Tempe Streetcar

Update #14

Revised (slides 4 & 5 updated 1/5/2015)

Tempe City Council

Issue Review Session

January 8, 2015

Agenda

- Streetcar Stop Locations (Direction)
- Streetcar Propulsion Systems (Direction)
- Streetcar Vehicle Size (Feedback)
- Project Cost Update
- Recommendations
- Next Steps

Recap

- Nov. 13, 2014: Council IRS
- Nov. 18, 2014: Transportation Commission
- Dec. 1, 2014: Public Meeting
- Dec. 3, 2014: Transportation & Governance Committee of the Chamber of Commerce
- Jan. 6, 2015: Transportation Commission
- Jan. 7, 2015: Downtown Tempe Authority

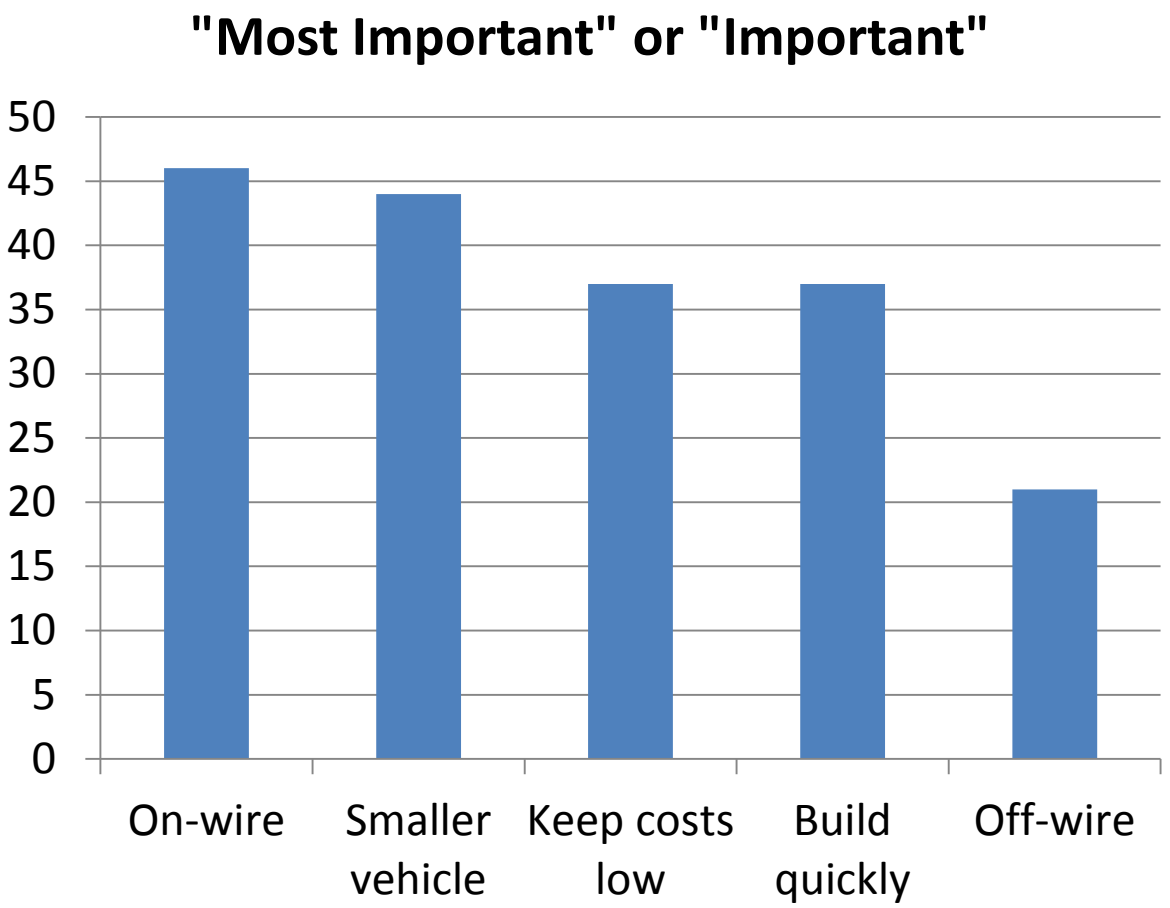
Community Input Received

- As of January 5, 2015: 106 surveys received
- 90+ residents attended community meeting
- Asked about:
  - Stop locations
  - Streetcar propulsion
  - Vehicle size
  - Project costs

Survey Results

Top comments:

- Extend streetcar to Tempe Marketplace
- Move McAllister stop to Paseo del Saber
- Consider stop to serve Tempe St. Luke's



Recommended Stop Locations

Comparison: OBES and Wire Technology

Propulsion System	Pros	Cons
On-Board Energy Storage (OBES)	No overhead wires on Mill Avenue	Not a proven technology in U.S.
	Reduced infrastructure cost (OCS)	Higher capital and operating costs
		Power capacity given local conditions
		Battery life unknown
		Requires significant space for batteries
		Charging stations may be required
Wire Technology	Proven technology	Overhead wires on Mill Avenue
	Lower capital and operating costs	Additional infrastructure cost (OCS)
	Flexibility in vehicle choice	

Estimated Additional Cost for Off-Wire

Category	Capital	Operating / Maintenance
Vehicles (6) • Includes batteries and pantograph	$3,650,000	$4,520,000
Overhead wire/poles	($1,380,000)	($146,000)
Maintenance facility	$50,000	$2,750
Energy	$0	$132,000
Subtotals	$2,320,000	$4,508,750

NET TOTAL ≈ $6,830,000

30-Year Life Cycle / 2014 Dollars

Vehicle Propulsion Recommendation

- On-wire technology along entire alignment
  - Proven technology, cost efficient

Cantilever Arms

Span Wire

Vehicle Sizes

BUS

Bus: Valley Metro (Orbit)
Length: 24.5 ft
Height: 9.6 ft
Width: 8 ft
Capacity: 23

Bus: Valley Metro
Length: 40 ft
Height: 11.3 ft
Width: 8.5 ft
Capacity: 54

Bus: Valley Metro LINK
Length: 60 ft
Height: 11.1 ft
Width: 8.5 ft
Capacity: 83

STREETCAR

Streetcar: United Streetcar
City: Tucson, Portland, DC, Seattle
Length: 66 ft
Height: 11 ft
Width: 8 ft
Capacity: 125

Streetcar: CAF
City: Cinncinati
Length: 78 ft
Height: 11 ft
Width: 8.7 ft
Capacity: 145

LIGHT RAIL

Light Rail: Kinkisharyo LRV
City: Valley Metro
Length: 92 ft
Height: 12.2 ft
Width: 8.7 ft
Capacity: 190

CAR

Typical 4 Door Sedan
Length: 16 ft
Height: 5 ft
Width: 6 ft

Vehicle Size Criteria

- Vehicle Capacity
  - Daily service operations
  - Special event demand
- Influence on project design
  - Stop platform length
  - Streetscape scale and character
- Cost – compared to light rail vehicle
  - Spare vehicle requirements
  - Maintenance facility equipment needs

6th Street/Mill Avenue Simulation

- Single Wire Span – No Vehicle

6th Street/Mill Avenue Simulation

- 66-foot vehicle/single wire - cantilever

6th Street/Mill Avenue Simulation

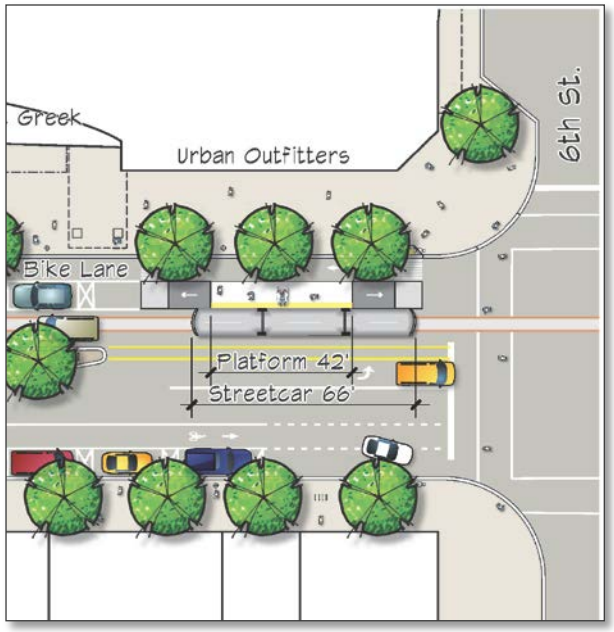
- 78-foot vehicle/single wire - span

6th Street/Mill Avenue Simulation

- 92-foot vehicle/single wire - cantilever

6th/Mill Street Stop Length

66’ vehicle = 42’ platform



Existing = 5 parking stalls

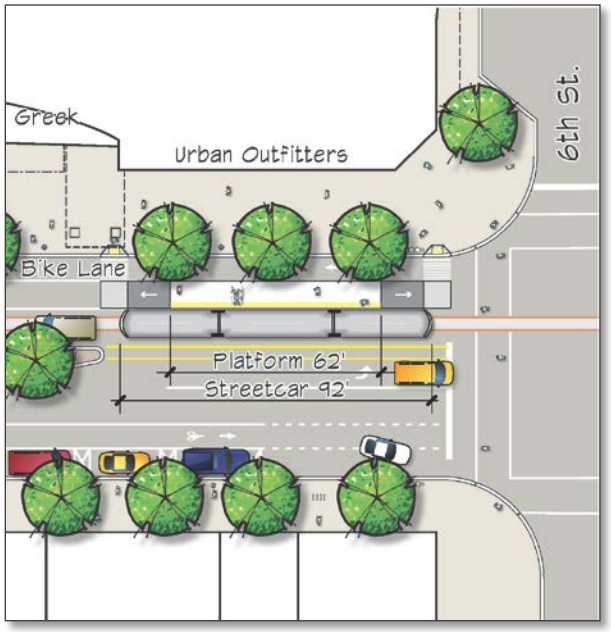
Build = 4 parking stalls

78’ vehicle = 53’ platform

Existing = 5 parking stalls

Build = 3 parking stalls

92’ vehicle = 62’ platform



Existing = 5 parking stalls

Build = 3 parking stalls

Bus and streetcar stop sharing will be evaluated.

Mill Avenue Streetcar Traffic Impacts

- Initial traffic analysis completed in 2011 assuming 2015 build conditions
- Analysis included Streetcar frequency operations at every 10 minutes
- All intersections on Mill between University and Rio Salado evaluated
- Findings: Streetcar does not degrade the current level of service

Project Cost Update

- $177M Capital Costs
  - Assumes 6 on-wire unique vehicles (not LRT vehicle)
- Continuing to evaluate cost reduction options
  - Joint procurement opportunities with peer transit systems
  - Vehicle size and maintenance facility
  - Value engineering
- Independent review of project cost estimate
  - Evaluating risk

Recommendations

- To support proposed streetcar stops
- To support use of on-wire propulsion
- To give initial feedback on a vehicle size

Next Steps

- Awaiting Small Start Preliminary Justification rating from FTA (January)
- Street configuration (Spring)
- Finalize vehicle size recommendation (Spring)
- Environmental Assessment (August)
- Project financing (Ongoing)
- Community outreach (Ongoing)