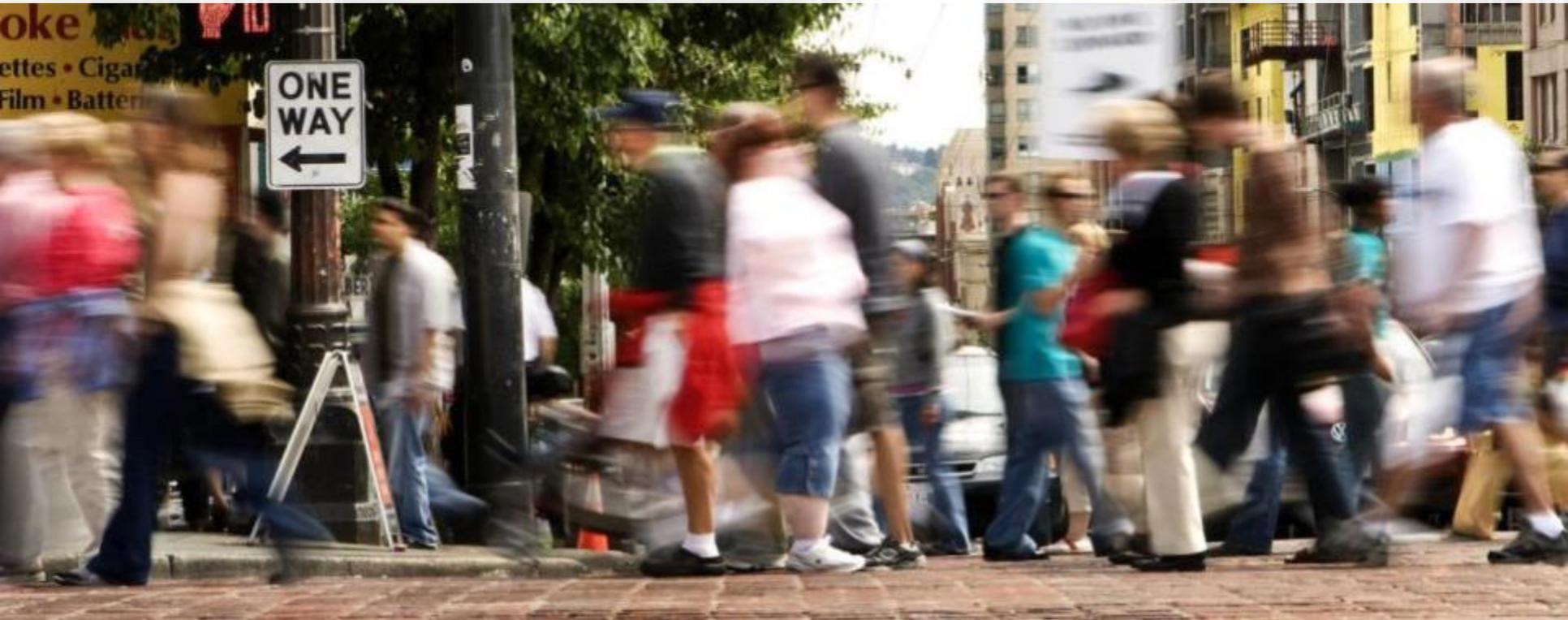


# Data-Driven Pedestrian Planning: Seattle's Pedestrian Master Plan Update



WsDOT Transportation Efficient Communities

Michelle Marx, Ian Macek

October 27, 2015

# Our mission, vision, and core values

**Mission:** deliver a high-quality transportation system for Seattle

**Vision:** connected people, places, and products

Committed to **5 core values** to create a city that is:

- Safe
- Interconnected
- Affordable
- Vibrant
- Innovative

For all

# Presentation Overview

- Existing prioritization methodology
- Ongoing prioritization/data updates
- Ongoing “toolbox” updates



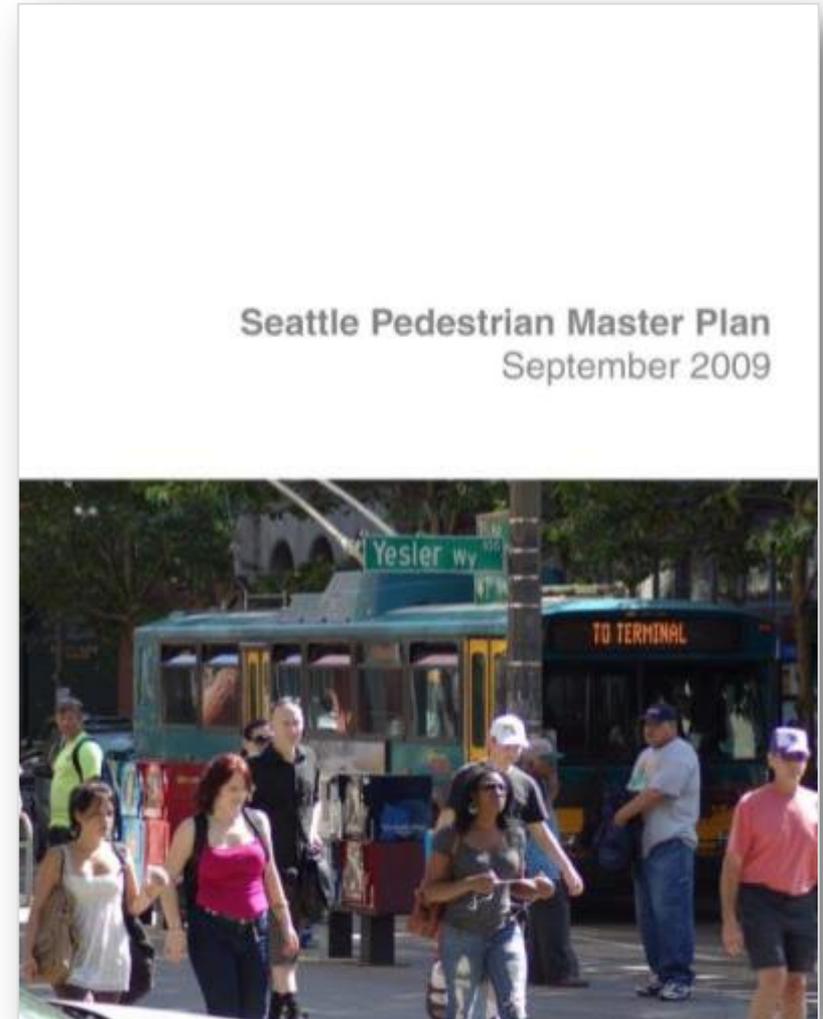
# Benefits of data-based pedestrian planning:

- Provides a rational means of allocating limited resources (in the face of unlimited demand)
- Can help de-politicize infrastructure spending
- Can help ensure that infrastructure is provided in an equitable manner across the city
- Aligns infrastructure spending with City/department goals



# Seattle's data-driven prioritization process

- Designed to focus resources where:
  - There is high existing and potential pedestrian demand
  - There are safety concerns
  - There are populations with the greatest need
- Seattle's PMP is primarily an investment plan



# PMP policy framework

**Plan Vision:** Seattle is the most walkable city in the Nation

## Plan Goals:

- **Safety:** Reduce the number and severity of crashes involving pedestrians.
- **Equity:** Make Seattle a more walkable city for all through equity in public engagement, service delivery, accessibility, and capital investments.
- **Vibrancy:** Develop a connected pedestrian environment that sustains healthy communities and supports a vibrant economy.
- **Health:** Get more people walking to improve mobility, health, and prevent disease.



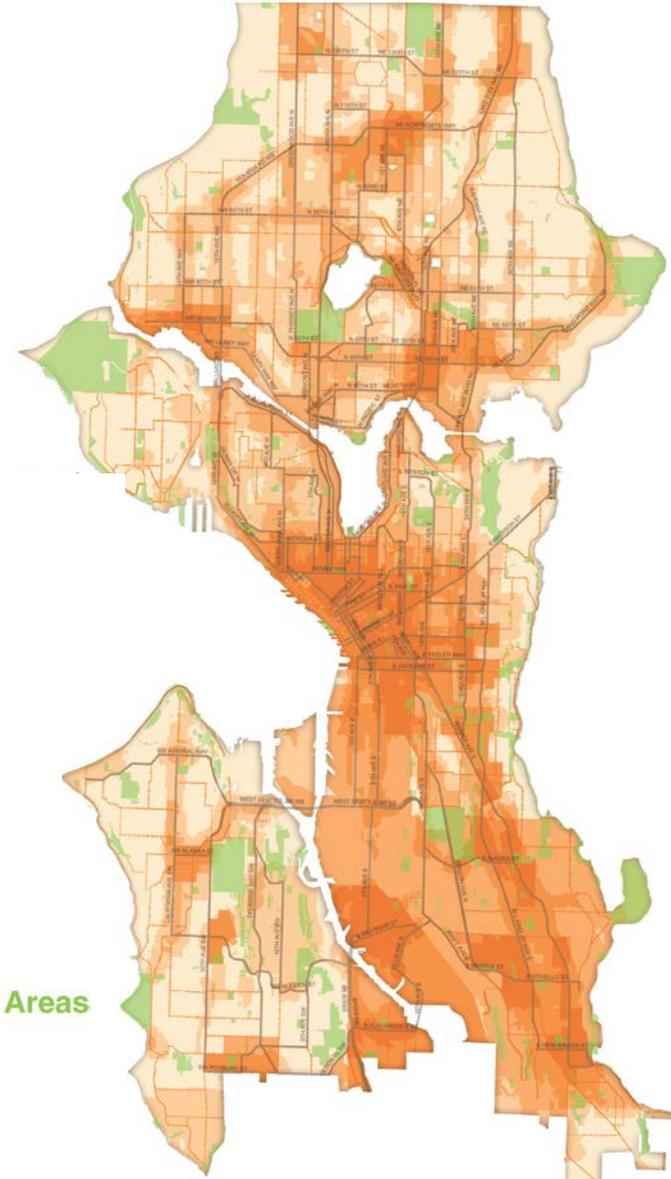
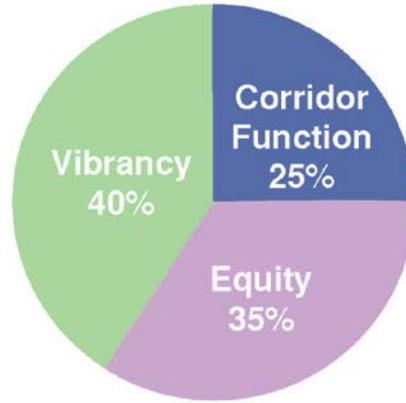
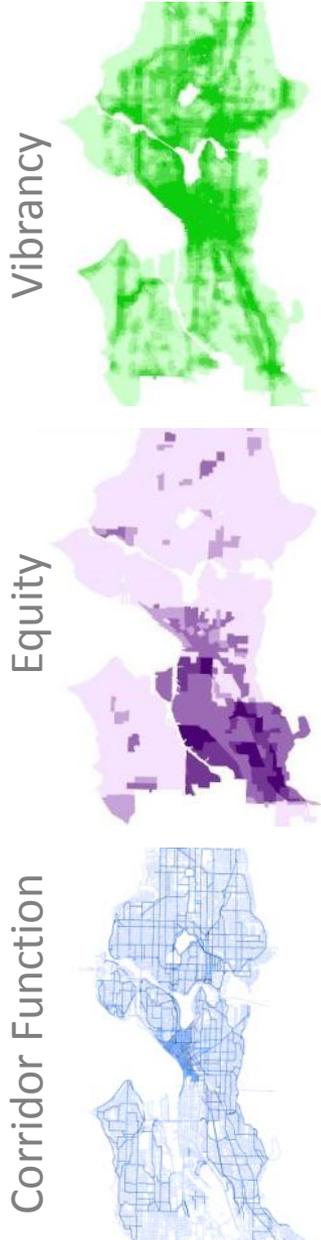
# Building Blocks



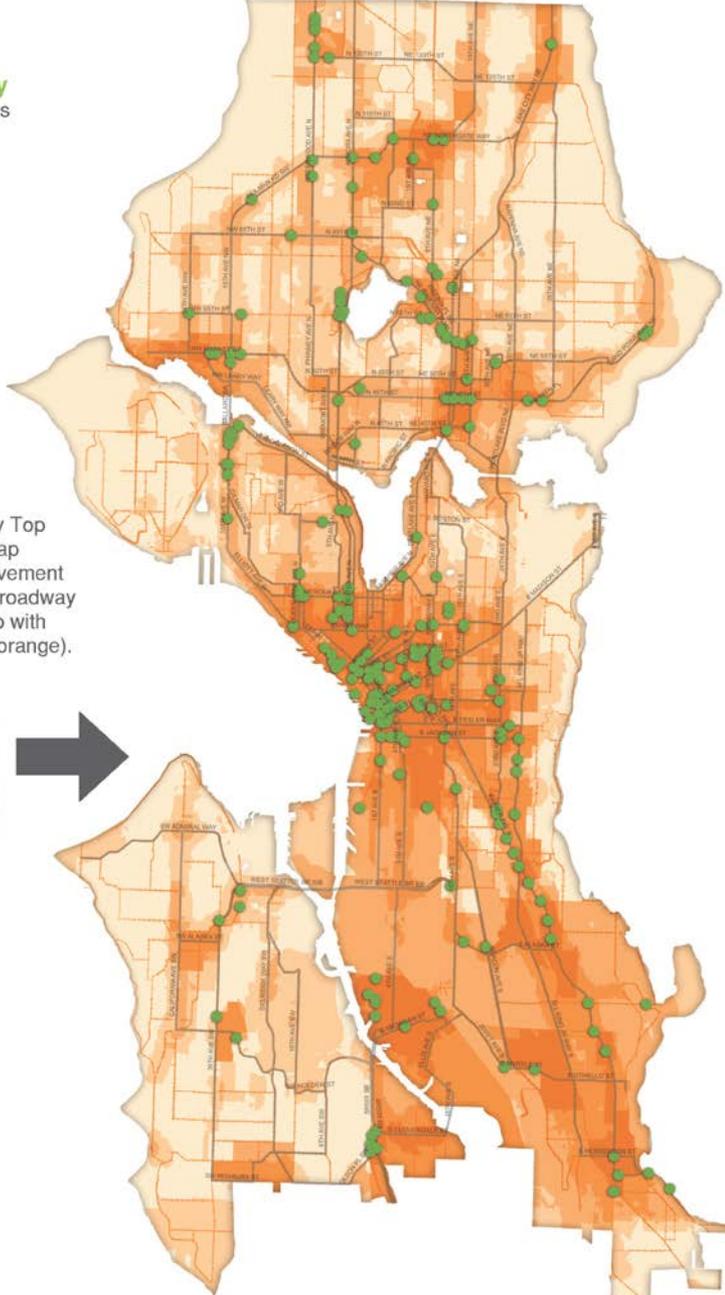
# Contribution to Total Score



# High Priority Areas



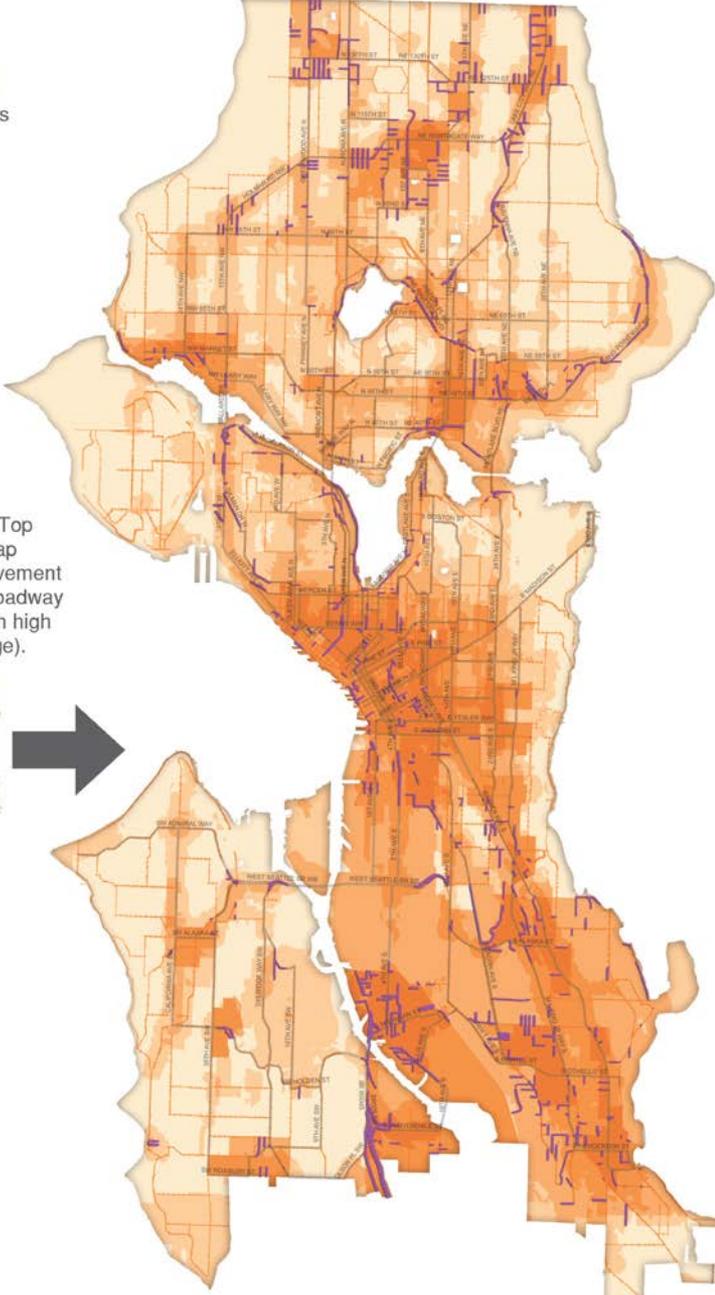
### Across the Roadway Top Tier Project Locations



The Across the Roadway Top Tier Project Locations Map shows where high improvement opportunities across the roadway (dark green dots) overlap with high priority areas (dark orange).



### Along the Roadway Top Tier Project Locations



The Along the Roadway Top Tier Project Locations Map shows where high improvement opportunities along the roadway (purple lines) overlap with high priority areas (dark orange).



# Pedestrian Master Plan Update

## Updated "High Priority Areas"

- To guide walkability investments

## Updated Walkability "Toolbox"

- New sidewalks
- Crossing improvements
- Sidewalk maintenance
- Traffic calming
- No turn on red
- **NEW:** Alternative / low-cost sidewalks-
- **NEW:** Neighborhood greenways
- **NEW:** Speed limit reductions (20 mph)
- **NEW:** Other, new, innovative treatments (tbd)

Which tools are appropriate for different locations?

## Plan Implementation

- PMP Implementation Plan (matching resources to needs)
- Updating ROWIM / standard specs for Toolbox items

# Potential datasets: What's most important?

## Health and Equity Factors

Auto ownership

Low income population

Disability population

Diabetes rates

Physical activity rates

Obesity rates

Communities of color

Age 17 and younger

Age 65 and older

Low English-speaking ability

Low educational attainment

Renter households

Housing cost-burdened households

Canopy cover

## Safety Factors

Pedestrian collisions

Arterial classifications

Roadway width

Signalized pedestrian crossing spacing

Speed

## Vibrancy Factors

Universities or Colleges

Major Generator (e.g. Pike Place, Convention Center)

Multi-family, condominiums and apartments

Major Retail

Minor Retail

Hospital and Community Service

Park and Open Space

Population forecast

Employment forecast

Light rail stations

Major bus stops

Minor bus stops

Trails

Bridges

Stairways

Urban Hubs/Villages

NC Zoning

FTN network

Arterials

Neighborhood Greenways

Schools

## Along the Roadway

Street classifications (proxy for volume)

Arterial speed limit

Buffer

Sidewalk status

Slope (along)

Parking

Curb

Length of block

Peak hour parking

Street trees

Alleys

## Crossing the Roadway

Street classifications (proxy for volume)

Arterial speed limit

Road width

Distance between traffic signals and stop signs

Crosswalk

Curb ramp

Signal control

Stop sign control

Number of collisions

Block length

# Safety (working draft)

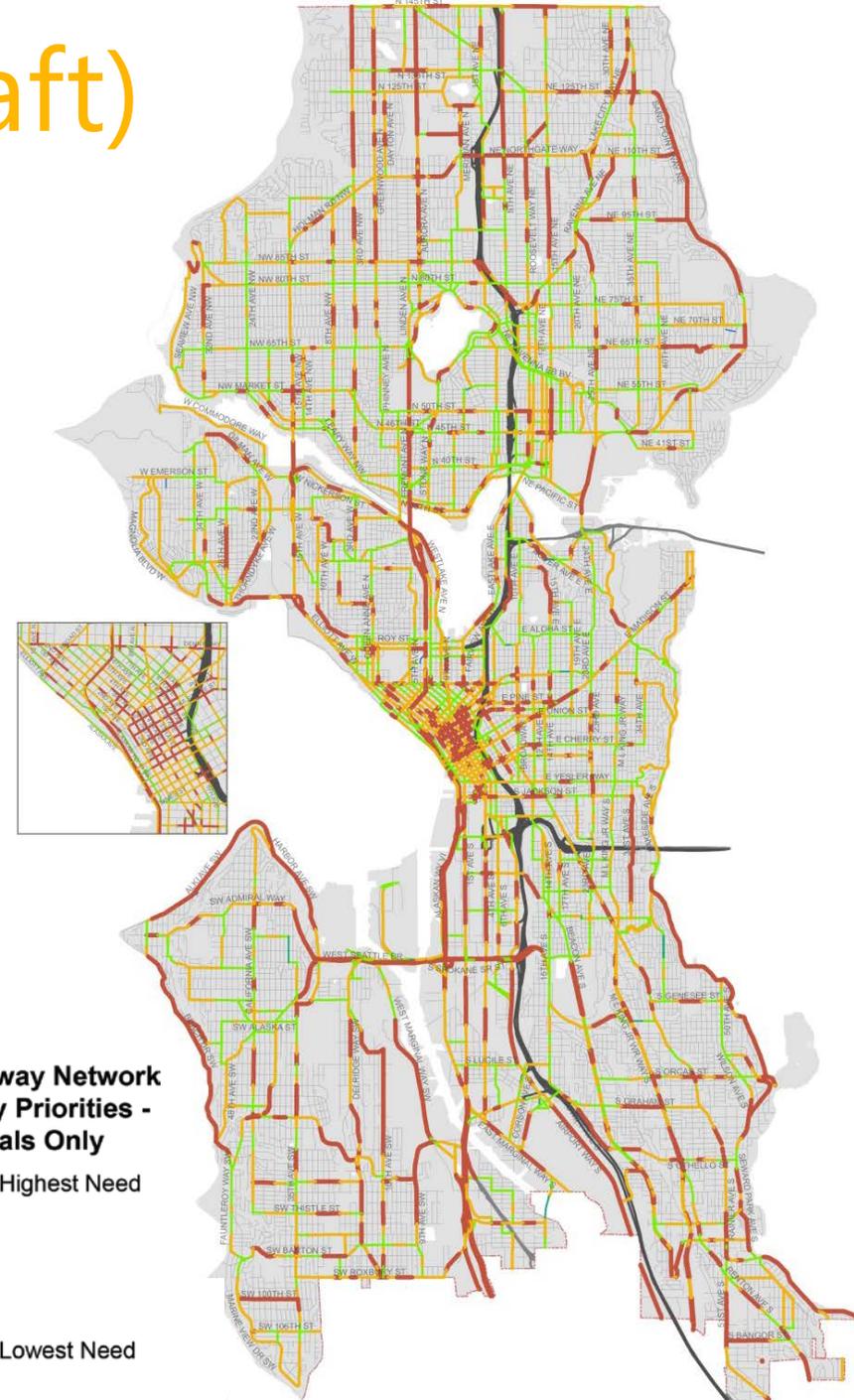
**Safety Goal:** Reduce the number and severity of crashes involving pedestrians.

## “Corridor Function”: Existing 2009 Factors

Seattle street types

## Safety: Draft Updated Factors (based on SDOT Pedestrian Safety Analysis)

|  |   |
|--|---|
| Pedestrian collisions                  | Serious injuries and fatalities highly weighted. Data from the last 8 years.                                    |
| Arterial classifications               | Proxy for volume; Majority of severe injuries occur on principal and minor arterials                            |
| Roadway width                          | Using # of lanes where available, and curb to curb width where # lanes is not available.                        |
| Signalized pedestrian crossing spacing | Capturing both signal-controlled intersections and signal-controlled mid-block crossing opportunities           |
| Speed                                  | 85 <sup>th</sup> percentile speeds where available, and posted speed limit where actual speed is not available. |



# Equity + Health (working draft)

**Equity:** Make Seattle a more walkable city for all through equity in public engagement, service delivery, accessibility, and capital investments.

**Health:** Get more people walking to improve health and increase mobility.

## Draft Factors

Low income population

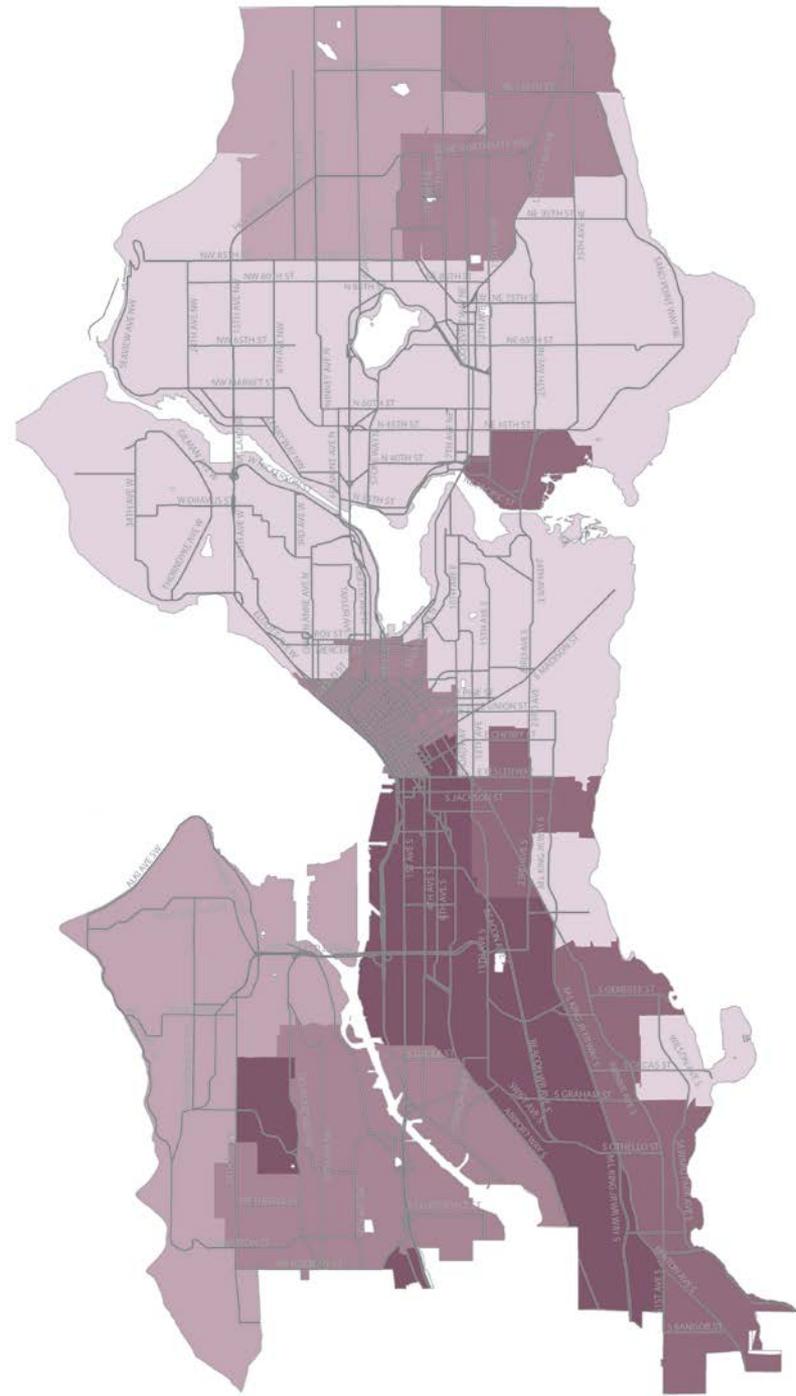
Disability population

Diabetes rates

Physical activity rates

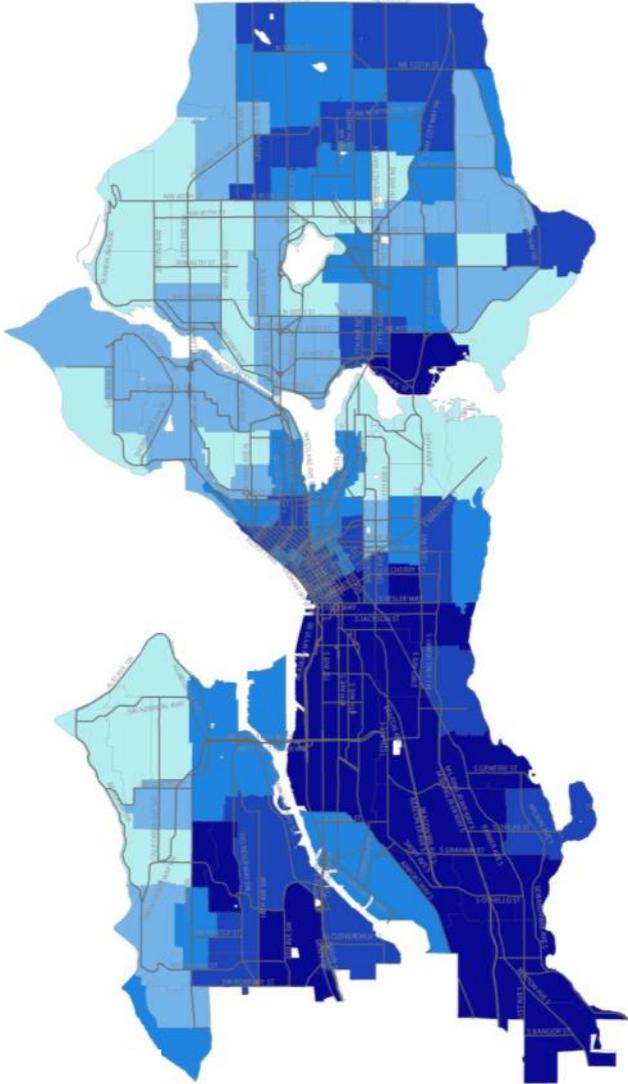
Obesity rates

Communities of color

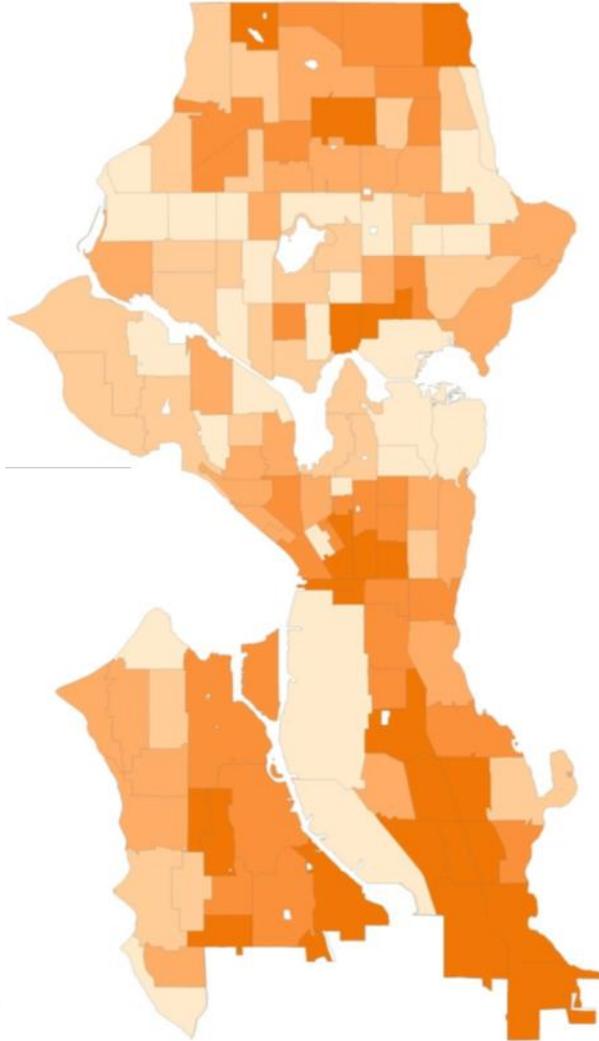


# Equity datasets included

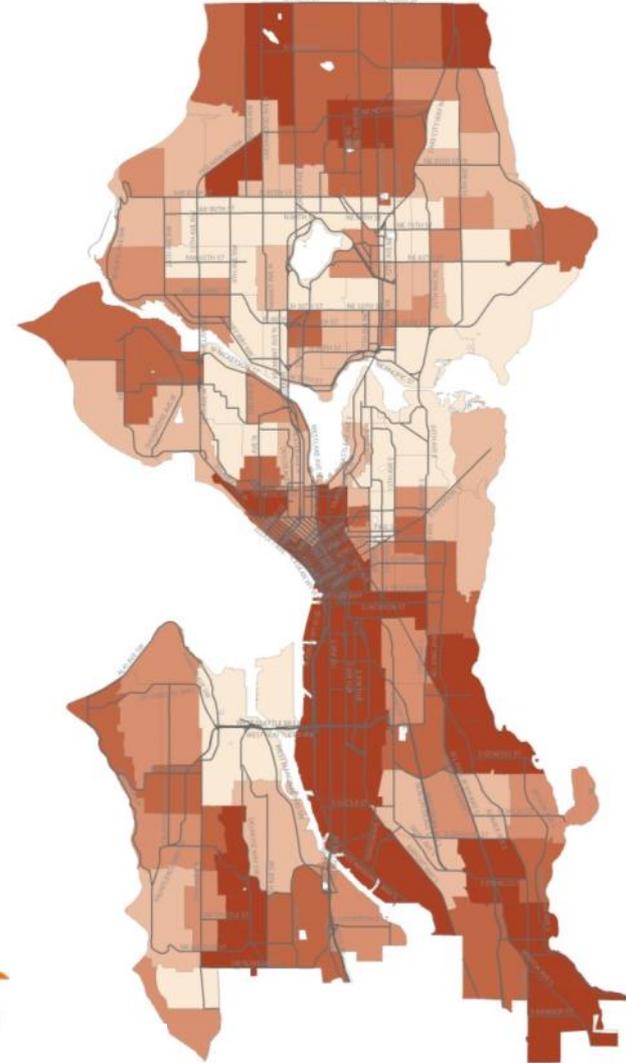
Communities of color



Low-income pop.

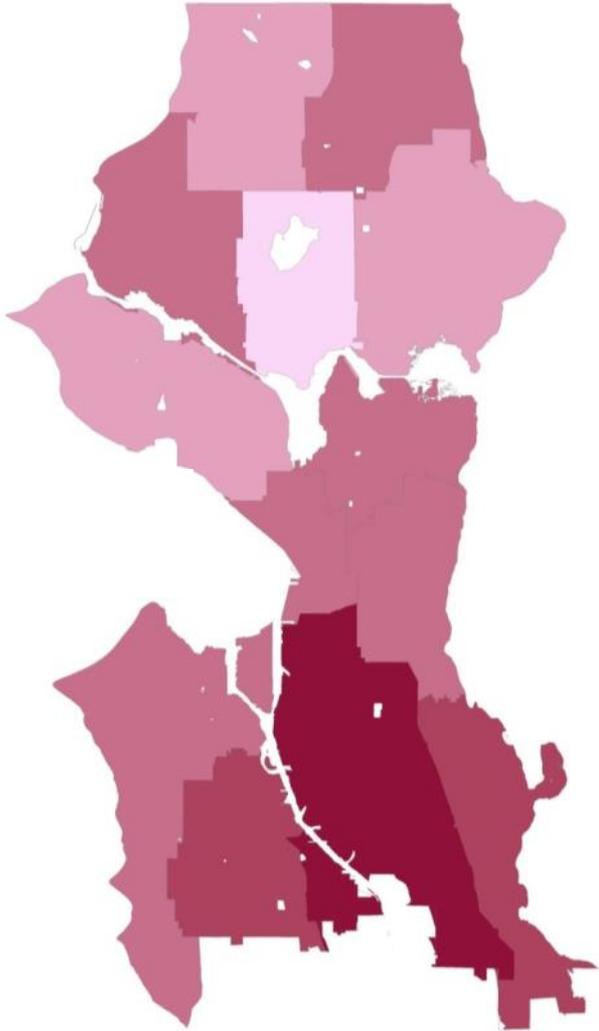


Disability pop.

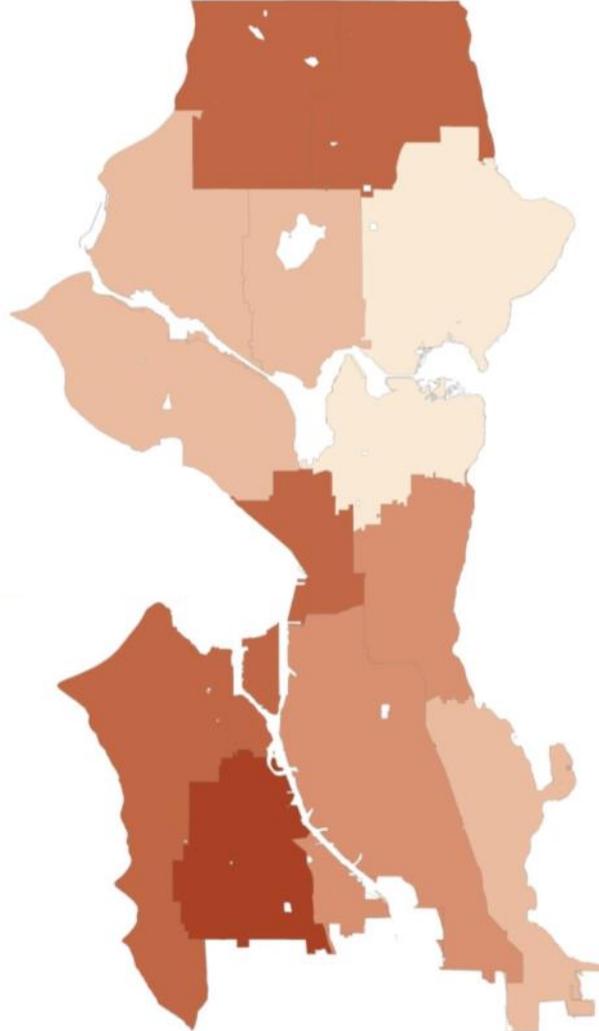


# Equity datasets included

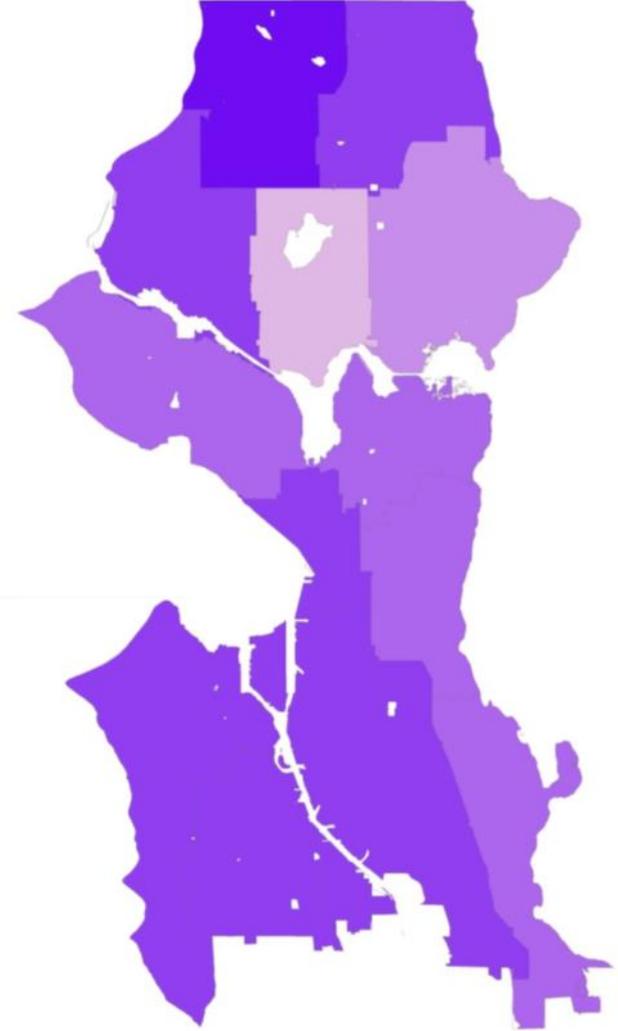
Physical activity



Obesity rate

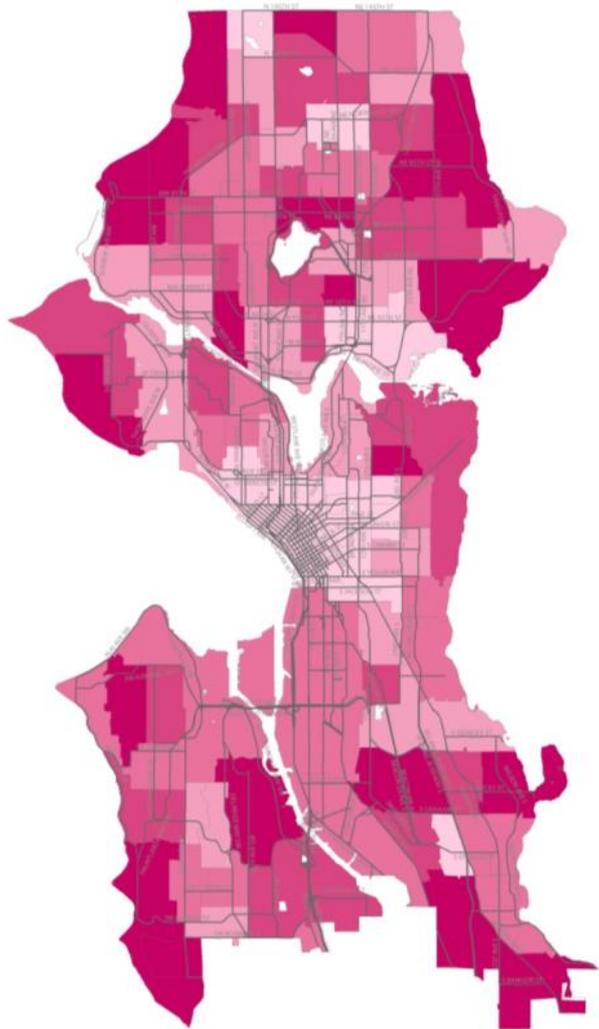


Diabetes rate

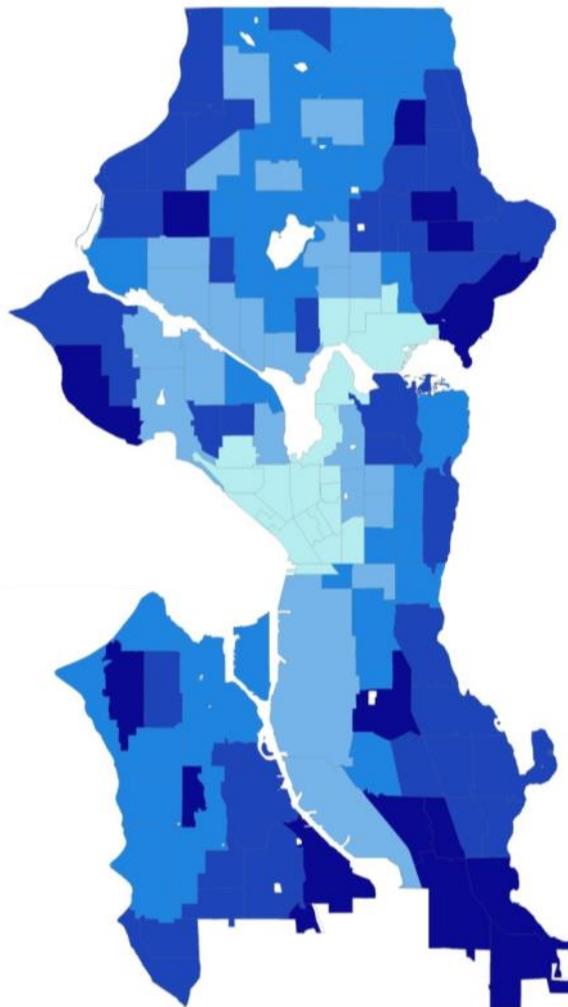


# Equity datasets not recommended

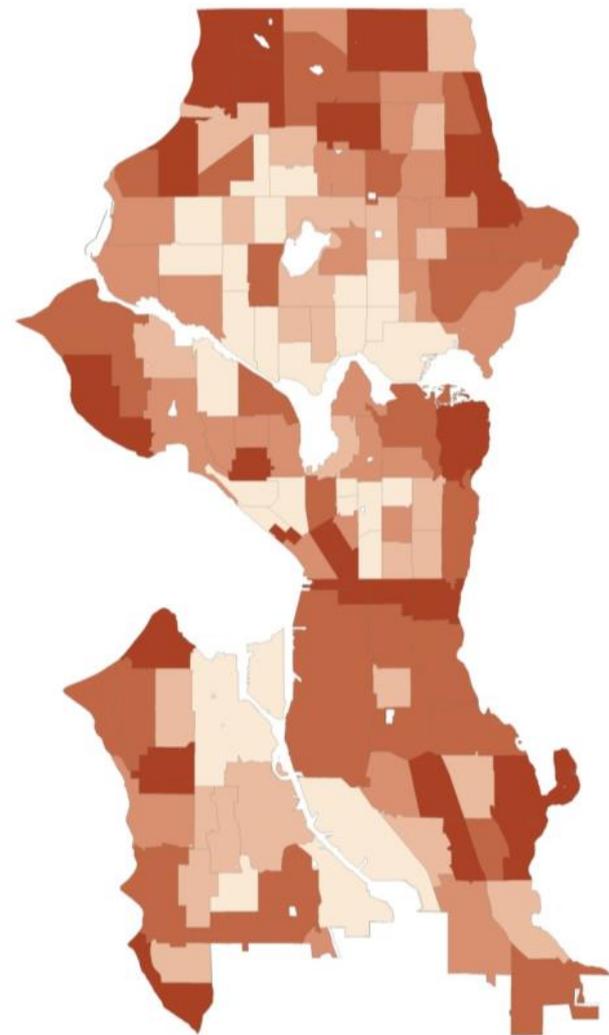
Cars / household



Under 18 pop.

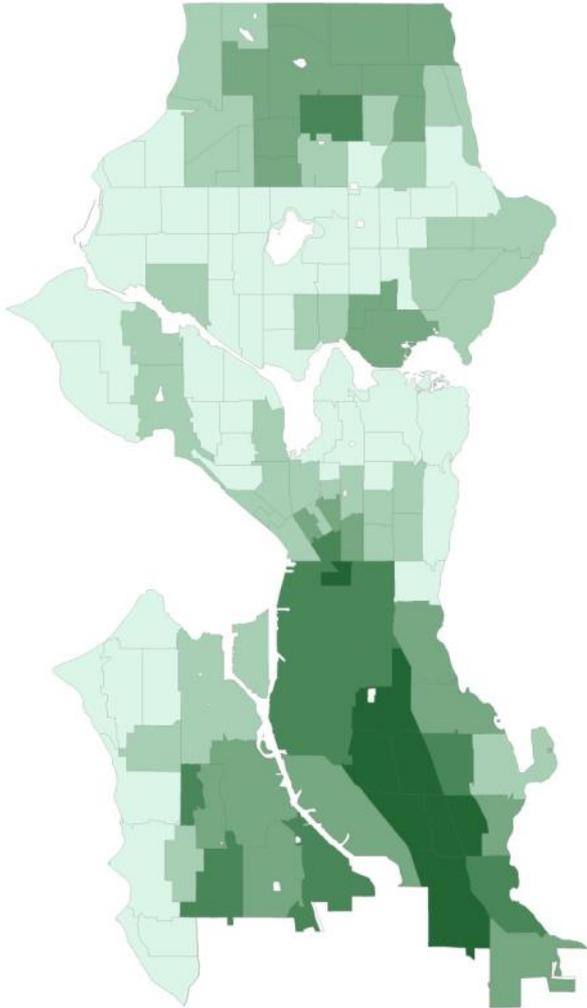


65 and older pop.

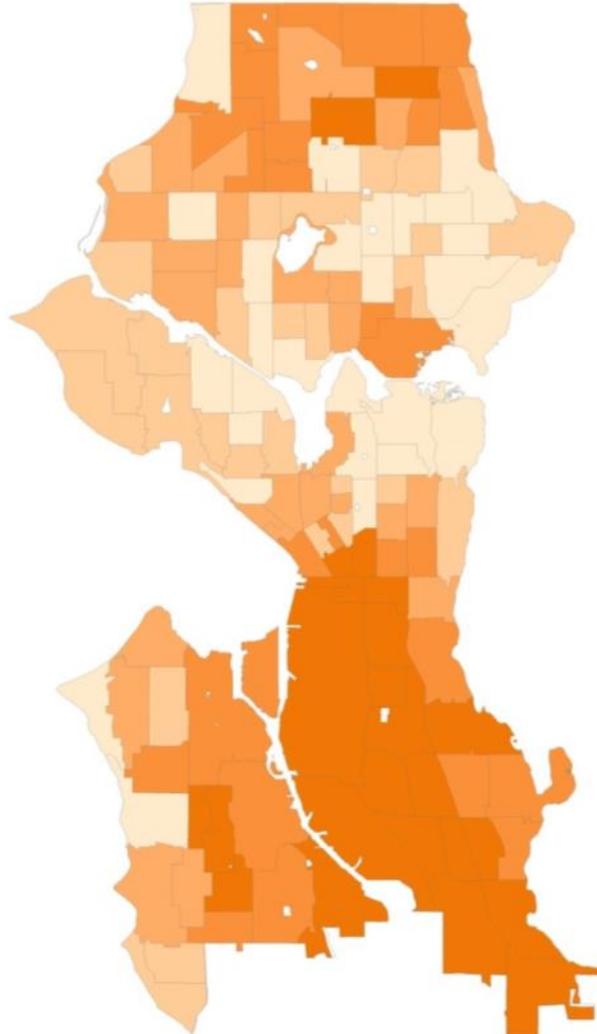


# Equity datasets not recommended

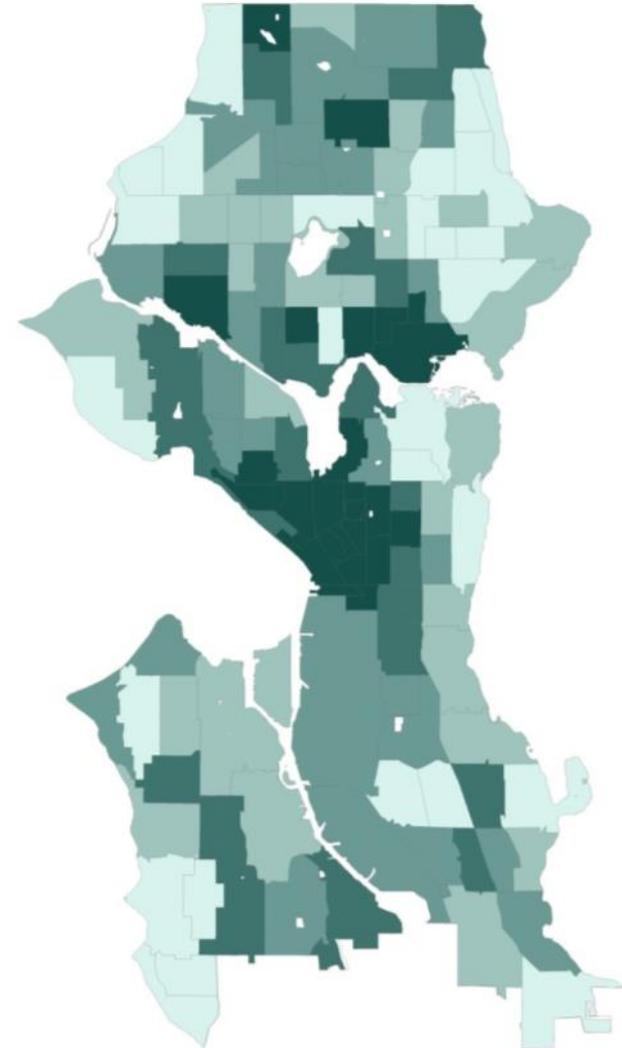
Low English speaking ability



Low educational attainment



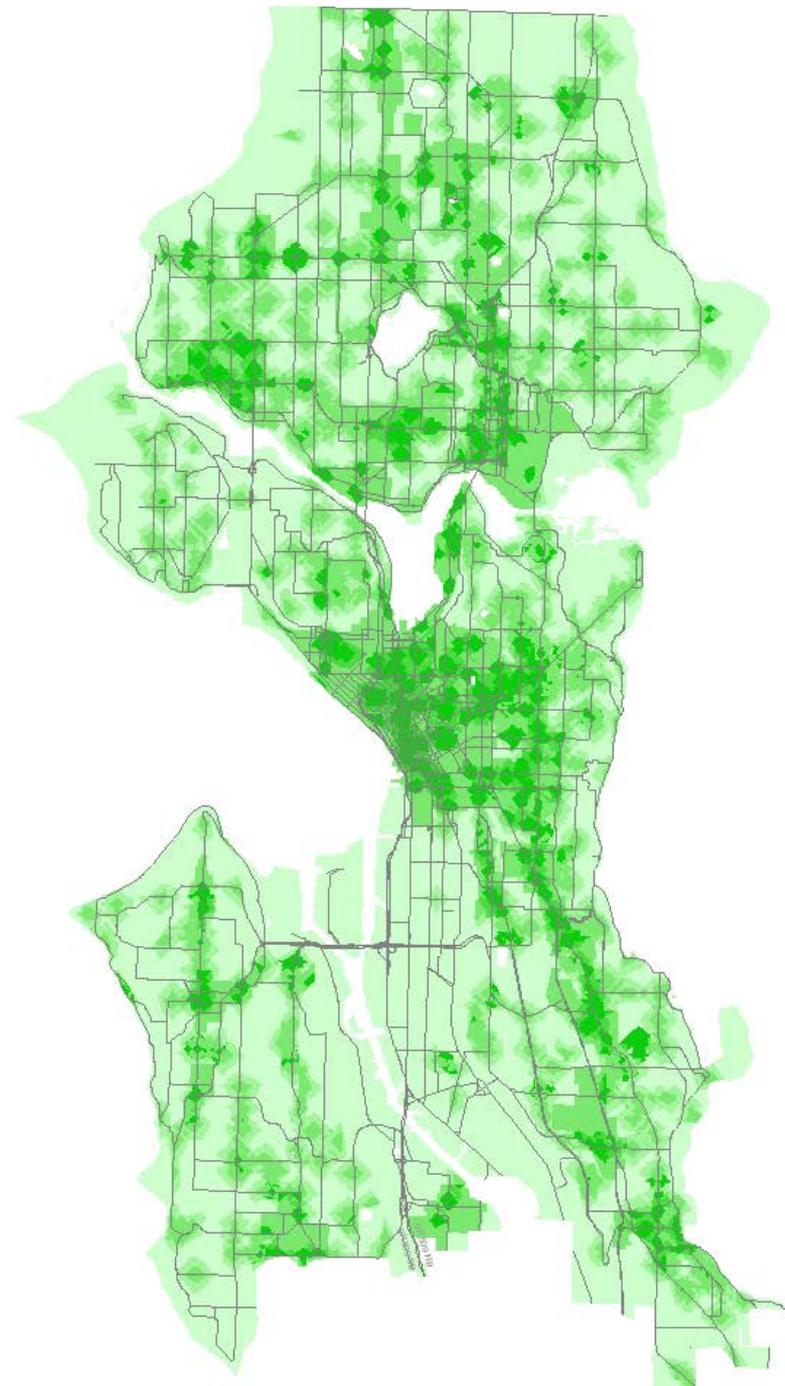
Renter occupied

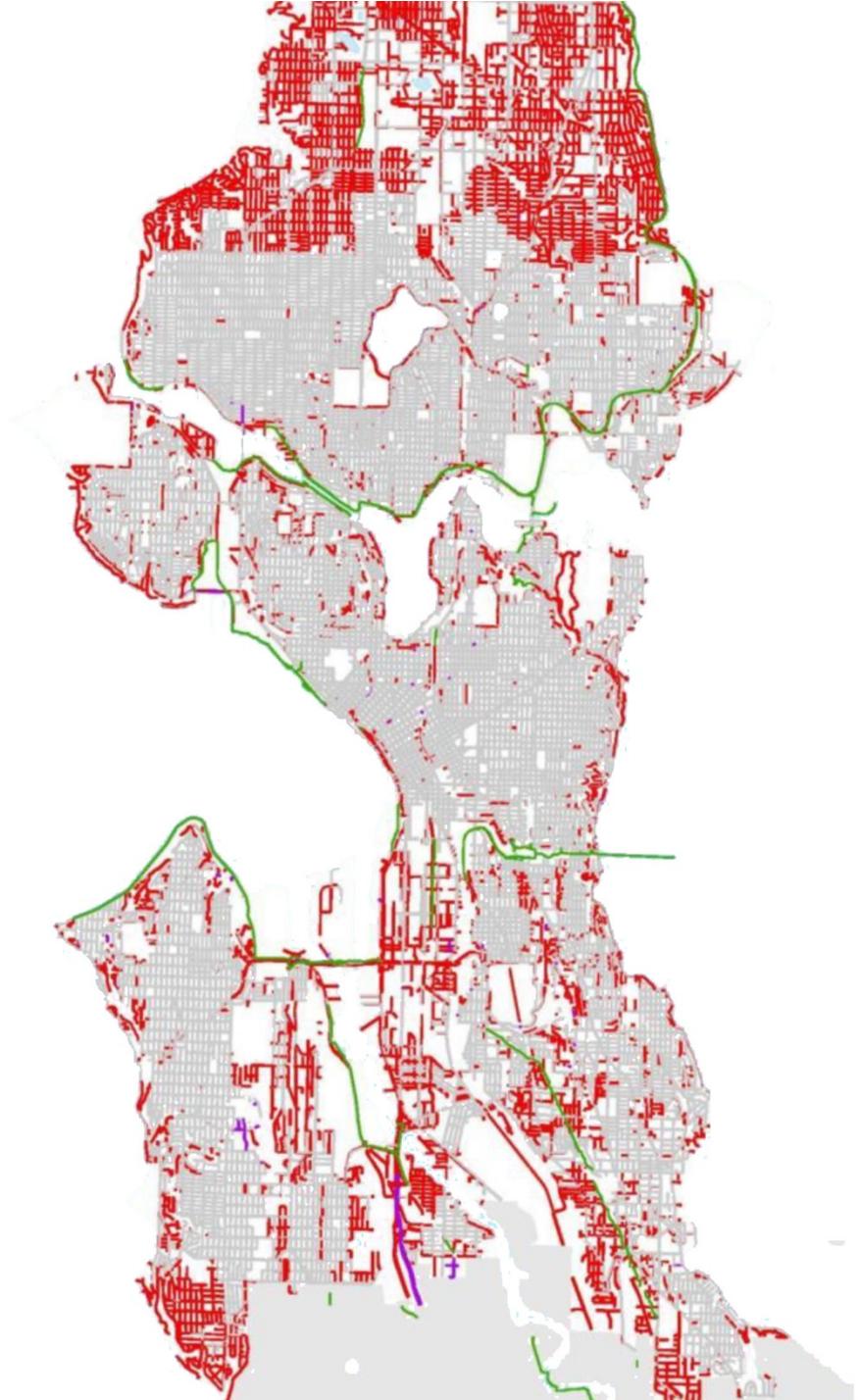
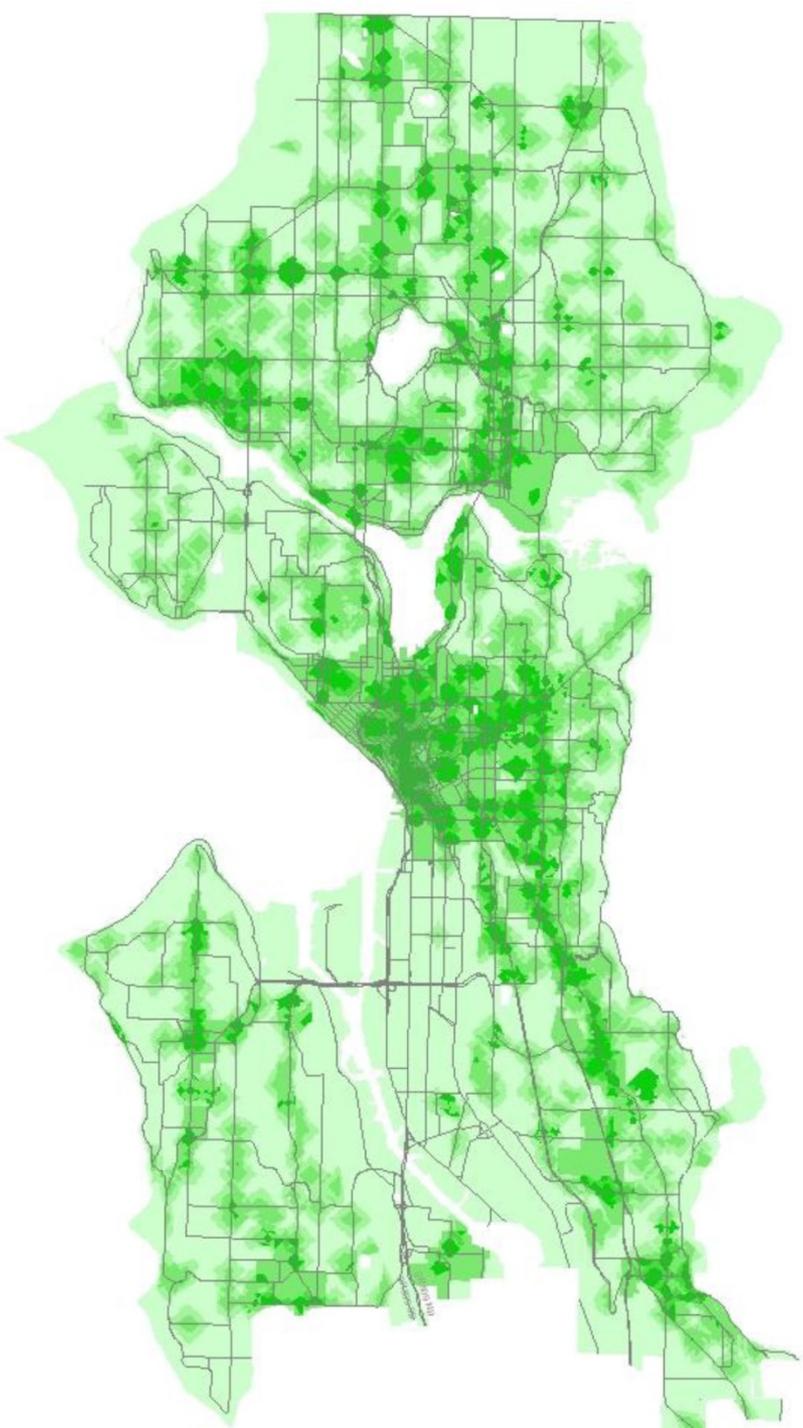


# Vibrancy (working draft)

**Vibrancy:** Develop a connected pedestrian environment that sustains healthy communities and supports a vibrant economy.

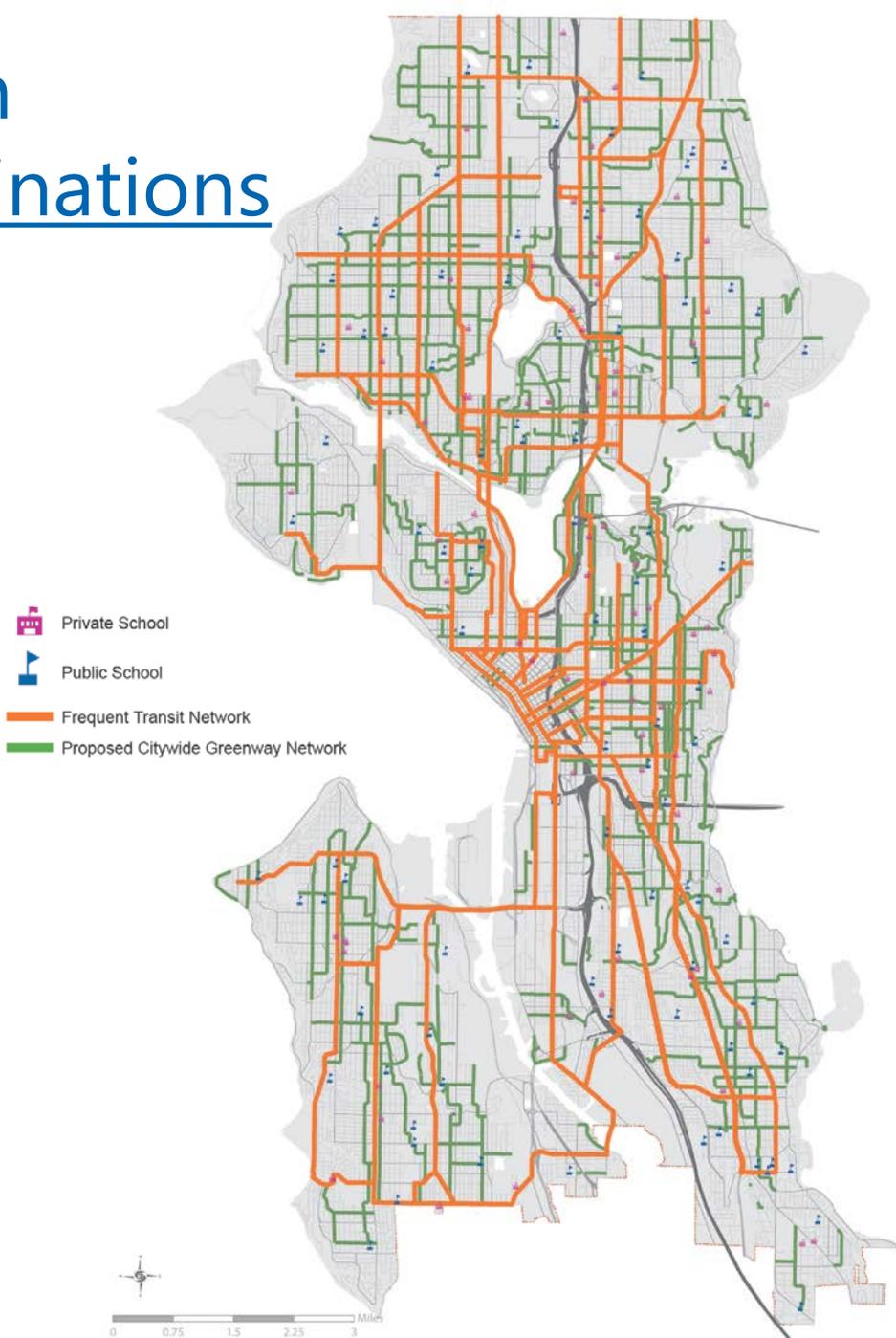
| Draft Factors  |  |
|--|--|
| Urban Villages & Urban Centers                             | Factors in job and housing growth. Urban Centers will be heavily weighted. |
| Neighborhood Commercial Zoning                             | Capture neighborhood retail destinations outside of urban villages.        |
| 10 minute walkshed to Frequent Transit Network (FTN) stops |  |
| 10 minute walkshed to parks                                |  |
| 10 minute walkshed to schools                              |  |





# Explore priority focus on connections to key destinations (schools and transit)

- Broader geographic distribution of priorities
- Sharpens priorities by focusing on key generators
- Addresses desire for system connectivity
- Underscores role of greenways in PMP



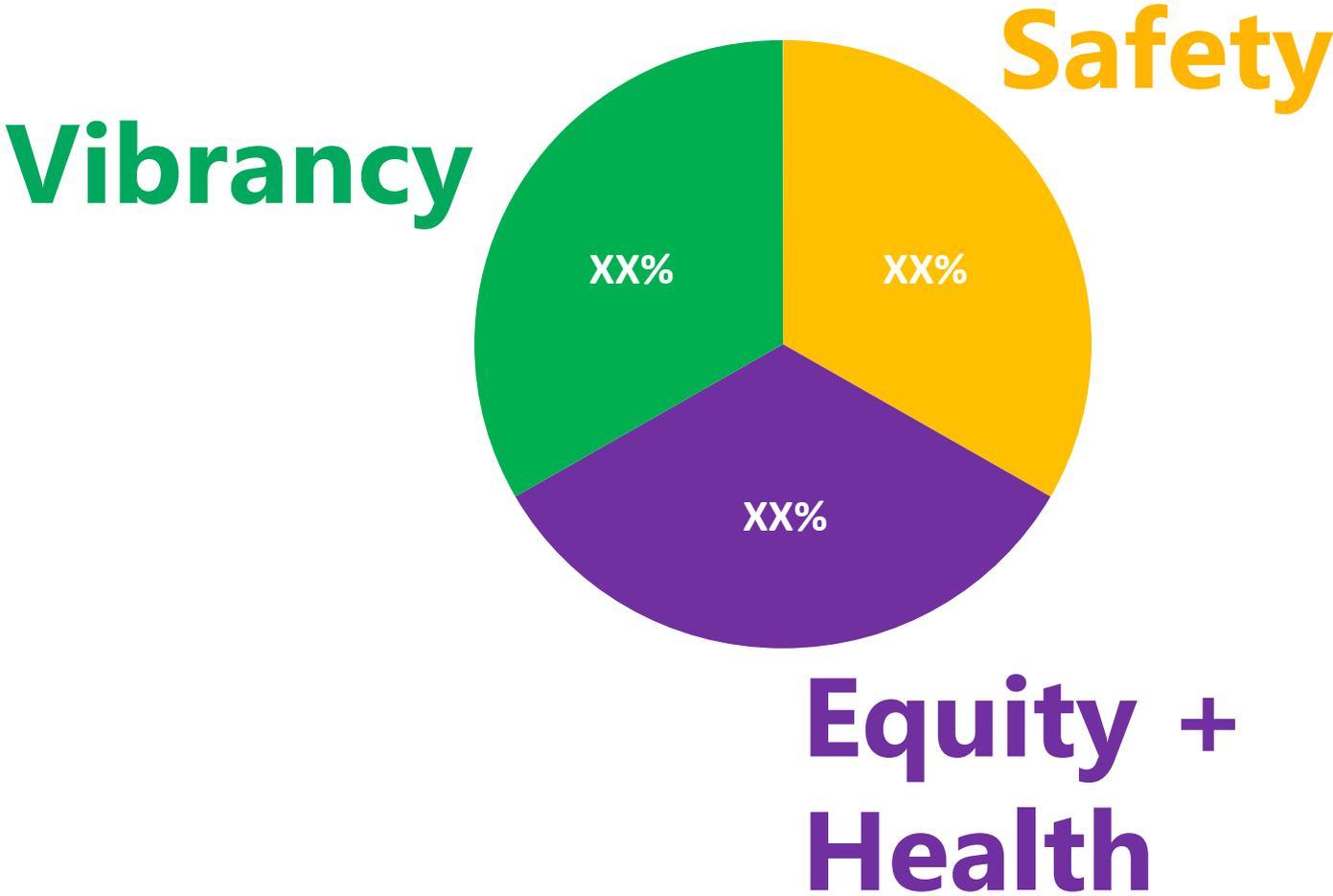
# Crossing the Roadway

| Draft Factors                                   |   |
|---|---|
| Road width                                      |   |
| Distance between traffic signals and stop signs |   |
| Crosswalk                                       |   |
| Curb ramp                                       | Update via current ADA ramp audit             |
| Signal control                                  | Refine per SDOT's Pedestrian Safety Analysis. |
| Stop sign control                               |   |
| Block length                                    |   |

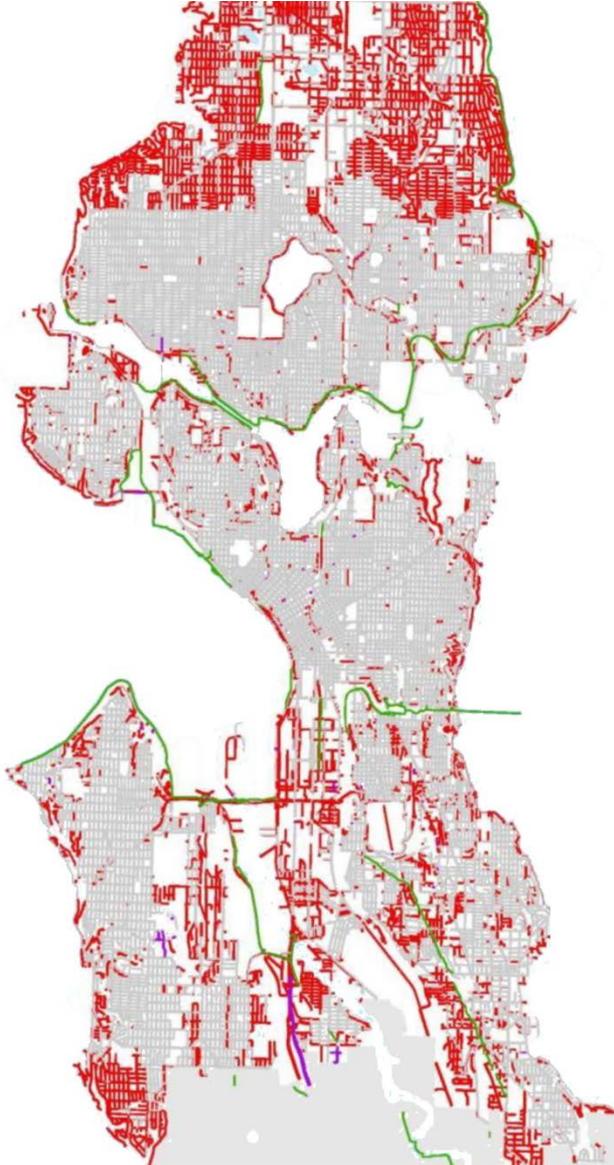
# Along the Roadway

| Draft Factors               |   |
|-----------------------------|---|
| Sidewalk status             |   |
| Curb                        |   |
| Buffer (parking, landscape) |   |
| Peak hour parking           | Differentiated, and likely higher rated, than parking. Buffer during the busiest times.   |
| Street trees                | Presence of trees as a buffer and indicator of a quality walking environment. Presence of street trees is positively correlated with walkability. To be updated when SDOT's street tree inventory is completed. |
| Alleys                      | Used as a proxy for access control, limited to alleys, rather than many driveways.  |

# Key question: How to weigh factors?



# Low-cost walking improvements



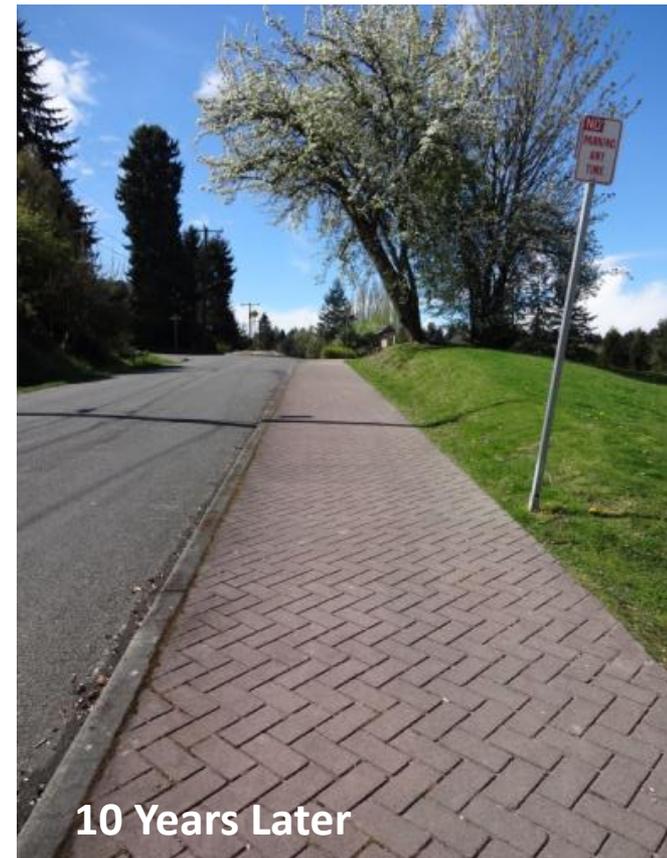
# Extruded curb with asphalt sidewalk



Before



Just After  
Construction



10 Years Later

# At-grade sidewalk separated by planter



# At-grade walking path



# Partnership opportunities



# Shared (traffic calmed) streets



# Cost comparison

| Type  | Block Cost               | Cost Savings |
|---|--------------------------|--------------|
| Traditional concrete sidewalk curb and gutter       | \$300,000                | 0%           |
| Raised planting space and at grade asphalt sidewalk | \$170,000                | 40%          |
| GSI Partnership (SDOT costs only)                   | \$300,000<br>(\$170,000) | 40%          |
| Extruded curb / asphalt sidewalk                    | \$150,000                | 50%          |
| Extruded curb over existing asphalt                 | \$50,000                 | 80%          |
| Shared streets                                      | \$50,000                 | 80%          |

## Network build out estimate

| Traditional Sidewalks | Low Cost Options |
|-----------------------|------------------|
| \$3.6 Billion         | \$1.2 Billion    |

# Questions?

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[http://www.seattle.gov/transportation/pedestrian\\_masterplan](http://www.seattle.gov/transportation/pedestrian_masterplan)

<http://www.seattle.gov/transportation>

