

TOWN OF HARWICH

COMMUNITY PRESERVATION COMMITTEE

Follow-up meeting on Thursday, December 10, 2020 CPC meeting at 6:00 PM -

A compiled list of comments and questions about the new lighting proposals for Brooks Park and Whitehouse Field. The committee may have additional questions during the meeting.

12.09.2020 – Responses provided in italics below in consultation with Thompson Engineering Company.

Bob Doane

The Electrical Engineering Report's figures don't add up. The numbers don't reconcile. They seem to double up between both the Brooks Park and Whitehouse Field lighting projects. Can the figures be reviewed and explained?

The cost estimator provided two separate estimates; Brooks - \$439,863 and Whitehouse \$588,996. Whitehouse is for lighting and scoreboard.

Donna Kalinick

On both lighting projects, why is the contingency so high?

22% over estimated costs seems excessive

What is the 5% design contingency - is that to pay the design company to oversee construction or in case there are design changes needed in the field?

Not all the percentages adders are contingencies. The following provides a breakdown of the percentages:

- General Conditions- 10% - This is "overhead" portion of "overhead and profit". Overhead is the operating expenses to run the project.*
- P&P Bond & Insurance- 2%- estimate costs for a performance and payment bond. This is insurance that protects the owner from poor installation or a contractor that does not complete the project. The design team recommends that the owner required P&P Bond for that work. A 50% payment bond is required for Public Works Construction Contracts Over \$50,000 per M.G.L. c. 30, §39M.*
- Fee- 5%- This is the "profit" portion off "Overhead and Profit"*
- Design Contingency- 5%- The cost estimate was performed on a study, which is not completed biddable documents. All estimates include a design contingency to cover the preparation of construction level design bid documents including unknowns at the time of cost estimating or any growth in design scope that can occur while the bid documents are being finalized.*
- Escalation- 2%- All cost estimates are estimated based on construction occurring at the time of the estimate. Escalation cost is added at the end of a cost estimate to factor in construction occurring in the future.*

Assuming this is being bid out as one project for both jobs, there should be some savings in one contractor's mobilization, on site time at each location and in overhead costs.

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For Brooks, there is lighting being added that does not currently exist- correct? At the playground and parking lot? And the half court? There is also a totally different system than what exists being proposed so the increase is due to new design, additional lighting, and inflation- please confirm.

There will be light fixtures on proposed poles that will also face the playground and parking lot to provide for some lighting in those areas. These fixtures will be on the same proposed poles that will have the lighting fixtures that are focused on main area (tennis/pickle ball courts). There is no lighting proposed for the half-court basketball court. It is difficult to compare the existing Brooks Park lighting installation to the proposed solution as the existing system is inadequate.

What is the projected lifespan on this project and projected electric savings? The overall electric usage is going up because more lighting is proposed.

The existing lighting system load is 7,560 Watts (W). The proposed lighting system that serves all athletic areas and the playground and parking is 17,280W. Future electric bills for the proposed park lighting will be approximately 2.25 times the existing costs. There will be substantial savings in labor and equipment for not replacing lamps and ballasts. The technical specifications are anticipated to include a requirement for a 25-year warranty for this new installation.

On Whitehouse, was the scoreboard replacement in the original ask? There's a 2019 article 44 for \$55,000 to replace the scoreboard- is this accounted for in the new ask?

The scoreboard project is a separate project and is not included in the new ask for the Whitehouse Field lighting project.

What specifically changed in the design of Whitehouse to cause a \$100k increase or is it mostly due to inflation/delay of project getting done?

The original pricing provided to the Town did not account for the costs of MA State Procurement/Bidding Laws and prevailing wages. The original pricing provided also did not appear to account for engineering design for developing the comprehensive project.

John Ketchum

First, a note, based on my reading of the report: The proposed new system for Brooks Park will use >more< power than the existing system. The existing system uses 28 fixtures with 250-Watt metal halide lamps, while the proposed new system has 29 fixtures, with an assortment of 400-Watt, 600 Watt, and 900-Watt fixtures. So, power draw for the bulbs alone will go from 7 kiloWatts, in the existing system, to anywhere from 11.6 kiloWatts to 26.1 kiloWatts. This doesn't account for any overhead power -- ballasts in the case of the old metal halide system, and other control and power conditioning electronics for the new LED system. In any case the

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new Brooks Park system will apparently have much improved lighting, at the cost of at least double the power requirements relative to the old one.

For Whitehouse Field, there are 136, 1500-Watt metal halide fixtures in the existing system, which is reduced to 80, 1500 Watt LED fixtures for overhead lighting, plus 16, 575 Watt LED fixtures for ball tracking in the proposed replacement. So for the bulbs alone, the old system has a power draw of 204 kiloWatts (when all the bulbs are working), and the new system has a power draw of about 130 kiloWatts, a savings of about 35%, again, not taking into account overhead for ballasts and related things. And again, the lighting quality will probably be much improved.

I was initially under the impression that the energy savings would be much greater than this. It is commonly said that LEDs use only 10% to 20% the energy compared with equivalent incandescent lights. However, the metal halide technology used in the existing Brooks Park and Whitehouse Field systems is already significantly more efficient than the incandescent lighting we all have used in our homes for years. As a result, a new LED bulb is only maybe twice as efficient as a new metal halide bulb with equivalent light output, not five or ten times more efficient.

Brooks Park

The existing lighting system was inadequate to properly illuminate the tennis courts so there will be a substantial increase in load. Metal halide (MH) ballast loss is 20 W to 30 W depending on the ballasts. We used 20W in our calculations.

Existing

7,560W- existing

Proposed

8,200W- Tennis courts 1-4

4,640W- Tennis courts 5-6

2,050W- Basketball Court

1,600W- Parking Lot

800W- Playground

Unfortunately the lighting industry always uses the comparison between incandescent and LED because it shows the greatest savings but the savings is for the residential market only.

Flourescent and HID including MH lamps are substantially more efficient than incandescent, so the savings between them and LED is less. The additional savings that must be included in the savings calculations is maintenance costs.

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Now my questions:

-- For both the Brooks Park and the Whitehouse Field systems, what is the total power requirement to run the existing, metal halide system, and the proposed LED-based replacements, including power required to run controls and power ballasts and related functions?

Brooks Park

The existing lighting system load is 7560W. The proposed that serves all athletic areas and the playground and parking is 17,280W. There will be substantial savings in labor and equipment for not having to replace lamps and ballasts. The technical specifications are anticipated to include a requirement for a 25 year warranty for this new installations.

Whitehouse Field

The existing load is 212,704W – 136 fixtures x 1564W. Ballast loss for a 1500W MH lamp is between 64 and 80W. We used 64W from Musco. However due to the failing condition of the large majority ballast, ballast loss is probably far greater than 64W.

The proposed load is 123,600W. The proposed energy savings is closer to 40% to 43% plus the saving from not having to replace lamps and ballasts on a yearly basis. The technical specifications are anticipated to include a requirement for a 10 year warranty for this retro fit installation.

-- The proposal for Whitehouse Field (R16) includes expenditures for a new scoreboard. This was funded in 2019 Article 44 in the amount of \$55,000. Is part of the additional funding requested in R16 for additional funds for the scoreboard?

The scoreboard project is a separate project and is not included in the new ask for the Whitehouse Field lighting project.

-- Your proposal mentions that there will be capability to control the lighting remotely. Are there any recurring costs associated with this, for example, charges for cellular data access or software licensing fees? If so, what are the costs?

The lighting vendor we are currently working with, Musco, has indicated that they provide a 10 year warranty and the communication is part of that. In year 11, they will probably offer a service contract extension that would include communication fees. No other fees exist.