

To: Julie Meyer, Wellesley Wetlands Protection Committee
From: Mike Toohill
Re: WCC Tree Removal NOI Revisions

Date: July 19, 2017
Proj. No. 89514.06

Enclosed with this memo are revisions to Figures 3 and 4 of the NOI showing the locations of the trees proposed to be removed and labeling each area by the convention we used on our field trip to the site on May 8th. I have also enclosed a revision to Table 1 of the NOI identifying the trees by area and adding some of the information we received from Andy Felix, the arborist for the WCC.

As shown in the table of the 67 trees proposed to be removed 18 are black locusts, which are invasive. Many of the other trees are either dead or severely declining (approximately 19 trees). Some of the remaining trees are leaning and some are simply interfering with the sun or wind reaching the turf.

The primary reason for reducing the tree canopy on the golf course has to do with light and airflow. The University of Minnesota Extension Service addressed the issue as follows:

Competition for Light Trees and turf both need light to grow. Shade from tree canopies is a major stress factor for turf. The competition for light leads to increased root competition, reduced turf density, reduced vigor, decreased food reserves, increased invasion by shade-loving weeds, increased susceptibility to pest problems, and reduced tolerance to drought, heat, cold, and wear. Stressed grass also has a reduced capacity to recover from traffic and wear. Shade-tolerant grasses are not the answer, because they tend to be less tolerant of foot traffic and wear.

Shade reduces **light quantity, quality, and duration:**

Light quantity:

- The quantity of light that penetrates the tree canopy to the turf will depend on the height and spread of the trees. Tall trees cast long shadows. Trees with dense canopies (e.g., sugar maple) block more sun than trees with open canopies (e.g., honey locust). Under open canopies, snow and ice melt more quickly and turf can come back sooner in the spring.
- Trees that grow on the south and east sides of turf block the morning sun, which is critical to turf growth.
- Dense canopies reduce air circulation and increase humidity, which in turn can lead to turf diseases, such as powdery mildew or dollar spot.

Light quality:

- Tree leaves absorb violet/blue and orange/red wavelengths of light from the spectrum, leaving the green/yellow wavelengths, or "yellow shade," for the turf.
- Blue light is important for turf growth. Lack of blue and red light causes thinner grass blades and weak root development.

Light duration:

- The size and location of trees in comparison to the angle of the sun affect the duration of sunlight on the turf.

And from the University of Connecticut Extension Service here are some additional thoughts on airflow restrictions:

Many times, in shaded environments turfgrass vigor is not only affected by shade, but by lack of air movement. Air flow can be impeded by obstructions such as houses, sheds, or more commonly underbrush and low branches. Lack of light and air flow can result in an increase in the relative humidity, prolong leaf and soil wetness after rainfall or irrigation, and extend dew retention. These conditions can lead to turfgrass disease and/or moss infestations. In fact, much of the turfgrass thinning in shaded conditions is the result of a combination of low light intensity, high relative humidity (disease), and root competition.

As we've shown on the figures we have modified the proposed mitigation (planting) areas so that they are all within Riverfront Area. We can discuss the number and species of plants proposed for these areas at the Hearing. We look forward to again discussing the merits of this project with the WPC next Thursday night.

cc: Bill Sansone, WCC Golf Course Superintendent