

Designing Tempe's New Transit Shelters

Public Meeting
July 21, 2020



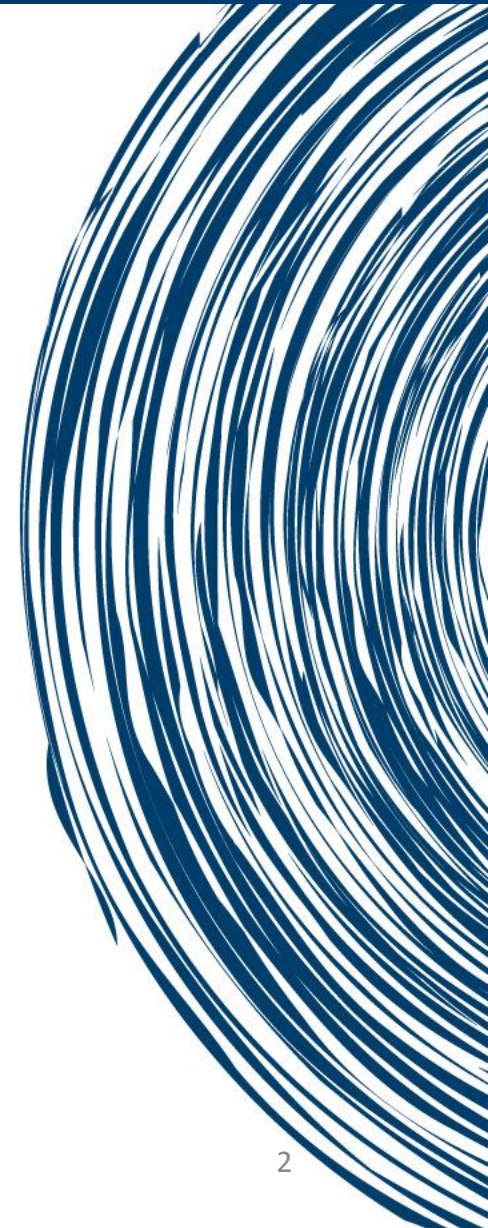


Quality of Life 3.26

Achieve a multimodal transportation system (20-minute city) where residents can walk, bicycle, or use public transit to meet all basic daily, non-work needs.

Quality of Life 3.29

Achieve ratings of “Very Satisfied” or “Satisfied” with the “Overall Satisfaction with Transit System in Tempe” greater than or equal to 80% as measured by the City of Tempe Transit Survey.

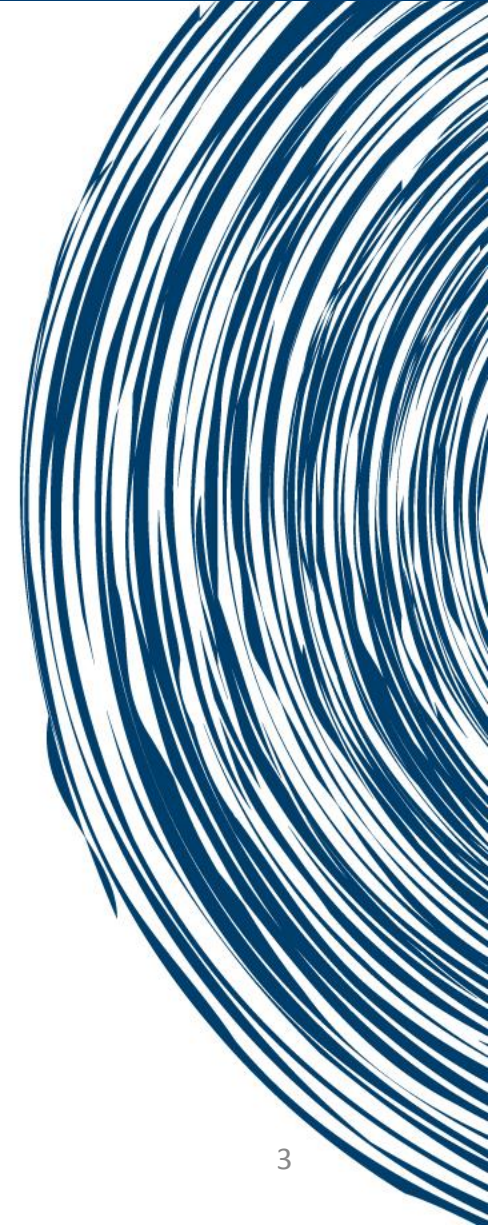




Tempe Transit Shelter Design:

creating a consolidated option, integrating the best features of 3 initial concept studies

- **Form & function:** simplicity, flexibility, scale, kit of parts
- **Comfort & accessibility:** shade, seating
- **Aesthetics:** colors, lighting, texture
- **Materials:** research, application & temperature data collection
- **Sustainability:** materials selection, city shade goals, transit ridership, life cycle costs



Transit shelter design goals



maximize shade!

sustainability focused

architecturally unique
to the City of Tempe

good investment for long life

comfortable and safe

flexible modular design
for variety of sites

ADA

cool

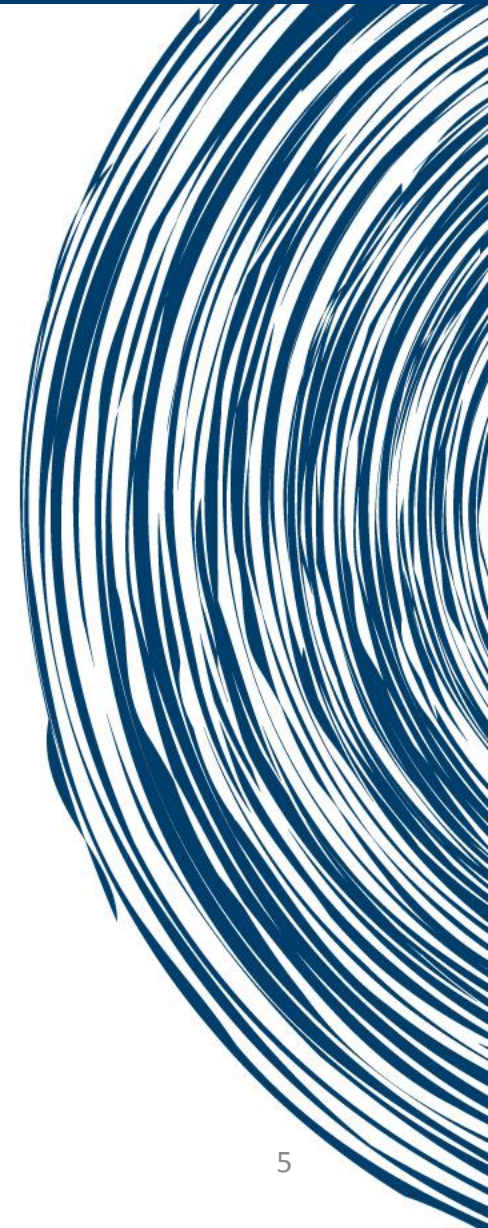
easy to install
& maintain





Input Opportunities & Responses

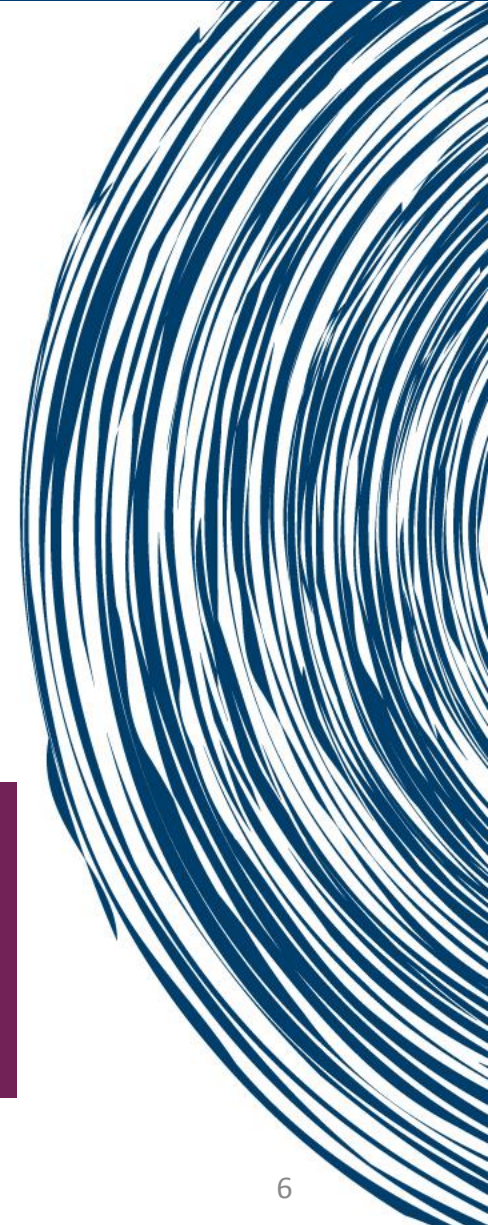
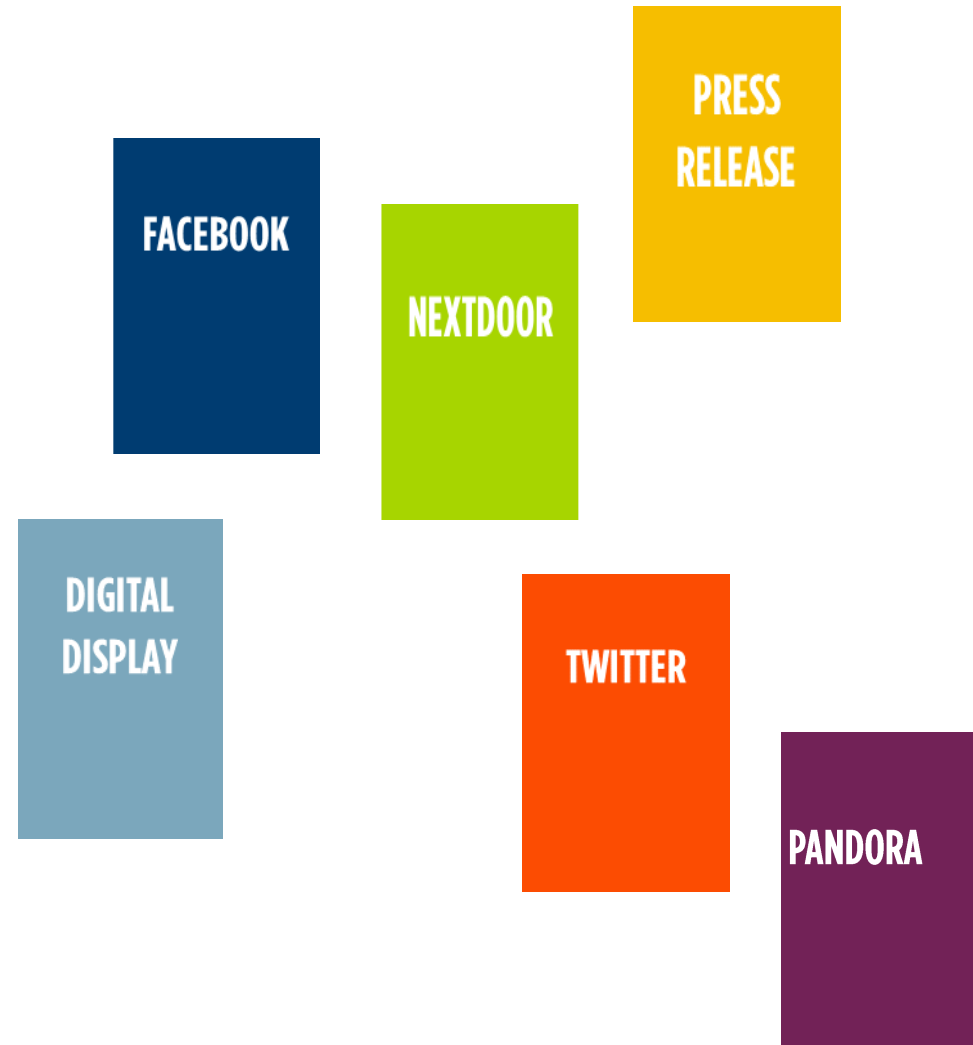
- Public Meetings
 - Sept. 21 & 25, 2019 (124 survey responses)
 - Jan. 21 & 25, 2020 (163 survey responses)
 - July 21 Webex meeting
- 4 Steering Committee Meetings
- Board, Commission & Special Interest Meetings:
 - Residents of Broadway Apartments
 - Valley Metro Accessibility Advisory Group (VMAAG)
 - Transportation Commission
 - Sustainability Commission
 - Development Review Commission
 - Mayor's Commission on Disability Concern
- Transit rider pop-up surveys at bus stops





Communication Tools

- Tempe Today newsletter
- Tempe 11
- Press releases
- Paid online advertising
- City online calendar
- Signs on buses
- Project website
- Online comment forms
- Social media
 - Twitter, Facebook, NextDoor

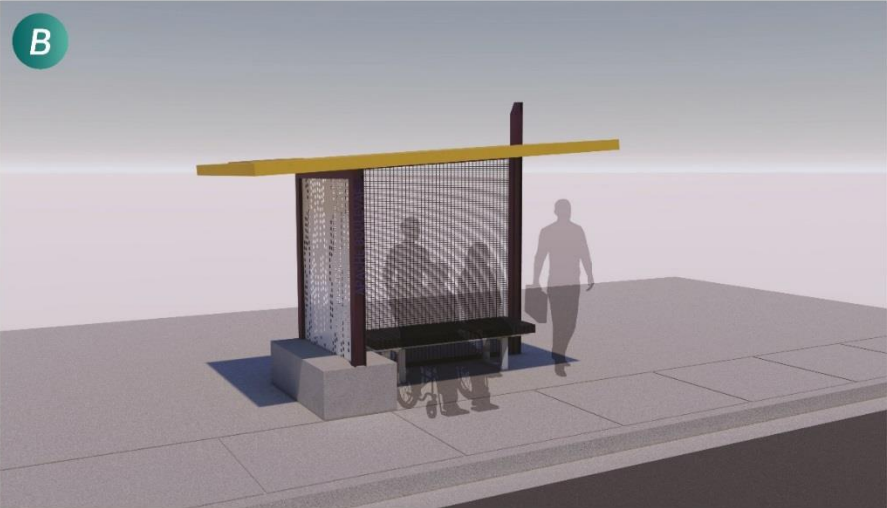




Ranking of Various Shelter Elements Based on Responses Received:

1. Shade
2. Seating
3. Lighting
4. Availability of Route Info
5. Rain Protection
6. Visibility to Oncoming Traffic
7. Trash/Recycle Bin Availability
8. ADA Accessibility
9. Use of Sustainable Materials
10. Resistance to Vandalism
11. Bike Racks
12. Public Art Incorporated
13. Scooter Parking

Early Concept Explorations: 'A'



Concept A - Proposed Sizes

- A** Micro | Footprint 3' x 6' (18 Sq. Ft.)
Roof Canopy 3'4" x 7'2" (24 Sq. Ft.)
- C** Regular | Footprint 7' x 14' (98 Sq. Ft.)
Roof Canopy 11'7" x 17'9" (205 Sq. Ft.)

- B** Small | Footprint 5' x 10' (50 Sq. Ft.)
Roof Canopy 6'9" x 12'2" (82 Sq. Ft.)
- D** Large | Footprint 9' x 28' (252 Sq. Ft.)
Roof Canopy 9' x 29'5" (265 Sq. Ft.)

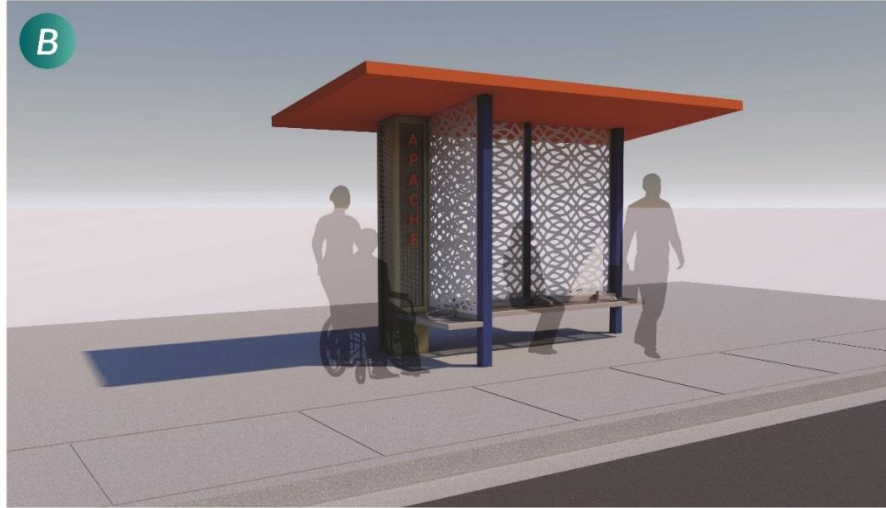
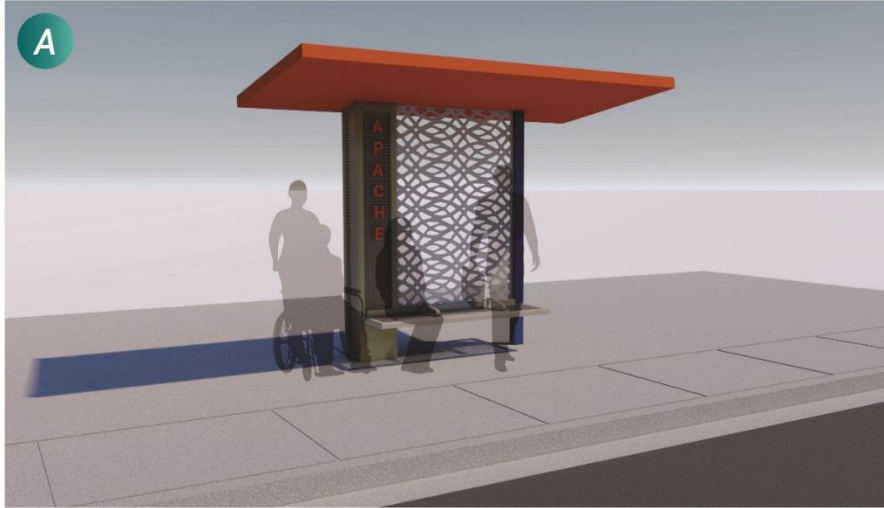
Tempe Transit Shelter

Revised Concepts | 6.18.2020



TYLin | J2 Design

Early Concept Explorations: 'B'



Concept B - Proposed Sizes

- A** Micro | Footprint 3' x 6' (18 Sq. Ft.)
Roof Canopy 5'10" x 12' (70 Sq. Ft.)
- B** Small | Footprint 5' x 10' (50 Sq. Ft.)
Roof Canopy 7' x 15' (105 Sq. Ft.)
- C** Regular | Footprint 7' x 14' (98 Sq. Ft.)
Roof Canopy 9'11" x 25' (248 Sq. Ft.)
- D** Large | Footprint 9' x 28' (252 Sq. Ft.)
Roof Canopy 12'1" x 28' (338 Sq. Ft.)

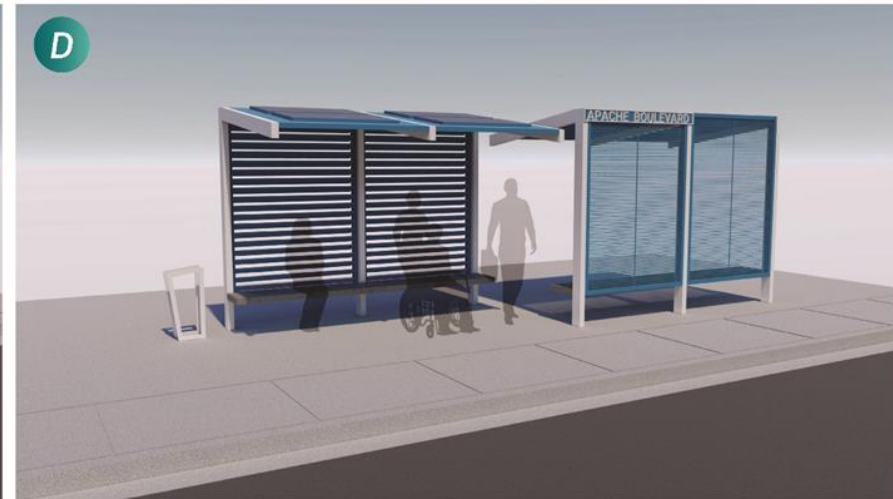
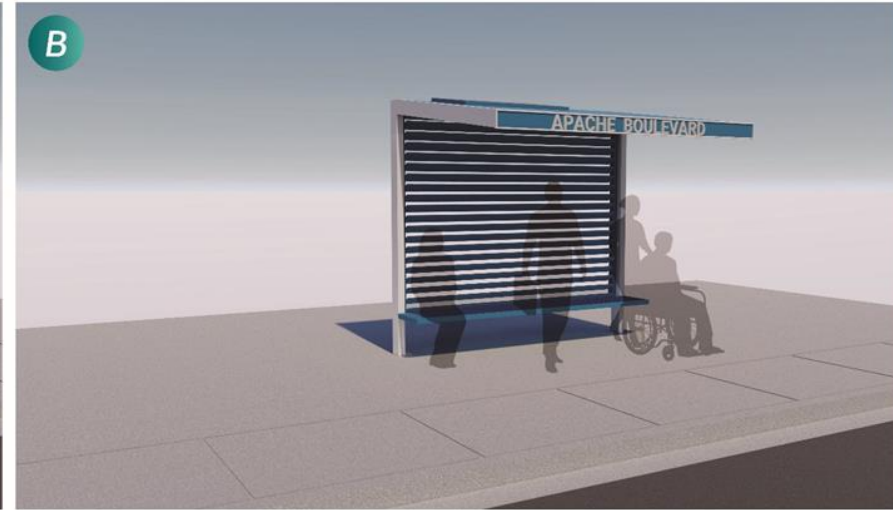
Tempe Transit Shelter

Revised Concepts | 6.18.2020



TYLin | J2 Design

Early Concept Explorations: 'C'



Concept C - Proposed Sizes

- A** Micro | Footprint 3' x 6' (18 Sq. Ft.)
Roof Canopy 5'3" x 6' (31 Sq. Ft.)
- C** Regular | Footprint 7' x 14' (98 Sq. Ft.)
Roof Canopy 6' x 6' (36 Sq. Ft.)

- B** Small | Footprint 5' x 10' (50 Sq. Ft.)
Roof Canopy 6'6" x 10' (65 Sq. Ft.)
- D** Large | Footprint 9' x 28' (252 Sq. Ft.)
Roof Canopy 6'6" x 11'9" (78 Sq. Ft.)

Tempe Transit Shelter

Revised Concepts | 6.18.2020

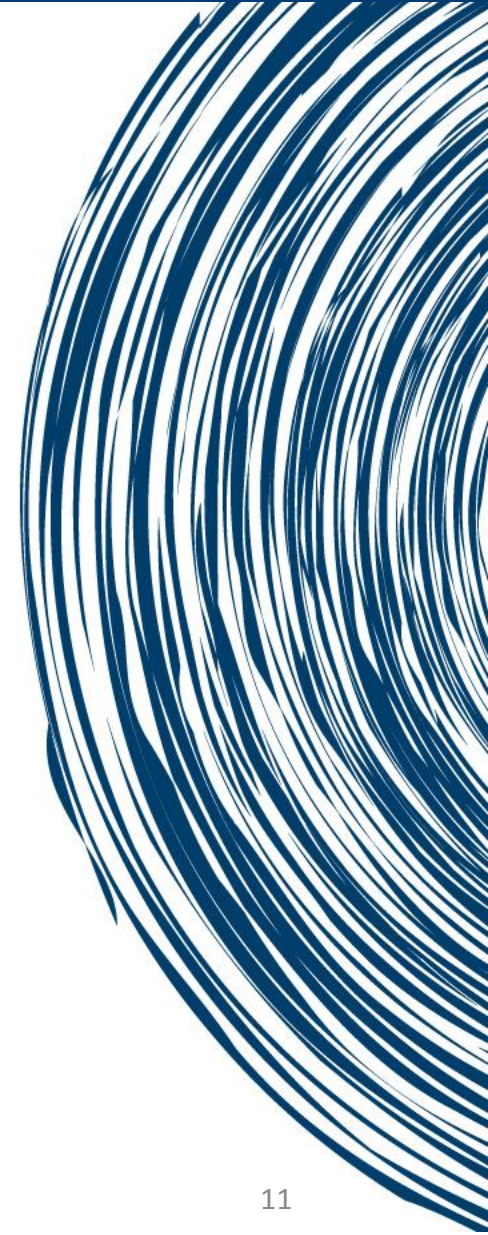


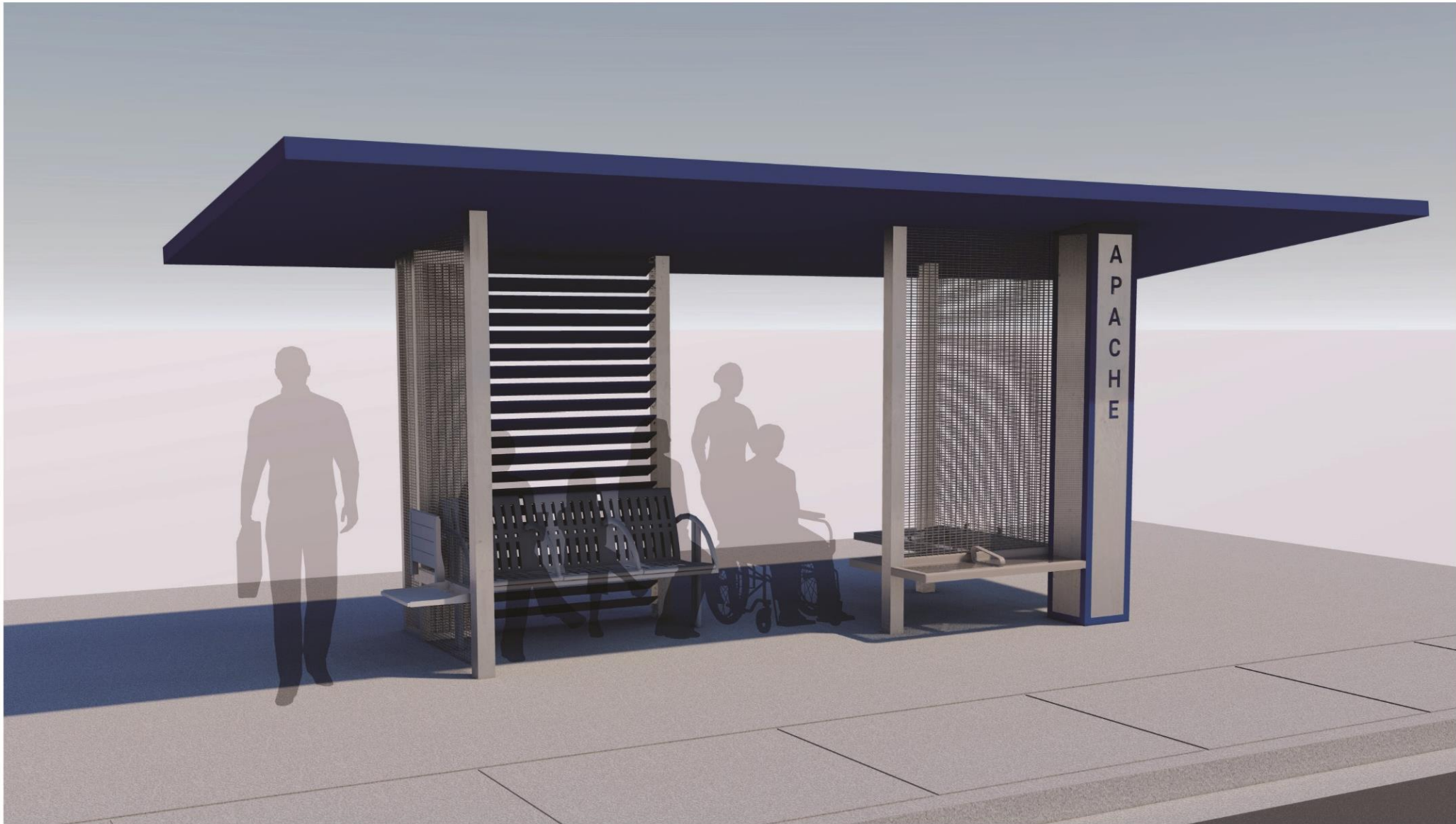
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The 3 concepts were evaluated by design criteria, based on public input:

- Shade
- Public Acceptance
- Safety
- Sustainability
- Flexibility
- Maintainability
- Unique Design
- Cost





Proposed Materials

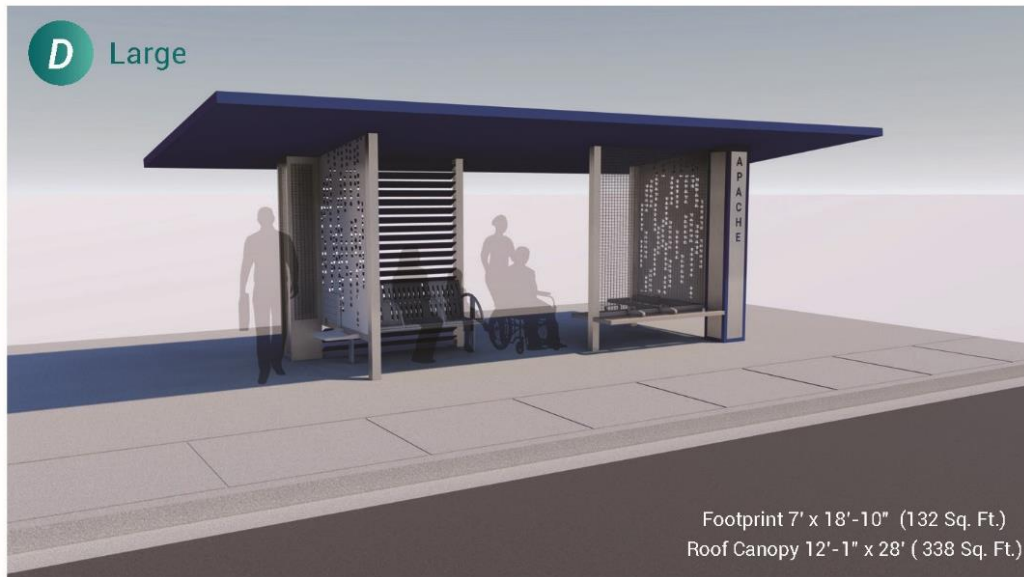
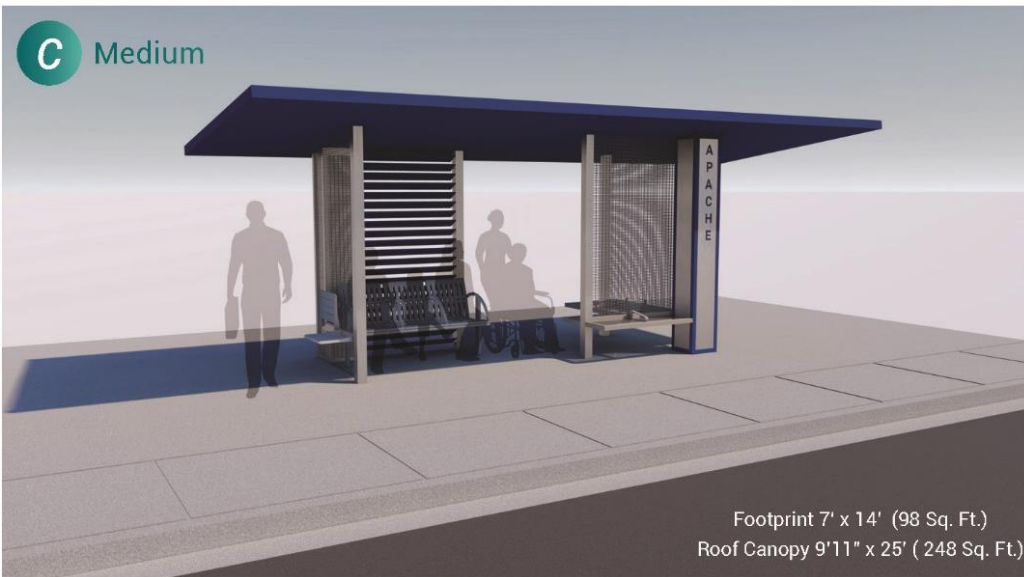
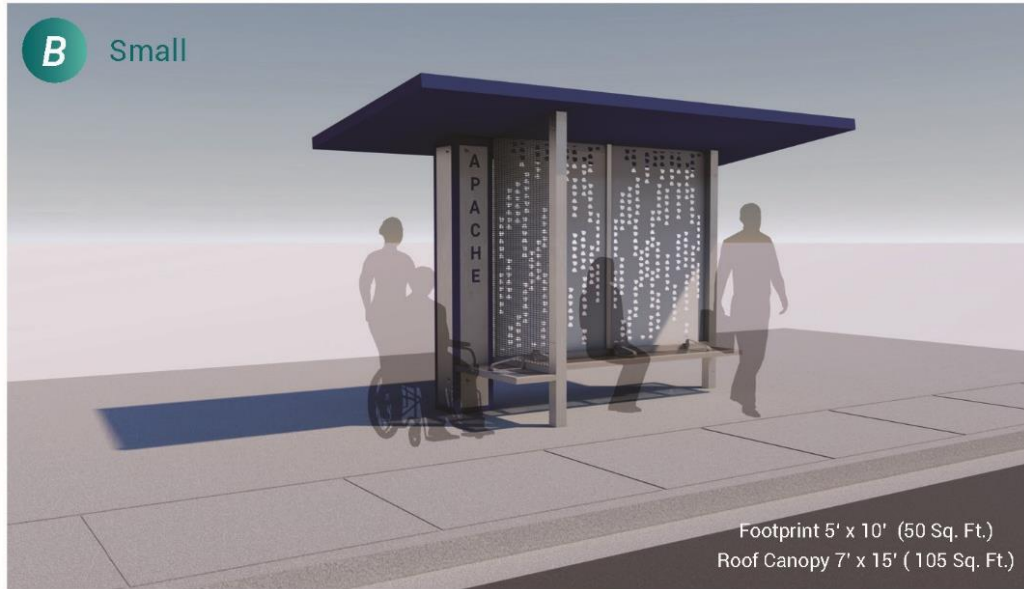
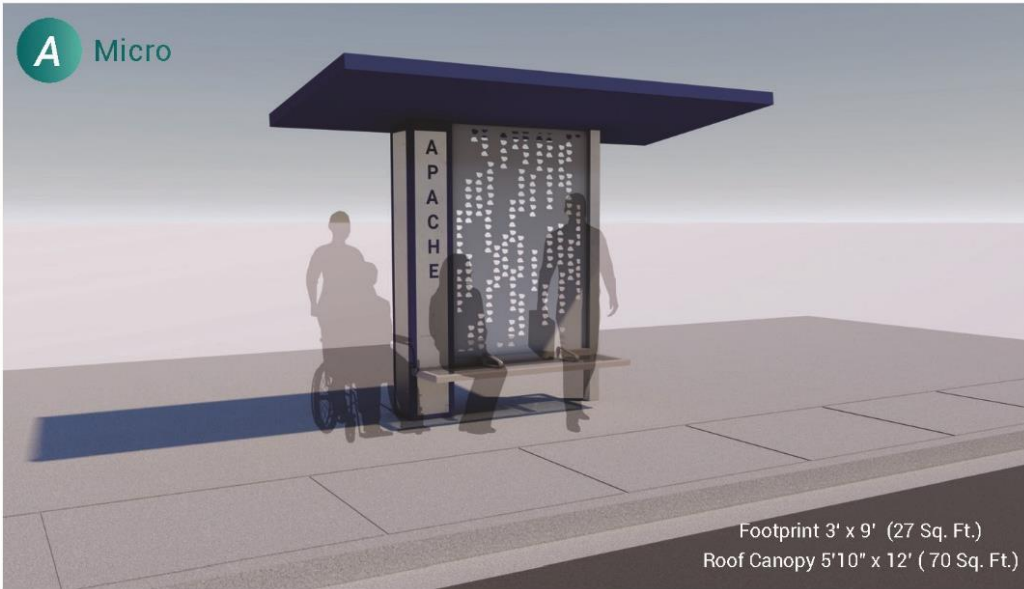
7' x 14' (Medium) Transit Shelter
Roof Canopy 9'11" x 25' (248 Sq. Ft.)

Tempe Transit Shelter

Consolidated Concepts | 7.21.20

TYLin | J2 Design





Proposed Sizes

Tempe Transit Shelter

Consolidated Concepts | 7.21.20

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Micro Footprint - Design Alternatives

3' x 9' (Micro) Transit Shelter
Roof Canopy 5'10" x 12' (70 Sq. Ft.)

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Small Footprint - Design Alternatives

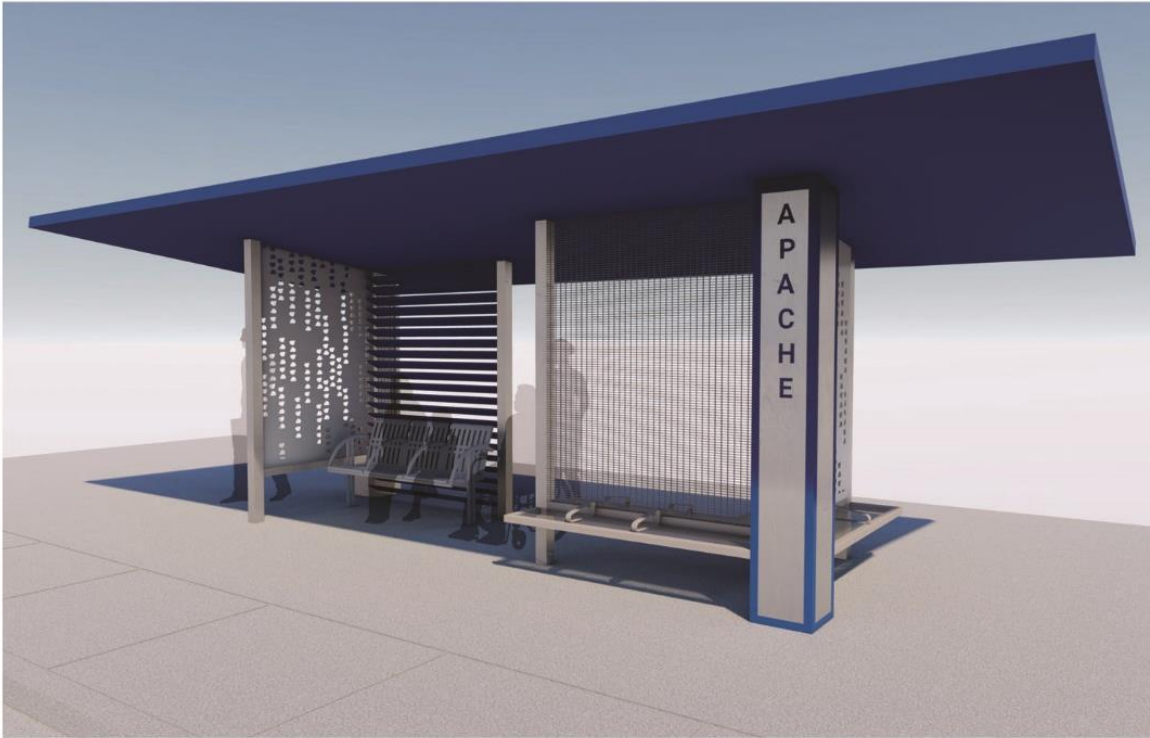
5' x 10' (Small) Transit Shelter
Roof Canopy 7' x 15' (105 Sq. Ft.)

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Additional Views

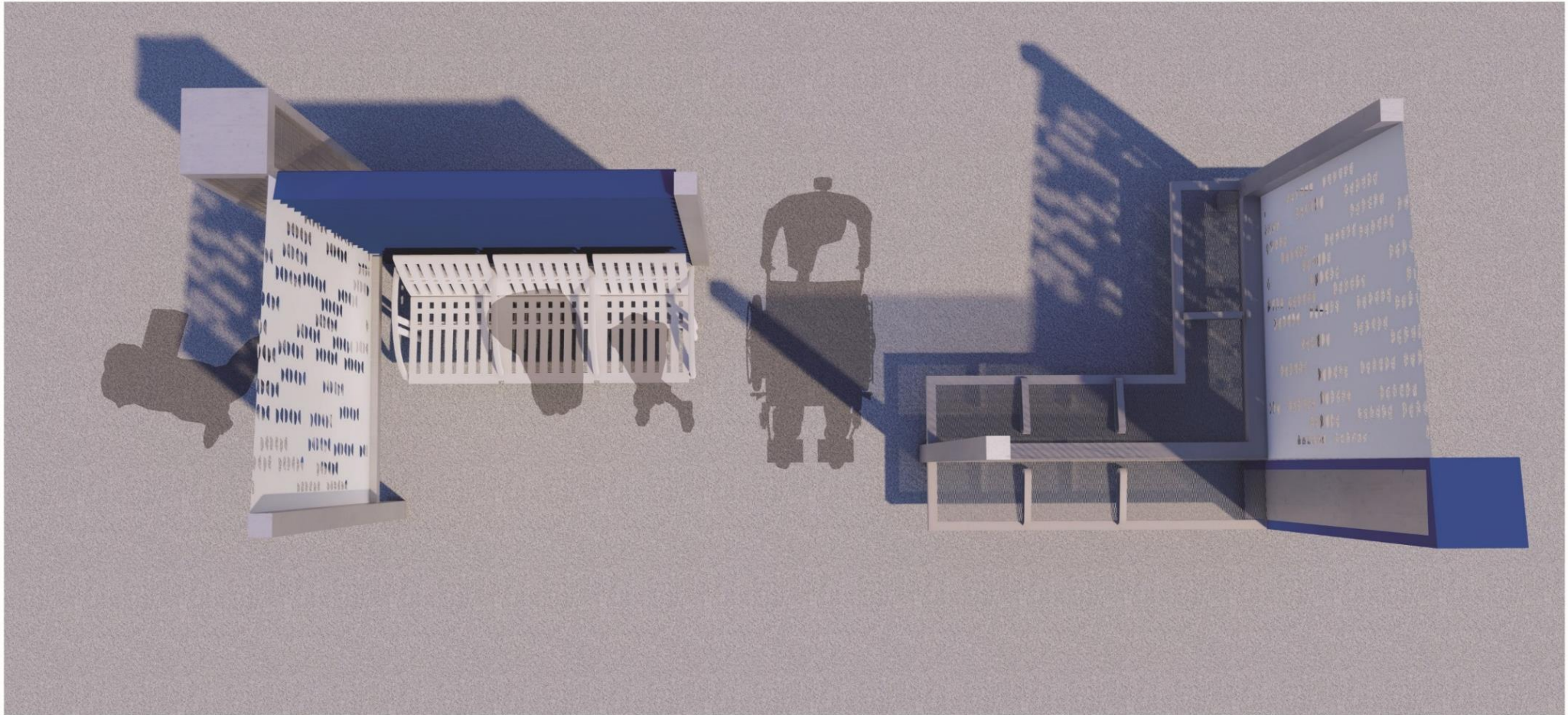
7' x 18'-10" (Large) Transit Shelter
Roof Canopy 12'-1" x 28' (338 Sq. Ft.)

Tempe Transit Shelter

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Plan View

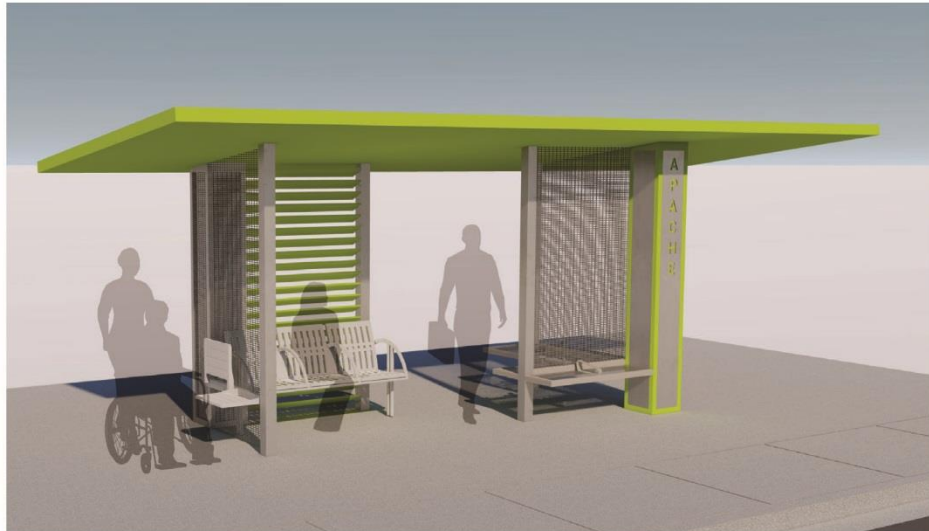
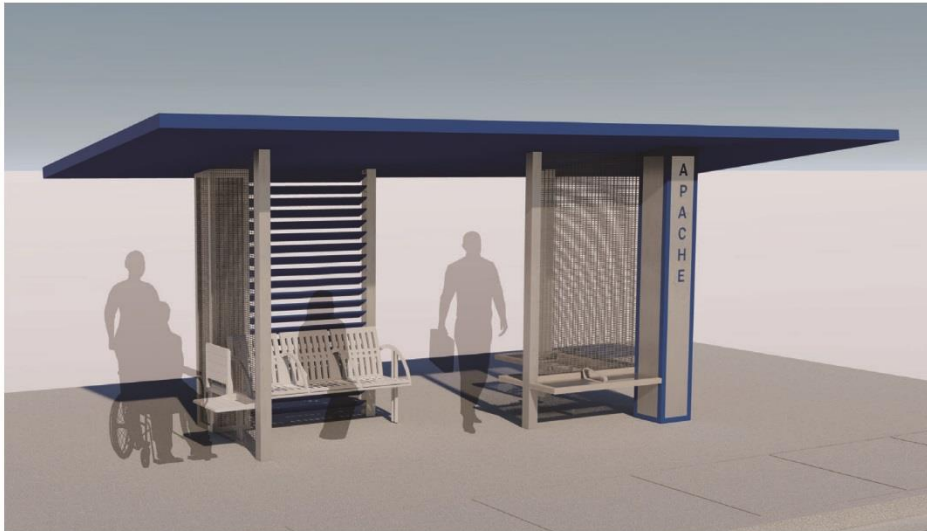
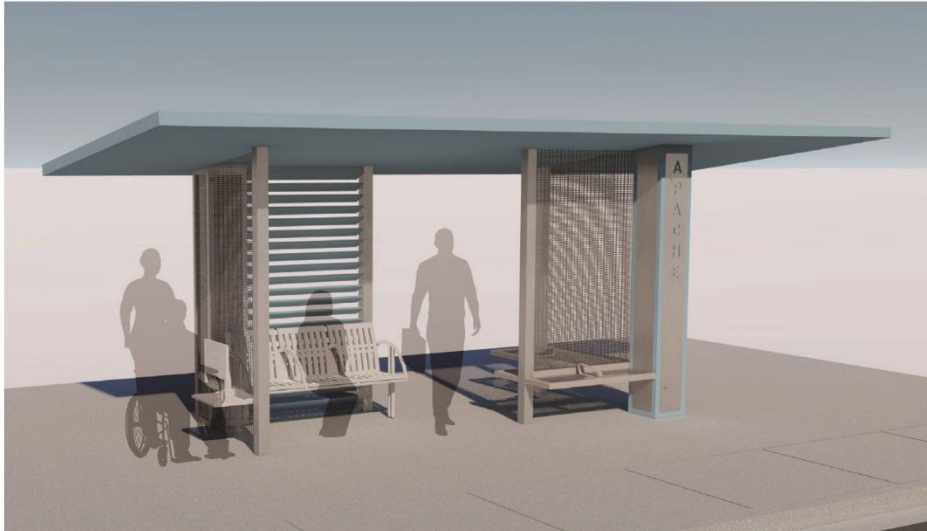
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Proposed Color Palettes

7' x 14' (Medium) Transit Shelter
 Roof Canopy 9'11" x 25' (248 Sq. Ft.)

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Northeast corner, facing West



Sun / Shade Study | June 20th 8 am - 7pm

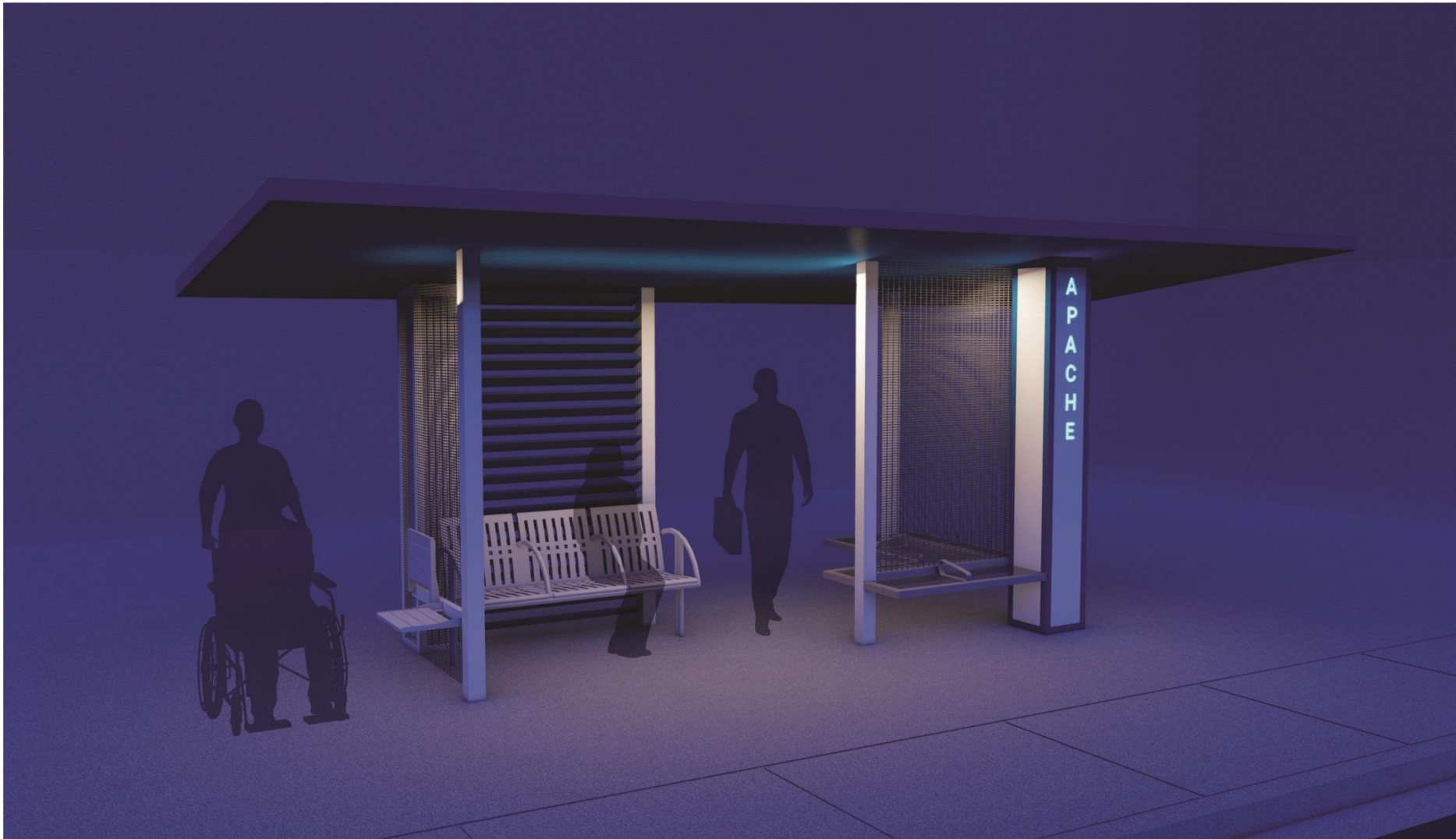
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Roof Canopy 9'11" x 25' (248 Sq. Ft.)

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Proposed Lighting

7' x 14' (Medium) Transit Shelter
Roof Canopy 9'11" x 25' (248 Sq. Ft.)

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Benches



Tandem | 6' Bench



Chase | 6' Bench



Flip Seat

Trash Receptacles



Std. Trash Receptacle



"M" Style



Eagle Creek



Bevel

Bike Racks

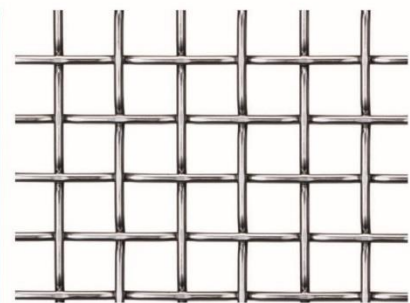


Olympia



Bike Hoop

Transit Shelter Proposed Materials



Architectural Mesh



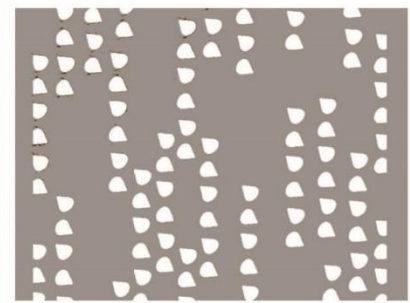
Aluminum Louvers



Perforated Panels



Corrugated & Perforated Panels



Custom Pattern Metal Panels



Acrylic Letters

Tempe Brand Colors

- 541c Pantone
- 7695c Pantone
- 2291c Pantone
- 7650c Pantone
- 1655c Pantone
- 151c Pantone
- 7408c Pantone

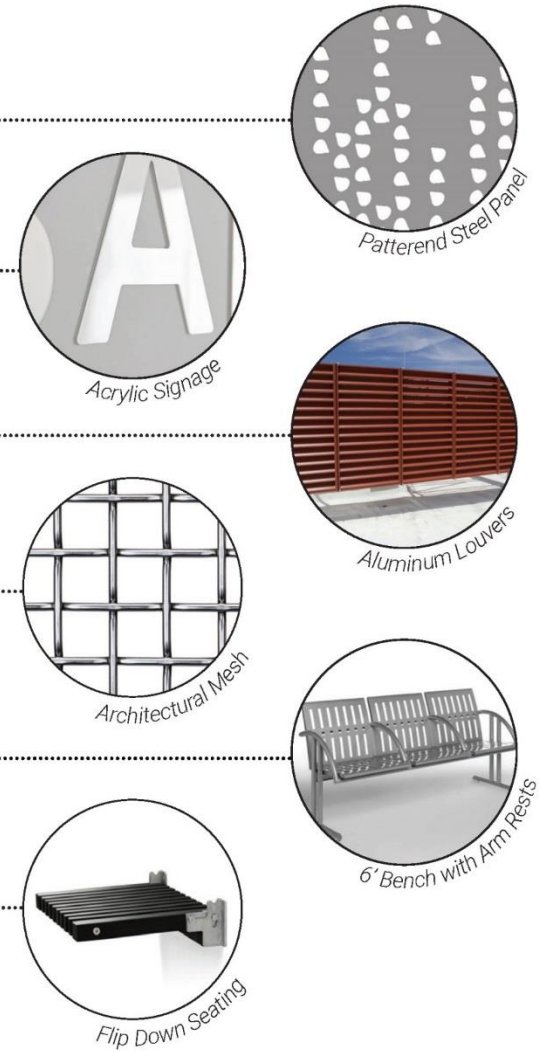
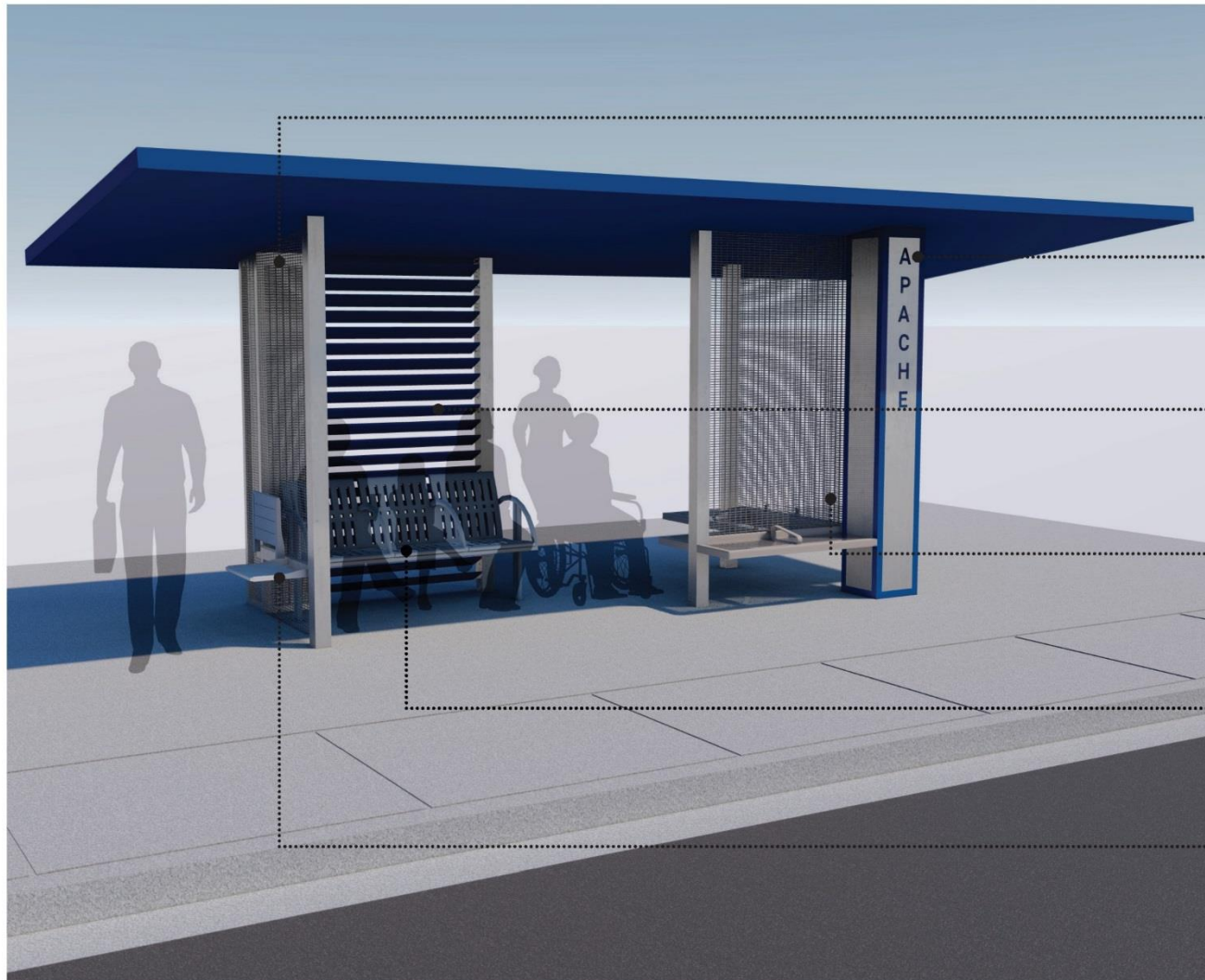
Site Furnishings / Project Materials

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Proposed Materials

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 Roof Canopy 9'11" x 25' (248 Sq. Ft.)

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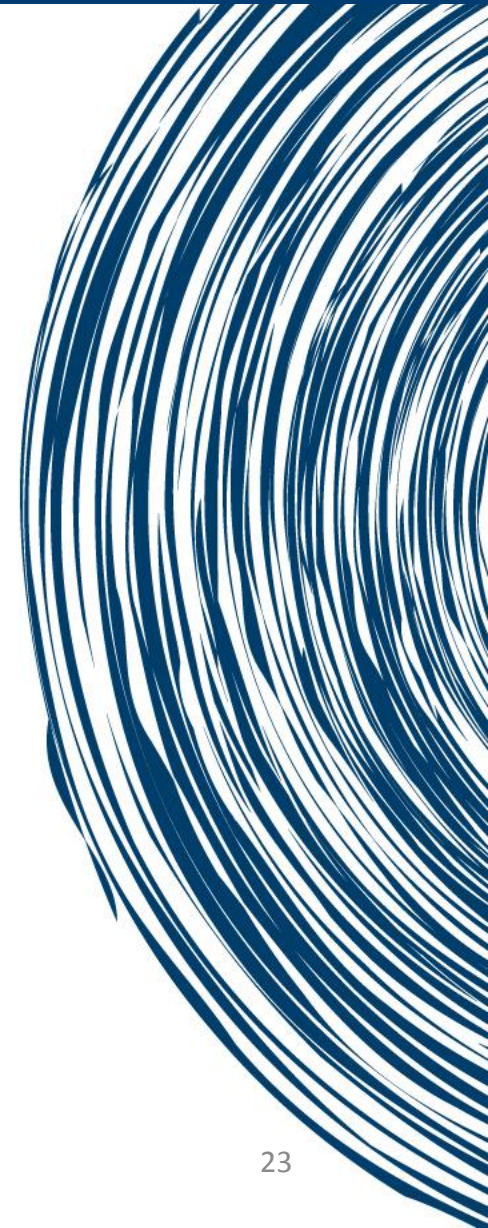
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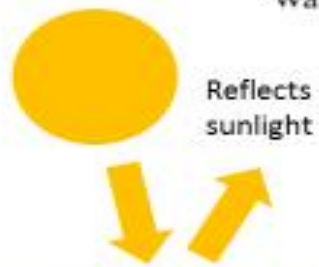
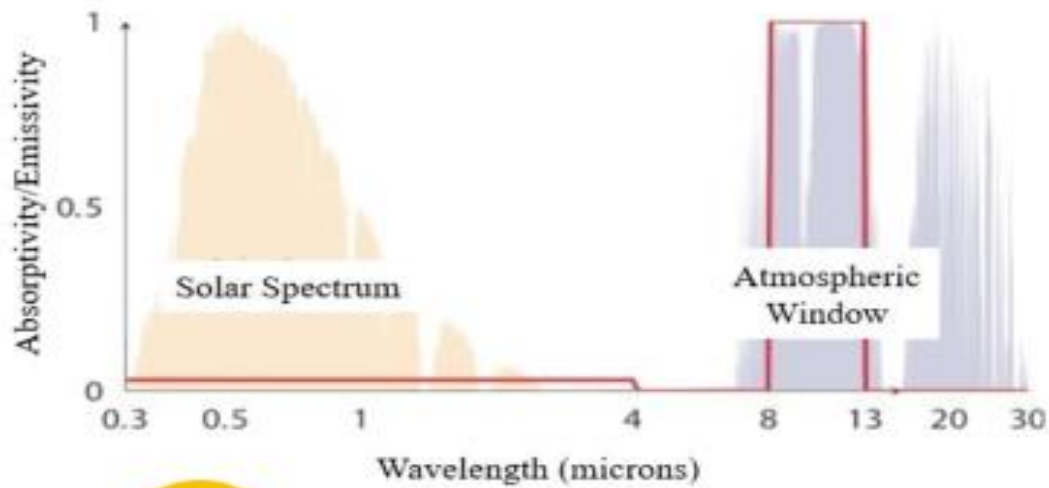




David J Sailor, Director Urban Climate Research Center, ASU

- Testing latest radiative film provided and installed by 3M
- Sailor, A. Middel and R. King received ASU grant funding for thorough evaluation of material performance
 - full year of data testing (July 2020 – June 2021) for temperature & comfort

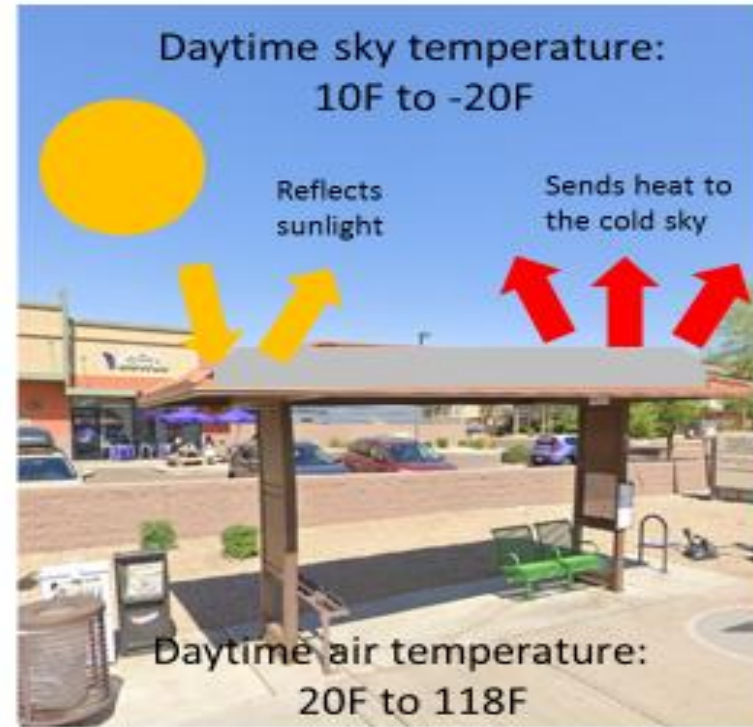




Daytime Radiative Cooling Surface

*MOF VIS Mirror + IR Mirror
Rejects Solar Spectrum*

*Provides high emissivity
In 8-13 micron range*



‘Super-cool’ materials stay colder than their soundings even in direct sunlight, by emitting heat that can pass through the atmosphere and into space.

Transit Shelter Prioritization



Households with no vehicles	9.4%
Use transit as means to work	5%
Households living below poverty	21%
Population density: people per square mile	4,050
Ridership	9 million+

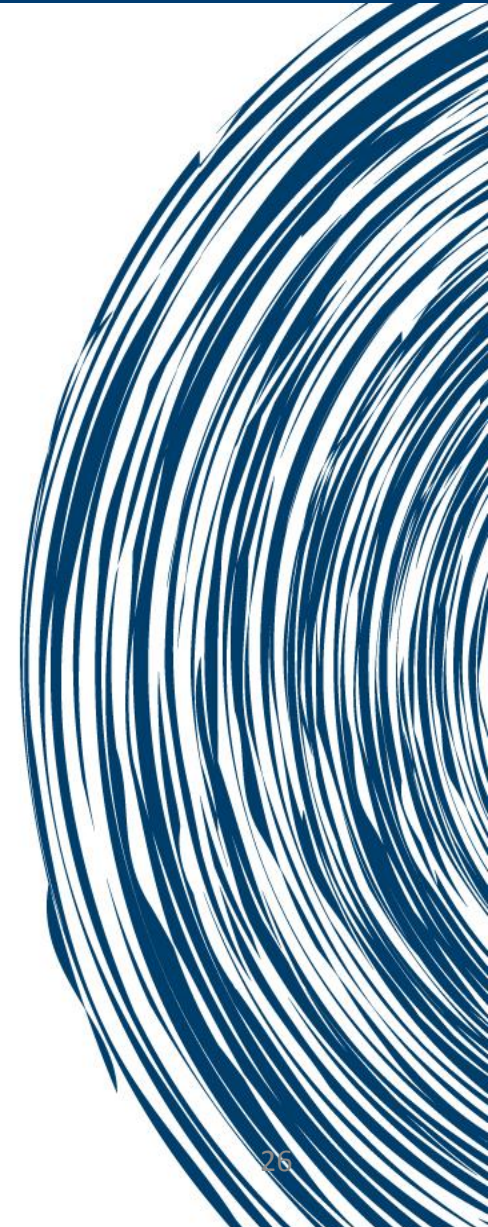


Heat reflecting from walls, pavement – no shelter or trees



Identifying the most critical measures for shelter placement & creating a list for implementation

- **Transit Ridership**
 - Average weekly boardings
- **Transit Demand**
 - Population
 - Employment
- **Equity**
 - Minority Population
 - Households Below Poverty
 - Heat Vulnerability





Tempe - Poverty

Tempe - Asthma

Tempe - Heat Deaths

Tempe - Heat Illnesses

Tempe - COPD

Tempe - Diabetes

Tempe - Mental Illness

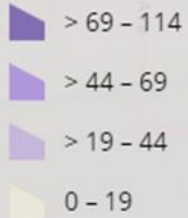
Tempe - Heart Disease

Heat_Refuge

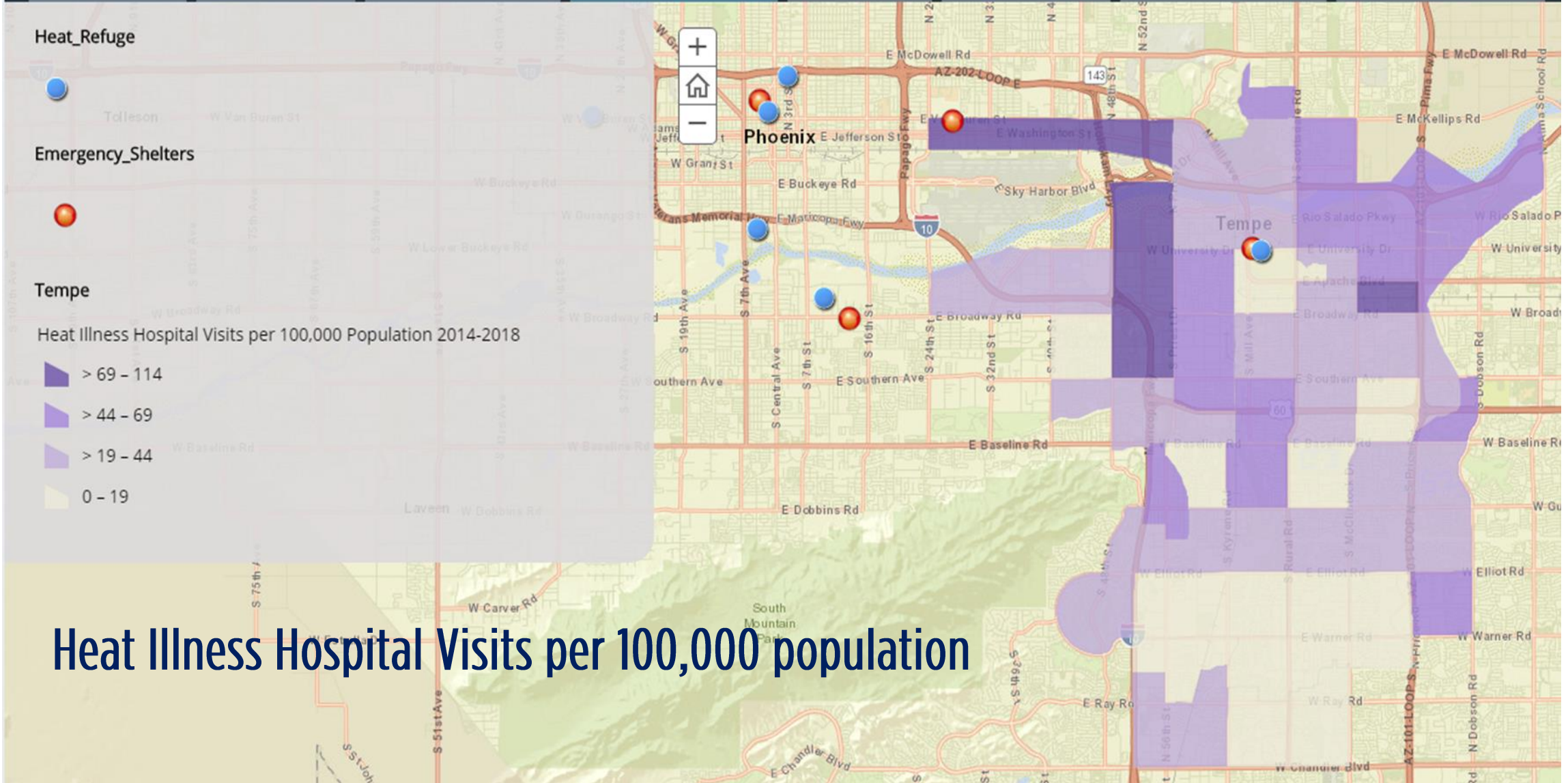
Emergency_Shelters

Tempe

Heat Illness Hospital Visits per 100,000 Population 2014-2018

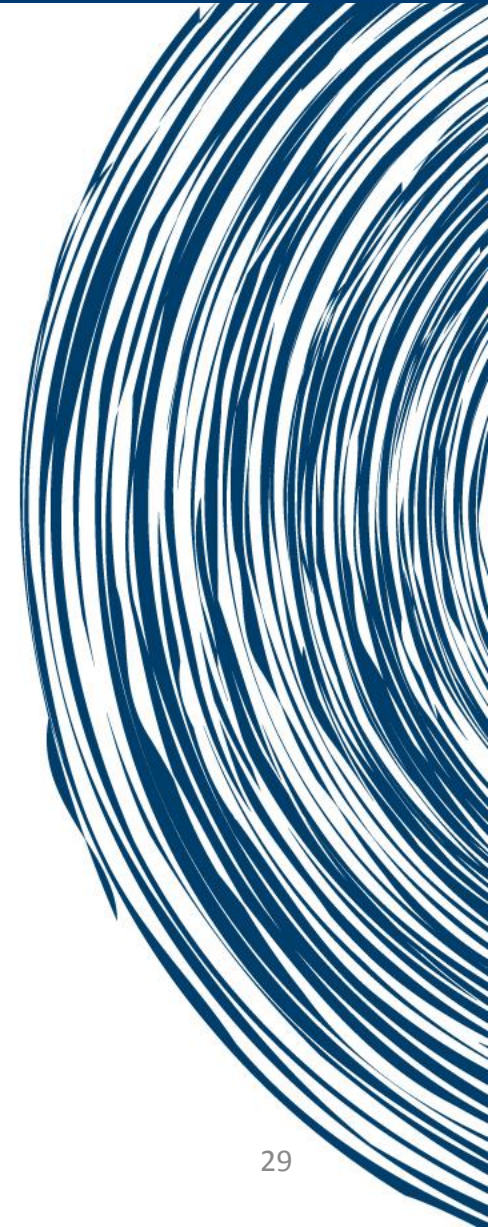


Heat Illness Hospital Visits per 100,000 population





- Engineering reviews at 30%, 60% & 90% completion
 - constructability
 - flexibility, kit of parts
 - adaptability to site constraints
 - cost estimates & value engineering
 - materials, finishes, colors
- Working with fabricator to develop prototype for public review

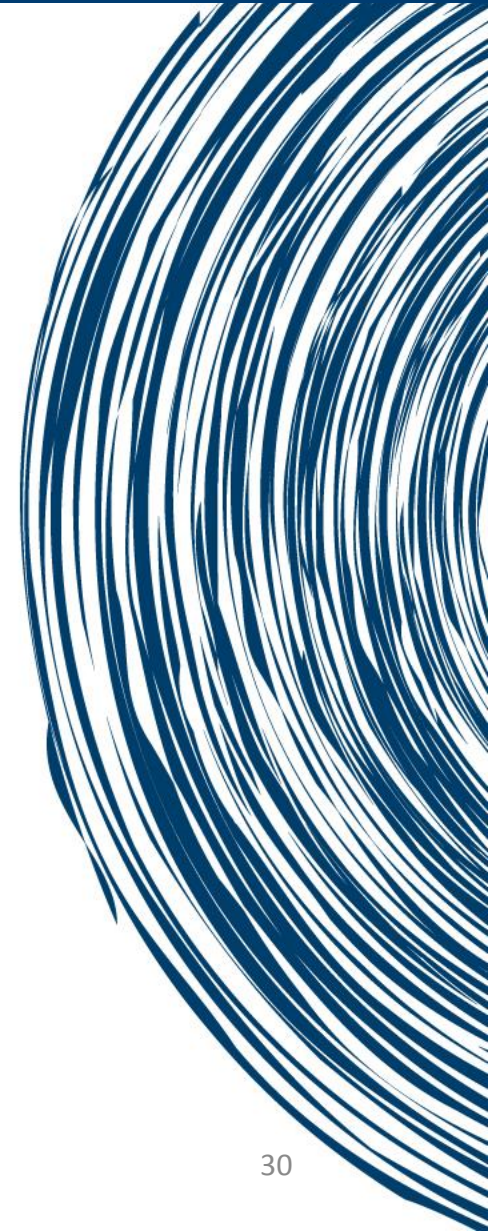




Goal: Meeting the needs of more transit riders, by serving restricted sites with two new smaller scale shelters, at lesser cost than full sized shelters.

Sources of Funding:

- Tempe Transit Tax - annual bus stop improvements
- Private development community partnerships



Next Steps



Public Meeting via Webex
(comments through August 4)

July 21, 2020

Transportation Commission Meeting

August 18, 2020

Council Issue Review Session

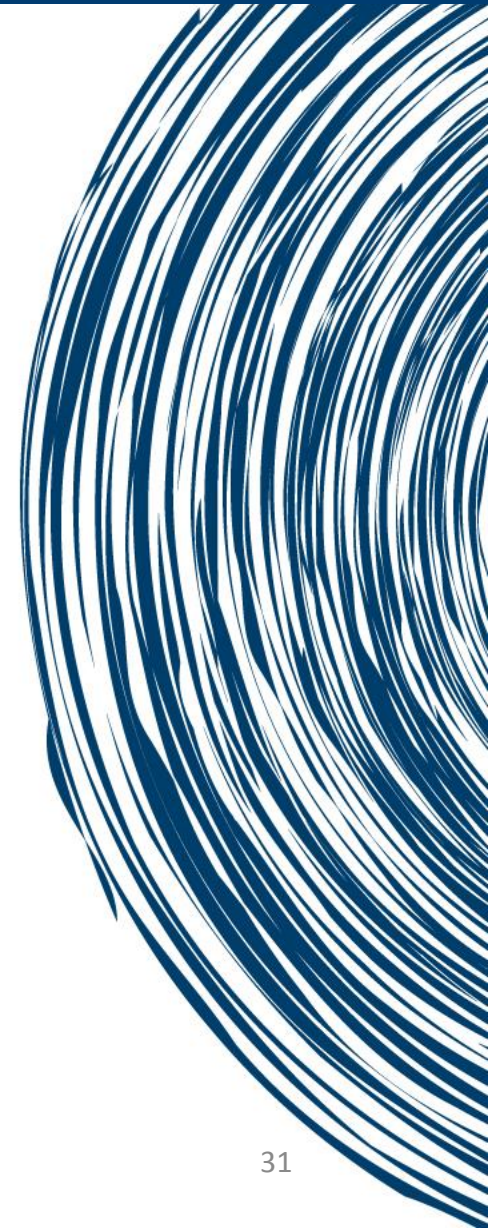
August 20, 2020

Fabricated prototype for public review

Spring 2021

Initiate installations

Summer 2021





QUESTIONS?

Contact:

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Architect/Urban Planner

City of Tempe Transportation

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bonnie_richardson@tempe.gov

