Rotary Club of Asheville South Project Proposal

Proposed Project Name:	Lightning Prevention
Brief Description of Proposed Project:	Install lightning detectors on baseball and softball fields to protect children and spectators from lightening strikes. Lightning detectors will inform coaches and umpires regarding the proximity of lightening in the area so they can make better-informed safety decisions. *See* attached for more detailed presentation.
Financial commitment:	Minimal. Good detectors can be purchased for less than $100. Passing the hat among baseball dads in RCAS should cover this.
Man hour commitment:	Minimal. Two members should be able to coordinate communication with athletic leagues, purchase of detectors, and forward model lightning safety plan.
Scope of service to community:	Presently, limited to South Asheville community, but could expand regionally, statewide, and nationally as a Rotary Challenge Project.
Timeline:	Commence immediately, complete by April 2010.

Kevin G. Mahoney — December 14, 2009
Proposer — Date

Board Action — Secretary Signature — Date

Rotary Club of Asheville South Lightning Safety Project

Last Spring, I was standing under the concessions canopy at the Valley Springs Middle School Baseball Complex, next to my son, in the middle of a severe lightning storm. It seemed to me that the lightning was particularly close to our location as I counted to eleven between one flash to boom. I approached a member of the Baseball Board of Directors and inquired about the formal lightning policy for the league and what technology, if any, was used to help determine whether to delay or call games. I was told that there was no written policy and that no technology was employed by the league to predict lightning strikes. Essentially, decisions were made *ad hoc*.

My experience as a golfer is that every golf course I played for the past twenty years had lightning detection technology on the courses that the Clubs used to predict lightning strikes and protect players. I was curious as to why our baseball league did not employ similar technology, or have established safety protocols. We were lucky that night. The lightning was intense, and the games were called, but nobody was injured. A gentleman in Fairview, however, was not as fortunate that night. The same storm that menaced our fields took his life.

This experience caused me to investigate issues surrounding lightning and lightning protection. Please forgive me if this is old news to you, but I read much of the following information about lightning for the first time[1]:

- Lightning kills approximately 1,000 people worldwide each year, about 100 in the United States
- At any given instant, there are approximately 2,000 thunderstorms in progress somewhere on earth, this amounts to approximately 16 million thunderstorms each year
- It is estimated that lightning strikes somewhere on Earth about 100 times per second
- 70% of lightning deaths occur in the afternoon between 2 p.m. and 7 p.m.
- The frequency of lightning strikes increases in lower latitudes (near the equator) and in the higher altitudes (mountainous terrain)
- In 1998, lightning killed 11 soccer players in Congo, Africa
- In 2001, lightning killed 6 teenager soccer players in Mexico

[1] See *Perspectives on lightning safety risk management in sport and recreational activities*, John O. Spengler, Daneil P. Connaughton, and Jeff Earnshaw, University of Florida, www.sirc.ca.

- In the United States, lightning ranks second only to floods as the leading cause of death from weather-related hazards

- Lightning can travel up to 10 miles horizontally from the center of the thunderstorm to the ground

When I was growing up, we were taught the flash to boom technique in which you count the seconds from the flash to boom, with each five second interval representing one mile. For example, ten seconds would indicate that the center of the thunderstorm was approximately 2 miles away – fifteen seconds would indicate that the thunderstorm was 3 miles away. This technique is still taught, and widely used. But technology has come a long way, and it now regularly assists sports leaders around the county in predicting lightning strikes and protecting players.

There are two kinds of lightning detection technology available: (1) expensive hardwired permanent units; and (2) inexpensive portable units that run on batteries and are about the size of cell phones. Research indicates that the new portable units are comparable in effectiveness to the hardwired units.

I suggest that the Rotary Club of Asheville South identify the appropriate outdoor youth organizations in our area and purchase a few portable units for each organization and also provide them with a model lightning safety protocol similar to the one attached to the end of this document.

This plan has two virtues: (1) it is affordable and can be accomplished immediately without time-consuming fundraising and extensive planning; and (2) it eliminates the need to obtain governmental approvals to permanently affix the hardwired units to public facilities.

Discussion with some youth organizations revealed that hardwired units were previously proposed to the Parks Department and were rejected, allegedly on the advice of legal counsel, with the legal logic being that it might create liability for the government if some parks had the lightning units and others did not, and also if the detectors malfunctioned. As a result, childhood safety was sacrificed for the goal of limited liability. This document does not take a position on the shamefulness of such a cynical calculation, or its flawed legal analysis. As an aside, however, a properly drafted legal waiver, signed by all league participants, should adequately cover the posteriors of those who seek to cover such areas, thereby clearing the way for the installation of readily available safety devices that might save a child's life.

Model Lightning Safety Policy

Many stadium operators, park districts, and school districts have acquired and installed advanced technology that can aid the referees and coaches in making decisions about weather conditions. This technology should be used in conjunction with the traditional flash to boom method. If the lightning detector sounds, the following protocols should be followed:

Lightning

A. Recognize the threat
    (1) Apply the 30-30 rule
    When you see lightning, count the time until you hear thunder. If this time is 30 seconds or less, seek proper shelter. If you can't see the lightning, just hearing the thunder is a good back-up rule. Wait 30 minutes or more after hearing the last thunder before leaving the shelter.
    (2) Minimize the risk of being struck
    Protect the safety of all participants by stopping the game or practice quickly, so that participants and spectators may retire to a safer place before the lightning threat becomes significant. Remember, if you can hear thunder, you are within reach of lightning.
B. Seeking proper shelter
    (1) No place outside if safe during thunderstorms
    (2) The best shelter is a large, fully enclosed, substantially constructed building. A vehicle with a solid metal roof, metal sides, and rubber tires, is a reasonable second choice.
    (3) If there is no proper shelter, **avoid** the most dangerous locations: higher elevations; wide open areas, including fields; tall isolated objects, such as trees, poles, or light poles; unprotected open buildings like canopies; rain shelters; bus stops; metal fences and metal bleachers.
    (4) If you cannot avoid these locations, crouch down on the balls of your feet, with your head tucked into your chest and your hands over your ears. If someone is hit, remember that all deaths from lightning result from cardiac arrest and stopped breathing. CPR and mouth-to-mouth resuscitation, respectively, are the recommended first aid.

NO SEVERE WEATHER SAFETY GUIDELINES WILL GIVE 100% GUARANTEED TOTAL SAFETY, BUT THESE STEPS WILL HELP YOU AVOID THE VAST MAJORITY OF CASUALTIES.