



## Lean Manufacturing

### Client

PACCAR Heavy Truck Manufacturing

### Location

Multiple Locations Worldwide

### Project Completion

Ongoing (anticipated completion 2006)

### CH2M HILL Role

Program Management  
Lean Manufacturing Analyses  
Cellular Designs  
Production Equipment Assessments  
Facility Modification Design  
Construction Phase Support

*Today the plant stands as the most modern truck facility within PACCAR. The Plant is the model for new approaches in human resource management and material logistics, PACCAR and CH2M HILL Lockwood Greene benefited from a partnership that stretched thinking on the conceptual phase and integrated design with construction, ultimately bringing the project to completion in record time.*

**Scott A. Blue**  
Project Manager

## PACCAR's Worldwide Truck Manufacturing Lean Transformation Program

Led by CH2M HILL, PACCAR's Lean transformation program is a multiyear effort addressing the company's heavy Kenworth and Peterbilt truck manufacturing and assembly operations at multiple production plant locations in North America and Europe. This production program involves program management services, Lean manufacturing analyses, cellular designs, production equipment assessments, extensive facility modification design packages, and construction phase support services. As part of the program, several of CH2M HILL's Lean manufacturing practice modules are being showcased, including several that are copyrighted.

The Lean transformation involves extensive Lean analyses of PACCAR's heavy truck assembly lines in each plant, material flow studies, equipment surveys and assessments, equipment refurbishment, new equipment procurement specifications, Lean/cellular designs for production and assembly operations, detail design of equipment packages and systems, design of extensive facility modifications needed to implement the Lean transformation, construction cost estimates for the facility modifications, implementation schedules, and construction sequencing to minimize disruption to ongoing production work.

Uniquely challenging in PACCAR's program are the cultural differences that exist at each site, which needed to be overcome during Lean analyses, cellular design, and implementation. This client also requires extensive evolution planning of each facility to show the work that will be accomplished at each stage and demonstrate the reality of the schedule and programmed work.

As part of PACCAR's lean transformation program, CH2M HILL is providing industrial planning, facility design and program management for the Kenworth heavy truck assembly plant and parts fabrication plant in Mexicali, Baja California Norte, Mexico. This capacity expansion project will increase the assembly plant's capacity to produce Class 7 and Class 8 Kenworth trucks, while maintaining existing assembly operations. It will also involve the addition of a stand-alone parts fabrication facility using cellular manufacturing. Both the assembly plant and the fabrication plant will use Lean manufacturing principles based on logistics and workstation studies and equipment specification by CH2M HILL's consulting professionals.

The capacity expansion project will include the addition of a cab paint shop and a major expansion of the assembly plant facility. As a result, it will consolidate numerous operations on the campus into one building. Because this project will take place in a plant operating at peak production, it is seen as the most complex project in PACCAR history. CH2M HILL was selected for the project based on the depth of industrial planning experience in the heavy truck industry, a history of successful projects with PACCAR, and on the proven ability of CH2M HILL to manage and coordinate all stakeholders in the successful execution of the project.