Choosing a Sustainable Option:  
Irrigation at Strong Stadium  
Samantha B. Schonberger’16, Beloit College Sustainability Fellows Program  
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What's the project?
Determine a sustainable watering system for the sports fields that reduces the time and cost for watering and maintenance while improving the quality of the fields.

Where?
Fields at Strong Stadium:

![Diagram of water cannons crossing a soccer field](Image 1)

How do we water the fields now?
- 5 water cannons
  - About 20 years old
  - Old, rusty, require lots of maintenance
  - No automatic shut off
- Coaches often assist with watering
- Often water fields during hottest part of the day

What are replacement options?
- In-ground Irrigation (recommended)
- New Water Cannons: B140 Kifco Water Reels with Nelson SR75 Sprinklers
  - Little control over water distribution
  - Watering times limited to work day hours

Comparison of Replacement Options

<table>
<thead>
<tr>
<th>Irrigation System</th>
<th>Initial Cost</th>
<th>Net Present Value*</th>
<th>Invest?</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Water Cannons (x4)</td>
<td>$32,000</td>
<td>$(-8,560)</td>
<td>No</td>
</tr>
<tr>
<td>In-ground (All Fields)</td>
<td>$78,850</td>
<td>$85,270</td>
<td>YES</td>
</tr>
</tbody>
</table>

*NPV: Difference between present value of cash inflows and outflows

Why should we choose in-ground irrigation?
- Possible to Reduce Water Use
  - Zoned to evenly and effectively distribute water
  - 6am start time decreases evaporation
- Produces a Higher Quality Field
  - Withstands use by more groups
  - Requires less maintenance
  - Improves appearance
- Long-term Benefits
  - Saves coaches and grounds crew time
  - Attracts more athletic recruits

Data for One Year with In-ground Irrigation

<table>
<thead>
<tr>
<th>Fields</th>
<th>Current Water Use (CCF*)</th>
<th>Future Water Use (CCF)</th>
<th>Water Savings</th>
<th>Labor Savings</th>
<th>Total Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseball</td>
<td>1,100</td>
<td>725</td>
<td>$420</td>
<td>$4,860</td>
<td>$5,280</td>
</tr>
<tr>
<td>Softball</td>
<td>350</td>
<td>325</td>
<td>$36</td>
<td>$1,465</td>
<td>$1,505</td>
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<tr>
<td>Soccer</td>
<td>704</td>
<td>580</td>
<td>$145</td>
<td>$3,065</td>
<td>$3,210</td>
</tr>
<tr>
<td>Practice Soccer</td>
<td>704</td>
<td>580</td>
<td>$145</td>
<td>$3,065</td>
<td>$3,210</td>
</tr>
<tr>
<td>All Fields</td>
<td>2,858</td>
<td>2,210</td>
<td>$746</td>
<td>$12,455</td>
<td>$13,205</td>
</tr>
</tbody>
</table>

*CCF stands for 100 cubic feet. 1 CCF = 748 gallons.
*Savings calculated from watering twice weekly with in-ground system

Acknowledgments: Thank you to my fellow Sustainability Fellows, faculty advisor Warren Palmer, site supervisor Tom Viel, and program director Yaffa Grossman for your guidance and support. Thanks also to Lori Rhead, Grounds, and the Athletic department for answering many questions.

Sources

Grass
- Type: Durable, able to regenerate quickly
- Best for WI: Kentucky Bluegrass, Fescue, Rye

Water
- Source: groundwater or non-potable (untreated) surface water
- Run-off: impact to surrounding water sources

Soil
- Sandy: drains quickly; softer playing surface decreases injuries

Use
- Who: Varsity athletes and/or intramurals
- How often: daily or more sporadic
- Effects required materials and care