

Overhead Utilities/Powerline Discussion

2019-12-12

Existing Powerlines:

Many people have asked what will happen to the existing overhead powerlines, what the options are, who will pay for them, and whether they can be buried or moved offsite completely. In general, people want to see as little impact to the project as possible with the powerlines. Some quick background bullets are below (and I'll get in the newest FAQ as well). New information in **red**.

- These transmission lines are necessary as they serve North Minneapolis and downtown. There is a similar line that goes through Northeast Minneapolis along the riverfront. There is not room on that side of the River to accommodate the lines that go over the UHT site.
- The existing overhead powerlines bisect the site and must be moved for any development to occur.
- The lines are the larger transmission lines, and not the smaller distribution lines that are common on city streets. Moving or burying distribution lines is relatively simple. Dealing with transmission lines is much more difficult and expensive.
- Xcel has easements for the lines, so they essentially have the right to be there. If someone besides Xcel wants the lines to move, the party making the request must pay that cost. Due to the terms of one of the easements, Xcel has agreed to pay the cost to relocate one segment of the lines, but those terms don't require them to pay the additional costs to bury that segment or other parts of the line.
- The current lines cross the river overhead and land in the proposed park space. One pole is needed at the river crossing in any scenario to "catch" the lines coming across the river. There are limits to where the pole can go; it must be close to the river's edge, and the span between the pole on the east side of the river can't be too long. **New information based on additional conversation from Xcel: it may be possible to avoid a pole by the river edge. It may be possible to have the first pole on the west bank (UHT site) be back near the railroad tracks. See Option 3 diagram below.**
- Moving or burying lines requires an engineering study. Xcel charges for engineering studies so there is a cost to fully understand options. Sometimes we don't know if something is an option until it is fully studied.
- We have several old and approximate cost estimates from Xcel, but won't have any more precise numbers until they complete a new study. Material costs, particularly steel, are very subject to change, so even detailed cost estimates can change.
- The lines generally need to be away from buildings, so they will be moved from the middle of the property to one side or another (railroad side to the west or river side to the east).
- There are some limits to where powerlines can be buried based on proximity to other metals, such as railroad tracks and other utilities. It involves some sort of interference between the lines, and issues can be determined in a study. Overhead lines can also have interference, but usually it is less of an issue because of the distance from other metals.
- Full burial along the railroad tracks may be possible, but would be very expensive. Xcel would need to study this to determine whether it is possible and what it would cost.
- Full burial along the river is likely possible but would also be very expensive.
- City tentatively will pay to move overhead lines to new overhead location, but does not have the additional funds to move lines underground. If other funding sources could be found, it's not clear that powerline burial would be the highest priority for that funding or if other project goals (e.g., additional affordable housing, the community hub, anti-displacement programs, community ownership options) would be a higher priority.
- In past engagement, people generally want impact of the lines to be as minimal as possible. MPRB and others do not want overhead lines throughout the park space and along the river.
- Moving the lines back by the railroad tracks generally gets the lines out of the way and consolidates the easements and space required by railroad tracks, utilities, powerlines, etc. into as minimal and unobtrusive corridor as possible.
- The lines must cross the UHT property to get back by the railroad tracks.

- MPRB wants this crossing to impact public land as little as possible. There is a very limited option to bury this one segment of line that crosses park land. **Updated information below – Option 2 to bury would be at the high range of what was initially projected.**

Previous question at 11/22 meeting: Is the impact to park budget worth exploring burial of the lines in this short segment

- MPRB could study, and possibly bury, a short segment of lines over park land. Both study, and possible burial, have costs.

- **Option 1 (following diagram):**

- Maintain overhead line over parkway
- Requires 1 (likely monopole) near river and 1 back near tracks, 2 poles total
- Xcel will limit the height of what can go under the lines, but not the use
- Future uses could be impacted. A restaurant (for example) may have issues with a location under power lines.

- **Option 2 (following diagram):**

- Bury line under parkway
- Requires 2 transition poles near the river and 2 back near the railroad tracks, 4 poles total. Poles may need to be fenced and are more visually obtrusive than the monopoles.
- Costs additional funds (**rough minimum \$20K, could be higher**) for study to determine if feasible. May not be feasible.
- Costs additional funds to bury (**rough appx \$3+ million**) would reduce MPRB construction budget of appx \$7.75m. Cost cannot be fully determined without paying for the additional study to compare the two options.
- There are limits to what can go over a buried line; would limit buildings, footings, and stormwater management. Lines in the ground are encased in concrete.

Overhead Utilities

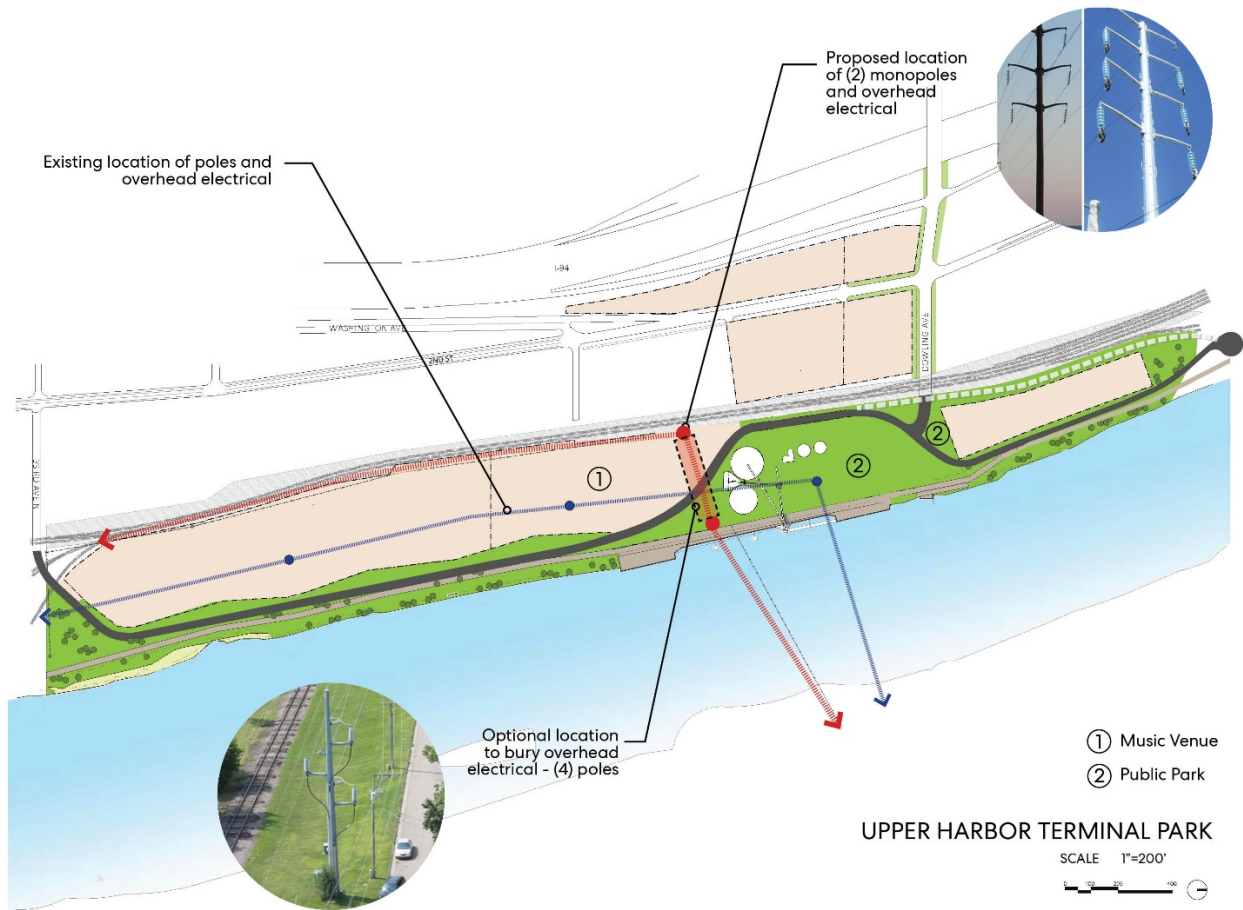
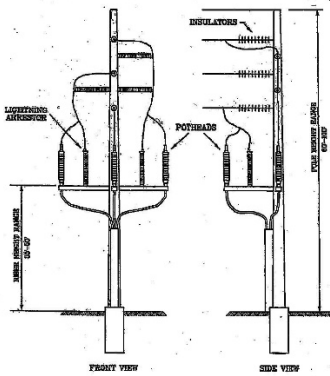
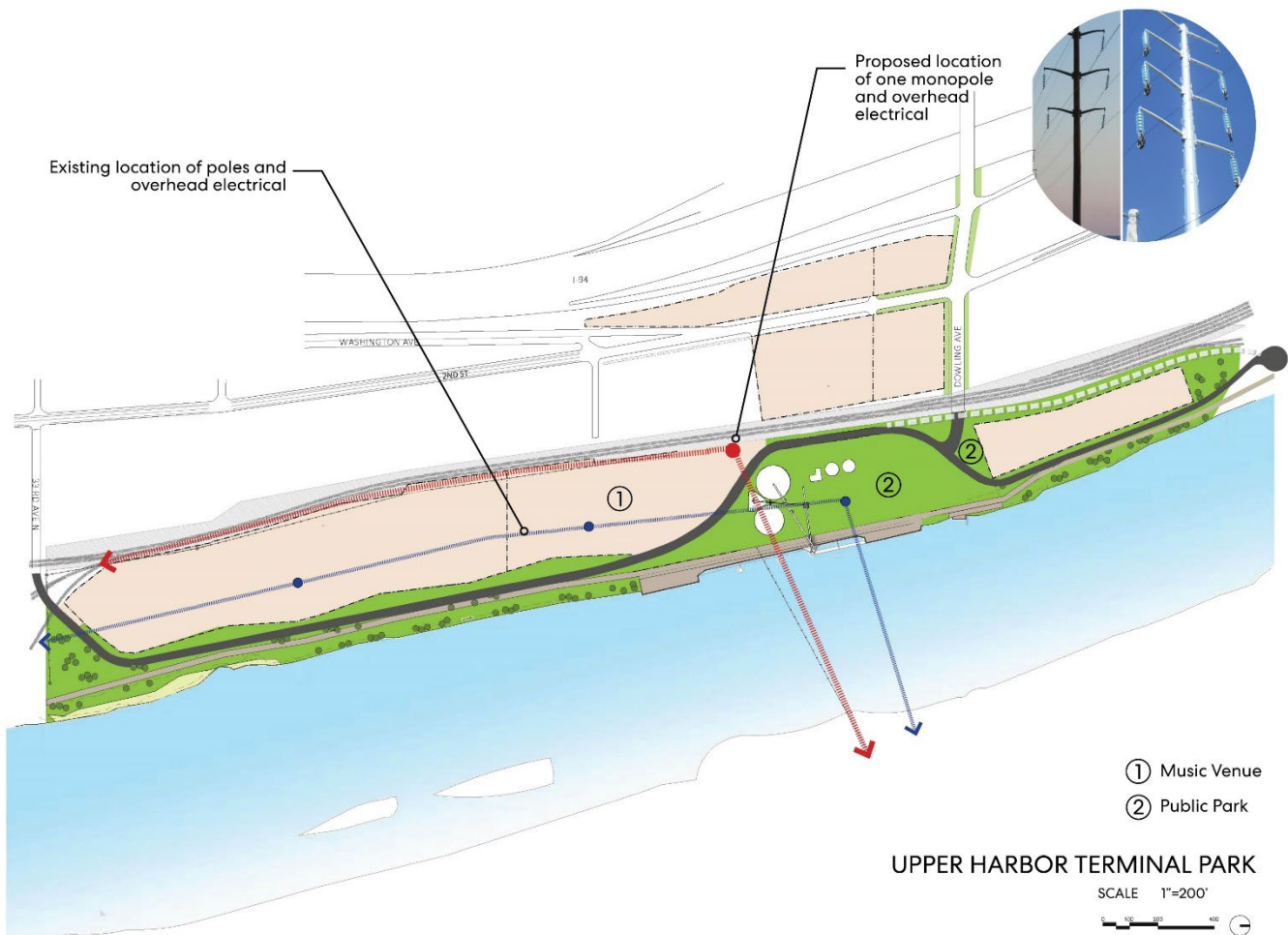


Figure 6 Diagram of a Typical Transmission Riser Structure



• **New Option 3 following diagram:**

- Maintain overhead line back to railroad easement area – the line does go over an area of park land.
- Requires at least 1 (likely monopole) back near tracks, 1 or 2 poles near the tracks and not likely on public land.
- A longer span requires poles and line to be taller, as the lines sag between poles. The line crossing the river would likely be taller (appx 15' – 20') than a shorter span with a pole by the river (Option 1 or 2).
- While poles would be taller, there would not be a pole near the river (might be one less pole total) and the cost is likely comparable to Option 1.
- Like Option 1, Xcel will limit the height of what can go under the lines, but not the use. Future uses could be impacted. A restaurant (for example) may have issues with a location under power lines.



Based on this additional information from Xcel we believe that a longer span of electrical lines is possible so that no pole would be needed on park land. We also know that the cost to bury lines is going to be very high – over \$3 million and could be significantly more. MPRB staff recommendation is that we pursue Option 3 - the long span. There is no benefit to studying line burial now unless we believe we want to pursue burial with this round of construction. At over \$3 million, the impact to the park budget is too large. While people would prefer not to have the powerlines, we have not yet heard that burying this short segment is a significant (or any) improvement. The best information we have about health concerns is below:

Electric transmission lines generate electric and magnetic fields (EMF), as does the sun and a wide array of other things (e.g., cell phones, microwaves, Wi-Fi routers, power tools, X-ray machines). EMFs from powerlines are non-ionizing low radiation sources that research apparently has found have either no association or weak, inconclusive evidence of an association with human health concerns. Based on in-depth review of the scientific literature, the World Health Organization concluded that “current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields such as powerlines.”

Exposure to EMFs goes down with distance, and thus the height of overhead lines and the easement corridor under the lines will reduce EMF exposure.

Burying the lines would not eliminate EMFs. Underground lines do not produce above-ground electric fields, but may produce magnetic fields above ground that apparently can be as high as or higher than those associated with an overhead line. Staff has not found information about what the EMF levels would be at transition structures where an overhead line comes down to ground level to go underground.

Information sources:

National Institute for Environmental Health Sciences --

https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf

World Health organization -- <https://www.who.int/peh-emf/about/WhatisEMF/en/index1.html>

National Cancer Institute -- <https://www.cancer.gov/about-cancer/causes-prevention/risk/radiation/electromagnetic-fields-fact-sheet>