



Update on Link projects in construction and Programmatic QRA

*Community Oversight Panel
December 14, 2022*



Why we're here

Update on Link projects in construction:

- What we learned through Programmatic Quantitative Risk Assessment (QRA)
- What it means for project sequencing and opening timeframes
- Next steps

Briefing only, no action required today.

How we got here

Original sequence

Mid 2023: East Link

Mid 2024: Lynnwood

Late 2024: Federal Way

Late 2024: Downtown Redmond

Summer/Fall 2022

Project-level construction risks and delays, project-level QRAs, programmatic QRA.

Key takeaways

East Link challenges will **delay access to Operations & Maintenance Facility East** and require rethinking project **opening timeframes and sequencing.**



Why is OMF East access important?



Pieces of the puzzle

- Cascading effects of East Link no longer being ready first.
- Lynnwood will now finish construction first.
- Federal Way projected to finish last.
- Activation timelines should avoid using same staff and resources on multiple projects at once.
- Safely and reliably activating high-quality projects requires:
 - Four months of pre-revenue service after construction is completed.
 - Two months of activation close-out after a project opens before beginning pre-revenue service on the next project.

= A minimum six-month window between project openings

Finding the best project sequencing

- Best opportunity for opening projects soonest is **in order of finishing construction**: Lynnwood, East Link, Downtown Redmond, Federal Way.
- Keeping East Link first to wait for OMF East access would mean Lynnwood sitting finished and unused for many months.
- Combining East Link and Downtown Redmond into one opening could create efficiency while allowing enough time to address quality issues.
- Opening Federal Way last allows additional time for new design approach and construction without affecting other projects.

Possible opening timeframes, re-sequenced

Link extension	Possible opening timeframe
Lynnwood	Summer/Fall 2024
East Link & Downtown Redmond	Spring 2025
Federal Way	Too soon to identify. Contractor negotiations underway.

Could part of East Link open earlier?

- East Link construction issues affect some areas more than others.
- An “East Link Starter Line” service potentially feasible from South Bellevue Station to Redmond Technology Station.
- Why South Bellevue?
 - Proximity of a crossover track.
 - Separation from I-90 construction would reduce any conflict between East Link Starter Line service and ongoing corrective rework.

East Link Starter Line benefits & challenges

Benefits

- More stations open when ready (about one year before East Link).
- Would allow us to open a very complex, long line in two parts.
- Puts OMF East into service sooner.

Challenges

- Compared to previous scenario, adds an additional opening sequence to overall program.
- Would push Lynnwood Link opening back by approximately one quarter.

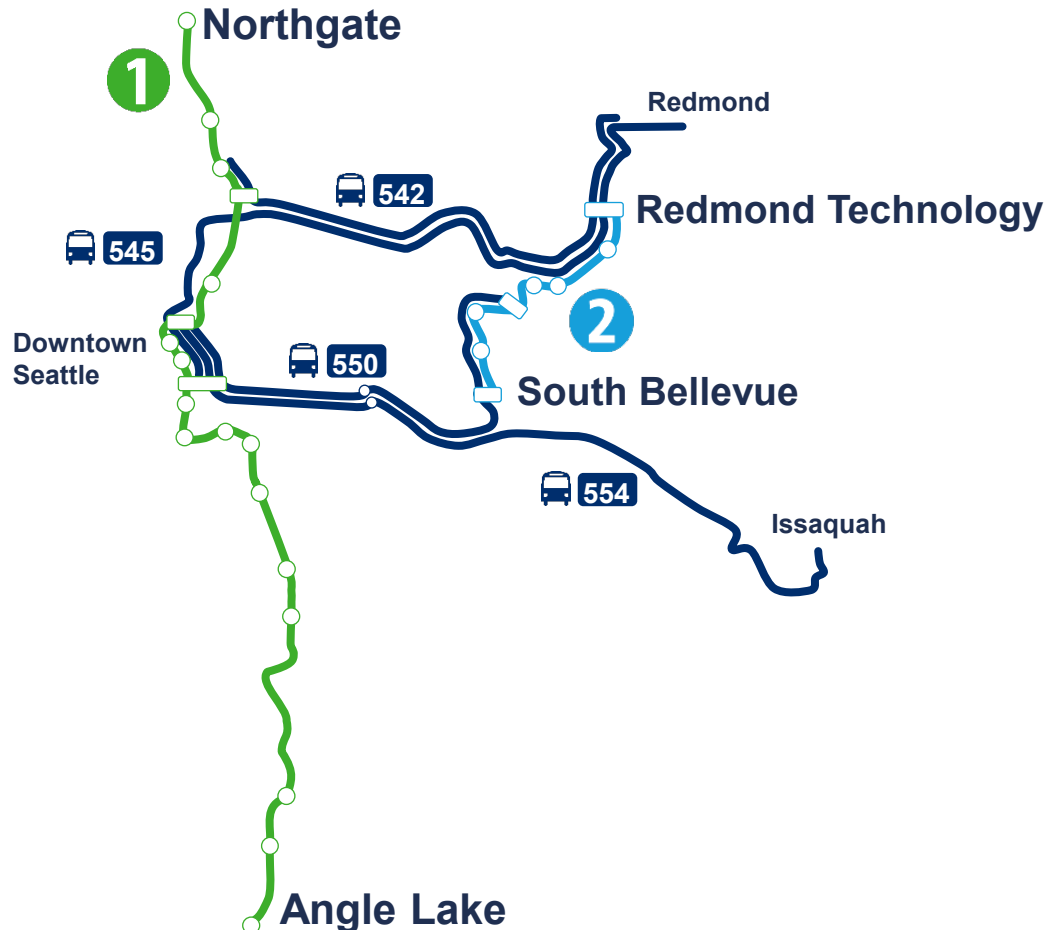
Possible opening timeframes with East Link Starter Line

Link extension	Possible opening timeframe
East Link Starter Line	Spring 2024
Lynnwood	Fall/Winter 2024
East Link & Downtown Redmond	Spring 2025
Federal Way	Too soon to identify. Contractor negotiations underway.

East Link Starter Line potential operations

Existing **1** Line: Northgate to Angle Lake

Starter **2** Line: Redmond Technology to South Bellevue



Headways	2 Line	1 Line		
Peak Hour	10 min	8 min		
Off-Peak/Weekend	10 min	10 min		
Early/Late	15 min	15 min		
What will it take?	Starter 2 Line	1 Line	Total	
Vehicles	16-24	87	103-111	
Operators	33	77	110	
Platform hours	50,000	115,000	165,000	

No bus service changes assumed

Challenges, risks for both opening scenarios

Opening Lynnwood Link without access to OMF East

- Must find overnight storage for about 16 vehicles along main line.
- Potential overcrowding on the 1 Line until full East Link line opens.
- New rail cars commissioning slower rate than expected.

Project-level construction risks

- East Link plinth reconstruction schedule.
- Federal Way Link design and construction of the long-span bridge structure.

Most significant programmatic risk for openings

Skilled labor, operator and maintenance worker shortages

- Need to double current hiring rate to meet system needs.
- Sector-wide and regionwide concern.
- Could add up to six months to each opening if not resolved.

Next steps

- Monitor projects for risks that could affect schedule.
- Refine project timeframes and provide updates as construction advances, coordinating with regional and federal partners.
- Actively engage with partners at all levels to address hiring challenges.
- Update the Board again in January and seek Board direction on whether to advance the East Link Starter Line.

What questions do we need to answer?

Thank you.