

ARROW MAINTENANCE FACILITY IMPROVEMENTS

Overview

The San Bernardino County Transportation Authority (SBCTA) is retrofitting the southern portion of the Arrow Maintenance Facility (AMF) to house a new hydrogen storage and fueling center for ZEMU, a Zero-Emission Multiple Unit rail vehicle.

ZEMU is in service on Metrolink's 9-mile Arrow corridor that serves the eastern portion of the San Bernardino Line between the San Bernardino Downtown Station and Redlands University Station. The Arrow corridor began operations in 2022 with Diesel Multiple Unit (DMU) trains providing passenger service. With SBCTA's introduction of ZEMU to Metrolink service, specific upgrades and modifications are required to the AMF to facilitate hydrogen storage, refueling and required safety enhancements. The storage and fueling facility began construction in mid 2024.



Project Benefits

The project will modify the southern portion of the existing AMF to support the integration and operations of ZEMU, which entered service on September 13, 2025.

In an effort to reduce greenhouse gas emissions, the hydrogen storage and fueling facility will support SBCTA's ongoing effort to expand and improve an eco-friendly regional transportation system through the use of zero-emission transportation technology.

The use of hydrogen as a fuel for ZEMU will:

- Reduce greenhouse gas emissions on transit systems
- Improve air quality within the region
- Provide clean air by eliminating rail emissions and air pollutants
- Reduce noise, vibrations and exhaust

Funding

STATE	\$17.7 Million
(includes cost for the fueling station and AMF building retrofit)	
TOTAL	\$17.7 Million

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Sept 2025

Schedule

- APRIL 2018**
SBCTA awarded a \$30 million grant from the State of California from the California Transit and Intercity Rail Capital Program (TIRCP) to develop ZEMU.
- MAY 2020**
Began Environmental Phase
- MID 2021**
Circulate Draft Environmental Document for Public Review
- LATE 2021**
Completion of Project Approval and Final Environmental Document
- 2023**
Final Design Complete
- MID 2024**
Construction Began
- FALL 2026**
Anticipated Construction Completion

Frequently Asked Questions

WHY IS A HYDROGEN STORAGE AND FUELING FACILITY NEEDED?

Modifications to the existing Arrow Maintenance Facility are required to accommodate a hydrogen storage and fueling station to support the operations of ZEMU. ZEMU will be maintained and refueled daily. SBCTA's new hydrogen storage and fueling facility will be the first hydrogen fueling station for rail vehicles in Southern California.

ARE THERE ANY SAFETY RISKS ASSOCIATED WITH TRAVELING ON A HYDROGEN-POWERED TRAIN?

When used in accordance with proper guidelines, hydrogen fuel is safe for public transportation. Today, hydrogen-powered buses and private automobiles are currently being used in parts of California and nationally. SBCTA's ZEMU train will be the first for passenger rail use in the United States. SBCTA and Metrolink, will follow strict fueling protocols and guidelines to protect its rail operators and ensure hydrogen fuel safety for its future passengers and surrounding community.

WHERE WILL THE ZERO-EMISSION TRAIN REFUEL ITS HYDROGEN?

The hydrogen storage and fueling facility will be at the southern end of the existing Arrow Maintenance Facility located in San Bernardino. The facility will be constructed in compliance with state and local requirements. Construction of the facility began in mid 2024.

WHAT ARE THE BENEFITS OF A HYDROGEN-POWERED PASSENGER TRAIN?

Hydrogen-powered passenger trains operate emission-free – meaning cleaner air, less global warming, a healthier environment for the region and quieter neighborhoods. A zero-emission train will not only bring forward improved air quality, it will also put San Bernardino County on the map as an innovative testing hub for green technology.

ARE THERE OTHER HYDROGEN-POWERED PASSENGER TRAINS IN THE US OR THE WORLD?

ZEMU is the first of its kind in North America that meets federal guidelines. The world's first hydrogen powered passenger train went into service in Germany in 2018. Canada also held a three-month pilot program of a hydrogen-powered train in 2023 with the intent of transitioning to a broader hydrogen-powered rail system.

We Plan.

SBCTA envisioned a new passenger rail service that could reconnect San Bernardino and Redlands but also have the ability to connect commuters to Los Angeles in a cleaner, pollutant-free way. In 2016, the 9-mile service was officially dubbed Arrow and three DMU vehicles were ordered from the rail manufacturer. In 2018, a California State Transportation Agency grant allowed SBCTA to begin research and development of a low or zero-emission rail passenger vehicle to operate along the Arrow corridor.

We Build.

To accommodate ZEMU into the fleet operating on the Arrow corridor, the southern portion of the existing AMF is being retrofitted to add a new hydrogen storage and fueling facility, hydrogen detection and flame detection systems and charging equipment. Construction at the AMF began in mid-2024.

You Move.

SBCTA's vision of a self-powered, zero-emission commuter train to run interoperable with Metrolink and heavy freight rail vehicles has become a reality with ZEMU, which entered service in fall 2025.

The AMF's hydrogen storage and fueling facility will be the first of its kind in North America, marking a major milestone toward a greener future for the region and the passenger rail industry.

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Plan. Build. Move.