



Transportation

Transit

Client

Orange County Transportation Authority

Location

Orange County, California, USA

Bus Maintenance & Operations Facility Planning, Design and Construction

Project Description

As a sub-consultant to a local engineering firm, CH2M HILL's Vehicle Maintenance Facilities (VMF) Design Group provided professional services in planning, schematic and final design, and construction assistance for a 250-bus maintenance and operations facility. The new facility is the fourth operating base for the Orange County Transportation Authority (OCTA) and helps to reduce "deadhead" mileage. The new operating base also provides service to one of the rapidly growing segments of the system. The new facility serves both standard and articulated buses as part of the assigned fleet.



The design provides for a Liquid Natural Gas (LNG)-fueled fleet on a 20-acre site located in Santa Ana, California. Several major components of the facility include:

- Vehicle maintenance bays
- Operations offices and facilities
- Vehicle storage
- Vehicle fueling and wash facility
- Fare vault retrieval
- Centralized fare counting for the entire system
- Engine and transmission rebuild shop
- Paint and body repair shops
- Electric and electronic shops
- Component exchange bays
- Support shops
- Parts storage facility

The maintenance facility is programmed to provide a centralized major component rebuild shop to serve the entire OCTA transit fleet.

Other support functions include:

- LNG fueling station and other alternate fuel accommodations
- LNG storage tanks
- Visitor and employee parking
- Perimeter wall to mitigate visual/audio impact on the neighborhood to the west
- Fuel leak detection/mitigation

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- Waste reclamation system
 - Security/access accommodations

The VMF Design Group provided programming, industrial engineering, equipment selection and specification, and site and building layouts.

As part of the initial programming effort, CH2M HILL conducted a design charette with OCTA and the prime engineering consultant. During this week long gathering, they investigated potential site alternatives, developed and evaluated operating scenarios, and helped guide the users and designers to an agreed final site and building layout. This provided the foundation from which engineering and architectural design proceeded and reduced the overall schematic design process to less than one month. The VMF group conducted intensive interviews, site views, and operations observations with the system users prior to the charette, thus familiarizing themselves with the unique operating characteristics of OCTA and providing a background to develop alternative building and site plans that came out of the charette.

CH2MHILL contributed heavily to the bid process for the construction contract and will provide extensive construction administration and inspection services during the 20-month construction phase of this project. The project was completed spring 2005.