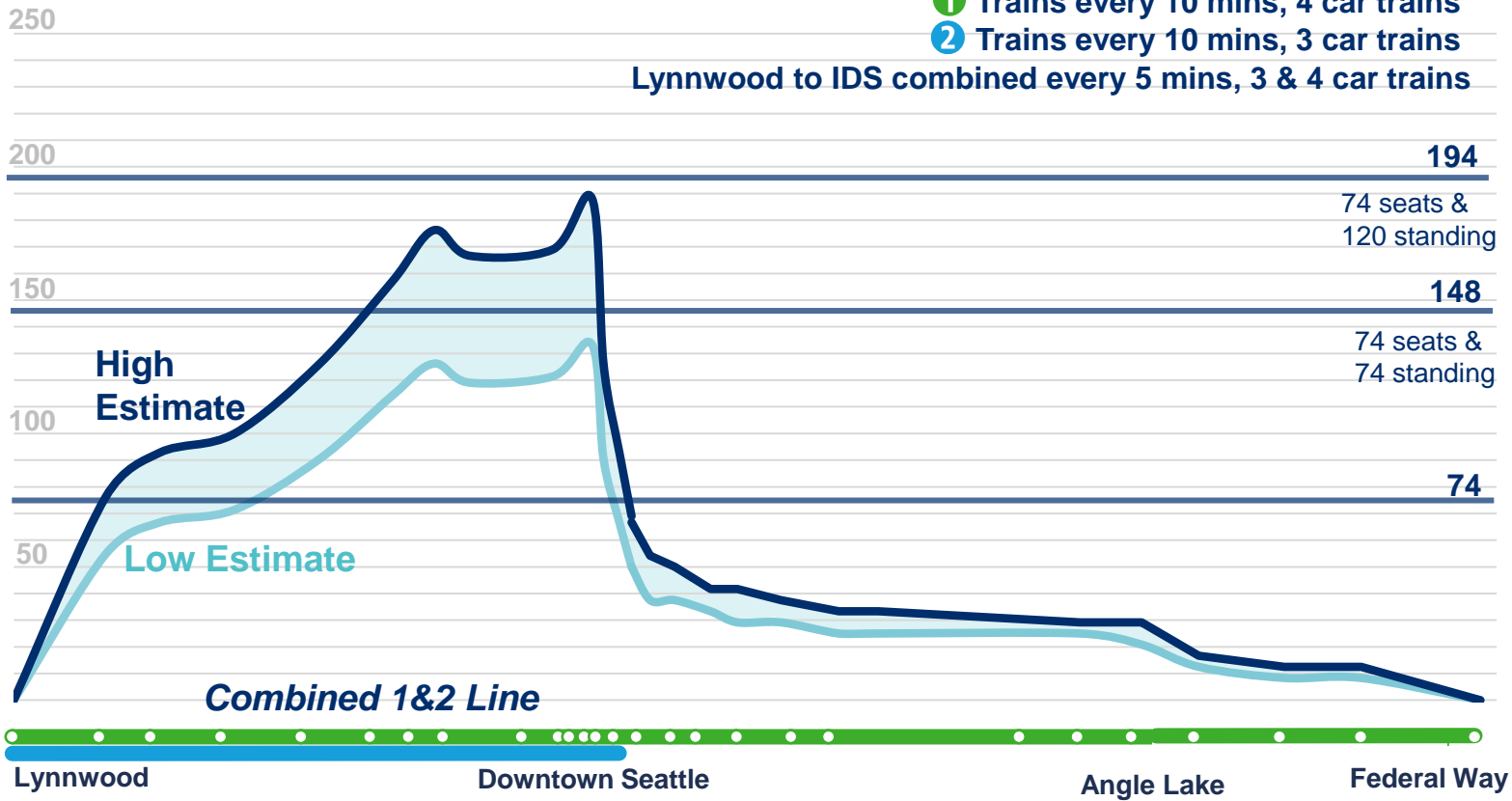
Lynnwood to IDS combined every 5 mins, 3 & 4 car trains

Very crowded, may not be room to board

Challenges getting on and off

People standing but you can still get on

Everyone has a seat





2026

# Southbound 1 Line crowding\*

① Trains every 10 mins, 4 car trains

② Trains every 10 mins, 3 car trains

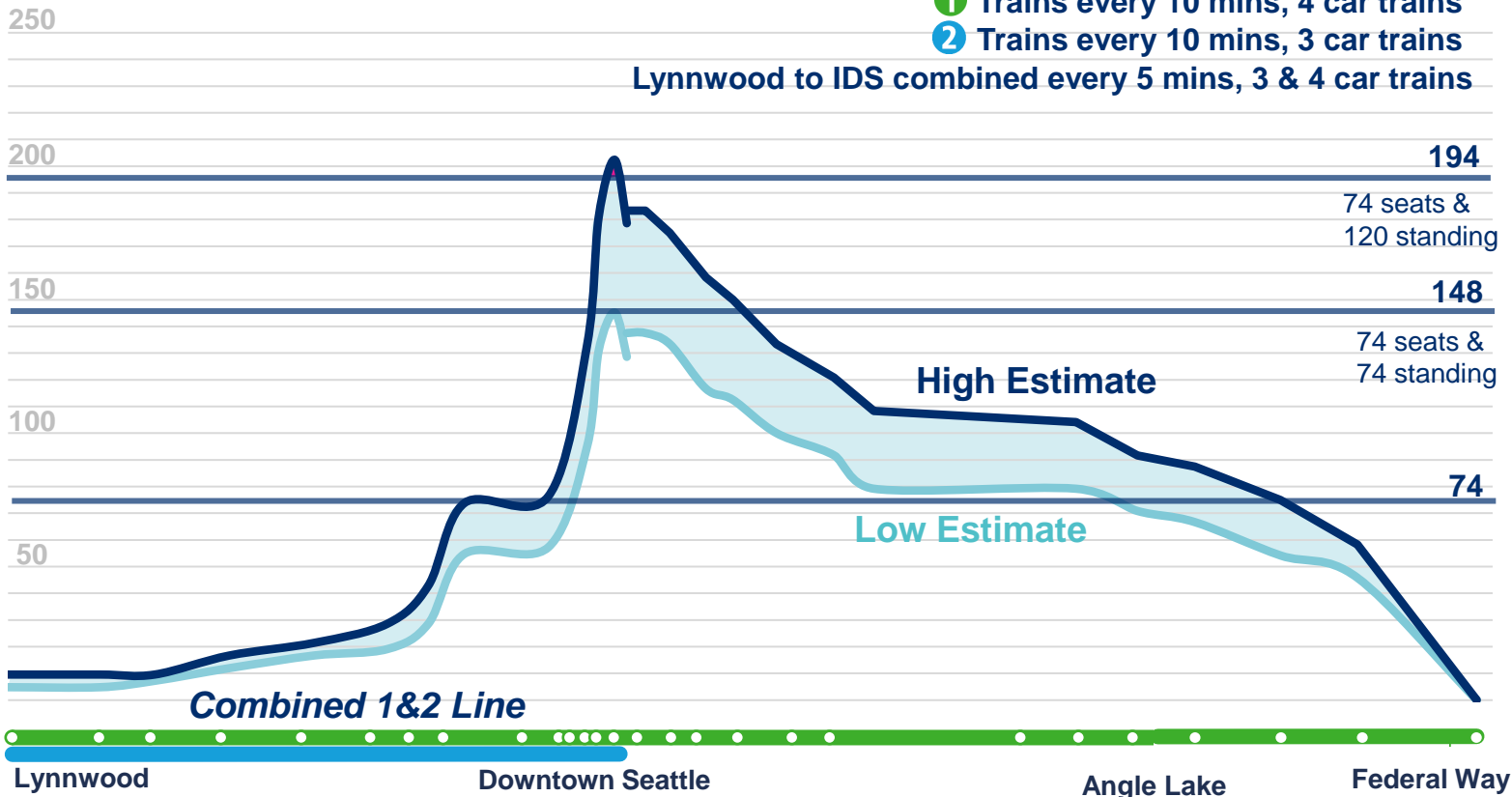
Lynnwood to IDS combined every 5 mins, 3 & 4 car trains

Very crowded, may not be room to board

Challenges getting on and off

People standing but you can still get on

Everyone has a seat



2026

# Eastbound 2 Line crowding\*

① Trains every 10 mins, 4 car trains

② Trains every 10 mins, 3 car trains

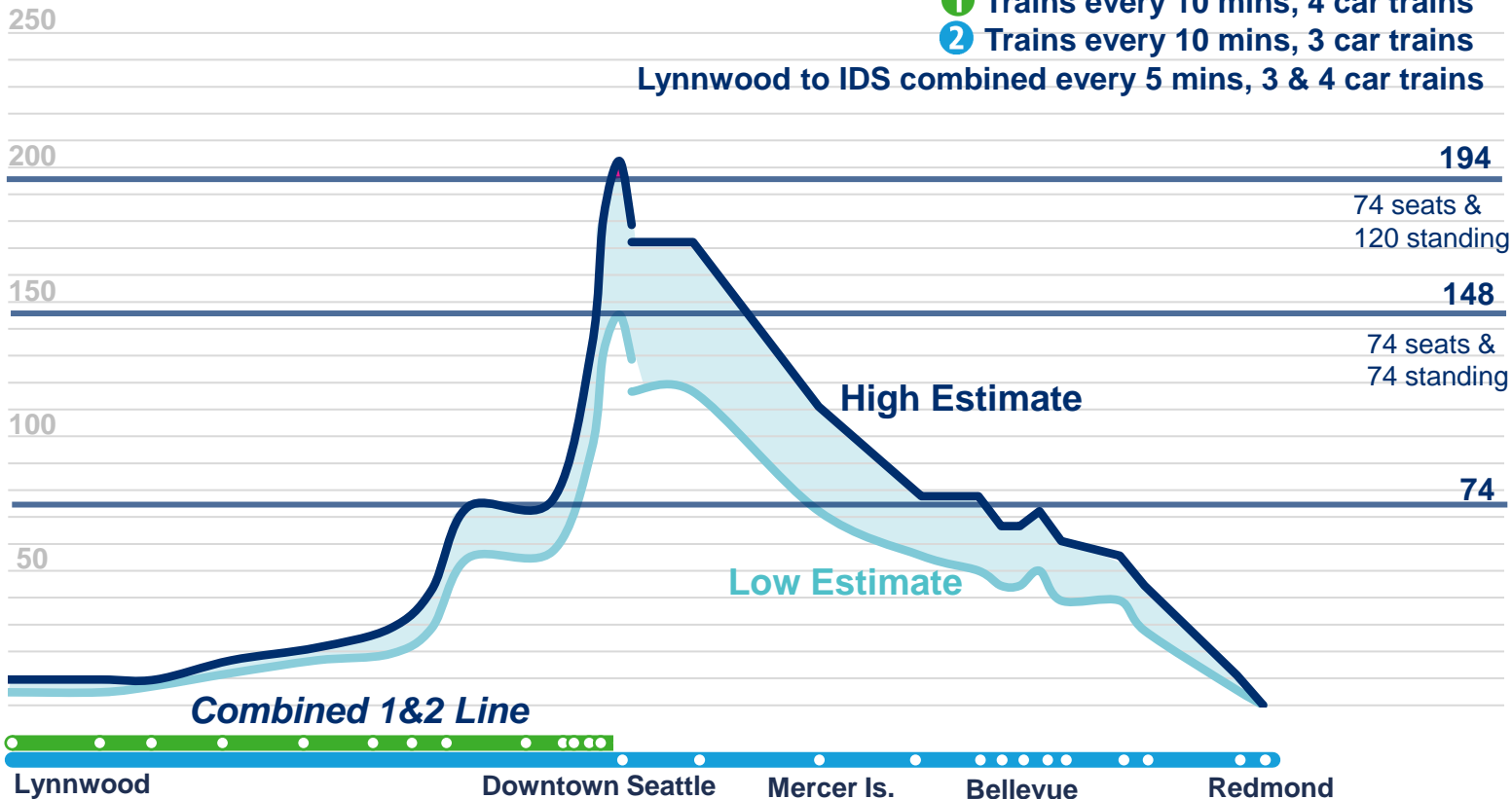
Lynnwood to IDS combined every 5 mins, 3 & 4 car trains

Very crowded, may not be room to board

Challenges getting on and off

People standing but you can still get on

Everyone has a seat



# Next steps

- October: ST2 options
- **October: Adopt a 2024 Rail Service Plan**
- November: ST3 light rail service and passenger experience
- January or February: ST3 options & program affordability
- **Early 2024: Propose 2024 Bus Service Plan**
- Later in 2024: Seek Board direction on long-term service and capital priorities

*Thank you.*



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