

TO: Planning Commission and City Council

FROM: Planning Commission Cell Tower Committee – Scott Spisak, Kristina Smitten, Ed Sanderson

DATE: April 27, 2020

RE: **Future Cell Service Options for Marine – Activities to Date and Potential Next Steps**

At the January 9, 2020 City Council meeting, two cell tower representatives presented proposals requesting to construct a cell tower within the City of Marine. Both proposals were for use of a portion of the City's compost site with a tower approximately 180 feet in height. The cell tower representatives have been working with the Communications Infrastructure Committee (CIC), an independent committee consisting of City residents Charlie Anderson, Paul Anderson, Kim Creager, Andy Lapos, Sara Rottunda. A summary of the cell tower presentations can be found here:

https://www.marineonstcroix.org/index.asp?SEC=01E9EEC5-E65B-4FC9-A7BE-5FDF79A04C22&DE=83E03BE1-EF9E-4525-B3A0-FAF7562D7301&Type=B_BASIC

In response to these proposals, the City Council moved to send these proposals to the Planning Commission for further review.

Since that time, the Planning Commission has established a Cell Tower Committee (CTC), consisting of Commissioners Spisak, Smitten and Sanderson. In March 2020, the Communications Infrastructure Committee provided additional details on the original proposals, as well as information on a subsequent proposal for a 180-foot tower at the City yard near the intersection of Broadway Street and Old Guslander Trail. This information was reviewed and discussed with the Communications Infrastructure Committee on April 8, 2020 (via WebEx). The Cell Tower Committee has also conducted additional research and completed a cursory review of the zoning ordinance against the current cell tower proposals. This memorandum provides a summary of discussions and research to date, initial zoning code analysis, and potential next steps to further evaluate how best to address cell service options in the City of Marine.

RESEARCH TO DATE

At the April 8, 2020 meeting between the CTC and CIC, the following questions were posed by the CTC with answers in *italics* provided by the CIC.

1. **Potential Regional Options:** Has there been an inventory of other nearby towers, their locations and carriers and what signal strength exists in Marine, and also their heights and potential for colocation?

Yes, this was previously researched. No towers currently have line of sight to Marine nor can provide sufficient coverage of the area. This is a well known gap in coverage by carriers and site developers, hence the proposal to add a tower. There are no known options for co-location on other existing structures that will provide reliable cell coverage in Marine and surrounding area. The current voice and data options for Marine residents and businesses are:

- Utilize severely limited Wi-Fi signal from city/business or residential router and/or HotSpot; or
- Landline

2. **Potential Marine Sites:** What siting/location options in Marine did the committee review and rule out? Can you provide that information and data?

- a. Is the compost site the “only” option available? See 408.9(2)

The compost site was the only site proposed by Powder River (representing Uniti Towers). The AvERge Group (representing SMC/Vinco) proposed for both the compost site, and at the committee’s request, the Public Works site. All information and data, to include propagation, view shed images, and site plan renderings are in the hardcopy packet previously provided to you by Councilmember Anderson.

- b. What analysis was completed at the Public Works site? Ground elevation at the compost site is about 872, making the tower tip at elevation 1052. The Public Works site is at 1000, meaning a 52 tower there should get similar results.

See hardcopy packet previously mentioned. While the propagation between both is similar at the 180 foot level, one of the three carriers had a preference to the compost site, due to preferable propagation. The Public Works site, since it is farther upslope, reaches further to the south, west, and north due to the leveling out of the terrain. This will be advantageous mostly to the “uphill” residents of Marine, May Township, and Scandia. However, the Public Works site loses some propagation in the upper and lower villages, as well as the Village Center. Additionally, propagation along Hwy 95 and the river is lessened.

Conversely, the Compost site has increased propagation for the upper and lower villages, Village Center, Hwy 95, and riverway. Coverage is lessened to the west, north, and south due to the rise in elevation going “uphill.”

It is important to note that while coverage is either stronger or weaker in certain areas depending on site location, coverage is exponentially better than what that current coverage is, which is effectively null.

Since the propagation is based on line of sight (not strictly elevation), given the location of the Public Works site being set back from the steep decline in terrain, reduction in tower height in that location will significantly reduce the coverage in areas of lower marine and surrounding area due to terrestrial interference causing “shadows” in the signal coverage.

- c. Are there opportunities to use “repeater” poles that would make other site locations potentially feasible?

No repeaters were discussed or proposed. We do not believe this is an economically or technically viable solution.

- d. Has Marine had an opinion from an independent cellular phone expert that the compost site is the only and best location/solution?

Information was made available to the Planning Commission that the Public Works site and Compost site were being considered. Initially it was believed that the Compost site was the only site available. However, upon “deep dive”, we found that data from the previous Public Works site eval was lacking. Thus, an updated proposal was requested and received.

Information was provided by the developers, who consulted with commercial carriers as part of the proposals received. It would be possible for the city to hire an external cellular technology expert to verify the information provided, but the committee believes this would be unnecessary.

- e. How was a viewshed analysis conducted?

Industry standard simulation tools for assessing viewsheds was used, as is considered a generally accepted best practice. Computer software models accurately portray visual impact based on data input.

- 3. **Propagation Mapping:** Can you talk a bit about the propagation mapping – how the footprint was determined, the tradeoffs, extent vs. tower height, etc.?
 - a. How was the 180-foot height arrived at?

The tower height was determined to provide suitable coverage to Marine and the surrounding area plus the ability to support three carriers with one tower. This is deemed by the committee to be the most economically viable option and have a lower community impact than having separate towers per carrier.

- b. It appears that the propagation studies cover the river from the Arcola High Bridge to the Osceola Bridge. Is it Marine’s responsibility to service that entire area?

The tower height was determined to provide suitable coverage to Marine and the surrounding area. Propagation beyond the Marine city limits is a function of the terrain, and may extend beyond the city limits. Additionally, having cell coverage that allows entry and exit of Marine without dropped calls implies that the signal overlap enough coverage with surrounding towers for signal handoffs to occur reliably.

Suitable coverage in Marine and surrounding areas (including the river valley) does also significantly improve public safety of our surrounding area. While not a primary goal, it is consistent with the values of community members and leaders.

- c. It would be helpful to better understand where the worst pockets of cell service are in Marine as a data point in prioritizing/balancing tower height and location.

Propagation maps were analyzed and provided with the current proposals. It may be possible for the city to hire an independent cellular technology expert to run additional

propagation and visual simulations for different heights and locations, however the committee finds this unnecessary. City-owned parcels are the only feasible sites for cell tower infrastructure, unless the Planning Commission wishes to explore allowing private person(s) to enter into contracts with cell carriers for towers on private property. This does not seem to fit with Marine policy or quality-of-life priorities. Tower height of 180 feet is not going to be affected by any of the variables in the above statement.

- d. Can you also provide propagation mapping boundaries overlaying the boundaries of Marine?

This could be requested from the parties who submitted proposals, or possibly provided by an independent cellular technology expert hired by the city. Towers in our surrounding area exist on both public and private property, and are owned/operated by unknown companies. The information mentioned may be proprietary in nature.

4. **Number of Carriers:** The Federal Government recently approved a merger between T-Mobile and Sprint which will leave only 3 major national carriers.
- a. Does that mean that the tower can be reduced to antennas for 3 carriers at the compost site?

This has already been addressed. AvERge rep Shelley Trampetti can answer, however our understanding is that if height is lowered from 180 feet we will lose significant propagation. Also, we will limit the ability to collocate with other nodes, to include future wireless possibilities with ISP companies like Midco which has recently expressed a desire to be a tenant on this tower. Limiting tower height does reduce flexibility, detrimentally affects propagation, and limits future options.

- b. One of the proposed towers has antennas at 120, 140, 160 and 180 feet. If the signal at 120 is adequate and we only have one or two carriers, why do we need a 180-foot tower?

It is the opinion of the committee that co-location of ALL carriers is the most economically viable solution, and provides citizens with more freedom of choice than a single carrier tower. A single carrier tower would effectively cause a monopoly, significantly limiting options and providing advantageous leverage to the carrier. The committee is confident that all carriers will be collocated on the tower.

- c. How will future changes to carriers potentially impact the site? Would additional components be added to the tower at future dates, to accommodate additional carriers, changing the tower dimensions over time?

As currently specified there are no expectations of any additions to the tower dimension, nor or in the future. The proposed lease contract does not allow for such a one-sided action.

- d. As additional carriers are added, how often is the site being accessed by operations and maintenance staff from these various companies?

Once installed, site visits are expected to be infrequent and scheduled. Typical frequency of site visits could be requested from those who have submitted proposals or from carriers directly.

5. **Community Survey:** Has the City conducted a survey of what carriers most residents use?
 - a. The City and others use T-Mobile, which we've heard is not good service. Do we know how many residents subscribe to each provider?

No formal survey of residents has been conducted by the committee. The committee does not believe this would provide relevant information. Citizens, businesses, and visitors to Marine use all four (now three) carriers, and limiting our ability to serve all citizens appears counterproductive.

- b. Constructing a tower with only one or even two carriers – especially with few resident subscribers is unlikely to “solve the problem”.

A primary consideration of the tower design and location is to create competition and freedom of choice for citizens. The committee has been informed that AT&T, Verizon, and T-Mobile/Sprint have a strong interest in Co-location on a tower located in Marine due to longstanding issues of a lack of reliable coverage in the area. Co-location also improves the business case for each carrier, since they are sharing the lease costs with other carriers. Also note that all carriers currently have the same coverage gap.

6. **Future Lease Agreement:** Would a future lease agreement be structured to allow for addition or removal of carriers as cellular service technology continues to evolve (i.e. 4G, 5G, ...)?

The lease agreement review has not been finalized, and this could be explored as part of that process. This tower is for 4G only. 5G does not “run” off of a tower like what is being proposed. 5G uses a much shorter (but faster) radio frequency that works along line-of-sight. This means each node must see the other. 4G is for calling and data. 5G is primarily for data. Furthermore, 5G nodes are typically placed in the right-of-way on things like light or utility poles. They are of primary use in high-density population areas and transportation corridors. When 5G comes to the St Croix valley, it is unlikely to impact our neighborhoods, but likely to impact Hwy 95. The proposed tower has nothing to do with 5G. Separately, Councilmember Anderson is exploring limiting use of right-of-way by carriers and can have a separate discussion with the Planning Commission regarding that.

7. **DNR/WOSP:** We understand that the DNR is completing a GIS analysis to evaluate the view of a potential cell tower from William O'Brien State Park. When will that data be available?

The committee has not currently received specific information on such analysis. It is our understanding that in conversations with officials from the DNR, MN State Parks, and National Parks Service that the planned location and height was outside of the domain of regulations of these entities. This may be independently verified.

8. **Cell Service Priorities:** Much of the information provided to the Planning Commission prioritizes the need for cell service in the following order: 1. Public safety; 2. Economic viability for tele-commuters and local businesses, and 3. Resident convenience. We are interested to learn more regarding the public safety aspect – of residents, not visitors on the river in terms of the extent of needed propagation. And, in general, how was this priority list determined?

It is the committee's view that all three items are important priorities. The committee based this priority based on informal conversations with residents of Marine and city officials, including those involved in public safety. Washington County has also expressed support for the tower in regards to increased public safety readiness, to include geographical information for emergency call response, and increased efficiency in call times due to faster connections to the Washington County Emergency Communications Center. For example, 9-1-1 callers on a cell phone in Marine, if they are able to connect at all, are oftentimes connected to St Croix County since a tower is located there and provides low-quality propagation overlap.

The response to having reliable cell coverage has been overwhelmingly positive.

9. **Regional Discussions:** What type of communication/collaboration has occurred with other St. Croix River communities as part of this process?

As part of the process, city administrators from nearby townships, cities, and towns were contacted by committee members. The committee attempted to obtain specific references regarding the proposed developers. Responses were limited, since most communities build appropriate cellular tower infrastructure more than 10 years ago, and there has not been a need to develop more tower sites in those areas in recent history.

Councilmember Anderson has had recent contact with Scandia Councilmember Patti Ray to discuss possibilities to improve ISP service to both our communities through the possibility of wireless internet options (such as Midco) collocating on the proposed tower. There may be similar partnerships with May in the future.

ZONING CODE ANALYSIS

- Our initial research has informed us that the current zoning code is obsolete
 - o Current 45' tower height limit is unlikely to provide any wireless service needs in the community
- Any applications that would come forward would be held to that current standard

POTENTIAL NEXT STEPS

Prior to moving forward with next steps in its evaluation of the current cell tower proposals and potential research into broader approaches to cell phone service, the CTC requests a discussion with the City Council and full Planning Commission. To help frame this discussion, the CTC has identified the following potential additional considerations:

- Understand Public Safety Communications needs of government agencies, such as: Washington County Sheriff's Office, National Park Service and MnDNR, etc.
- Evaluate potential for regional collaboration with adjacent communities (i.e. May Township, Stillwater Township, Scandia)
- Research how other St. Croix River Valley communities are addressing cell service options (i.e. Bayport, Afton, etc.)
- Identify area cell towers and their current propagation mapping to better understand the priority areas within Marine in need of better cell service
- After additional study (above):
 - Engage in a broader community conversation to better understand resident concerns to aid in determining the best approach for cell service for Marine
 - Community survey? – service providers, coverage quality, What is an appropriate level of coverage? etc.
- Revise current cell service ordinance (i.e. consider small cell ordinance, tower ordinance etc.)
- Implement Cell Service Improvements in the Community