STM Service Investments

Prioritization Criteria Updates

March 2022 Transit Advisory Board
Cliff Mountjoy-Venning
3/21/2022 Department of Transportation

City of Seattle

Agenda/Overview

- Overview of Process and Changes
- Prioritization Criteria
- Future Service Investments Ranking
- Next steps
- Questions

Prioritization Process Overview

- Identify current gaps in Frequent Transit Network (FTN)
- Rank gaps based on:
  - Prioritizing equity priority populations
  - Prioritizing times of day with disproportionately high rates of non-Adult fare use
  - Prioritizing minimum standard of 30-min service before 15-min before 10-min
- Invest and improve bus service

Changes Since Last Time

- Met three times with TAB workgroup to discuss and improve methodology
- Minor changes:
  - Weighting Stop Equity Priority scores by number of trips to determine Route Equity Priority score
  - Combined Saturday and Sunday into “Weekend” for Time of Day score
- Major changes:
  - Time of Day score is now unique to each route
  - Time of Day score uses all non-Adult fare types instead of just ORCA Lift
  - Time of Day score and Current Service Level score are quintile-based instead of multipliers
  - Using 2020 ACS data, and Spring 2022 service change data

Frequent Transit Network

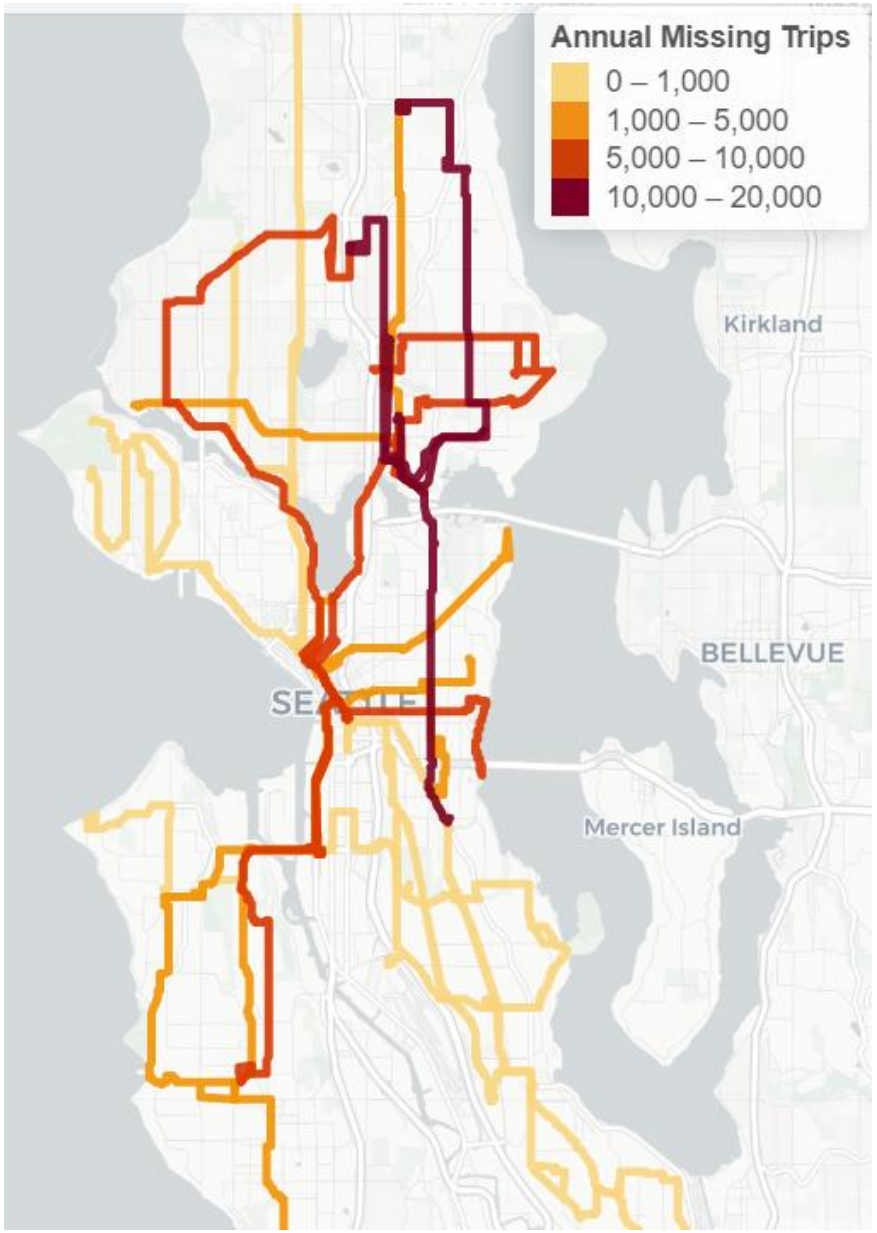
Goal: Use Seattle Transit Measure funds to deliver the Frequent Transit Network

Frequent Transit Network

- Established in Transit Master Plan
- Minor refinements since then

FTN Frequency Targets

	WEEKDAY			WEEKEND		
	All-day (6A - 7P)	Evening (7P - 12A)	Night (12A - 6A)	All-day (6A - 7P)	Evening (7P - 12A)	Night (12A - 6A)
Very Frequent Routes 10-Minute Service	6 trips/hr 10-min Headways	4 trips/hr 15-min Headways	1 trips/hr 1-hr Headways	4 trips/hr 15-min Headways	3 trips/hr 20-min Headways	1 trips/hr 1-hr Headways
Frequent Routes 15-Minute Service	4 trips/hr 15-min Headways	2 trips/hr 30-min Headways	If need is identified	2 trips/hr 30-min Headways	2 trips/hr 30-min Headways	If need is identified
Local Routes 30-Minute Service	2 trips/hr 30-min Headways	2 trips/hr 30-min Headways	If need is identified	2 trips/hr 30-min Headways	2 trips/hr 30-min Headways	If need is identified



City of Seattle

Route Equity Priority Score

Goal: Prioritize adding service to routes that serve equity priority populations

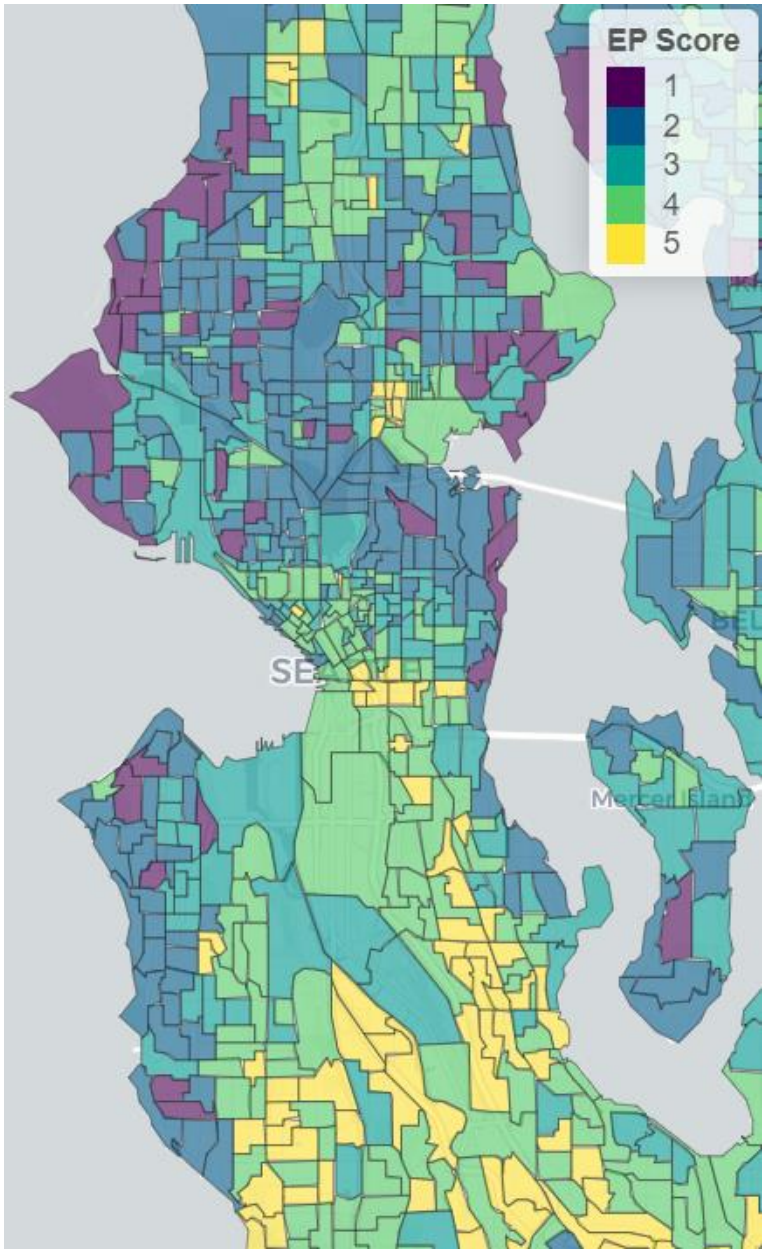
Route Equity Priority Score

Each route gets an Equity Priority Score between 1 – 5 based on the demographics of the neighborhoods it serves

- Demographic data from American Community Survey (ACS)
- Census Block Groups scored 1-5 based on race, income, disability, English proficiency, and national origin
- Bus stops get the score of the Block Group they are in
- Bus routes get the average score of all their stops (weighted by number of trips) ★

Map Equity Priority Areas

- Assign score to each Census Block Group based on 5 demographics factors:
  - % Black, Indigenous, and People of Color (40%)
  - % People w/ income <200% federal poverty level (30%)
  - % Foreign born people (10%)
  - % People with a disability (10%)
  - % Households with limited English proficiency (10%)
- Calculate quintiles for each factor
- Weight factors for composite block group score
- Same factors and weights as King County Metro



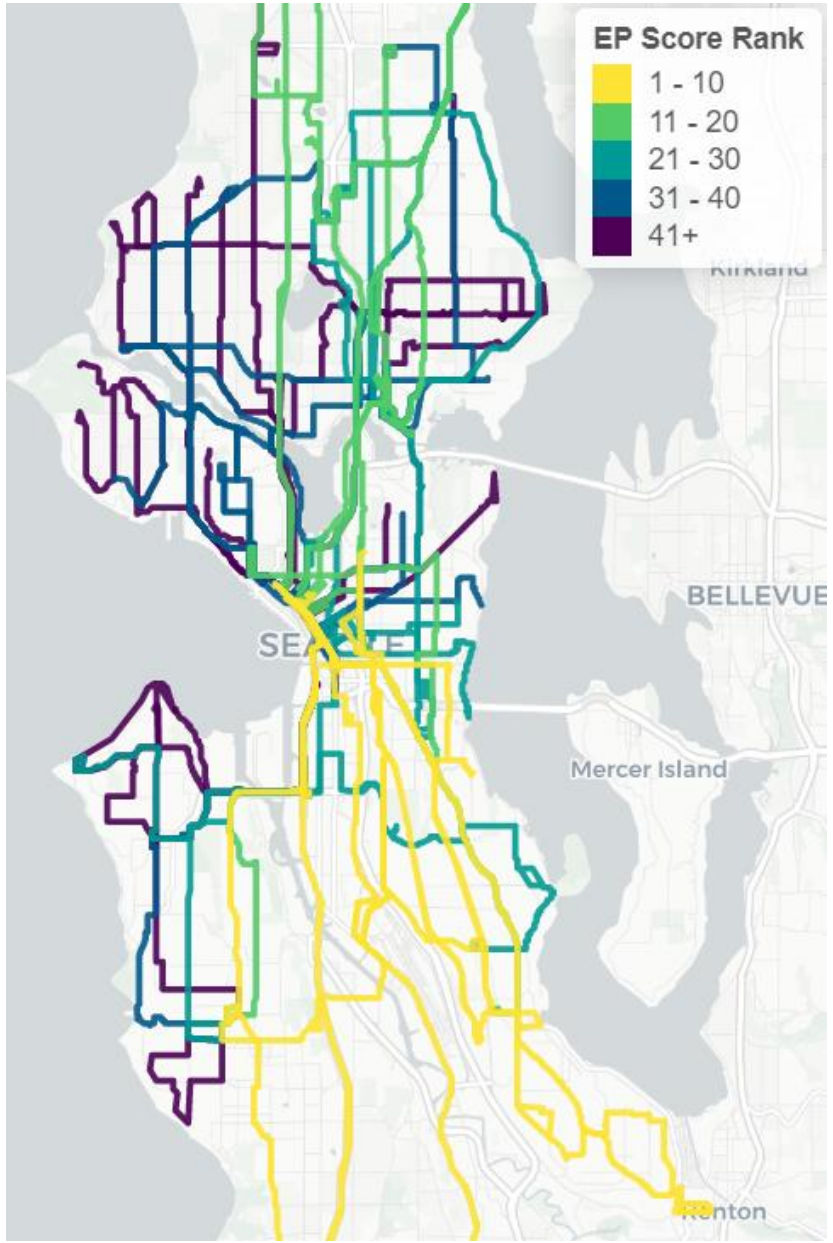
City of Seattle

Score Bus Routes

- Score each bus stop based on its Block Group
- Average the scores of all the bus stops on a route
- NEW: average is weighted by the number of trips serving the stop ★

Top 10 Routes (in yellow):

- 36, 106, FHS, 107, 120, 7, 60, 14, 124, 121



City of Seattle

Alternative Method

Discussion in subgroup about using number of people rather than percent of population to define quintiles

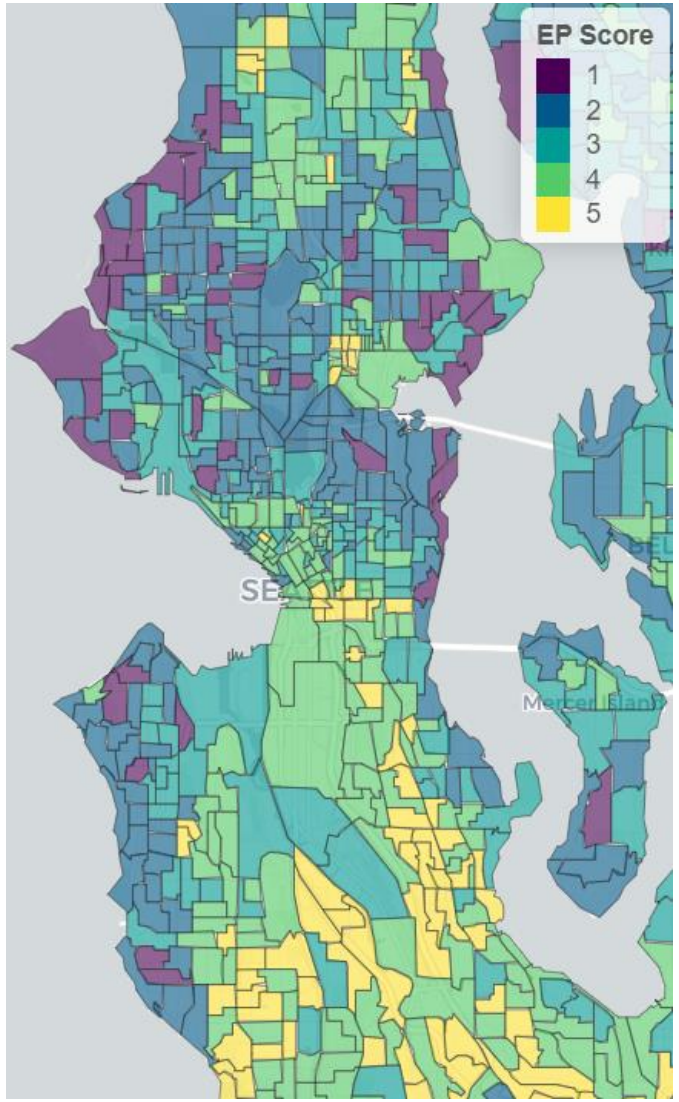
Biggest Movers

Down

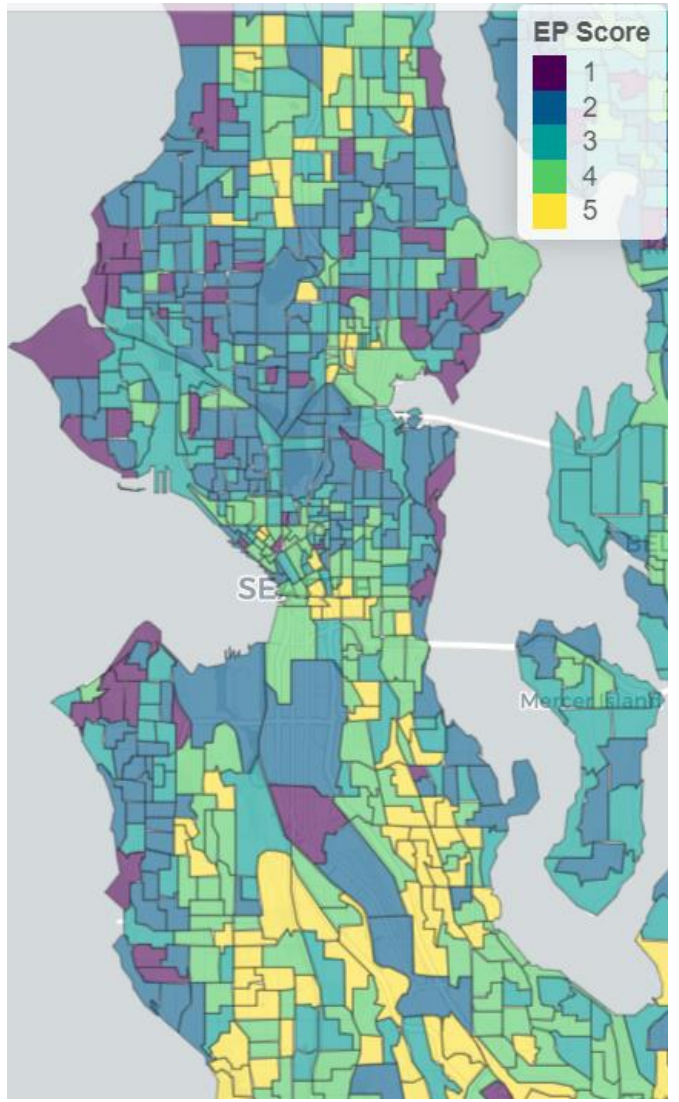
Rt	Score Δ	Rank Δ
124	3.9 -> 2.6	9 -> 47
121	3.9 -> 2.6	10 -> 48
70	3.4 -> 3.0	16 -> 27
21	3.2 -> 2.9	27 -> 30
60	4.0 -> 3.7	7 -> 8
67	3.1 -> 2.9	29 -> 34
C	3.0 -> 2.8	31 -> 37

Up

Rt	Score Δ	Rank Δ
48	3.3 -> 3.5	26 -> 13
65	3.0 -> 3.1	34 -> 24
43	2.9 -> 3.1	36 -> 25
64	2.5 -> 2.7	50 -> 46
15	2.6 -> 2.8	48 -> 38
62	2.6 -> 2.7	49 -> 43
22	2.3 -> 2.4	56 -> 54



Percent Population



Total Population

Time of Day (TOD) Score

Goal: Prioritize adding service at times of day when equity priority populations rely on transit

Time of Day (TOD) Score

- Based on ORCA card fare type data
- When is non-Adult fare rate disproportionately high?

- Previously, method used a scaled ratio between ORCA Lift rate by TOD to system average
  - Messy and hard to understand
  - Only used ORCA Lift
  - Didn’t reflect route-specific TOD patterns
- Now, method is quintile-based, uses all non-Adult fare types, and is route specific ★

Time of Day (TOD) Score Method

- Calculate non-Adult fare rate by Route/Day/Hour
- For each route, sort by non-Adult fare rate and categorize Hours 1-5 such that each group has same number of total boardings
- Find average score by TOD (e.g. Weekday AM includes Hours 6am, 7am, 8am)
- Use systemwide TOD score where there is limited data

	120	C Line	70	11
Weekday AM	1.3	2.2	2.1	1.6
Weekday Mid	4.5	4.4	3.9	4.6
Weekday PM	2.8	2.4	2.4	2.4
Weekday Eve	3.2	3.4	3.5	2.4
Weekday Night	2.4	2.1	4.3	2.9
Weekend Day	4.4	4.6	4.5	3.9
Weekend Eve	3.9	4.0	4.3	3.1
Weekend Night	3.6	4.3	5.0	3.8

Current Service Level Score

Goal: Prioritize minimum standards of usability for all routes in FTN

Current Service Level Score

- Prioritize minimum standard of 30-minute service all-day every day, then 15-minute service, then 10-minute service
- Similar cost to go from hourly service to 30-minute service as it is to go from 12-minute service to 10-minute service, but rider impact is very different

Current SL	Target SL	Current Score	Gap Score	Overall Score
Not frequent	Very Frequent	5	5	**5**
Not frequent	Frequent	5	3	**4**
Not frequent	Local	5	1	**3**
Local	Very Frequent	3	3	**3**
Local	Frequent	3	1	**2**
Frequent	Very Frequent	1	1	**1**

Future Investments Ranking

Future Investments Ranking

- Investment need identified from FTN
- Ranking determined by combining Route Equity Priority Score, TOD Score, and Current Service Level Score for each potential investment
- Route Equity Priority Score weighted higher

Score	Weight
Route Equity Priority	50%
Time of Day	25%
Current Service Level	25%

Current High Priority Investments

#	Route	Day	TOD	Current SL	Target SL	#	Route	Day	TOD	Current SL	Target SL
1	125	Weekend	Day+Evening	Not frequent	Local	11	48	Weekday	Mid-day	Local	Very Frequent
2	27	Weekend	Evening	Not frequent	Local	12	120	Weekend	Night	Frequent	Very Frequent
3	107	Sunday	Day+Evening	Not frequent	Local	13	48	Weekday	AM	Local	Very Frequent
4	125	Weekday	Evening	Not frequent	Local	14	70	Weekend	Night	Frequent	Very Frequent
5	73	Weekend	Day	Not frequent	Local	15	28	Weekend	Day	Not frequent	Local
6	120	Weekend	Day	Frequent	Very Frequent	16	24/33	Weekend	Evening	Not frequent	Local
7	73	Weekend	Evening	Not frequent	Local	17	50	Weekend	Day	Not frequent	Frequent
8	27	Weekend	Day	Not frequent	Local	18	28	Weekend	Evening	Not frequent	Local
9	106	Weekday	AM	Local	Frequent	19	73	Weekday	Evening	Not frequent	Local
10	27	Weekday	Evening	Not frequent	Local	20	120	Weekday	Evening	Frequent	Very Frequent

Future Work

- Continue to work with TAB on investment priorities
- Develop transit access map – e.g. how many (jobs/parks/grocery stores) are accessible on transit within (20/30/45) minutes
- Update the target Frequent Transit Network, accounting for access and equity metrics

Questions?

Cliff.Mountjoy-Venning@seattle.gov

www.seattle.gov/transportation