Justification for Maintaining Current Policy

1. **Crude devices.** It is important to recognize that these sirens are devices using 1940s and 50s technology. They lack geographic precision, details, customization, personalization and other capabilities that we often expect while using our modern 21st century technologies. The outdoor warning system has a simple, single purpose…make a loud noise to get your attention if you are outdoors, away from other sources of warning. It then becomes a personal responsibility to seek additional information on the type of hazard, timing, and direction of movement. It should be recognized that a simple outdoor warning siren is not capable of giving you ALL the details you need to make the best decision for your personal safety.

2. **Use a multi-layered approach.** Sirens are only one tool along a wider spectrum of tools that should be used together, in layers, to provide a more complete picture of approaching hazards and what risks they pose to us at that given time and location. Outdoor warning sirens should work in concert with other forms of information such as the media/TV/Radio, NOAA weather alert radios, smart phone apps, etc.

3. **Equivalent to Iowa's most frequent tornadoes.** EF-0 tornadoes (the most common in Iowa) have wind speeds between 65-85 mph. Regardless of rotation (or in this case lack of rotation), 70 mph straight-line winds are solidly in that range. The table below provides some data on the frequency of the magnitude of tornadoes we experience here in Iowa.

EF Scale	Wind Speeds (MPH)	# of Tornadoes in Iowa 1980-2014	% of all Tornadoes in Iowa 1980-2014
0	65-85	907	56%
1	86-110	487	30%
2	111-135	165	10%
3	136-165	40	2%
4	166-200	16	1%
5	200+	1	>1%

4. **Damaging strength.** 70+ mph straight-line winds have been known to peel the surface off some roofs, break branches from trees, damage gutters and siding, push over shallow-rooted trees and turn unsecured lawn furniture, BBQ grills, trampolines and other items into dangerous projectiles. Far from an over-dramatization of the threat, the potential for serious injury to unsheltered persons from 70 mph winds are comparable to that of more than half the tornadoes we have here in Iowa (an EF-0 tornado).

5. **Deadly occurrences**. Since 1980, there has been 1 death and 47 injuries related to high winds in Polk County. During that same time period there have been 0 deaths and 99 injuries from tornadoes. Proving that both can be dangerous and worthy of warning. (Source: National Climatic Data Center)

6. **Cover more areas than tornadoes**. Damage from severe thunderstorm winds account for half of all severe weather reports in the lower 48 states and is more common than damage from tornadoes. 70 mph winds cause damage in a wider path than tornadoes and can produce a damage path extending for hundreds of miles. (Source: National Severe Storms Laboratory)

7. **Desensitizing?** Historical research of weather records from National Climatic Data Center dating back to 1987 indicate that on average, the sirens would be activated less than 2 additional times per year for 70 mph winds here in Polk County. This research alleviated the concern that we would be desensitizing the public by "overuse" of the siren system.

8. **Crying Wolf?** Empirical observations indicate that there are far more false-positive tornado warnings (warning with no tornado or damage) than there have been for high-wind events. In fact, roughly three out every four tornado warnings issued by the National Weather Service (NWS) are false alarms. This is not a criticism of the NWS. The public expects a warning in advance of every tornado that occurs so the NWS errs on the side of caution. The goal is to have a warning issued ahead of every tornado; but this results in approximately 75% of the warnings being false alarms. The alternative, fewer warnings, would result in fewer false alarms but could also result in more tornadoes which have no warning. Which condition is more acceptable? More false alarms (resulting in complacency), or more tornadoes occurring without a warning? Our approach…better to have a warning and nothing happen than to be caught unaware without a warning. You could call it the "better safe, than sorry" approach.

9. **Why not use different sound for winds than for tornadoes?** Some have advocated for a dual-tone or other distinguishing system to differentiate between straight-line winds and tornado warnings. First, most of the sirens in the Metro Area's system are not capable of dual tones and it would be prohibitively expensive to replace them with such a system. Second, a dual-tone system will inevitably result in confusion about which tone is related to a particular hazard. Additionally, the Polk County/Metro Area hosts tens of thousands of out-of-town visitors every day (many at outdoor events). It would be impossible to educate all of them on the differences in the tones or for them to differentiate in a timely manner. In addition…both high winds and tornadoes are dangerous so why distinguish the loud noise to get your attention to seek additional information?

10. **They are <u>OUTDOOR</u> Warning Sirens**. During a recent activation of the sirens for 70 mph in early June 2018, there were several high attendance, outdoor events which were attended by thousands of people from outside of the Metro Area and outside the state of Iowa. They included the Iowa Pork Expo, the Principal Charity Classic and the Boys State Soccer tournament. These are exactly the people the outdoor warning siren is intended to reach. All we wanted to do is get their attention, cause them to seek additional information and take appropriate action to keep themselves as safe as possible.

11. **As a matter of perspective,** tropical storm and hurricane warnings generate national and international attention from all news platforms. Tropical storms are classified with winds of 39-73 mph while category one hurricanes have wind speeds of 74-95 mph.

12. **A final point**… 70 mph winds are damaging and dangerous. Those outdoors without other forms of warning or distracted by activities should have the benefit of this warning. If we have the ability to warn them of a potential or eminent hazard that puts them at risk, we should do so.

Potential Solutions:

- Metro-wide polygon-based warning system
- Metro-wide siren activation clustering redesign
- Suspension of all outdoor warning systems in Polk/Des Moines Metro