Planning a Municipal Multi-Purpose Athletic Complex

By Peter Spanos, P.E. and Kathleen D. Hervol

Expanding or renovating an athletic complex is never easy. The decision to proceed is often determined by others—or from various sources—and your task may be to help make the project come together. Many of the decisions will involve a variety of stakeholders, some of whom will be inconvenienced by the work, some who will be very involved and passionate, and others who will be less involved than you would like them to be. Advocating for support and funding for a large project can seem like a daunting task, which is often complicated by many factors, such as assembling a team, planning and shifting events to other sites, and engineering and permitting.

This article outlines a general guide to the steps and costs necessary to construct a new municipal-level, multipurpose field. Since a multipurpose field tends to attract large crowds, the project typically includes bleachers, a press box, athletic lighting, restrooms, concessions, storage, and adequate parking. How well these elements come together in the final design will have a major impact on the success of the facility. These athletic venues are often some of the most visible facilities in a city or town, and it's important to get it right.

Ideally, a multi-purpose field is sized so that as many sports as possible can be played on it. In the United States, this means the length of the field is dictated by American football (360 feet plus safety run-outs) and the width by soccer and girls' lacrosse (high school level: 210 feet plus safety run-outs.) This size allows regulation football, boys' and girls' soccer and lacrosse, and field hockey.

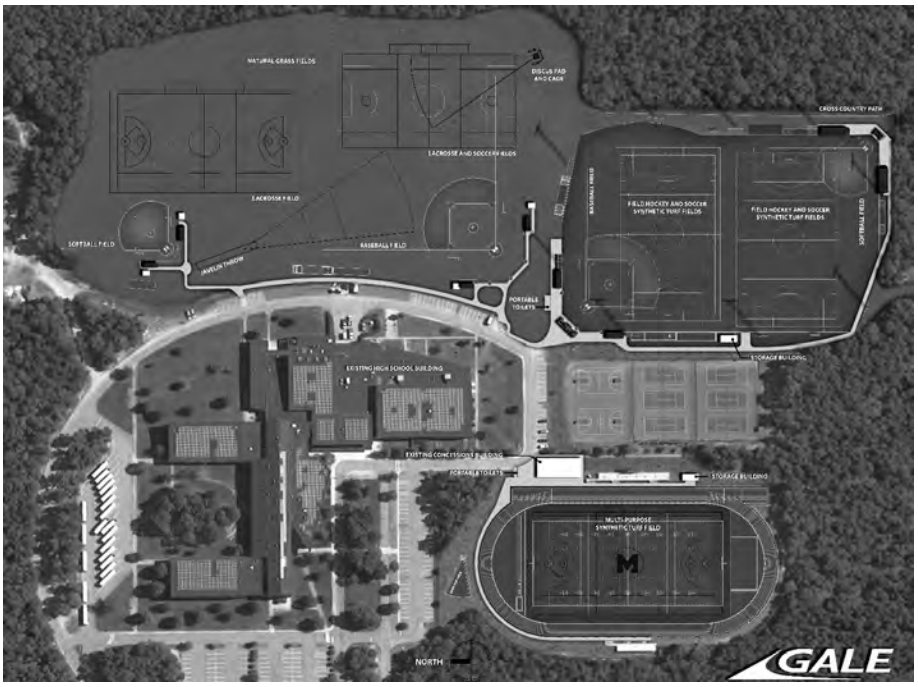
Another consideration early in the process is the surface of the field. Many communities have at least one synthetic turf field. Synthetic turf is popular because it can withstand being used seven days a week with minimal maintenance. Typically, municipal-level natural fields can only be used for around 200 events per year due to maintenance budgets and staff limitations. In contrast, a lighted synthetic turf field can have as many as 720 uses per year. This equates to a much greater "cost-per-use" for natural turf because of the restricted nature of use on a natural-grass field. This cost-per-use needs to be considered with regard to the field as well as the related infrastructure cost of bleachers, lights, parking, etc.

Preliminary Planning—Assembling a Team

The first task is to assemble a project team or steering group that consists of applicable staff, as well as active members of the community. Municipal staff should include representatives from finance, the athletic director, and maintenance/facilities staff. Finance staff will manage procurement issues, while the athletic director and maintenance representatives will operate the finished project.

Representatives from the community (e.g., athletic boosters, concerned coaches) can be your greatest advocates for a project, and their presence will reinforce the perception that the project is a needed community improvement. The more active this core group is involved in advocating publicly for the project and seeking consensus from community factions that may be opposed to the project, the better. A good team will be dedicated and educated on the topics. It should also be proactive and able to make decisions quickly.

The next step is to hire experienced consultants to assist with the design and permitting of the project. The main design consultant will typically be an engineering, landscape architectural, or architectural consulting firm. Depending on the scope of the project and local permitting requirements, a



myriad of engineers, wetlands consultants, geotechnical engineers, permitting consultants, materials testing labs, fundraisers, etc. In the construction industry, the fees to pay these consultants are referred to as "soft costs." These costs typically account for about 10% of total construction costs for the project.

Preliminary Planning—Master Planning or Feasibility Design Phase

It is important to bring the lead design consultant on board early in the process to assist the team with establishing the project scope and budget in detail. Ideally, the lead consultant will have extensive experience in designing all the project components and be familiar with how they impact each other. For example, the size of the bleachers may dictate the need for restroom facilities per plumbing codes, or the amount of adjacent parking per zoning codes. During this phase of design, the consultant should identify the unique aspects of the project site that will affect the cost, as well as the aspects of the permitting process that will affect the design and the schedule. Each municipality, county, or state has its own set of permitting requirements. For some projects, obtaining permits can take more time than the actual design and construction combined.

During the Feasibility Phase, the consultant should also be able to provide advice on bidding, funding, and grants. The consultant can also assist with phasing the project should all the funds not be readily available, or if other critical athletic programs will be impacted during construction. Design fees for this initial phase should not be based on construction cost since the intent of this phase is to define those costs. The key deliverables at the end of this phase should include a firm project budget, a colored illustration for marketing purposes, and a realistic schedule that includes time for permitting.

Further, designers should partner with the development team to position the project for success and approval of later (more significant) design phases. Due to this partnering aspect, this early phase of design is usually relatively inexpensive. In New England, the cost for this phase (for a municipal athletic complex without a concessions/restroom building) can range from $5,000 to $30,000. The more meetings and "deliverable" products required from the consultant, the greater the cost will be. This fee can double if a concessions/restroom building is involved since many more decisions will be required to establish the degree of finish for a building and resulting changes to proposed mechanical, plumbing, and structural components.

At the end of this initial phase, booster groups within the community will often try to raise funds for the project. In the past, the budget of almost every municipal project was formed from municipal budgets or bonding. Due to today's tighter municipal budgets, few athletic projects proceed without a significant number of private funds or state grants that have been raised by a committed core group of volunteers.

Maintenance Planning

It is crucial to consider maintenance of the proposed facility early in the planning process. The team needs to determine the current maintenance versus the maintenance the new facility will need since materials and design choices will be factored in for the new project. For example, many municipalities desire a sand-based natural-turf field until they are confronted with the costs involved with properly maintaining that surface.

A typical municipal natural-turf field on the East Coast costs around $27,000 per year to maintain. This includes seasonal mowing, fertilization, field striping, irrigation, pH adjustments, spring opening, fall clean-up, etc. For a high-end sand-based field, a native topsoil field that is used more than 200 times per year, that number can more than double. For a permanently striped, synthetic-turf field with standard SBR infill, that figure is around $7,000 per year regardless of how often it's used. Cost may vary for

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some of the newer alternative infills. In addition, clean-up costs should also be factored into the equation (depending on how often the field is used).

Design Phases

Once the scope of the project has been established, the design and engineering can begin. A site survey and geotechnical testing—if not already completed during the site feasibility—are two preliminary parts that allow a detailed design to proceed. This includes field layout, field drainage, structural design, materials selection, bleacher size and materials, press-box size and construction, electrical layout, athletic lighting, turf selection, irrigation design, communications conduits, fencing, ticketing provisions, security, concessions/restroom building design and permit applications. These will have to be designed, engineered, coordinated, and documented to allow contractors to accurately bid on the work. Common milestones of the design phase include schematic design, design development, permitting documents, and contract (aka bid) documents.

- The end goals of this phase are twofold:
- To obtain necessary planning-level permits

To produce a quality set of construction plans and specifications suitable for public bidding.

Oftentimes, this phase occurs concurrently with fundraising for construction. This phase will involve the majority of the group's time in coordinating and refining what the scope of the project will be (e.g., the possible inclusion of a $25,000 logo in center field), and working with the engineer or architect to reconcile the finish of the project (e.g., gold-plated faucets or stainless steel) within the established budget. The team should also be involved at this stage to assist with permitting the project and working with the designer to coordinate strategy, timing, and community input.

Schedule

The schedule is typically affected by climate, permitting, existing functions at the fields, and the time needed to design and construct the field. Most projects will take a full year between hiring a consultant and cutting the ribbon, and may take even longer if funds need to be raised or if the permitting process is especially difficult. Land-use permits should also be considered in scheduling. They typically take around 90 days, but may take

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up to a year in some locations. Also, projects on undeveloped land can take longer than projects on developed sites.

Projects of this type are often developed on school property and need to be built during the summer months to avoid disrupting the school and athletic programs. This will directly affect cost. Should you have the option to build in the spring or fall, significant savings can be realized, as athletic contractors want to keep busy during these typically slow periods. Track surfacing, turf adhesives, and paving work are all temperature- and weather-dependent, and proper scheduling of these tasks is also necessary.

Synthetic turf allows athletes to play on the field immediately upon completion. In the Northeast, municipalities need to allow up to three growing seasons for natural turf to be established enough to play on (grass goes dormant in the summer and winter, so these are not considered growing seasons). If three seasons are unreasonable for your community, sodded natural turf is another option. It is preferable to let a sodded field root for at least one growing season before playing on it, but some owners choose to play on sodded fields within a month of being installed. For a project involving the development of a game field with a running track, bleachers, lights and turf, a typical construction period is 120 to 160 days. For an artificial-turf field with bleachers and lights, construction will typically take 100 days.

Construction Costs

Each project is unique, and construction costs can vary widely depending on the schedule (the faster the completion, the more costly), time of year, existing site, scope of work, quality of materials used, and type and complexity of construction. Another significant cost factor involves public bidding laws. In several New England states, contractors are required to pay "prevailing wages" on public projects, which can significantly increase costs when compared to similar privately funded projects. Prevailing wage requirements are set by individual states, counties, or regions, and can vary widely. Some states do not have any prevailing wage requirements.

For budgeting purposes during the design phases of a project, architects and engineers typically carry an additional 10-15 percent of "contingency" costs. These costs provide a buffer should something be discovered during construction or the late phases of design that would increase costs significantly. Including these contingencies in the budget can help avoid delays in the project while extra funds are found. Cities and towns eliminate contingency funds from their planning at their own peril.

New construction usually involves the leveling of the property, installation of drainage, new infrastructure, roads, and parking. The cost for this work is difficult to gauge without a thorough understanding of the property and what is available nearby. However, reconstruction of an existing facility that already has most of the infrastructure, and is already leveled and drained, is easier to estimate.

We hope you find that this article provides a general guideline for successfully completing your project. As in any great endeavor, strive to remain optimistic, and prepare for the worst.

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