



## MINUTES

Pursuant to A.R.S. § 38-431.02, notice is hereby given to the members of the Mayor and Council Tucson Transit Advisory Committee and to the general public that the Committee will hold the following meeting which will be open to the public on:

**Monday, December 15, 2025 at 3:00 PM**  
**Park Tucson Conference Room, 110 E. Pennington St., Ste. 150**

1. Call to Order/Roll Call – 5 minutes

*Those present were:*

**Members**

-Ray Jordan, Ward 2  
-Suzanne Schafer, Ward 3  
-Josue Licea, Ward 5  
-Margot Garcia, Ward 6  
-Gene Caywood, City Manager

*Those absent were:*

**Members**

-Mike Milczarek, City  
Manager  
-Mike Sanchez,  
Ward 4

**Others**

Preston McLaughlin, PAG/RTA staff  
representative (nonvoting member)  
Allen Benz, Public  
Elaina Roberts, Public  
Laura Smith, Public  
Richard Meyers, Public  
Mikel Oglesby, Sun Tran  
Andrew Vargas, Sun Tran  
Jason Tuttle, Sun Tran  
Sam Credio, City of Tucson  
Andy Bemis, City of Tucson  
James Castaneda, City of Tucson  
Ian Sansom, City of Tucson

2. Approval of Minutes – (Vote) – 5 minutes

The approval of minutes was moved, duly seconded, and, hearing no objections, Chair Suzanne Schafer approved the motion.

3. Call to the Audience (First) – 5 minutes

Allen Benz thanked Gene Caywood for the Trolley Barn open house, held in November

Laura Smith, a 23-year-long rider of Sun Tran, was assaulted on Nov 5<sup>th</sup> on a Sun Tran bus. She would like to know how those crimes and assaults are being filed and recorded as there isn't a data source that includes the crime that she reported. She said people are afraid to use the bus, elderly people are afraid to ride, and wants to know how Sun Tran are keeping statistics.

Richard Meyer would like to know when the trolleys will be fixed, how they'll be fixed, and why there isn't more info posted about why there is lower frequency of service and more delays.

Gene thanked everyone who came to the Trolley Museum open house, said it was a successful event.

Ray Jordan made an observation that buses in Australia are smoother and quieter. He recounted that there was a person with a walker that was denied entry to a bus at a bus stop due to lack of space, but said other, larger groups of people were let on and is wondering what was reasoning that someone with a disability wasn't let on the bus.

4. Updates/Announcements from TTAC Members and Staff (Informational Only) – 35 minutes

Mikel Oglesby mentioned that there have been a number of changes recently – new AGM of Sun Van, new Director of Maintenance, new Director of Finance, and new AGM of Sun Link soon – and would like to bring everyone in at some point to introduce them to the committee. Mikel gave an overview of the completed and underway bus stop improvement grants, that will see amenities and stormwater infrastructure at 80 stops around the city. Sun Tran also broke ground at the new CNG station at the north yard. The new app has rolled out and greatly improves communication and knowing where the bus or streetcars are at any given time. In response to the app update, Suzanne Schafer commented that there's a delay in the location updates and so she's left a couple times when bus is about to arrive because it shows bus as arriving sooner than it does. Mikel responded this is a temporary glitch.

Preston McLaughlin at PAG gave an update on RTA Next outreach, which is ongoing and will restart in 2026. He also mentioned they can do personal outreach events on request.

5. Complete Streets Coordinating Council Update – 5 minutes

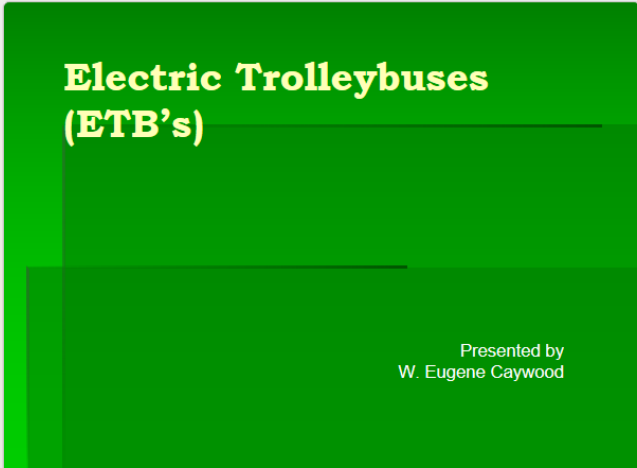
Suzanne mentioned they need a representative from TTAC at the CSCC meetings, and asked if anyone would volunteer. No takers, but Suzanne will follow up on this item and try again at next meeting.

6. Consideration to Change Meeting Start Time from 3:00 PM to 2:30 PM – 5 Minutes  
*Suzanne Schafer*

Suzanne asked if there was a support for an earlier start time. Ray started a motion to start meetings at 2:30pm. Motion was approved. Earlier start will be effective starting in January 2026.

7. Electric Trolley Bus Presentation, 3<sup>rd</sup> Part – 20 minutes  
*Vice Chair Gene Caywood*

Gene presented the following presentation.

 <p><b>Electric Trolleybuses (ETB's)</b></p> <p>Presented by W. Eugene Caywood</p>	<p><b>ETB Facts &amp; Idea for Tucson</b></p> <p>Key points from my <u>first presentation</u>:</p> <ol style="list-style-type: none"><li>1. We should not be spending large sums of money on Battery Electric Buses, which are not capable of staying in service for 16 to 18 or more hours a day;</li><li>2. Instead, we should be spending that money on a tried and true electric transit technology which has been in use for some 90 years in the U.S. – the Electric Trolley Bus (ETB). <small>from a 2013 article on Seattle's next generation ETB's: "A 2009 county performance audit confirmed that, compared to their diesel-hybrid counterparts, electric trolley buses are quieter, use less energy, are better on hills and are more cost effective to operate."</small></li><li>3. Our heaviest traveled routes should be converted to ETB's. This will require installation of poles, wires and power substations.</li><li>4. Currently lacking support for this idea, I proposed we start with a pilot route where some infrastructure is in place, which is the case along about half of S. 6<sup>th</sup> Ave. between Downtown and Laos Transit Center. There poles were installed years ago to hold overhead conduit wire for future Light Rail.</li></ol>
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## ETB Facts & Idea for Tucson

Key points from my second presentation:

1. Some history using photos.
  - a. First experimental trolley bus was in Berlin Germany in 1882
  - b. First trolley bus in U.S. was seasonal in near Nantasket Beach in Hull, MA in 1904
  - c. First year-round, daily, service in the U.S. was in L.A. in 1910
  - d. Initially ETB's were seen as extensions of streetcar lines where the cost of laying track was prohibitive. By 1918 they began to be seen as replacements for streetcar lines.
  - e. By the 1920's and '30's trolleybuses became more common. At the peak of their usage there were somewhere around 800 systems world wide, 65 in the U. S. and 17 in Canada



## ETB Facts & Idea for Tucson

Key points from my second presentation:

2. Answer some questions on how ETB's work
  - a. Poles on roof collect power from overhead wires, feeding it to electric motors – same concept as the Sun Link streetcar.
  - b. But ETB's require two poles since the electrical return circuit is via overhead wire, rather than through the track in the street with streetcars.
  - c. Poles can extend far to the side allowing buses to pass traffic blocking the right hand lane.
  - d. They can be used in tunnels where exhaust or fumes are a concern.
  - e. They climb steep hills quickly and easily, unlike diesel, CNG or even battery electric buses.



## ETB Facts & Idea for Tucson

Key points from my second presentation:

3. Today trolleybuses still operate in 4 U. S. cities:

Dayton  
Philadelphia  
San Francisco  
Seattle



and 1 Canadian city  
Vancouver



and 2 Mexican cities  
Guadalajara  
Mexico City



## TODAY: ETB's – For Tucson?

WHAT I WILL COVER TODAY

- S. 6<sup>th</sup> Ave. as a pilot project:
  - What infrastructure is in place and where?
  - What additional infrastructure is needed and where?
- What could an ETB system for Tucson look like?
  - Which routes should be considered and why?
  - Which sections of the routes would require overhead wires?

## ETB's – For Tucson?

S. 6<sup>th</sup> Ave. as a pilot project:

- What infrastructure is in place and where?
  - Poles only

BEFORE I GIVE INFORMATION ON THE NUMBER OF POLES, LET'S LOOK AT:

- TWO WAYS OF HANGING OVERHEAD ELECTRIC CONDUCTOR WIRE
- TWO POLE PLACEMENT SCHEMES

## BRACKET ARMS & SPAN WIRES



Span wires  
hold overhead conductor  
wires over street



Bracket arms  
hold overhead conductor  
wires over street



## POLE PLACEMENT SCHEMES

### OPPOSITE

Span wires can be used when poles are placed across from each other



### STAGGERED

Typical for street lights

Bracket arms need to be used when poles are not placed across from each other



## ETB's – For Tucson?

S. 6<sup>th</sup> Ave. as a pilot project:

- What infrastructure is in place and where?
  - Poles in place that can be used without question:
    - along S. 6<sup>th</sup> from 18<sup>th</sup> St. to Irvington, except one mile within the City of South Tucson – 244 POLES
  - Poles that can very likely be used with structural strength check:
    - Along S. 6<sup>th</sup> north of 18<sup>th</sup> St. to Broadway.
    - In the City of South Tucson (25 ½ St. and 40<sup>th</sup> St.) and on the I-10 bridge – 130 POLES
- New supplemental poles where spacing between existing poles is too great – MORE EVALUATION NEEDED TO DETERMINE NUMBER OF POLES

## ETB's – For Tucson?

S. 6<sup>th</sup> Ave. as a pilot project:

- What additional infrastructure is needed and where?
  - OCS (overhead conductor system)
    - Span wires where poles are placed across from each other.
    - Bracket arms where poles will hold wires on only one side of the street.
    - 4 conductor wires, 2 over the right lane in both directions of travel (2 on each side of the street).
    - Insulators and other connecting hardware.
  - Power substations (rectifiers) to convert 480 volts AC power purchased from TEP to 600 volts DC power required for ETB electric traction motors.

## ETB's – For Tucson?

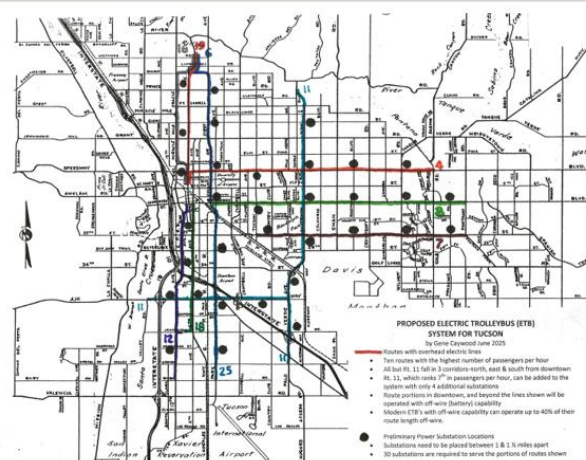
### POINT 2

- What could an ETB system for Tucson look like?
  - Which routes should be considered and why?
    - The heaviest traveled bus routes – (routes that together carry 50% of the total system ridership) which are (the top 10 routes carrying over 35 passengers/hour, March 2025)
    - Parallel routes close enough together that they can be powered by some of the same substations
  - Which sections of the routes would require overhead wires?
    - With the off-wire capabilities of today's ETB's, up to 40% of the route can be off-wire.
    - However, to be conservative, given Tucson's extreme summer heat, we ought to plan for only 25 to 30% of a route off-wire

## ETB's – For Tucson?

- What could an ETB system for Tucson look like?
    - How many substations would be required?
      - Substations need to be placed between 1 & 1½ miles apart.
- Seattle: "The lighter ETBs with a maximum current draw of 500 amps allow the system to be operated with a substation spacing of 5,000 (0.95 miles) to 8,000 ft. (1.52 miles)."
- Applying these criteria, I came up with the following map
    - The top 10 Sun Tran routes\*
    - 70 to 75% of the route lengths powered
    - Substations within 1 to 1½ miles of each other

\*NOTE: The map was prepared before route 18 was combined with route 16



### ETB's – For Tucson?

- LEGEND ON MAP

#### Routes with overhead electric lines

- Ten routes with the highest number of passengers per hour.
- All but Rt. 11 fall in 3 corridors north, east & south from downtown.
- Rt. 11, which ranks 7<sup>th</sup> in passengers per hour, can be added to the system with only 4 additional substations.
- Route portions in downtown, and beyond the lines shown will be operated with off-wire (battery) capability.
- Modern ETB's with off-wire capability can operate up to 40% of their route length off-wire.

### ETB's – For Tucson?

- LEGEND ON MAP

#### Preliminary Power Substation Locations

- Substations need to be placed between 1 & 1½ miles apart.
- 32 substations are required to serve the portions of routes shown

THE PLAN ON THE MAP CONTAINS APPROXIMATELY 66 ROUTE MILES UNDER WIRE – an average of about one every two miles. By comparison, Seattle's ETB system is 60 route miles with 37 substations.

### ETB's – For Tucson?

#### CONCLUSION

- S. 6<sup>th</sup> is suggested for a pilot ETB project due to existing poles that are or appear to be adequate to hold overhead conduit wires.
- Additional infrastructure needed includes the overhead wiring and the electric substations to supply power to them.
- A system of ETB's should be considered for Tucson, converting our heaviest used bus routes to ETB – which routes together carry half the bus system ridership.
- This system would consist of 9 routes running north, east and south out of downtown, with the possibility of a 10<sup>th</sup> route on Alvernon and Ajo.

### ETB's – LAST Presentation

Preliminary cost estimate for Pilot project on S. 6<sup>th</sup> Ave.

- Assumptions
- Quantities
- Costs

## 8. Sun Tran Safety and Security Update and Overview – 40 minutes *Sun Tran and DTM Staff*

Suzanne Schager introduced presentation by Sam and Andy from the City of Tucson. Suzanne commented on overall professionalism of the action plan, issues with operators are well addressed, lots of creative ideas, but Suzanne want to emphasize that safety goes beyond security to safe streets and better communication. Suzanne reiterated that based on data, transit is safe but is targeted due to high concentrations of vulnerable people and so incidents do occur.

Sam Credio and Andy Bemis from the Department of Transportation at the City of Tucson presented on the overall findings and recommendations of the plan. Sam thanked everyone who worked on the plan, which was completed in less than 60 days, and is organized around the motion put forward by Council member Santa Cruz.

Andy mentioned there have been and will continue to be weekly meetings with various stakeholder groups including TPD, Teamsters, and Sun Tran staff. The City is already moving on many of the recommendations.

Some key points heard through outreach when developing plan: it takes awhile for law enforcement to arrive, there are limited resources for connecting people to services, existing security don't have ability

to arrest or hold people until TPD arrives, need to address bad behavior at stops and transit centers. The plan aims to address directly all these challenges. The Safe City Task Force created by the mayor supports plan.

The immediate ask by council is 500k: 350k for 3 TPD officers focused on transit, and 150k for CPTED improvements, particularly lighting. Long term funding will be through RTA Next allocation of ~2M per year.

#### Comments/Questions from TTAC and Public

- Hot spots move around constantly, will be need to track carefully and present findings to TTAC
- Work with Economic Initiatives to help businesses along hot spot corridors
- Provide moral and mental health support to ambassadors, drivers, staff due to psychological impact of providing assistance and dealing with challenges on system
- Drivers should have training on understanding and responding to wide range of people with disabilities
- May need a subcommittee from TTAC focused on this effort
- This plan is focused on transit but it's representative of broader societal issues – mental distress, homelessness, addiction, and the issues on transit are a symptom so city needs to get to root causes
- Need to work on fixing perceptions of transit being unsafe
- What are plans to coordinate with outside agencies? Response from Sam Credio – interested in broader coordination and just met with Pima Co but this effort is focused on city
- Needs holistic approach to safety
- Concern about cameras by drivers and others
- Utilizing Community Health Safety Wellness officers will be less expensive than TPD officers

Gene moved to initiate a motion – “The TTAC supports the document (Safety Action Plan) as a good start and the committee would like to continue to be involved as the document evolves.”

Motion is approved.

9. Call to the Audience (Second) – 5 minutes

Laura Smith reiterated that she would like to know who is keeping crime data on transit and how it's being recorded as she hasn't gotten answers, drivers don't feel empowered, and the policies and consequences aren't working.

10. Items and Date for Next Meeting(s) – 5 minutes

-TTAC Representative at the CSCC  
Monday January 5, 2025

11. Adjournment 5:00 pm

For further information, contact: Monica Landgrave-Serrano, (520)-780-0635, [monica.landgrave@tucsonaz.gov](mailto:monica.landgrave@tucsonaz.gov). Persons with a disability may request reasonable accommodation, such as a sign language interpreter, by contacting Transit Services at 520 791-5409. Requests should be made as early as possible to allow time to arrange the accommodation.