



Newton Parks, Recreation + Culture Department

# Athletic Fields Improvement Plan

Community Meeting # 2

Brandeis Road Field Sports Lighting

December 9<sup>th</sup>, 2021

[athleticfields@newtonma.gov](mailto:athleticfields@newtonma.gov)

[www.newtonma.gov/fieldprojects](http://www.newtonma.gov/fieldprojects)

# AGENDA

1

STATEMENT ON ATHLETIC FIELD MASTER PLAN

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2

UPDATE ON THE BRANDEIS RD FIELD LIGHTING INITIATIVE

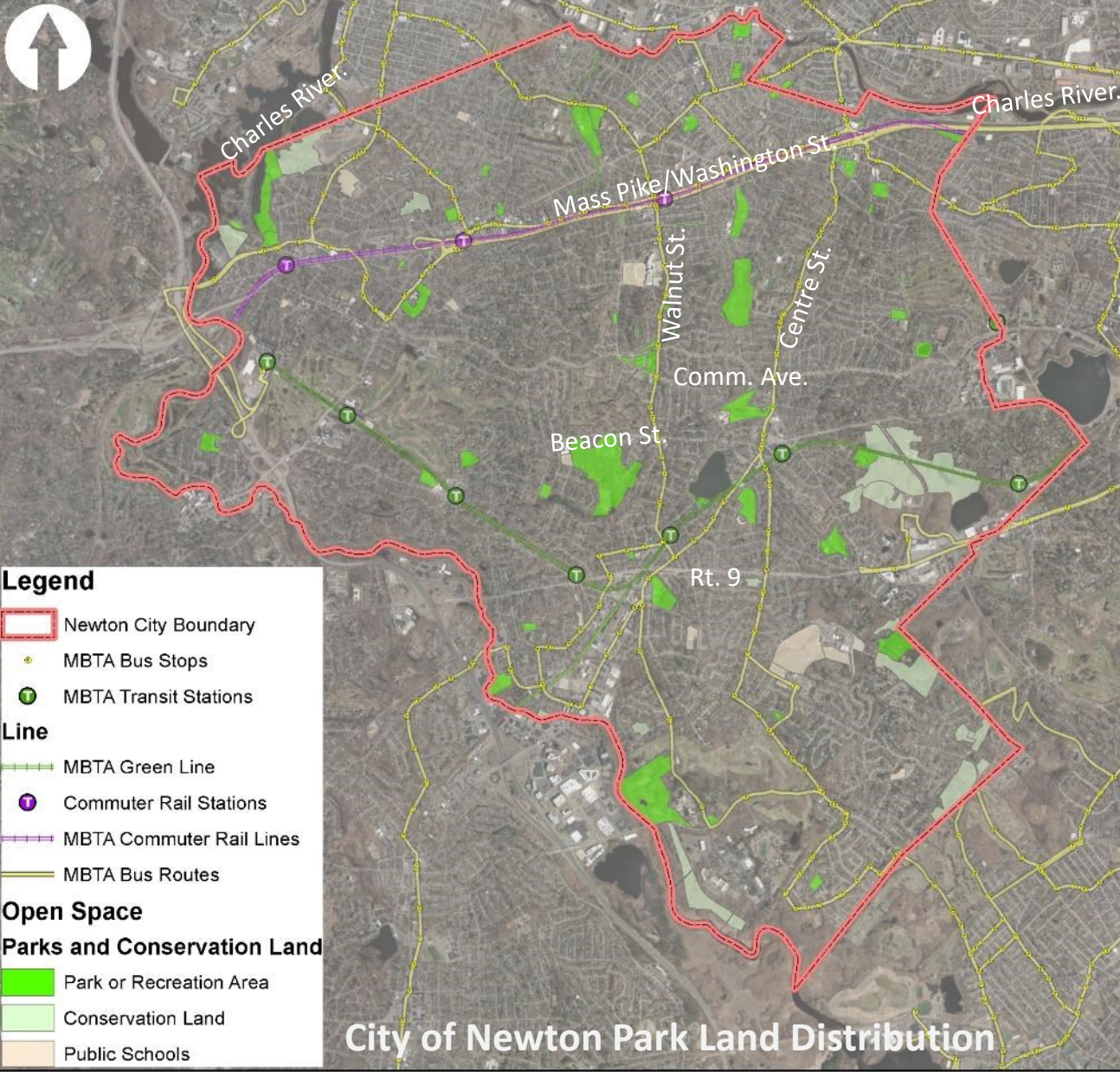
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3

LIGHT DATA

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**PARKS, RECREATION & CULTURE OVERVIEW:**

- Manage and oversee nearly 600 Acres of park land with varying recreational interests including:
  - Aquatic facilities
  - Tracks + fields
  - Trails, pathways + safe routes to schools
  - Playgrounds + tot Lots
  - Field houses + community centers
  - Hard courts
  - Passive areas
  - Outdoor exercise equipment
  - Wooded areas
  - Outdoor challenge courses
  - Dog parks
  - Splash pads
  - Historic significance
  - Wetlands and waterways
- Spread across all Villages, Wards + School zones

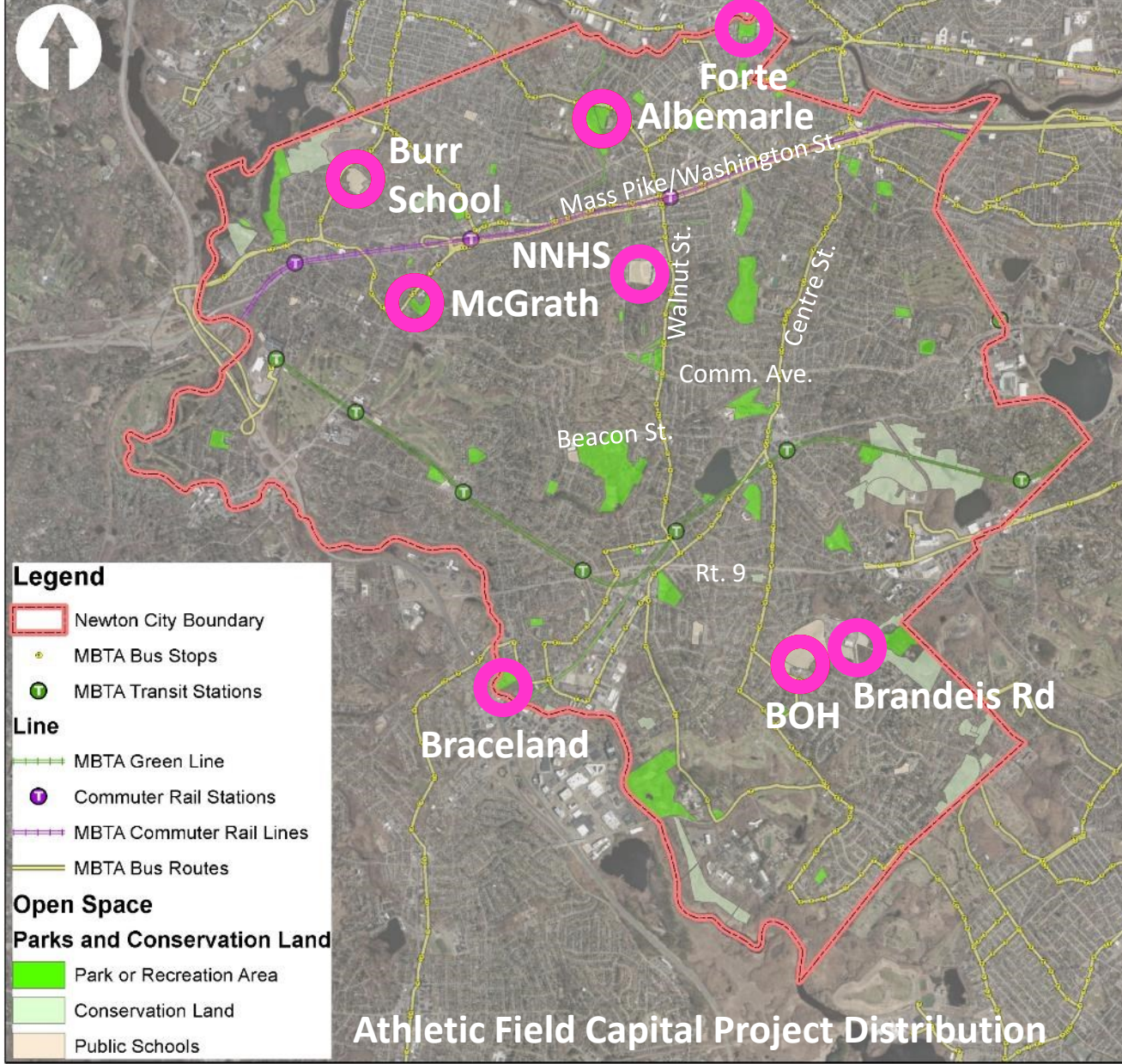
Newton Parks, Recreation and Culture Department  
**Athletic Fields Capital Improvement Plan**





**MULTI-YEAR CAPITAL IMPROVEMENT  
PROJECTS**





**5-YEAR CAPITAL PROJECT DISTRIBUTION:**

- ALBEMARLE PARK
- FORTE PARK
- BURR SCHOOL
- BROWN/OAK HILL FIELDS
- MCGRATH PARK
- BOBBY BRACELAND
- NEWTON SOUTH BRANDEIS RD. FIELD LIGHTING
- NEWTON NORTH TIGER STADIUM LIGHTING
- NSHS SYNTHETIC TURF REPLACEMENT
- NNHS SYNTHETIC TURF REPLACEMENT

**TOTAL: 10 PROJECTS**

Newton Parks, Recreation and Culture Department  
**Athletic Fields Capital Improvement Plan**



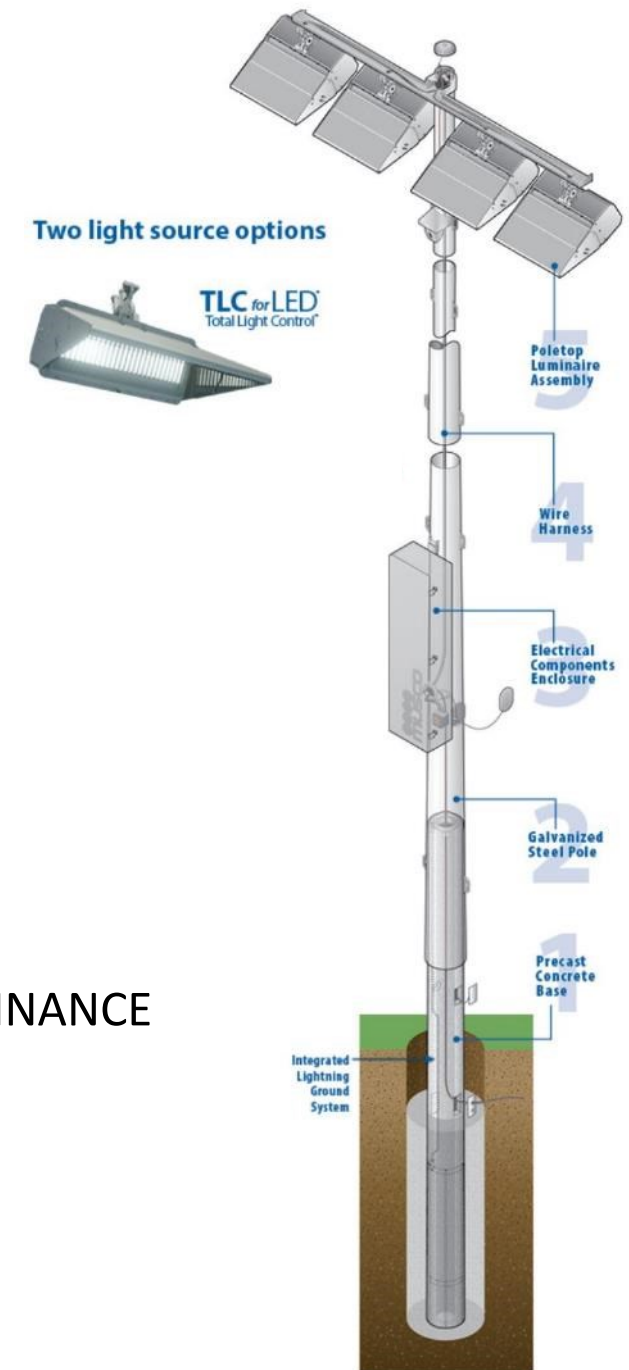


**BRANDEIS ROAD SYNTHETIC FIELD SPORTS  
LIGHTING AND SPILLAGE DATA**

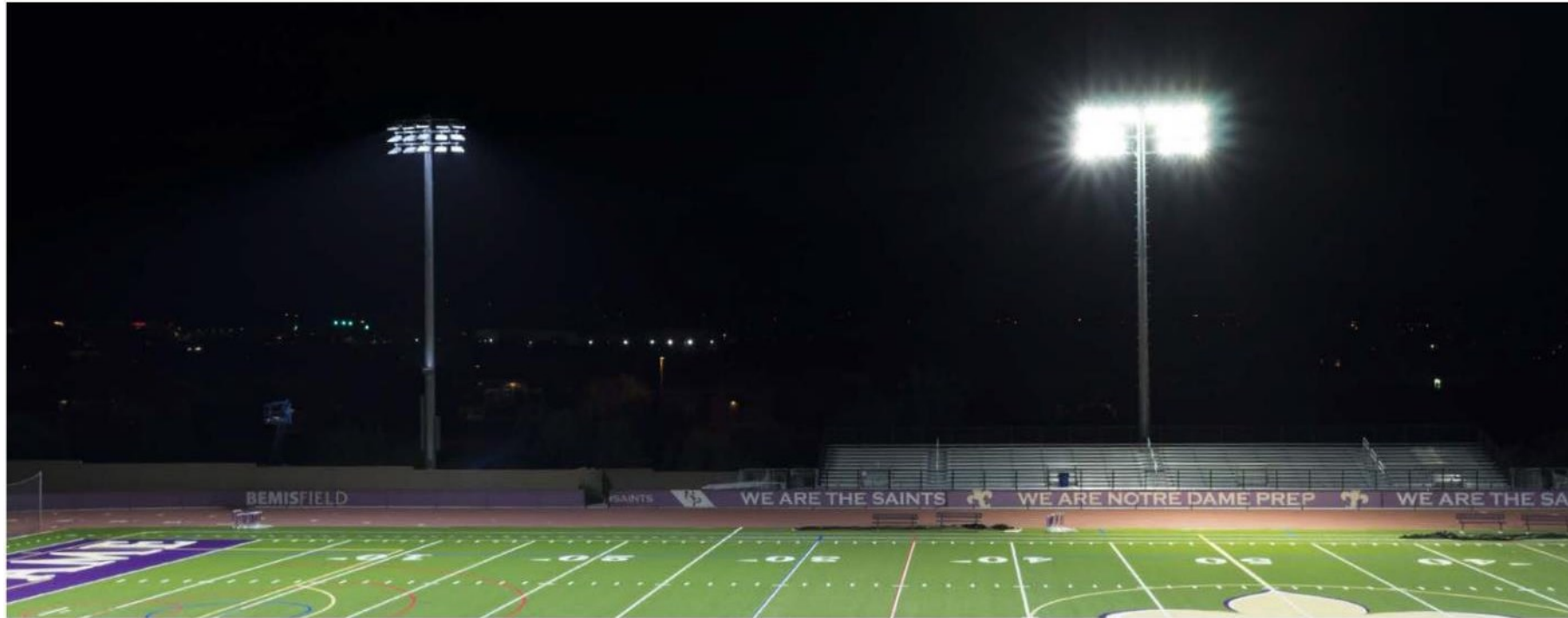
# IDENTIFYING THE RIGHT LIGHT SOLUTION

## GOALS:

- BEST LIGHT QUALITY WHILE MINIMIZING ABUTTER IMPACTS
  - LIGHT QUALITY
    - UNIFORMITY, INTENSITY, LOW-SPILLAGE
  - VARIABLES WE CONTROL
    - POLE HEIGHT
    - SHIELDING/DOWN CASTING
    - BULB CANDLEPOWER AND DIMMING
    - ABILITY TO MEET AND EXCEED THE CITY'S LIGHT SPILLAGE ORDINANCE



# IDENTIFYING THE RIGHT LIGHT SOLUTION



MUSCO LED SPORTS LIGHTING

TYPICAL LED SPORTS LIGHTING

**LIGHT LEVEL**

75  
horizontal footcandles  
(750 lux)

75  
horizontal footcandles  
(750 lux)

**ENERGY CONSUMPTION**

103.5 kW

127 kW



# IDENTIFYING THE RIGHT LIGHT SOLUTION

## SITE SPECIFIC LIGHTING CONSIDERATIONS:

- ALL LIGHTING PROJECTS VARY BY GOALS AND OBJECTIVES OF THE PROJECT
- ADJACENCY IS HIGHLY IMPORTANT IN EQUIPMENT SELECTION
- MINIMUM SPILLAGE
- LIGHT LEVEL CUSTOMIZATION
- POTENTIAL MINOR ADJUSTMENTS AFTER INSTALL
- POST-INSTALL LIGHTING ANALYSIS

# BRANDEIS ROAD FIELD SPORTS LIGHTING DATA

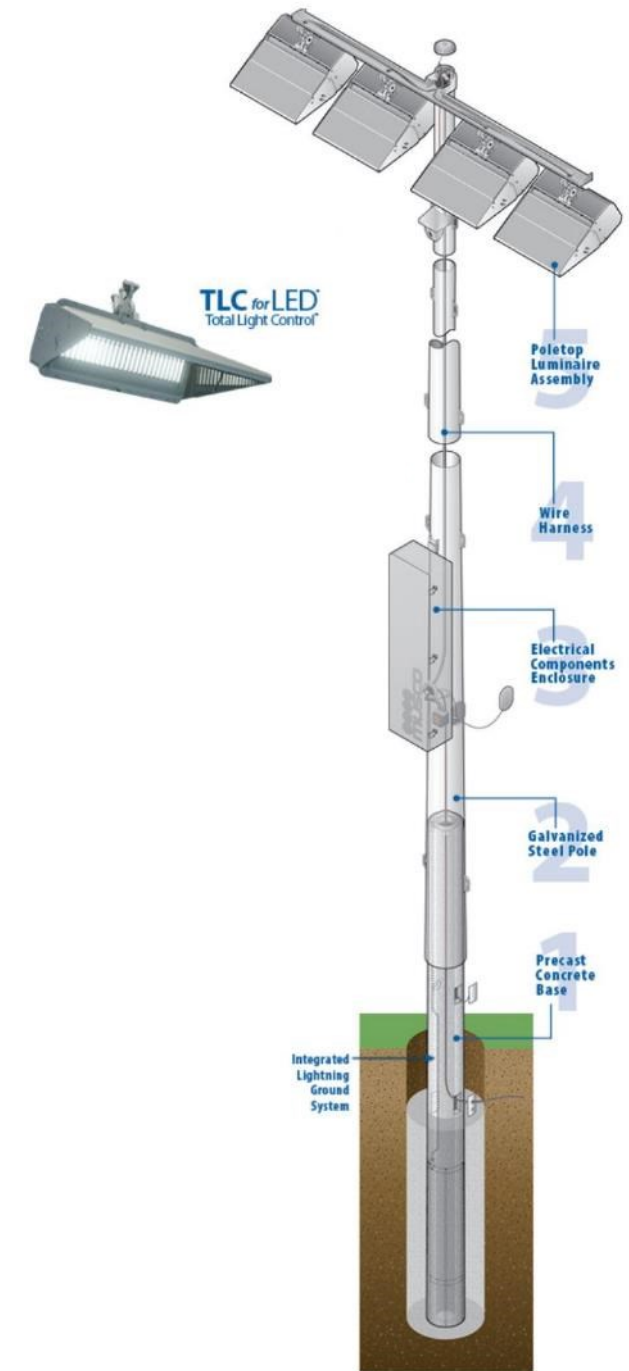




# DETAILS OF SPORTS LIGHTING ANALYSIS

## WHAT TO KNOW:

- POLES ARE 60 AND 70 FEET TALL
- LIGHT FIXTURES ARE FACTORY AIMED AND SHIELDED TO ILLUMINATE THE PLAYING SURFACE
- INSTALLATION IS LASER AIMED TO CENTER FIELD
- CLOSE TO INTENDED LIGHTED FIELD REDUCES HORIZONTAL SPILLAGE
- 6 POLES PROPOSED TO REDUCE LATERAL SPILL, REDUCING IMPACTS TO ABUTTERS
- REMOTE ACCESS FOR MAXIMUM FLEXIBILITY IN SCHEDULING, DIMMING, AND ON/OFF
- PROPOSED LIGHTING SYSTEM MEETS AND EXCEEDS CITY LIGHT SPILLAGE ORDINANCES AT ABUTTER PROPERTY LINES.
- LOWEST COST, SHORT-TERM ALTERNATIVE FOR MEETING SCHOOL AND CITY NEEDS AND GOALS FOR ATHLETIC FACILITIES, WHILE AVOIDING TEMPORARY LIGHTS
- PROPOSED SYSTEM DOES NOT GENERATE EXHAUST AND EXCESSIVE SPILLAGE
- PROPOSED SYSTEM DESIGNED TO MEET DARK SKIES CERTIFICATION (IDA – INTERNATIONAL DARK SKIES ASSOCIATION)



# EQUIPMENT LAYOUT

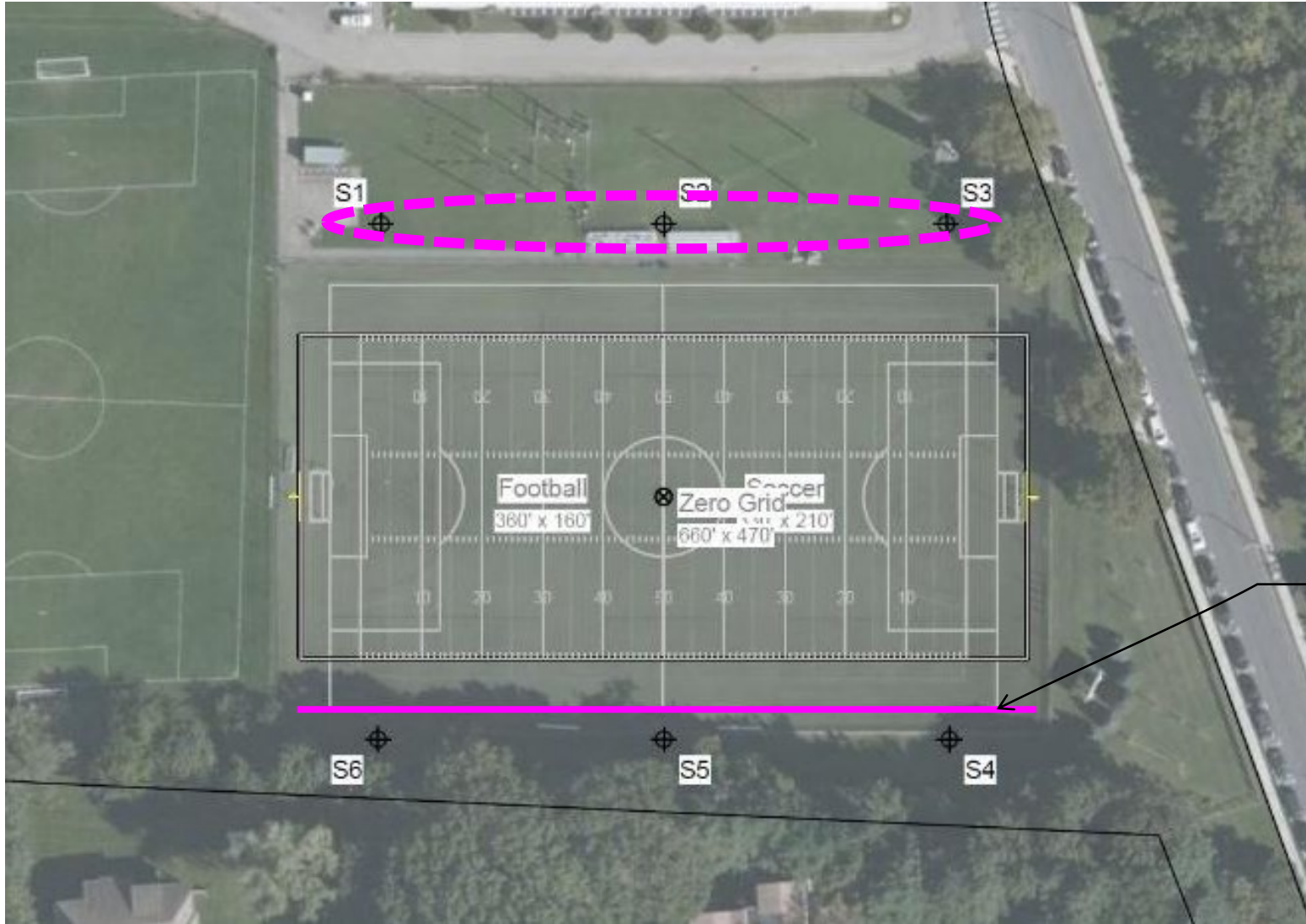


## LAYOUT + CONFIGURATION OF POLES:

- S1 THROUGH S3
  - 70-FT HIGH TO CURTAIL SPILLAGE FROM FIXTURES DIRECTLY ON ABUTTING PROPERTIES
- S4 THROUGH S6
  - 60-FT HIGH TO CURTAIL BACK SPILL
  - FIXTURES AIMED TOWARD SCHOOL



# EQUIPMENT LAYOUT



## LAYOUT + CONFIGURATION OF POLES:

- S1 THROUGH S3
  - 70-FT HIGH TO CURTAIL SPILLAGE FROM FIXTURES DIRECTLY ON ABUTTING PROPERTIES
  - ALLOWS FOR LIGHTING TO BE FOCUSED DIRECTLY TO THE PLAY SURFACE WITH MINIMAL HORIZONTAL SPILL

DESIGNED TO LIMIT SPILLAGE BEYOND THIS POINT

# POLE DIAGRAM POLES S1 THRU S3

## LAYOUT + CONFIGURATION OF POLES:

- S1 THROUGH S3
  - 70-FT HIGH TO CURTAIL SPILLAGE FROM FIXTURES DIRECTLY ON ABUTTING PROPERTIES
  - ALLOWS FOR LIGHTING TO BE FOCUSED DIRECTLY TO THE PLAY SURFACE WITH MINIMAL HORIZONTAL SPILL

TO ABUTTERS  
←

EDGE OF PLAYING SURFACE

TO SCHOOL  
→

LIGHTING FOCUSED DIRECTLY TO THE PLAY SURFACE WITH MINIMAL HORIZONTAL SPILL BEYOND PLAYING SURFACE

\*IMAGES ARE NOT TO SCALE AND INTENDED CLARIFY LIGHTING DESIGN



# EQUIPMENT LAYOUT

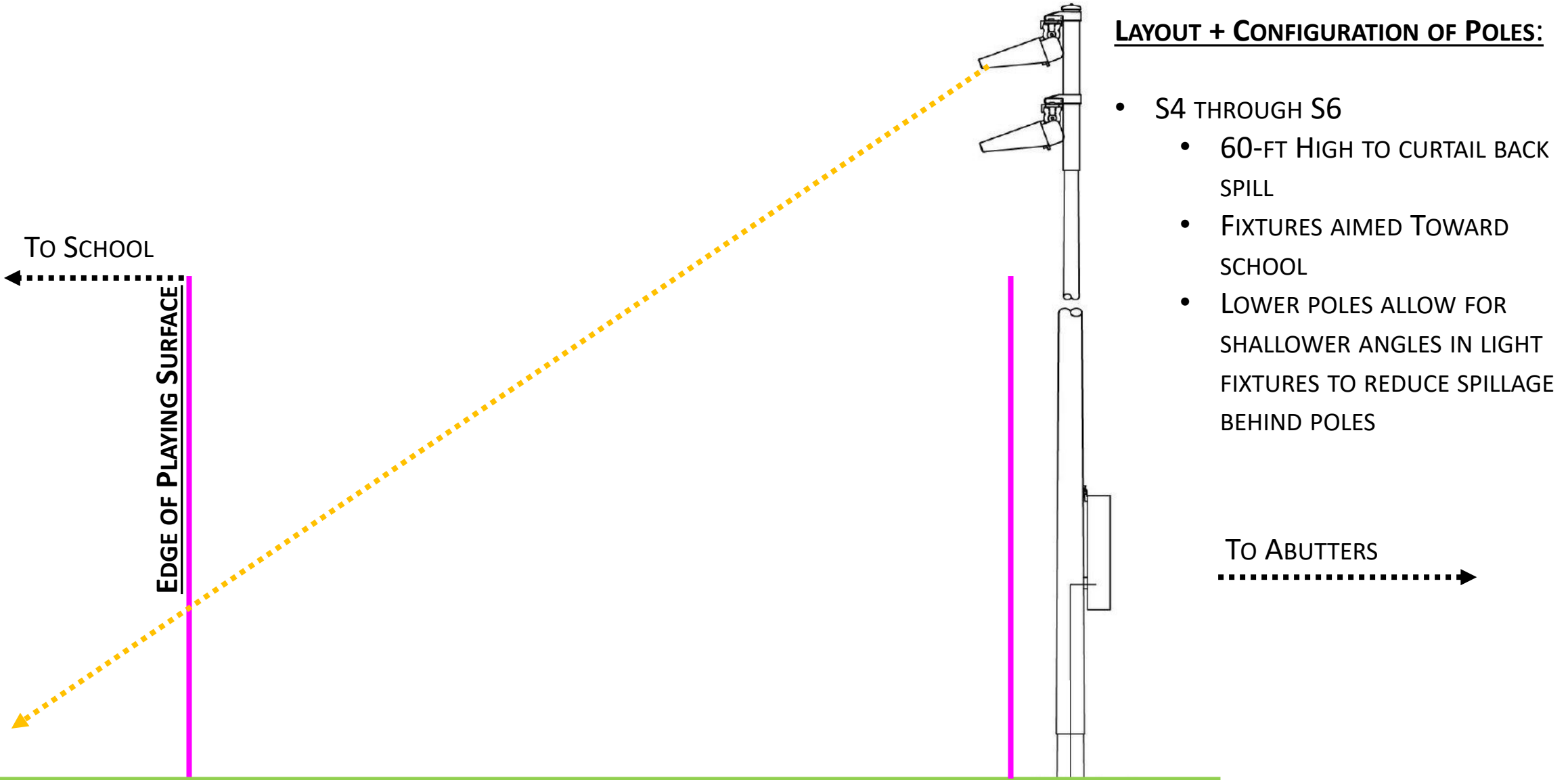


## LAYOUT + CONFIGURATION OF POLES:

- S4 THROUGH S6
  - 60-FT HIGH TO CURTAIL BACK SPILL
  - FIXTURES AIMED TOWARD SCHOOL
  - LOWER POLES ALLOW FOR SHALLOWER ANGLES IN LIGHT FIXTURES TO REDUCE SPILLAGE BEHIND POLES

DESIGNED TO LIMIT SPILLAGE BEHIND POLES

# POLE DIAGRAM POLES S4 THRU S6



## LAYOUT + CONFIGURATION OF POLES:

- S4 THROUGH S6
  - 60-FT HIGH TO CURTAIL BACK SPILL
  - FIXTURES AIMED TOWARD SCHOOL
  - LOWER POLES ALLOW FOR SHALLOWER ANGLES IN LIGHT FIXTURES TO REDUCE SPILLAGE BEHIND POLES

TO ABUTTERS  
----->

LOWER POLES ALLOW FOR SHALLOWER ANGLES IN LIGHT FIXTURES TO REDUCE SPILLAGE BEHIND POLES

\*IMAGES ARE NOT TO SCALE AND INTENDED CLARIFY LIGHTING DESIGN



# PLAYING SURFACE ILLUMINATION LEVELS AND UNIFORMITY

EQUIPMENT LIST FOR AREAS SHOWN									
Pole				Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS	
2	S1, S3	70'	-	15.5'	TLC-BF-575	2	0	2	
				70'	TLC-LED-1200	5	5	0	
1	S2	70'	-	70'	TLC-LED-1200	7	7	0	
2	S4, S6	60'	-	60'	TLC-LED-900	3	3	0	
				15.5'	TLC-BF-575	2	0	2	
				60'	TLC-LED-1200	3	3	0	
1	S5	60'	-	60'	TLC-LED-900	4	4	0	
				60'	TLC-LED-1200	3	3	0	
6	TOTALS					44	36	8	

**Newton South High School**  
Newton, MA

## GRID SUMMARY

Name: Soccer  
Size: 330' x 210'  
Spacing: 30.0' x 30.0'  
Height: 3.0' above grade

## ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

Entire Grid

Guaranteed Average: 50  
Scan Average: 51.49  
Maximum: 64  
Minimum: 40  
Avg / Min: 1.28  
Guaranteed Max / Min: 2  
Max / Min: 1.59  
UG (adjacent pts): 1.41  
CU: 0.80  
No. of Points: 77

LUMINAIRE INFORMATION

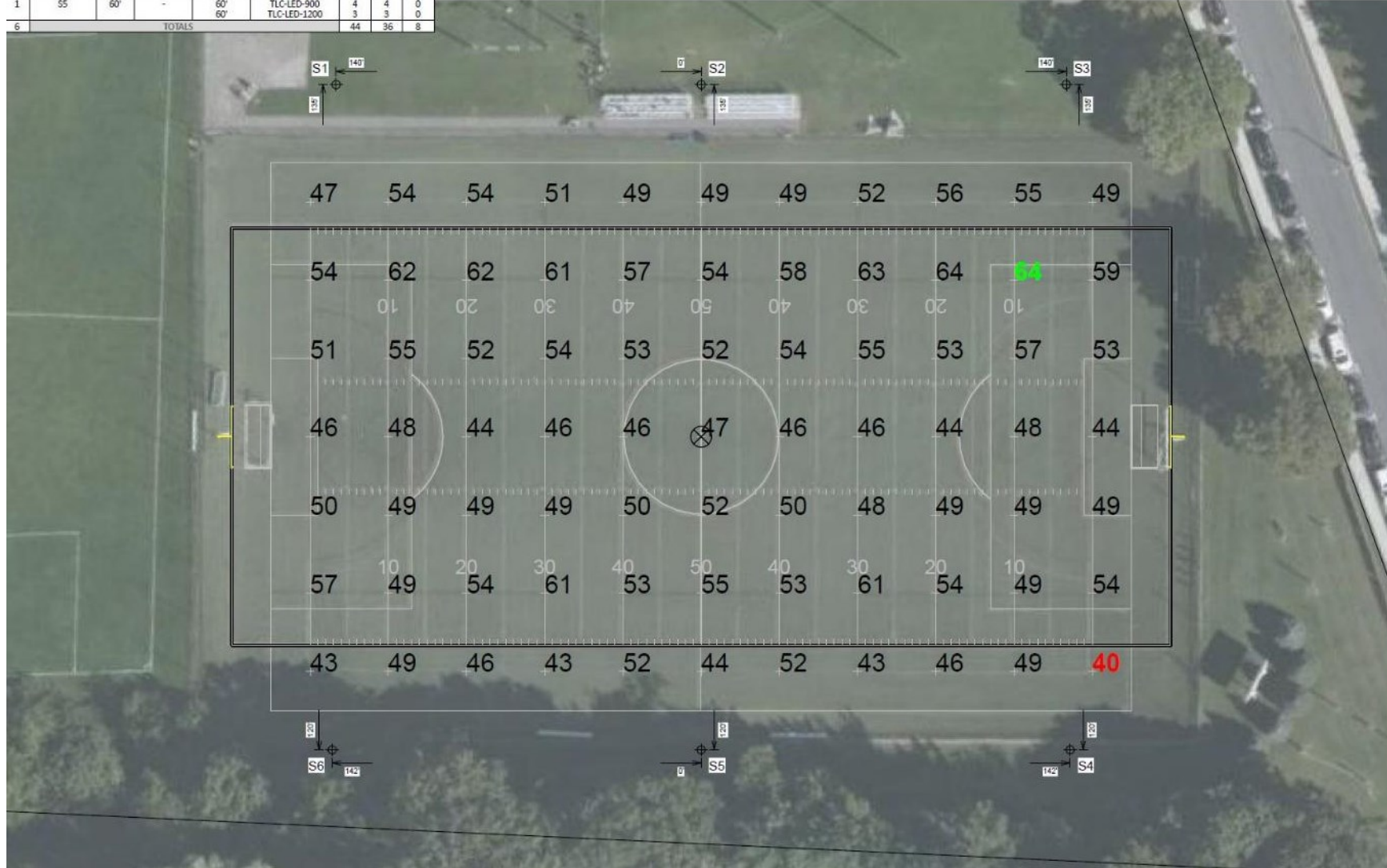
Applied Circuits: A  
No. of Luminaires: 36  
Total Load: 39.32 kW

**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 ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.





# LIGHT SPILLAGE LEVEL SUMMARY



## WHAT TO KNOW:

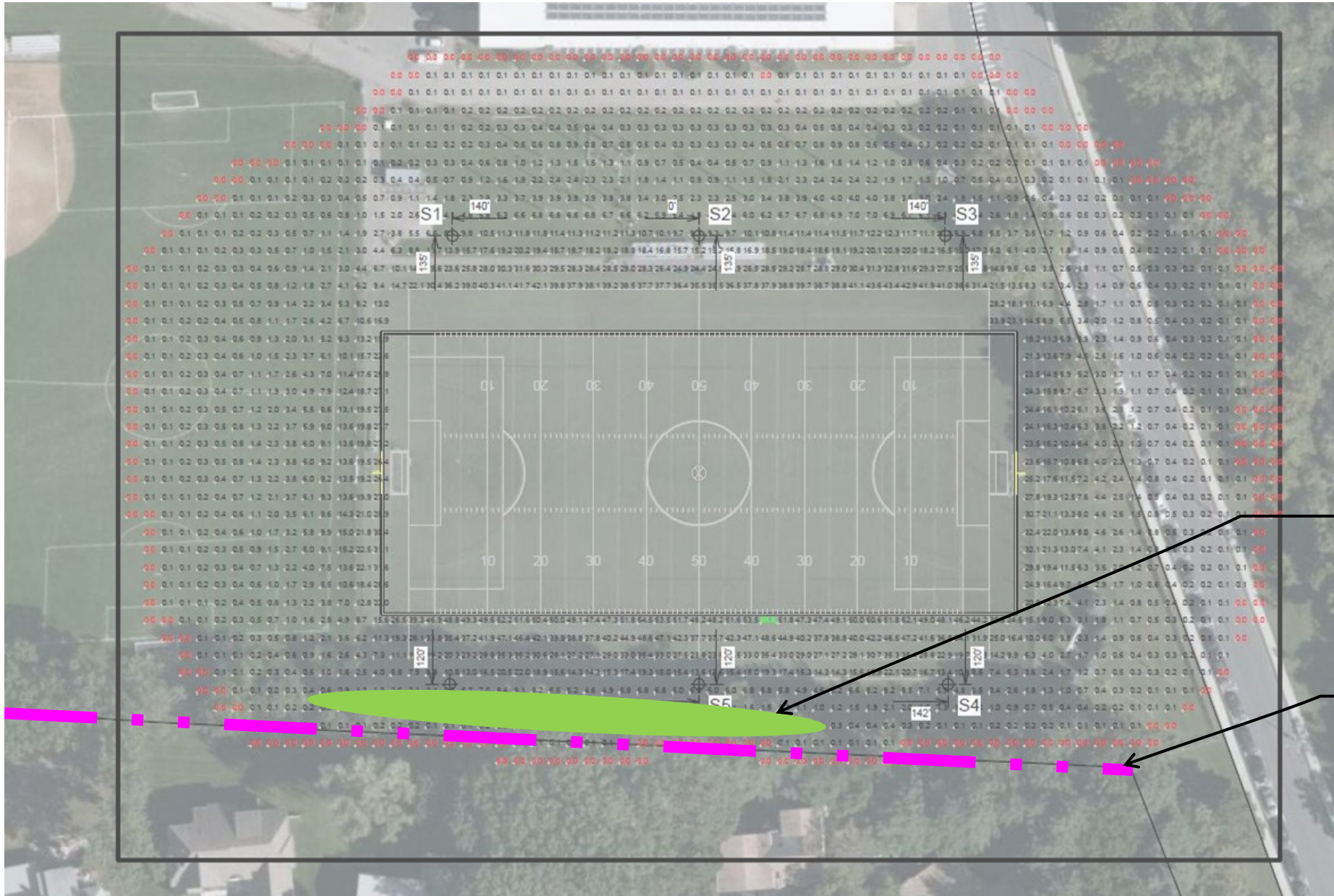
- RED NUMBERS:
  - ZERO GRID – COMPLETE DARKNESS



## **SPILLAGE MITIGATION TO CONSIDER:**

1. STRATEGIC PLANTING OF EVERGREEN TREES TO REDUCE SPILLAGE AT KEY AREAS NEAR ABUTTERS
2. ENACT AND ENFORCE LIGHT LEVEL AND USE POLICY
3. THE CITY IS OPEN TO PUTTING A REASONABLE END TIME ON LIGHT USAGE

# MITIGATION ALTERNATIVES



STRATEGICALLY FILL GAPS IN VEGETATION TO REDUCE ANY GLARE FROM LIGHTED SURFACE ONTO ABUTTING PROPERTIES

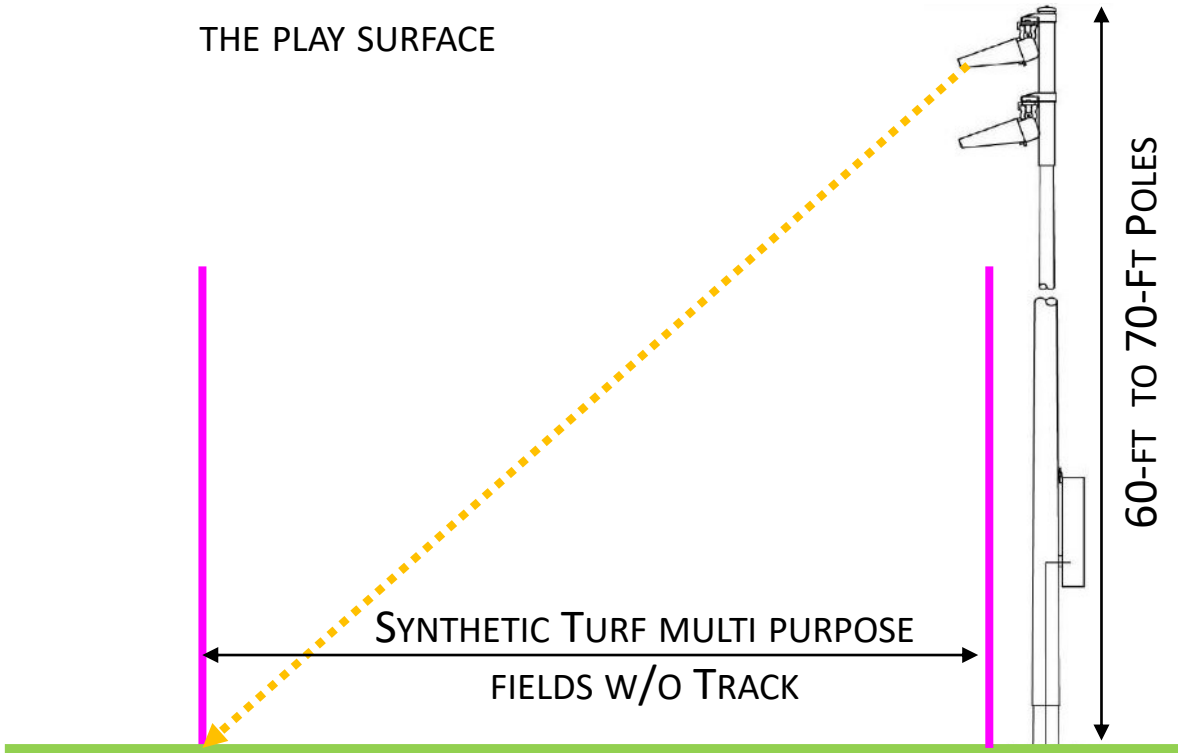
APPROXIMATE LOCATION OF PROPERTY LINE



# BRANDEIS RD FIELD LIGHTS V WINKLER STADIUM LIGHTS

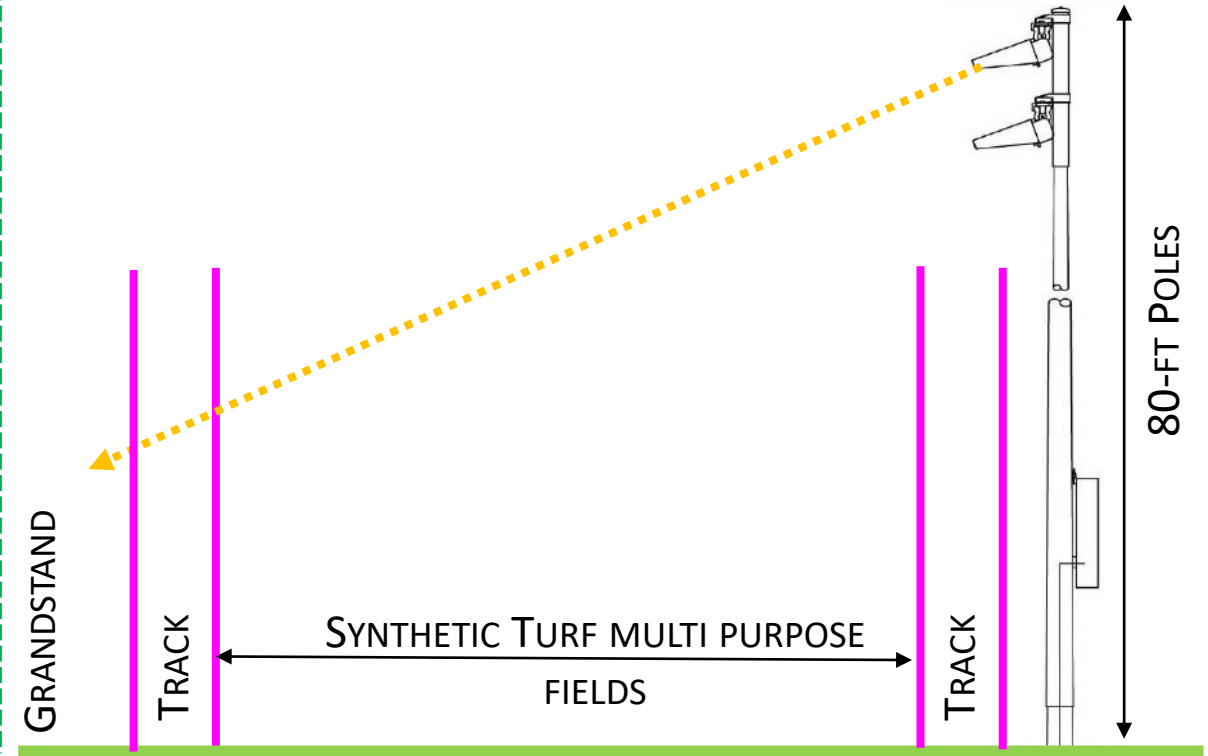
## PROJECT GOALS

- LOWER POLES ALLOW FOR BEST ANGLES IN LIGHT FIXTURES TO REDUCE SPILLAGE BEHIND POLES
- PROXIMITY TO PLAYING SURFACE REDUCES HORIZONTAL LIGHT SPILL
- GOAL IS TO BE GOOD NEIGHBORS AND FOCUS LIGHTING TO THE PLAY SURFACE



## PROJECT GOALS

- HIGHER POLES ALLOW SHALLOWER ANGLES IN LIGHT FIXTURES TO ILLUMINATE GRANDSTAND
- TRACK + GRANDSTAND INTENDED TO BE LIGHTED
- TRACK OFFSET REQUIRED SHALLOWER ANGLES ON FIXTURES



\*IMAGES ARE NOT TO SCALE AND INTENDED TO HIGHLIGHT PROJECT DIFFERENCES

# Questions and Discussion

For additional questions and input please contact: [athleticfields@newtonma.gov](mailto:athleticfields@newtonma.gov)

**For Presentation, Chat, recordings and meeting recordings, please go to**  
[www.newtonma.gov/fieldprojects](http://www.newtonma.gov/fieldprojects)