COG TPB REGIONAL EXTREME HEAT ANALYSIS

Regional Transportation Resilience Subcommittee

September 26, 2025

National Capital Region
Transportation Planning Board

ICF RHI

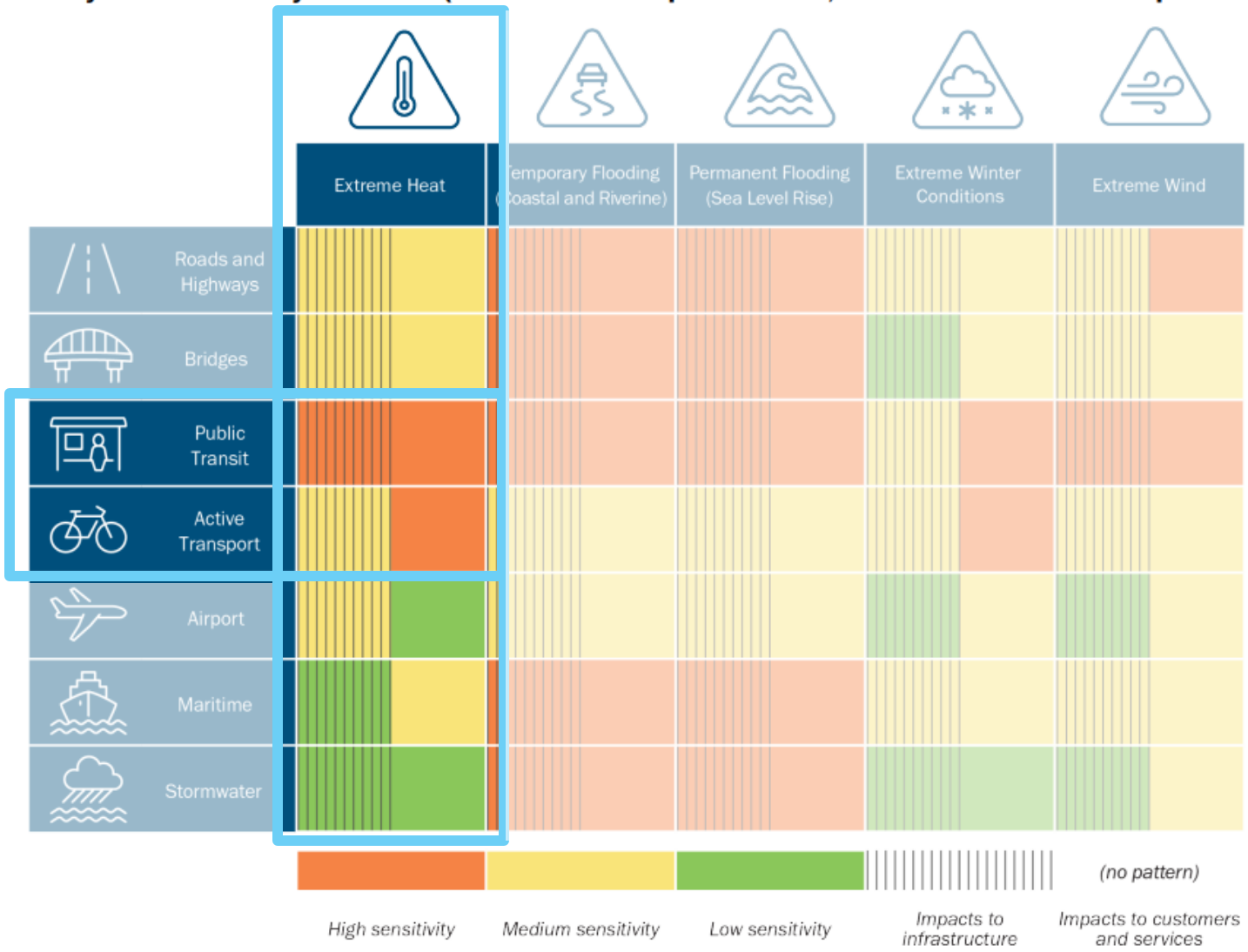
Agenda

1. What we know.
2. What we need.
3. What comes next.

What we know.

The Transportation Resilience Improvement Plan (TRIP) provided a **high-level summary of heat-related impacts to the system**

Figure 2. System-level analysis results (Infrastructure impacts on left; service and customer impacts on right).



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What we know.

Extreme heat poses serious risks to transportation users and assets in the TPB region, including:

- Impaired infrastructure performance
- Potential for limited access to essential services
- Altered transit use patterns and user behavior
- Endangered public health
- Server meltdowns impacting control rooms and communication

What we need.

The TRIP identified the need for deeper dives into extreme heat impacts and resources. **The Regional Extreme Heat Analysis will:**

OBJECTIVE 1

Identify **where** transportation assets and systems in the region may experience the worst impacts of extreme heat.

OBJECTIVE 2

Demonstrate **how** this could impact the local economy and the ability of the region to meet its broader goals.

OBJECTIVE 3

Provide **resources** to help member agencies kick-start their efforts to adapt to these risks.

Increase understanding of where the risks are.

Goal

Improve understanding of where the worst extreme heat exposure may occur

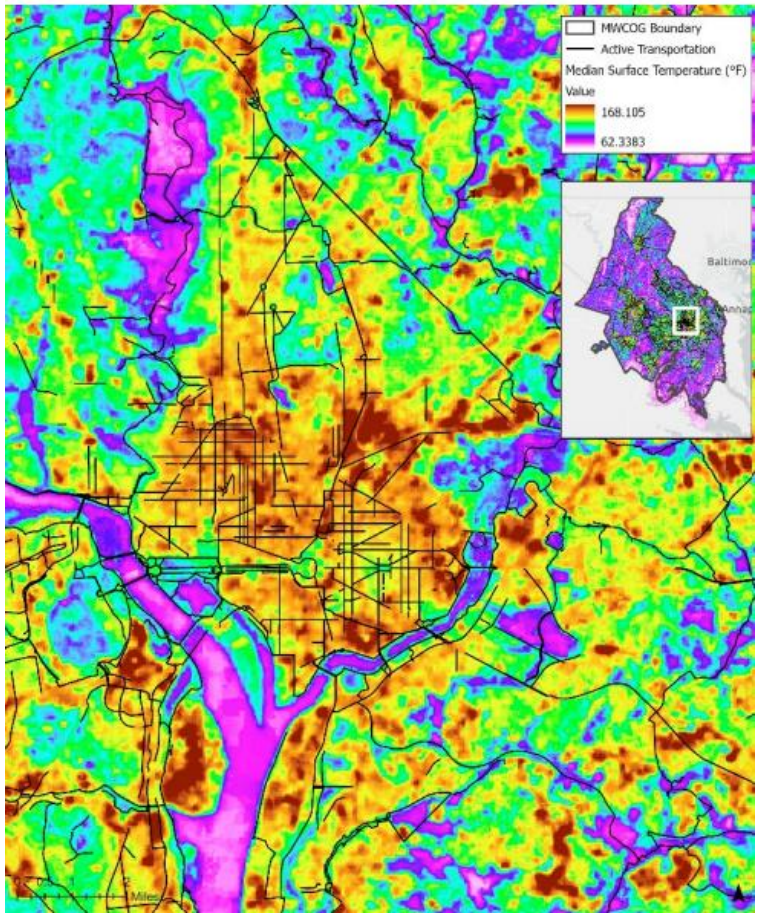
Approach

- Conduct targeted heat vulnerability assessment for transportation assets and users
- Explore creative approaches to pinpointing risk

Example Outcomes

- Extreme heat datasets that go beyond surface temperature

Figure 18. Downtown Washington, DC bike and heat map.



Increase understanding of specific impacts and provide resources to help.

Some initial ideas include:

- Transit Infrastructure Resilience Analysis
- Commuter Survey Enhancement
- Model Policy Language
- Decision Tree for Cooling Solutions
- Grant Application Support Packages
- Best Practice Design Guidance

Options

1. **Transit Infrastructure Resilience Analysis**
2. Commuter Survey Enhancement
3. Model Policy Language
4. Decision Tree for Cooling Solutions
5. Grant Application Support Packages
6. Best Practice Design Guidance

Goal

Understand how extreme heat affects transit **infrastructure and operations regionally**

Approach

- Analyze resilience of infrastructure, operations, and users to extreme heat

Example Outcomes

- Impacts assessment
- Slow/stop order frequency (historic and projected)
- Ridership data on high heat days

Options

1. Transit Infrastructure Resilience Analysis
2. **Commuter Survey Enhancement**
3. Model Policy Language
4. Decision Tree for Cooling Solutions
5. Grant Application Support Packages
6. Best Practice Design Guidance

Goal

Understand **heat-related behavioral changes** (e.g., mode shifts) and implications for planning and service delivery

Approach

- Suggested question additions to existing commuter surveys

Example Outcomes

- Updates to TPB's Commuter Connections survey or other partner agency survey efforts

Options

1. Transit Infrastructure Resilience Analysis
2. Commuter Survey Enhancement
3. **Model Policy Language**
4. Decision Tree for Cooling Solutions
5. Grant Application Support Packages
6. Best Practice Design Guidance

Goal

Promote use of cooling strategies through redevelopment projects

Approach

- Review policy language in other regions that facilitate or support cooling projects

Example Outcomes

- Draft language for design standards, RFPs, or development guidelines

Options

1. Transit Infrastructure Resilience Analysis
2. Commuter Survey Enhancement
3. Model Policy Language
4. **Decision Tree for Cooling Solutions**
5. Grant Application Support Packages
6. Best Practice Design Guidance

Goal

Identify **feasible cooling solutions** based on site-specific constraints (e.g., land ownership, space, permitting)

Approach

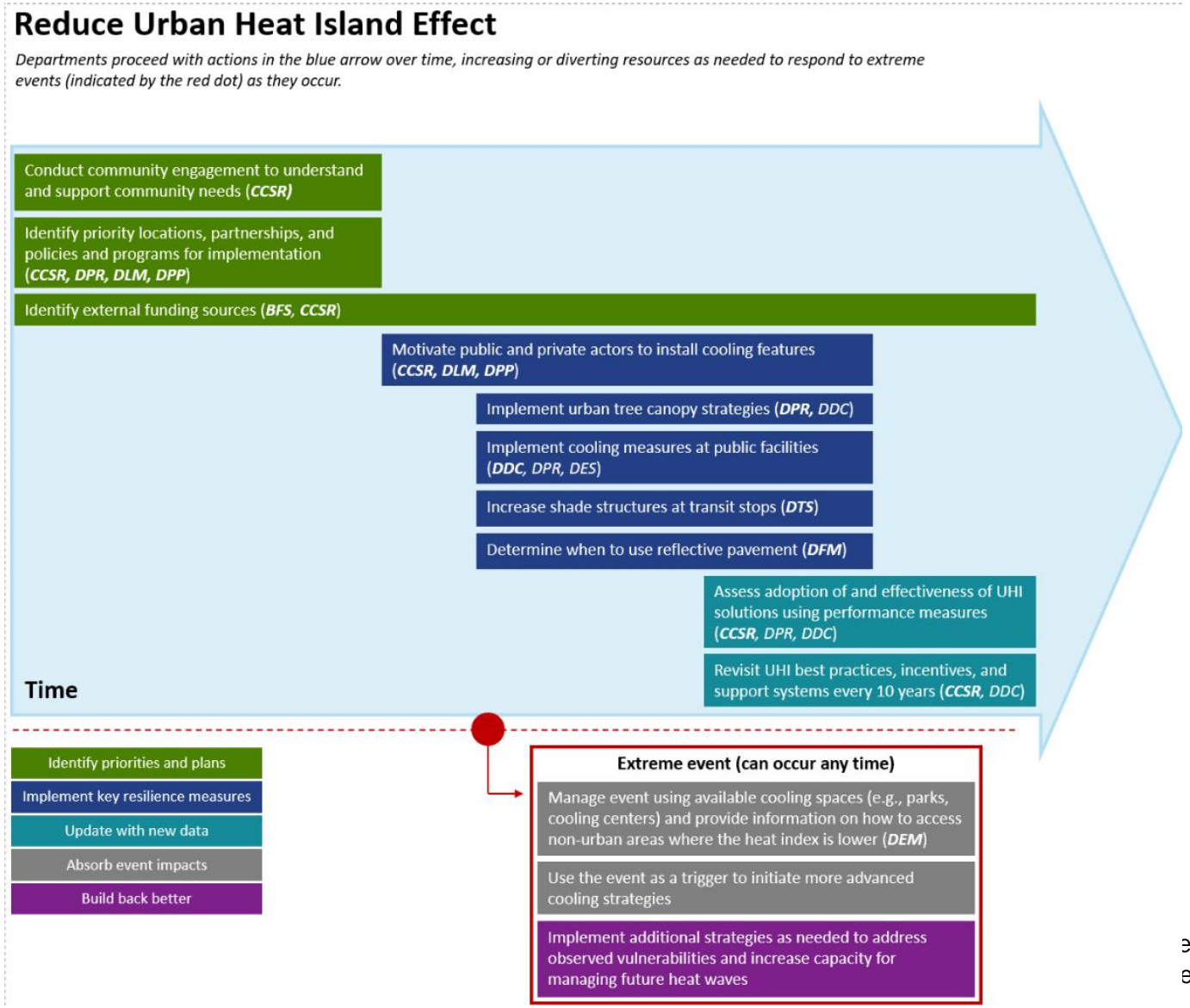
- Develop inventory of entities that are doing this type of work already and review for lessons learned

Example Outcomes

- Decision-tree tool and cost estimates
- Guidance on selecting potential solutions

Decision Tree & Example Outcomes

Example Outcome – Heat Adaptation Pathways



Example from the City and County of Honolulu Climate Ready Oahu Report

Options

1. Extreme Heat Data
2. Transit Infrastructure Resilience Analysis
3. Commuter Survey Enhancement
4. Model Policy Language
5. Decision Tree for Cooling Solutions
6. **Grant Application Support Packages**
7. Best Practice Design Guidance

Goal

Provide resources to improve grant application **competitiveness**

Approach

- Identify funding sources
- Evaluate criteria analysis from key resilience grant programs
- Develop “win themes” to incorporate into applications

Example Outcomes

- Grant application support package

Options

1. Extreme Heat Data
2. Transit Infrastructure Resilience Analysis
3. Commuter Survey Enhancement
4. Model Policy Language
5. Decision Tree for Cooling Solutions
6. Grant Application Support Packages
7. **Best Practice Design Guidance**

Goal

Support **implementation and efficacy** of cooling solutions

Approach

- Identify contexts, typologies and best practices
- Evaluate tradeoffs (scale, level of impact, cost, ROI, etc.)
- Design concepts and guidelines (for transit, pedestrian, bicycle, etc.)

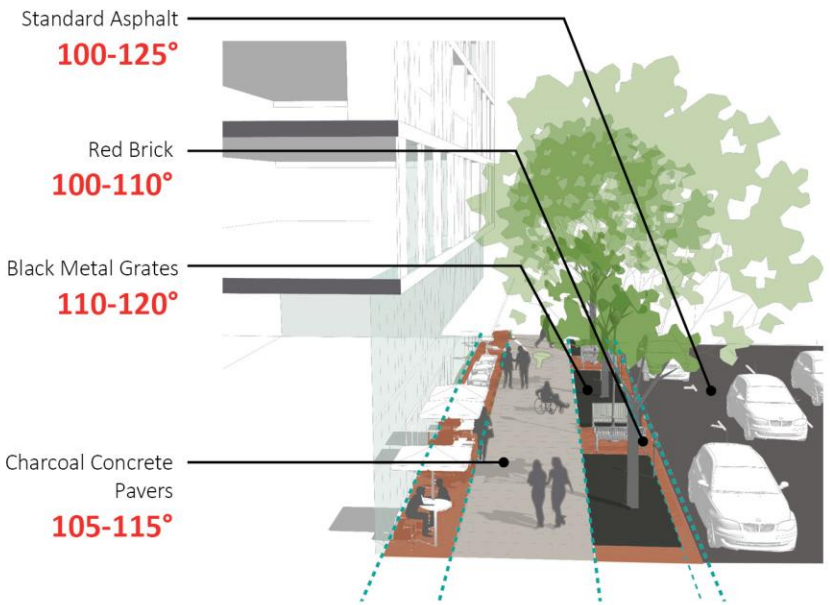
Example Outcomes

- Best practices and design guidance for heat-resilient infrastructure

Design Guidelines & Example Outcomes

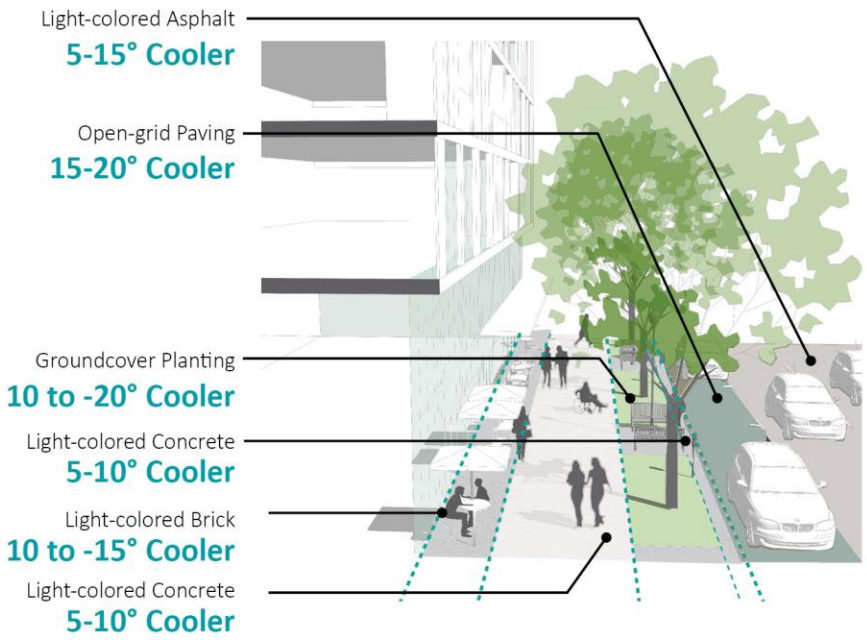
Example Outcome – Pedestrian Infrastructure

Baseline Materials



Existing Silver Spring streetscape condiitons and average daily temperatures (July 24th)

Proposed Cool-Street Materials

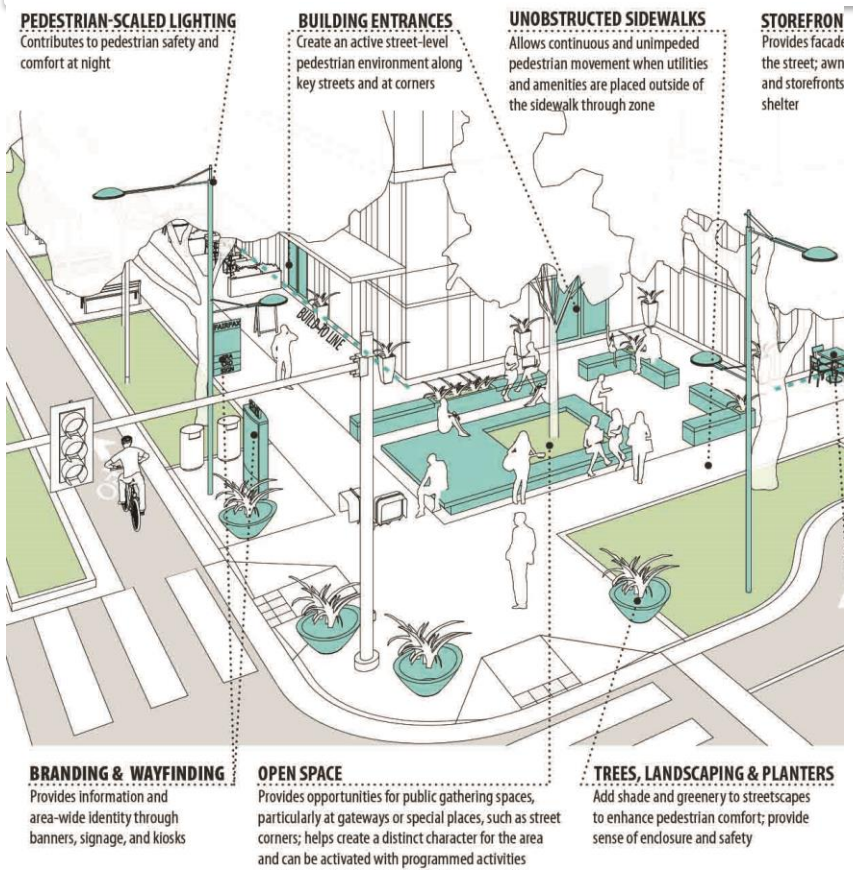


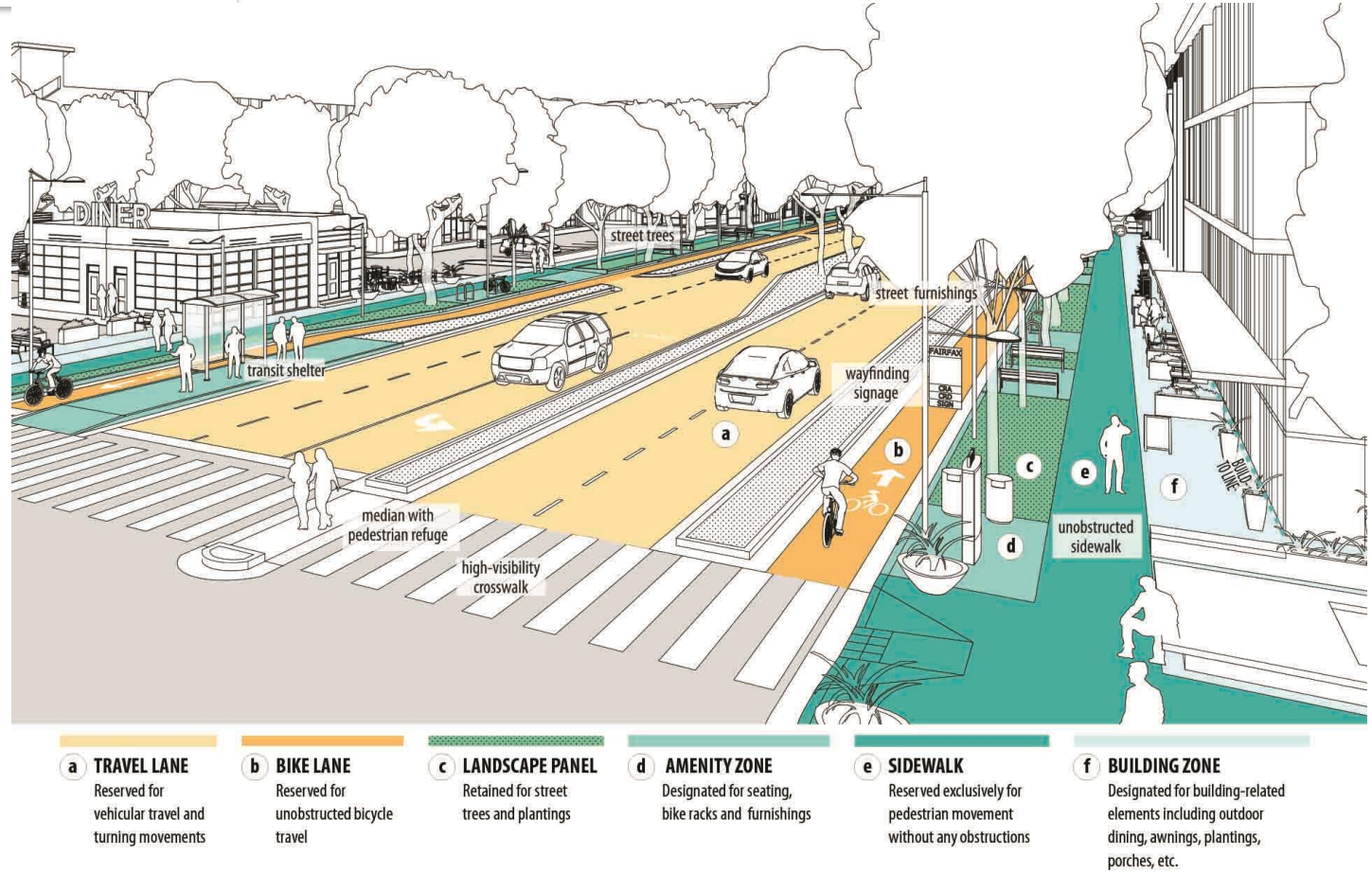
Cool-street recommendations including temperature differences compared to existing conditions

Cool Streets, Silver Spring, MD

Design Guidelines & Example Outcomes

Example Outcome – Pedestrian Infrastructure





Urban Design Guidelines, Fairfax County, VA

What comes next?

Mentimeter Poll & Discussion

- Based on your needs, what would be the most useful focus of this project?
- Any other ideas you would like to see considered?
- Of the types of resources introduced today, what are you most interested in?

Next Steps

Thank you for your input!

- Email update in a few weeks on final selection
- Next meeting: Updates on project progress