



## Inside the Sun Link Maintenance & Operations Hub

By Teya Vitu

The building says it all: *enjoy the ride*.

That's what the streetcar's Maintenance & Operations Facility is all about: Keeping the eight Sun Link Modern streetcars in tip-top shape so you have a smooth, clean and comfortable ride once service starts in 2014.

Simon Donovan's clever public art "enjoy the ride," scrawled on the facility's exterior wall, crisply defines this objective. And, as public art is supposed to do, the "enjoy the ride" phrase draws attention to the building with its rust-colored corrugate metal skin that otherwise could go entirely unnoticed.

The facility at the west end of 8<sup>th</sup> Street is the heart and soul of the Sun Link streetcar. The administration offices are here; the streetcar operators will start and finish their work days here. But, most noticeably, the facility is where the eight streetcar vehicles will be maintained, repaired, cleaned and stored overnight.

"The most common thing we'll be working on is the doors," predicted Cleve Cleveland, the Sun Link operations manager. "People tend to kick and lean on doors, which go out of adjustment. People like to hold the door open for their buddies."

Cleveland and his boss, Sun Link general manager Steve Bethel, should know. They recently moved to Tucson after getting the Seattle's Central Link light rail up and running, and Bethel was on the management team that got Valley Metro Rail in Phoenix and the Hiawatha Line in Minneapolis operational.

## **Keeping it Clean**

As much as this facility is designed for heavy repairs, it is equally geared toward cleaning.

Streetcars will also be cleaned inside and out every night. The facility has a two-bay, 80-foot long car wash with one wash bay featuring a 2,000 pounds per square inch rinse and one detailing bay with crews outfitted with backpack vacuums.

“We wet the streetcar first, soap it, use a high-pressure rinse and then do a reverse osmosis rinse for a spot-free finish so you can enjoy the ride visibly,” said Bruce Woodruff, the City’s project manager and resident engineer for the Maintenance & Operations Facility construction.

According to Cleveland the interior will also sparkle, “We will do deep cleaning of the seats once a week using heat extraction.”

## **State of the Art Repair Facilities**

The main facility structure has three bays. Each bay is different

Bay 3 has the 5-foot-9-inch deep posted rail pit measuring nearly 17 feet wide and 70 feet long and, overhead, a mezzanine level gives repair crews access to the streetcar roofs. The rails sit atop yellow vertical posts to allow crews to inspect the undercarriage. The pit is mainly for inspections, but this is also where “lube sticks” are inserted into the inside flange of the wheels to keep the wheels from squealing in turns.

“This makes for smoother transitions in curves,” Cleveland said.

Bay 1 and Bay 2 essentially serve the same purpose, but Bay 1 is 36 feet longer because it also includes a dedicated “bogey” workshop in back. The mechanical heart of the streetcar is the truck, which is also called a bogey. Each bogey has two axels, two motors, two braking system and four wheels/tires.

“The bogey is the whole basis for ‘enjoying the ride.’ The bogey is the power, the wheels and the suspension,” Woodruff said.

Like a car, there is a wheel and a tire. Unlike a car, the streetcar tire is steel. These tires can develop flat spots, which add a bumpy factor to the ride. Flat spots will be repaired at the facility.

“Generally, what creates a flat spot is an emergency stop,” Cleveland said.

Removing the trucks from the carriage is a major production, starting with loosening the bolts while the streetcar is still in the pit bay. The streetcar is then moved to Bay 1 or 2. Eight 20-foot portable jacks are then moved into place to raise the car from the trucks. The jacks can raise the car up to 8 feet.

The truck is then rolled back to the truck shop. Bay 1 and Bay 2 each have track turntables so trucks can be rolled from one bay to the other. Both bays also have 5-ton overhead bridge cranes to lift the trucks.

Repairs typically involve brakes or wheel/tires.

“I’ve never had a motor issue with a streetcar,” Cleveland said.

“Our goal at the Maintenance & Operations Facility is to maintain the enjoyable qualities of the streetcar – which means a smooth, predictable and comfortable ride,” Woodruff said.