

# Community consultation response memo

Consideration of input from May 1–31, 2018 community consultation on the West End Substation proposal



Issued June 15, 2018

## Introduction

It's our job to ensure people in downtown Vancouver continue to have access to reliable power. We're providing the clean, renewable power Vancouver needs, but our electricity system serving downtown is aging and needs upgrades. We've approached the Vancouver School Board (VSB) to re-visit our proposal of a new West End Substation at the Lord Roberts Annex property, which would result in an out-of-sight underground substation, topped by a playing field and allow for construction of an adjacent elementary school after the substation is complete.

We all know downtown land is scarce and expensive — we've continued to explore all options for the location of a new substation in the West End over the last year. Most suitable and available properties in the West End are currently being used for housing, which would need to be removed if purchased for a future West End Substation. If we bought a private property, we'd follow our traditional approach of building an above ground substation as the cost of private land would make undergrounding the substation cost-prohibitive.

Our proposal for the Lord Roberts Annex property instead diverts our property acquisition dollars towards the VSB, providing the VSB with funding to build a new Coal Harbour School sooner. At the Lord Roberts Annex property, it will result in an out-of-sight underground substation topped by a synthetic turf playing field, and allow for the construction of a new adjacent elementary school after the substation is complete. We continue to believe our proposal for the Lord Roberts Annex property would benefit the downtown Vancouver school community and provide the best outcome for the West End, while providing reliable power to downtown Vancouver for generations to come. Working together with VSB we brought this idea back to local parents and the community to see if they agree, holding community consultation from May 1–May 31, 2018.

The Vancouver Board of Education (VSB elected trustees) will decide on June 25, 2018 whether or not to approve our proposal. Our community consultation report will be given to the Vancouver Board of Education to inform their decision on our proposal, along with feedback collected through VSB's own consultation.

You can find all of the May 2018 consultation materials as well as the Community Consultation Report online at [bchydro.com/westendsub](http://bchydro.com/westendsub).

**Community consultation: May 1 to May 31, 2018**

We’d like to say thank you to all those members of the community who took the time to engage with us and share their input through the following methods:

- 192 feedback forms were completed (16 paper and 176 online)
- 69 people attended two open houses
- 57 people participated in four small group discussions
- 99 people were engaged at three pop-up engagement events
- 35 email submissions were received, including a petition with 37 signatures and letter representing over 500 businesses and 140 commercial property owners.

All of the consultation materials and a report summarizing the consultation input we received can be found online at [bchydro.com/westendsub](http://bchydro.com/westendsub).

Below is a table outlining our response to some of the key themes that we heard through the community consultation process.

Interest or idea	Source	Our response
<p><b>Electric and magnetic fields (EMF)</b>                      Questions and concerns regarding the safety of EMF and putting a substation next to a school and a park.</p>	<ul style="list-style-type: none"> <li>• In-person consultation</li> <li>• Feedback form</li> <li>• Email</li> <li>• WEFA petition</li> </ul>	<ul style="list-style-type: none"> <li>• We recognize that there are questions and concerns about EMF and we take these seriously. With that in mind, we considered EMF very carefully when we developed this proposal.</li> <li>• During our consultation we were able to explain that the transmission lines leading into the substation, which are the main source of EMF, would be located a minimum of 70 metres from a future school.</li> <li>• Because EMF decreases very quickly with distance, the levels of EMF inside a new school would be similar to those found in the present school. The source of EMF in a new school would be from the lights, computers and other electrical equipment, not from the substation infrastructure.</li> <li>• Levels of electric and magnetic fields directly above our transmission lines (parts of the playing field and in Nelson Park) would be very low, at peak times only 5% of the Health Canada and World Health Organization</li> </ul>

		<p>endorsed conservative limit.</p> <ul style="list-style-type: none"> <li>• Even though the 2017 Stantec study and 2017 Vancouver Coastal Health<sup>1</sup> review concluded that there were no health and safety risks related to these very low levels of EMF, BC Hydro is committed to the following additional mitigation measures to alleviate negative public perception:             <ul style="list-style-type: none"> <li>○ Bury transmission cables deeper underground and implement magnetic field shielding within the boundaries of Nelson Park and VSB property, resulting in a minimum 75% reduction in magnetic field levels (reduced to just 1.25% of the Health Canada and World Health Organization endorsed limit).</li> <li>○ Commission an independent study of current EMF levels at the existing Lord Roberts Annex property and Nelson Park, and report this publically.</li> <li>○ Confirm the EMF levels expected at and around the proposed substation, based on final design, and report this publically.</li> <li>○ Commission an independent study to verify EMF levels once the substation is in-service and continue to monitor EMF levels and report publically on an ongoing basis for as long as the substation is in-service.</li> </ul> </li> <li>• This will reduce the levels of EMF such that they are consistent with current levels found in Nelson Park, even at peak times.</li> <li>• To further alleviate negative public perception, we’ll also work with the VSB and the Vancouver Park Board to explore the suggestion in the 2017 Vancouver Coastal Health review to strategically locate highly used park features away from the underground transmission cables, as well as use innovative landscape designs as barriers.</li> </ul>
<p><b>Length of construction period</b> Concern that the construction period is too long; general</p>	<ul style="list-style-type: none"> <li>• In-person consultation</li> <li>• Feedback form</li> <li>• Email</li> </ul>	<ul style="list-style-type: none"> <li>• We’ve proposed a five year construction period for our substation, with approximately three of those years involving excavation and visible active construction, similar to construction of any other large condo tower.</li> <li>• The remaining 2 years, after we have the substation “roof” installed, will be less noticeable by the community as the majority of activities will take place</li> </ul>

<sup>1</sup> The 2017 Stantec preliminary technical, environmental and socio-economic study and the 2017 letter from Dr. Patricia Daly, Vice-President, Public Health and Chief Medical Officer, Vancouver Coastal Health can be found online at [bchydro.com/westendsub](http://bchydro.com/westendsub).

<p>construction fatigue due to other projects in the community.</p>		<p>underground, inside the substation, namely the installation of all the substation equipment.</p>
<p><b>Construction impacts</b> Concerns about the construction impacts, particularly on adjacent residents and park users, including noise, air quality and general disruption.</p>	<ul style="list-style-type: none"> <li>• In-person consultation</li> <li>• Feedback form</li> <li>• Email</li> </ul>	<ul style="list-style-type: none"> <li>• The construction of a substation will have temporary impacts on those who live, work and play in the local area.</li> <li>• We're committed to addressing or mitigating the construction impact concerns raised through the consultation process, using best practices and by working collaboratively with stakeholders.</li> <li>• We'll mitigate noise impacts as much as practical, using measures such as adjusting construction hours and activities to minimize disruptions, implementing noise barriers and linking noise mitigation to construction permits and contractor remuneration.</li> <li>• We'll work with the City of Vancouver to ensure that we're meeting their standards for mitigating construction impacts.</li> <li>• We'll meet with stakeholders regularly, including the formation of a Community Construction Liaison Committee well in advance of construction, to ensure meaningful dialogue and to evaluate and adjust mitigation measures.</li> <li>• Based on the March 2017 Addendum<sup>2</sup>, based on the worst case scenario of temporary jack hammering during substation construction, we predict that noise levels will be below the City of Vancouver Construction Noise by-law limits (85dBA).</li> <li>• The 2017 Stantec study, indicated a temporary increase in air contaminants, specifically from fuel combustion construction equipment, like excavators. During construction, emissions from construction equipment are expected to remain within the ambient air quality objectives if construction best management practices are used.</li> <li>• We have an excellent history of mitigating construction impacts, as demonstrated most recently with our Mount Pleasant Substation project which included building an above-ground substation and burying high voltage cables in city streets along the Fairview Slopes, the west side, the</li> </ul>

<sup>2</sup> Addendum 1 – BC Hydro Seed: Technical Environmental and Socio-Economic Study can be found online at [bchydro.com/westendsub](http://bchydro.com/westendsub).

		<p>downtown core, as well as through David Lam Park, where we used community-based construction consultation and communication practices.</p>
<p><b>Traffic impacts</b> Concerns about traffic impacts during construction, specifically on Nelson Street.</p>	<ul style="list-style-type: none"> <li>• In-person consultation</li> <li>• Feedback form</li> <li>• Email</li> </ul>	<ul style="list-style-type: none"> <li>• The construction of a substation in the West End will have some temporary impacts on traffic and parking in the local area.</li> <li>• If our proposal moves forward, we would develop best practice traffic management plans, in consultation with the local community and all other stakeholders, to minimize the impacts on traffic during construction. A traffic management plan would be created to reflect this input, prior to a contractor being hired, and shared with the community.</li> <li>• The traffic management plan would be reviewed and updated throughout construction, in collaboration with the Community Construction Liaison Committee.</li> <li>• In typical condo construction, the whole property is being built upon, often resulting in lane closure or traffic impacts to accommodate construction staging. We'll have the benefit of using the area reserved for a new school as our lay-down area during construction. This will allow us space for our trucks and equipment, and provide a staging area into the construction site, helping to minimize impact on adjacent streets.</li> <li>• We'll also require off-site parking for our workers and contractors, as an additional measure to reduce traffic congestion during construction.</li> </ul>
<p><b>Nelson Park – construction impacts</b> Concern about construction impacts (both direct and indirect) to Nelson Park, specifically impacts on the use of Nelson Park, the loss of trees, maintenance and/or restoration of Nelson Park and its amenities. Suggestions</p>	<ul style="list-style-type: none"> <li>• In-person consultation</li> <li>• Feedback form</li> <li>• Email</li> <li>• West End BIA</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• A new substation would be built completely on the Lord Roberts Annex property, not underneath Nelson Park.</li> <li>• Construction in Nelson Park for our underground power lines, to connect the substation to the power system, would be completed in one to two months during the winter time when the park is not as heavily used, and then restored. Otherwise the park would be open for use during substation construction.</li> <li>• Based on our proposed power line routing the 2017 Stantec study indicated that five trees may need to be removed from Nelson Park, though this will be reviewed and potentially modified in consultation with the Vancouver Park Board, if our proposal moves forward.</li> <li>• The additional 37 trees the 2017 Stantec study indicated may need to be removed are on the Lord Roberts Annex property, not in Nelson Park. Any</li> </ul>

<p>of additional amenities which could be added to Nelson Park as part of restoration.</p>		<p>trees removed, as part of our proposal would be replaced with a ratio of at least 1:1 within Vancouver, in consultation with the Vancouver Park Board and the VSB.</p> <ul style="list-style-type: none"> <li>• If this proposal moves forward there would be ongoing consultation, including City and Park Board–led consultation on the impacts to Nelson Park, and how best to restore Nelson Park.</li> </ul>
<p><b>Alternative locations</b> Specific suggestions of alternative locations, including St. Paul’s or partnering with a developer. Questions around why a substation needs to be located in the West End.</p>	<ul style="list-style-type: none"> <li>• In–person consultation</li> <li>• Feedback form</li> <li>• Email</li> </ul>	<ul style="list-style-type: none"> <li>• A new substation to replace the aging Dal Grauer Substation needs to be built in the West End, in close proximity to the electrical demand, so that our power system can operate efficiently and reliability.</li> <li>• We did explore the possibility of the St. Paul’s Hospital site, but the timing of when the site may be available for redevelopment and the timing of when the new substation in the West End would be needed, don’t line up. We need a new West End Substation in–service by the end of 2028, to continue serving our customers reliably.</li> <li>• Many of the suggested properties raised during consultation were explored but ruled out for a being too small, including:             <ul style="list-style-type: none"> <li>○ The gas station property at Burrard and Davie.</li> <li>○ The community garden at Burrard and Davie.</li> <li>○ The property at Robson and Broughton.</li> </ul> </li> <li>• Over the last few years, we did reach out to developers about partnering to develop a property. A major obstacle is that our substations are built to post–disaster standards, and any building above our substation needs to be built to that same standard to ensure that our infrastructure, as well as our access to that infrastructure, wouldn’t be compromised. Condos simply are not built to that level; modern ones are built to not collapse during an earthquake, but they wouldn’t necessarily be habitable afterwards.</li> <li>• Our proposal at this location has the benefit of allowing us to divert our property acquisition dollars to VSB to provide funding for new schools, and build an out–of–sight underground substation.</li> </ul>
<p><b>Community engagement and involvement</b> Suggestion that BC</p>	<ul style="list-style-type: none"> <li>• In–person consultation</li> <li>• Feedback form</li> <li>• Email</li> </ul>	<ul style="list-style-type: none"> <li>• We know that the West End is a unique community. If our proposal moves forward we need to continue to provide meaningful engagement and consultation opportunities, with room for flexibility to meet the needs of the community.</li> </ul>

<p>Hydro provide continued engagement in a meaningful way and work with the community.</p>	<ul style="list-style-type: none"> <li>• WEFA petition</li> <li>• West End BIA submission</li> </ul>	<ul style="list-style-type: none"> <li>• Consultation would be ongoing for the life of the project and include many opportunities for public engagement and input on all phases of the project, through a variety of methods.</li> <li>• This would include the formation of a Community Construction Liaison Committee well in advance of construction, to ensure meaningful dialogue.</li> <li>• We’d also look for ways to work with the VSB and the Vancouver Park Board to engage the community in a similar, meaningful way through consultation on the design of the substation, school and any needed park restoration, for example but not limited to, the substation vents, substation entrance structure and the playing field.</li> <li>• Ideas to keep the community involved as construction progresses and increase transparency include providing “eyes on the work” through viewing areas at the construction site, time-lapse web cameras and community tours at construction milestones.</li> <li>• We’d also explore opportunities to have a relevant and positive presence in the community, possibly through partnerships in events or initiatives leading up to and during construction.</li> </ul>
<p><b>Nelson Park – playground</b> Suggestion that an alternate playground should be provided during construction, due to temporary loss of playground space at Lord Roberts Annex combined with substation construction next to the Nelson Park playground.</p>	<ul style="list-style-type: none"> <li>• In-person consultation</li> <li>• Feedback form</li> <li>• Email</li> <li>• WEFA petition</li> </ul>	<ul style="list-style-type: none"> <li>• If our proposal moves forward, we anticipate that potential impacts to the existing Nelson Park playground will be clarified as a result of City and Park Board-led consultation.</li> <li>• We’ll work with the Vancouver Park Board to identify opportunities on their properties in the West End, where we could contribute to increasing playground capacity temporarily during construction.</li> <li>• It has also been suggested that the Lord Roberts Annex memorial playground be relocated elsewhere during construction. We have committed to removing the playground equipment, storing it, and reinstalling it at a new school but would work with the Lord Roberts Annex Parent Advisory Committee, VSB and Vancouver Park Board to look at temporarily relocating it to another school or park location if there is interest.</li> </ul>
<p><b>Operational impacts</b> Concerns about operational impacts,</p>	<ul style="list-style-type: none"> <li>• In-person consultation</li> <li>• Feedback form</li> </ul>	<ul style="list-style-type: none"> <li>• We’ve been operating urban substations in Vancouver for over 70 years. Most recently, we built Mount Pleasant Substation in 2014, one of the most innovative and safe substations in North America.</li> </ul>



<p>specifically noise.</p>	<ul style="list-style-type: none"> <li>Email</li> </ul>	<ul style="list-style-type: none"> <li>With all of our urban substations, we’re sensitive to making sure we minimize the impact of our operations for our neighbours and the surrounding community. Mount Pleasant Substation uses state of the art mechanical systems and soundproofing technologies to minimize noise, as we have residential neighbors within 10 to 20 metres of the substation. We haven’t received any noise complaints about our Mount Pleasant or Dal Grauer substations from the surrounding residents or businesses.</li> <li>For the proposed West End Substation, we’ll take all of our learnings from operating urban substations, as well as learnings from other utilities around the world (for example, Highbury Substation recently completed in London, England uses the latest technology to minimize noise with residential neighbours less than 10 metres away), to employ the best technologies available to minimize any operational impacts, specifically noise, on our neighbours and the community.</li> <li>Based on the March 2017 Addendum to the Stantec study<sup>3</sup>, we know that substation operation noise levels will not exceed the City of Vancouver nighttime by-law limits (45dBA – similar to conversational speech).</li> <li>Ambient sound levels measured in Nelson Park during the day were found to be 56–57 dBA.</li> <li>Additional mitigation measures can be employed as the substation is further designed, to further reduce operational noise levels.</li> </ul>
<p><b>Substation safety</b> Questions and concerns including the risk of fire, explosion and safety during an earthquake.</p>	<ul style="list-style-type: none"> <li>In-person consultation (conversations)</li> </ul>	<ul style="list-style-type: none"> <li>Our highest priority is public safety and the safety of our employees. We safely operate and maintain more than 300 substation throughout the province,</li> <li>We operate 37 substations in Metro Vancouver, with about 50% of them located within 100 to 200 metres of public spaces such as parks, shopping malls and schools.</li> <li>Each of our substations are designed and built to rigorous safety and environmental standards. This includes installing monitoring equipment that detects and responds to conditions that might lead to equipment failure, before the failure occurs.</li> </ul>

<sup>3</sup> Addendum 1 – BC Hydro Seed: Technical Environmental and Socio-Economic Study can be found online at [bchydro.com/westendsub](http://bchydro.com/westendsub).

		<ul style="list-style-type: none"> <li>• During consultation we heard concerns about examples of transformer fires in our substations. One of the safety-by-design features for our outdoor substations is distance from the public as well as physical barriers – in instances when there has been a fire, the equipment and the design of the substation are functioning how they were designed – to keep the public a safe distance from harm. In modern underground and indoor substations, the safety-by-design features are different – for example at our underground Cathedral Square Substation we use a nitrogen system to significantly lower the risk of transformer fire. In addition, we use distance to mitigate risk by placing the transformers on the bottom level as far from the public as possible.</li> <li>• In a new underground substation, like our proposed substation, the use of oil is eliminated through the use of gas-insulated technology for the equipment, including gas-insulated transformers. This type of gas is not flammable so the risk of fire or explosion is virtually eliminated.</li> <li>• Our modern substations are critical pieces of public infrastructure and are designed to a much higher safety standard than other buildings in downtown Vancouver. Our substation would be designed to rigorous international utility standards, would exceed the latest building code requirements and would not pose any risks to the public present on or adjacent to them at any time. The substation will also undergo a thorough review and approval process by the BC Utilities Commission before construction can begin. This will ensure that the design and implementation of the substation is in the best interests of the public and our ratepayers.</li> <li>• Our modern substations are built to post-disaster standards. They not only need to withstand a major earthquake (the kind that happens once in every 2,475 years) but need to function as a substation, capable of providing power afterwards. Inside, above or adjacent to our proposed substation would be a very safe place to be during an earthquake.</li> </ul>
<p><b>West End Farmers Market</b> Concerns that the</p>	<ul style="list-style-type: none"> <li>• In-person consultation</li> <li>• Feedback form</li> </ul>	<ul style="list-style-type: none"> <li>• The West End Farmers Market is held on Comox Street, between Bute and Thurlow Streets, next to Nelson Park.</li> <li>• Our substation would be built on the other side of Nelson Park, adjacent to</li> </ul>

<p>farmers market would be impacted by construction.</p>	<ul style="list-style-type: none"> <li>• Email</li> </ul>	<p>Nelson Street, so there would be no impacts to the West End Farmers Market as a result of the substation construction.</p> <ul style="list-style-type: none"> <li>• A number of our power lines are proposed to be routed through the park onto Comox Street (power line routing within the park to be reviewed and potentially modified in consultation with the Vancouver Park Board).</li> <li>• We'll work with the West End Farmers Market and the City of Vancouver to schedule any work and disruption on Comox Street between Bute and Thurlow Streets to the winter months, when the market isn't being held.<sup>4</sup></li> </ul>
<p><b>Nelson Park – community gardens</b> Concern about impacts to or loss of Nelson Park Community Garden.</p>	<ul style="list-style-type: none"> <li>• In-person consultation</li> <li>• Feedback form</li> <li>• Email</li> <li>• </li> </ul>	<ul style="list-style-type: none"> <li>• At this stage in the proposal, we don't have enough detail to be clear on what the impacts to the community gardens may be, specifically those plots immediately adjacent to the Lord Roberts Annex property.</li> <li>• If our proposal moves forward, we'll be able to confirm the potential impacts to the community gardens as a part of future City and Park Board-led consultation.</li> <li>• We'll work with the Nelson Park Community Gardens and the Vancouver Park Board, to find solutions to protect existing garden plots or facilitate appropriate temporary locations for any impacted garden plots during construction.</li> </ul>
<p><b>Dal Grauer Substation</b> People asked about the future of Dal Grauer, including why a new substation couldn't be rebuilt at the existing Dal Grauer, what BC Hydro's plans are for that site as well as suggestions that the site be provided for public use after the existing substation is</p>	<ul style="list-style-type: none"> <li>• In-person consultation</li> <li>• Feedback form</li> <li>• Email</li> <li>• WEFA petition</li> </ul>	<ul style="list-style-type: none"> <li>• To maintain service for our customers and to safely re-build the Dal Grauer Substation, we'd need to offload the electrical load from Dal Grauer Substation while upgrades are taking place. There isn't sufficient capacity at any of the existing substations nearby which would allow us to do this.</li> <li>• Also, if upgrading Dal Grauer was possible, it wouldn't add any additional capacity for meeting Vancouver's future electricity needs – there simply isn't any more physical space to expand this station and we'd be remiss to make this level of investment without room for future growth.</li> <li>• Dal Grauer Substation, in-service since 1953, is not only nearing end-of-life, but is nearing the limit of the electrical demand it can serve.</li> <li>• We haven't yet decided what will be done with Dal Grauer Substation property (i.e. will it be kept as a site for other future infrastructure or will it be sold) as it's needed as a substation for the next 10+ years to serve our</li> </ul>

<sup>4</sup> The West End Farmers Market is currently being held from May 26, 2018 – October 20, 2018.

decommissioned.		customers, before it can be decommissioned.
<p><b>General Support</b>  Comments that proposal is a good idea with funding for new schools and efficient land use</p>	<ul style="list-style-type: none"> <li>• In-person consultation</li> <li>• Feedback form</li> <li>• Email</li> <li>• West End BIA submission</li> </ul>	<ul style="list-style-type: none"> <li>• We believe that our proposal of an underground substation at the Lord Roberts Annex property would benefit the downtown Vancouver school community and provide the best outcome for the West End.</li> <li>• It gives us the opportunity to divert our property acquisition dollars to the VSB to use on new schools and will result in an out-of-sight underground substation.</li> <li>• We believe this proposal is worth pursuing, and based on the results of our community consultation, we now know that many people in the West End community agree.</li> </ul>