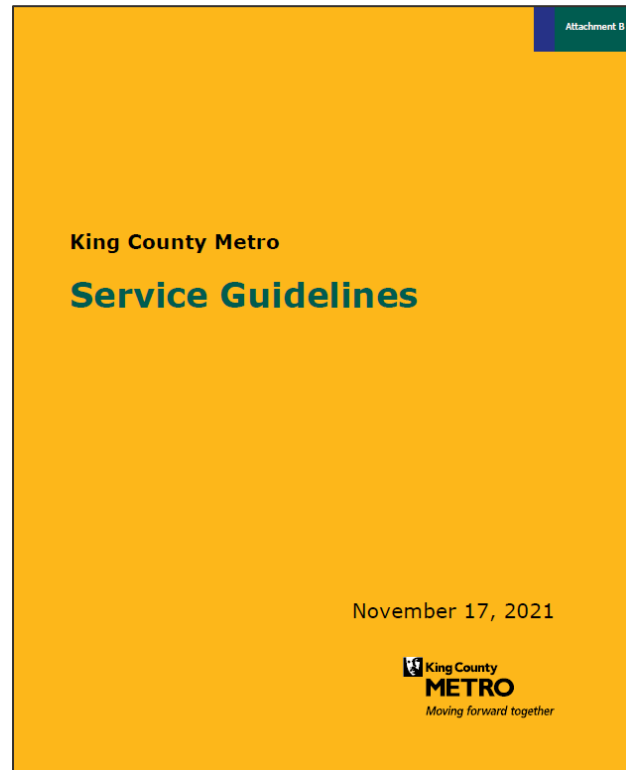


# 2023 Draft System Evaluation

Applying King County Metro's Service Guidelines to evaluate investment needs

# Service Guidelines



Policy outlining evaluation methods  
and priorities

# Annual System Evaluation



Annual evaluation of system investment  
needs (fixed route, flexible, marine)

Implementation

# 2023 System Evaluation



## What is in the Annual System Evaluation?

- Evaluation of the transit system at the route level
- Focus on fixed route, flexible, and marine services
- RapidRide progress report (Bus Rapid Transit)
- Investment needs per King County's Service Guidelines
- Must be formally accepted by County Council

# Data Analysis: services & evaluation measures

**Fixed Route Services**



**Metro Flex**



**Marine (Water Taxi)**



# Data Analysis: services & evaluation measures

## Fixed Route Services

- **Crowding**
- **Reliability**
- **Service Growth**
  - Equity
  - Land Use
  - Connectivity

- **Productivity**
- **Equity**

## Flexible Services

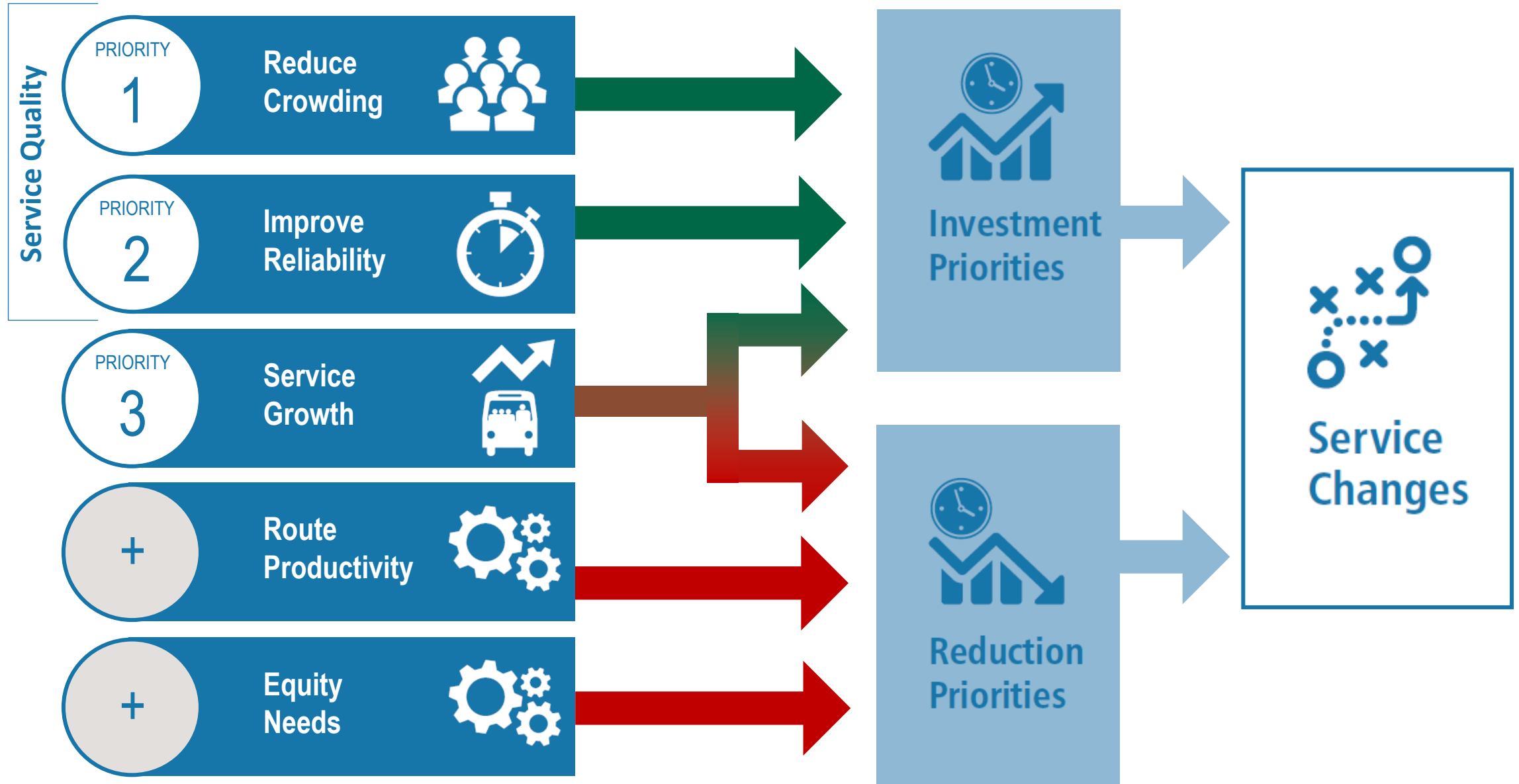
- **Existing Services**
  - Equity
  - Efficiency
  - Productivity
- **New Services & Pilots**
  - Density
  - Equity
  - Accessibility

## Marine (Water Taxi)

- **Ridership**
- **Productivity**
- **Passenger Loads**
- **Schedule Reliability**



# Fixed Route Service Evaluation



# Priority 1: Crowding



Reduce  
Crowding



## Defining “Crowding” Investment Needs

- Routes with trips exceeding the vehicle’s crowding threshold
- Routes with standing loads for more than 20 minutes
- Must be crowded consistently for multiple months

## 2023 Findings

- 0 hours of service are needed to relieve crowding

# Priority 2: Reliability



Improve  
Reliability



## Defining “Reliability” Investment Needs

- Routes that operate late more than 20% of the time
- Routes that miss their designated headways more than 20% of the time

## 2023 Findings:

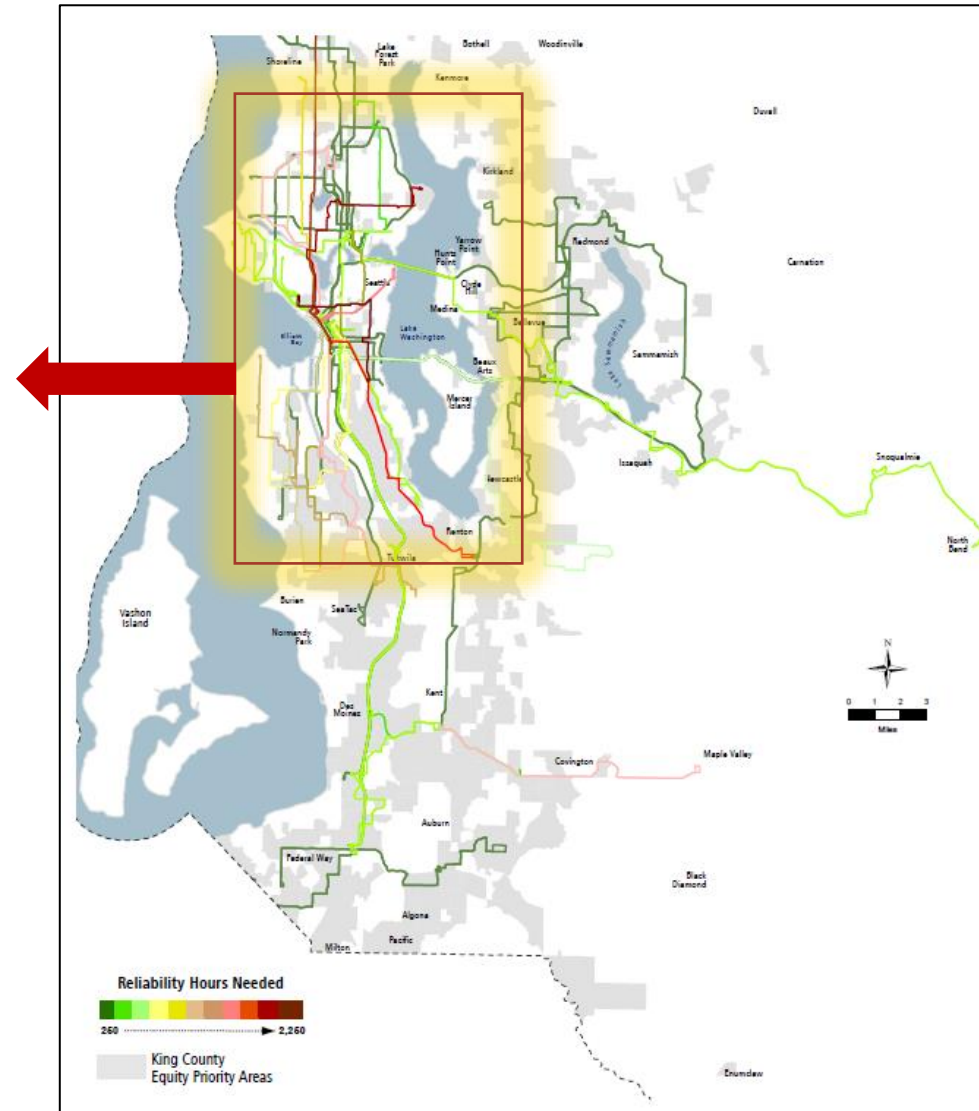
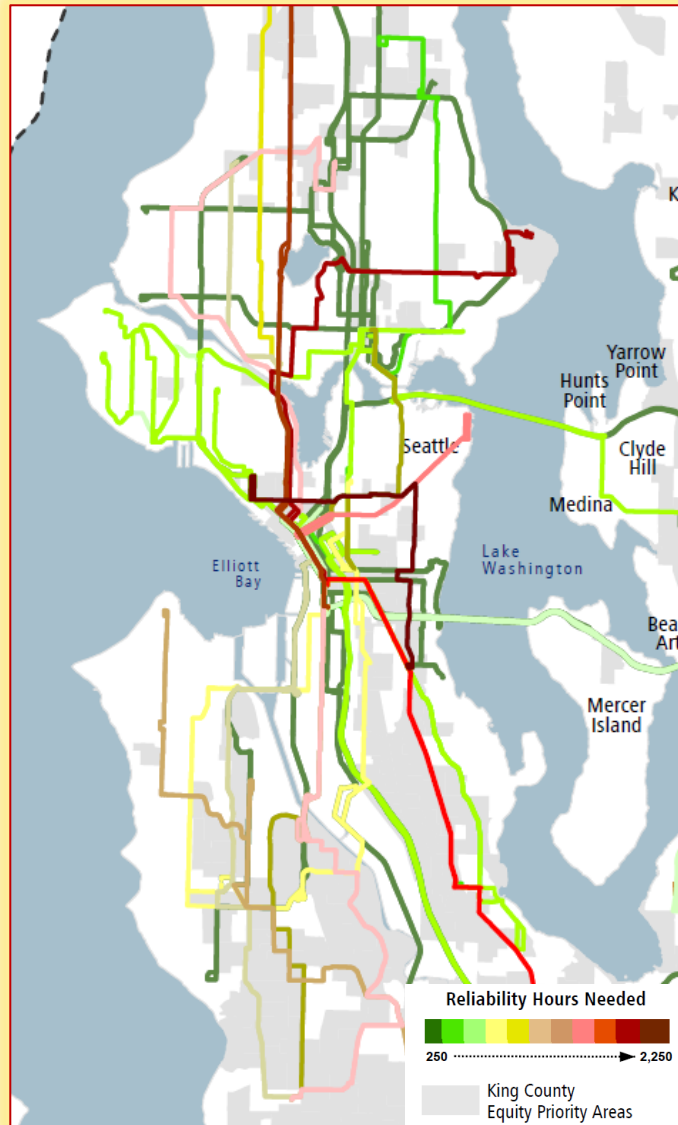
- 31,050 additional bus hours needed to improve reliability  
(6,300 increase from 2022)
- 56 routes identified for reliability investments



# Priority 2: Reliability Investment Needs

PRIORITY  
2

Improve  
Reliability



# Priority 3: Service Growth (methodology)



## Target Service Levels for each route:



## Service Hour Investment Prioritization:

1. **Social Equity** – priority populations near a particular route
2. **Land Use** – access to jobs, education, housing, and park and rides
3. **Geographic Value** – connections between activity centers

## 2023 Findings:

- **Investment Need:** 1,689,900 hours of service needed over the next 14-16 years to maintain progress on the Metro Connects interim network (avg. of 120,000 hrs annually)

# Priority 3: Equity Prioritization Scores



Service  
Growth



- 1

**Score Block Groups  
(Equity Priority Area Score):**

Assign 1-5 points to block groups based on “priority population” demographic data.
- 2

**Score bus stops:**

Assign the equity priority area score to every bus stop within the block group.
- 3

**Calculate Route Scores  
(Route Equity Prioritization Score):**

Average the bus stop scores for each route

Priority Population weighting (for EPAS)	Variable Weight
Population that is non-white or Hispanic	40%
Population living 200% below the federal poverty line	30%
Population that is foreign-born	10%
Limited-English speaking households	10%
Population living with a disability	10%







# Reducing Service (Productivity & Equity)

Reduction  
Priorities



## Productivity

- Rides per platform hours: Number of riders that board a transit vehicle relative to the number of hours it operates
- Passenger miles per platform mile: Total miles a rider travels on a route relative to the total number of miles it operates

## Equity

- Opportunity Index Score (OIS): Percentage of a route's stops in block groups with an EPAS of 5. Sorted into quintiles:

**Top 20% of routes get a score of 5**

**Bottom 20% of routes get a score of 1**



# Factors & prioritization to identify service reduction candidates

Reduction  
Priorities

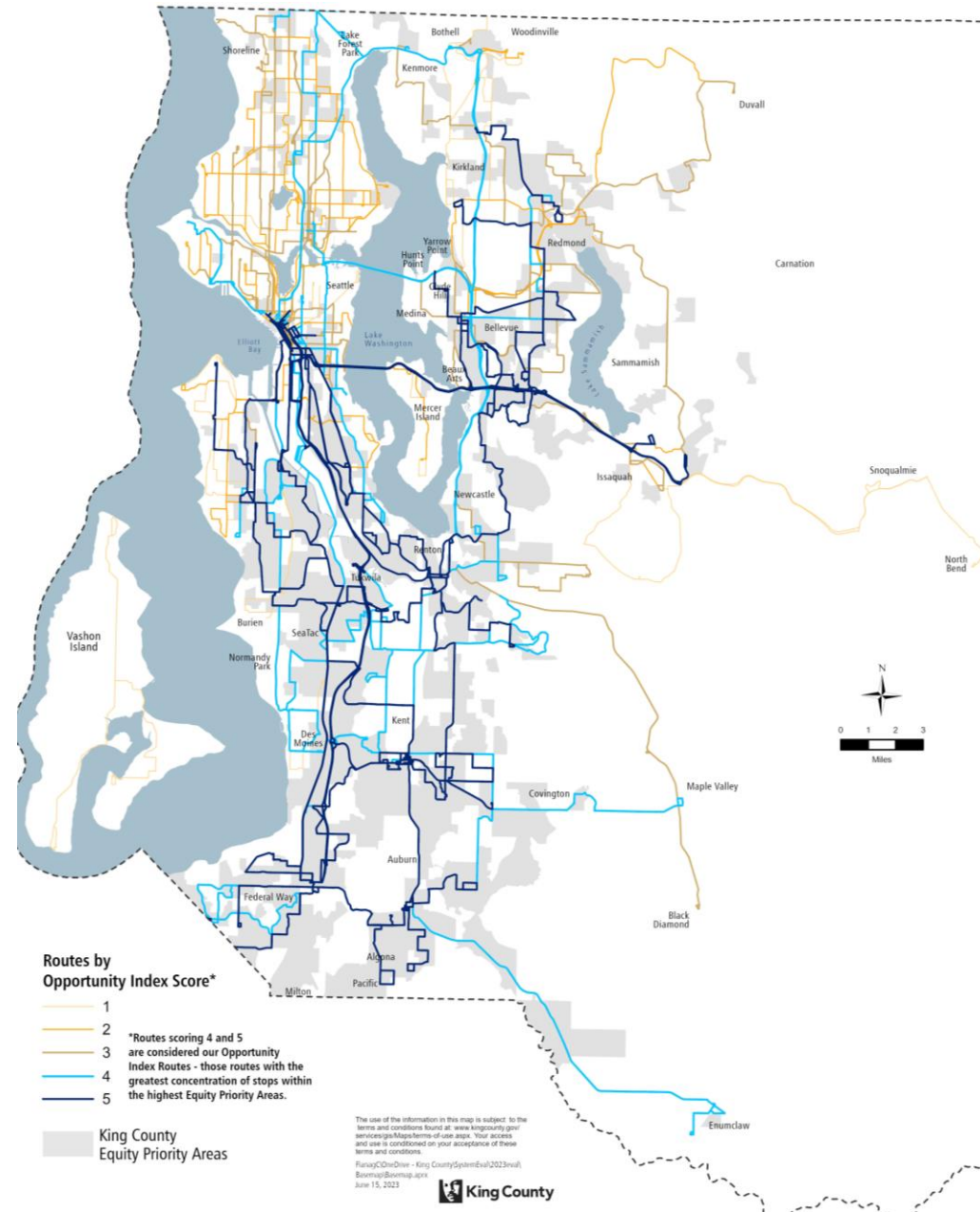


Priority	Factors
1	Routes within the bottom 25% on both productivity measures and with OIS of 3 or less
2	Routes within the bottom 25% on both productivity measures and with OIS of 4 or 5
3	Routes within the bottom 25% on one productivity measure and with OIS of 3 or less
4	Routes within the bottom 25% on one productivity measure and with OIS of 4 or 5
5	Routes within the bottom 50% on one or both productivity measures and with OIS of 3 or less
6	Routes within the bottom 50% on one or both productivity measures and with OIS of 4 or 5

# King County

## Opportunity Index Scores (2020 ACS data)


Reduction  
Priorities



# System Evaluation: Fixed Route Transit Summary

PRIORITY  
**1**

**Reduce Crowding**



- ▶ No major investment needs for crowding

PRIORITY  
**2**

**Improve Reliability**



- ▶ 56 Routes with investment needs (27 routes in Seattle)
- ▶ Reliability investment needs are up by 6,400 hours (31,050 total)
- ▶ Need to track progress as traffic congestion increases

PRIORITY  
**3**

**Service Growth**

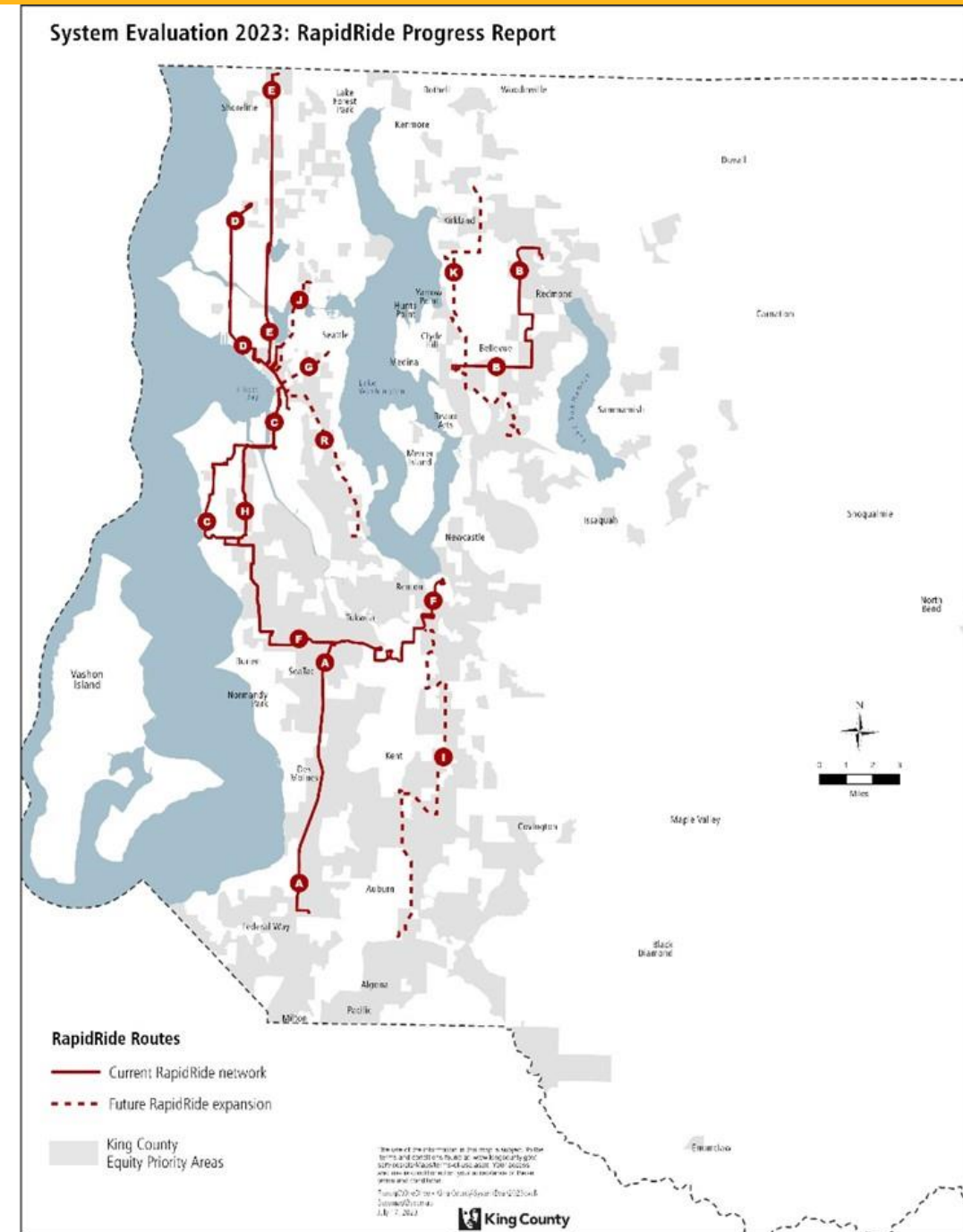


- ▶ 1,689,900 hours of service needed over the next 15 years to implement the Metro Connects interim network
- ▶ Avg. of ~120,000 service hours needed annually to stay on track with the interim network

**Note: Any investments in crowding and reliability will directly address service growth needs.**

# RapidRide Progress Report: Key Service Features

- **Frequent and Reliable Service:**  
More frequent, expanded service hours, extra service at night / weekends.
- **Bus Stop Upgrades:**  
Better lighting, real-time arrival signage, and more seating.
- **Improved Access:**  
Coordination with partners to improve sidewalks, street crossings, etc. to ensure a safe and convenient experience.



# RapidRide Progress Report (as of September 2023)

Route name	To / From / Via	Comparable Route(s)	One-Way Miles	Project Status	Expected Opening	Federal Funding (FTA)
G Line*	Madison Valley - Seattle CBD - E Madison St	11, 12	2.4	Construction	2024	Small Starts grant, American Rescue Plan funding, & Congestion Mitigation and Air Quality Improvement funding
I Line	Renton – Auburn – Kent	160	17.9	Design - 90%	2026	Pending Small Starts Grant
J Line*	U. District – Seattle CBD – Eastlake	70	5.2	Design - 100%	2027	Pending Small Starts Grant, Congestion Mitigation and Air Quality funding, & Surface Transportation Program funding
K Line	Totem Lake – Eastgate - Kirkland	255, 271	14.6	Preliminary planning	TBD	TBD
R Line	Rainier Beach - Seattle CBD - Mt Baker	7	9.4	Design - 10%	TBD	TBD

\* City of Seattle is leading the design and construction of the G and J Lines

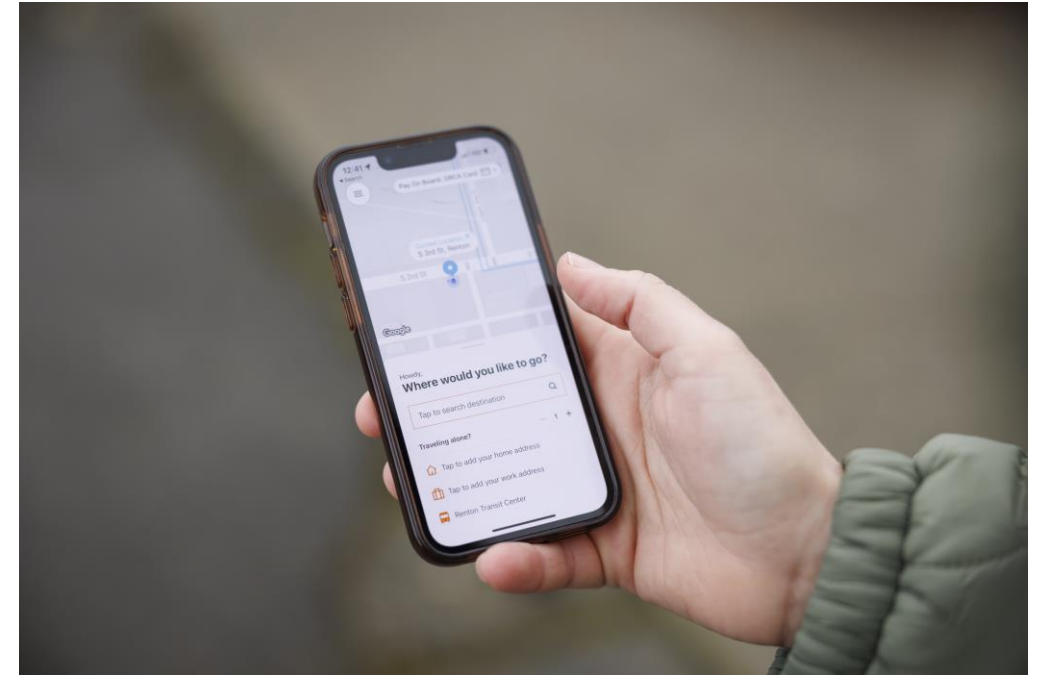


# RapidRide Progress Report: H Line Investments



- Corridor length: 12 miles
- Total stations and stops: 51
- Intersections with transit signal priority: 19
- Bus lanes: 15 miles total
- New sidewalks: 4 miles
- New or improved crosswalks: 40
- Mid-block crossings with push-button flashing signals: 8
- New ADA accessible curb ramps: 60
- Project budget: \$154.1 million (Metro, Seattle, and Burien investments)





# Evaluating Existing Flexible Services

## Efficiency

- Cost per boarding

## Productivity

- Rides per vehicle hour

## Equity

- Percent of riders picked up or dropped off in a designated equity priority area

# Evaluating Flexible Services Pilots

Metro Flex Zone	Cost Per Ride (\$)						Percent trips in Equity Priority Areas
	AM Peak	Midday	PM Peak	Night	Saturday	Sunday	
Juanita	\$ 37.12	\$ 37.25	\$ 40.78	-	-	-	29%
Kent	\$ 36.39	\$ 31.26	\$ 32.90	\$ 12.10	\$ 63.04	\$ 49.21	79%
Othello	\$ 15.08	\$ 15.03	\$ 15.07	\$ 11.75	\$ 15.89	\$ 15.75	91%
Rainier Beach	\$ 16.81	\$ 15.34	\$ 16.29	\$ 13.82	\$ 17.28	\$ 18.01	83%
Renton	\$ 19.55	\$ 18.49	\$ 18.92	\$ 14.91	\$ 18.99	\$ 19.66	84%
Sammamish	\$ 27.97	\$ 24.41	\$ 21.71	-	\$ 30.93	-	23%
Skyway	\$ 20.50	\$ 17.32	\$ 16.15	\$ 13.26	\$ 18.16	\$ 18.38	69%
Tukwila	\$ 14.52	\$ 16.54	\$ 15.72	\$ 13.29	\$ 17.00	\$ 18.21	86%

## 2023 Findings:

- Established services have a lower cost-per-boarding than newer pilots
- Metro will continue to monitor flexible services performance
- Metro may adjust marketing, service areas, service levels as needed

# Evaluating Marine Services (Water Taxi)



## Ridership

Average daily ridership

## Productivity

Rides per round trip

## Passenger Loads

Passenger loads/rides per trip

- **Threshold:** Exceeds 95% capacity 5+ times in 12 months

## Schedule Reliability

Departure within 5 minutes of published schedule

- **Goal:** 98% on time
- **Threshold:** 25% late trips in 12 months

# Evaluating Marine Services (Water Taxi)



Route	Average Weekday Boardings	Average Saturday Boardings	Average Sunday Boardings	Average Rides per Round Trip	Trips operating at over 95% of Capacity	Percent Late Trips
West Seattle	338	-	-	54	2	0.31%
Vashon Island	759	1419	893	56	0	0.51%

## Findings:

- Water Taxi is currently meeting needs as defined in Metro's Service Guidelines
- West Seattle route maintaining increased summer sailing schedule all year
- Pilot program pending to increase service on Vashon Island Route

# Questions?

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King County  
**METRO**

*Moving forward together*