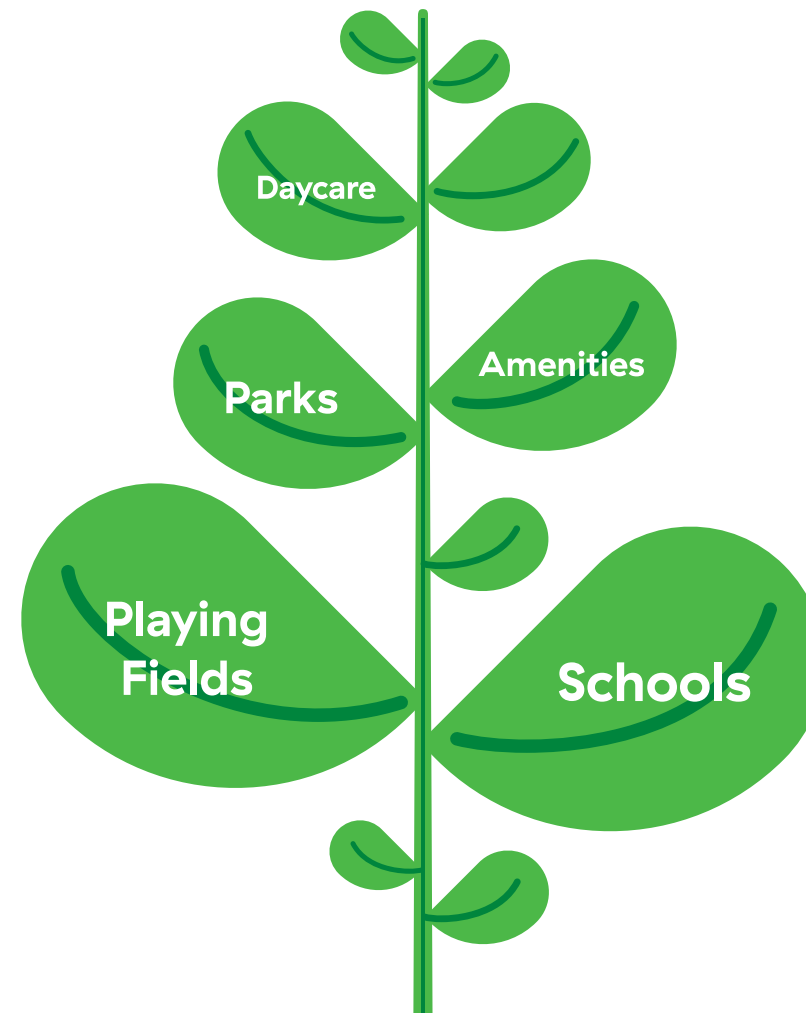


Community consultation: interests and ideas

January 20 – February 28, 2017



Clean & Reliable Energy



Growing community with energy.

Introducing **seed.**

Vancouver is one of the greenest, most livable cities in the world. Our population is growing and so is demand for energy. In fact, demand for electricity in Vancouver is expected to grow by 75% over the next 30 years. We can provide the clean renewable power that Vancouver needs, but our substations serving downtown Vancouver are aging and need to be upgraded or replaced.

Our usual way of doing things would be to find and buy a piece of land and build a substation on it. But that means putting a substation on land that could otherwise be used for housing, businesses, schools or parks. A substation that neighbours would always see.

What if? Imagine if we could build these substations out of sight, but still right where they're needed. Imagine if, instead of spending millions of dollars on expensive downtown Vancouver land, we could share it and fund benefits for neighbourhoods. Imagine if the money spent delivering safe, reliable, clean and renewable power in downtown Vancouver could also deliver new schools, new daycare spaces and improved parks. **Is this a better idea? We want to know what you think.**

Our traditional approach.

We're lucky in British Columbia. We don't have blackouts or brownouts. That's because we have a reliable energy system built through careful, long-term planning. Even though we're looking out more than 40 years, we need to start planning today so we're ready for the increased clean energy demand of tomorrow.

Our traditional approach to developing new substations is to determine where they're needed, search for appropriate sites, and then build them above ground. This is how we've built almost all of our nearly 300 substations in British Columbia.

In downtown Vancouver, this approach would mean that each new substation would take up almost half a city block, like the Mount Pleasant substation or the Murrin substation in Chinatown. In a growing city where land is scarce and valuable, and where increasing numbers of people need places to live, learn, work and play, does the traditional approach make sense?



Mount Pleasant substation



Murrin substation in Chinatown

A better idea?

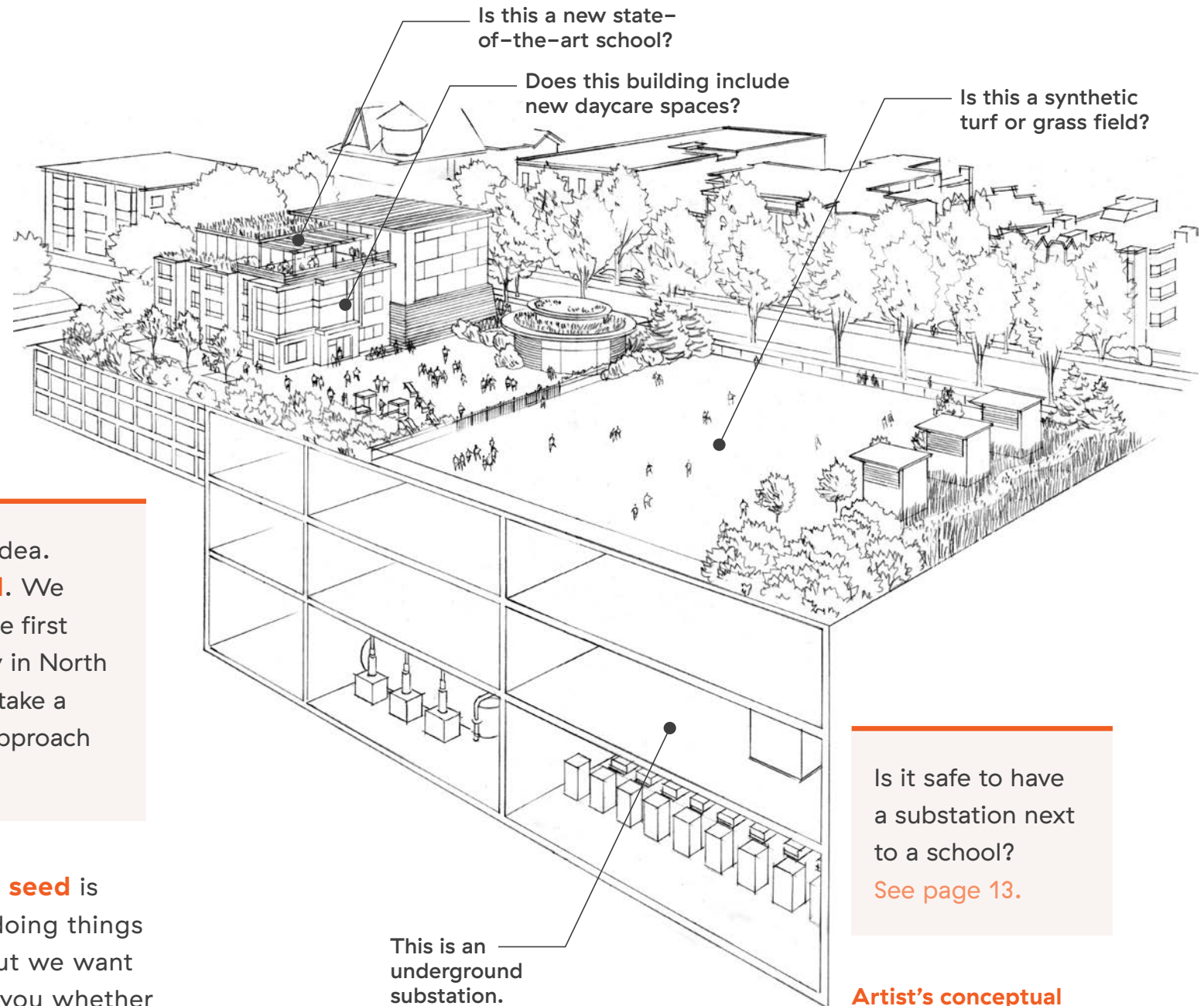
Instead, what if we used money and land more wisely and built two new electricity substations below ground, while using the space above them for new schools, new daycare spaces and improved parks.

Imagine if...

- Instead of using scarce urban land for electrical infrastructure, we could fund more spaces for people to live, learn, work and play.
- Instead of buying land from private landowners, we could work with the Vancouver School Board and Vancouver Park Board to share public land and make investments that benefit neighbourhoods, making them even more livable.
- We could help Vancouver continue to be a green leader in the world by delivering safe, reliable, clean and renewable power.

That's our idea. That's **seed**. We would be the first public utility in North America to take a city-wide approach like this.

At this stage, **seed** is our idea for doing things differently. But we want to hear from you whether this idea makes sense or is better than doing things the traditional way.



Is it safe to have a substation next to a school?
See page 13.

Artist's conceptual rendering

Are we on to something?

Imagine...

This is what **seed** could look like—a complete transformation to Cathedral Square Park in downtown in the next three years. A new school in Coal Harbour as early as 2020, and one in the West End by 2025. New daycare spaces and increased green space.

This is what **seed** could look like. What we need to know at this stage is: are we on to something?



seed at a glance

- A complete transformation of **Cathedral Square Park** to make it a more desirable place to visit (2020)
- Possible added amenities to **Emery Barnes Park** in Yaletown, if requested by the community (2020)
- New **school in Coal Harbour** (2020)
- New **school, daycare spaces** and **green space** in the West End (2025)
- New underground substation in the West End (2025)
- Refurbishment of **Emery Barnes Park** (2039)
- New underground substation under **Emery Barnes Park** (2041)
- Upgrades to the existing underground **Cathedral Square** substation (2050)
- Significant funds that the Vancouver Park Board could use to provide other potential benefits, such as a new park or recreational facilities

We need to hear your ideas.

At this stage, we've brought this idea to the City of Vancouver, the Vancouver School Board and the Vancouver Park Board for their consideration. BC Hydro, the Vancouver Park Board and the Vancouver School Board will decide at the end of March 2017 whether or not to enter into agreements that would allow underground substations to be built in the West End and Yaletown, and enable community benefits such as schools, daycares and park improvements.

Should a decision be made to move **seed** forward, there would be further planning, community consultation and development. Substation design and consultation would be led by BC Hydro, consultation regarding schools would be led by the Vancouver School Board, and consultation regarding park design and other improvements would be led by the Vancouver Park Board.

Through this early consultation process, we're sharing information about **seed** to see whether you think it's a better idea than our traditional approach, and what opportunities and impacts there might be. Your input is a key part of what BC Hydro, the Vancouver School Board and the Vancouver Park Board will consider, along with technical and financial considerations, as we determine whether to take this path, or go the traditional route to develop new substations in downtown Vancouver.

Should **seed** move to further stages of planning and development, there would be many further opportunities for community consultation.



How can you get involved?

We want to hear from you.

From January 20 to February 28, 2017, we're seeking your early feedback regarding **seed**. Whether you're a parent, a park user or a resident, or you work in these neighbourhoods, we want to hear from you.

There are several ways for you to get involved:

- Read this discussion guide and complete the online feedback form at bchydro.com/seed
- Provide a submission to seed@bchydro.com
- Attend an **open house** in your neighbourhood:

Yaletown

Wednesday, February 1, 2017

5:00–8:00 p.m.

Wednesday, February 22, 2017

5:00–8:00 p.m.

Elsie Roy Elementary School
150 Drake Street, Vancouver

West End

Saturday, February 18, 2017

10:00 a.m.–1:00 p.m.

Monday, February 20, 2017

5:00–8:00 p.m.

St. Paul's Anglican Church
1130 Jervis Street, Vancouver

- Attend a **small group roundtable discussion** in your neighbourhood. Please email seed@bchydro.com to sign up, as space is limited:

- **West End**

Tuesday, January 31, 2017

6:00–8:00 p.m.

- **Yaletown**

Thursday, February 2, 2017

6:00–8:00 p.m.

- **West End**

Wednesday, February 15, 2017

6:00–8:00 p.m.

- **Yaletown**

Thursday, February 16, 2017

6:00–8:00 p.m.

How will input be used?

The input you provide during this phase of consultation will be considered by us, the Vancouver School Board and the Vancouver Park Board, along with technical and financial information, to shape **seed** over the coming months. A decision whether or not to move **seed** to further planning, community consultation and development will take place at the end of March 2017.

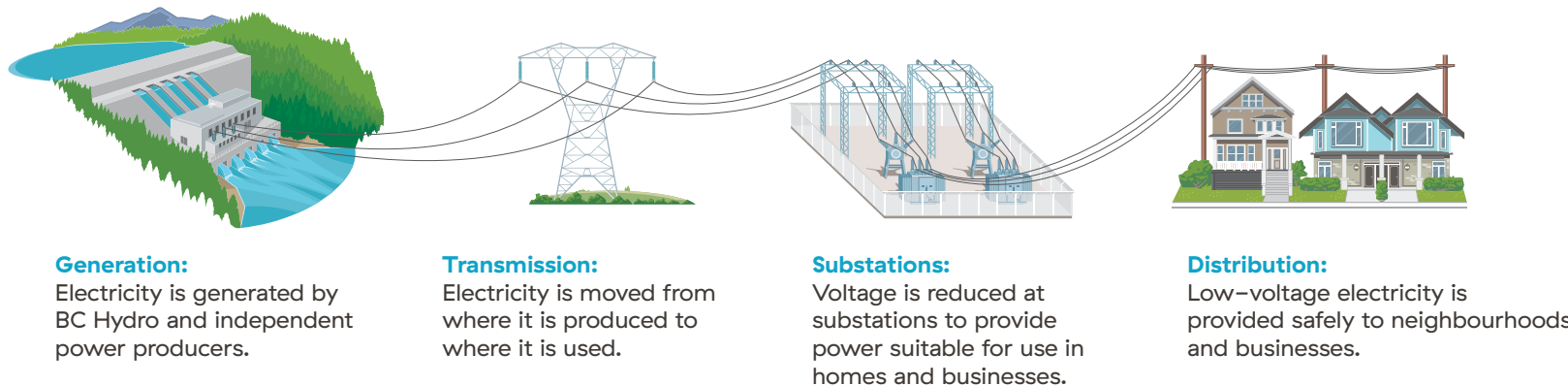
What are substations and why are they needed downtown?

The detail

Substations transform power that comes from our generating stations so that it can be used in homes and businesses. They are a key link between our electricity transmission system and your light switch.

As the number of residents and businesses grows in downtown Vancouver, we need increased electricity supply. There's also a need for schools, parks and other recreation facilities in these growing neighbourhoods.

The existing BC Hydro Murrin substation in Chinatown (built in 1947) and Dal Grauer substation on Burrard Street (built in 1953) are aging; they don't have sufficient capacity to serve future electricity demand downtown and so they will be decommissioned in the coming decades. The Cathedral Square substation (built in 1984) requires an upgrade by 2050.



Downtown Vancouver needs two new substations in the West End and Yaletown, two of the fastest growing and most densely populated areas of downtown Vancouver. Instead of our traditional approach of building them above ground, we're proposing to build them underground.

It's not the first time we've done this—Cathedral Square Park in downtown Vancouver was built above the first underground substation in North America in 1984. Now, other communities like Anaheim (2007) and Toronto (2017) are following our lead.

Are electric and magnetic fields (EMF) from substations safe?

See page 13.

Growing community with energy.

West End

Our idea for the West End is to build a new underground substation on Vancouver School Board property at Nelson between Thurlow and Bute, next to Nelson Park. In keeping with our idea of leaving communities better off, we could invest in new state-of-the-art schools in Coal Harbour and the West End, to support the needs of families in these growing communities.

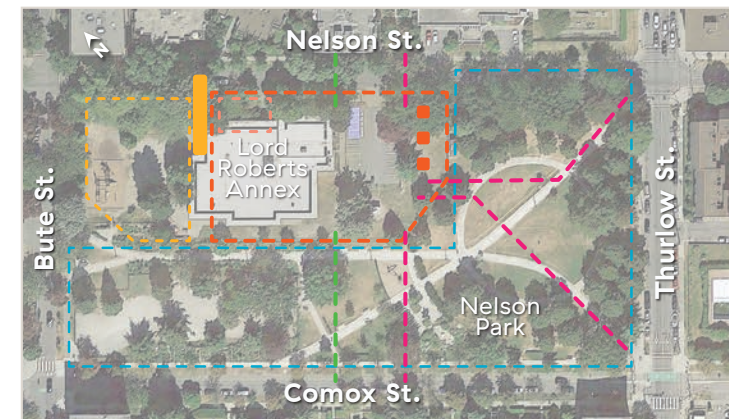
This is what **seed** could bring to the West End. There's lots of time for future planning by the Vancouver School Board and the Ministry of Education to determine exactly how the land above and adjacent to the substation could be used.

Here's how we think it could work:

- A new school in Coal Harbour could be completed first, as early as 2020, and accommodate the relocation of students from Lord Roberts Annex
- A new school in the West End could be completed by 2025 and would replace Lord Roberts Annex
- New daycare spaces could be included in both new schools
- The new substation would be operational by 2025
- There could be an increase in green space of about 40% next to Nelson Park, which could include a playing field
- Mature trees in Nelson Park would be protected



Artist's conceptual rendering



---	Underground substation	■	Above ground vents
---	Above ground substation structure and public washrooms	---	230 kV underground cables
---	New urban elementary school	---	25 kV underground cables
---	Entrance to underground school parking and substation	---	Nelson Park boundary

West End site map

Growing community with energy.

Yaletown

Our idea for Yaletown is to build a new underground substation beneath Emery Barnes Park. If desired by the community, we could invest in some additional amenities in the park over the next two to three years.

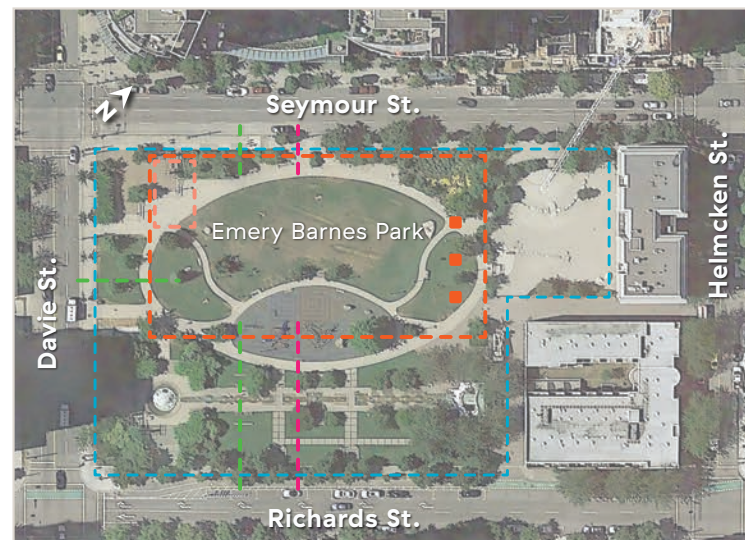
While the substation is being built, starting in 2036, parts of Emery Barnes Park would be unavailable, and we would work with the Vancouver Park Board and neighbours to provide alternatives in the neighbourhood. Closer to the end of construction of the substation, around 2039, we would restore the entire Emery Barnes Park with new and improved facilities. The substation would be operating by 2041.

This is what **seed** could bring to Yaletown. There's lots of time for future planning by the Vancouver Park Board to determine how and when Emery Barnes Park could be enhanced.

In addition, **seed** could provide significant funds that the Vancouver Park Board could use to provide other potential benefits, such as new park or recreational facilities.



Artist's conceptual rendering



Yaletown site map

- - - Underground substation
- - - Above ground substation entrance structure & public washrooms
- Above ground vents
- - - 230 kV underground cables
- - - 25 kV underground cables
- - - Emery Barnes Park boundary

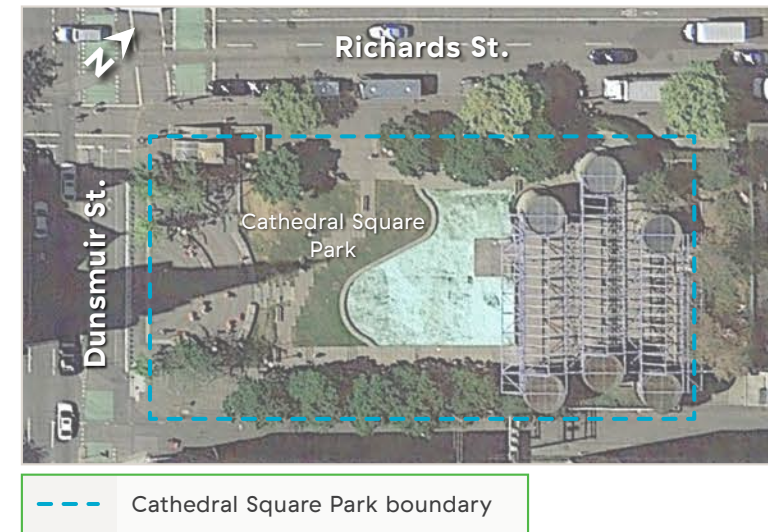
Growing community with energy.

Cathedral Square

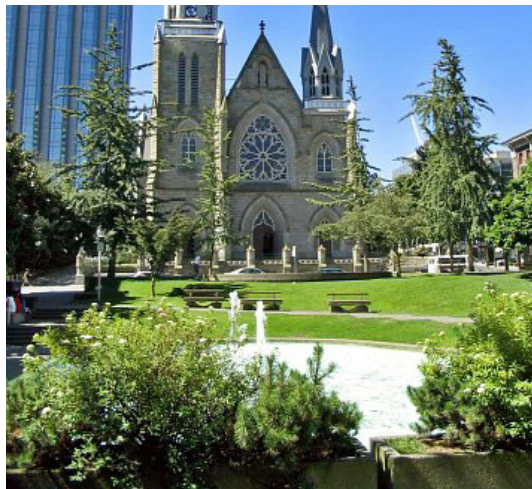
Our idea for Cathedral Square is to completely transform Cathedral Square Park over the next two or three years to provide a more desirable place for the downtown community and future residents of the area.

We plan to stay underground at Cathedral Square for the long term. It will require upgrades by 2050 so that it can continue to serve downtown Vancouver.

When Cathedral Square was completed, the park was brand new. But today, the park space above is outdated and not well used. This is what **seed** could bring to Cathedral Square: a beautiful park space in the heart of downtown Vancouver for all to enjoy. In addition, **seed** could provide significant funds that the Vancouver Park Board could use to provide other potential benefits, such as new park or recreational facilities.



Cathedral Square site map



Cathedral Square Park (1984)

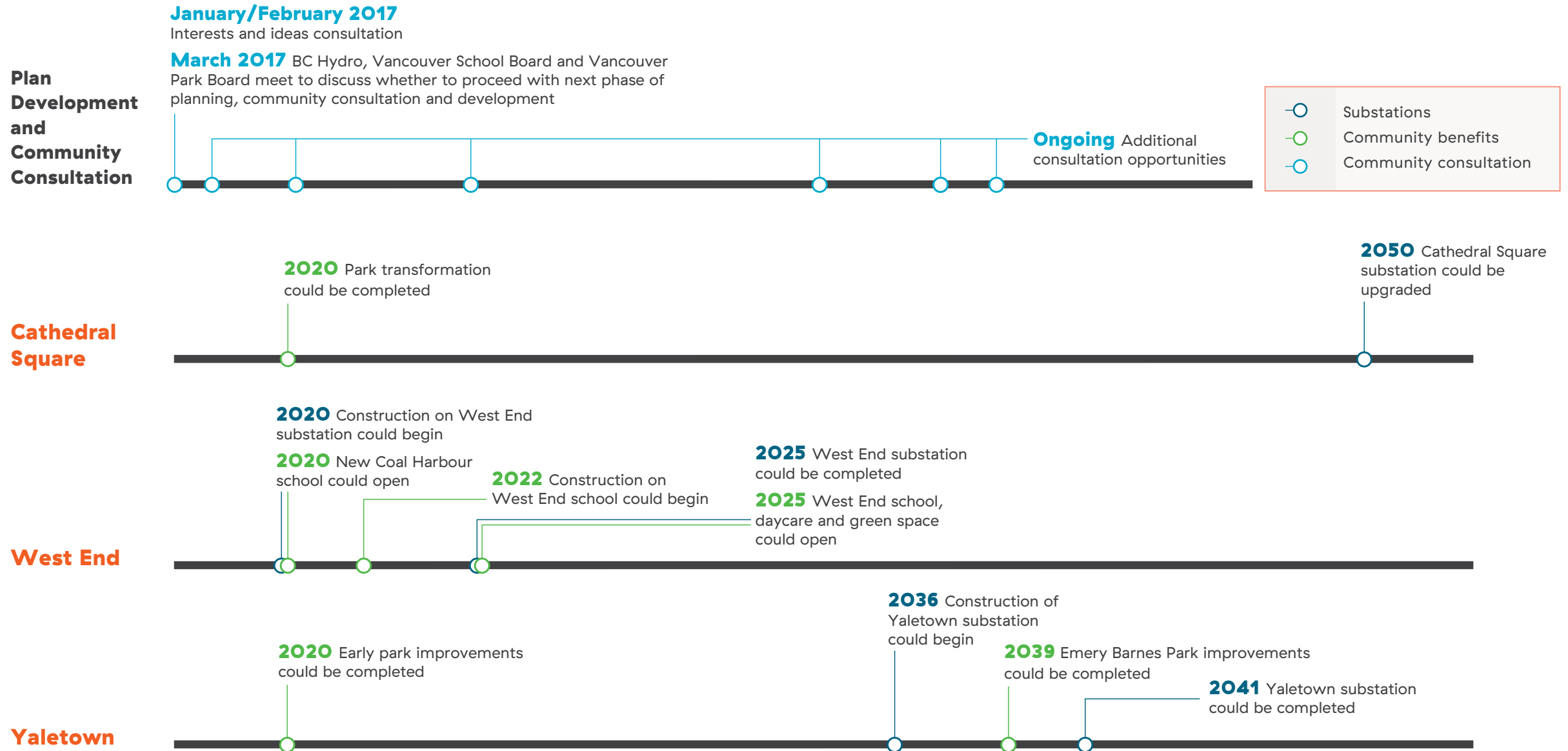
Source: City of Vancouver



Cathedral Square Park (2017)

Timeline.

This is a timeline showing how our idea could take shape over the next 35 years.



Potential impacts and mitigation.

Going down this path won't be without impacts. We recognize that the construction of substations, schools, and park improvements would affect those who live, learn, work and play in these neighbourhoods. We're studying what the impacts of **seed** may be, so that we can propose ways to avoid or minimize them.

Stantec, an independent engineering, consulting and design firm, is currently studying the following topics related to **seed**:

- Current park use
- Park feature inventory
- Vancouver Park Board strategies and initiatives
- Vancouver School Board strategies and initiatives
- Park aesthetics
- Air quality
- Noise and vibration
- Public safety
- Human health
- Stormwater management
- Electric and magnetic fields
- Property values
- Subsurface hydrology (underground water)
- Urban forestry
- Environmental and traffic management during construction
- Environmental and socio-economic benefits of a new school, new daycare and park improvements

We'll share the results of this technical work with you when it is available over the coming weeks, and those results will guide us, the Vancouver Park Board and the Vancouver School Board as decisions are made about whether to proceed.

Electric and magnetic fields

We recognize there is some public concern about electric and magnetic fields (EMF) and possible health effects. BC Hydro safely operates 37 substations in Metro Vancouver north of the Fraser. Of the ones BC Hydro owns, over half are within 100 to 200 metres of public spaces such as parks, schools or shopping centres.

When it comes to matters of health and electricity infrastructure, we rely on the independent research and findings of health authorities including Health Canada and the World Health Organization.

Health Canada and the World Health Organization have indicated that there is no confirmed evidence of any health risks from magnetic field measurements below the recognized exposure limit of 2,000 milligauss (shortened as mG) or 200 Microtesla (shortened as μT).

At Cathedral Square Park, above our existing underground substation in downtown Vancouver, measurements range from 2 mG to 100 mG (0.2 μT to 10 μT), or approximately 0.1 to 5% of these conservative exposure limits. For comparison, dishwashers and washing machines emit around 20 mG (2 μT), SkyTrain ranges between 10 and 200 mG (1 μT and 20 μT), and hairdryers and portable heaters emit around 300 mG (30 μT).

For more information, please visit bchydro.com/emf.

Do you like the idea?

Q1. Now that you've heard about our **seed** idea, do you think it's better than our traditional approach?

- Yes
- No
- Not sure

Q2. Why?

How do you want to be involved?

During this early phase of consultation, we want to hear your interests and ideas. You can help shape **seed** and future consultation by answering the questions below.

Should **seed** proceed to further stages of planning and development, there would be many future community consultation opportunities.

Q5. How likely are you to provide feedback about **seed** through these ways?

	Likely	Neither likely nor unlikely	Unlikely
Website: online feedback forms/ surveys	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Small group meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open houses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Phone interviews	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Email	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q6. How would you like to be kept informed about the development of **seed** if it progresses?

- Email
- Website
- Social media
- Community update meetings
- Through information at your local school or community centre
- Other: _____

Contact information (optional)

If you would like to receive updates about **seed**, please provide the following information:

First Name: _____

Last Name: _____

Organization (if applicable): _____

Position (if applicable): _____

Email: _____

Phone: _____

I consent to BC Hydro sending me updates about **seed**, including notification when the Consultation Summary Report is available. My consent is valid from the date I consent.

Yes, I consent

Date: _____

Thank you for your input.

Please provide your feedback by February 28, 2017 by:

- Mailing this completed form to:
BC Hydro
P.O. Box 8910
Vancouver, BC
V6B 4N1
Attention: seed
- Completing this feedback form online at **bchydro.com/seed**
- Sending a submission to **seed@bchydro.com**

How input will be used.

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