

5.0

Maintenance and Operations Administrative Guidelines for School Districts and Community Colleges

Management of Custodial Programs

The operations component of educational facilities management deals primarily with daily, recurring services that are necessary to keep school buildings and grounds in orderly, safe, clean, and acceptable working conditions. Although they include basic janitorial functions for the most part, the full extent of these services can vary significantly depending on the custodial requirements of a particular facility.

Within school districts, custodial operations should reflect the needs of individual facility types, i.e., elementary schools, middle schools, high schools, technical schools, and ancillary buildings. Each type of facility requires a number of basic custodial services in support of the educational process; however, the requirements for middle and secondary/technical schools may be greatly expanded due to their size, complexity, and use patterns. At community colleges, the level and type of custodial functions should also be commensurate with the needs of individual campuses and buildings. Because of their extended hours of usage and spatial variety, buildings on community college campuses usually require an even greater volume of custodial services.

The increasing rate at which new buildings are being added to the state's educational facility inventory, and the modest increases in budget allocations for their care, poses new challenges for administrators and custodial supervisors. Some school districts and community colleges may already be understaffed or under-funded in their custodial departments. When faced with the challenge of caring for additional space, this may exacerbate existing problems. In situations such as this, it is important that management exercise sound leadership in an effort to "do more with less," while still providing a full range of required customer and facility services. Because it usually has the largest single workforce in the facilities department, administrators should also be aware that custodial operations in school districts and community colleges are highly susceptible to cutbacks and reductions, and for inheriting a range of unrelated responsibilities that don't fit elsewhere.

Although administrators may be familiar with the typical range of custodial and janitorial services their department provides, conducting custodial audits as part of a general

operations plan or strategic plan has multiple benefits. Custodial audits can help better define actual service levels required at each facility, determine whether services are being accomplished as planned, and identify where services are lacking. Another major benefit resulting from the custodial audit process is the identification of standards and other criteria for evaluating both individual performance and overall unit productivity.

As the organizational charts in this section indicate, custodians in school districts usually function under “shared management” scenarios. Both the district custodial supervisor and individual school principals have a say in establishing work priorities and other custodial functions to be performed by staff on a daily basis. Usually this situation manifests itself in the form of principals retaining site supervision over custodians, while supervisors at the district level provide technical assistance, equipment, supplies, and perform other personnel-related services. Where this situation exists, school and operations administrators should have a clear understanding of their individual roles and responsibilities, and seek to manage custodial operations in the most efficient and effective manner possible relative to local circumstances.

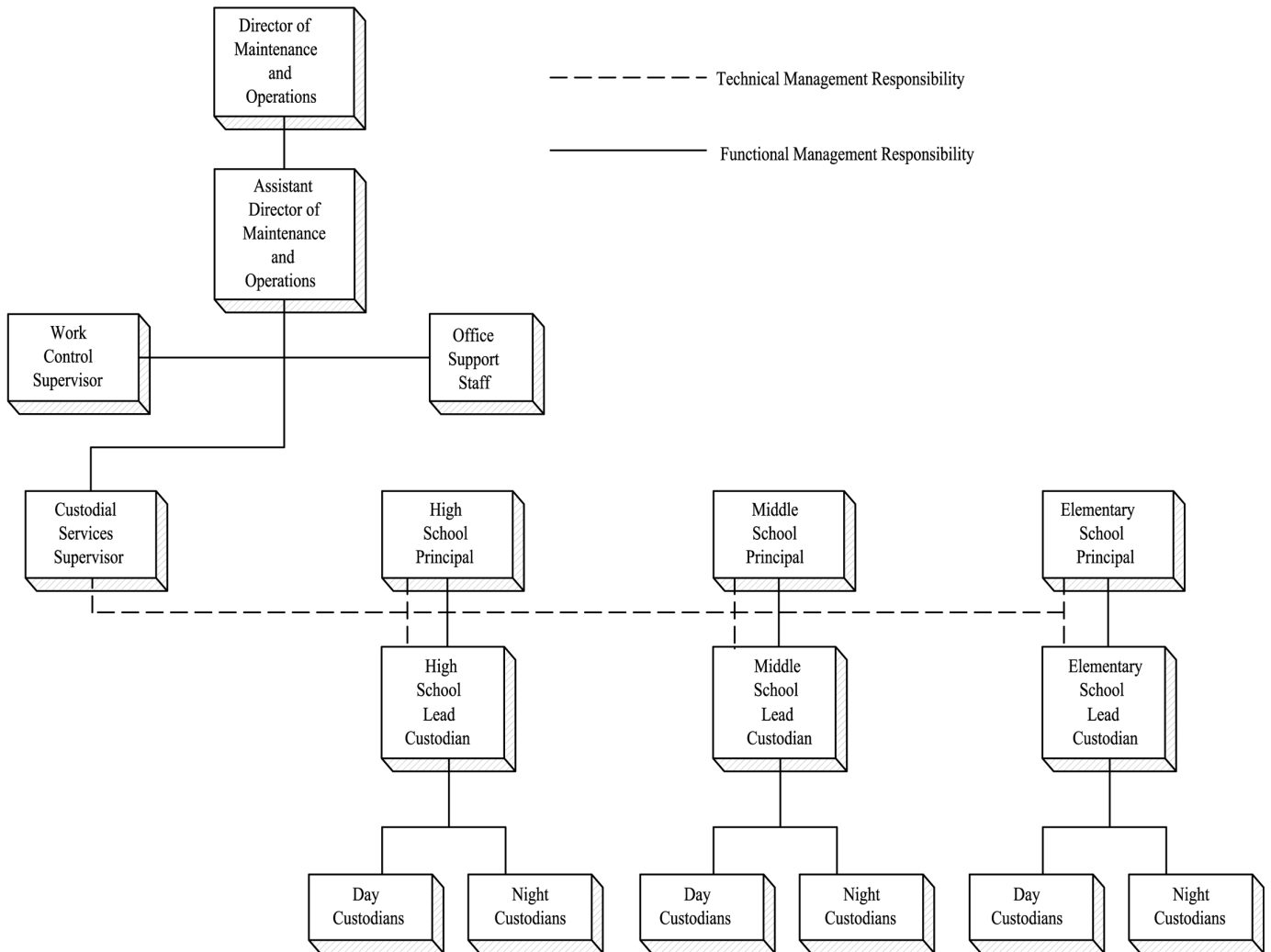


Figure 5.1: Organizational Chart for a Custodial Operations Department at a School District With Shared Responsibilities.

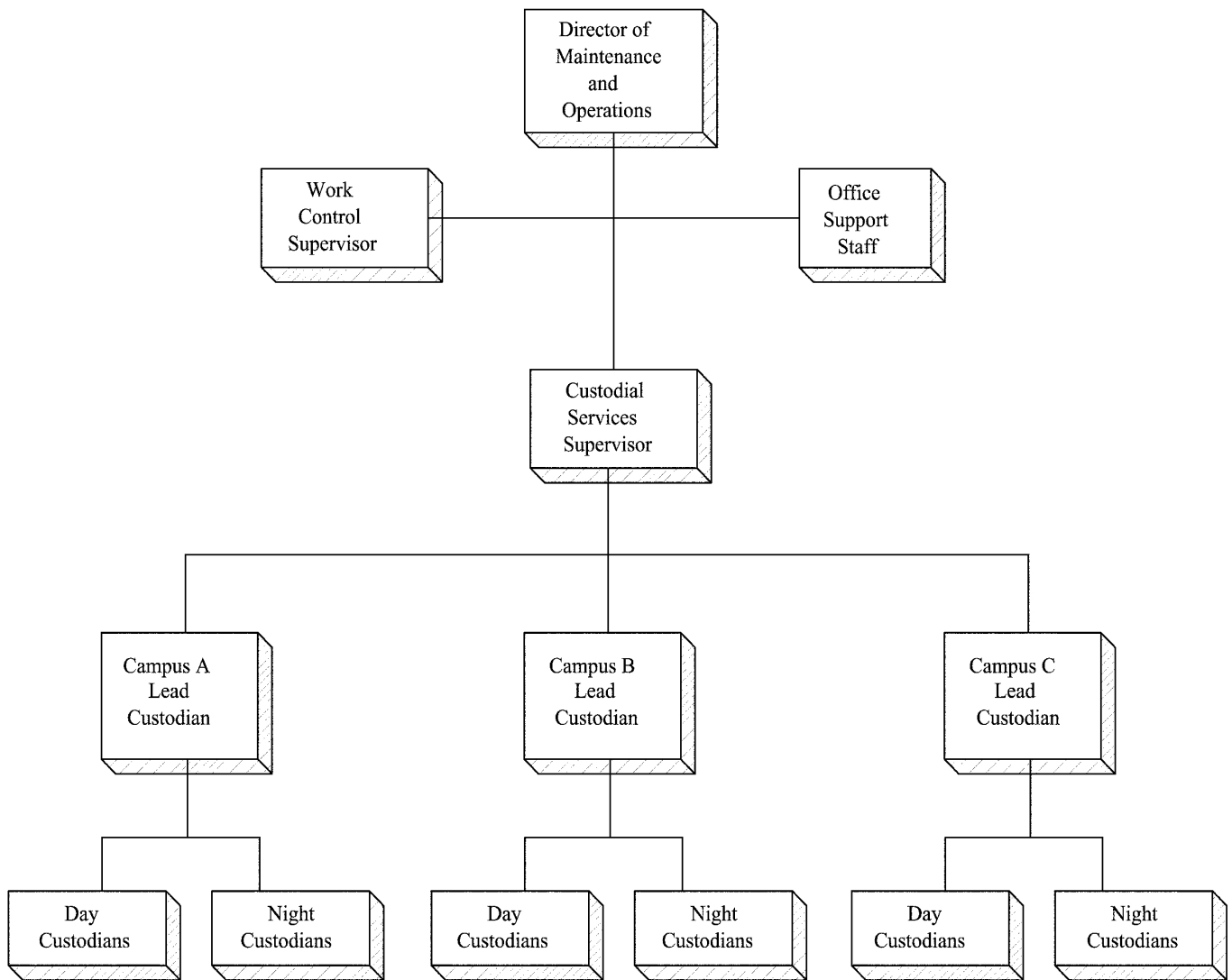
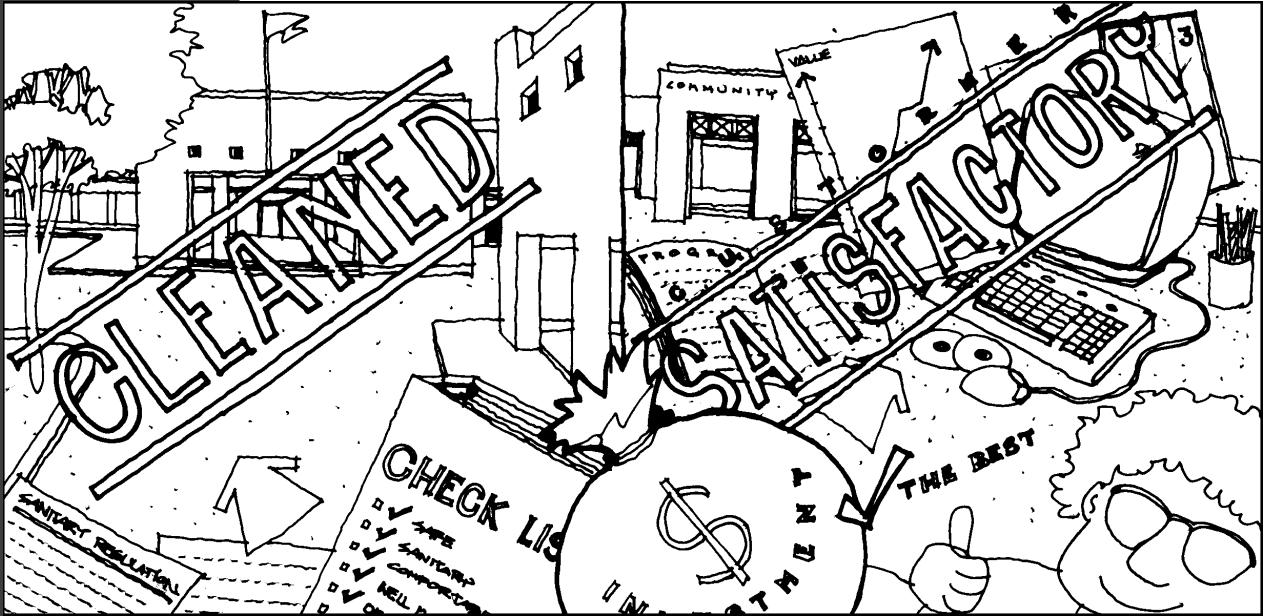


Figure 5.2: Organizational Chart for a Custodial Operations Department at a Community College Facility.

5.1

Maintenance and Operations Administrative Guidelines for School Districts and Community Colleges

Goals and Objectives of Custodial Programs



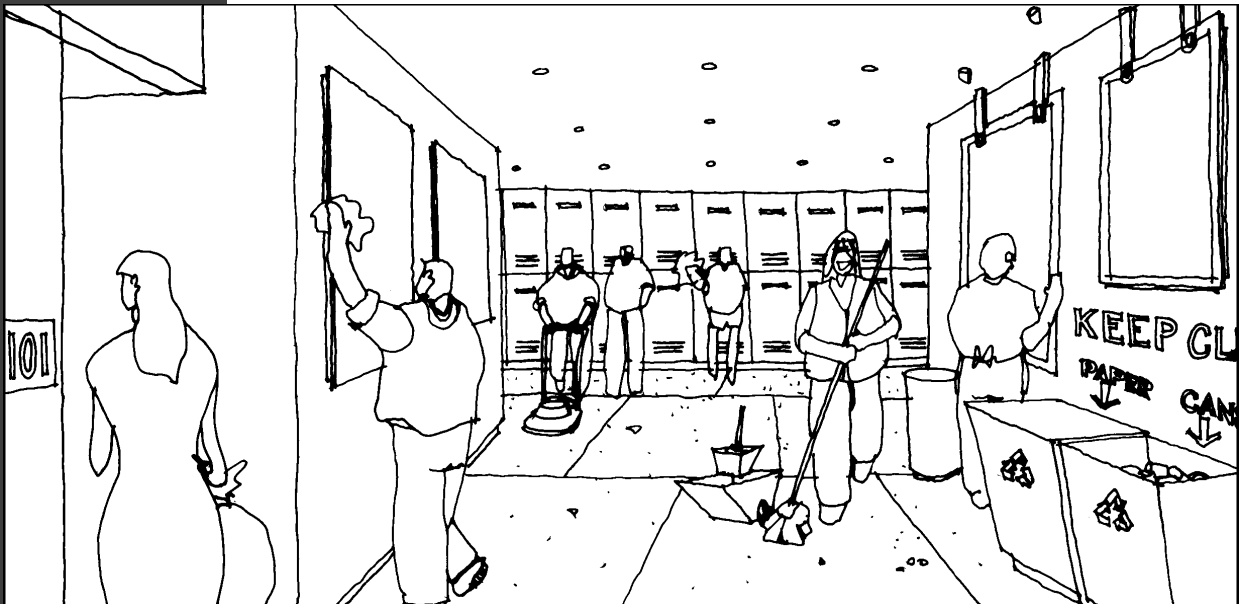
Even when custodial functions are mistakenly not considered highly technical services, they are, nevertheless, critical to educational facility operations. Administrators and supervisors at each school district and community college should develop and implement custodial programs that achieve the following objectives:

- Ensure that facilities are safe, clean, orderly, and attractive with regards to general building usage.
- Create educational environments and learning spaces that are well cared for, enhance school or college programs, and reflect the general public's values in education and concern for its capital investment in educational facilities.
- Perform general housekeeping and other support functions on a regular and as needed basis.
- Foster a sense of professionalism and pride among custodial staff.

5.2

Maintenance and Operations Administrative Guidelines for School Districts and Community Colleges

Required Custodial Activities



All educational buildings require a broad range of custodial and janitorial services. These services can be organized into daily, periodic, and special task functions. The conventional scope of custodial services required by schools and community colleges includes among others, the following duties:

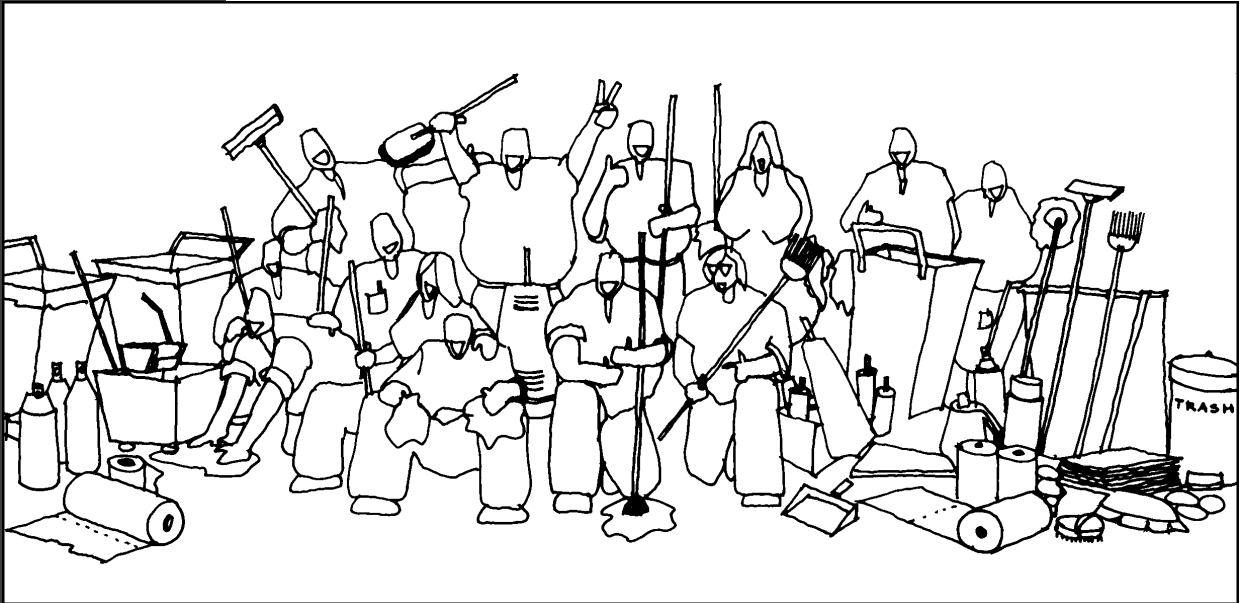
- Cleaning
 - Classrooms/instructional areas: floors, chalkboards
 - Toilet areas: toilets, urinals, showers, sinks, locker rooms
 - Administrative, support, and common areas: offices, lobbies, conference rooms
- General floor cleaning (sweeping, vacuuming, mopping, polishing): hallways, corridors, stairs, elevators, walkways, door mats
- Cleaning food service areas: kitchens, cafeterias, vending areas, break areas
- Vertical surface cleaning: walls, windows, mirrors, vents, blinds, partitions
- General dusting: horizontal surfaces, sills, counters, shelves
- Removal of rubbish
- Coordinating recycling efforts

- Replacement of depleted supplies, inventory control of custodial supplies/equipment
- Opening of buildings at the beginning of the day and securing them at the end of the day
- Minor maintenance: light bulb replacement, air conditioning filter replacement, unclogging toilets, small repairs, key coordination, furniture repair, small paint jobs
- Event preparation/cleanup
- Custodial equipment coordination
- Miscellaneous housekeeping duties
- Safety coordination and emergency responses
- Maintain material safety and data sheets
- Work order initiation

5.3

Maintenance and Operations Administrative Guidelines for School Districts and Community Colleges

Custodial Staffing



Determining the number of custodial staff positions is often a difficult task for administrators. It requires a plausible justification for defining the labor force necessary to adequately care for educational facilities. Although a variety of methods are used, administrators may often end up “short-staffed” as a result of increased custodial responsibilities at existing facilities and the caring for new facilities that are being added to a school or community college’s physical plant. The fact that school districts and community colleges will continue to expand in the foreseeable future does not necessarily suggest that administrators will automatically receive commensurate budget increases for new staff.

In many instances, current staff levels are compared with facility size or cleanable area, and used as the basis for determining the number of required custodial employees. As custodial responsibilities and the total amount of cleanable space increases, an appropriate number of new staff positions should be added to properly maintain all school or community college buildings. Although administrators may ultimately use a single staffing method or a combination of staffing approaches that is best suited to their needs, a more rational approach to custodial staffing should identify a workforce necessary to provide an expected

“level of service.” However applied, workload and staffing formulas should be flexible and able to incorporate unique or special service requirements, regional variations, and other extenuating circumstances.

Florida School and Community College Custodial Staffing Formula

The following formula serves as a guide in determining appropriate custodial staff levels at schools and community colleges throughout the state. It is intended as a starting point in making this determination and should use an appropriate modifier to account for the differences in school facilities.

For each school facility indicated, the following modifier should be used:

.5 FTE added to the total FTE at each elementary school

.75 FTE added to the total FTE at each middle school

1.0 FTE added to the total FTE at each high school

1.25 FTE added to the total FTE at each community college campus

These staffing formula modifiers were derived from numerous discussions with educational facility administrators throughout the state. They are intended to provide a more accurate indication of the custodial labor force needed at various types of school facilities. When used in this manner, the differences in facility type, size, complexity, and general housekeeping requirements is taken into account and reflected in total number of custodians for a district or community college.

Small to mid-size educational facilities may be able to apply this formula as stated; however, larger facilities may need to apply additional modifiers or make adjustments to better reflect local circumstances. In instances where facilities are subjected to more extensive use patterns (e.g., double sessions, day and night classes, weekend classes, etc.), an unusually high rate of unscheduled activity (e.g., special events, emergencies, etc.), or where custodians are routinely used for a variety of other functions (e.g., grounds duties, transportation activities, classroom assistance, etc.), this formula should be adjusted further to better reflect the total labor force needed at a particular facility.

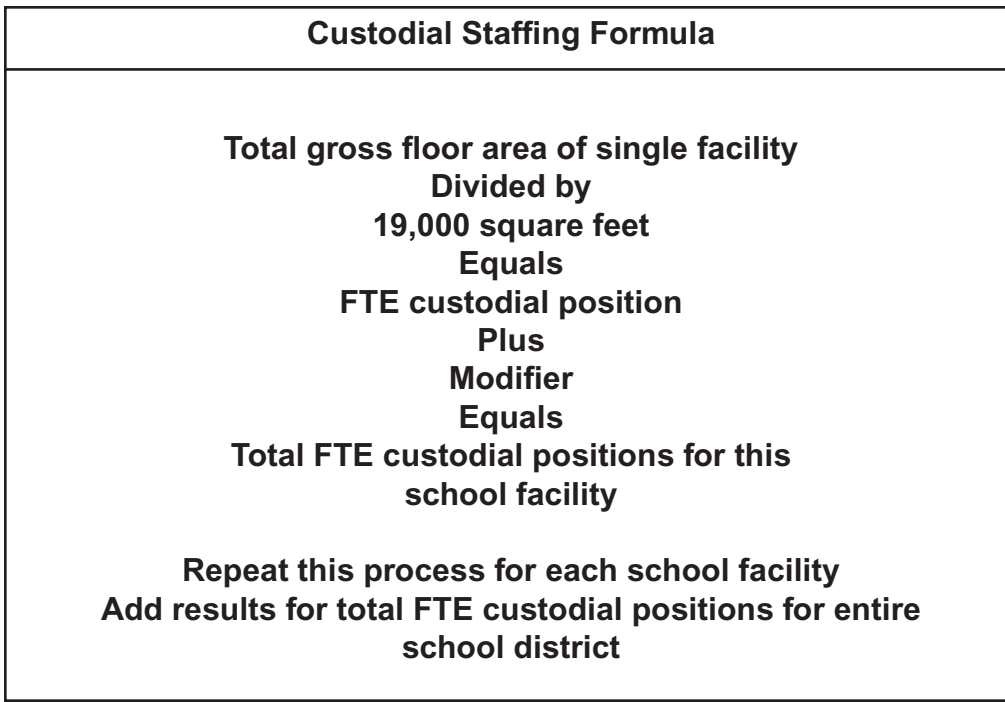


Figure 5.3: Custodial Staffing Formula.

Example #1:

Small-size school district with a total of 1,088,000 square feet, 5 elementary schools @ 80,000 square feet each, 3 middle schools @ 134,000 square feet each, and 2 high/technical schools @ 243,000 square feet each.

Elementary school

$$\begin{array}{r} 80,000 \\ \div 19,000 \\ \hline 4.2 \text{ FTE custodial positions} \end{array}$$

4.2 + .5 = 4.7 FTE custodial positions per elementary school

4.7 x 5 elementary schools = 23.5 FTE custodians for all elementary schools

Middle school

$$\begin{array}{r} 134,000 \\ \div 19,000 \\ \hline 7.1 \text{ FTE custodial positions} \end{array}$$

$$7.1 + .75 = 7.85 \text{ FTE custodial positions per middle school}$$

$$7.85 \times 3 \text{ middle schools} = 23.6 \text{ FTE custodians for all middle schools}$$

High school/technical school

$$243,000$$

$$\div 19,000$$

12.8 FTE custodial positions

$$12.8 + 1 = 13.8 \text{ FTE custodial positions per high school/technical school}$$

$$13.8 \times 2 \text{ high/technical schools} = 27.6 \text{ FTE custodians for all high schools/technical schools}$$

Total number of custodial positions for the district:

74.7 custodial positions

Example #2:

Medium-size community college with a total of 500,000 square feet on multiple campuses.

$$500,000$$

$$\div 19,000$$

26.3 FTE custodial positions

$$26.3 + 1.25 = 27.6 \text{ FTE custodial positions for the entire community college}$$

This custodial staffing formula is based on the assumption of achieving Level 2 - Ordinary Tidiness cleanliness/appearance standard as defined by the Association of Higher Education Facilities Officers (APPA). The general conditions for meeting this standard are as follows:

- All floors and base moldings shine and are bright and clean. No buildup of dirt/grime is evident in corners or along walls; however, up to a two-day accumulation of dust, dirt, stains, and streaks is acceptable.
- All vertical and horizontal surfaces are clean. Some visible marks, fingerprints, and smudges are acceptable. All light fixtures are clean and in working order.

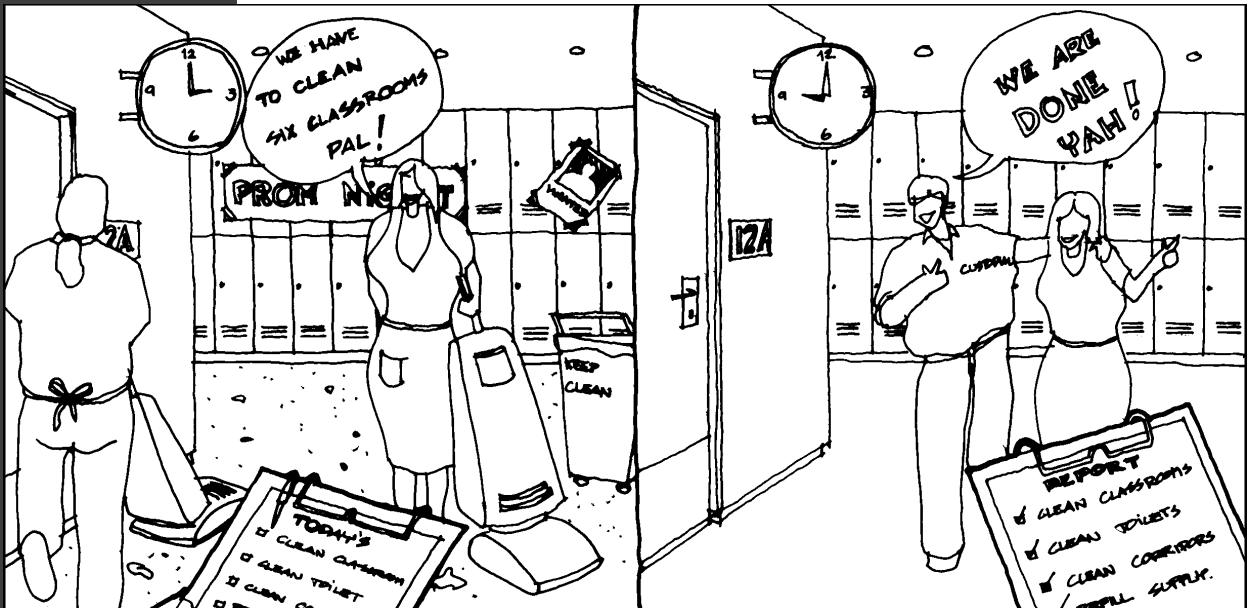
- Toilet rooms, showers, fixtures, and tile gleam and spaces are odor-free. Regular supplies are adequate.
- Trash bins and other rubbish containers do not hold more than a day's waste and are odor-free.

The suggested formula also uses gross square footage figures for the entire facility as indicated on the Florida Inventory of School Houses (FISH) report, rather than assignable or cleanable area. For a more in-depth approach, which takes into account varying levels of cleanliness, cleanable area, cleaning differentials for space categories, etc., see *Custodial Staffing Guidelines for Educational Facilities*, 2nd ed., published by the Association of Higher Education Facilities Officers – APPA, 1998.

5.4

Maintenance and Operations Administrative Guidelines for School Districts and Community Colleges

Additional Workload Formulas for Custodial Staffing



Conventional workload formulas can be used in several different ways. The two most common applications of this approach are: as an alternative for determining general staffing levels and as a method for determining how much of the service effort should be assigned to individual employees.

When applying workload formulas for custodial staffing, administrators should be aware of additional work requirements generated by individual school principals. These tasks can vary widely from occasional odd jobs to reassigned custodial priorities. Any workload or staffing formula has to take into account the degree to which school principals will have control over custodial staff work assignments.

Denver Custodial Formula

This staffing formula is based on an assessment of different custodial task categories and the amount of time necessary to complete them. Although custodians routinely perform

a variety of different tasks, the categories identified should accurately reflect work requirements at a particular facility. This formula goes on to assign a weighted point system for each task performed – with one point allocated for each time block spent completing a particular task. In every instance, a 15-minute time block is equal to one point. Individual spaces or rooms are referred to as building units. An example of this formula is as follows:

Categories of custodial tasks	Points per day
School site (e.g., picking up paper, and general policing)	1
Building units (e.g., classrooms, offices, health services, library, etc.)	1-1/3 per unit
Kindergarten areas (sweeping & general cleaning twice daily)	2-1/3 per unit
Dining/lunchroom areas & multipurpose rooms	1 per 30 seats
Auditoriums/assembly spaces	1 per 150 seats
Toilets and plumbing fixtures (e.g., minor service and cleaning)	1 per 10 fixtures
Gymnasiums (general cleaning)	1 per 2,400 sq. ft.
Community use of buildings and special events (working three to four hours of overtime)	
High use (150-190 events per year)	15
Moderate use (90-149 events per year)	10
Low use (10-89 events per year)	5
Total building area (miscellaneous assigned tasks)	1 per 1,000 sq. ft.
 Total points multiplied by 1/4 hour = total hours per day of required custodial time	
To arrive at the actual number of custodians required, simply divide the total hours by eight, or by whatever number of hours is used in a typical workday or shift.	

Figure 5.4: Denver Custodial Formula.

CASBO Workload Formula

The California Association of School Business Officials (CASBO) Formula is a staffing method that was developed to calculate the number of custodians required to maintain individual school buildings. It uses workload ratios or factors relative to varying conditions. The CASBO formula is described as follows:

$$\begin{aligned} & \text{One custodian for every eight teachers (teacher factor)} \\ & \quad \text{Plus} \\ & \quad \text{One custodian for every 225 pupils (pupil factor)} \\ & \quad \text{Plus} \\ & \text{One custodian for every 11 rooms to be cleaned (room factor:} \\ & \quad \text{approximately 1,000 square feet rooms)} \\ & \quad \text{Plus} \\ & \text{One custodian for every 15,000 square feet of building area} \\ & \quad \text{(square footage factor)} \\ & \quad \text{Divided by Four} \\ & \text{Equals the number of custodians required to clean building} \end{aligned}$$

Figure 5.5: California Association of School Business Officials (CASBO) Workload Formula.

Area Allotment Per Person-Hour Formula

This staffing method is based on allocating a person-hour ratio for custodial tasks to determine the total number of custodians needed at a facility. More commonly used in larger school districts, this formula is probably the most detailed and comprehensive measure used by operations administrators at educational facilities. To apply it requires an initial estimate of custodial staff requirements based on the amount of area contained in different building categories (e.g., permanent school buildings, portables, lockers/showers, etc.) and then computing an area allotment for individual staff members

that is based on a one-hour time period. To arrive at the total number of staff needed, the hourly requirements are totaled and divided by eight – this indicates the daily workforce requirements. An example of how this formula can be applied is as follows:

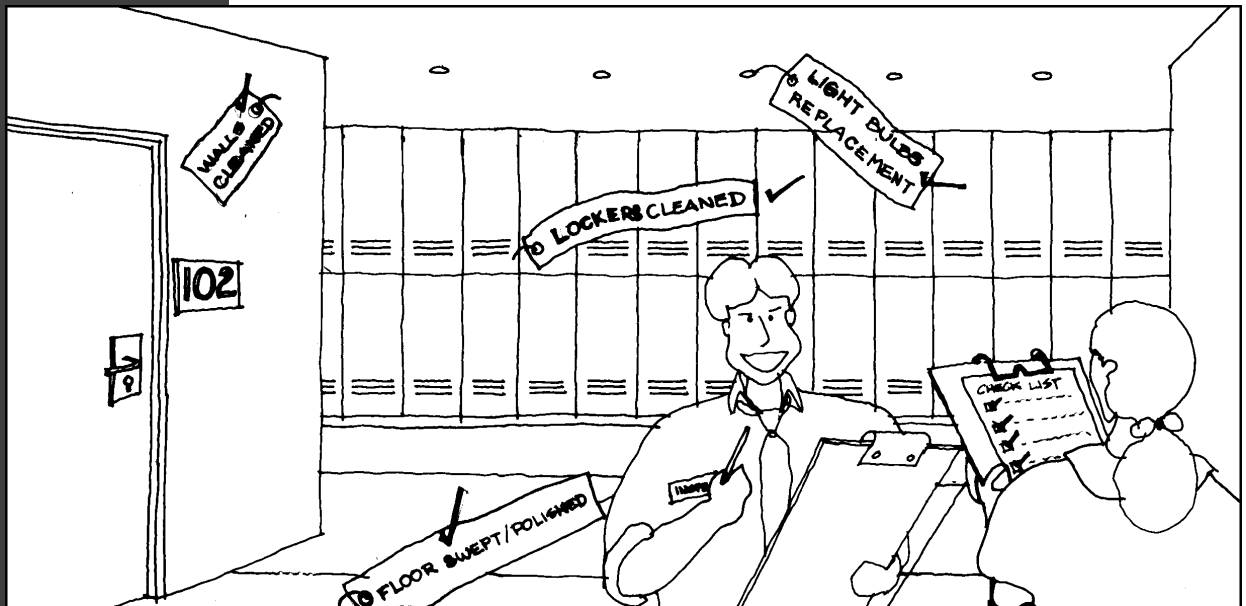
Custodial Tasks	Estimated Square Feet Per Hour
Cleaning of all permanent buildings at a facility (including classrooms, administrative assembly areas, etc.)	2,400
Toilets, showers, lockers	1,400
Portable classrooms	2,000
Outside areas (e.g., sidewalks, courtyards, etc.)	7,500
Total number of hours required for each task divided by eight	
Equals the total daily workforce required	

Figure 5.6: Area Allotment Per Person-Hour Formula.

5.5

Maintenance and Operations Administrative Guidelines for School Districts and Community Colleges

Custodial Staff Productivity Standards



In addition to establishing criteria for staffing levels at individual schools and community college campuses, custodial managers and administrators should have guidelines for measuring individual worker productivity and the effectiveness of the overall custodial unit. To accomplish this, work performance standards or benchmark standards for each task/position should be defined. These standards should be based on conventional (educational facility) tasks with acceptable completion times allocated for each one.

A good starting point for defining these benchmark standards is an analysis of historical data for certain work-related tasks. Where no data exists, administrators may choose to monitor tasks and develop benchmarks based on their own findings, or use time standards that are published by others, such as the APPA-Association of Higher Education Facilities Officers in its Custodial Staffing Guidelines for Educational Facilities. Although developed for institutions of higher learning, these time standards are also applicable to elementary, middle, and secondary schools as well. Administrators may find this process rather cumbersome, but if applied properly, it will generate a fairly accurate reflection of the time requirements for a variety of different custodial tasks, along with benchmark standards

for measuring productivity. Implementing this process requires an inventory of all spaces to be cleaned and measured in cleanable square feet (CSF). For each space type, a reasonable amount of cleanable square feet is assigned to individual staff members. Where higher cleanliness standards are desired, this will result in a smaller amount of cleanable space per staff member. In every instance, space assignments should be based on local conditions rather than general standards.

Example:

Establish a benchmark for the time needed to clean a typical classroom, including sweeping, dusting, trash removal, chalkboards, etc., that achieves a Level 2 (orderly tidiness) cleanliness/appearance factor.

Circumstances:

- A typical classroom contains approximately 960 cleanable square feet.
- Historical data indicates that individual custodians have been able to clean 14 classrooms during a standard seven-hour shift.
- A typical seven-hour work shift is 420 minutes in duration.

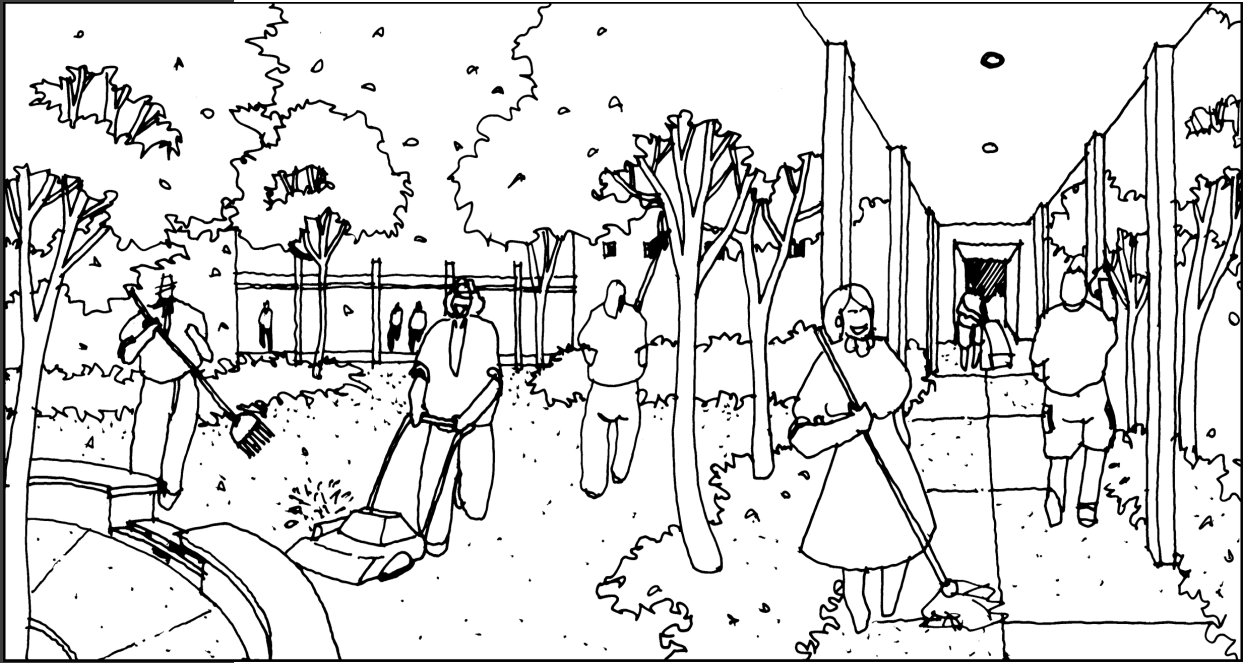
$$\begin{array}{r} 960 \\ \div \quad \underline{13,440 \text{ (total cleanable square feet in 14 classrooms)}} \\ \\ .071 \text{ (custodial FTE time factor)} \\ \times \quad \underline{420 \text{ (minutes in seven-hour shift)}} \\ \\ 29.8 \text{ minutes (time standard for classroom cleaning)} \end{array}$$

Time standards such as this can be derived for all routine and infrequently performed custodial tasks. If implemented in a comprehensive and thorough manner over a reasonable period of time, this approach can provide administrators with a set of useful tools for measuring worker productivity and establishing benchmarks for completing custodial tasks. In addition to this, it would also provide other benefits, such as a basis for comparing labor costs, resolving employee issues, budgeting, short and long-term planning, justification of staffing levels, and comparisons with other educational facilities and private industry standards.

5.6

Maintenance and Operations Administrative Guidelines for School Districts and Community Colleges

Grounds Maintenance



The primary purpose of grounds maintenance operations is to provide a continuously safe and visually attractive outdoor setting for educational facilities and to accommodate primary or secondary outdoor activities associated with the education process. As a complement to buildings, the grounds or general atmosphere of schools and community colleges will have a significant effect on impressions and attitudes of students, faculty and staff, parents, and the general public. As functional components of educational facilities, the composition and serviceability of certain grounds-related features play a major role in the support of broader educational missions. A full complement of grounds services should be provided to adequately maintain school environments to the standards established by individual institutions or, at a minimum, to standards that are compatible with the surrounding community.

Success in grounds management, while largely dependent on unpredictable circumstances such as weather, the vulnerability of living plants and pests, also depends on well-trained personnel with skills in a variety of areas who are capable of maintaining educational facility grounds in a visually appealing and environmentally sensitive manner. Some of the primary

tasks associated with a comprehensive grounds maintenance program include the following:

- Landscaping: selecting, arranging, and installing plant materials.
- Gardening: maintaining planting beds.
- Plant maintenance: maintaining individual plant species.
- Turf management: planting, repairing, and maintaining sod areas.
- Irrigation system maintenance: maintenance of sprinkler systems and controls.
- Athletic field maintenance: maintenance of turf-based and hard-surface athletic areas.
- Fertilizer and pesticide applications: Integrated Pest Management practices should be followed as a first step. For additional information on this topic, see section 9.16 Integrated Pest Management. Also the application of approved chemicals to promote plant growth or eradicate pests (pesticide applications for educational facility grounds may be accomplished concurrently with applications for buildings by a private sector vendor).
- Outdoor feature/furniture maintenance: maintaining playground equipment, walkways, and other paved surfaces.
- Equipment maintenance/management: maintenance of all grounds-related tools, equipment, and supplies.
- Task management: time management and work performance standards associated with grounds-related tasks.
- Scheduling: procedures for establishing routine and priority work tasks.

In addition to addressing these issues on a recurring basis, grounds maintenance departments are responsible for the following areas of educational facilities:

- Exterior open spaces: courtyards; plazas, terraces, decks, etc. (paved and planted)
- Walkways
- Exterior accessible routes for the disabled
- Driveways
- Parking lots
- Lawns/plant beds
- Interior planting
- Playgrounds and equipment
- Athletic fields and bleachers
- Retention ponds and other water features
- Secondary roadway elements (e.g., signage, railings, drainage inlets, etc.)

While in-house grounds departments are common in schools and community colleges, these activities are increasingly being out sourced to private companies (see section 8: Contracted Services). Currently, outsourcing for grounds-related services occurs mostly at community colleges; however, both large and small school districts will likely follow suit where this proves to be a beneficial approach to grounds maintenance. Services that are most commonly contracted include mowing, tree and shrub maintenance, fertilizer application, integrated pest management, waste removal, and a number of other specialized or technical grounds-related functions. A thorough analysis of the advantages, disadvantages, and costs should be the first step in determining whether or not outsourcing grounds services is a practical option. Ultimately, administrators will have to determine whether or not it is cost effective or administratively less problematic to provide these services through a third party entity, as opposed to providing them in-house.

In addition to an adequate and skilled workforce, grounds departments must also have the requisite tools, equipment, and supplies at their disposal to be an effective arm of the maintenance and operations department. This suggests that grounds units be given a commensurate level of consideration in the budgeting process, relative to other maintenance and operations priorities. In instances where grounds functions are extensive and performed entirely by in-house staff, separate facilities may be required to coordinate the work effort, allow for maintenance of equipment, and provide storage space for grounds-related supplies.

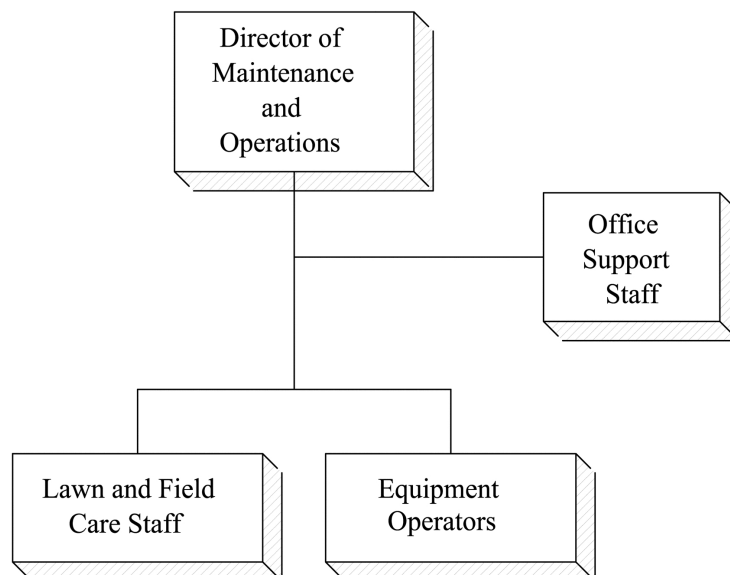


Figure 5.7: Organizational Chart for a Grounds Maintenance Department at a Small School District.

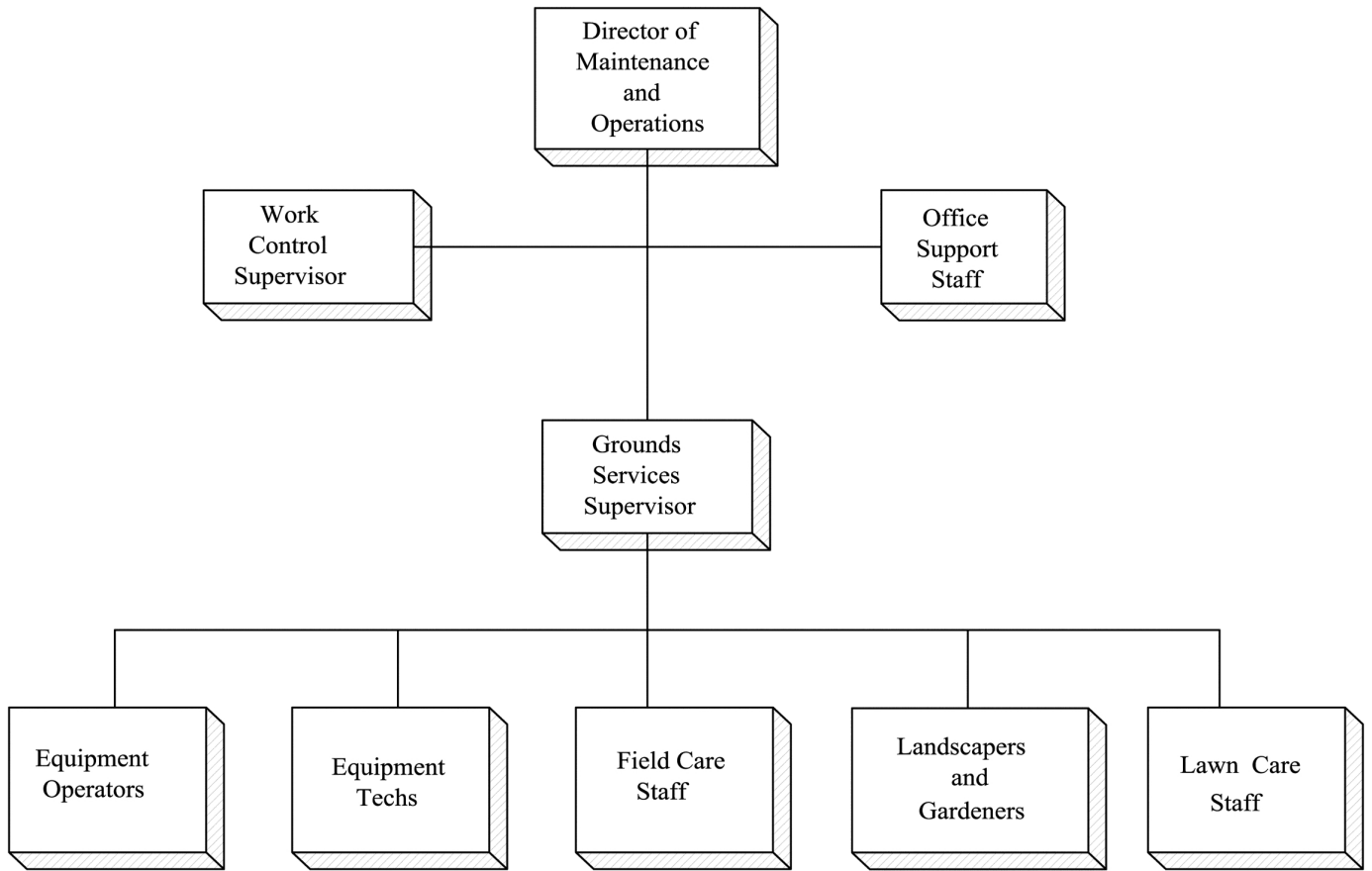


Figure 5.8: Organizational Chart for a Grounds Maintenance Department at a Medium-Size School District.

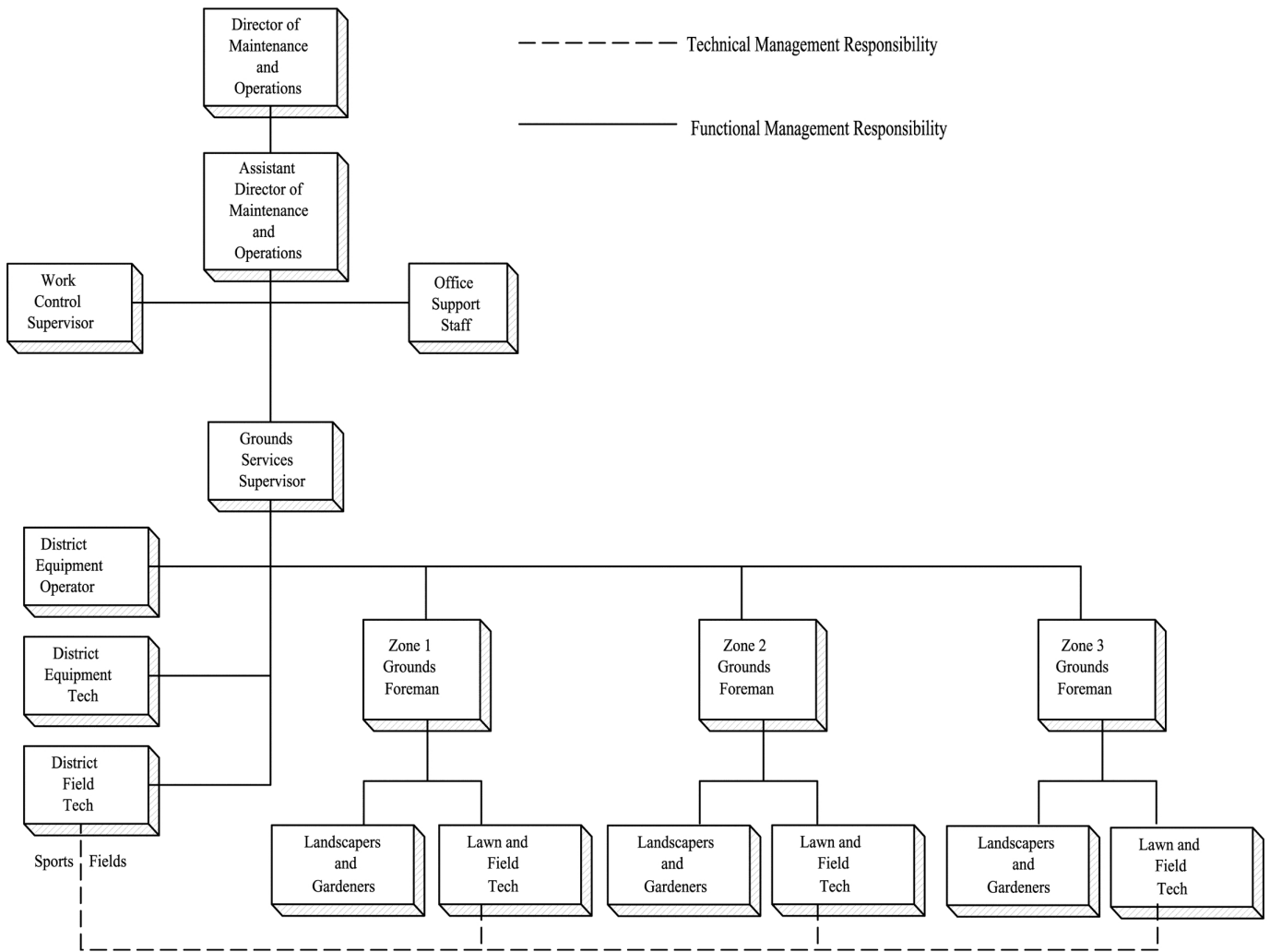
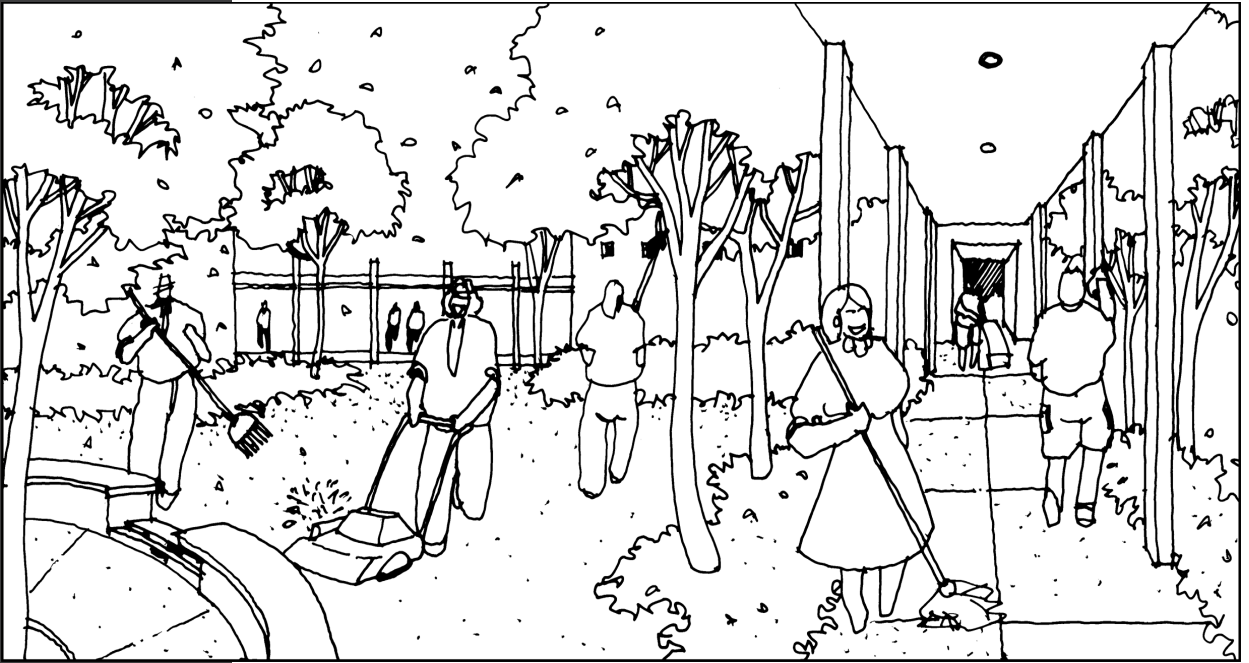


Figure 5.9: Organizational Chart for a Grounds Maintenance Department at a Large School District.

5.6

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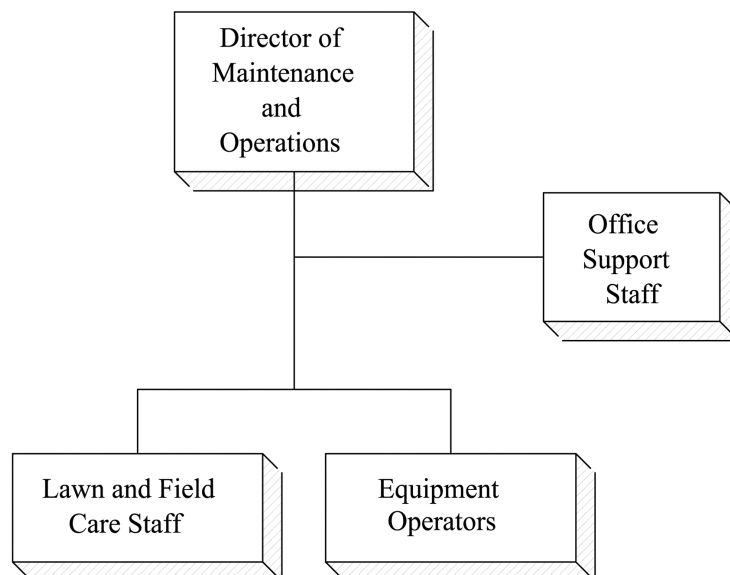


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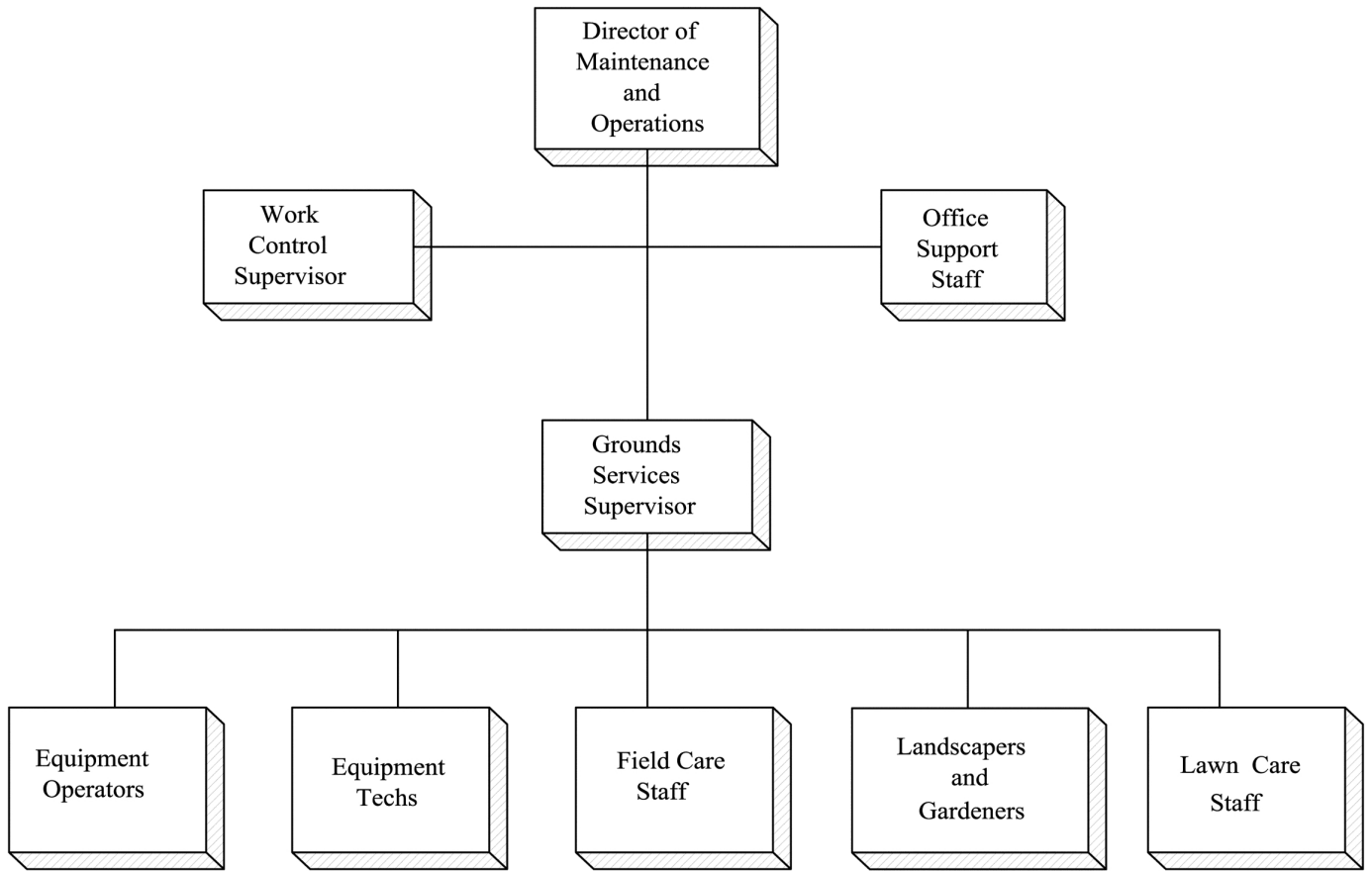


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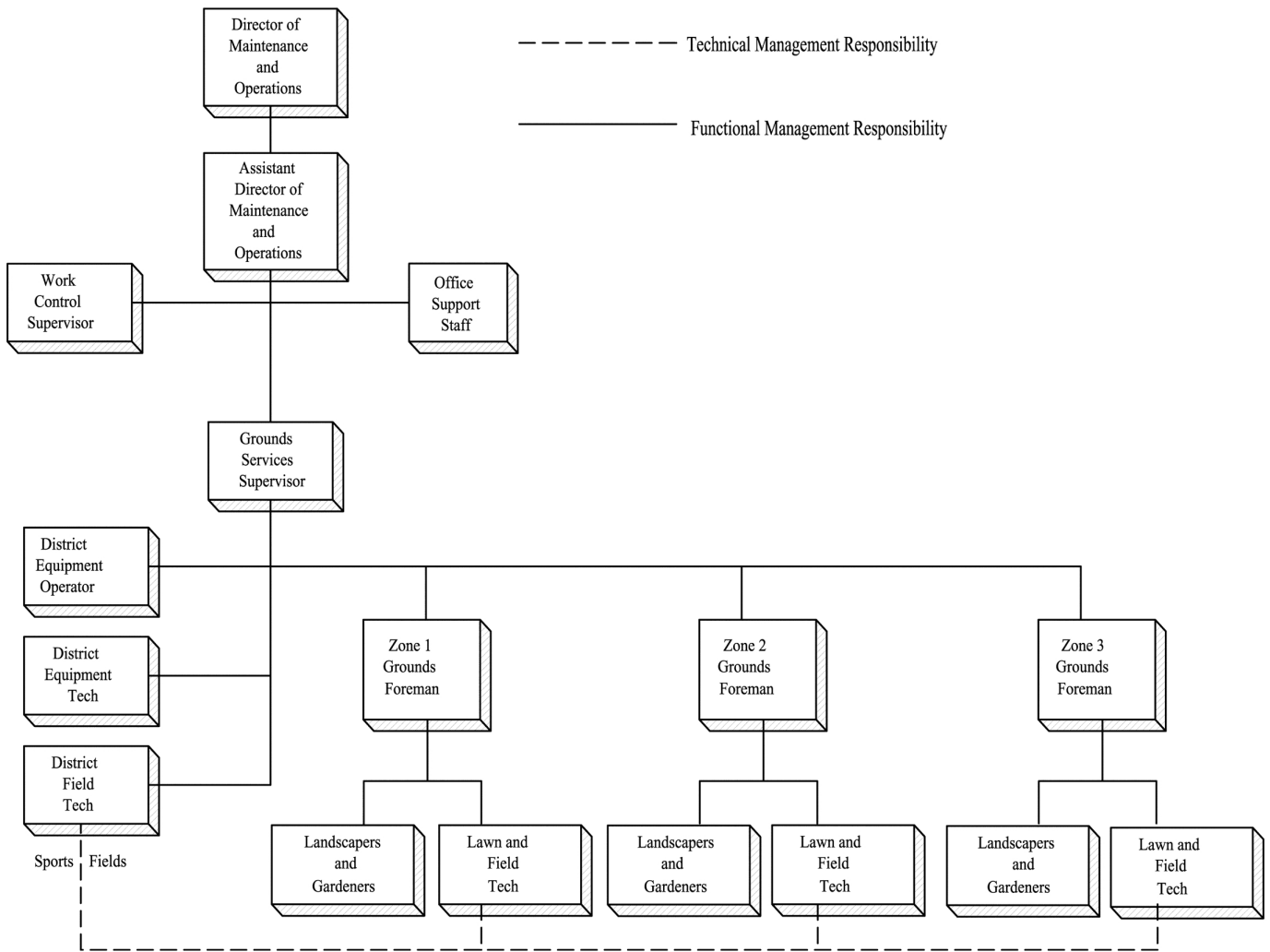
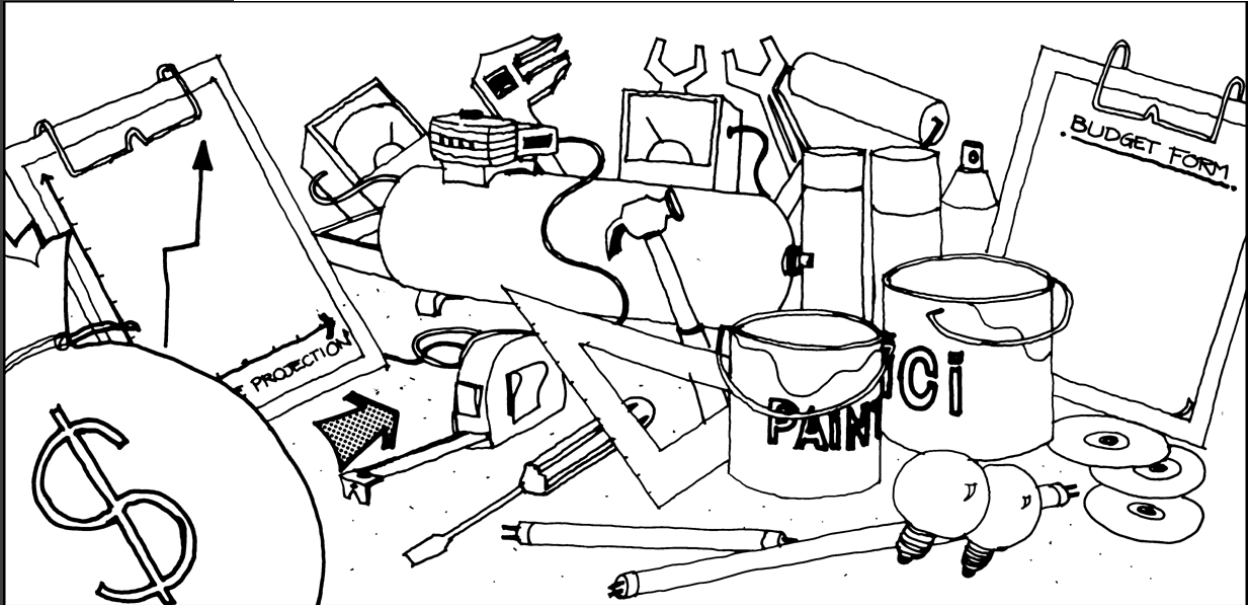


Figure 5.9: Organizational Chart for a Grounds Maintenance Department at a Large School District.

5.7

Maintenance and Operations Administrative Guidelines for School Districts and Community Colleges

Staffing and Workload Formulas for Grounds Departments



Like other maintenance and operations functions, personnel staffing for grounds-related services tends to vary among school districts and community colleges throughout the state. The most common factors affecting staffing levels for grounds crews at individual school campuses include the following:

- School or community college campus size in acreage
- Number and types of outdoor spaces to be maintained
- Type and extent of natural and “hardscape” features
- Extent to which grounds crews perform other unrelated tasks

Florida School and Community College Grounds Staffing Formula

The formula for determining staff levels for grounds maintenance should be based on two types of grounds personnel – those who perform general grounds functions such as mowing, gardening, and trimming, and those who care for athletic fields or other specialized open space features. In many school districts, general grounds functions are performed by school custodians, while maintenance of large open areas and athletic fields

are maintained by district grounds crews. At some smaller school districts and community colleges it is more typical for a single crew to provide all required grounds services for the entire facility. The following formula is recommended for determining the number of specialized grounds keepers and athletic field grounds keepers for educational facilities.

<p>Total acreage of school facility Divided by 40 Plus 1 FTE grounds keeper Plus 1 FTE grounds keeper per 500,000 square feet athletic fields Equals Total number of grounds personnel</p>

Figure 5.10: Grounds Staffing Formula.

For the purposes of applying this formula, an athletic field is any area used for interscholastic competition such as football fields, baseball fields, basketball courts, soccer fields, practice and game fields, and open acreage.

Example:

Determine the number of grounds staff required for a high school that is situated on 25 acres of land (including all building footprints) and has approximately 850,000 square feet of athletic fields.

$$\div \frac{25 \text{ acres}}{40} \qquad \qquad \qquad .63 \text{ grounds keepers}$$

$$\div \frac{840,000 \text{ square feet of athletic fields/open acreage}}{500,000 \text{ square feet (grounds keeper ratio)}} \qquad \qquad \qquad 1.7 \text{ grounds keepers}$$

$$\qquad \qquad \qquad + 1.0 \text{ (from formula)}$$

Total grounds staff: 3.33 grounds keepers