Sunnyvale VERDE DESIGN

Approve the Revised Concept for Lakewood Park Renovation Project

Review Design Considerations for Natural Grass for Public Athletic Fields

Sunnyvale

Agenda

- Overview of athletic field usage and demand
- Analysis selecting grass type for athletic field
  - Types of grasses
  - Maintenance practices
  - Field base construction
  - Market research
- Changes to field layout
- Capital and operational fiscal impacts

Tonight's Decision Points

- Approve the Revised Concept for Lakewood Park per Council Direction in October 2023 to:
  - Replace the use of artificial turf with natural grass
  - Consider removing the fencing south of the halfway line of the multipurpose field
  - Explore the installation of Bermuda grass and other drought resistance natural turf options
  - Include batting cages into the project design

Overview of Field Usage and Demand

Overview of Current Uses at Lakewood Park

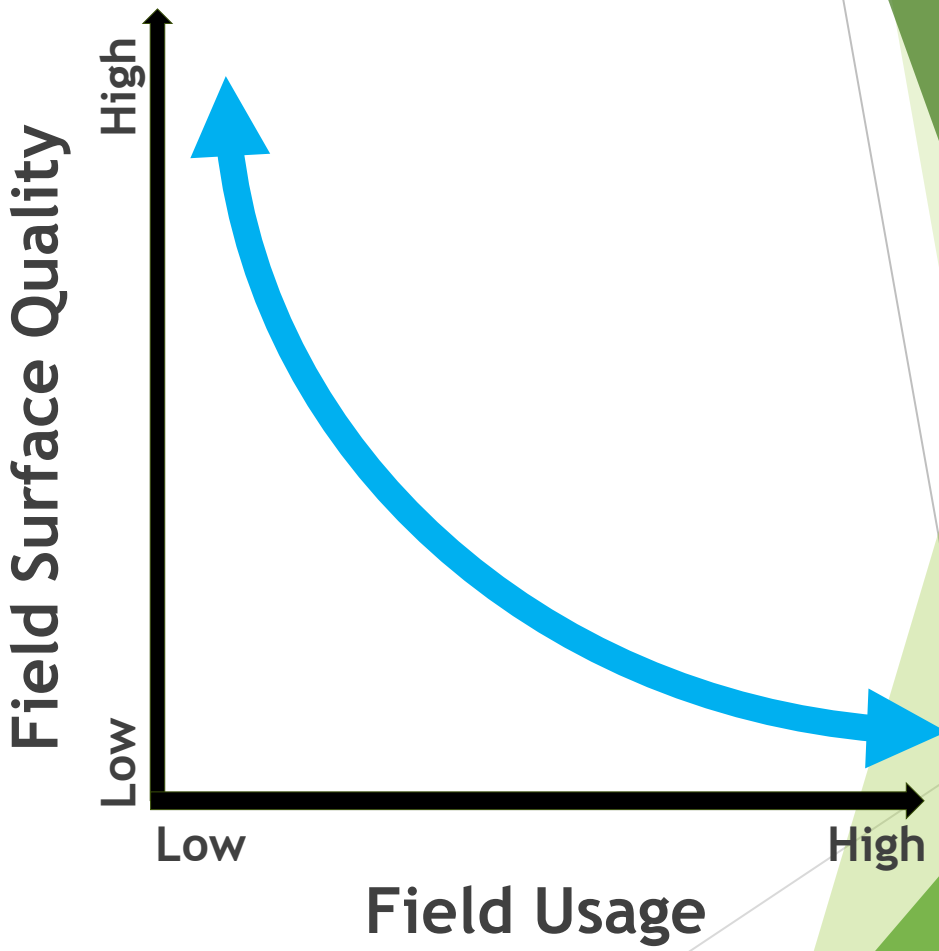
- Current uses include, but are not limited to:

More common	Less common
Soccer (youth and adult)	Cricket
Softball (youth and adult)	Rugby
Youth baseball	Volleyball

- Lakewood athletic field reservations totaled 813 hrs (approx. 20 hrs/week)

Field Wear and Use Hours

- Field Usage has an inverse relationship to the field surface quality. Other factors include:
  - Ages/weights of athletes
  - Level of competition: practice vs. games
  - Time of year/sports season/weather



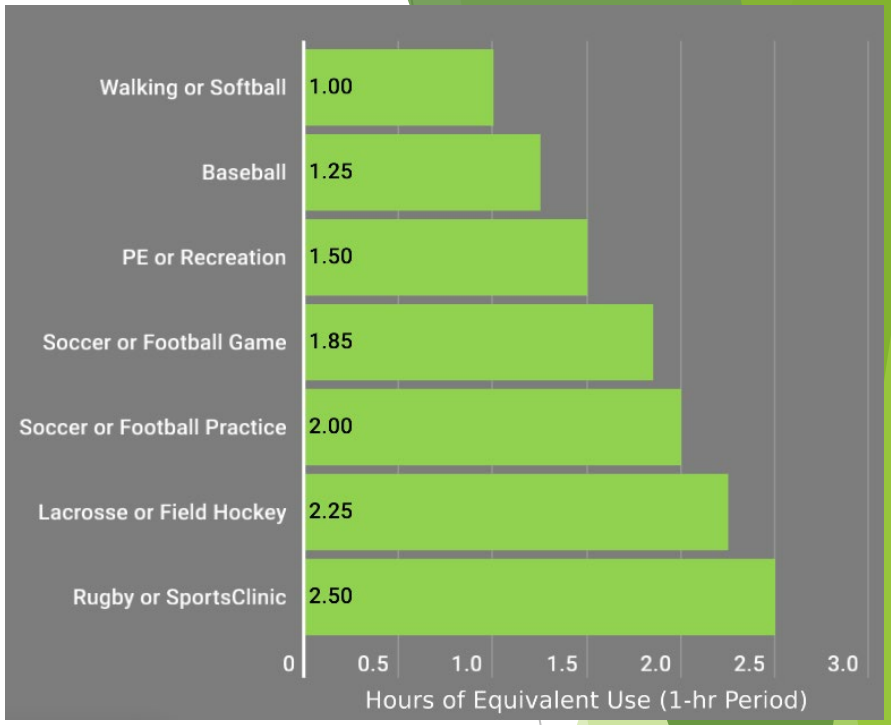
Recommended Hours of Use

Equivalent Use Hours

- Every hour of field use has an **Equivalent Use*** based on the wear factor for each sport

Calculating your weekly usage

- A natural grass field should be programmed for a maximum of **56 Equivalent Use hours per week***
  - The chart at the right depicts a hypothetical scenario showing the calculations for a range of sports (not specific to Lakewood Park)



EQUIVALENT FIELD USE CALCULATOR FOR NATURAL GRASS BASED ON 56 HOURS OF EQUIVALENT USE			
ACTIVITY	ACTUAL HRS OF USE	EQUIVALENT MULTIPLIER	EQUIVALENT HRS OF USE
WALKING	0	1.00	0.00
BASEBALL	6	1.25	7.50
PE/RECREATION	0	1.50	0.00
SOCCER/FOOTBALL GAME	10	1.85	18.50
SOCCER/FOOTBALL PRACTICE	8	2.00	16.00
LACROSSE OR FIELD HOCKEY	4	2.25	9.00
RUGBY/SPORTS CLINIC	2	2.50	5.00
	30.00		**56.00**

*Calculating recommended hours per day and equivalent use hours involves many factors such as specific sports' impacts, age/weight of athletes, practice vs. games, and weather/seasonal factors. These numbers are based on professional experience and as conferred with local turf experts.

Recommended Hours of Use

Natural Grass

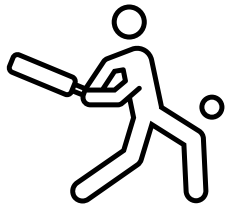
- For a perfectly maintained field (with proper mowing, fertilizing, aerating, etc.) you can program a maximum of **8 hours per day***

Current

- In 2023, between March and November, Lakewood Park had 813 reservation hours, which equates to an average of **20 hours per week**
- This does not account for equivalent hours

*Calculating recommended hours per day and equivalent use hours involves many factors such as specific sports' impacts, age/weight of athletes, practice vs. games, and weather/seasonal factors. These numbers are based on professional experience and as conferred with local turf experts.

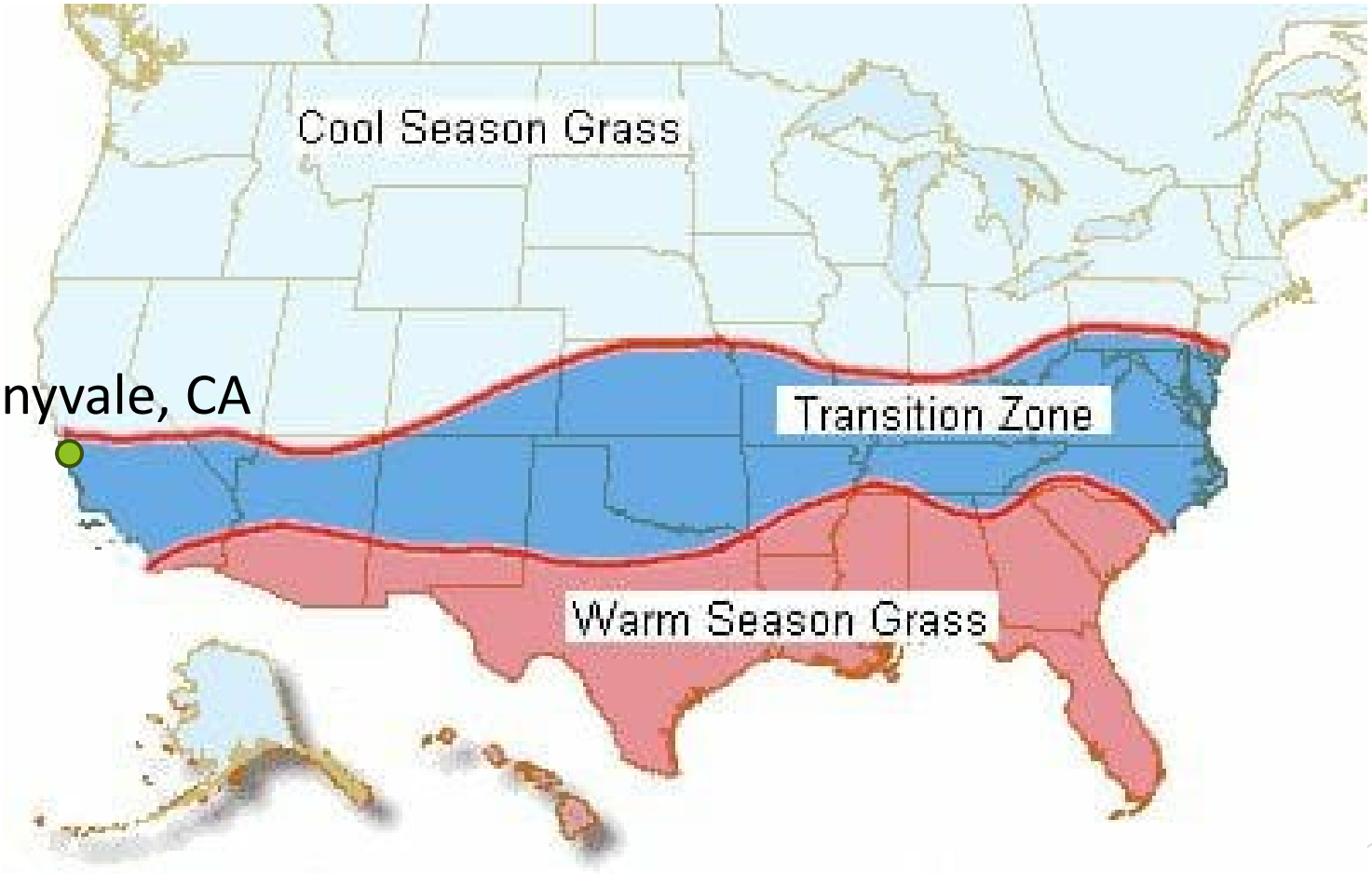
Other Park Use Hours



- Fair Oaks Park (year-round) had 5,641 hours.
- Ortega Park (Mar-Nov) had 1,627 hours.
- Washington Park (Mar-Nov) had 1,351 hours.
- These numbers do not account for drop-in play that is not recorded by LRS staff.
- The City has more demand (annual use hours) for field usage than a natural grass field can support.

Selecting a Grass Type

Natural Grass: Regional Species Map



*Source: sportsfieldmanagement.org
The Sports Turf Managers Association was officially formed in 1981 to facilitate the sharing of ideas and information. The association has 2700 members and is headquartered in Lawrence, KS.

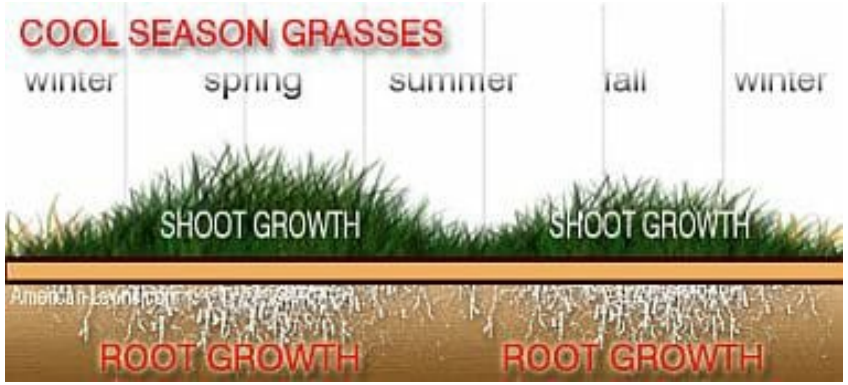
Natural Grass: Main Species Types

Cool-Season Grasses

- Perennial Ryegrass/ Bluegrass/Fescue Blend
- Most growth occurs in spring and fall
- *Optimal temp for growth 60-75°

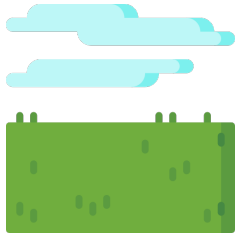
Warm-Season Grasses

- Bermuda grass including hybrid varieties/ Buffalograss
- Most growth occurs in late spring - early fall
- *Optimal temp for growth 80-95°



*Source: sportsfieldmanagement.org

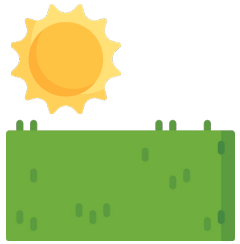
Natural Grass Types: Pros and Cons



Cool-Season Grasses

Pros

- Climate adapted to our location
- Most common type of natural grass used in Bay Area
- Less intensive maintenance practices



Cons

- Requires significant water/fertilizer/pesticides
- Longer recovery time required
- Requires maintenance practices

Warm-Season Grasses

Pros

- Vigorous growth during warm weather
- More wear tolerant
- Recuperates rapidly/less recovery time
- More disease resistant
- More drought tolerant

Cons

- Requires more intensive maintenance practices (thatch removal/verti-cutting/reel mower)
- Requires significant fertilizer/pesticides
- Goes dormant in cool season (requires overseeding)

*Source: sportsfieldmanagement.org

Natural Grass: Cultural Practices

Cultural Practices

All natural grasses require cultural practices, including:

- Mowing
- Fertilization
- Irrigation
- Weed Control
- Soil Cultivation
  - Core Aerification
  - Deep-tine Aerification
  - Deep-drill Aerification
  - Slicing/Verti-cutting
- Top-dressing
- Overseeding

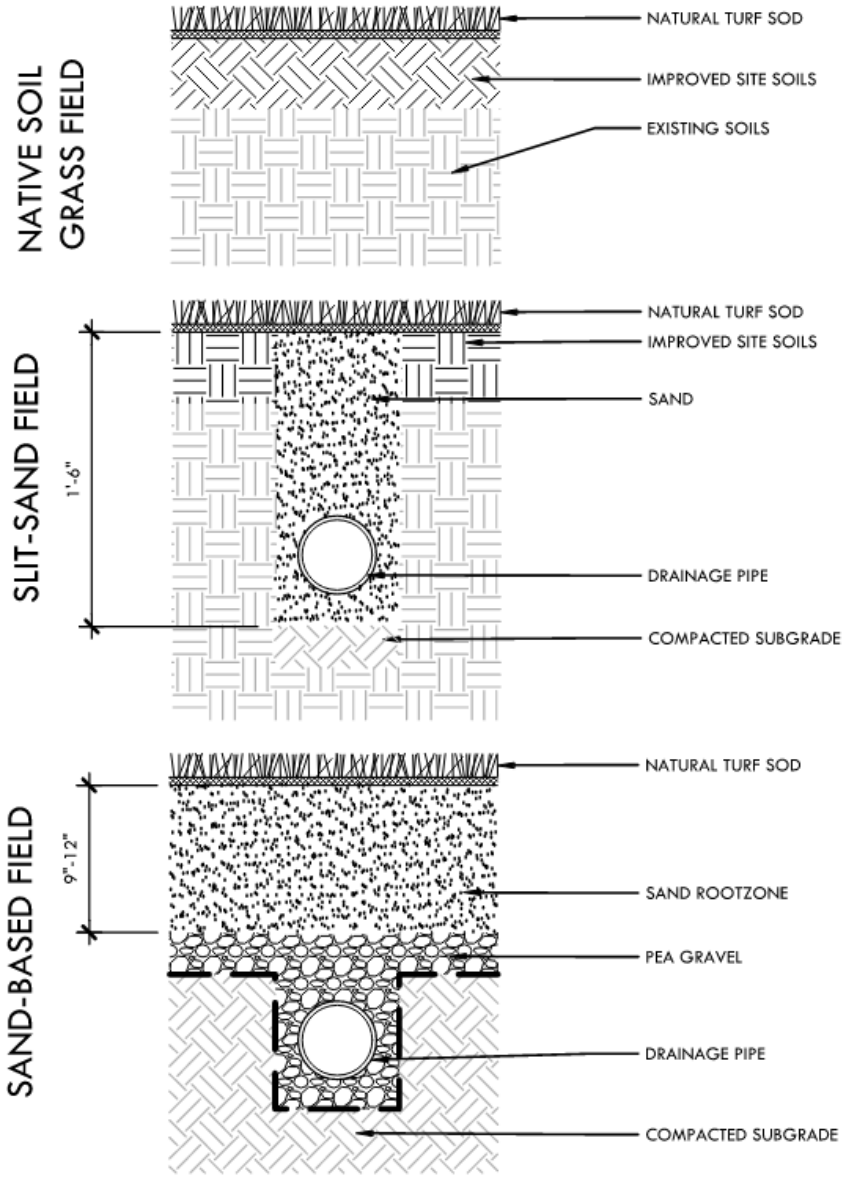
Special applications:

- Bermuda grasses
  - Require frequent dethatching and aeration

- Sand-based fields
  - Require more frequent dethatching and aeration to keep the surface layer permeable

*Source: sportsfieldmanagement.org

Natural Grass Systems



Three Main Natural Grass System Types

- Each option provides varying drainage characteristics, aeration, and protection against compaction.

Why does it matter?

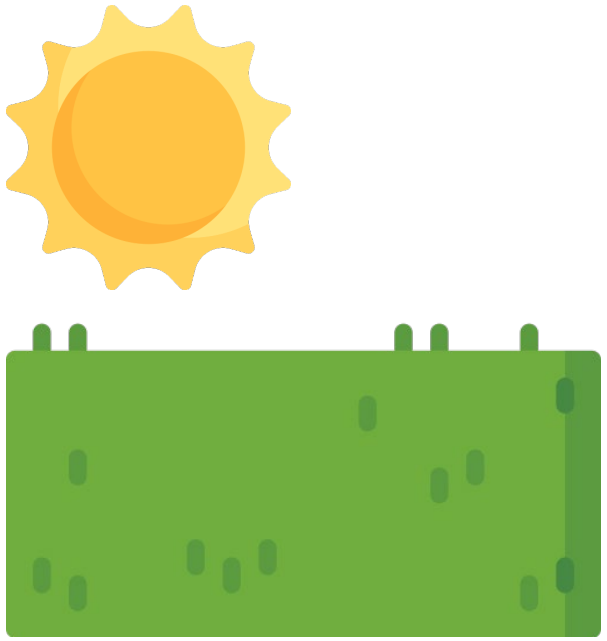
- Natural grass thrives in the presence of air (aeration), water, and nutrients within the soil.
- Soil compaction can prevent the passage of air, water, and nutrients into the soil and is a major cause of natural grass failure.
- Natural grass benefits from a well-draining, well aerated soil.

Natural Grass Systems: Comparison

	Capital Cost/SF	Field Performance	Maintenance Requirements
Native Soil Grass Field	**$9**	▶ Susceptible to compaction, and holding water when wet, which can lead to planarity issues. ▶ Requires a steeper cross-slope. ▶ May not be usable after short rain events.	▶ Higher absorption of water and nutrients within soil profile. ▶ Requires high level of cultural practices. ▶ Need to be aware of compaction.
Slit-Sand Field	**$12.50**	▶ Drainage and aeration are improved, but soils between trenches are susceptible to the same issues as native soil grass field. ▶ Can likely accommodate short rain events.	▶ Moderate absorption of water and nutrients. ▶ Requires high level of cultural practices.
Sand Based Field	**$28**	▶ Superior drainage, aeration, and planarity. ▶ Field can be relatively flat. ▶ Can accommodate short rain events. ▶ Suffer over prolonged periods of dry conditions.	▶ Low absorption of water and nutrients due to sand profile. ▶ Requires high level of cultural practices. ▶ Inconsistencies in aeration and topdressing will compromise drainage system.

Local Market Comparison

Natural Grass Types: Other Bay Area Cities



Grass Type: Native Soil and Slit Sand

- Cities that use perennial blue/rye grass
  - San Francisco, Burlingame, Redwood City, Sunnyvale, & Santa Clara

Grass Type: Sand Based Fields

- Cities that use Hybrid Bermuda
  - San Francisco, Burlingame, Redwood City, & Santa Clara
- San Francisco overseeds with Rye
- Santa Clara specifically uses Bandera and Latitude 36 varieties

Field Closures: Other Bay Area Cities

Field Closures

- Sunnyvale and other Bay Area City fields are typically closed for extended periods during the winter and as-needed for field maintenance & recovery
- Some limit their hours of programmed activity to 3-6 hours/day, 6-7 days/week

	Field Closure Summary												Field Type
	Jan	Feb	March	April	May	Jun	July	August	September	October	November	December	
Burlingame													Natural Grass
Redwood City													Natural Grass
San Carlos													Natural Grass
San Francisco													Natural Grass
Santa Clara													Natural Grass
Sunnyvale													Natural Grass

Field Layout and Use Changes

Overview of Layout Changes

- Field Layouts are operational examples:
  - Field marking is temporary on natural grass and will rotate based on usage
  - The addition of dirt infields removes the option for a clearly marked and fully grass youth cricket field
  - The pathway from the greenbelt to the library across the fields competes with the ability to rotate field layouts for optimal field performance
  - Includes batting cages

Lakewood Field Layout: Original Layout

Layout Field Layout: Option A

Lakewood Field Layout: Option B

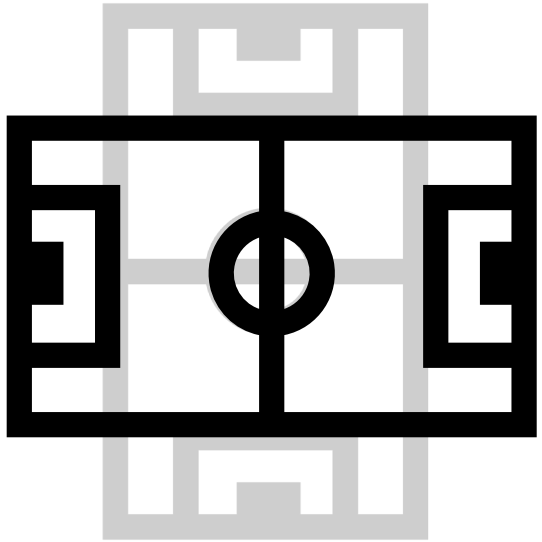
Fiscal Impacts

Capital and Operational Impacts

- Staff Recommendation is within existing budget for capital
- High performance sand based field will cost an additional $2.2-$2.9 million
- Any expectation of improvement or maximization of use time will require additional operating resources, estimated at approximately $500,000 - $800,000 annually for additional staff, equipment, training, and materials
- Capital costs would be added on construction contract award
- Operating costs added with the FY 2026/27 Operating Budget Cycle (coincides with completion of project)

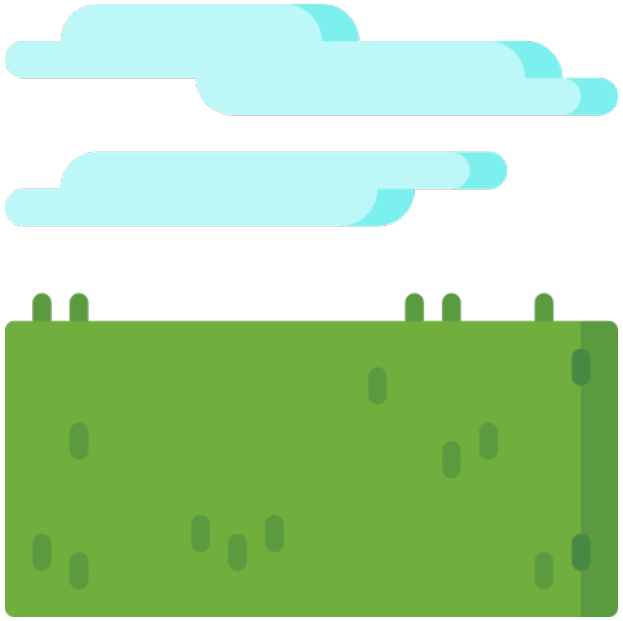
Staff Recommendation

Recommendations for Lakewood Park



- **Opportunities to reduce wear:**
  - Rotate field locations within the space.
    - Change daily location of practices on the field.
    - Shift fields of play to shift areas of concentrated wear.
  - Limit use of fields during rainy weather patterns.
  - Use portable goals and move them around the field for drills and practice, thus limiting wear in the area of the mounted goal posts.
  - Provide warm-up space to keep activities off of the field.

Recommendations for Lakewood Park



- **Install a natural grass/native soil field* at Lakewood Park.**
  - Optimize soil conditions with amendments and/or import of sandy loam soils.
  - Incorporate surface drainage at perimeter, outside of playing fields
  - Use a cool season bluegrass/rye blend
- Parks Staff must be equipped with adequate resources/equipment to properly maintain fields.
- Programming will need to account for equivalent use-hours so fields are not overused.

*A synthetic turf solution is not an option for Lakewood Park

Staff Recommendation

Alternatives 1 and 3:

1. Approve the Revised Concept for the Lakewood Renovation Project and installation of a natural turf Bluegrass/Rye blend or other blend with similar performance on a native soil field for the Lakewood Park athletic field
3. Find the Action is Exempt from the California Environmental Quality Act (CEQA) Pursuant to CEQA Guidelines Section 15262

Thank you!
Questions?