

Grant Proposal for VES Field Lighting

The Vashon Lacrosse Club (VLC) and the Vashon Island Soccer Club (VISC) have jointly submitted a grant application to King County for the purpose of lighting the 3.6 acre main VES field. These all-volunteer organizations are the primary users of open field space on Vashon for practices, games and personal development of participants. The Clubs have identified VES lighting as the primary project necessary to sustain existing programing and allow expanded opportunities for new programing.

About the Clubs.

The core values of VLC and VISC in providing youth sports opportunities to Vashon are similar. Both clubs adhere to Positive Coaching Alliance (PCA) philosophies and promote free, island-wide PCA training in order to support a positive youth sports culture where children, coaches and volunteers have fun and learn positive character traits that last a lifetime. VLC and VISC offer recreational and competitive opportunities to both boy and girl athletes, as well as some adult programs within the constraints of available field space. In order to make play available for everyone, both clubs self-fund need-based partial and full scholarships. Because the clubs participate in league play where about half of the games are played on Vashon, they bring several thousand people from around the region each season to enjoy Vashon's bucolic atmosphere and to support the local island economy.

VLC was founded in 1991 and now regularly offers boys and girls programs from elementary school through high school. In 2017, there were 87 boys and 63 girls participating in lacrosse. These players were supported by 26 volunteers, including coaches and board members. A major area of growth for VLC is girl's lacrosse, which grew by 63% since 2016 alone. The primary lacrosse season is from February through May. Efforts to support lacrosse players for fall and winter training are limited by the availability of outdoor field space, especially outdoor space with lighting at sufficient levels for safe lacrosse play. Despite these challenges, VLC has regularly placed players in college programs and advanced to the state high school playoffs on multiple occasions. The club is a 501(c)(3) nonprofit organization that is run by an elected volunteer board.

Organized soccer on Vashon has existed since the 1970s. VISC was formed in the early 2000s by combining a Vashon Park District (VPD) recreational soccer program with an existing competitive soccer club in a combined VPD program. VISC is a nonprofit body with an elected board of 14 and operates the largest youth sports club on Vashon. VISC soccer activities primarily take place from mid-August though the beginning of December. In 2017, VISC served close to 200 girl and boy players from U6 to U11 in a modified field format with practice and game activities supported by 40

volunteer coaches and helpers. An additional 156 players (U12 to U19), participated on 12 teams engaged in regional league play and supported by almost 50 coaches and other volunteers. When field space is available, VISC also runs clinics, drop in programs, and other soccer activities during the off-season.

Additional soccer opportunities on Vashon are provided by a men's pickup group with about 80 members, a women's group with over 20 members, a co-ed over-40 team with 20 members, a primarily Hispanic soccer group with about 25 members, and a competitive youth team with 18 players associated with an off-island soccer club. During the fall season, access to illuminated fields for evening practices is limited. Because adult programs have lower priority, they are often left with only limited opportunities to play.

Community Need for Lights.

The VES Fields Lighting Project completes a major phase of the VES Fields renovation project, which was undertaken by VPD with Vashon's youth sports clubs. The VES Fields site now features two grass baseball fields as well as a 3.6 acre grass multi-purpose field designed for soccer, lacrosse, football and ultimate Frisbee use. The VES Fields have become one of Vashon's most heavily used parks, hosting hundreds of practices and games each year, as well as pick-up sports by informal users. On weekends during soccer, lacrosse, and baseball seasons, the VES Fields host several hundred players, participants and spectators. Visitors regularly comment on the quality of the facility and the playability of the fields.

The master plan for the VES Field complex includes provisions for field lighting. Lighting has always been a primary feature of the VES Fields project because Vashon has a shortage of illuminated practice fields. Most of our parent-coaches work off island and are only able to coach during evening hours. For decades, McMurray Middle School has been the only illuminated practice field available for public use on Vashon. The large grass field at McMurray is substantially overused, subject to closure, and drains poorly in the wet months. Moreover, available lighting at McMurray is not safe for most lacrosse activities and is marginal for soccer activities.

The provision of lighting for VES Fields is designed to ameliorate this situation. First, by providing an additional lit space, the field would resolve McMurray's overuse problem. Second, because VES is a sand-based, grass field designed for good drainage, it can accept high use during the wet months when McMurray is most vulnerable. Third, as a non-school facility, the VES Fields can accommodate after-school practice times in the late fall when school districts fields are unavailable. Finally, the availability of illuminated field space at VES would provide opportunities for existing youth sports to expand, for new youth sports to emerge, and importantly, for adult

groups to have space available. In combination with the planned installation of an all-weather turf field at Vashon High School (which will have some public use consistent with school district needs), an illuminated VES Field will finally provide sufficient capacity to support existing youth sports and meet the demand for other athletic uses by the Vashon community.

The VES Field Lighting Project.

The finished product for the VES Fields Lighting Project will be a four-pole LED lighting system supplied by a reputable manufacturer that will illuminate the main VES field at levels safe for lacrosse and soccer practices, while avoiding light spillage onto neighboring properties. The overall cost of the project is anticipated to be under \$326,093 based on bids from two lighting manufacturers and local contractors. VLC and VISC are seeking a \$250,000 grant from King County and will cover the balance through a combination of existing funds, fundraising, and/or available manufacturer financing. The two clubs would purchase and install the lighting system and gift it to VPD.

Construction Process. Fortunately, in constructing the VPD Fields, the park district pre-installed much of the infrastructure necessary for field lighting. Light pole foundations were pre-installed for future light poles and conduit was run from the park's restroom area to each light pole. Conduit was also run from the road to the restroom area in order to meet power requirements. As a result, the lighting system can be installed without disturbing the existing grass playing fields.

With the basic infrastructure in place, there are two primary components to installing the VES Fields lighting. First, working with a local contractor, the project will bring adequate power service into the park from the road. We have confirmed with PSE that adequate power is available on the main highway, which runs adjacent to the park. A pole will be installed for the transformer and to allow the power lines to cross the highway. From that location, the power will underground in pre-installed conduit to the restroom area where the conduit from the four poles also terminates. A 220v single phase 400 amp electrical service will be installed at this location in an outdoor rack. Wiring will also be run from this location to each pole. When VPD replaces its temporary restroom with a permanent restroom building, the outdoor rack will become part of the equipment room.

Second, a lighting manufacturer (likely Musco or Qualite) will install the poles and fixtures on the existing foundations. These poles and fixtures are pre-aimed and engineered to adequately light the field, while avoiding spillage onto neighboring properties. All control devices will also be installed by the lighting manufacturer and

connected to the 400 amp service. At this point, the lights would be fully functional and available for immediate use.

Details. Exhibit A to the attached Schematic Plan shows where the pole foundations are pre-installed on the completed VES Fields location. The proposed four-pole lighting system will place 80-foot poles on foundations at the C2, B4, D1, and C1 locations as highlighted in yellow on Exhibit A. The outdoor electrical rack with a 400 amp 240v single phase service will be installed near the restroom facility, which is indicated by the red box near the center of the drawing. This is where pre-installed conduit for the electrical service and conduit from the four pole foundations daylight. (The Exhibit A drawing also indicates additional pole foundations for baseball lighting that are not being used for this project. If baseball lighting is required at a future date, completion of the current lighting project will not interfere with that objective.)

VLC and VISC have decided to go with a modern LED field lighting system. Bids have been obtained from Musco Lighting and Qualite, who are both leaders in the industry. The environmental impacts of an LED system is substantially less than a traditional 480v metal-halid systems. The LED systems use far less power and are guaranteed for 25-30 years. Compared to the soccer club's current practice of using portable construction lights with diesel generators during October and November, the environmental impacts of upgrading to an LED system are both positive and significant.

The LED systems are well designed and relatively easy to install once the electrical service is in place. The systems that VLC and VISC are considering are literally "plug and play." The poles come in pre-wired sections that slip over the existing reinforced concrete foundations. The top section of each 80 foot pole includes a pre-focused lighting array that has been engineered to provide consistent lighting over the entire field surface with an average of almost 25 foot-candles. The level of light greatly exceeds what is available at McMurray and is sufficient for safe lacrosse and soccer practices.

By way of illustration, Exhibit B to the attached Schematic Plan shows the Qualite "GameChanger" Q-LED System. The VES Field Lighting Project has been priced based on the Qualite bid for this system, which was lower than the comparable Musco LED system. In order to use public grant resources sensibly, VLC and VISC will work with both companies to ensure the fairest possible final bid before choosing a vendor. The Musco and Qualite LED systems both appear to offer comparable high-efficiency and high-value lighting systems.

For both the lacrosse and soccer clubs, when it comes to lighting fields, it was important to be not just a good neighbor, but an exceptional neighbor. The engineered lighting systems that we are proposing spill very little light onto neighboring properties.

Under King County lighting code requirements, a neighboring property can experience no more than 1 foot-candle of light spillage at the property line.

Attached as Exhibit C is a illumination analysis performed by Qualite that shows anticipated lighting levels on the main VES Field, as well as light levels that will be experienced by the neighbor to the East. This neighbor's house is set back only five feet from the property line with the VES Field so avoiding nuisance lighting from the athletic field is important. With field lighting installed and operational, the neighboring property will receive less than 1 foot-candle of light due to spillage from the VES Fields Lighting Project. The average spillage is a mere 0.3 foot-candles with a maximum of 0.9 foot-candles. *The analysis performed by Qualite engineers did not take into account the existence of dense trees along the shared border between the properties, which would further reduce the amount of light reaching the neighbor's lot.* If necessary, it is also possible to install additional shielding on the light array itself to decrease light spillage. As for the neighbors to the south, the light poles are 20 feet from the property border and a tall, dense hedge further protects these residences. Overall, it is remarkable that the lighting manufacturer can provide close to 25 foot-candles of field lighting with almost no spillage on neighboring properties.

Finally, the VES Field Lighting Project will be coordinated to allow the ultimate construction of the VES Field permanent restroom building and concession stand. The equipment rack will be placed in the location of the anticipated building's equipment room. Essentially, the building will then be constructed around the rack within the equipment room. Because the permanent restroom building is in the initial planning stages, this allows maximum coordination of the projects without subjecting the VES Field Lighting Project to any uncertainty or delay caused by restroom construction time tables.

Project Timeline. If awarded grant funds, VLC and VISC will apply for a building permit and necessary electrical permits by April 2, 2018. The project should be completed in time for the Fall 2018 soccer season.

Permitting. In discussions with the King County Department of Permitting and Environmental Review (DPER), field lighting systems within a public park comply with applicable zoning and require only a building permit. The building permit focuses on two areas. First, the foundation and pole system must be structurally sound. The existing concrete foundations were engineered by Musco to meet applicable building codes. The poles, which fit on the foundations (regardless of vendor), are engineered to withstand high winds and earthquakes. Second, as discussed above, the building permit requires minimal light spillage on neighboring properties of less than one foot-candle at the property line. Per industry standards, the selected manufacturer will

include the system design and illumination analysis to ensure compliance with DPER spillage standards.

All electrical work will be covered by electrical permits issued by Washington Labor and Industries. The process for acquiring electrical permits is straightforward and should require minimal review for installing a 240v electrical service.

Because the VES Fields are controlled by the Vashon Park District, we will work closely with VPD in submitting permit applications.



INTRODUCING THE Q-LED GAMECHANGER SYSTEM

We didn't just set out to design a better LED light, we set out to design a system that would *revolutionize* the sports lighting world.



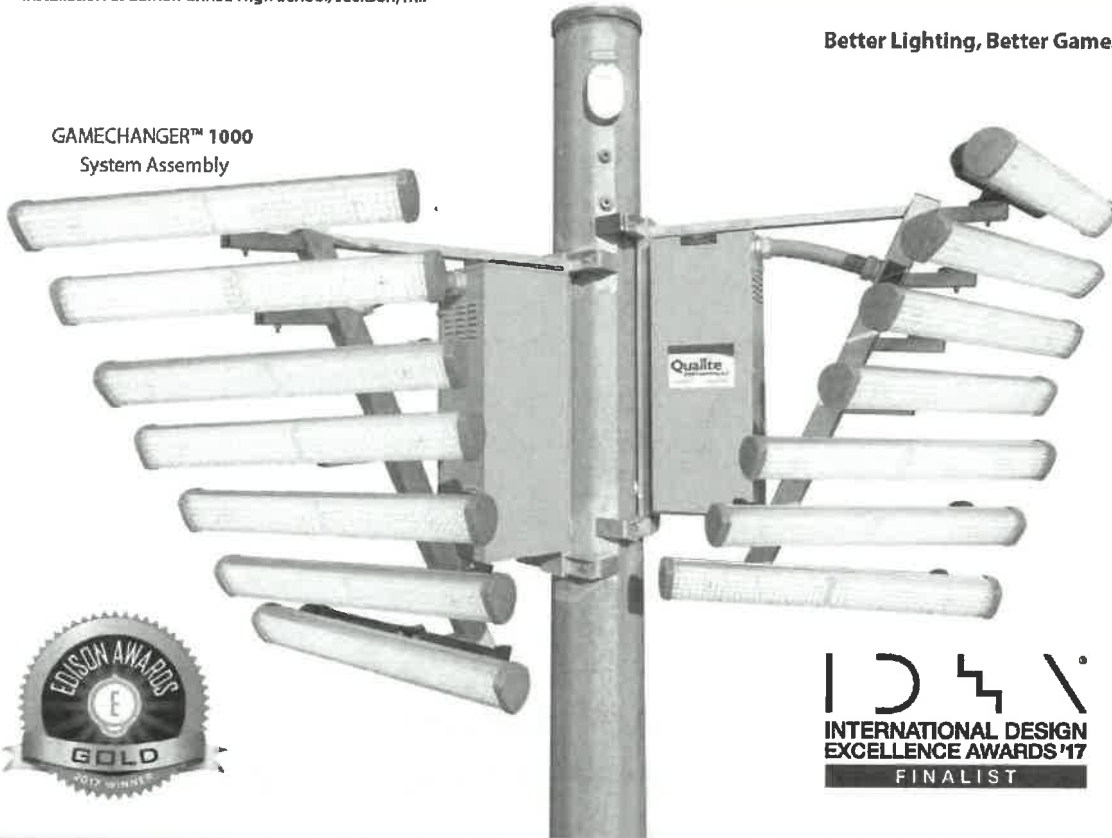
Installation at Lumen Christi High School, Jackson, MI.

THE LATEST LED TECHNOLOGY

By combining over 30 years of focused sports lighting experience with the latest LED technology, we have developed a sports lighting system that is a true GameChanger™. Designed for HDTV broadcasting, digital photography and slow-motion recording of fast paced sports lighting venues from professional to recreational levels. With enhanced glare mitigation and specialized beam shapes we are able to paint the playing surface with smooth light and keep your neighbors dark and happy. Backed by the best warranty in sports lighting, guaranteed light levels and Qualite's life-long commitment to customer service.

Better Lighting, Better Game!

GAMECHANGER™ 1000
System Assembly



**EXHIBIT C: Illumination Study for VES Field
Lighting Project, Including Minimal Spillage Onto
Neighboring Property
(After Picture)**

MAINTAINED LIGHT LEVEL

NOTES: POINTS ON EXISTING BASES

| | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|
| 21 | 24 | 20 | 22 | 27 | 20 | 19 | 24 | 20 | 19 |
| 25 | 20 | 21 | 26 | 25 | 22 | 24 | 16 | 24 | |
| 19 | 25 | 20 | 21 | 25 | 24 | 20 | 25 | 24 | 18 |
| 18 | 22 | 25 | 24 | 25 | 25 | 24 | 22 | 24 | 24 |
| 22 | 27 | 27 | 24 | 23 | 24 | 26 | 25 | 27 | 27 |
| 23 | 24 | 23 | 23 | 24 | 25 | 26 | 25 | 24 | 26 |
| 20 | 22 | 22 | 22 | 23 | 24 | 24 | 24 | 24 | 25 |
| 21 | 23 | 23 | 24 | 23 | 23 | 23 | 22 | 23 | 16 |
| 22 | 24 | 25 | 27 | 25 | 23 | 24 | 25 | 24 | 21 |
| 21 | 24 | 27 | 27 | 25 | 22 | 23 | 26 | 26 | 25 |
| 21 | 22 | 21 | 21 | 22 | 23 | 25 | 24 | 25 | 24 |
| 22 | 23 | 21 | 20 | 23 | 24 | 24 | 24 | 23 | 24 |
| 20 | 21 | 20 | 20 | 22 | 19 | 22 | 23 | 20 | 20 |

Soccer Area
 150 points at 2'-6" sp 30ft by 30ft
 HORIZONTAL FOOTCANDLES

Average 23
 Minimum 18
 Maximum 28
 Avg Mtr 1340
 Max Mtr 1566
 Coef. of Var 0.11
 Uniformity 1.47

MAINTAINED LIGHT LEVEL
 1000000
 100000
 10000
 1000
 100
 10
 1
 0.1
 0.01
 0.001

QUALITE Energy Systems, LLC
 1500 Northridge Blvd, Suite 100
 Northridge, CA 91324
 Phone: (818) 708-1111
 Fax: (818) 708-1112
 Email: info@qualiteenergy.com
 Website: www.qualiteenergy.com