



Technical Subcommittee Meeting

July 8, 2022

RVAconnects.com

Agenda

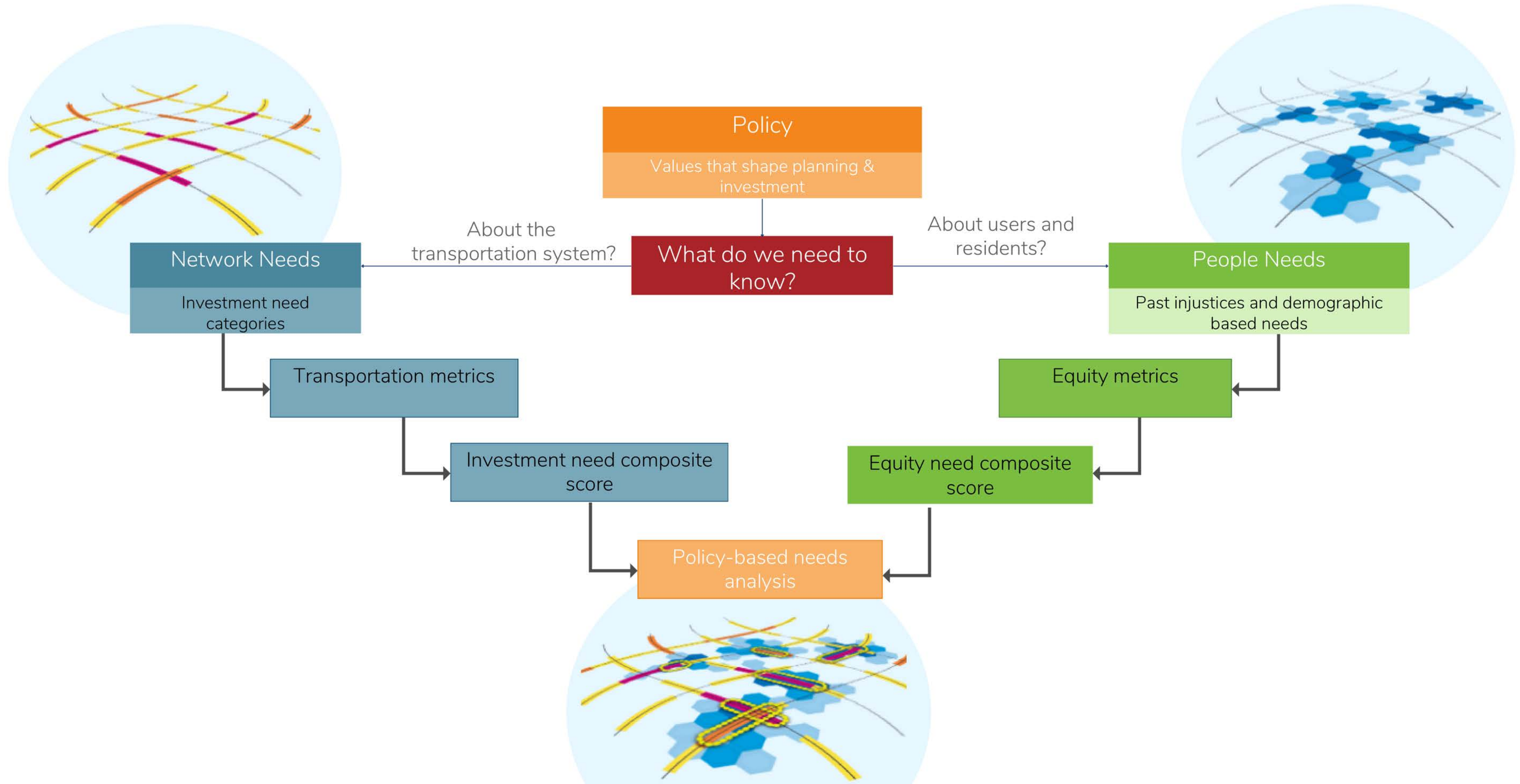
- 1 Overview of Needs Analysis Framework
- 2 Needs Analysis Methods:
Equity Factors and
Investment Need Categories
- 3 Incorporating Public Input
- 4 Next Steps

1

Overview of Needs Analysis Framework



Framework refresh...



Last meeting...



Policy
Values that shape planning & investment

What do we need to know?

Network Needs
Investment need categories

People Needs
Past injustices and demographic based needs

Transportation metrics

Equity metrics

Investment need composite score

Equity need composite score

Policy-based needs analysis



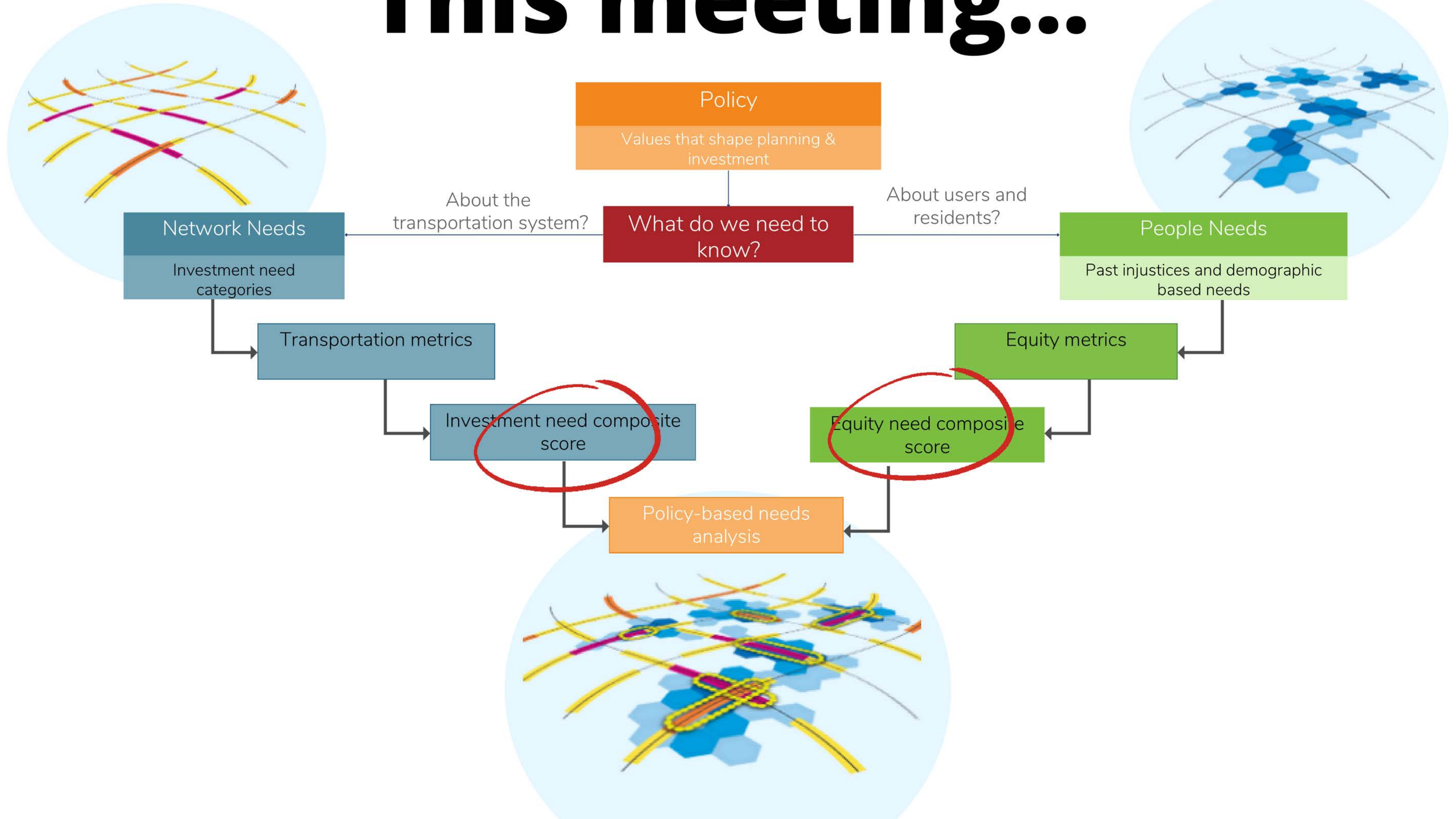
Simple Metrics
Transit access to jobs
Transit access to essential services (education, health care, healthy food, shopping, etc.)
Transit reliability/on-time performance
Transit service frequency
Transit stop accessibility
Transit amenities locations
Transit trip-making

About the transportation system?

About users and residents?



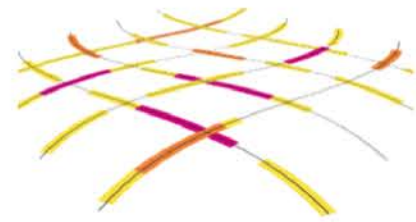
This meeting...



Ultimate Outcome

11 Integrated Needs Maps by Investment Need Category

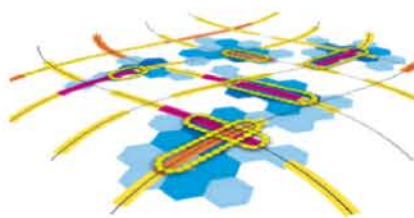
11 Investment
Need Category
Composite Maps



10 Equity Factor
Composite Maps



11 INC * 10 EFs = 11
integrated Maps

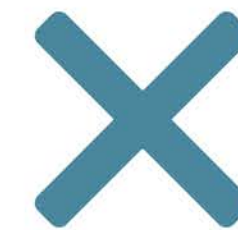


Simplify and pull out segments where top needs are located, lose background noise and present as 11 integrated needs maps

Ultimate Outcome

11 Integrated Needs Maps by Investment Need Category
enriched with significance from Equity Factor Composite Maps

Investment need categories	
Pedestrian	
Bike	
Transit	
Freight	
Land Use	
Safety	
Connectivity	
Maintenance	
Economic Development	
Technology	
Sustainability	



Ultimate Outcome

11 Integrated Needs Maps by Investment Need Category



These maps will
reveal the needs:

What?

Where?

Who is
impacted?

Interactive Map

for further exploration of the analysis results



Draft Interface Mock-Up

View

Streets | **Neighborhoods**

Humans

Everyone | **Communities of Concern**

BIPOC population

Low-income households

Population over 65

Disabled residents

Households with children

At-risk youth

Zero-car households / average vehicles owned per person

Issues

Accessibility

Where do we need to create new connections?

Where do we lack relevant destinations?

Security

Community-defined needs

Network

Walk | Bike | Transit | Freight | Safety

Policy

Improve access to housing, jobs, services, recreation, and education, addressing remaining inequities created by redlining.

Leaflet | Tiles © Esri — Source: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2012

The analysis will reveal different facets of the needs:

Why is there a need here?

- low accessibility - you can't get to enough stuff
- low quality facilities
- gaps in connectivity
- irrelevant destinations
- unreliable
- unsafe
- highly utilized
- communities of concern
- public input identified a need
- other policy considerations (Nodes, Great Streets)

Based on:

- Accessibility analysis
- Incident locations
- Population density
- Population characteristics
- Usage data
- Policies
- Other data and metrics (see memo)


2

Needs Analysis Methods: Equity Factors and Investment Need Categories

*Pick one Equity Factor or Investment
Need Category you most want to discuss*



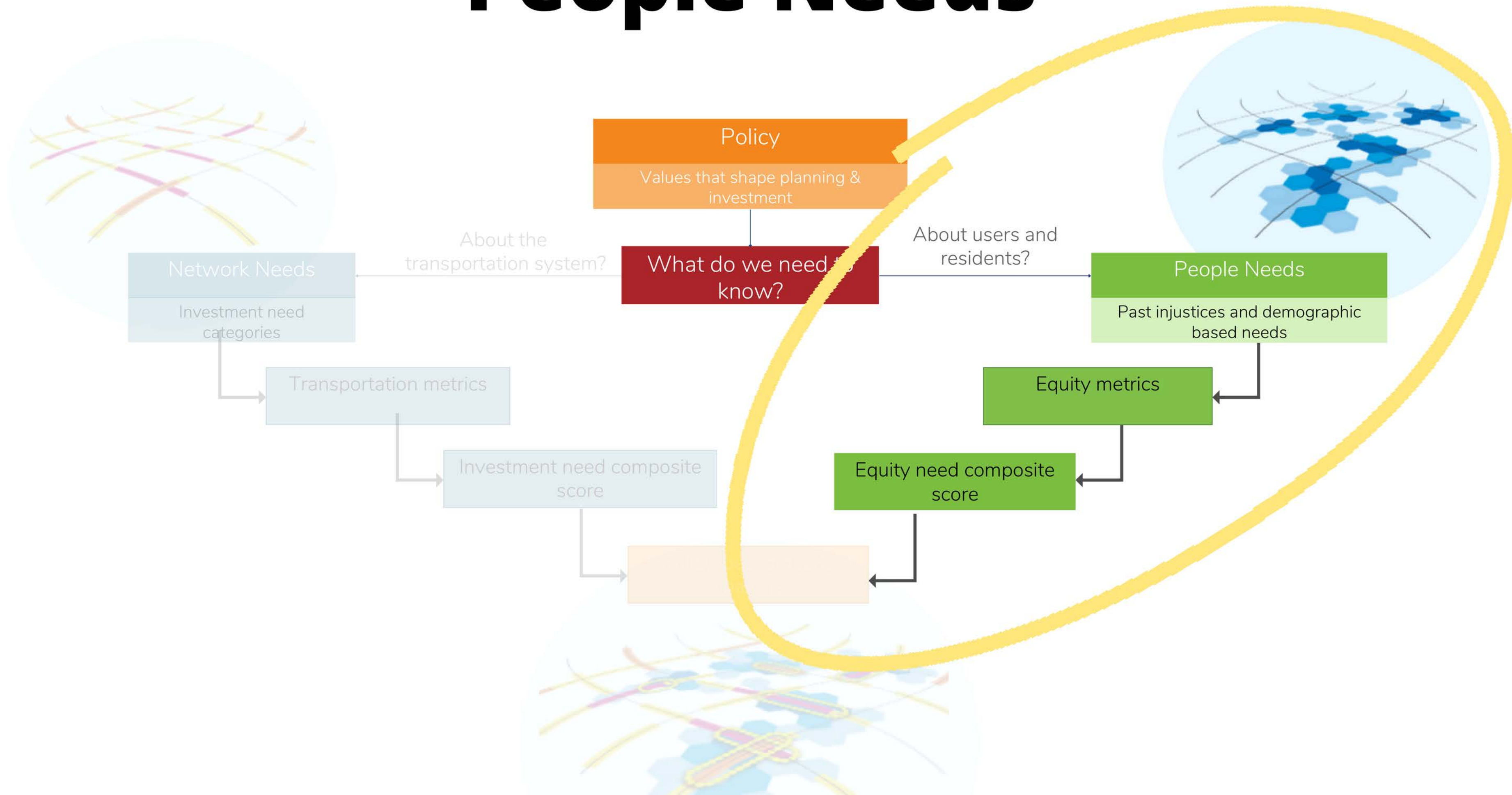
Pick one Equity Factor or Investment Need Category you most want to discuss

Investment need categories	
Pedestrian	
Bike	
Transit	
Freight	
Land Use	
Safety	
Connectivity	
Maintenance	
Economic Development	
Technology	
Sustainability	

Equity Factors

- 1 Improve access to housing, jobs, services, recreation, and education, addressing remaining inequities created by **redlining**.
- 2 Reconnect and revitalize communities to address inequities created by the **highway system's dissection of neighborhoods**.
- 3 Improve neighborhood connectivity and revitalize the fabric of the communities negatively impacted by **urban renewal**.
- 4 Improve access to housing, jobs, services, and education to address the **isolation of low-income inner ring suburbs** where families are pushed.
- 5 Address gaps in the multimodal network and utilize new planning tools to improve safety and accessibility deficiencies stemming from **traditional car-centric planning**.
- 6 Equitably increase the safety and comfort of **cyclists and pedestrians**, connecting communities of concern to opportunities.
- 7 Improve reliability of **transit** and other non-car services to increase access and remove barriers to opportunities for communities of concern.
- 8 Prioritize the needs of socially vulnerable users and address **climate and environmental equity** as identified in RVA Green 2050.
- 9 Prioritize densely populated areas of **communities of concern** including communities of color, low-income communities, senior and limited mobility populations, families traveling with children, and at-risk youth.
- 10 Focus on improving **climate resiliency** for the most impacted communities.

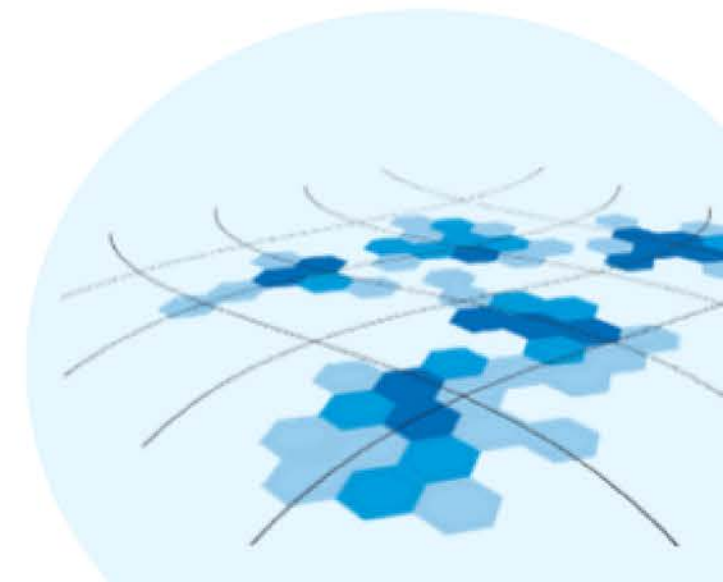
People Needs





Equity Factor 1: Improve access to housing, jobs, services, recreation, and education, addressing remaining inequities created by redlining.

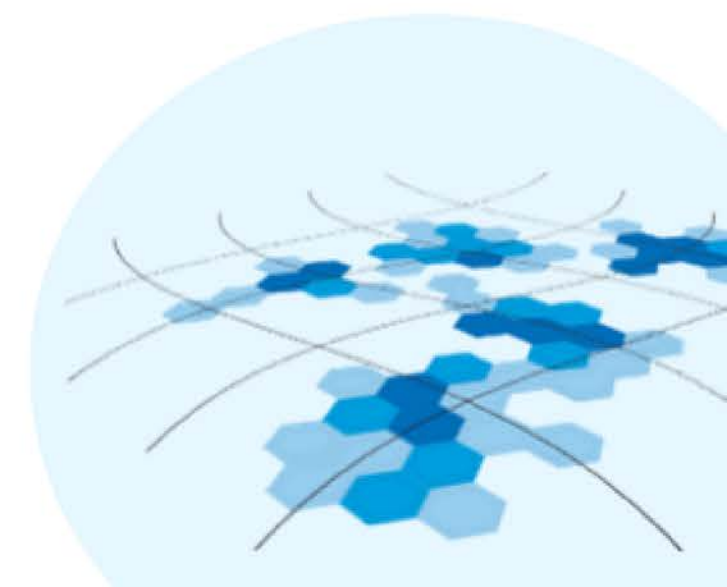
Areas highlighted for EF1 are those that were **redlined** and still have **high concentrations of low income and BIPOC populations and low rates of BIPOC home ownership** AND where **accessibility to jobs, services, recreation, and education by the walk, bike, or transit modes is underperforming**. Accessibility may underperform due to quality of service, connectivity, destination relevance/land use factors.

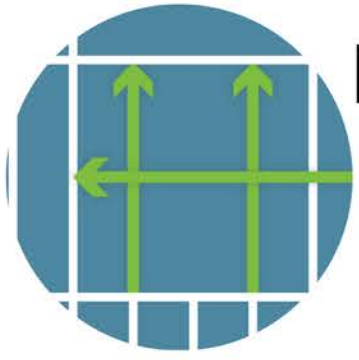




Equity Factor 2: Reconnect and revitalize communities to address inequities created by the highway system's dissection of neighborhoods.

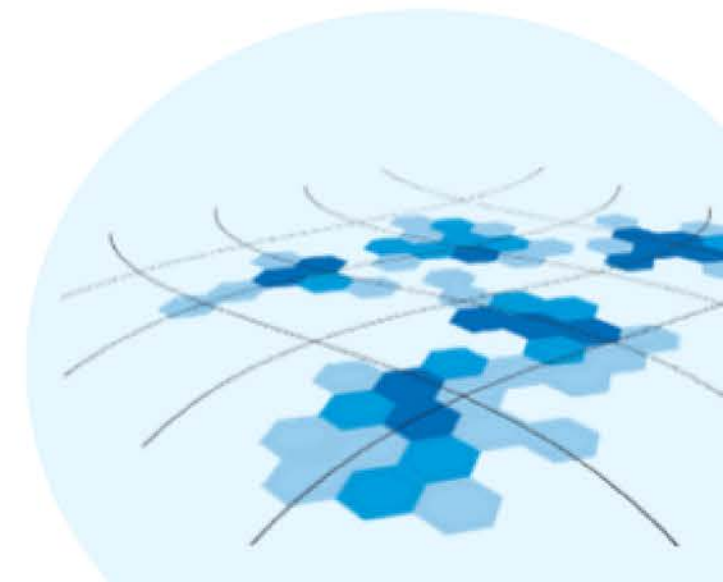
Areas highlighted for EF2 are those that were **dissected by highway construction** and have **high concentrations of low income and BIPOC populations** and **low rates of BIPOC home ownership** AND where **connectivity to jobs, services, recreation, and education by the walk, bike, and transit modes is degrading accessibility.**





Equity Factor 3: Improve neighborhood connectivity and revitalize the fabric of the communities negatively impacted by urban renewal.

Areas highlighted for EF3 are those that were **affected by urban renewal projects** and have **high concentrations of low income and BIPOC populations** and **low rates of BIPOC home ownership** AND where connectivity to jobs, services, recreation, and education by the walk, bike, and transit modes and transit modes is degrading accessibility.





Equity Factor 4: Improve access to housing, jobs, services, and education to address the isolation of low-income inner ring suburbs where families are pushed.

Areas highlighted for EF4 are **inner ring suburbs** AND where **accessibility** is underperforming in providing connections to jobs, services, recreation, and education by the walk, bike, and transit modes.

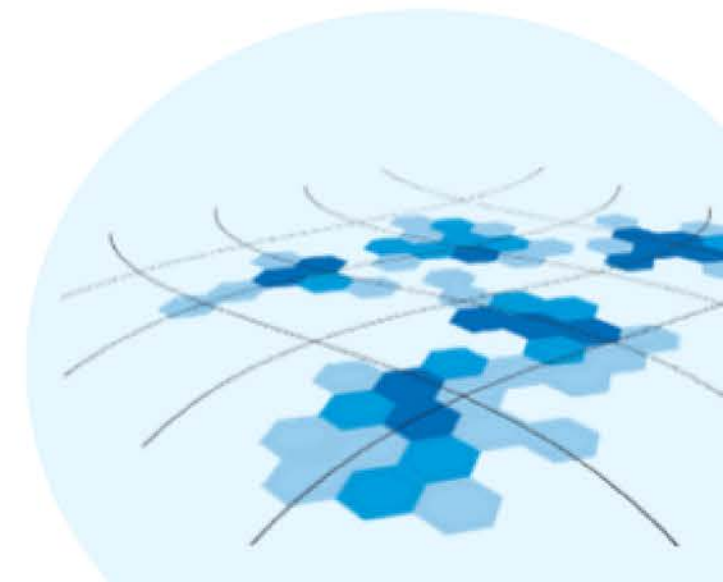
Accessibility may underperform due to quality of service, connectivity, destination relevance/land use factors.





Equity Factor 5: Address gaps in the multimodal network and utilize new planning tools to improve safety and accessibility deficiencies stemming from traditional car-centric planning.

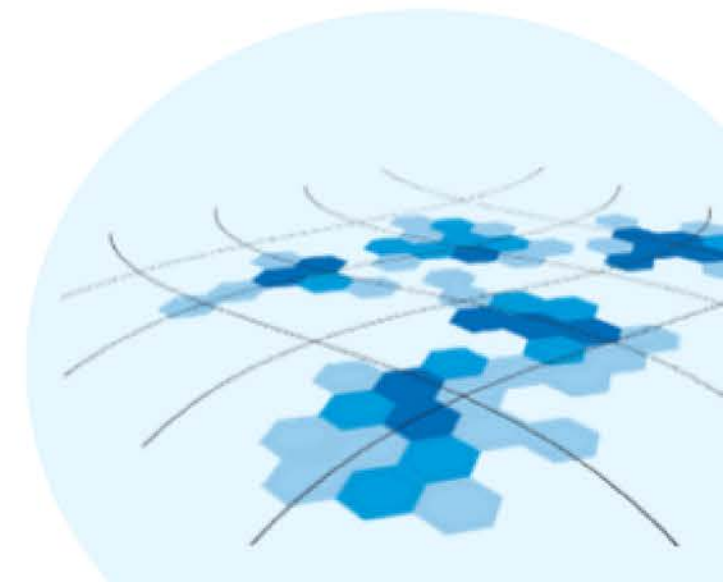
Areas highlighted for EF5 are those where **accessibility is underperforming** due to **poor network quality** (facility gaps, low quality of service, etc.) OR where **safety issues are concentrated AND a significant proportion of non-auto travelers must use high-speed multilane facilities to reach destinations** (due to a lack of redundant connectivity) **AND building setbacks are large and/or buildings face high-speed multi-lane facilities.**





Equity Factor 6: Equitably increase the safety and comfort of cyclists and pedestrians, connecting communities of concern to opportunities.

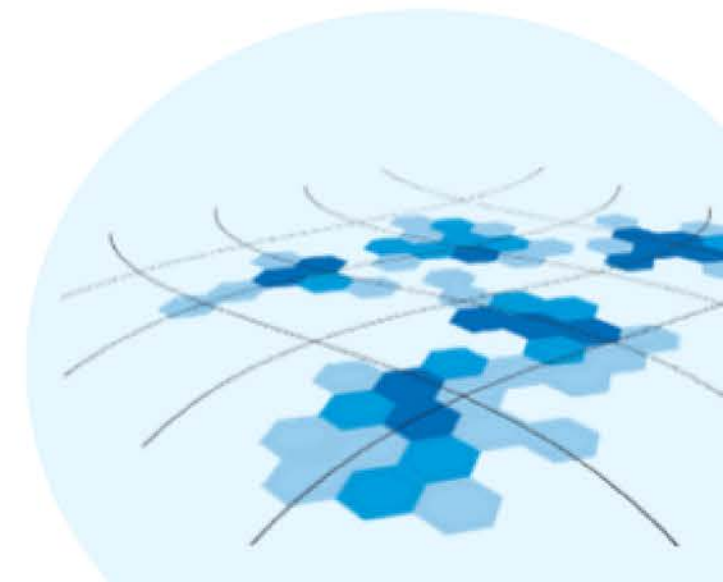
Areas highlighted for EF6 are those where **safety/security** issues for bike/ped users are concentrated OR **accessibility** is underperforming due to poor network quality or poor connectivity AND where there is a **high density of residents in communities of concern**





Equity Factor 7: Improve reliability of transit and other non-car services to increase access and remove barriers to opportunities for communities of concern.

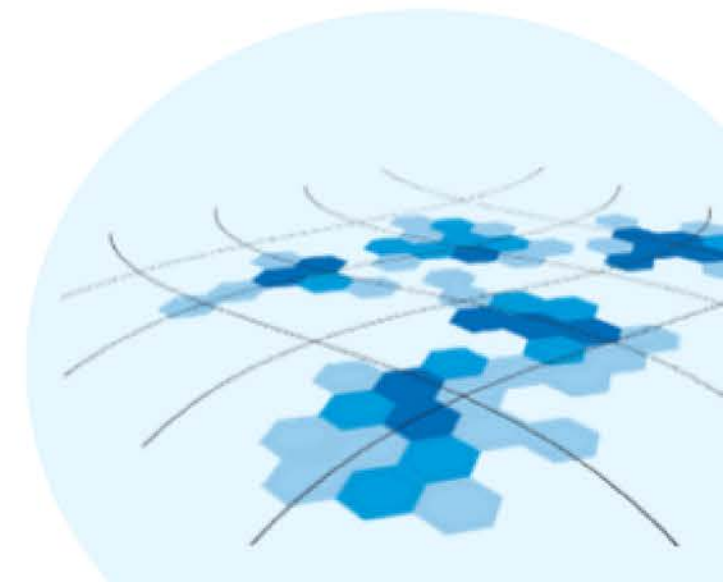
Areas highlighted for EF7 are those where transit service frequency or reliability issues degrade access for destinations relevant to Communities of Concern OR walk access to transit stops degrades access where there is a high density of communities of concern.





Equity Factor 8: Prioritize the needs of socially vulnerable users and address climate and environmental equity as identified in RVAGreen 2050.

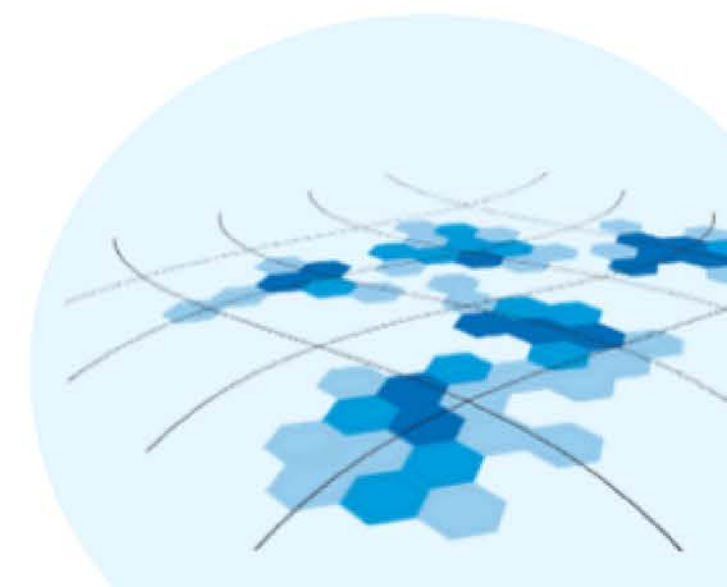
Areas highlighted for EF8 are those where there is a **high density of residents in communities of concern** and **exposure to adverse impacts of climate change**.





Equity Factor 9: Prioritize densely populated areas of communities of concern including communities of color, low-income communities, senior and limited mobility populations, families traveling with children, and at-risk youth.

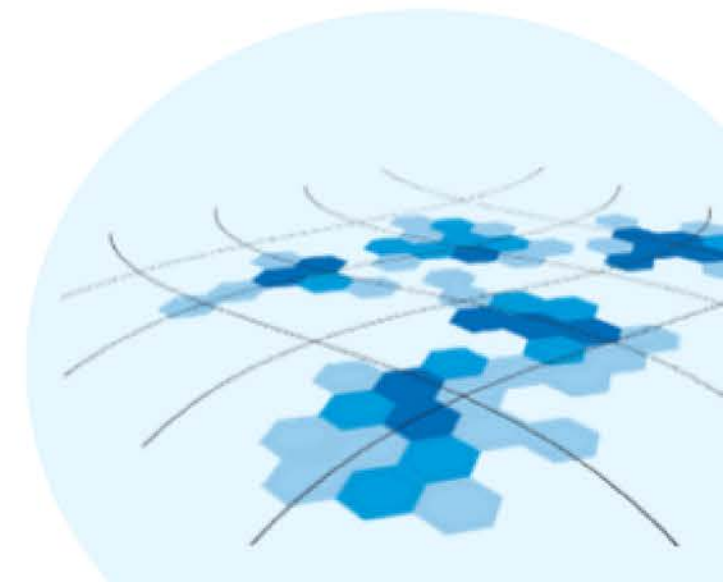
Areas highlighted for EF9 are those that **have high densities of low income, BIPOC, senior, limited mobility populations or high densities of households with children or high densities of youth (17 and younger).**



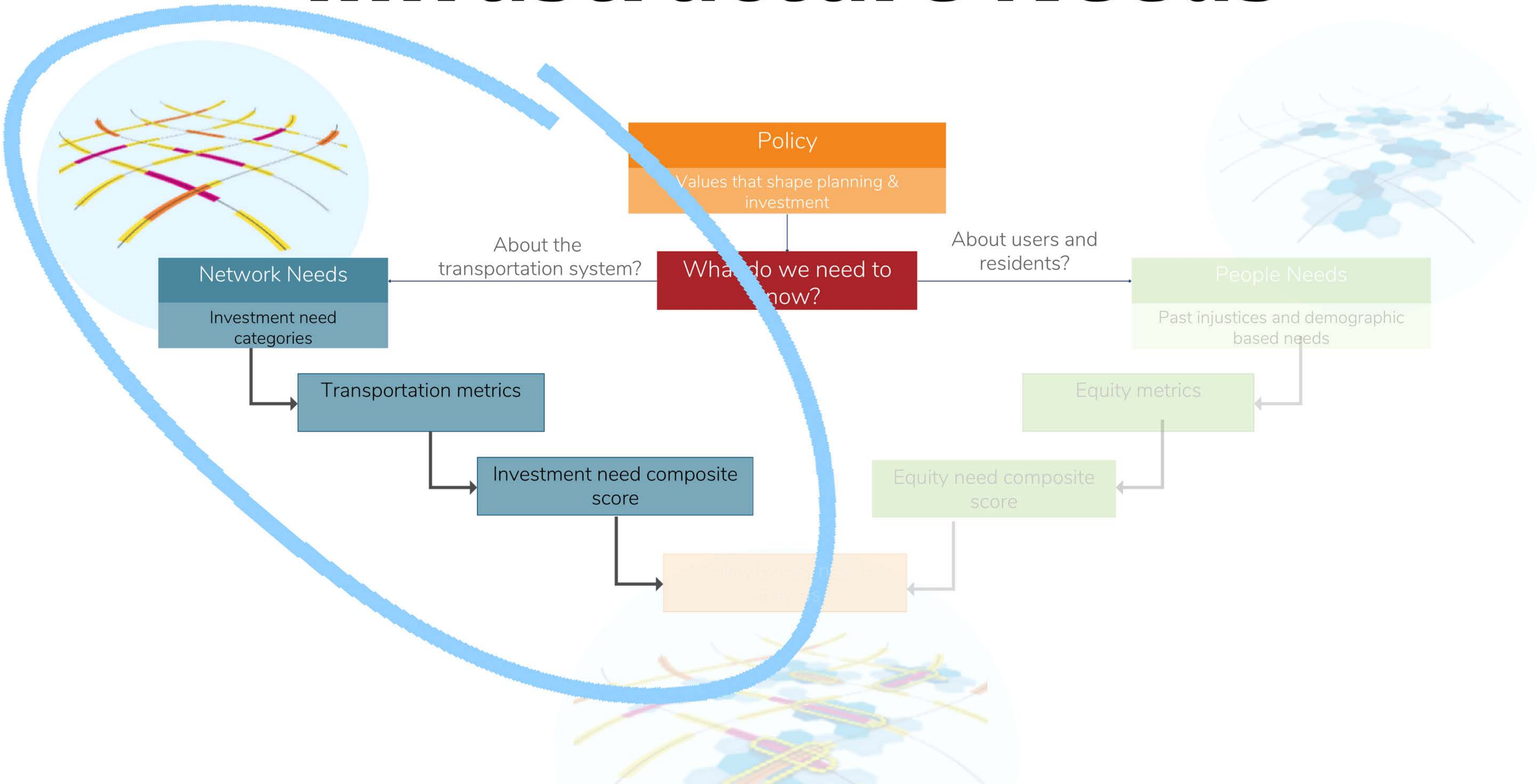


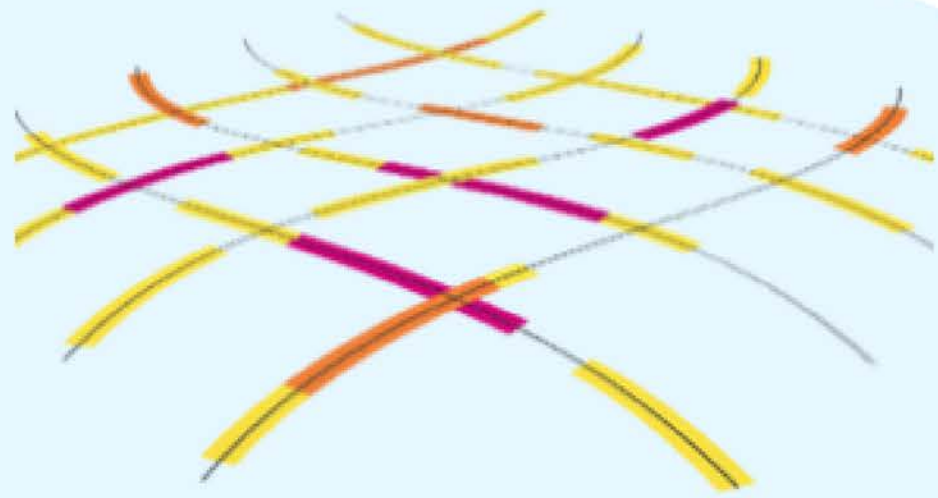
Equity Factor 10: Focus on improving climate resiliency for the most impacted communities.

Areas highlighted for EF are those where there is **a high density of residents in communities of concern** AND where **facilities are vulnerable to disruption** due to climate change.



Infrastructure Needs





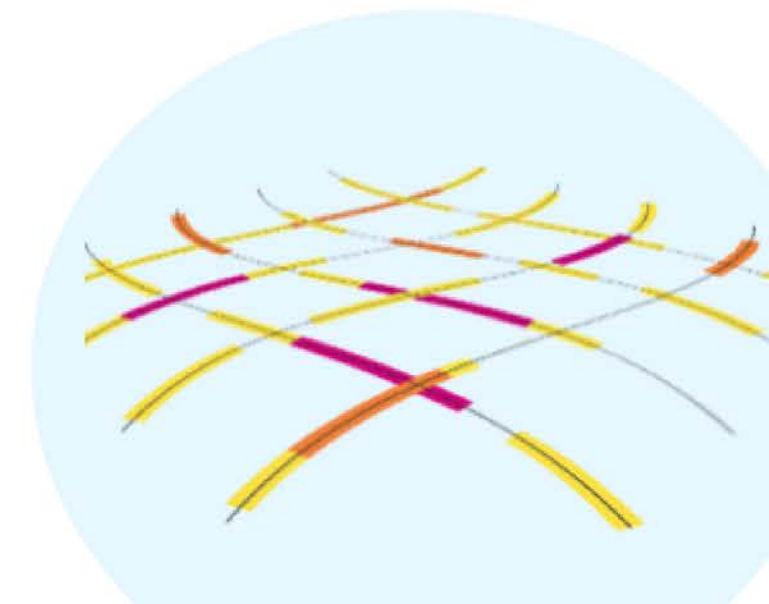
**Complete
Streets Policy**

1. Where is access/the network underperforming?
2. How important is the place / facility?
3. What qualitative concerns apply?



Investment Need Category 1A: Bicycle

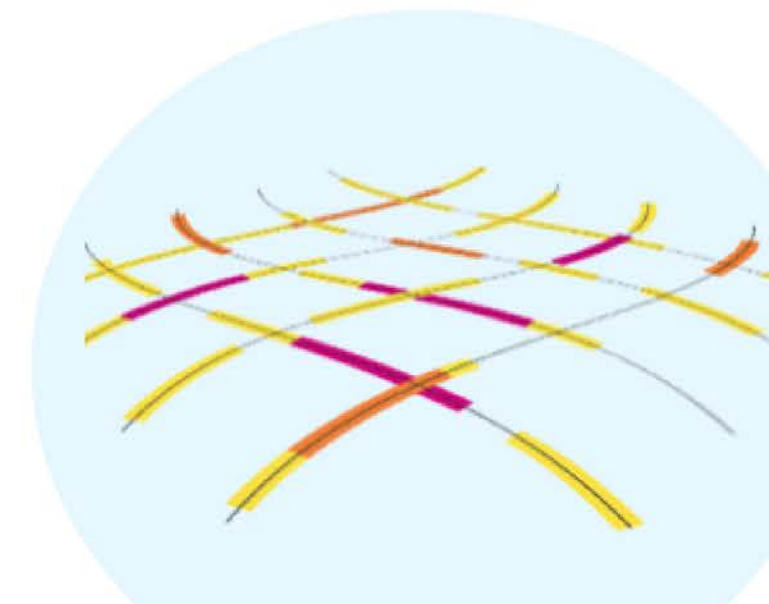
A bicycle need is revealed where access is significantly degraded by the absence of bicycle facilities or the presence of low-quality facilities, or where bike-share facilities are beyond a short walking distance, , with less tolerance for poor/underperforming accessibility in R300 Nodes and along Great Streets.





Investment Need Category 1B: Pedestrian

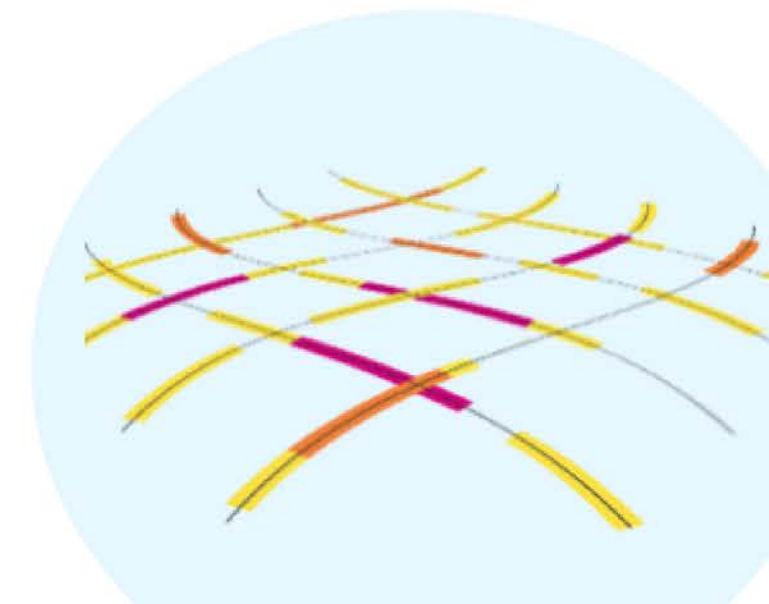
A pedestrian need is revealed where access is significantly degraded by the absence of pedestrian facilities or the presence of low-quality facilities, with less tolerance for poor/underperforming accessibility in R300 Nodes and along Great Streets.





Investment Need Category 2: Transit

A transit need is revealed where access is significantly degraded by the absence of transit service or inadequate span of frequent service (Off-peak service hours) or unreliable service or inaccessible/uncomfortable stops, with less tolerance for poor/underperforming accessibility in R300 Nodes and along Great Streets.





Investment Need Category 3: Freight

A freight need is revealed where access from freight generators to interregional facilities is degraded by bottlenecks/delay, lack or redundancy, or narrow last-mile connectors or modal conflicts/safety within industrial or industrial/mixed use areas, with more tolerance for poor/underperforming accessibility in R300

Nodes and along Great Streets

OR

along segments in zones with high rates of commercial vehicle trip generation and limited curb space or adequate alley/rear loading zone space.

OR

where there is no intermodal (rail, port) facility within X miles of zoned industrial areas.





Investment Need Category 4: Land Use

A land use need is revealed where access to competitive relevant destinations (by travel purpose – jobs, shopping, school, health care, recreation, social, crisis) by non-auto modes is inadequate or significantly lower than access to all destinations, with less tolerance for poor/underperforming accessibility in R300 Nodes.

OR

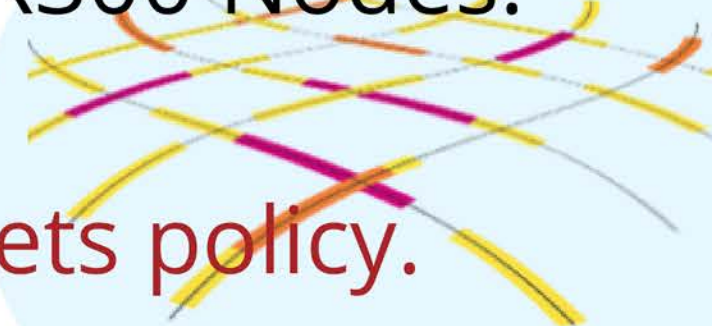
Where the minimum walk time to quality open space exceeds 10 minutes.

OR

Where a significant (X%) proportion of land area is devoted to surface parking with less tolerance for high proportions of surface parking areas in R300 Nodes.

or

Where a great street is underdeveloped to support complete streets policy.





Investment Need Category 5: Safety

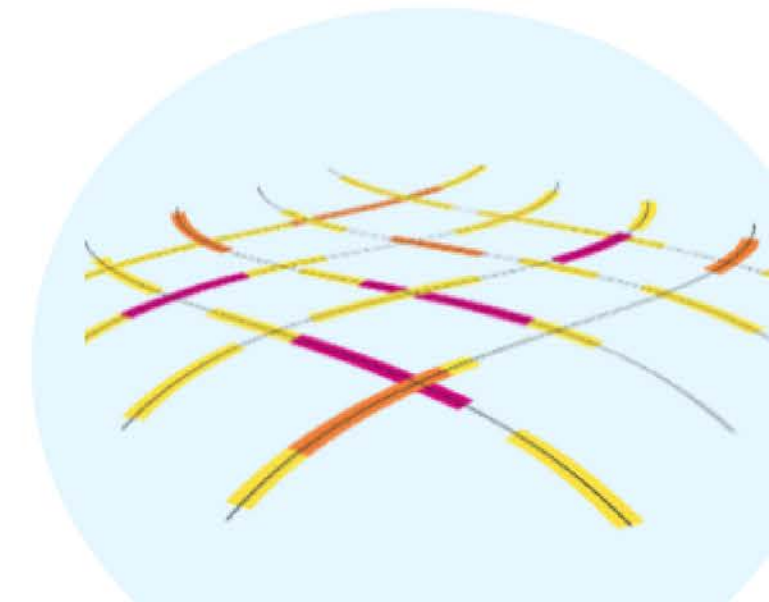
A safety need is revealed where vehicular crash rates are high or bike/ped crash rates are high or the share of crashes leading to fatality or serious injury is high (high injury street network).

OR

where bike and pedestrian crash rates are high, posted speeds are above 25 MPH, and existing bike lanes or pedestrian facilities are unprotected.

OR

in highly walkable (high accessibility) areas with moderate concentrations of violent crime incidents or high concentrations of property crime incidents and low lighting.





Investment Need Category 6: Connectivity

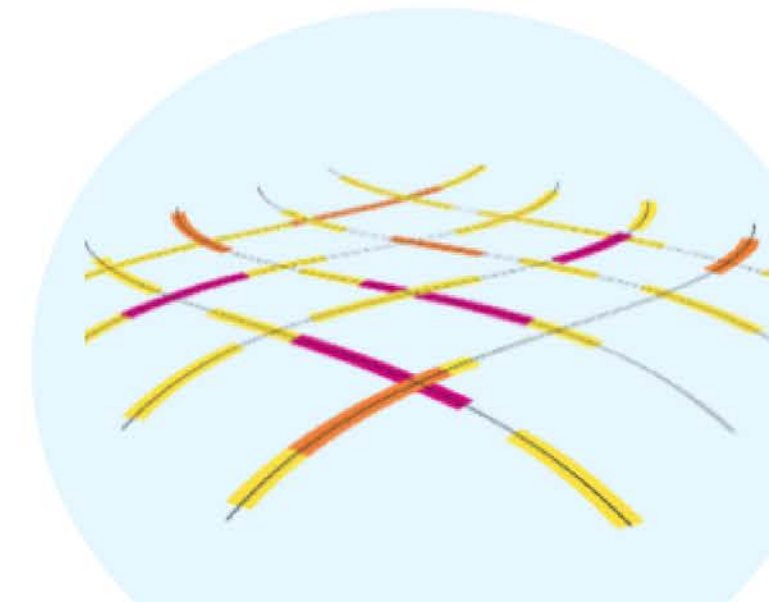
A connectivity need is revealed where observed accessibility is significantly lower than potential accessibility under a well-connected network.

OR

A connectivity need is revealed where observed trip-making is significantly lower than potential trip-making under a well-connected network.

OR

A connectivity need is revealed where low/no intra-city rail or bus service is available during peak hours within a 15 minute trip.





Investment Need Category 7: Maintenance

A maintenance need is revealed where sidewalk condition, pavement condition, or bridge condition is below 'good' rating, or where 311 request or maintenance need is noted on survey, with less tolerance for poor condition in high volume areas.

OR

A maintenance need is revealed where sidewalks have no ADA compliant ramp.

OR

A maintenance need is revealed where fleet (COR & GRTC) vehicle age or mileage, transit stop facilities, signal infrastructure, and parking payment infrastructure is within 20% of 'useful life' of the vehicle/feature.

R300 objective, 80% of pavement will be in good or better condition



Investment Need Category 8: Economic Development

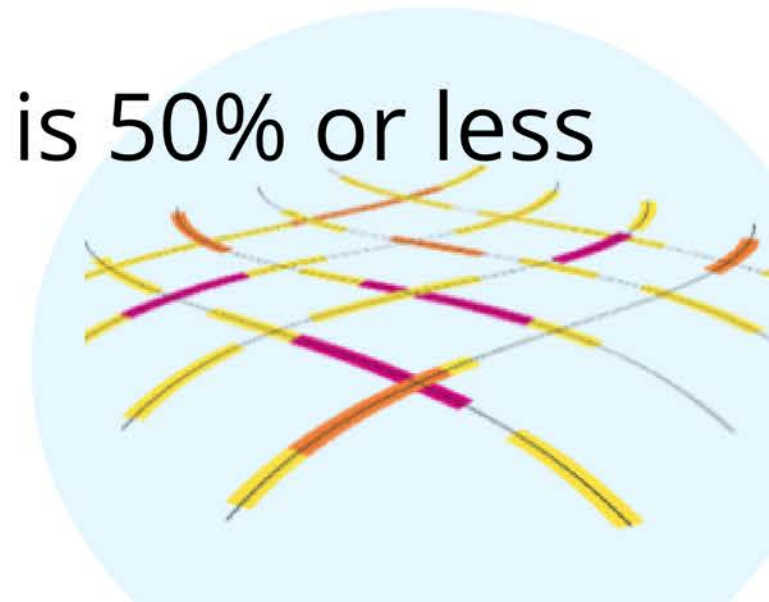
An Economic Development need is revealed where access to relevant jobs is reduced by lack of proximal employment destinations (not due to transportation network) in Designated Qualified Opportunity Zones .

OR

An Economic Development need is revealed where access to relevant retail destination is reduced by lack of proximal retail destinations (not due to transportation network) in Designated Qualified Opportunity Zones .

OR

An Economic Development need is revealed where current density is 50% or less of maximum future/R300 zoning density.



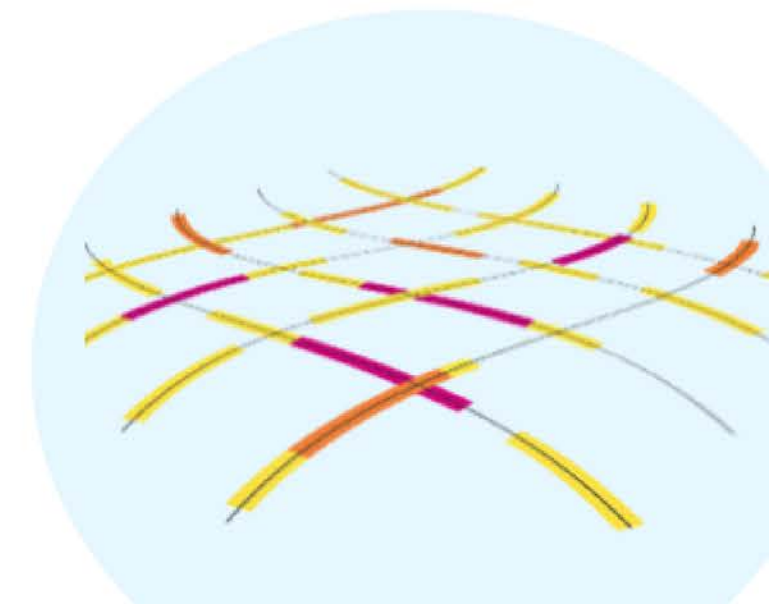


Investment Need Category 9: Technology

A Technology need is revealed in areas where high (relative to all Richmonders) portions of the population are unbanked and where access to mobility substitutes (high-speed internet access at home, reliable cellular & data) is limited.

OR

A technology need is revealed in areas with no access to shared mobility (car-share, bike share, scooter-share).





Investment Need Category 10: Sustainability

A sustainability need is revealed for vulnerable areas per Climate Risk & Vulnerability Assessment.

urban heat vulnerability index is high, where relative risk of flooding is high, and/or where poor air quality coincides with high-asthma rates.*Tree canopy, green infrastructure (pending Tree Master Plan, Sustainability office 'Climate Risk & Vulnerability Assessment')* storm water infrastructure (DPU)*

OR

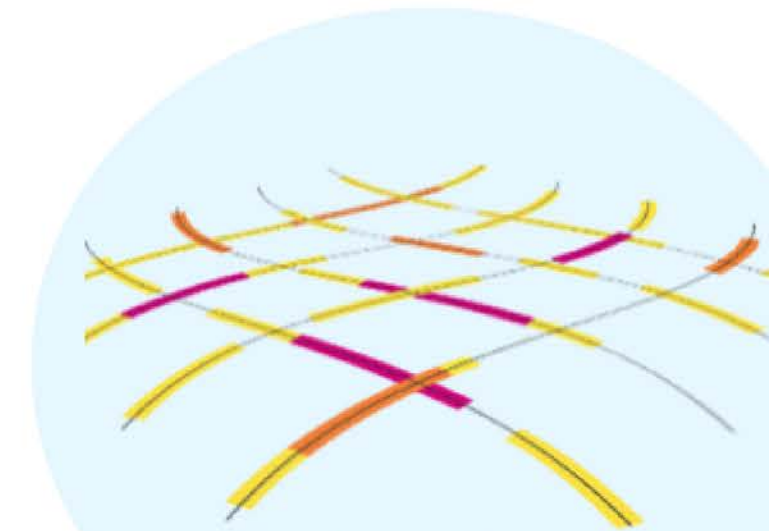
A sustainability need is revealed where access to public electric vehicle charging stations is low, *e bike?* access to electric transit, maintenance, COR fleet is low, and/or where EV ownership rates are low.

OR

Mode-Share?

OR

A sustainability need is revealed where transportation related (facilities including



3

Incorporating Public Input



This is what the Public Input Looks Like:

Responses from Prior Surveys

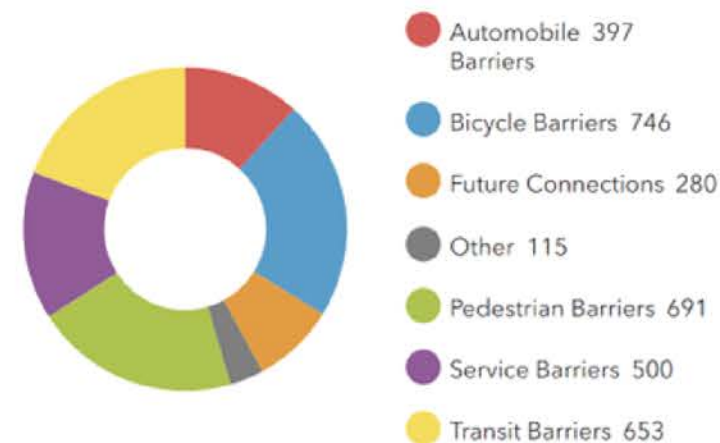
Category

- Future Connections
- Automobile Barriers
- Bicycle Barriers
- Pedestrian Barriers
- Service Barriers
- Transit Barriers
- Other

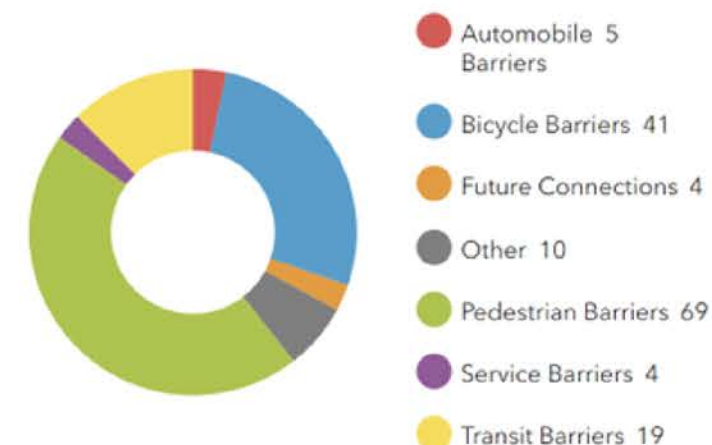
Comment Categories:

- **Automobile Barriers** make it hard to get places by driving. Congestion, poor road conditions, and limited parking are examples of automobile barriers.
- **Bicycle Barriers** make it hard to get places by riding a bicycle or scooter. Lack of bicycle lanes, fast moving traffic, and parking in bicycle lanes are examples of bicycle barriers.
- **Pedestrian Barriers** make it hard to get places by walking or using a wheelchair. Lack of sidewalks, poor lighting, and feeling unsafe are examples of pedestrian barriers.
- **Transit Barriers** make it hard to get places by taking the bus. Long waits, long walks, and feeling unsafe at a bus stop are examples of transit barriers.
- **Service Barriers** are places where there aren't enough destinations for getting things you need and doing what you need to do. Lack of grocery stores and lack of healthcare facilities are examples of service barriers.
- **Future Connections** are places where a new connection is needed, such as filling in sidewalk gaps.
- **Other:** Choose this if your comment doesn't fit in any of the categories.

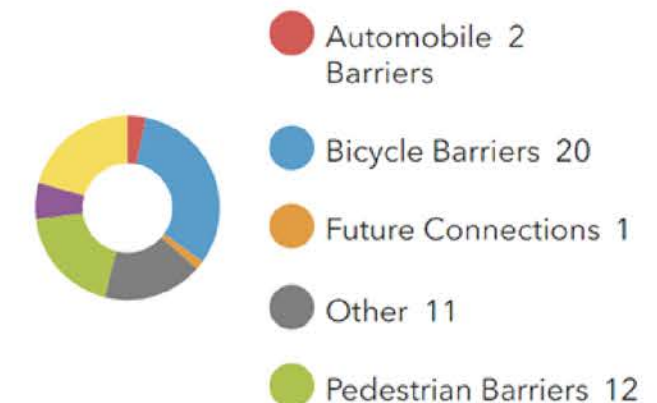
Prior Responses by Category



Richmond Connects (2022) Responses by Category Displayed



Richmond Connects (2022) General Responses by Category



Sample: Future Connections from Richmond 300

Responses from Prior Surveys

Category

- Future Connections
- Automobile Barriers
- Bicycle Barriers
- Pedestrian Barriers
- Service Barriers
- Transit Barriers
- Other

Future Connections are places where a new connection is needed, such as filling in sidewalk gaps.

280 Future Connections comments from Richmond 300

4 mapped Future Connections comments from Richmond Connects*

*as of 6/28/22

1 unmapped Future Connections comment from Richmond Connects*

All written, highly descriptive comments

Richmond 300 comment

Maple Avenue between Patterson and Grove needs continuous safe sidewalk. If you want people who live there to walk, we are forced to walk in the street in many places. Three large schools have kids in the street walking from schools to businesses.

Richmond 300 comment

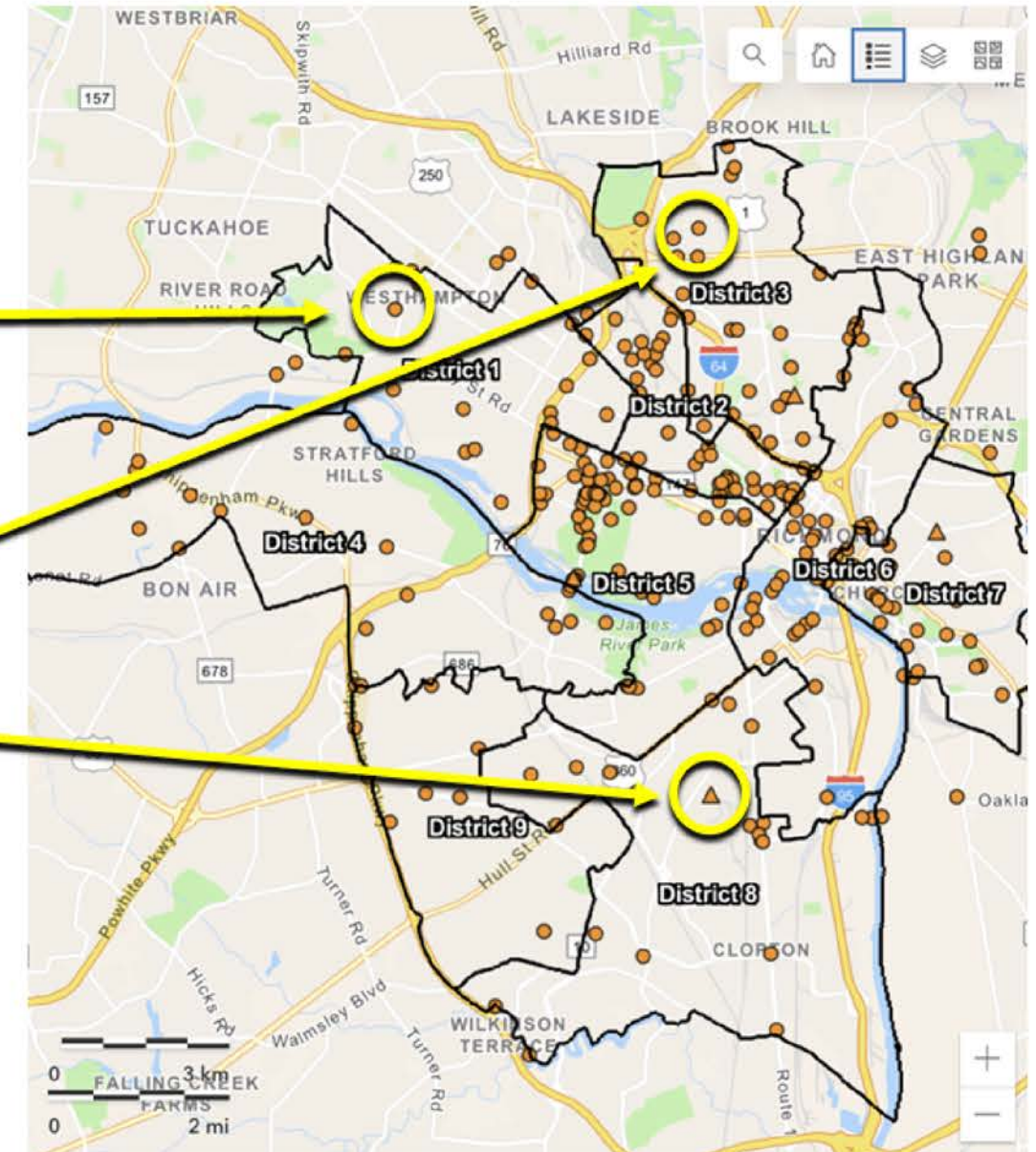
Bellevue does not have good transit coverage despite the density (walkability and proximity to city center).

Richmond Connects comment

Opportunity to use the abandoned CSX railroad to create a shared use path connection with Southside Plaza and George Wythe High School

Richmond Connects comment (unmapped)

I firmly believe the very best Multimodal Transportation opportunity for Richmond with the best return on the investment is proceeding forward with The FALL LINE TRAIL. The FALL LINE TRAIL will benefit all areas of Richmond and will also help bring tourists and people who live outside of our city into the Richmond area. Plus, it will also help bring more connectivity to wand with Chesterfield, Henrico, Hanover, Ashland, Chester and Petersburg.



Sample: Pedestrian Connections from Path To Equity

Responses from Prior Surveys

Category

- Future Connections
- Automobile Barriers
- Bicycle Barriers
- Pedestrian Barriers
- Service Barriers
- Transit Barriers
- Other

Pedestrian Barriers make it hard to get places by walking or using a wheelchair. Lack of sidewalks, poor lighting, and feeling unsafe are examples of pedestrian barriers.

692 Pedestrian Barriers comments from Path to Equity

- Some contain no info at all.
- Some identify the type of barrier.
- Some contain written comments.

Pedestrian Barriers

Select... ▼

Select...

- Physically difficult walk
- Feels unsafe/not secure
- Visually unattractive area
- Poor lighting at night
- Too exposed to sun/weather
- Other (specify below)

Comments from Richmond Connects*

69 mapped Pedestrian Barriers comments

12 unmapped Pedestrian Barriers comments

Path to Equity Comment

Physically difficult walk:
No sidewalks in what is supposed to be a livable/walkable area

Path to Equity Comment

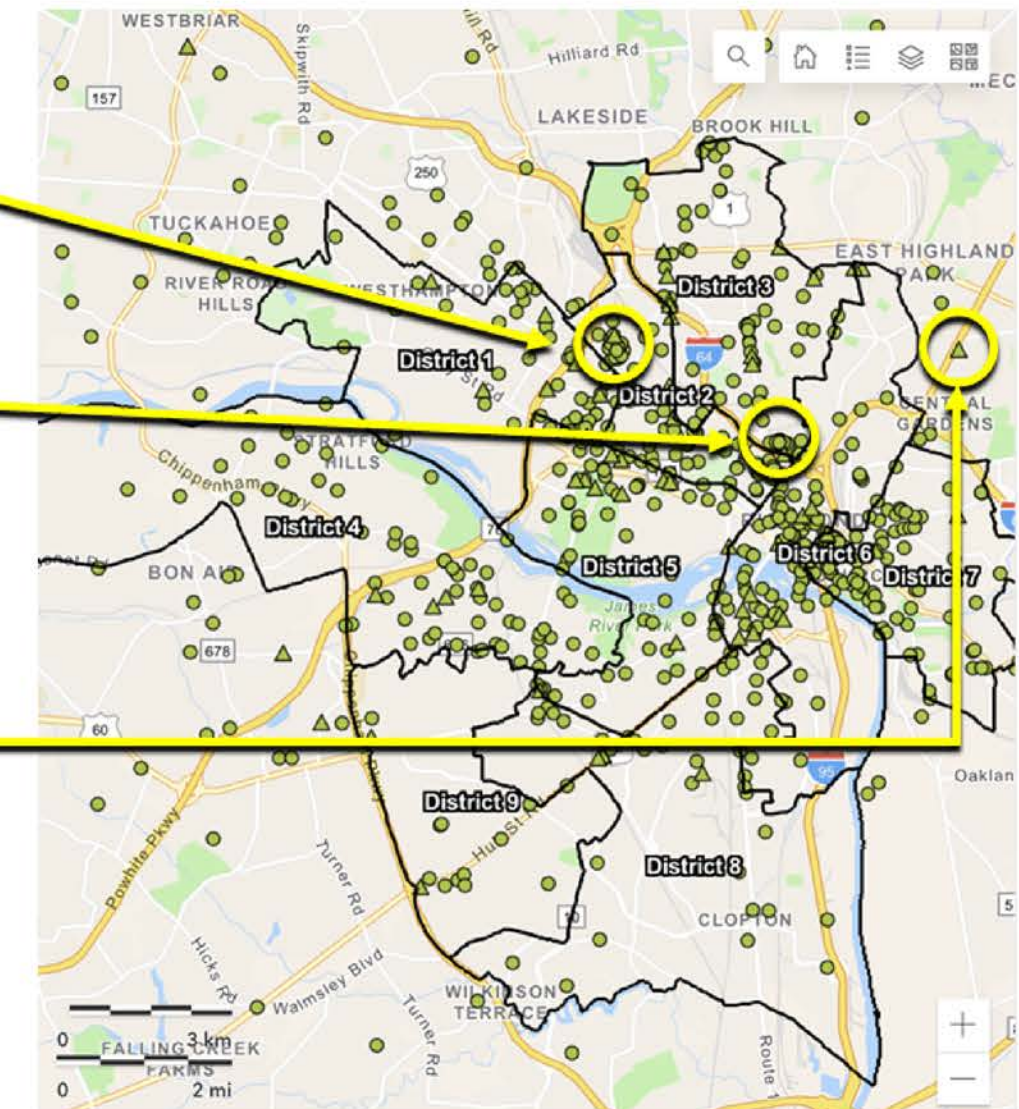
Visually unattractive area:
Too much trash

Richmond Connects Comment

Just about every time I drive here (I wouldn't dare bike despite it being so close to where I live), I see people walking to and from this Food Lion along Mechanicsville Turnpike (coming from or heading south) without sidewalks. I've seen them walk on the road rather than through the grass. And yet, the road is 45mph and 6 lanes for cars! This is mistreatment of the poor in our community. So many people die on this stretch of road. Cars should immediately be slowed down to a safer speed for pedestrians for the time being. Building sidewalks or bike lanes can come second but there is no excuse for cars to go at a speed that kills people while there is no where for people to walk.

Richmond Connects Comment (unmapped)

I would feel safer if my neighborhood in Fulton Hill had sidewalks. As it stands now, they are inconsistent throughout my area. I see adults and children walking in the street, on a one-way street, with cars speeding toward them.



*as of 6/28/22

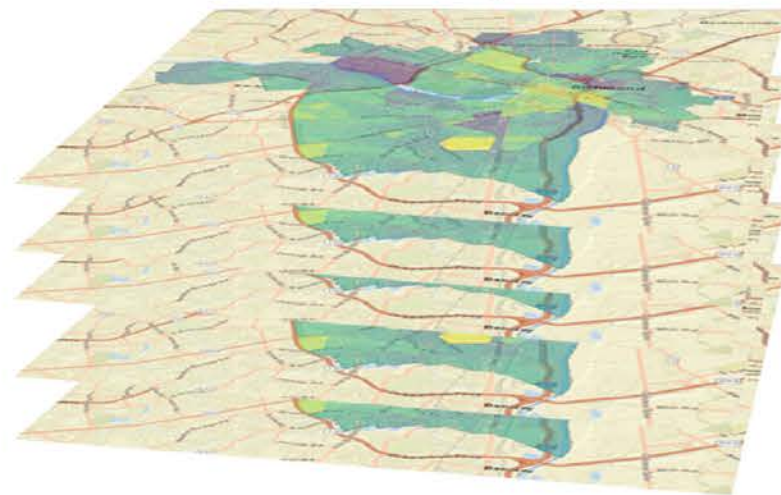
Two ways to incorporate Public Input:

1

Public Input



Investment
Needs
Maps

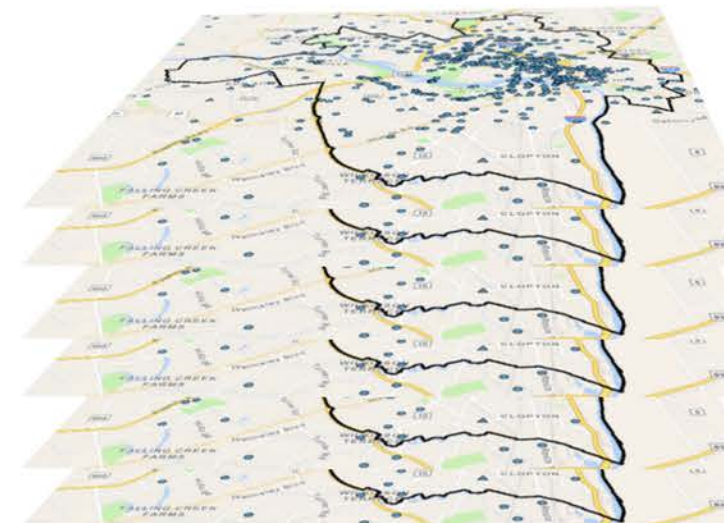


12th Map:

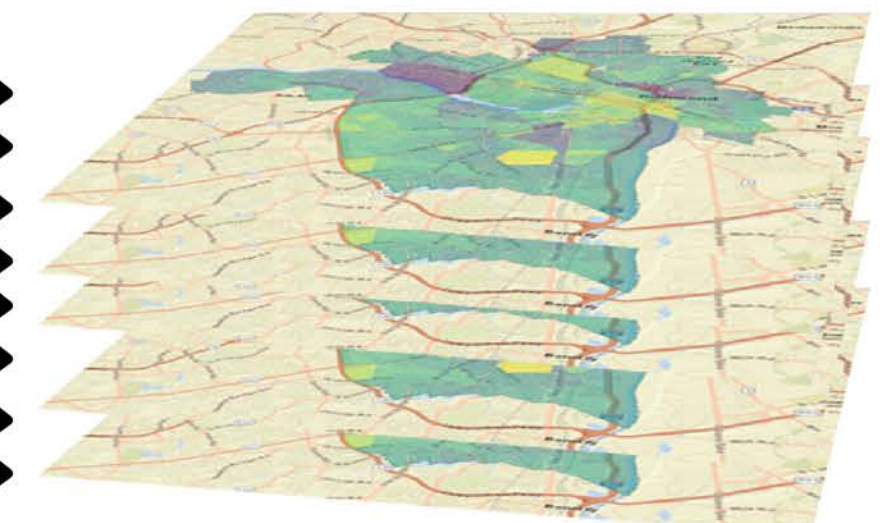
- New Map of Public Identified Needs,
- Add to 11 Investment Needs Maps
- Can be weighted separately

2

Public Input



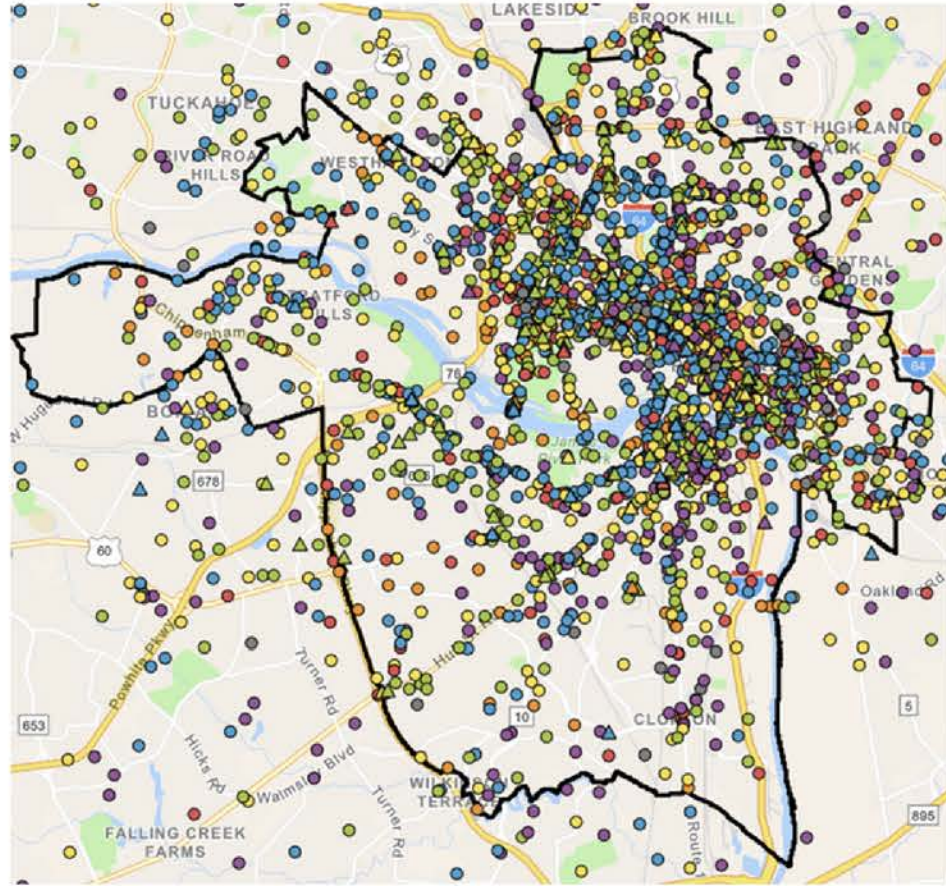
Investment
Needs
Maps



Part of Each of the 11 Maps:

- Added layer in each Investment Needs Map
- Used to modify each Investment Needs Map

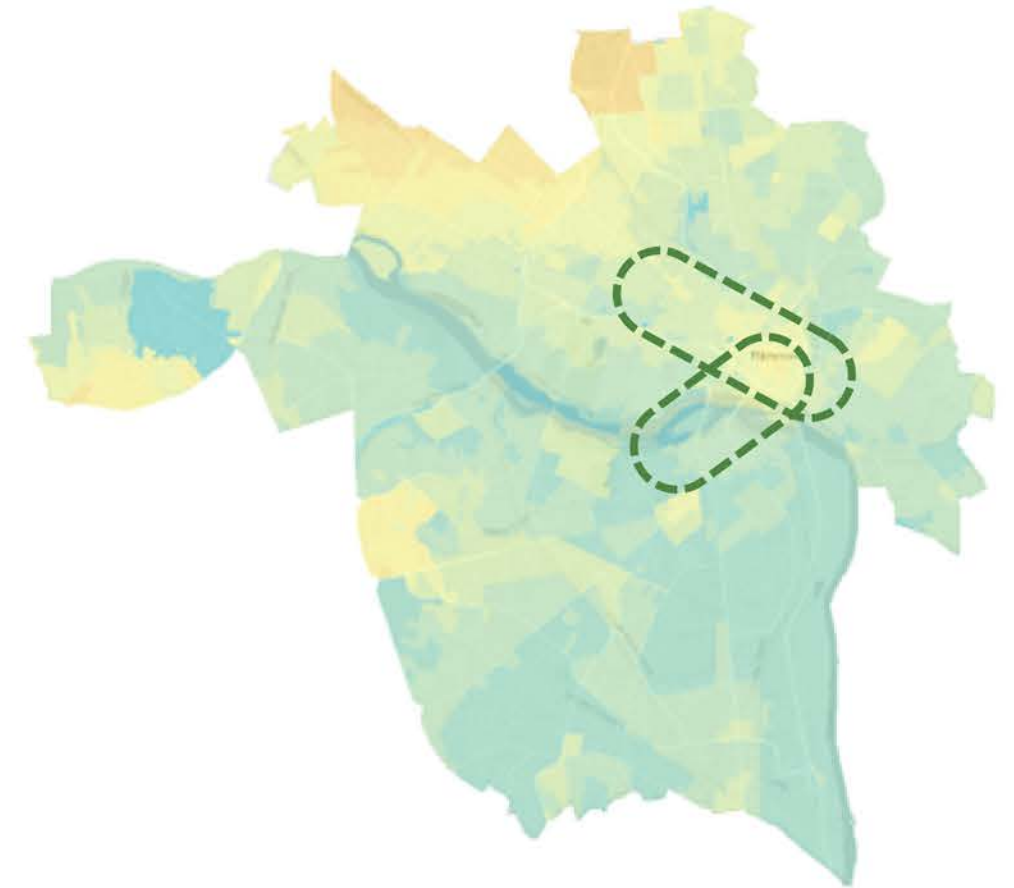
Implications of Option 1:



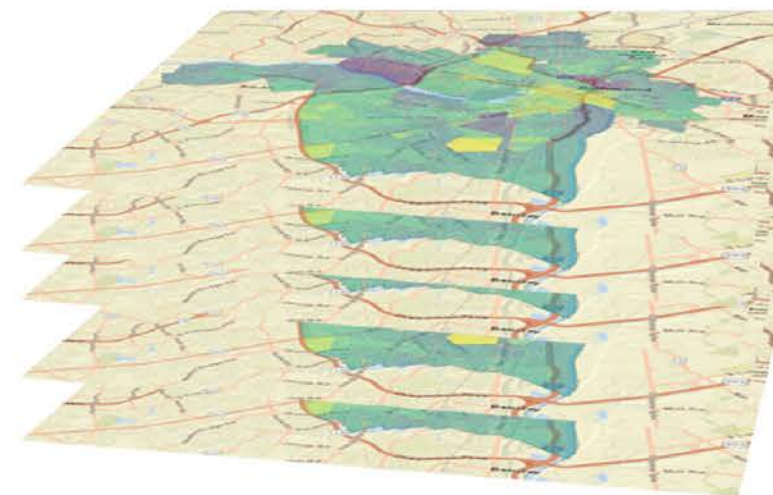
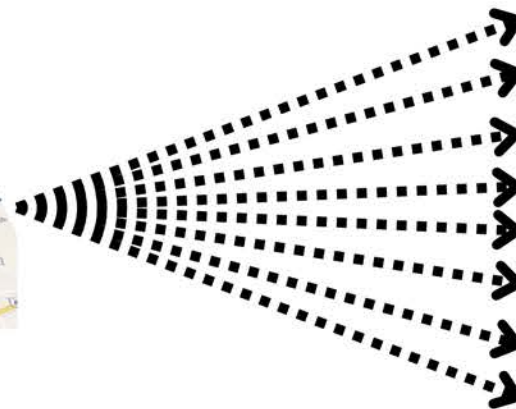
Public Input for All Modes



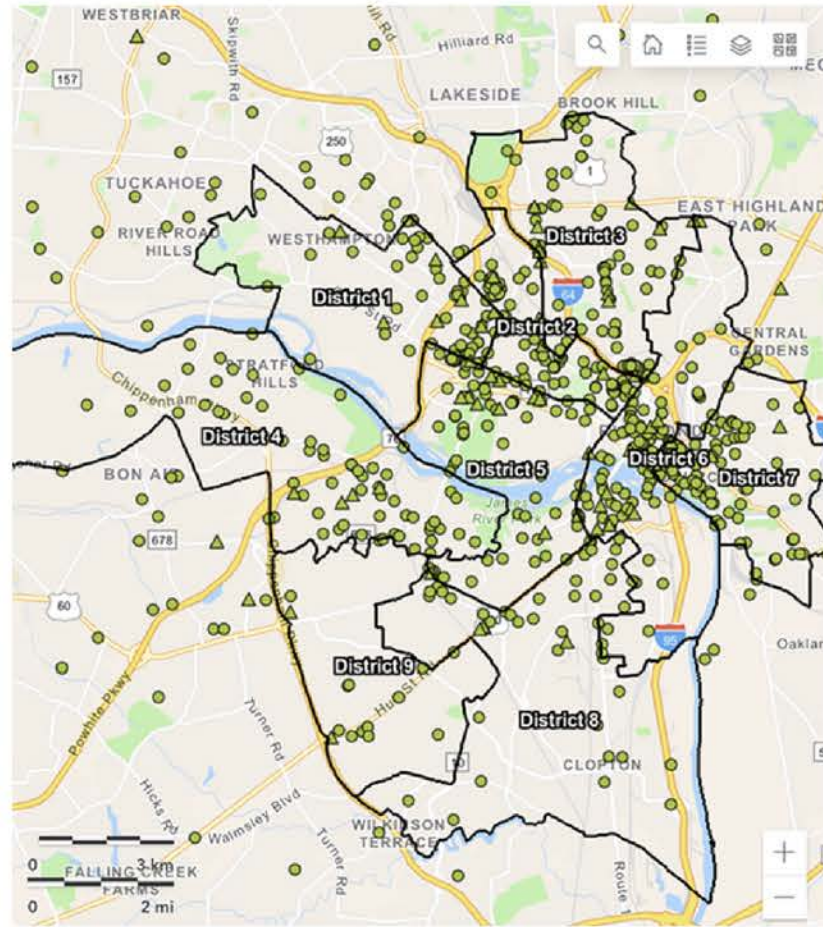
- All the public input for all modes is grouped together
- The density of the public input dots increases the weighting in EACH of the Investment Needs Maps



Pedestrian Investment need Map



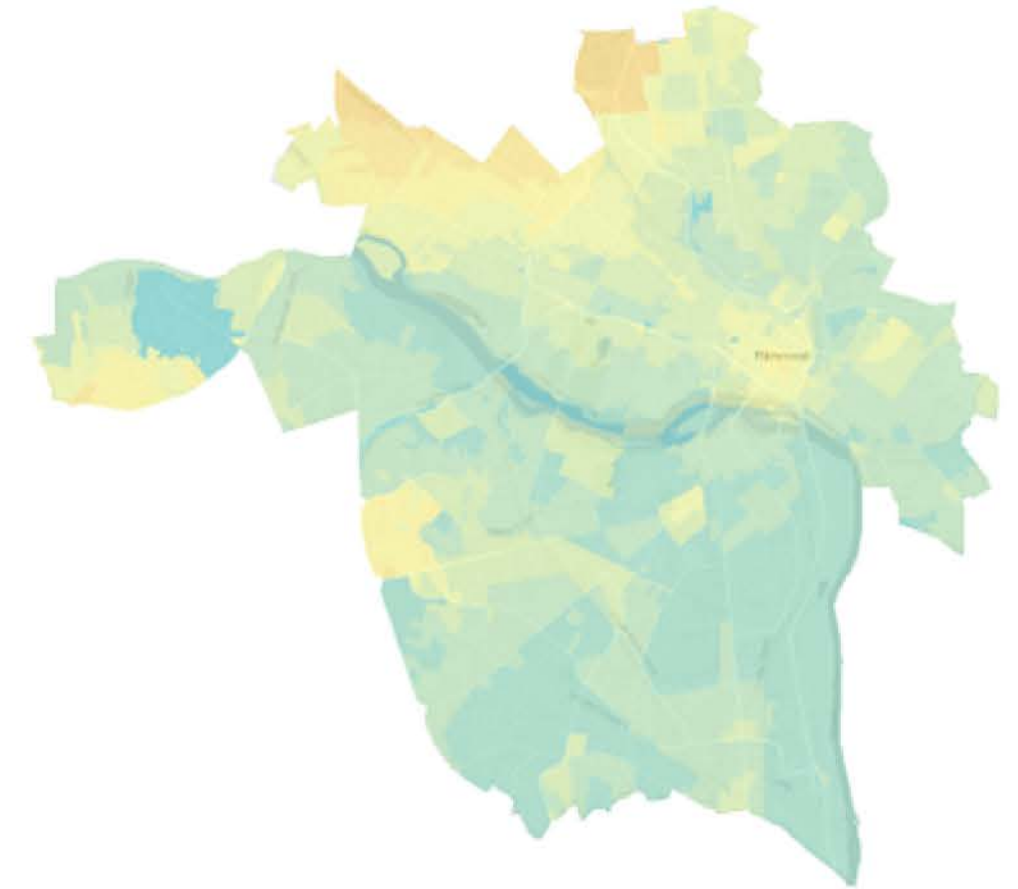
Implications of Option 2:



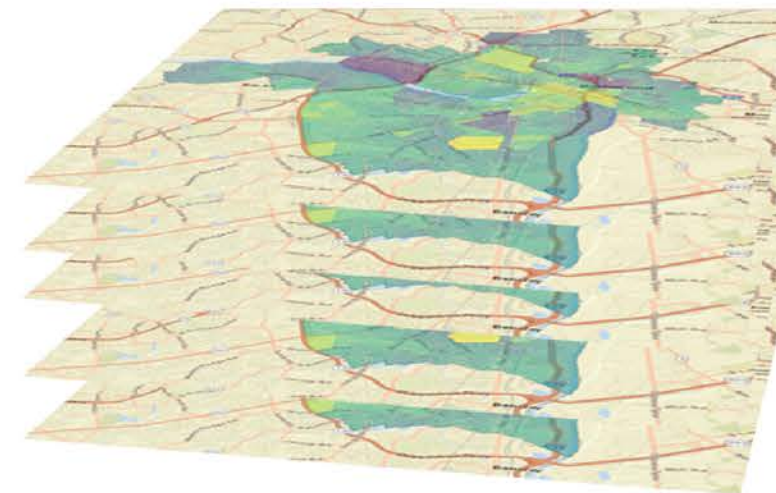
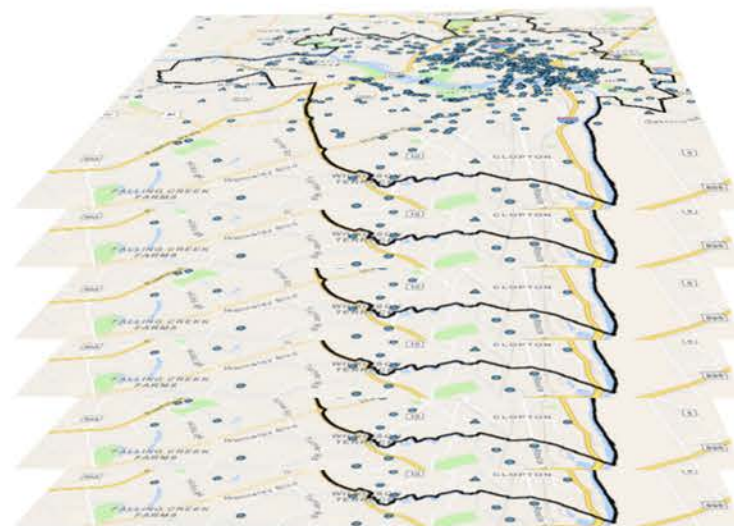
Public Input for Ped Barriers



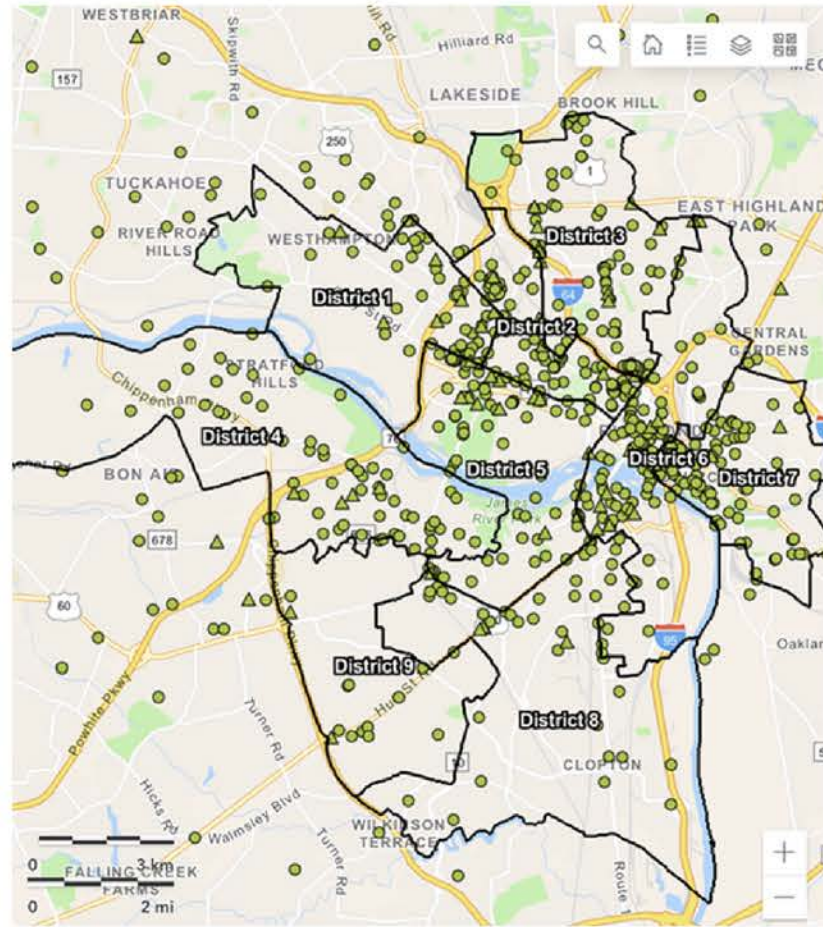
- Public input by Mode/Topic is used to modify each of the Investment Needs Maps for that Mode/Topic



Pedestrian Investment need Map



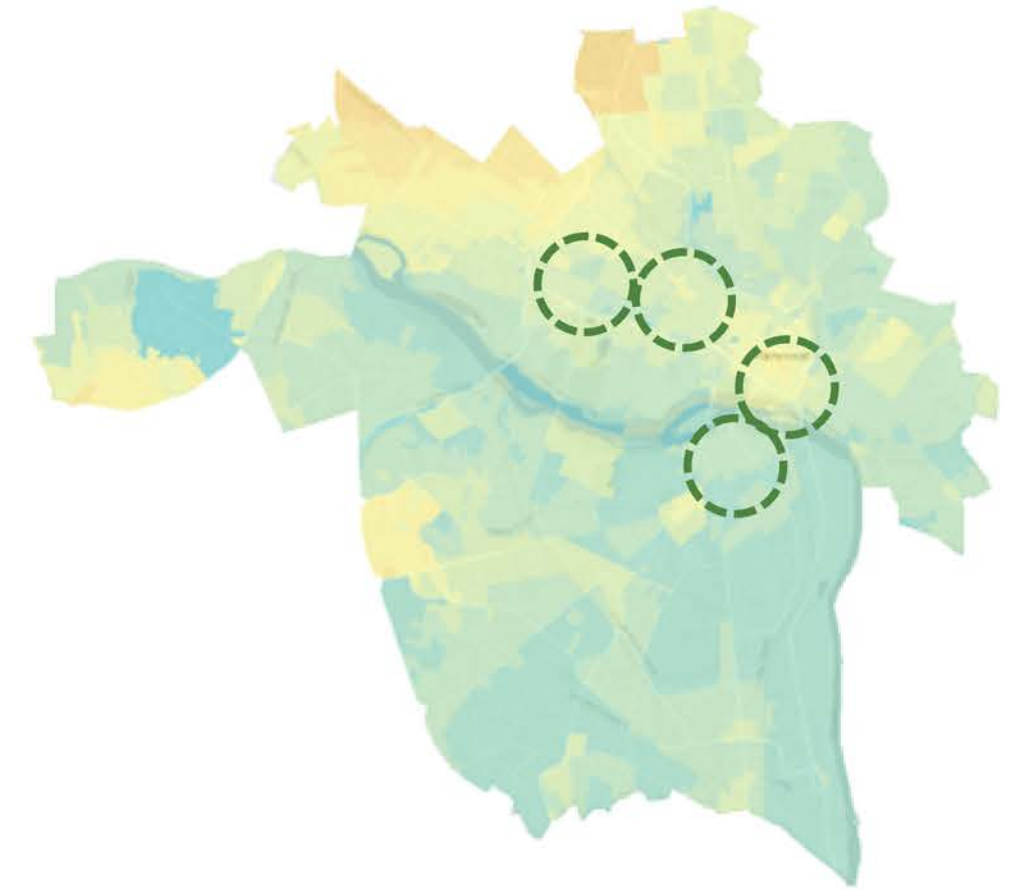
Option 2A:



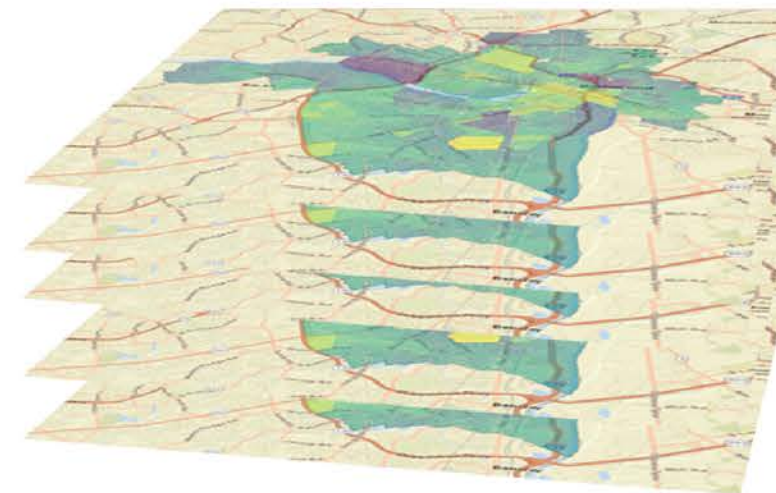
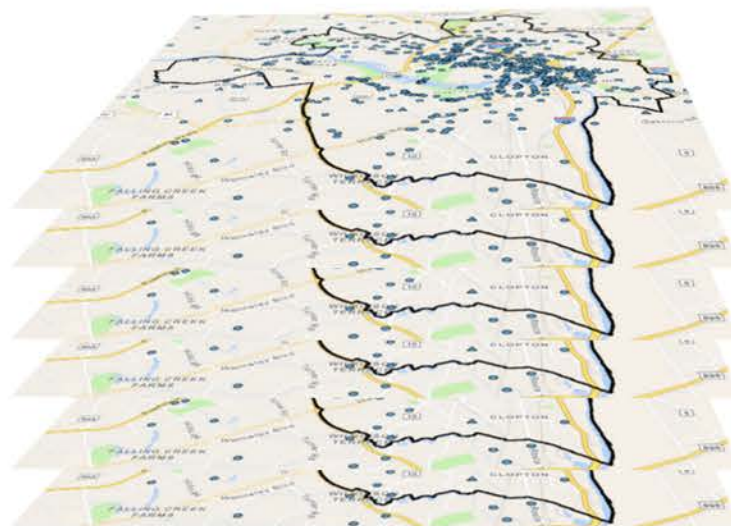
Public Input for Ped Barriers



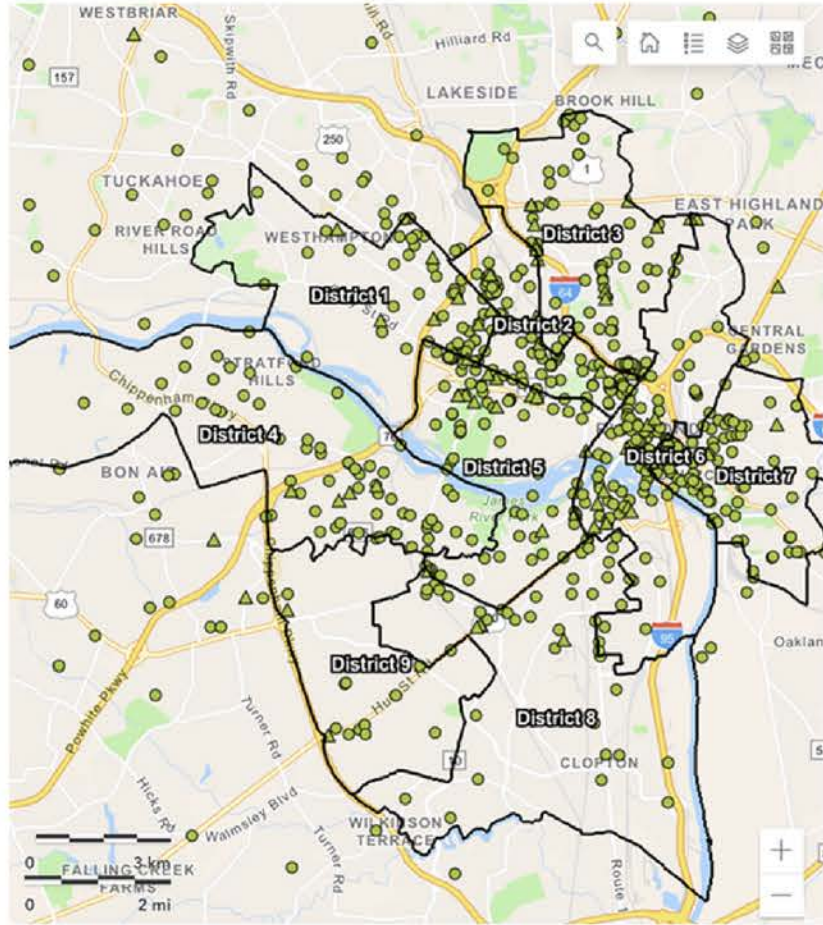
- Use the public comments to identify areas that are underrepresented in the data-driven quantitative needs analysis



Pedestrian Investment need Map



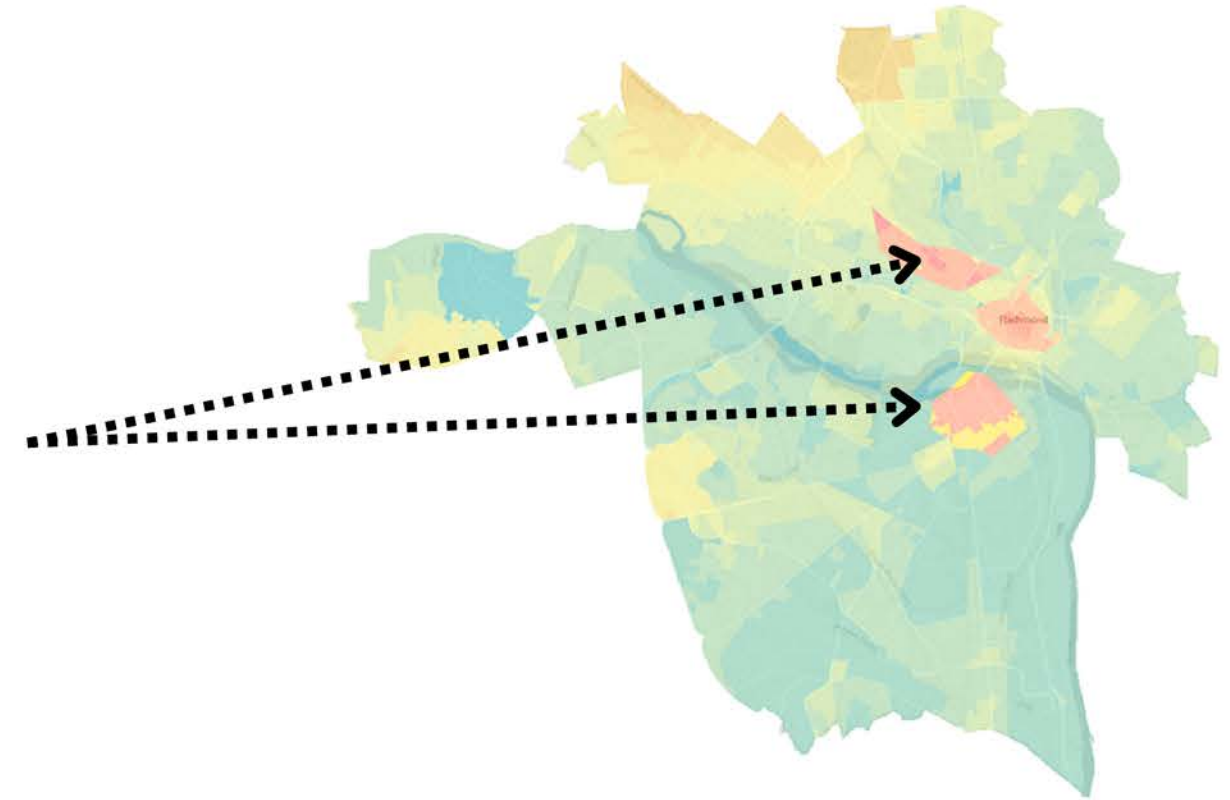
Option 2B:



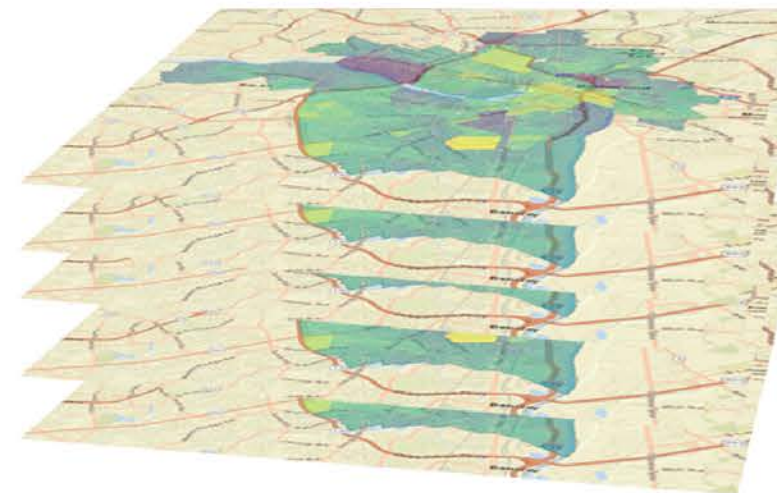
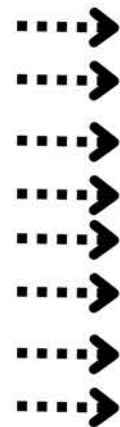
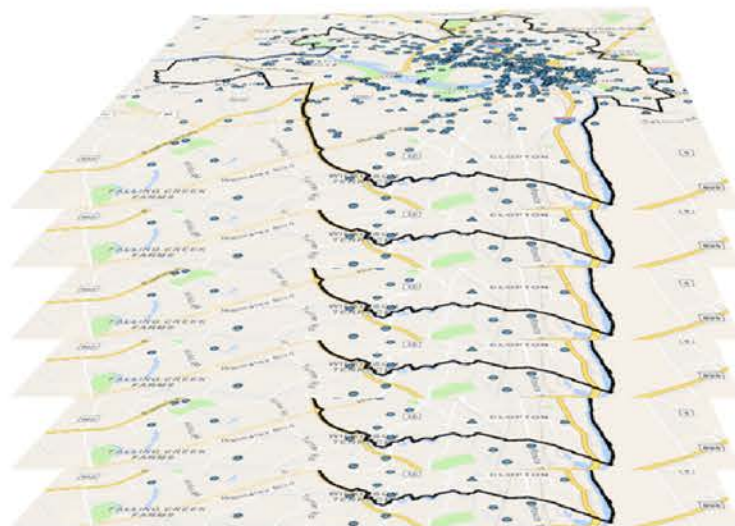
Public Input for Ped Barriers



- Use the public comments to increase the value of areas identified in the data-driven quantitative needs analysis



Pedestrian Investment need Map



Discussion on Pros and Cons:

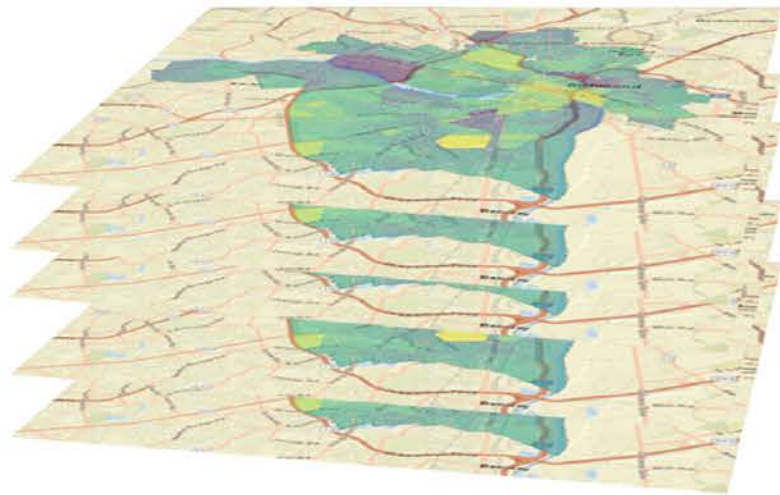
Which Approach for Incorporating Public Input?

1

Public Input

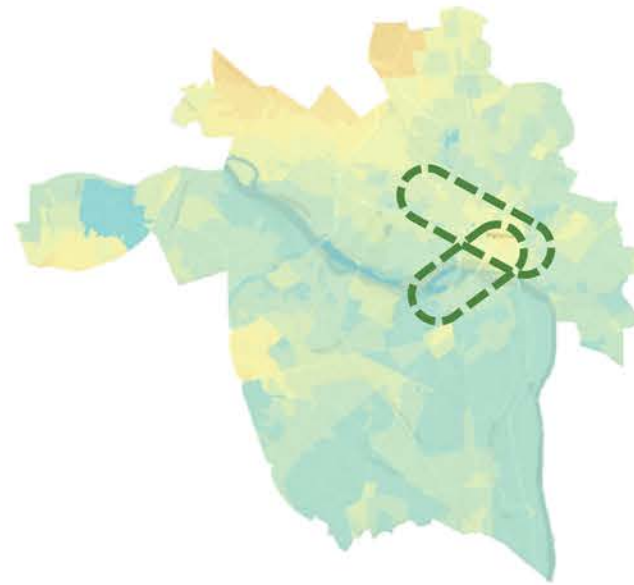


Investment
Needs
Maps



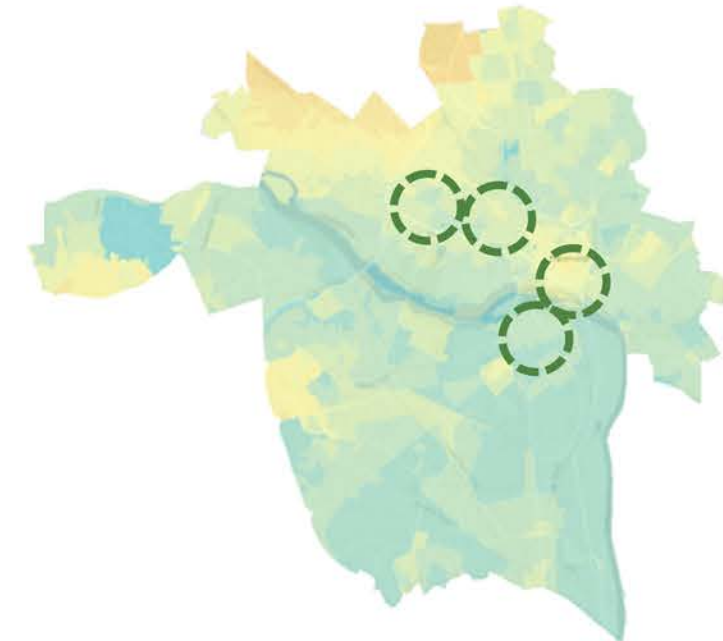
Use public input equally to increase the weighting in each of the Investment Needs Map

2A



Use Public Input to identify underrepresented areas by Mode/Topic

2B



Use Public Input to increase the weight of identified areas by Mode/Topic

3

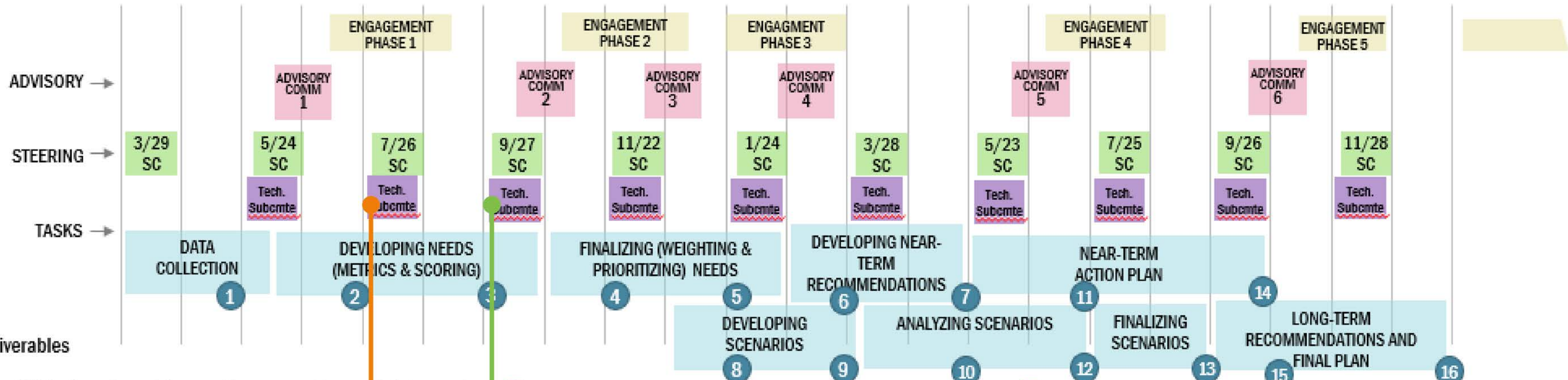


Next Steps

2022

2023

Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec



Key Deliverables

- 1 Draft list of needs metrics, equity geographies, and data needs
- 2 Final list of needs metrics, equity geographies, and data needs
- 3 Raw needs score maps
- 4 Weighted needs
- 5 Prioritized needs
- 6 Methodology for developing near-term recommendations
- 7 Draft near-term recommendations
- 8 Draft scenarios and evaluation metrics
- 9 Final scenarios and evaluation metrics
- 10 Initial scenario results
- 11 Draft Action Plan
- 12 Final scenario results
- 13 Preferred scenario selection
- 14 Final Action Plan
- 15 Draft long-term recommendations and Draft Scenario Plan
- 16 Final Scenario Plan

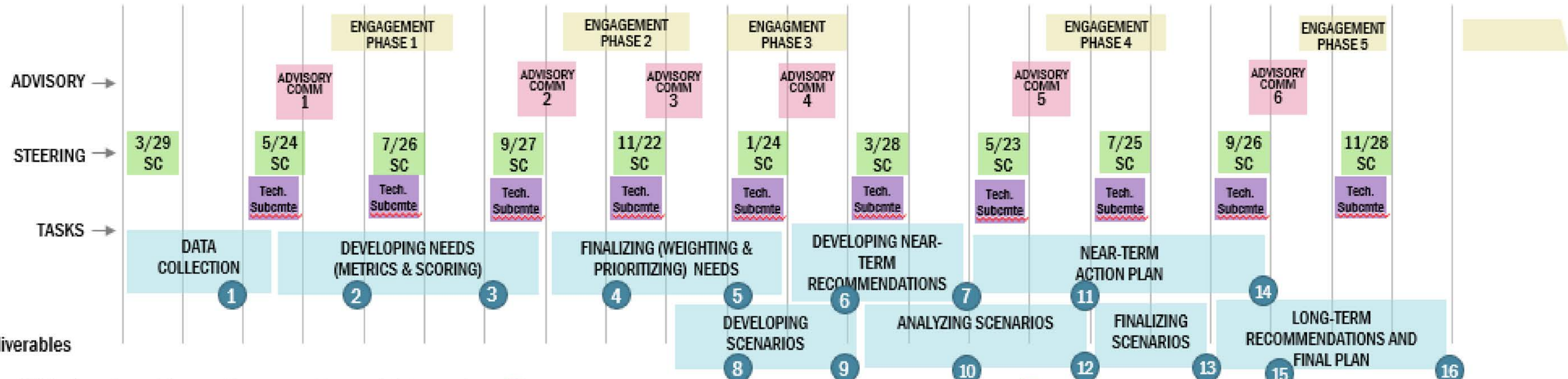
We are here

Next Technical Subcommittee meeting: early September

2022

2023

Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec



Key Deliverables

- 1 Draft list of needs metrics, equity geographies, and data needs
- 2 Final list of needs metrics, equity geographies, and data needs
- 3 Raw needs score maps
- 4 Weighted needs
- 5 Prioritized needs
- 6 Methodology for developing near-term recommendations
- 7 Draft near-term recommendations
- 8 Draft scenarios and evaluation metrics
- 9 Final scenarios and evaluation metrics
- 10 Initial scenario results
- 11 Draft Action Plan
- 12 Final scenario results
- 13 Preferred scenario selection
- 14 Final Action Plan
- 15 Draft long-term recommendations and Draft Scenario Plan
- 16 Final Scenario Plan

Next Steps

- 1** Send us your comments on the needs analysis methods by **Friday July 15th.**
- 2** What's your advice for sharing this with the Steering Committee?
- 3** Next Steering Committee Meeting
Tuesday July 26th