

Report to The Medway Board of Selectman

Changeable Message – LED Message Board Signs

October 10, 2017

Medway Design Review Committee

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EXECUTIVE SUMMARY

In January 2016, the Medway Board of Selectmen (MBOS) approached the Medway Design Review Committee (MDRC) expressing an interest in locating and installing an Electronic Messaging Board within the town. More specifically, near Choate Park and in conjunction with the Route 109 Redesign/Rebuild Project. The DRC initiated the necessary research required to not only understand the technology but to cover all the needed information needed to make informed recommendations.

While the selection and installation of this type of sign, replacing the old “black letter” sign that sat in the front of the park for many years, may seem simple, there were many areas of concern that needed to be addressed. These concerns included but were not limited to:

- Location... both requested and options
- Validity under the Sign Bylaw
- Design Guidelines
- Structure/Size
- Resolution/Brightness/Color
- Administration of Content

Each of the various items above required extensive research and discussion to ensure that each was properly addressed. Everything from proper location (both site specific and within the town), to the proper product to satisfy the need (including technology and attractive installation), to providing guidance for a new kind of sign not allowed under the current sign bylaw had to be resolved. Several other topics, including how to limit to “municipal use” (and what that means) as well as how to incorporate a constantly evolving technology into existing guidelines also had to be resolved.

With this report, the DRC feels that all the issues can be adequately addressed and, by following the recommendations included later in this report, can support installation at Choate Park as well as two or three other locations in town.

DISCUSSION

Prior to demolition of the “black letter” sign in the triangle at Choate Park, the town had only the sign in front of the park and in front of the Police Station as concrete and expected places for residents to receive notification of public events. Any other notifications had to be handled with temporary banners and/or portable, monochrome low-res, message boards. With the 109 Project now underway the options are even more limited. There was/is also the challenge of managing those various approaches, prioritizing what messages to post and satisfying a need for multiple messages/notifications at any given time. The BOS had determined that application of technology in the form of changeable message signage might provide the best way forward and employed the DRC to research/recommend the best way to realize both improvement and attractive application.

In initial discussion, there were many concerns that the technology approach was not consistent with what Medway is all about as well as the precedent of introducing the allowance of the technology. In other words, if the town can do it why can't it be used in all zoning districts by commercial, industrial and other landowners. That being stated, the applicability of the technology to the “problem” was soon realized to be beneficial and work began on the various moving parts requiring resolution.

The technology itself was the first major topic of discussion. At the same time, potential locations were examined because location can have a direct impact on the technology to be employed. After the careful researching of potential vendors, the DRC enlisted the help of Watchfire Signs, one of the pre-eminent vendors of Electronic Message Signs. In October, 2016, the DRC met with Watchfire Signs Northeast Sales Director Ben Barr discussing various options for Electronic Message Center/LED Signs such as background and LED light colors. He presented the members with an LED Sign buyer's guide and a demonstration of the technology. The discussion focused on sign resolution and millimeters (distance between the clusters of LEDs) and how that applies to location. Pictures of Watchfire signs displayed throughout the nation were also presented to the committee.

The Committee discussed with Mr. Barr the following points and considerations of an LED sign:

- Signs featuring double sided LEDs generally range in price from \$25,000 to upward of \$100,000.
- Mr. Barr can provide a list of companies that can design the sign encasement which Medway could send out for multiple bids.
- Sign for Needham was thought to be in the \$20,000-\$30,000 range. They opted for a 19mm sign because their viewing distance was from approximately 80 feet.
- Cost significantly increases as resolution increases/mm decreases.

- Things to consider when designing a sign and choosing resolution is speed of traffic and viewing distance between the sign and the targeted audience.
- Readability and quality of graphics increase considerably at higher resolutions... critical at closer distances (pedestrian)
- Brightness can be adjusted and locked. It can also be programmed to adjust for daytime and nighttime viewing as well as temperature and weather. If for example it was overcast but still during the day, the sensor would detect the difference in light adjust brightness. The sign can be programmed to turn on and off at predetermined times.
- Sign messages can be composed with various sizes of fonts and clipart or animation. Watchfire to supply some clipart and offer 15 fonts. Some special fonts such as ones with round corners and anti-aliased fonts use/require more LEDs and higher resolution.
- Medway would be able build its own templates selecting how many lines and words per page, but a good rule of thumb is no more than 7 words per page including animation or clipart.
- Recommend having someone (gatekeeper of sorts) to approve messages and animation prior to programming it into the sign.
- Wireless broadband programming of sign for \$100 per month is included for 5 years with price of sign. Software in laptop has options to program signs from multiple places. Watchfire can offer hands-on software training.
- Program is PC based now but expect to move to cloud/web based and MAC compatible by the end of the year.
- Energy consumption depends of size of sign and amount of LEDs. For example, a 3' x 7' sign with 12-19 mm resolution averages \$1 per day. 10mm consumes approximately 20-30% more. Max draw 14amps (Mr. Barr to provide more detailed electric consumption).
- Need to consider how often signs should change message/page, how many words per page and color contrast. Most animation uses 12mm because of higher resolution. 16-19mm is fine for words and basic displays.
- Cell phones and texting while driving is more dangerous than viewing LED signs (Mr. Barr to provide Texas A&M sign board study about safety).
- 5yr warranty covers repairs/replacement barring acts of GOD and incidents of vandalism. They guarantee that they will have parts available for 10 years. Not something foreign competitors can guarantee.
- Most clients will purchase an insurance policy for their signs (Mr. Barr can provide a list of vendors that can offer it).
- There was a general concern for evolving technology. Mr. Barr stated 12mm has been out for about 4 years and while Watchfire is working on a 6mm right now he stills

believes the 12mm will remain the optimum product for some time to come. Watchfire builds their signs so they can be removed from the surrounding case and have the LED panels upgraded to new technology if client so desires.

- LED signs would be changed more often than traditional signs with hand changed letters. LED signs can handle multiple messages at once with pages cycling at a specified frequency, providing more information to the community.

Equipped with knowledge of the technology, general location became the next major area of debate. Several potential sites were identified along with pros and cons of those locations. DRC ultimately identified three primary locations for the placement LED signs and determined that Choate Park, based on its position near the geographic center of town and midway point on Route 109, would be the best place. The other locations, also based on geography, cross town routes, areas where people might be accustomed to look for information and good site lines with minimum impact to residential areas include the Medway Police Station on Village Street (replacing the current letter sign) and the Medway Middle School on Holliston Street (where a letter sign once stood before being destroyed by a car accident). Everyone agreed that how many signs to purchase would be discussed at a later time and would largely be dependent on price. It was also agreed that the casing/structure of the sign would be important to the success of the installation and would need to be high end to keep with the aesthetics of Medway.

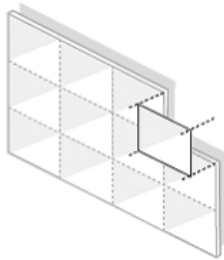
Over the last several months more specific information was discussed in detail. The problem of the sign bylaw was one that needed to be resolved and will require careful positioning. It is felt that there are parts of the bylaw, while not specifically providing for the technology (in fact not allowing it) can be used to move forward. The Town can move forward by properly applying for a sign permit, limiting its messaging to community outreach/events and using good judgement for operation as described in the recommendations.

Over the course of the project, there was significant discussion about the history, current and future policy on community message board signs in town. The process whereby town residents can reserve the existing sign for a period of one week was examined. While changeable copy signs are not allowed under zoning bylaw, the town until recently had two so some precedence exists. DRC is happy to participate in the design process and will weigh in on the appearance of these signs. The Town is anticipating improving the aesthetics and readability of the message on the sign with a software package that controls the display on the sign. There was much discussion on the legality of regulating content on these signs. There was also related discussion on updating the DRC's Design Guidelines to address municipal projects.

When all is said, and done, the DRC is happy to offer several recommendations in the next section.

RECOMMENDATIONS

Advantages



Scalable

Our intelligent hardware platform enables scalable e-paper deployment ranging from 1 to 10 or 100,000 display units that can run separately or be tiled together to provide bigger screens.



Centralised monitoring

All deployed electronic paper signs can be remotely monitored online, with any updates seamlessly happening in real-time via Wi-Fi or cellular connectivity, no matter the number or location of your signs.



Electronic paper display

An electronic paper display enables the building of digital signs that benefit of both, the features of printed paper and digital screen. The content will be visible even in direct sunlight and thereby won't use much energy.

Structure and Size

1) Structure

- a) The Recommendation is an indigenous stone appearance for the base/enclosure of the sign and black metal mountings or attachments for the actual sign board
- b) Care should be taken to appropriately brand the sign to make it recognizable as a Town of Medway sign
- c) An opportunity exists to incorporate the "Choate Park" identification into the structure
- d) A professional resource should be secured to develop consistent final designs (regardless of locations)

2) Size

- a) The LED panels are available in configurations equal to 1'x1'. Based on several examples the DRC viewed, we are recommending a minimum 3' high sign maximum 4' high sign and minimum 5' wide maximum 7' wide sign.

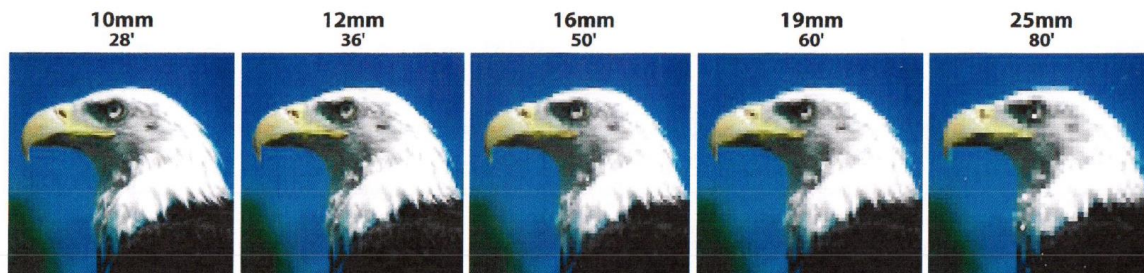
- b) Signs composed of wider aspect ratios lend themselves to clearer layouts, more readable messages and better graphics.



Resolution, Brightness, and Color

1) Resolution

- The current technology allows for a max resolution of 10mm. The DRC is recommending a minimum resolution for any message board signs be 12mm, but that we would ideally get the highest resolution possible at the time of purchase as the higher resolution is exponentially better (at this writing 10mm) to accommodate pedestrians. The nearer you are to the sign the better the resolution is needed.
- In the case of multiple locations higher resolution for Choate Park (10mm) and lower for Village Street and Holliston Street (12mm) would be ideal.
- The Vendor indicated that the price as it relates to the resolution is rapidly diminishing and higher resolutions are becoming more available



Sign Resolutions and Minimum Viewing Distance

2) Brightness

- The programmability of the LED sign allows for different levels of brightness and can be programed to change brightness depending on the day/time. The DRC recommends that a brightness program be strictly adhered to and that in the evening the sign be automatically set

to the lowest brightness setting available. Any sign purchased should be dimmable to a min of 350 NIT's.

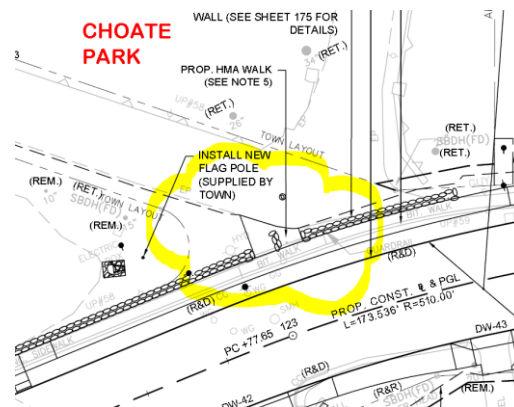
3) Color

- a) The LED signs allow for a full spectrum of color. It is recommended that any text on the LED screen be a predetermined color. The programmability of the sign will allow for pictures to be added to the screen at full color. The DRC saw some nice examples of fall foliage scenes that added to the attractiveness of the sign. There is a consideration to be made for having approved town scenes filter between town messages.



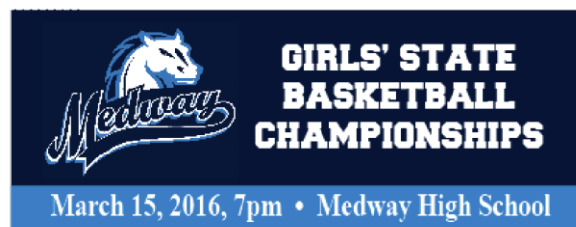
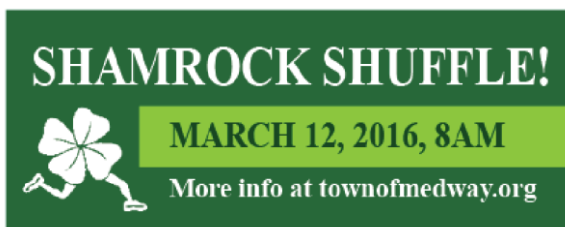
Location(s)

- 1) The DRC has discussed potential locations. The preferred location is Choate Park as this is the most heavily traveled path in Medway.
- 2) Additional locations that are viewed as viable are the Middle School and the Police Station. Public safety was considered when choosing these locations.



Content

- 1) The administration of content is the most important consideration for the sign. The recommendation is that message board be used for Town messages/notifications, community organization events and municipal activities only (no commercial advertising).



Note: Background materials, specifications, notes, site plans and pictures used in developing these recommendations are available as part of the public record or from T.Gay, Clerk – MP&EDB