

ARLINGTON COUNTY ENVIRONMENTAL CHECKLIST INSTRUCTIONS

Arlington County Administration Regulation 4.4 calls for assessment of the environmental impacts of County projects. The attached environmental assessment guidelines are designed to help County staff carry out such assessments. It provides a checklist for identifying environmental and energy impacts of proposed projects and developing strategies to avoid or minimize them.

This form, or an environmental assessment, is not required for all projects. Admin Regulation 4.4 excludes such projects as road and sewer maintenance, and exempts others, such as those with no impacts at all on vegetation, noise, or other environmental concerns. To determine whether your project is excluded or exempt, please check sections 3.2 and 3.3 of the Regulation. If your project is exempt or excluded, please complete only page 1 of this form, through question A, and submit it to the Department of Environmental Services.

If your project is not excluded or exempt, you must either complete this form or provide a separate environmental assessment report to comply with Admin Reg. 4.4. If you choose to provide a separate report, please make sure it addresses all of the questions posed in the form. If you prefer to complete the form, please answer the questions briefly. If you have already prepared other documents providing information on specific questions, you are encouraged to attach them rather than rewriting the material on the form.

We encourage you to seek community input into project design prior to completing this form. You may want to solicit the views of civic associations, citizen commissions, and other groups as appropriate. For applicable projects, the Environment and Energy Conservation Commission (E2C2) will hold a public hearing on the project.

Please submit two (2) copies of the completed form with all attachments, printed double-sided, to the Environmental Planning Office in the Department of Environmental Services. The submission will be reviewed by DES staff and by the Environment and Energy Conservation Commission (E2C2). In rare instances, a proposed project may raise significant environmental questions not fully answered by this form. In such cases, DES or E2C2 may request additional information or analysis.

**ARLINGTON COUNTY
ENVIRONMENTAL CHECKLIST**

April 1, 2016

Date: _____

Project Name and Address: Athletic Field Lighting Project located at Williamsburg MS/Discovery ES Campus, 3600 N. Harrison Street, Arlington, VA 22207

Agency Name: Arlington Department of Parks and Recreation

Agency Point of Contact: Lisa Grandle

Fax: _____ Phone: 703-228-3332 E-Mail: lgrand@arlingtonva.us

Timeline for development process. On a separate page, please provide a checklist of the steps in the design and implementation of this project, indicating which have already been completed and when, and the schedule for completion of the rest. Your list might include planning, community input, compliance with siting guidelines, consultation with citizen commissions (including E2C2) or other boards, budget approvals, Site Plan review, Planning Commission Review, Board approvals, site design, Chesapeake Bay Preservation Ordinance review, granting of required permits, construction start, estimated completion date, and so on.

Architect/Design Engineer/Consultant (if any) MUSCO Lighting
Point of Contact: Joe Forche
Fax: _____ Phone: (800)756-1205 X6354 E-Mail: joe.forche@musco.com

Based on the criteria specified in sections 3.2 and 3.3 of Reg. 4.4, this project is:

- Subject to Reg. 4.4
- Excluded from Reg. 4.4 as specified in section 3.2
- Exempt from EA under Reg. 4.4 as specified in section 3.3

A. BRIEF PROJECT DESCRIPTION (provide a brief description of the proposed project):
The site is located on the 24.99 acre middle school/elementary school campus, located on N. Harrison Street (north and east sides), 36th Street North (south side) and abuts single family residences on the west side. More specifically, the project location is the two existing rectangular synthetic turf athletic fields west of the existing school buildings and tennis courts, north of the parking lot and south of the grass turf baseball/multi-purpose field. The conduit for the lighting is existing and was constructed at the same time as construction of the synthetic turf fields. The proposed lights will be LED luminaire type mounted on six (6) poles.

(Complete only to here if your project is excluded or exempt from Reg. 4.4

B. CURRENT CONDITION OF SITE (briefly describe topography, slopes, number and species of trees, extent and location of bushes, low ground cover, and impervious surface)

The conditions on site include two synthetic turf athletic fields, sidewalks, stairs and bleachers. Field 1 is 330' X 198' and Field 2 is 300' X 180'. The fields are constructed over geo-thermal wells. The project site is relatively flat, varying from elevation 331' on the southeast corner, 332' on the southwest corner, 334' on the northwest corner and 333' on the northeast corner. No trees or ground cover will be disturbed. .

C. CHARACTER OF SURROUNDING AREA (provide a brief description of the surrounding area, including a description of the current property use, including whether the property is developed or undeveloped, adjacent land uses, topography, vegetation, etc).

To the west are single family homes, to the north is a grass turf baseball/multi-purpose field, to the east are tennis courts and the middle and elementary schools and to the south is a parking lot.

D. SUBSURFACE CONDITIONS

(1) Will the project disturb soil or subsurface conditions?

Yes No

If yes, describe the extent of the disturbance (for example, how much soil will be disturbed, to what depth, will the soil be replaced, what is the nature of the soil to be disturbed, will the lot be regraded, will additional backfill be added and what type). What measures will be taken to minimize such disturbances?

There will be minimal disturbance of the ground surface to install six (6) pre-cast concrete bases for the light poles. The conduit is existing.

(2) Will the project affect groundwater?

___ Yes ___X No

If yes, describe the effect(s) and the steps taken to minimize the effects:

Note: If yes, please contact DES/Environmental Planning staff if you have questions.

E. STORM WATER MANAGEMENT

(1) Describe the current water/storm water drainage at the site (e.g. location of storm drains, retention areas, streams, etc.):

See attached environmental checklist from Discovery ES

(2) Storm water management - All projects should consider implementing innovative and environmentally beneficial stormwater management techniques such as bioretention or use of pervious paving. Describe the design for managing storm water or attach any stormwater flow or drainage plans prepared for the project.

See attached environmental checklist from Discovery ES

(3) Describe your erosion and sediment control plan, or attach your E&S document.

Appropriate measures for erosion and sediment control during construction will be implemented and maintained.

F. FLOODPLAINS, WETLANDS, CHESAPEAKE BAY ISSUES

(1) Is the project in the 100-year floodplain? (as per Chapter 48. Floodplain Management Ordinance)
 Yes No

If yes, describe how the project complies with the requirements of the Floodplain Management Ordinance.

(2) Is your site:

within Resource Protection Area (RPA) as defined in the Chesapeake Bay Preservation Ordinance?

If yes, you must contact DES and DPW about compliance with the conditions set out in the Chesapeake Bay Preservation Ordinance.

within Resource Management Area (RMA) as defined in Chesapeake Bay Preservation Ordinance?

If your site is in RMA, describe the measures taken to comply with the criteria for such development under the Chesapeake Bay ordinance (minimize impervious cover, retain/maintain vegetation to the maximum extent practicable, minimize site disturbance).

exempt from compliance with the Chesapeake Bay Preservation Ordinance?

If your site is exempt, please specify the category of exemption:

G. WATER QUALITY (excluding stormwater)

(1) Will the project result in the discharge of pollutants directly into a surface water body, thus requiring a state discharge permit (Virginia Pollutant Discharge Elimination System, VPDES)?

No (proceed to next question)

Yes (provide confirmation of compliance with VPDES requirements)

(2) Will the project discharge to the waste water treatment plant?

No (proceed to next question)

Yes (provide confirmation of compliance with limits for discharge to local treatment plant)

H. AIR QUALITY

(1) Will the project cause increased air emissions? (for example, from vehicles, lawn mowers and other landscape maintenance equipment, generators, boilers, etc.)

No (proceed to next question) Yes

Describe source and nature of emissions, and measures taken to reduce or minimize them:

Minimal emissions will occur from vehicle trips to the two athletic fields during the hours the fields are lighted. All other vehicle trips to the campus, including daylight play on the fields, is already factored into the EA for the new elementary school (See attached)

(2) Will the proposal create objectionable odors?

No (proceed to next question) Yes

Describe source and nature of emissions, and measures taken to reduce or minimize such them:

I. FLORA AND FAUNA

(1) Please describe impacts on vegetation (for example, change in species diversity, removal of trees or other vegetation), how the project will minimize and mitigate such impacts, and how you will comply with the County's tree replacement policy. All vegetation planted on the site should be native species; contact the County's urban forester for more information.

There will be no impacts to vegetation.

(2) Please describe impacts on fauna and wildlife habitat (e.g. butterflies, birds, small mammals) and how the project will minimize or mitigate such impacts. Consider both design and timing strategies to minimize impacts.

The lights will have minimal effect on night flying insects and the bats and birds dependent upon them. These minimal effects will be lessened even more through proper design to reduce spill and glare.

J. NOISE

Will the proposal result in increased noise levels?

No (proceed to next question) Yes

If yes, please describe your abatement procedures to comply with the County's Noise Control Ordinance, Chapter 15.

The noise levels during lit hours will be typical of daylight use of the fields

K. LIGHT and GLARE

If the project involves outdoor lighting, describe how it has been designed to avoid nuisance light that disturbs neighbors, minimize glare, and protect dark skies.

The proposed LED lighting system will light two synthetic turf rectangular athletic fields. Designed light levels (30 fc maintained) and uniformity (3 max to 1 min) correspond to IESNA recommendations. The lighting design has been coordinated with the County's vendor, MUSCO Lighting, and they have verified all light levels and uniformities with calculations and modeling (see attached 80', 70' and 68' pole heights). Presentations by MUSCO were made to the Williamsburg Field Evaluation Work Group on 9/16/15, 10/14/15, 10/21/15 and 1/19/16; additional questions posed by John Seymour were responded to; and the County's Public Health staff briefed the WFWG on 2/3/16 on health consequences associated with artificial lighting. In addition, DPR staff took the WFWG on a tour of several County lighted athletic fields on 10/14/15 and arranged a tour of the new LED lighted baseball diamond in Vienna, VA on 11/3/16. MUSCO has also done an evaluation of the 10-year life cycle cost comparison of the proposed LED lights versus typical floodlighting and the MUSCO HID lighting. This information has been attached for reference.

L. HAZARDOUS SUBSTANCES/WASTE

Will the project involve the generation, storage or management of hazardous substances or hazardous waste?

No (proceed to next question)

_____ Yes. Please provide a description of the measures taken to prevent the release of such substances/waste. Copies of plans or similar documents required by law may be provided in lieu of a description.

M. TRANSPORTATION/CIRCULATION

(1) Will the project:

- _____ generate additional traffic?
- _____ add to existing parking facilities or create demand for new parking?
- _____ have a substantial impact upon existing transportation systems or traffic flow?
- _____ create or increase a hazard to pedestrian or bicycle traffic?

If the answer to any of the above is yes, please describe the impacts and how they can be avoided or mitigated (for example, incentives for mass transit or pedestrian/bike use, design to avoid traffic flow problems, etc.). Please describe, summarize, or attach any traffic studies.

See attached environmental checklist for Discovery ES.

(2) Describe what you are doing to facilitate bicycle and pedestrian access to and within your site:

See attached environmental checklist for Discovery ES

N. ENERGY CONSUMPTION/CONSERVATION

Describe energy consumption and measures to promote energy efficiency in your project (e.g., measures to reduce heating and cooling energy loads, minimize lighting power density, harvest daylight, use solar technologies, or meet EPA Energy Star or Consortium for Energy Efficiency performance levels):

Lighting designed with high efficiency lighting using LED.

O. GREEN BUILDING

Describe your compliance with the US Green Building Council's LEED standards or submit your LEED checklist and related descriptive materials:

P. CULTURAL/HISTORIC RESOURCES

Will the proposal

result in the alteration or destruction of a prehistoric or historic archaeological site?

result in adverse physical or aesthetic effects to a historic building, structure, or object?

have the potential to cause physical change that would affect unique cultural or historic values?

If yes, please describe or attach related documents.

Q. GENERAL QUESTIONS

Beyond the specific areas identified above, do you anticipate that the proposal individually or in association with similar projects or other projects within the same area has the potential to cause significant adverse impacts on the environment, either short-term or long-term?

If the answer is yes, and your response has not already been addressed above, please describe such impacts and how they will be minimized or mitigated.

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**ARLINGTON COUNTY
ENVIRONMENTAL CHECKLIST**

May 9, 2013 – Revised January 22, 2014

Date: _____

Project Name and Address: New Arlington County Elementary School #1 on the Williamsburg Middle School Campus. 3600 N Harrison St, Arlington, VA 22207

Agency Name: Arlington Public Schools

Agency Point of Contact: John C Chadwick

Fax: _____ Phone: 703-228-6609 E-Mail: john.chadwick@apsva.us

Timeline for development process. On a separate page, please provide a checklist of the steps in the design and implementation of this project, indicating which have already been completed and when, and the schedule for completion of the rest. Your list might include planning, community input, compliance with siting guidelines, consultation with citizen commissions (including E2C2) or other boards, budget approvals, Site Plan review, Planning Commission Review, Board approvals, site design, Chesapeake Bay Preservation Ordinance review, granting of required permits, construction start, estimated completion date, and so on.

Architect/Design Engineer/Consultant (if any) VMDO Architects

Point of Contact: Wyck Knox

Fax: _____ Phone: 434 296 5684 E-Mail: knox@vmdo.com

Based on the criteria specified in sections 3.2 and 3.3 of Reg. 4.4, this project is:

- Subject to Reg. 4.4
- Excluded from Reg. 4.4 as specified in section 3.2
- Exempt from EA under Reg. 4.4 as specified in section 3.3

A. BRIEF PROJECT DESCRIPTION (provide a brief description of the proposed project):
The site is located on one (1) parcel approximately 24.99 acres in total size and is connected with N. Harrison Street only. The site has frontage on N. Harrison Street (north and east sides); 36th Street North (south side); and abuts single family residences on the west side. Large open space areas (ball fields) are located directly west of the existing school. The entire area (25 acres) is owned and maintained by Arlington County Public Schools (APS). The proposed school is sited at the southern end of the site fronting 36th Street N directly south of the existing school. A new parking area and vehicle access point is proposed along 36th St N at the western end of the site. The existing driveway/parking area along N. Harrison Street east of the existing school will be expanded. Loading for the new school will be served via the expanded driveway/parking area. The existing grass soccer fields will be replaced with new synthetic turf fields and the existing grass baseball field will be upgraded and include irrigation. *In addition, the original site plan included a multipurpose trail along the western side of the soccer fields which has been eliminated from the design to accommodate the synthetic turf fields and to minimize tree and vegetative impacts in this area. The removal of the trail is being addressed via an Administrative Change Request to the approved Use Permit.*

(Complete only to here if your project is excluded or exempt from Reg. 4.4

B. CURRENT CONDITION OF SITE (briefly describe topography, slopes, number and species of trees, extent and location of bushes, low ground cover, and impervious surface)

The topography of the site ranges from elevation 340 in the western portion of the site to elevation 292 in the southeastern portion of the site at the intersection of N Harrison Street and 36th Street N. The existing middle school is located in the northeastern portion of the site. The elevation of the site is about 338 and 326 along the north and south sides of the building, respectively. The main entrance to the building is off of N Harrison Street to the east with additional entrances on N Harrison Street to the north. Ball fields are located in the western portion of the site. Dense tree coverage is located along the eastern boundary of the site west of the ball fields. A grass sloped lawn is located south of the existing building. About 300 trees exist on the site. Species include: Sugar Maple, Red Maple, Sawtooth Oak, Pin Oak, Tulip Poplar, Norway Maple, Pecan, White Mulberry, Green Ash, Kousa Dogwood, Black Walnut, Japanese Cherry, Sycamore, Saucer Magnolia, Black Cherry, European Beech, Flowering Dogwood, Crab Apple, White Oak, Black Locust, Black Gum, Sassafras, Pignut Hickory, Norway Spruce, Bigleaf Magnolia, American Holly, Crape Myrtle, Honey Locust, Burford Holly, White Pine, Eastern Redcedar, Virginia Pine. Impervious or semi-impervious surface covers approximately 0.71 acres or 5.2% of the site.

C. CHARACTER OF SURROUNDING AREA (provide a brief description of the surrounding area, including a description of the current property use, including whether the property is developed or undeveloped, adjacent land uses, topography, vegetation, etc).

To the west east, south, and north of the site are residential single family homes.

D. SUBSURFACE CONDITIONS

(1) Will the project disturb soil or subsurface conditions?

Yes No

If yes, describe the extent of the disturbance (for example, how much soil will be disturbed, to what depth, will the soil be replaced, what is the nature of the soil to be disturbed, will the lot be regraded, will additional backfill be added and what type). What measures will be taken to minimize such disturbances?

The project will disturb soil and subsurface conditions on the southern and western portions of the property. The largest disturbance will be to the south of the existing school in the location of the proposed school building. The existing parking area east of the existing school will be expanded and the grass area in the southwestern portion for the site will be disturbed to accommodate proposed parking and driveways for the new building.

(2) Will the project affect groundwater?

Yes No

If yes, describe the effect(s) and the steps taken to minimize the effects:

Note: If yes, please contact DES/Environmental Planning staff if you have questions.

E. STORM WATER MANAGEMENT

(1) Describe the current water/storm water drainage at the site (e.g. location of storm drains, retention areas, streams, etc.):

The site currently drains to the south and east via sheet and closed channel flow. Four primary closed outfalls exist as follows: a 30" RCP at the southern end of the site into 36th street N, a 15" RCP at the

intersection of 36th Street N and N Harrison Street, an 18" RCP into N Harrison Street to the north, and an 18" RCP into N. Harrison Street to the east. The school is located in the Pimmit Run watershed. Two detention facilities are located on site. 60" diameter pipes are located at the south and east ends of the existing school building for detention.

(2) Storm water management - All projects should consider implementing innovative and environmentally beneficial stormwater management techniques such as bioretention or use of pervious paving. Describe the design for managing storm water or attach any stormwater flow or drainage plans prepared for the project.

The proposed project will implement stormwater detention devices that reduce the post development runoff so that it is less than the existing. A reduced run-off rate in the post development condition as compared to the existing will help alleviate some of the hydraulic issues found in this watershed downstream and provide an adequate outfall for the project.

The proposed school site will utilize a balanced Stormwater Management approach. Rainwater will be captured from the roof and conveyed to bio-retention basins at the south side of the proposed school building. Two large bio-retention basins will be located at each side of the school frontage along 36th St N. A bio-swale will be located in the median of the west parking lot to collect storm water for detention and quality purposes.

Finally, large underground pipes will detain storm water on-site to control the release rate at each of the outfalls for the site. Existing storm sewers which currently serve the existing school will need to be relocated to accommodate the new school building. Oversized storm sewers will be provided to accommodate a portion of the detention required for the site. In addition, the design will consider porous pavers for sidewalks and parking stalls to further enhance the overall stormwater management approach.

Maintenance of the bio-retention basins and swales will be required on a regular basis to ensure debris and trash are removed and positive drainage is maintained. The porous pavers will require maintenance which will require cleaning the surface using vacuum sweeping machines and periodically adding joint material (sand) to replace the material transported. The use of salt or sand on porous pavement sections during winter months should be avoided and landscaped areas should be kept well-maintained to prevent soil from being transported onto the pavement. The oversized storm sewers should be regularly inspected and cleaned as necessary as debris build up occur.

(3) Describe your erosion and sediment control plan, or attach your E&S document. Appropriate measures for erosion and sediment control during construction will be implemented and maintained. A primary construction entrance will be located on 36th Street N. The southern and eastern perimeters of the site will be maintained with silt fence and super silt fence. Diversions, inlet protection, and temporary sediment traps will also be implemented along with tree protection.

F. FLOODPLAINS, WETLANDS, CHESAPEAKE BAY ISSUES

(1) Is the project in the 100-year floodplain? (as per Chapter 48. Floodplain Management Ordinance)
 Yes No

If yes, describe how the project complies with the requirements of the Floodplain Management Ordinance.

(2) Is your site:

within Resource Protection Area (RPA) as defined in the Chesapeake Bay Preservation Ordinance?

NO

If yes, you must contact DES and DPW about compliance with the conditions set out in the Chesapeake Bay Preservation Ordinance.

_____ within Resource Management Area (RMA) as defined in Chesapeake Bay Preservation Ordinance?

If your site is in RMA, describe the measures taken to comply with the criteria for such development under the Chesapeake Bay ordinance (minimize impervious cover, retain/maintain vegetation to the maximum extent practicable, minimize site disturbance).

_____ exempt from compliance with the Chesapeake Bay Preservation Ordinance?

If your site is exempt, please specify the category of exemption:

G. WATER QUALITY (excluding stormwater)

(1) Will the project result in the discharge of pollutants directly into a surface water body, thus requiring a state discharge permit (Virginia Pollutant Discharge Elimination System, VPDES)?

No (proceed to next question)

_____ Yes (provide confirmation of compliance with VPDES requirements)

(2) Will the project discharge to the waste water treatment plant?

_____ No (proceed to next question)

Yes (provide confirmation of compliance with limits for discharge to local treatment plant)

H. AIR QUALITY

(1) Will the project cause increased air emissions? (for example, from vehicles, lawn mowers and other landscape maintenance equipment, generators, boilers, etc.)

_____ No (proceed to next question)

Yes

Describe source and nature of emissions, and measures taken to reduce or minimize them:

With the introduction of the new elementary school, increased vehicular and bus trips will increase air emissions at the current site as compared to current conditions. However, from a County wide perspective, emissions will remain comparable as an increase in trips to other existing elementary schools that would occur in the no-build scenario will not be realized. In addition, alternative transportation modes such as walking, biking, and carpooling are significant components of the transportation management plan which will help to reduce emissions.

In addition, the project is essentially all electric – with the exception of a small use of natural gas in the kitchen. No boilers. A portion of the electricity will be generated on-site, which would off-set the building’s emissions from utility provided electricity.

(2) Will the proposal create objectionable odors?

 N No (proceed to next question) Yes

Describe source and nature of emissions, and measures taken to reduce or minimize such them:

I. FLORA AND FAUNA

(1) Please describe impacts on vegetation (for example, change in species diversity, removal of trees or other vegetation), how the project will minimize and mitigate such impacts, and how you will comply with the County's tree replacement policy. All vegetation planted on the site should be native species; contact the County's urban forester for more information.

Impacts to vegetation will be minimized by preserving the densely wooded area along the western boundary and the stand of large trees to the north. Species diversity will not be impacted. Additionally, all trees removed on the site will be replaced using the county formula to determine quantity required. *Subsequent to the original site plan considered for this document, the previously proposed trail along the western side of the soccer fields has been eliminated from the design to minimize impacts to trees and to better accommodate the synthetic turf fields. In addition, after further consultation with the County arborist, it was determined that two additional trees (one at the northeast corner of the eastern bus loop; and one along the west side of Harrison in the vicinity of the proposed handicap ramp) will be removed as part of this project. Both of these trees are currently not in very good condition and given the proximity of the proposed improvements to these trees a determination was made in conjunction with the County arborist to remove them as part of the project. The removal of the two additional trees is being addressed via an Administrative Change Request to the approved Use Permit.*

(2) Please describe impacts on fauna and wildlife habitat (e.g. butterflies, birds, small mammals) and how the project will minimize or mitigate such impacts. Consider both design and timing strategies to minimize impacts.

Impacts to fauna and wildlife habitats will be minimized by preserving the densely wooded area along the western boundary and the stand of large trees to the north. Invasive species will be removed from this area to improve the habitat biodiversity and native plant species will be planted throughout the site to decrease fragmentation and promote healthy habitats for fauna.

J. NOISE

Will the proposal result in increased noise levels?

 X No (proceed to next question) Yes

If yes, please describe your abatement procedures to comply with the County's Noise Control Ordinance, Chapter 15.

The construction contract specifications will limit the contractor's work hours to comply with the County noise ordinance and minimize noise disruptions during construction.

K. LIGHT and GLARE

If the project involves outdoor lighting, describe how it has been designed to avoid nuisance light that disturbs neighbors, minimize glare, and protect dark skies.

On-site lighting will be implemented to light the parking areas and pathways. The selected lights will be Dark Sky compliant to reduce light pollution and glare.

L. HAZARDOUS SUBSTANCES/WASTE

Will the project involve the generation, storage or management of hazardous substances or hazardous waste?

No (proceed to next question)

Yes. Please provide a description of the measures taken to prevent the release of such substances/waste. Copies of plans or similar documents required by law may be provided in lieu of a description.

M. TRANSPORTATION/CIRCULATION

(1) Will the project:

- generate additional traffic?
- add to existing parking facilities or create demand for new parking?
- have a substantial impact upon existing transportation systems or traffic flow?
- create or increase a hazard to pedestrian or bicycle traffic?

If the answer to any of the above is yes, please describe the impacts and how they can be avoided or mitigated (for example, incentives for mass transit or pedestrian/bike use, design to avoid traffic flow problems, etc.). Please describe, summarize, or attach any traffic studies.

A comprehensive transportation was performed by Toole Design Group (attached). Site observations and traffic counts occurred from September through December to cover various conditions of weather, light and usage. Based upon recommendations from the study, as well as the BLPC and PFRC, the location of the new building and parking lot was established in order to maximize open space, encourage walking and biking and have the least impact on traffic. New turning lanes at the intersection of N. Harrison and Williamsburg Boulevard have already been striped, and a NC project is underway to make the crossing of Williamsburg and Kensington safer. This project will have an arrival bell time of 9:00, and its traffic impact is less than what the current 1,000 student middle school currently generates at its peak time of 7:50am. However, the study looked at the future expansion of the middle school to 1,300 students and used that as the design condition for the project.

The new school will have a capacity of 630, which generates a requirement of 100 new parking spots. 92 spots are being provided in a new elementary lot off of 36th Street. In order to reduce the amount of paving, an existing middle school lot is being enlarged to serve as a combined ES/MS bus drop off loop. (The MS parent drop-off is moving to the north side of the site, which also decreases existing congestion

by eliminating a bus/vehicle turning conflict.) Combined, 120 new parking spots are being provided on-site, in addition to approximately 95 on-street parking spots, which should accommodate the future expansion of the middle school.

(2) Describe what you are doing to facilitate bicycle and pedestrian access to and within your site: The design team looked at 6 different building locations on the 25 acre site. According to the Toole study, placing the building as close as possible to 36th Street has a huge impact on the number of walkers. Elementary aged pedestrians are accompanied by an adult, who have to walk to the school and then back home. The building carefully balances a respect for neighborhood context with an inviting visual presence from 36th Street and the intersection of 36th and N. Harrison. A large civic plaza at the building entry will have bike racks, and Class 1 bike storage (with a shower) is being provided in the building for staff. The exiting sidewalks are significantly expanding to a width of eight feet, with a six foot green strip between the curb and the sidewalk. In addition, a secure indoor bicycle storage room along with a shower facility is included in the new school design, and that in general, the school has been sited with ease of pedestrian access in mind and to make other transport modes attractive to staff.

N. ENERGY CONSUMPTION/CONSERVATION

Describe energy consumption and measures to promote energy efficiency in your project (e.g., measures to reduce heating and cooling energy loads, minimize lighting power density, harvest daylight, use solar technologies, or meet EPA Energy Star or Consortium for Energy Efficiency performance levels):

Building is designed to be energy efficient exceeding the 2009 IECC and ASHRAE 90.1-2007. The walls are ICF construction with R value exceeding R=22. Roof design is R-40 and glass is Solarban 70XL with U value R=0.28 and solar shading co-efficient less than 0.3.

Lighting design will high efficient lighting utilizing LED, fluorescent, etc with a resulting lighting density < 0.7 watts per SF.

The HVAC system uses highly efficient, ground source heat pump systems using 2-stage (or variable speed) compressors, water source heat pumps with EER > 14. The ground source loop saves additional energy by using the ground for a heat sink/source thus saving energy over conventional heat pumps systems.

Building energy consumption will designed with energy consumption less than 23 kbtuh/sf/year and thus exceeding energy star along with ASHRAE 90.1 by 40%. To achieve a goal of Net Zero ready, the building will utilize solar energy, PV system providing 600 KWH of energy generation.

O. GREEN BUILDING

Describe your compliance with the US Green Building Council's LEED standards or submit your LEED checklist and related descriptive materials:

The project will pursue LEED certification. See attached checklist. Arlington public schools requested a building that would achieve LEED Silver certification. We are currently showing 67 points in the "Yes" category and an additional 21 points in the "Maybe Yes" column. This puts the project squarely in the Gold range. Depending on how many photovoltaic panels can be installed per budget, the project could achieve Platinum certification.

P. CULTURAL/HISTORIC RESOURCES

Will the proposal

NO result in the alteration or destruction of a prehistoric or historic archaeological site?

NO result in adverse physical or aesthetic effects to a historic building, structure, or object?

NO have the potential to cause physical change that would affect unique cultural or historic values?

If yes, please describe or attach related documents.

Q. GENERAL QUESTIONS

Beyond the specific areas identified above, do you anticipate that the proposal individually or in association with similar projects or other projects within the same area has the potential to cause significant adverse impacts on the environment, either short-term or long-term? No

If the answer is yes, and your response has not already been addressed above, please describe such impacts and how they will be minimized or mitigated.

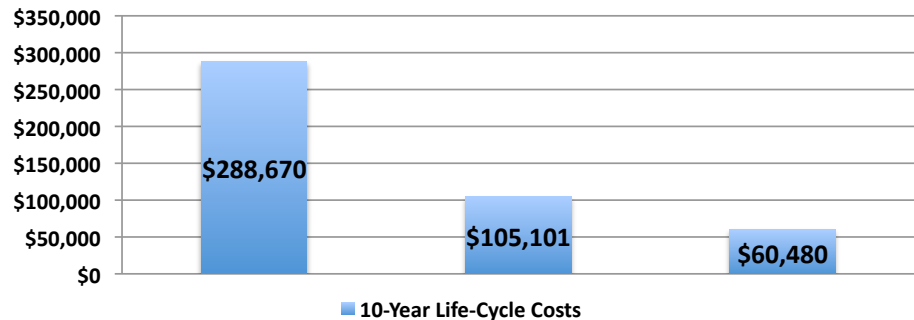
10-Year Life-Cycle Cost Comparison

Arlington County - Williamsburg Middle School

Soccer Fields Lighting Project

October 21, 2015

Warranty Period: 10 Years



	Typical Floodlighting Equipment	Musco Green Generation™ HID	Musco Green Generation™ LED
Hours	15000	15000	15000
Average kW	152.3	87.6	50.4
Total kW	2,284,200.0	1,313,760.0	756,000.0
Metric Tons of CO2	1,575.1	905.9	521.3
Energy	\$182,736	\$105,101	\$60,480
Group Relamp	\$58,750	\$0	\$0
Lamp Maintenance	\$1,500	\$0	\$0
Controls - Energy	\$45,684	\$0	\$0
Controls - Labor	\$0	\$0	\$0
10-Year Life-Cycle Costs	\$288,670	\$105,101	\$60,480
10-Year Savings	\$0	\$183,569	\$228,190

Assumptions

Field Name: Soccer Fields Lighting Project

Annual Operating Hours	1500
Energy Cost/ kWh	\$0.08
Fixture Compared to:	1500W
Controls Labor Savings	\$0.00
Controls Energy Savings	25%

Typical Floodlighting Equipment	
No. Fixtures	Avg. kW
94	152.28

Musco Green Generation Lighting™ HID	
No. Fixtures	Avg. kW
56	87.58

Musco Green Generation Lighting™ LED	
No. Fixtures	Avg. kW
80	50.40

**Williamsburg Field Evaluation Work Group
Meeting Summary**

Wednesday, September 16, 2015

7- 9 p.m.

Williamsburg Middle School Room 227

Meeting Attendees

Name	Group Representing
✓ Erik Gutshall, Chair	Planning Commission
✓ Steve Severn	Sports Commission
✓ Bill Ross	Parks and Recreation Commission
✓ John Seymour	E2C2
✓ Gregg Kurasz	Rock Spring Civic Association
✓ David Friedman	Yorktown Civic Association
✓ Ruth Shearer	Williamsburg Civic Association
✓ Larry Suiters	Resident (property abuts fields)
✓ Joe Delogu	Resident (property abuts fields)
✓ Roy Gamse (Gail Harrison)	Resident (property abuts fields)
✓ Chris Munson	Resident (property across street from fields)
✓ Charles Trabant	Resident (property across street from fields)
✓ Elizabeth Kirby	Resident (property across street from fields)
✓ Justin Wilt	Arlington Soccer Association
✓ Susan Wallace	Arlington Women Soccer League
Eileen Raicht-Gray	Arlington Coed Soccer League
Maury Wray Bridges	Discovery Elementary School PTA
County Staff Support	
Department	
Matthew Pfeiffer	Community Planning Housing Development
✓ Robin Leonard	Department of Parks and Recreation
Patrick Todd	Department of Parks and Recreation
✓ Peter Lusk	Department of Parks and Recreation
✓ Kurt Louis	Department of Parks and Recreation
✓ Jeff Winkle	Department of Parks and Recreation
✓ Debbie DeFranco	Arlington Public Schools
Additional County Designees	
Libby Garvey	County Board Member
Jane Rudolph	Director, Department of Parks & Recreation
Audience Attendees	
✓ Gail Harrison, neighbor	
✓ Lincoln C. Oliphant	

1. Welcome and Introductions

Chairman Erik Gutshall called the meeting to order.

2. Presentation by MUSCO

Joe Forshe and Steve Wiley, Musco Sports Lighting, Inc.

- What is the life cycle of the fixtures?
 - HID 5,000 Hours
 - LED 60,000 Hours
- Drivers would have to be replaced before lights
 - Drivers are replacements for ballasts
 - Ballasts/Drivers are an energy source providing power to all lights
- How does Musco evaluate lighting needs?
 - 30 foot candles for parks and recreation needs
 - 75-100 for collegiate/tv
 - 30 foot candles is DPRs goal
- How does Musco address spill and glare?
 - Proper Mounting Height
 - Fixture Design (photo metrics)
 - Ideal aiming angle is between 25 and 30 degrees
 - Poles that are too short will increase glare for players and increase undesirable offsite spill light
 - Candela Definition – Unit of Luminous Intensity.
 - Candela is measured 200 ft from the edge of the field
 - Candela is an intensity measurement
- Low beam headlights are 12,000 candela
- High Beam Headlights are 50,000 candela
- 7500 candela recommend for Williamsburg setting
- Fairfax county uses 9000 candela
- LED fixtures and HID fixtures can make the 7500 candela measurement
- Candela grids are a 200 ft. strap around the field, pick the most intense fixture, computer measured.
- *Does Arlington County have measurements for Candela? Follow up with CPHD*
- LED lighting is 50% more than HID
- Secondary Glare caused by reflectivity
 - Secondary light power
- How many suburban LED systems have been installed – over 100
- Powder coated black poles?
- 60% drop in LED savings vs HID
- LED lights are for 1000+ hours a year for financial feasibility

- Does Arlington County have a pole light restriction for lights? Follow up with CPHD Would like MUSCO to provide a site specific photometric design for October 21st meeting?
- LED and HID photometric
- Can MUSCO provide estimated cost to light the Williamsburg/Discovery fields?

3. Presentation by DPR Staff

Robin Leonard, DPR

- Questions on the Rovers
 - Lights are on at times when people are not on the field – Call Rover can cut off within 5 minutes of the notification.
 - Greenbrier operations committee
- What does the 2000 hours of synthetic turf represent?
 - Year around use
 - Most locations done by 10:30-10:45 pm spring and fall seasons; 10-10:30 p.m. during summer and 9-9:30 p.m. during the winter.
- Work Group Members shared the following comments
 - Worried about capacity of adding synthetic and lights... *Can DPR provide an estimate of turf lit fields, and turf unlit fields: percentage use versus percentage available with a side by side comparison? Resident vs Non-resident use.*
 - Diamond sports are not being served as much as they need to be. Hurting for space
 - ASA has agreed to not have lights go later than 9:30 pm
 - Would field usage be predominantly youth or adult leagues? R. Leonard shared that *would depend on the lighting result but most likely youth.*
 - Williamsburg is second lowest density neighborhood in the county... Would need new information and mitigating strategies for a quiet and dark neighborhood
 - *Find out information on the Fairfax sports illumination plan*
 - Is this project funded?
 - Is there a budget?
 - What are some preliminary budget numbers for HID and LED costs?
 - Where will the money come from?
 - Environmental Assessment submitted to E2C2
 - Work Group Member expressed concern regarding Greenbrier stadium lights being on and field not in use. R. Leonard explained to the group that Greenbrier Civic Association / community had requested the lights be on until 9:00 p.m. during the week even if the field was not in use so they could safely use the track. They did this through the Greenbrier Park Standing Committee. It was suggested they should specifically ask about traffic and noise
 - Need to consider Elevation issues as it pertains to lighting the fields. Fields are a much higher elevation than the house in front of the school.

**Williamsburg Field Evaluation Work Group
Summary of Field Tour**

Wednesday, October 14, 2015

6 – 9:45 p.m. (Bus departed from Williamsburg Middle School @ 6:15 p.m.)

Meeting Attendees

Name	Group Representing
✓ Erik Gutshall, Chair	Planning Commission
Steve Severn	Sports Commission
Bill Ross	Parks and Recreation Commission
✓ John Seymour	E2C2
✓ Gregg Kurasz (Gail Harrison)	Rock Spring Civic Association
David Friedman	Yorktown Civic Association
Ruth Shearer	Williamsburg Civic Association
✓ Larry Suiters	Resident (property abuts fields)
Joe Delogu	Resident (property abuts fields)
✓ Roy Gamse (Chuck Hadden)	Resident (property abuts fields)
✓ Chris Munson	Resident (property across street from fields)
✓ Tony Trabant	Resident (property across street from fields)
✓ Elizabeth Kirby	Resident (property across street from fields)
✓ Justin Wilt	Arlington Soccer Association
Susan Wallace	Arlington Women Soccer League
Eileen Raicht-Gray	Arlington Coed Soccer League
Maury Wray Bridges	Discovery Elementary School PTA
County Staff Support	Department
Matthew Pfeiffer	Community Planning Housing Development
✓ Robin Leonard	Department of Parks and Recreation
✓ Patrick Todd	Department of Parks and Recreation
✓ Peter Lusk	Department of Parks and Recreation
✓ Kurt Louis	Department of Parks and Recreation
✓ Jeff Winkle	Department of Parks and Recreation
Debbie DeFranco	Arlington Public Schools
Additional County Designees	
Libby Garvey	County Board Member
Jane Rudolph	Director, Department of Parks & Recreation

Audience Attendees	Audience Attendees
None	

1.) DPR Coach Bus left at 6:15 p.m. and followed the itinerary noted below:

Arrival Time	Arrival Location	Departure Time
	Williamsburg	6:15 p.m.
6:20 p.m.	Greenbrier Park	6:35 p.m.
6:45 p.m.	Highview Park	7:00 p.m.
7:15 p.m.	Washington-Lee / Quincy Park	7:30 p.m.
7:45 p.m.	Thomas Jefferson Park	8:00 p.m.
8:15 p.m.	Wakefield High School	8:30 p.m.
8:45 p.m.	Virginia Highlands Park	9:00 p.m.

We were ahead of schedule much of the evening and the group opted to visit Kenmore Middle School fields vs. Long Bridge Park fields.

9:45 p.m. Return to Williamsburg

While on the tour, members had the opportunity to walk each location. Some workgroup members brought their own light & noise measurement tools. Photos were taken. Excellent questions were asked of county staff throughout each visit. At Wakefield High School, the tour group was able to see how quickly MUSCO can respond to a phone call to turn on and off lights remotely.

2.) Chairman Erik Gutshall sought feedback or take-away statements from the group members as we returned to Williamsburg. The following notes were captured...

- There is a big difference between old and new lighting technology.
- Many fields appeared to be depressed.
- There was a lot more light spillage than workgroup members thought they'd see... some of this is coming from street lights.

- At some locations it appeared that there were fewer people on the fields... quieter environment... no spectators.
- Higher the lamp pole = more light spillage
- None of the locations visited replicated to their situation at Williamsburg and their homes' proximity to the fields. This is a "first of a kind" situation for the County.
- Belief by workgroup members that the light glare at Williamsburg will be greater than what was seen on the tour.
- Tour showed that the County is "MUSCO dependent".
- No example of LED lighting was shown on this tour... compares "apples to oranges".
- Tour was not very helpful with this process.
- If lights are added to the Williamsburg fields, it will change the character of the neighborhood.
- It was noticeable that there is a very active demand for sports and use of fields.
- People noticed that neighbors to the fields often have their blinds drawn at night.
- The field spaces were being very well used... at times 4 teams carving out practice space on one field.
- Very different technology at the locations visited... room for improvements with current lighting systems in the county.
- Some sites were very quiet (despite team and sports activity on the fields), High School sites with the marching bands were exception.
- Not in My Backyard syndrome was noticed on the tour... especially when the group visited Wakefield High School and saw an empty unlit soccer field.
- It was requested that the group visit to a field in Vienna take place to see the LED technology.

**Williamsburg Field Evaluation Work Group
Meeting Summary
Wednesday, October 21, 2015
7-9 p.m.**

Meeting Attendees

Name	Group Representing
✓ Erik Gutshall, Chair	Planning Commission
Steve Severn	Sports Commission
✓ Bill Ross	Parks and Recreation Commission
✓ John Seymour	E2C2
✓ Gregg Kurasz (Gail Harrison)	Rock Spring Civic Association
✓ David Friedman	Yorktown Civic Association
Ruth Shearer	Williamsburg Civic Association
✓ Larry Suiters	Resident (property abuts fields)
✓ Joe Delogu	Resident (property abuts fields)
Roy Gamse	Resident (property abuts fields)
✓ Chris Munson	Resident (property across street from fields)
✓ Tony Trabandt	Resident (property across street from fields)
✓ Elizabeth Kirby	Resident (property across street from fields)
✓ Justin Wilt	Arlington Soccer Association
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Eileen Raicht-Gray	Arlington Coed Soccer League
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✓ Patrick Todd	Department of Parks and Recreation
Peter Lusk	Department of Parks and Recreation
✓ Kurt Louis	Department of Parks and Recreation
✓ Jeff Winkle	Department of Parks and Recreation
Debbie DeFranco	Arlington Public Schools
Additional County Designees	
Libby Garvey	County Board Member
✓ Jane Rudolph	Director, Department of Parks & Recreation
Audience Attendees	Audience Attendees
None	

1.) Chairman Erik Gutshall began the meeting @ 7:02 p.m. with Introductions.

2.) MUSCO began their presentation at 7:05 p.m. Below are some of the points made by MUSCO staff as they shared drawings and provided explanations to Work Group members.

- They did their best to meet the standards provided to them of keeping within .1 to .3 lighting spillage levels near the property lines and meeting the below 7,000 candela requirement per the standards suggested by WFWG Member John Seymour in a memorandum submitted for consideration.
- Per the provided MUSCO Memorandum, HID lighting on the fields can't meet the parameters set.
- All drawing schematics show 6 lamp poles @ 80 feet.
- Safety of play is taken into account with all drawings
- Workgroup member asked: What would be the worst glare one would see with HID lighting? *MUSCO Reps. responded that it would be a 27,000 candela equivalent to a car's low-beam headlight.*
- Workgroup member asked: Do the calculations begin at a 0 candela or light level equivalent to pitch black darkness? *MUSCO Reps. responded that it did. It does not take into account any of the street lamps and other lighting that may be emitted from either school.*
- Workgroup member asked: What is the standard lamp life? *50,000 hours is the standard.*
- With LED lighting, the maximum spillage at the property line is .03
- Workgroup members found some discrepancy with the information presented and sought update to the following: Why is at the 100 ft. mark the spill is noted 0.11 maximum? *MUSCO Reps. stated they'd take another look @ #s.*
- MUSCO Reps. shared the various candela glare information:
 - Vertical spill: light on homes
 - Horizontal spill: light on the field and hand if we lay our hand horizontal to field
 - Candela: overall lamp level

The following were all responses to Work Group Member questions...

- All numbers in the charts are "open air", no account for tree canopy.
- With the LED drawings, the highest candela value is on the Elementary School and within its parking lot... away from the homes.
- The LED design took into account keeping the light spillage away from the homes, evenly lighting the field, and any extra candela would be in the school parking lot.
- If there is a misty evening (fog), the lighting levels may appear brighter.
- Topography does matter with field work, if the field is sunken the light stays within the space more.
- Chairman Erik Gutshall requested that a summary table be created sharing: pole height, minimum and maximum light levels and candela levels.

- MUSCO Reps. reiterated that the most ideal pole height is 80 feet, with 70 foot pole height there is no increase in light spill, but there is a greater glare (similar to HID @ 22,000)
- MUSCO has offered to run life-cycle costs
- Work Group Member asked: Are 10 years the maximum for such lights before replacement is needed?

Work Group Members were reminded that there were 3 field factors that we should keep in mind... Regular Turf, Artificial Turf without lights, and Artificial Turf with lights

Chairman Erik Gutshall asked for clarification to a question he asked on the tour... Do grass fields get rest?

Robin Leonard shared that Bermuda fields rest from the second week of June through early September. Further, it was shared that there is no play on grass fields after it rains.

Once MUSCO finished their presentation, Chair Gutshall went around the table and allowed each Work Group Member to ask any clarifying questions...

- Is there a measure for light glow coming off the field (reflective light)? *No measure system.*
- Is it possible to get reflectivity off the turf? (no answer noted)
- Is sports lighting accounted for with LEED standards? *Sports lighting is exempt from LEED standards*
- What other issues has MUSCO heard when presenting to other community groups similar to this one? *Noise factor often comes up.*
- Can MUSCO provide a candela map for the Williamsburg Basketball Court? *MUSCO Reps. stated that they could since they put in the lamps.*
- Is it possible to light fields with less foot-candles? *It is possible to adjust the lighting levels if the County is willing to light fields at less than 30 foot-candles.*
- It was noted that MUSCO has provided more information than they normally do to community groups.
- It was shared that APS may be working on placing trailers at the north end of the soccer fields (possibly on the diamond). If this occurs, can MUSCO re-run #s of the lighting plan to account for these being placed? *APS staff are also willing to meet with the group to share future plans of the Williamsburg site.*
- Question about Greenplay work came up. Work Group members would like access to the data shared with Greenplay.
- Does Loudoun County have a lighting policy? *It was shared that Loudoun's plan is exactly the same as Fairfax County's, which is posted on the WFWG website.*

3. Other Business

Chairman Erik Gutshall reiterated information already shared with Work Group Members (through e-mail) about his conversations with Board Member Garvey and stated that she will be meeting with the group in the near future. It is not part of our charge to decide if there is a need for additional fields, nevertheless staff will still provide requested usage data in November. Work Group is to focus on identifying the impacts of lighting the fields at Williamsburg, potential mitigation strategies for those impacts, and, finally, whether we recommend to the County Board lighting the fields.

The next meeting will be held on 11/18 and will have numerous presentations by CHPD staff as well as a possible visit by County Board Member Garvey.

A Work Group Member asked for clarification to the charge and to the presentations so far... All of the drawings shown reflected 2 fields being lit, yet the charge states the group should be factoring in whether one or two fields should be lit. Chair Gutshall stated that, consistent with the charge, the WFWG could choose to recommend that only one field be lit.

Chris Munson e-mail (dated 10/21/2015) was also addressed briefly at the meeting. C. Munson suggested that the Work Group begin to work on decisions and taking straw votes at the November meeting.

Chair Gutshall proposed the following timeline take place...

- Bus Field Trip to Vienna (October 28)
- CHPD presentations (November 18)
- Take the December meeting to assess the status of our data collection efforts and how to begin moving forward with analysis leading to recommendations.

It was also suggested that Arlington Public Schools will need to do a new Environmental Assessment. APS staff may be asked to visit the Work Group on November 18 in addition to CHPD staff presentations and a possible visit from County Board Member Garvey.

Meeting ended at 9:00 p.m.

Williamsburg Field Evaluation Work Group

Meeting Summary

Tuesday, January 19, 2016

7:00 – 9:00 p.m.

Williamsburg Middle School Media Center

Name	Group Representing
✓ Erik Gutshall, Chair	Planning Commission
Steve Severn	Sports Commission
✓ Bill Ross (Stephen Finn representing)	Parks and Recreation Commission
✓ John Seymour (Greg Miller representing)	E2C2
✓ Gregg Kurasz	Rock Spring Civic Association
David Friedman	Yorktown Civic Association
✓ Ruth Shearer	Williamsburg Civic Association
✓ Larry Suiters (Gail Harrison representing)	Resident (property abuts fields)
✓ Joe Delogu	Resident (property abuts fields)
✓ Roy Gamse	Resident (property abuts fields)
✓ Chris Munson	Resident (property across street from fields)
✓ Tony Trabandt	Resident (property across street from fields)
✓ Elizabeth Kirby	Resident (property across street from fields)
Justin Wilt	Arlington Soccer Association
✓ Susan Wallace	Arlington Women Soccer League
Eileen Raicht-Gray	Arlington Coed Soccer League
✓ Maury Wray Bridges	Discovery Elementary School PTA
County Staff Support	Department
✓ Robin Leonard	Department of Parks and Recreation
✓ Kurt Louis	Department of Parks and Recreation
Matthew Pfeiffer (Bob Duffy)	Community Planning Housing Development
✓ Patrick Todd	Department of Parks and Recreation
✓ Peter Lusk	Department of Parks and Recreation
✓ Jeff Winkle	Department of Parks and Recreation
Additional County Designees	
Libby Garvey	County Board Member
Jane Rudolph	Director, Department of Parks & Recreation
Megan Carney	Department of Parks and Recreation
Michael Peter	Department of Parks and Recreation

**Williamsburg Field Evaluation Work Group
Meeting Summary
Tuesday, January 19, 2016**

Additional Attendees	Additional Attendees
Ted Groom (neighbor to the field)	
Charles Hadden (homeowner)	
Mary Bevis (ASA)	

1. **Welcome:** Erik Gutshall, WFWG Chair began the meeting with Introductions, then had the presentations begin.

2. **DPR Field Utilization Presentation**

Presenters:

Michael Peter, DPR Director of Budget & Finance

Robin Leonard, Deputy to the SpRec Division Chief Facilities & Operations

Megan Carney, SpRec Management Analyst

The [presentation](#) was posted on the webpage on 1/20/2016. Below is a list of notes to questions asked and/or clarification points to the presentation.

- Elementary School Fields are not applicable as none of these have lights
- All High School fields have special circumstances due to the # of activities that are scheduled at these locations.
- All data is actual FY2015
- “Full Utilization” is 75 – 80% usage during “prime time hours”
- TJ lower, Barcroft, and Rocky Run are Drop-in Community Use Fields, not included in the data
- Slide 16 titled Field Usage: Seasonal Analysis, the sample locations were to cover a High School field, grass field and two other random samples
- Slide 17 showing Gunston sample: On Fridays, the field has no one scheduled because it is for community use, Bermuda field is closed in winter
- All lights are scheduled to turn off 15 minutes after each reservation ends
- Slide 19 about Powhatan, reminder that this is a grass field and has no lights... have to schedule end times according to available sunlight
- Slide 23 about Greenbrier Park, reminder was made that the community asked for lights to remain on until 9 p.m. even when things aren’t scheduled so that the track can be used
- Greenbrier Park also has written in an MOA that activities can’t go past 10:30 p.m. up to 3 times per week

Williamsburg Field Evaluation Work Group

Meeting Summary

Tuesday, January 19, 2016

- Question about the Greenbrier Park MOA- Has the provision about the noise level ever been enforced? According to staff, only 1 group has been removed due to noise issues.
- Musco programs all lights to turn on 20 minutes before sunset
- Slide 28, Sample Williamsburg Schedule with lights... question was raised by Gail Harrison: On average how many adults attend the Adult Clinics for soccer? DPR Staff to research, **Answer-** 12-30 on average
- Slide 34, Mitigation suggestions ... Question about Special Events arose, DPR Staff shared that the Williamsburg location would lend itself to mainly “Internal Special Events” from either of the 2 schools that the fields abut
- In Spring and Fall, fields are monitored in certain locations when multiple games/activities are scheduled at the same time

The following questions arose once the presentation ended...

1. Gail Harrison asked: Of the 41 rectangular fields, what is the current capacity and what does county staff believe is the capacity needed into the future?
2. Roy Gamse asked: For the Williamsburg fields, how many hours were these scheduled when they were grass? How many hours would DPR schedule these as synthetic, not lit with lights? How many hours would DPR schedule these if lights are permitted with each of the following curfews: 9 p.m., 10 p.m., and 11 p.m. ?
3. Roy Gamse asked: Previously Bermuda Grass existed at Williamsburg and the fields would close due to rain. With synthetic fields, how much less would the fields have to close due to rainy weather?
4. How does county staff monitor use of the 5 Drop-in Play Community Fields? How were these designated for such? **Answer-**These fields were designated through the Public Spaces Master Plan, roving monitors drive-by locations throughout the county as scheduled.

3. Musco Presentation

Presentation from Steve Wiley

Steve was present to help answer the questions that the group had submitted from previous presentations, review diagrams provided at the group’s request, and answer additional questions.

Steve shared two drawings, posted on the [webpage](#).

Williamsburg Field Evaluation Work Group

Meeting Summary

Tuesday, January 19, 2016

The following questions/clarifications were addressed:

- Where does the measurement for a pole begin? The Williamsburg Field is flat, poles should be consistent... in the model, there may be a row of lights at 68 feet, and some lamps may need to be mounted at 63 feet to gain the most effective lighting strategy with least spill.
- Lowering foot candela can lower some glare, but pole height has the greatest effect on glare
- Higher the pole height, less spillage of light
- Design standard is 30 candela for most sporting events
- Musco has installed 20 candela lamps on recreation/practice fields, but never done in Northern Virginia
- For High School sports, due to possible television filming, 30 candela is recommended
- 20 candela is a possibility on recreation fields under current county policy
- Chairman Gutshall reiterated the following to the group...
 1. 80 foot poles would require a zoning amendment ordinance
 2. Such a zoning amendment would be for the S-3A zoning district county-wide, not just for the Williamsburg location or for one specific use
 3. The Zoning Administrator has already determined that 68 feet is the permitted height for a lamp pole and each pole is its own structure. The height measurement is from the base of the pole to the top of the pole.
 4. Chairman Gutshall to seek a written clarification on pole heights from the Zoning Administrator
 5. Charge for the Work Group is to advise the County Board with possible recommendations, the Board Members can take the Work Group recommendations or choose not to follow any of them.
- How will the candela drawing results shared take into account light reflected off portables, buildings, etc.? **Answer-** No way to measure without knowing each material's reflectivity level.
- Promise from Musco- they are willing to measure current ambient light levels at the property lines
- Musco can do sky glow grids (if requested) to help show inclement weather scenarios
- Neighbors stated that they'd like the basketball court lighting to be checked/corrected
- Due to time constraints, the Work Group asked Musco to provide answers to all 13 questions previously submitted in writing. Musco agreed.

**Williamsburg Field Evaluation Work Group
Meeting Summary**

Tuesday, January 19, 2016

Workgroup has asked that Musco provide large drawings (24" x 36") of :

1. Lamp poles at 68 foot height, 30 candela
2. Lamp poles at 68 foot height, 20 candela
3. Lamp poles at 80 foot height, 30 candela
4. Lamp poles at 80 foot height, 20 candela

The above-mentioned maps may include GIS information showing property lines, sky glow grid and the spill for each candela.

- Can lights be dimmed? **Answer-** Yes with LED lights
- Robin Leonard reminded the group of their request from Arlington County Public Health for information on the effects of LED lighting. *DPR Staff is working with Public Health and DES Staff and will have an update in the March or April meeting.*

4. Action Items & Next Steps

Chairman Gutshall led the group in a quick discussion on what the next steps with this process may be. He reiterated that the Fact Finding Matrix has been updated and is posted on the [webpage](#).

Joe Delogu stated that the neighbors want an extension to the timeline due to lack of current field use as promised by former County Board Chair Mary Hynes. Chairman Gutshall will draft a letter to the County Board requesting an extension of several months to allow the Work Group to observe at a minimum one full season of play, as originally contemplated in the WFWG Charge.

5. Adjourned (after 9:15 p.m.)

Next Work Group Meetings are scheduled for February 10 (NEW Date: 2/17) & March 16, 2016

Musco Answers to Seymour Questions are listed as follows:

- 1. Please comment on the likely effect of the projected glare, including levels on the fields, reflected glare form adjacent school buildings and relocatables. with 100' > 25,000 candelas and 200'= 8285 c (80 ft poles = 7000c and 400c)**

The reflected glare from buildings or other permanent structures is not within Musco's control and is not accounted for in the designs. If the reflectance off the buildings were to be accounted for, any blockage by buildings, trees, or other obstructions would need to be added for accuracy. The LED light source should be far less than 25000K candela if green space is present.

- 2. Has Musco constructed lighting systems in similar sites with off-site glare measurements greater than 25,000 candela from the worst case luminaire?**

Yes we have constructed lighting systems with similar off site glare measurements and glare will occur if green space is not present or elevations exist.

- 3. Glare: O'C projected glare = orders of magnitude above ambient. Would Musco conduct field testing of ambient and compute a source/ background measure?**

No. We would need to use a developmental program designed to check glare.

- 4. Please comment on the likely glare perceived in line of sight from historically dark back yards on western side.**

At the property line, no consideration for blockage from trees has been accounted for. It appears there is significant foliage which should minimize the glare.

- 5. Please comment on the combined aggregate impact of the existing glare from the B Ball court and the 68 ft lights.**

The basketball court will remain the source of the most glare from the site. Next to the Basketball the new soccer fields will go unnoticed.

- 6. What is field 4? Please comment on the uniformity ratio of 53/17 = 3.08 and whether the contrast likely presents a problem for players.**

Field 4 is a conceptual (computer test) grid used in the design with 5' x 5' spacing to determine how uniform the light on the field is. Per the IESNA pg 61 Class III level play requires 30FC with a 3:1 uniformity, 3.08:1 is not out of line.

- 7. Does Musco have data or studies that address environmental and/or health impacts of LED lights?**

Yes. No impact due to the duration of the lighted venue and the color of the surface being lit will filter out the blue light. Additionally, control of light eliminates light on adjacent properties.

- 8. Does Musco have experience dealing with the “warmer” spectrum of LED lights is not expected to cause these effects (by comparison to more common blue-white light from conventional LED)?**

Yes. Warmer means less energy efficient. Higher initial cost and operating costs are the results of using warmer color temperature LED's.

- 9. How would such warmer lighting affect the photo metrics (light spill, glare, sky glow)?**
It will increase the number of luminaires which will increase reflected spill light.

- 10. How would such warmer lighting affect the energy efficiency and life cycle costs?**
Please see answer to number 8.

- 11. What are the impacts and implications of the re-locatables on the location of the 6 poles and lighting effects?**

The color of the relocatables and location will directly impact the glare coming off the buildings. They will need to have a more light absorbing color to cut down on the amount of reflectance.

- 12. With a max pole height of 68 ft, will the photo metrics clearly indicate the mounting heights of the luminaires?**

No. The top of the pole will be 68', Luminaires will start at the top and work their way down the pole, depending on how many fixtures are being mounted to the pole.

- 13. And will the modeling of glare and light spill properly reflect the lower luminaire heights?**

Yes. This is accounted for in the design and by the computer software.

- 14. Will 68 ft light poles be able to conform to generally accepted pole design requirements; e.g. upper limit of the defined beam should be no more than 80 degrees above nadir (10 degrees or more downward from the horizontal plane of the luminaire) and no more that f % of luminaires should violate this rule?**

Yes. Provided that we can still achieve a minimum aiming angle of 24 deg. down from horizontal.

ACPHD Brief: Human Health Consequences Associated with Artificial Lighting

3 February 2016

Concerns related to Artificial Lighting

- Asked to assess risks associated with artificial lighting
- Primary sources examined
 - American Medical Association, Council on Science and Public Health, Report: Light Pollution: Adverse Health Effects of Nighttime Lighting (2012)
 - US Department of Energy, Solid-State Lighting Technology Fact Sheet: Optical Safety of LEDs (2013)

Artificial Light – Mechanisms & Potential Risks Identified

Mechanism	Potential Risks Identified
Disrupted Circadian Rhythm - Melatonin Release	Disease <ul style="list-style-type: none">• Cancer – Breast Cancer most studied• Other
Glare	<ul style="list-style-type: none">• Disability• Discomfort
Blue Light	<ul style="list-style-type: none">• Photo-retinitis (inflammation of the retina)

Sources: AMA, DOE

Disrupted Circadian Rhythm – Melatonin Release

- Risk most studied is cancer risk
- Cancer most studied is breast cancer
- Studies performed
 - Experimental (Laboratory) studies (non-Human)
 - Conclude that melatonin may have nocturnal anti-cancer features
 - Rodent models studied have shown a connection between disease progression and disrupted circadian rhythms and melatonin
 - Epidemiologic (Observational) studies (Human)
 - Only non-day shift workers have been systematically studied. IARC (2007) review concluded that night-shift work may be a risk for breast cancer. Subsequent study results have been mixed according to the AMA review.
 - Standard epidemiologic limits apply to these studies: 1) exposure measurement may not be standardized; and 2) exposure history affected by recall bias

Glare: Disability & Discomfort

- Both occur simultaneously
- Disability – “unwanted and poorly directed light that temporarily blinds, causes poor vision by decreasing contrast, and creates an unsafe viewing condition, especially at night, by limiting the ability of the person to see.” (AMA 2012)
- Discomfort – “less well defined but emanates from a glare source that causes the observer to feel uncomfortable.” (AMA 2012)

Blue Light Hazard (1)

- Light is optical radiation. “Optical radiation falls on the skin and eyes, where the energy is transformed via photochemical processes or thermal reactions. While this sensory interaction is an essential part of human perception, too much radiant energy can damage tissue.”
- “... the only [optical radiation hazard] that is practically applicable to LEDs is blue light hazard.”
- According to DOE, “the amount of blue light in typical architectural lighting products is not hazardous. Even when the light intensity gets uncomfortably high, the risk is mitigated by natural defense mechanisms, including aversion response (blinking, head movement, and pupil constriction) and continuous eye movement (saccades), which protect the retina from overexposure. Without these, the sun could damage our eyes.”

Blue Light Hazard

- “While it is true that most LED products that emit white light include a blue LED pump, the proportion of blue light in the spectrum is not significantly higher for LEDs than it is for any other light source at the same correlated color temperature (CCT)...”
- “Given that CCT is highly predictive of blue light content, it is possible to use photobiological safety standards to determine threshold for hazard based on CCT.”
- ACGIH and ICNIRP have established exposure limit groups or RGs. The range is RG0 – RG3. Based on this characterization, lighting devices rated RG2 and higher devices should be labeled.
- According to DOE, “... it is unlikely that a white light source could achieve classification above Risk Group 1.”

EQUIPMENT LIST FOR AREAS SHOWN										
QTY	LOCATION	Pole		MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS		
		SIZE	GRADE ELEVATION							
1	S1	80'		80'	228 / 216 LED	11	11	0		
1	S2	80'	-2'	78'	228 / 216 LED	11	11	0		
1	S3	80'	2'	82'	228 / 216 LED	21	21	0		
1	S4	80'	-3'	77'	228 / 216 LED	21	21	0		
2	S5-S6	80'	1'	81'	216 LED	10	10	0		
6	TOTALS								84	84

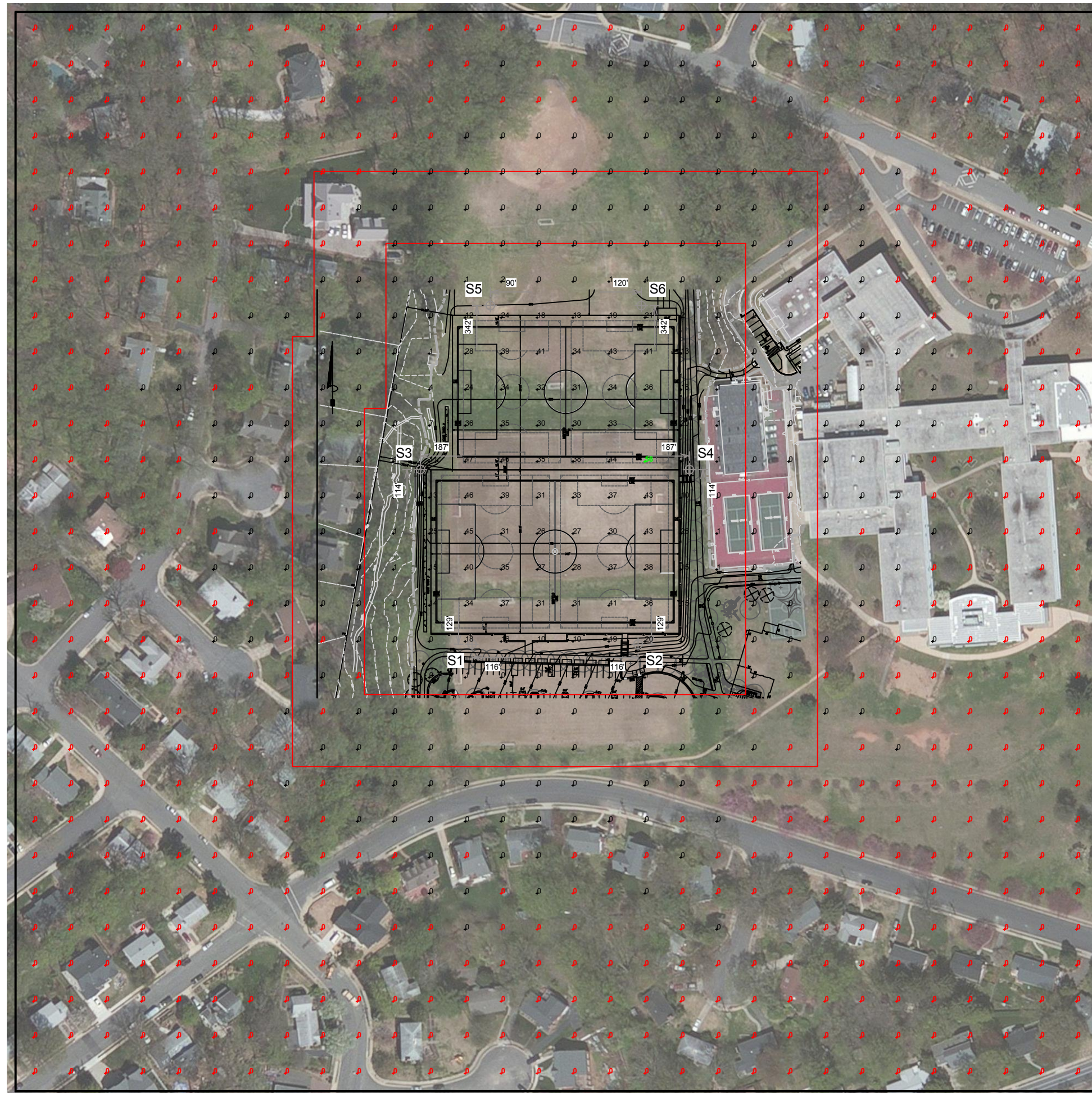
GRID SUMMARY	
Name:	Blanket Grid
Size:	1500' x 1500'
Spacing:	50.0' x 50.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAINTAINED HORIZONTAL FOOTCANDLES	
Entire Grid	
Scan Average:	2.41
Maximum:	56
Minimum:	0
Avg / Min:	-
Max / Min:	-
UG (adjacent pts):	4493.79
CU:	0.99
No. of Points:	900

LUMINAIRE INFORMATION	
Color / CRI:	5700K - 75 CRI
Luminaire Output:	63,600 / 63,600 lumens
Total LLF:	1.000
No. of Luminaires:	84
Total Load:	51.21 kW

Luminaire Type	Lumen Maintenance		
	L90 hrs	L80 hrs	L70 hrs
216 LED	33,000	>42,000	>42,000
228 LED	33,000	>42,000	>42,000

Reported per TM-21-11. See cutsheets for details.

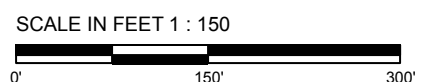


Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume +/- 5% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



Pole location(s) + dimensions are relative to 0,0 reference point(s) ⊗

EQUIPMENT LIST FOR AREAS SHOWN									
QTY	LOCATION	Pole		MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS	
		SIZE	GRADE ELEVATION						
1	S1	80'		80'	228 / 216 LED	11	11		0
1	S2	80'	-2'	78'	228 / 216 LED	11	11		0
1	S3	80'	2'	82'	228 / 216 LED	21	21		0
1	S4	80'	-3'	77'	228 / 216 LED	21	21		0
2	S5-S6	80'	1'	81'	216 LED	10	10		0
TOTALS						84	84		0

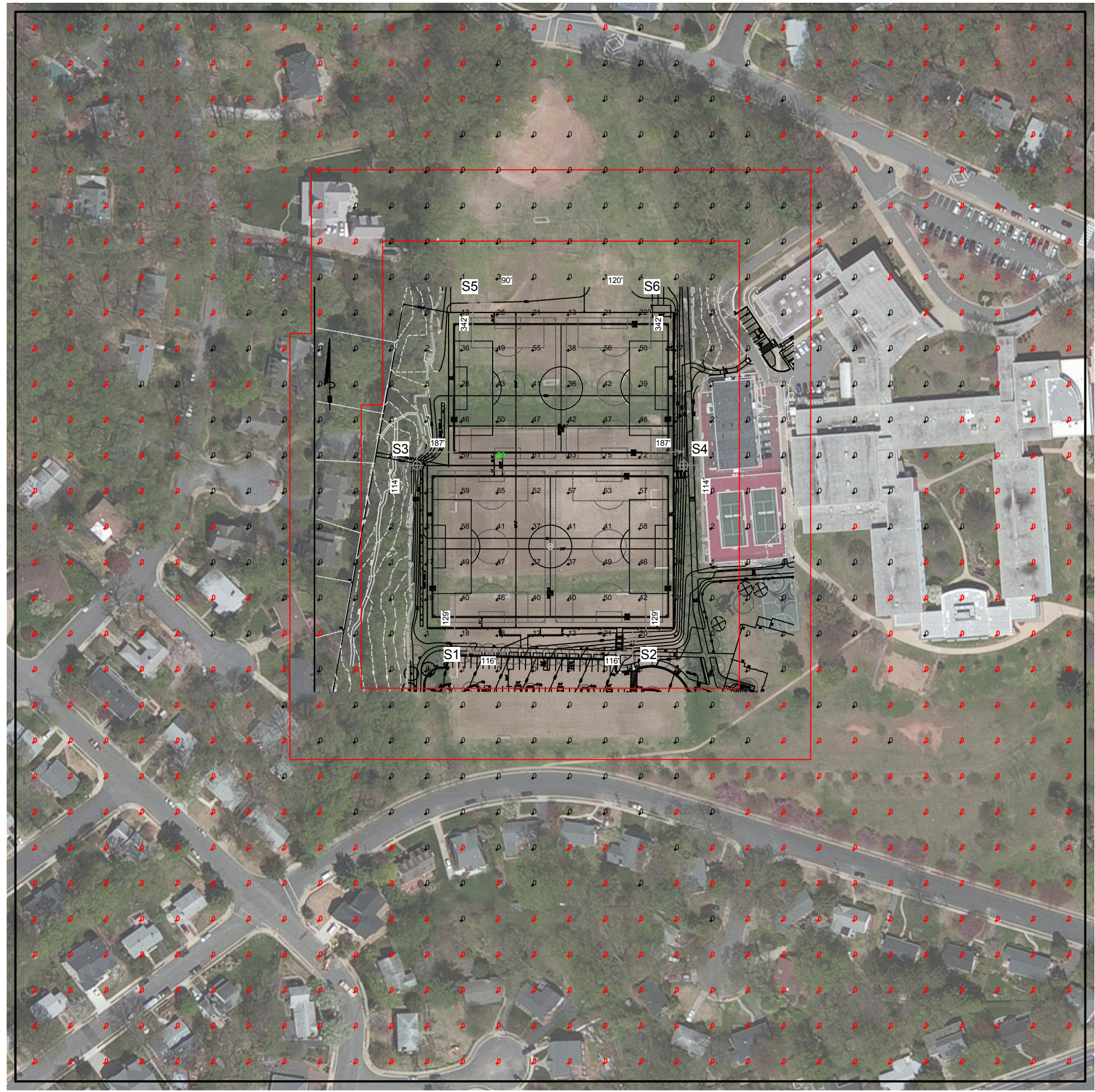
GRID SUMMARY	
Name:	Blanket Grid
Size:	1500' x 1500'
Spacing:	50.0' x 50.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAINTAINED MAX VERTICAL FOOTCANDLES	
Entire Grid	
Scan Average:	3.16
Maximum:	76
Minimum:	0
Avg / Min:	-
Max / Min:	-
UG (adjacent pts):	1157.89
CU:	0.99
No. of Points:	900

LUMINAIRE INFORMATION	
Color / CRI:	5700K - 75 CRI
Luminaire Output:	63,600 / 63,600 lumens
Total LLF:	1.000
No. of Luminaires:	84
Total Load:	51.21 kW

Luminaire Type	Lumen Maintenance		
	L90 hrs	L80 hrs	L70 hrs
216 LED	33,000	>42,000	>42,000
228 LED	33,000	>42,000	>42,000

Reported per TM-21-11. See cutsheets for details.

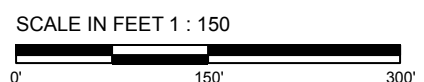


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Pole location(s) + dimensions are relative to 0,0 reference point(s) ⊗

EQUIPMENT LIST FOR AREAS SHOWN									
QTY	LOCATION	Pole		Luminaires					
		SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS	
1	S1	80'		80'	228 / 216 LED	11	11	0	
1	S2	80'	-2'	78'	228 / 216 LED	11	11	0	
1	S3	80'	2'	82'	228 / 216 LED	21	21	0	
1	S4	80'	-3'	77'	228 / 216 LED	21	21	0	
2	S5-S6	80'	1'	81'	216 LED	10	10	0	
6	TOTALS						84	84	0

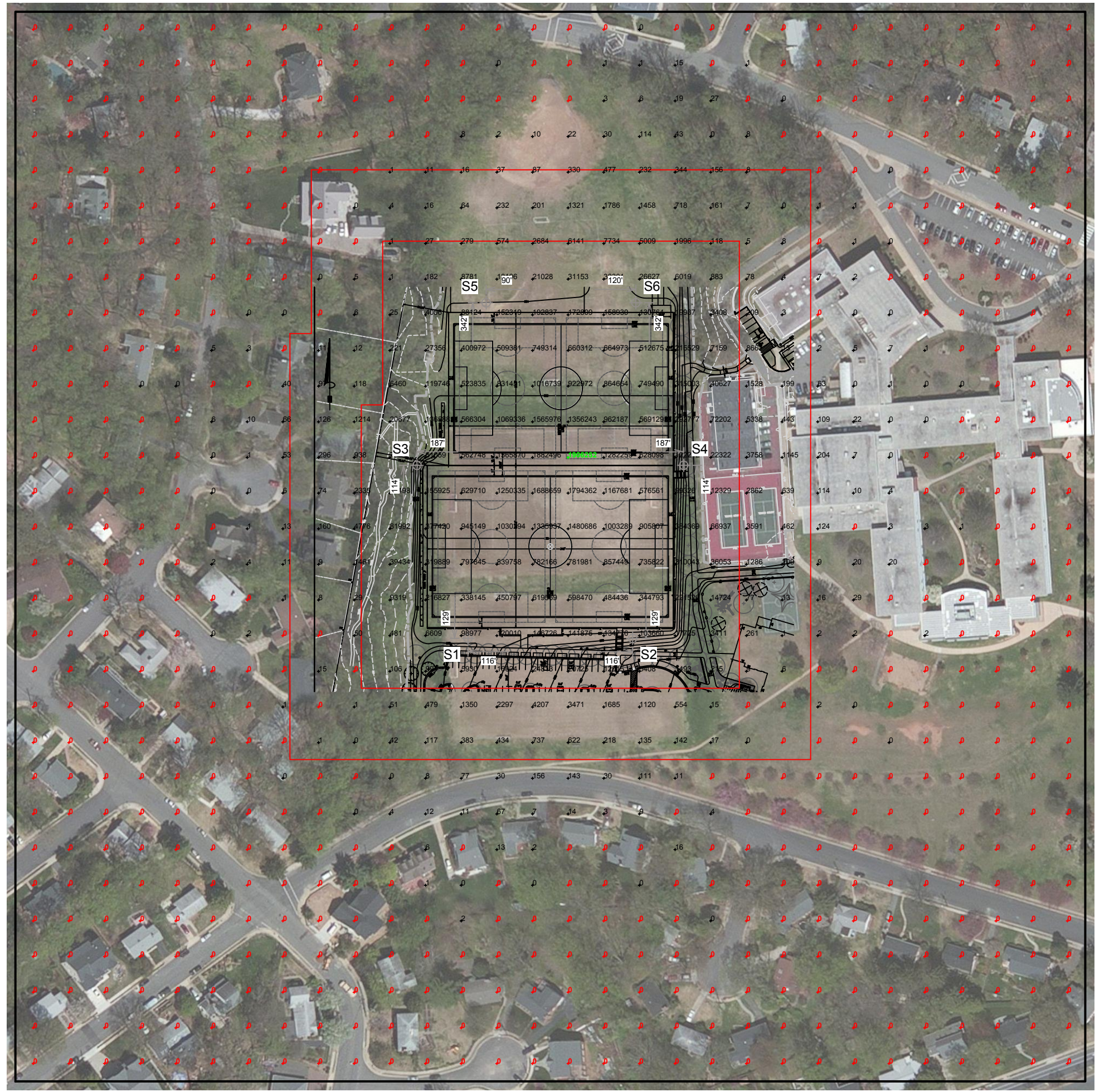
GRID SUMMARY	
Name:	Blanket Grid
Size:	1500' x 1500'
Spacing:	50.0' x 50.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY	
MAINTAINED CANDELA (PER LIGHTBANK)	
Entire Grid	
Scan Average:	54927.70
Maximum:	1906252
Minimum:	0
Avg / Min:	-
Max / Min:	-
UG (adjacent pts):	11026.01
CU:	0.99
No. of Points:	900

LUMINAIRE INFORMATION	
Color / CRI:	5700K - 75 CRI
Luminaire Output:	63,600 / 63,600 lumens
Total LLF:	1.000
No. of Luminaires:	84
Total Load:	51.21 kW

Luminaire Type	Lumen Maintenance		
	L90 hrs	L80 hrs	L70 hrs
216 LED	33,000	>42,000	>42,000
228 LED	33,000	>42,000	>42,000

Reported per TM-21-11. See cutsheets for details.

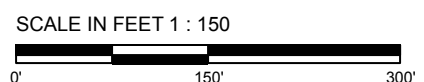


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Pole location(s) + dimensions are relative to 0,0 reference point(s) ⊗

WFWG Lighted Athletic Fields Tour

Wednesday, October 14, 2015

6:15 p.m. – 9:45 p.m.

Please note bus leaves promptly at 6:15 p.m.

Arrival Time	Arrival Location	Departure Time
	Williamsburg	6:15 p.m.
6:20 p.m.	Greenbrier Park	6:35 p.m.
6:45 p.m.	Highview Park	7:00 p.m.
7:15 p.m.	Washington-Lee High School	7:30 p.m.
7:45 p.m.	Thomas Jefferson Park	8:00 p.m.
8:15 p.m.	Wakefield High School	8:30 p.m.
8:45 p.m.	Virginia Highlands Park	9:00 p.m.
9:15 p.m.	** Long Bridge Park	9:30 p.m.
9:45 p.m.	Return to Williamsburg	

** If time permits, we will visit Long Bridge Park

Other Arlington County lighted field sites WFWG representatives may want to visit on their own are as follows:

Kenmore Middle School, 200 South Carlin Springs Road

Utah Park, 3191 S Utah St

Rocky Run Park, 1109 N Barton St

Gunston Park, 1401 28th Street South

Barcroft Park, 4200 S Four Mile Run Drive

Greenbrier Park (next to Yorktown High School)

5201 28th St N, Arlington, VA 22207



Greenbrier Park Athletic Fields

Lighting Information

Field	Field Light Height	Designed Foot-candles	Manufacturer	Year
Greenbrier Diamond Field 1	70'	50 fc Infield 30 fc Outfield	Musco Control Link	2007
Greenbrier Diamond Field 2	70'	50 fc Infield 30 fc Outfield	Musco Control Link	2007
Greenbrier Diamond Field 2	70'	50 fc Infield 30 fc Outfield	Musco Control Link	2007
Greenbrier Stadium Field	80'	30 fc	Musco Control Link	2007

Field Use Information

Field	Age	Classification	Users	Light Curfew
Greenbrier Park Diamond Field 1	Youth & Adult	Permit Only	Yorktown HS PE Classes and scholastic softball; Arlington Girls Softball	Outlined in MOA 10:00 p.m. or 10:30 p.m.
Greenbrier Park Diamond Field 2	Youth	Permit Takes Priority	Yorktown HS PE Classes and scholastic softball; Arlington Girls Softball, Little League and Babe Ruth baseball.	Outlined in MOA 10:00 p.m. or 10:30 p.m.
Greenbrier Park Diamond Field 3	Youth & Adult	Permit Only	Yorktown HS PE Classes and scholastic baseball; Senior Babe Ruth Baseball and Arlington Men's Baseball League.	Outlined in: MOA 10:00 p.m. or 10:30 p.m.
Greenbrier Park Stadium Field	Youth & Adult	Permit Takes Priority	Yorktown HS PE classes and scholastic football, field hockey; lacrosse, track and soccer; AYFFB; AFFB; ATSC; ASA; AWSL; ACK; Coaches League, Annual Youth Track Meet; Adult Pick Up League and special events.	Outlined in MOA 10:00 p.m. or 10:30 p.m.

Site Observations

Highview Park Athletic Field



112 Ft.

83 Ft.

83 Ft.

63 Ft.

73 Ft.

Highview Park Athletic Field

Lighting Information

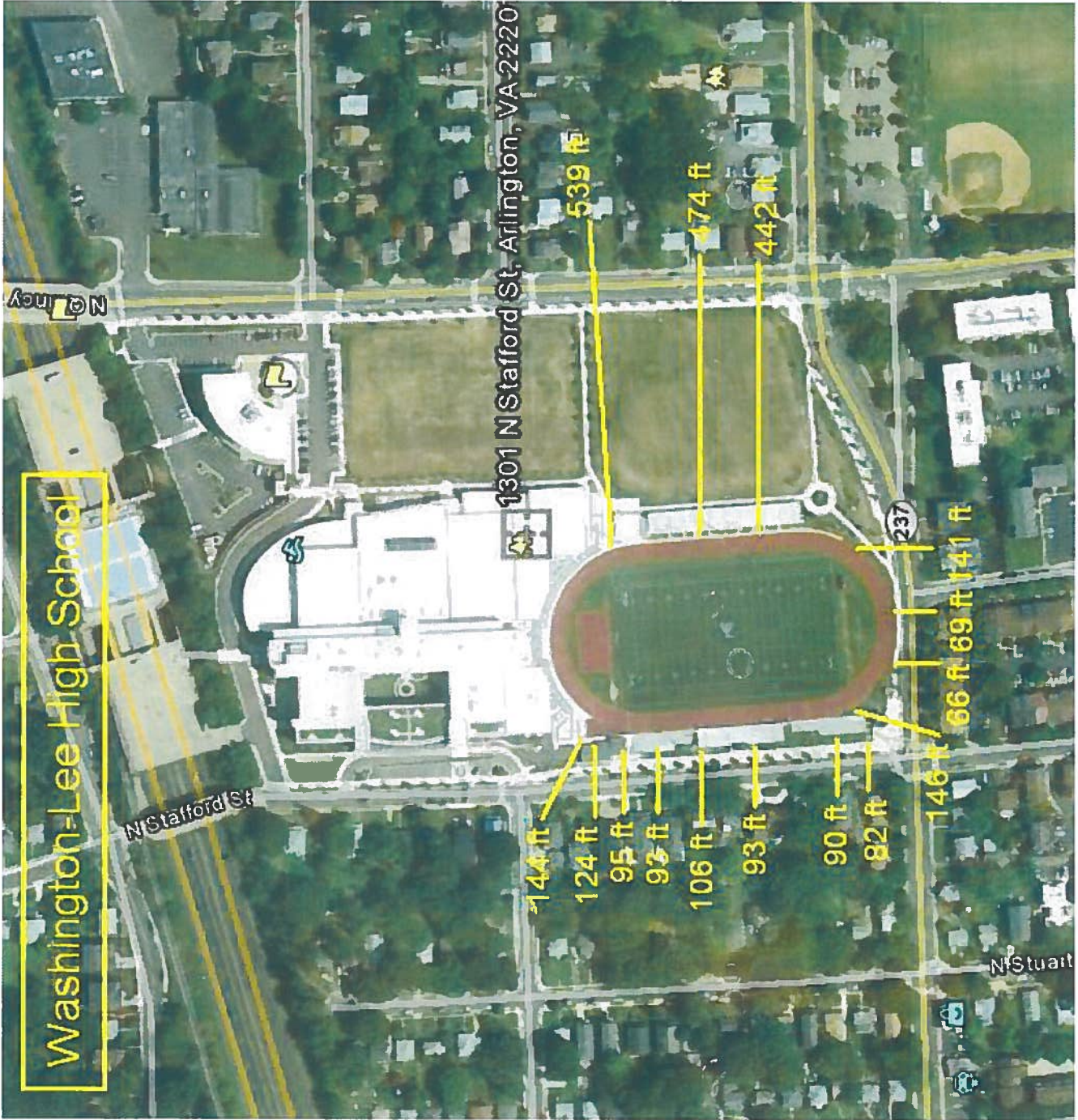
Field	Field Light Height	Designed Foot-candles	Manufacturer	Year
Highview Diamond Field	60'		Musco Control Link	2012

Field Use Information

Field	Age	Classification	Users	Light Curfew
Highview Park Diamond Field	Youth & Adult	Permit Takes Priority	Arlington Girls Softball Association; Arlington Soccer Association (ASA); rentals and special events	10:00 p.m.

Site Observations

Washington-Lee High School



1301 N Stafford St, Arlington, VA 2220

N Hwy

N Stafford St

237

N Stuart

Washington Lee Stadium and Combination Field

Lighting Information

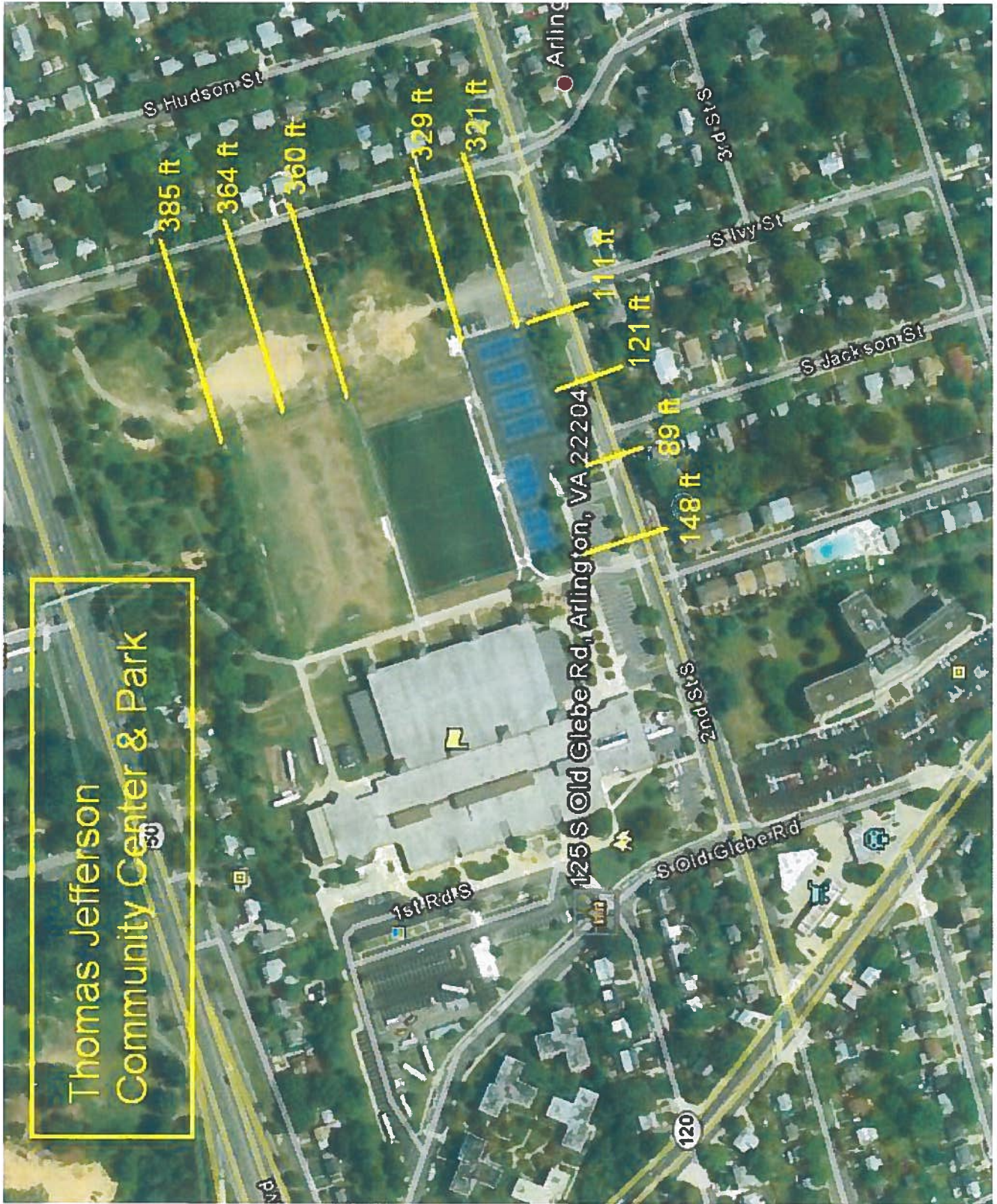
Field	Field Light Height	Designed Foot-candles	Manufacturer	Year
Washington-Lee Stadium Field	90'	47 fc	Musco Control Link	2007
Washington-Lee Combination Field	The A Poles on the SB field are 60'. The P1 on the rectangular overlay is 60'. The B Poles supporting the rectangular field overlay are 65.5	50 fc Infield 30 fc Outfield/rectangular field overlay	Musco Control Link	2014

Field Use Information

Field	Age	Classification	Users	Light Curfew
Washington-Lee Stadium Field	Youth & Adult	Permit Takes Priority	Washington-Lee High School PE classes and scholastic football, soccer, lacrosse, field hockey and track; ASA; ATSC; AYFFB; AFFB; AYTFB; AWSL; ACK; Pickup Soccer Program; ABSL; AMSL; rentals and special events	11:00 p.m.
Washington-Lee Combination Field	Youth & Adult	Permit Only	Washington-Lee High School PE and scholastic softball; lacrosse; band; soccer; field hockey; AYFFB and Arlington Girls Softball Association.	11:00 p.m.

Site Observations

Thomas Jefferson
Community Center & Park



Thomas Jefferson Park Athletic Fields

Lighting Information

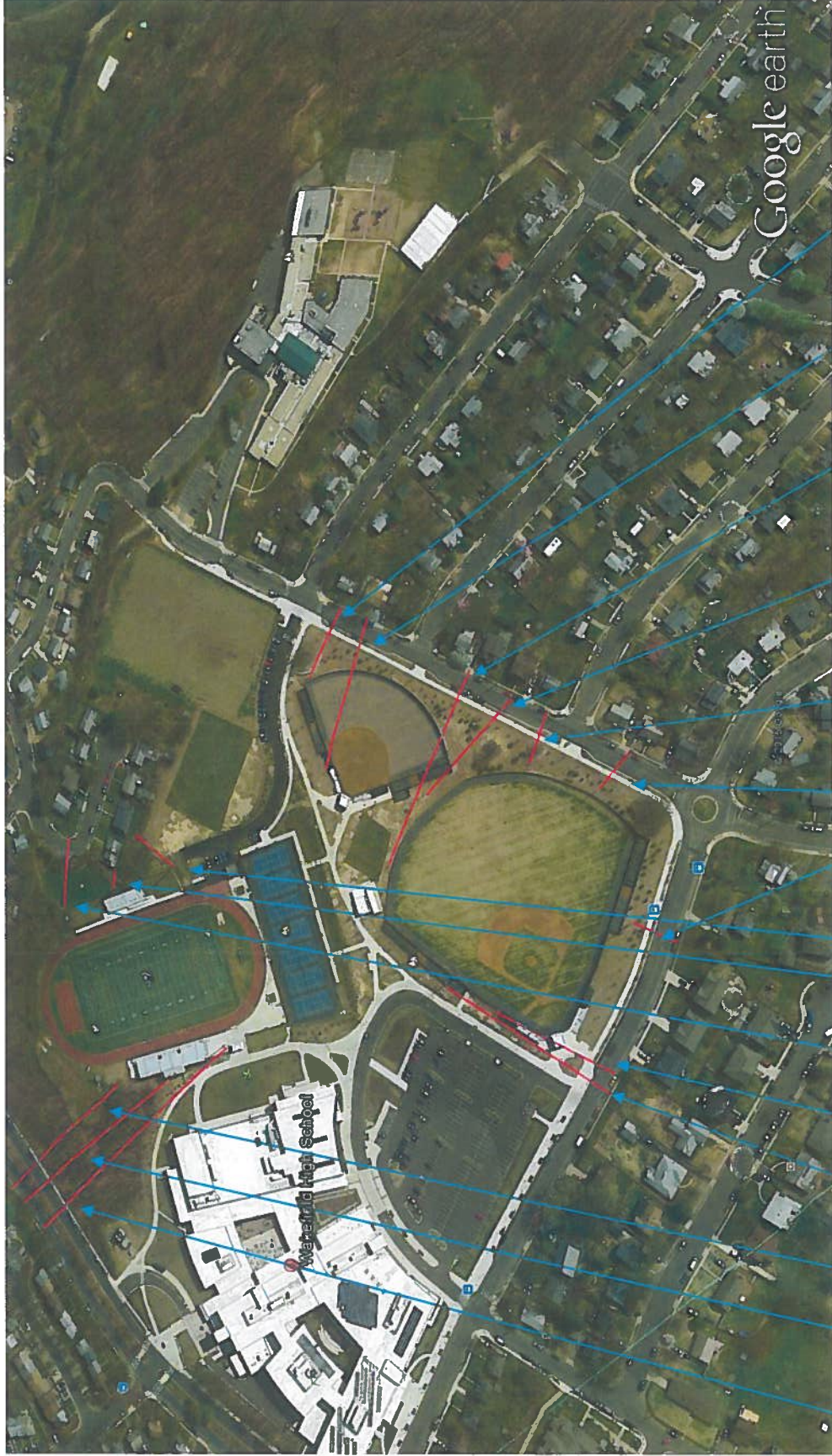
Field	Field Light Height	Designed Foot-candles	Manufacturer	Year
Thomas Jefferson Upper	70'	30 fc	Musco Control Link	2011
Thomas Jefferson Lower	70'	30 fc	Musco Control Link	2009

Field Use Information

Field	Age	Classification	Users	Light Curfew
TJ Upper Field	Youth & Adult	Permit Only	TJMS PE Classes and Middle School Soccer and Track; ASA; ATSC and rentals and County Fair.	10:00 p.m.
TJ Lower Field	Youth & Adult	Community Field	TJMS PE Classes and Middle School Soccer and Track; ASA and County Fair.	10:00 p.m.

Site Observations

Wakefield High School Athletic Fields



636 ft. 483 ft. 406 ft. 313 ft. 212 ft. 140 ft. 35 ft. 111 ft. 78 ft. 83 ft. 84 ft. 232 ft. 378 ft. 284 ft. 139 ft.

** Red lines are drawn between light poles and the shortest distance to a resident property. **

Wakefield High School Athletic Fields

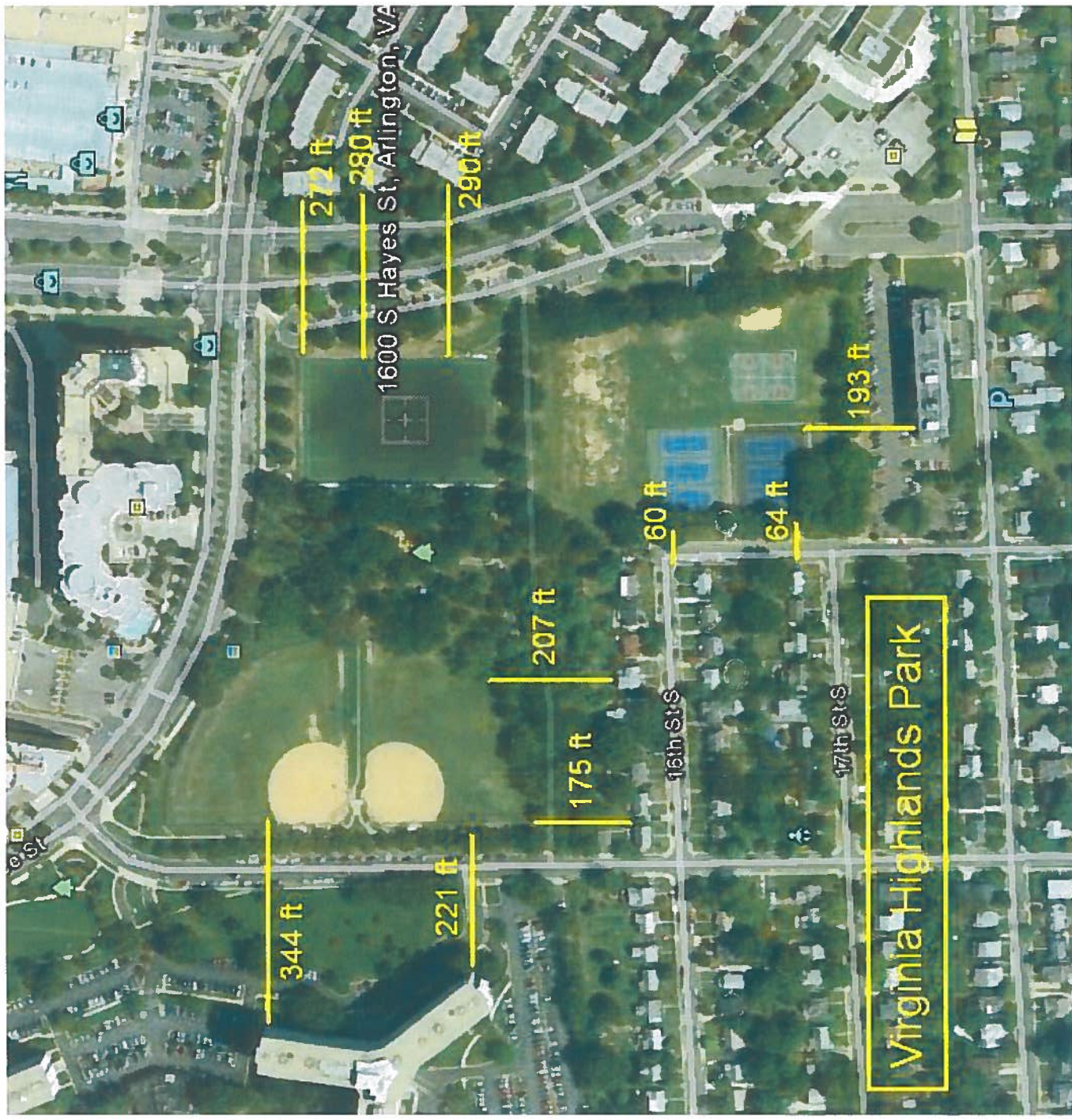
Lighting Information

Field	Field Light Height	Designed Foot-candles	Manufacturer	Year
Wakefield HS Diamond Field 1	The A, C, and D Poles are 70' The B Poles are 80'	50 fc Infield 30 fc Outfield	Musco Control Link	2015
Wakefield HS Diamond Field 2	60'	50 fc Infield 30 fc Outfield	Musco Control Link	2015
Wakefield HS Stadium Field	Unknown	Unknown	Unknown	Unknown

Field Use Information

Field	Age	Classification	Users	Light Curfew
Wakefield HS Diamond Field 1	Youth & Adult	Permit Only	Wakefield HS PE Classes and scholastic baseball; Senior Babe Ruth Baseball and special events.	11:00 p.m.
Wakefield HS Diamond Field 2	Youth	Permit Only	Wakefield HS PE Classes and scholastic softball; Arlington Girls Softball and special events.	11:00 p.m.
Wakefield HS Stadium Field	Youth & Adult	Permit Takes Priority	Wakefield HS PE classes and scholastic football, field hockey; lacrosse, track and soccer; AYTFB; AYFFB; ATSC; ABSL; AMSL; BVSL; ASA AWSL; ACK; Adult Flag Football; Pickup Soccer Program and special events.	11:00 p.m.

Site Observations



344 ft

221 ft

175 ft

207 ft

60 ft

64 ft

193 ft

272 ft

280 ft

290 ft

1600 S Hayes St, Arlington, VA

Virginia Highlands Park

Virginia Highlands Athletic Fields

Lighting Information

Field	Field Light Height	Designed Foot-candles	Manufacturer	Year
VA Highlands Diamond Field 3	70'	50 fc Infield 30 fc Outfield	Musco Control Link	2009
VA Highlands Diamond Field 4	70'	50 fc Infield 30 fc Outfield	Musco Control Link	2009
VA Highlands Diamond Rectangular Field 1	80'	37.5	Musco Control Link	2005

Field Use Information

Field	Age	Classification	Users	Light Curfew
VA Highlands Diamond Field 3	Youth & Adult	Permit Only	County ASB Leagues; Social Leagues; Rental groups; Annual First Responders Tournament and other special events	10:00 p.m.
VA Highlands Diamond Field 4	Youth & Adult	Permit Takes Priority	County ASB Leagues; Social Leagues; Rental groups; Annual First Responders Tournament and other special events	10:00 p.m.
VA Highlands Rectangular Field 1	Youth & Adult	Permit Takes Priority	ATSC; ASA; BVSL; ASA; AWSL; ACK; Coaches League; Social Leagues; rentals and special events.	10:00 p.m.

Site Observations
