

Real World Tips

For Building or Renovating Your
Maintenance Facility

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Here are the most common reasons for building or renovating a maintenance facility. What is No. 1 on your list?

- Need more space!
- Building systems and components are outdated.
- Layout is inefficient.
- Service area and service needs are changing.
- Changes in rolling stock demand changes in facility.
- More stringent federal, state, and local mandates force upgrades.
- Adaptation to accommodate new fueling systems.

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Consult your peers. The most valuable thing you can do to prepare for building or renovating your maintenance facility is to visit other facilities and ask the manager or owner these questions:

- How long did design and construction take?
- How much personal involvement was required?
- Who selected the shop equipment? Does it meet your expectations?
- Describe site circulation and parking. Is the flow safe and efficient?
- Which features of building layout do you like best? Least?
- Describe fuel storage, dispensing and control systems. Do they meet your needs?
- Are you satisfied with your lighting and ventilation systems?
- What was your biggest headache? Why?
- What went well? Why?



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Identify the people who can help or hinder your project and work with them to build consensus.

- Quell fears of neighborhood groups concerned about traffic, noise, fumes, or an unsightly structure.
- Take elected officials on a tour of your existing facility to show operational inadequacies and safety concerns.
- Communicate to senior management plans and ideas as soon as they are developed.
- Solicit ideas and input from staff and users of the facility.
- Alert agencies that have code and review responsibilities about plans for your project.

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If you have the opportunity to choose between renovating/expanding an existing facility or building a new facility, here are some key questions to ask:

- Can the existing site, together with available adjacent property, accommodate expansion?
- Which site is best located within the service area?
- Are existing structures worth saving?
- Is there an alternative or better use for the existing site?
- Are you aware there may be hidden costs in renovation (lead paint, asbestos, bringing structures up to code, outdated building systems)?
- Will the sale of the existing site cause a need for costly environmental remediation?
- Is there a financial benefit from selling the existing property?



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Finding a site at an optimal location with the right characteristics can be the first step toward a successful project. In selecting a site for a new maintenance facility, consider the following key points:

- Ease of access and proximity to services area. Avoid creating traffic headaches; minimize travel distance to and from the service area.
- Size of parcel. Is there room to grow?
- Availability of utilities. Are water, sanitary sewer, electric power and natural gas readily available?
- Easements. Look for a site with no traversing easements. Easements can dictate undesirable design decisions and reduce operating efficiency.

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- Topography. Terrain should be level. Money spent on altering grade is money not available for the facility.
- Neighborhood/environmental concerns. Preview compatibility of adjacent land uses with the impact created by the possible new maintenance facility (noise, traffic, fumes, etc.).
- Obtainability. Will the process of acquiring the land be too time consuming and expensive.



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Rules of thumb can be useful in the beginning stages of planning a maintenance facility. In scoping out your needs, consider the following:

- Angle parking can require 20 to 30 percent more land area than 90 degree parking.
- On a typical site, approximately half the area is needed for fleet parking and circulation; about a quarter for employee vehicle parking; and only the remaining quarter is needed for buildings.
- One acre of land is required for parking 100 cars.
- Heavy vehicles require six to eight times as many repair bays as standard automobiles. And the bays have to be twice as large.

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Learning from others' mistakes can result in significant cost and efficiency savings. Don't make these common mistakes that other maintenance facility owners and operations now wish they could change:

- Using sodium vapor lighting for work areas, which causes poor color rendition and employee stress. (Instead, use metal halide fixtures.)
- Low ceilings or other buildings systems that obstruct vertical clearance.
- Use of load-bearing walls that restrict future modification or expansion of the facility. (Use the structural system to provide needed support, not the walls.)
- Sloping floors that permit vehicles, toolboxes or equipment to roll.

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- Porous concrete floors that soak up oil and discolor. (Instead, use light colored pigmented hardener and clear sealer.)
- Inadequate ventilation that causes buildup of exhaust and fumes.
- Overhead doors that are too short or narrow, causing problems with vehicle access.



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You will hear the following terms throughout the design process. These are areas where your input is critical to ensure a successful project.

- Pre-Design/Programming
 - Maintenance Methods
 - Affinities
 - Fleet Growth
 - Staffing Projections
 - Space Programs
 - Fleet Design Data
 - Key Design Issues
 - Design Criteria
- Conceptual Design / Schematic Design
 - Master Plans Site Layouts
 - Parking Configuration
 - Facility Layouts
 - Workstation Locations
 - Material Selection
- Preliminary Design / Design Development
 - Equipment Specs
 - Equipment Layouts
 - Utility Requirements
 - Color Selection
- Final Design/Construction Documents
 - Plan Review
 - Signage and Graphics

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- During construction, be sure to gather and organize all operations and maintenance manuals, and identify vendor sources.
- Identify preventive maintenance tasks for all equipment and systems.
- Create a comprehensive manual for preventive maintenance.
- Create a work order system and implement preventive maintenance. Computerized programs make this easy!
- A systematic facility maintenance program assures the validity of warranties. Don't let a simple oversight shift you into non-compliance and voided coverage.