

## Lesson Plan: Development of Metro Vancouver and BC Electric

**Grade Level:** High School (Grades 10–12)

**Subject:** Social Studies, History, Urban Studies, Geography

**Duration:** 1–2 class periods (50–60 minutes each)

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### Learning Objectives

By the end of this lesson, students will:

1. Understand the historical development of Metro Vancouver’s transportation and urban layout, shaped by BC Electric and Robert Horne-Payne.
  2. Analyze how market forces and infrastructure influenced the organic growth of Metro Vancouver.
  3. Explore the role of streetcars and hydroelectric power in urban and suburban expansion.
  4. Reflect on the relationship between private enterprise and government in shaping cities.
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### Materials Needed

1. Video called [BC Electric and the Development of Metro Vancouver](#).
  2. Video Script and Supplemental Video Notes.
  3. Maps of early Metro Vancouver showing streetcar lines and urban development.
  4. Timeline handouts of key events in Vancouver’s development.
  5. Visual aids: diagrams of streetcar systems, images of early Vancouver neighborhoods, and BC Electric infrastructure.
  6. Whiteboard or Smartboard for brainstorming and notes.
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### Lesson Outline

#### 1. Introduction (10 minutes)

- **Hook Question:** *“Have you ever wondered why Vancouver’s streets and neighborhoods are laid out the way they are?”*
  - Encourage students to think about how transportation systems influence city growth.
- Provide an overview of the role of BC Electric and Robert Horne-Payne in shaping Metro Vancouver’s development.

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## 2. Storytelling: The Rise of Metro Vancouver (15 minutes)

- **Video/Reading:** Show the video and share insights from the Supplemental Video Notes, highlighting:
  - The establishment of the BC Electric Streetcar Company by Robert Horne-Payne.
  - The relationship between streetcars, hydroelectric power, and urban expansion.
  - Key infrastructure projects and their impact on neighborhoods (e.g., streetcar suburbs, industrial zones, parks).
  - The influence of market forces and limited government involvement on Vancouver's growth.
- Use maps to show the development of streetcar lines and how they shaped major streets and neighborhoods in Metro Vancouver.

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## 3. Group Activity: Mapping Vancouver's Growth (20 minutes)

- Divide students into small groups and assign each group one focus area:
  1. **Streetcar Suburbs:** Analyze the relationship between streetcar lines and residential neighborhoods.
  2. **Commercial Development:** Explore how streetcar stops influenced the growth of retail streets (e.g., Main Street, Fraser Street).
  3. **Hydroelectric Power:** Examine how BC Electric's energy projects supported urban expansion.
  4. **Market Forces vs. Government:** Evaluate the role of private enterprise in city planning compared to government intervention.
- **Task:** Groups create a presentation or poster summarizing their findings using maps and diagrams to illustrate key points.

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## 4. Class Discussion: Lessons from History (10 minutes)

- Facilitate a discussion with guiding questions:
    - How did private companies like BC Electric shape Metro Vancouver's growth?
    - What are the advantages and disadvantages of market-driven urban planning?
    - How did transportation systems influence the layout of neighborhoods, parks, and commercial areas?
    - How does this history inform current urban planning challenges in Metro Vancouver?
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## 5. Reflection and Wrap-Up (5–10 minutes)

- **Reflection Prompt:** Students write a brief response to one of these questions:
    1. *What role should private companies play in city planning today?*
    2. *How did the streetcar system contribute to Vancouver's identity and growth?*
    3. *What lessons can we learn from the balance between market forces and government in shaping cities?*
  - Volunteers share their reflections with the class.
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## Assessment

1. **Participation:** Evaluate engagement in group discussions and activities.
  2. **Presentations/Posters:** Assess the quality of analysis and creativity in visualizing the historical growth of Metro Vancouver.
  3. **Reflection Responses:** Use a rubric to evaluate critical thinking and connections to modern urban issues.
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## Key Terms and Concepts

- BC Electric Streetcar Company
  - Robert Horne-Payne
  - Streetcar Suburbs
  - Hydroelectric Power
  - Market Forces and Urban Growth
  - Marchetti Constant
  - Zoning and Retail Development
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## Extension Activities

1. **Research Project:** Investigate how a specific Vancouver neighborhood (e.g., Kitsilano, Commercial Drive) was shaped by early transportation systems.
  2. **Debate:** Should urban transportation systems be privately owned or government-run?
  3. **Creative Writing:** Write a story or diary entry from the perspective of a streetcar passenger in 1910s Vancouver.
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## Conclusion

This lesson highlights the unique development of Metro Vancouver, shaped by transportation and energy infrastructure driven by private enterprise. By understanding this history, students gain insights into how cities evolve and reflect on the balance between market forces and government in shaping urban spaces.

## **Video Script of BC Electric and the Development of Metro Vancouver**

**NB script in red should be speeded up or consolidated**

In its first 40 years, Vancouver developed with surprisingly little government involvement. The Canadian Pacific Railway laid out and named its streets in a flexible grid pattern before the city government even existed. The streetcar company determined which streets would be major.

One of the great shapers of Metro Vancouver was Robert Horne-Payne, President of the BC Electric Streetcar Company, which he incorporated on Threadneedle Street in London. London was the inspiration, an unplanned city whose order arose incrementally from human actions not human design.

From his home and wheelchair in Brentwood England he personally made all major streetcar decisions, harnessing market forces to build the transportation and hydroelectric infrastructure of the region.

The 1880s changed world cities. First electric streetlights, then electric streetcars. In one week, Vancouver got both, an instant modern city.

The Marchetti Constant says a city area is limited by an average one half hour commute. Even great ancient cities only had a 2.5 kilometer walkable radius. Streetcars tripled this to 7.5 km. The increase in area became the streetcar suburb requiring a new form of housing.

In urban Europe, the worst living was the ground floor, the best the next floor up, the piano nobile, called the first floor in Britain and some Vancouver buildings. With no elevators, the cheapest floor was the highest, the opposite of today. Growing grass or gardens not food gave status.

The single detached house elevated with stairs was perfect for the 1890s. Almost all Vancouver houses were built 'on spec', that is by speculators. Horne Payne offered discounted transit to populate the new neighbourhoods.

A healthy streetcar line needs a catchment area on both sides for maximum riders. A line beside water or park or close to another line will have reduced ridership. Major streets were set just under one kilometer apart.

Homeowners on successful streetcar lines built stores on their front yards. All our neighbourhood shopping streets started this way. Some of the original houses can still be seen today. With zoning, conversions like this became illegal.

Streetcar extensions that developed after zoning have few stores. Main Street has retail up to 33rd Avenue, the original streetcar stop.

On Fraser retail follows the original line to 51st Avenue. On Victoria north of Kingsway, no streetcar no retail. South of Kingsway the shopping street ends at the old stop on 43 Avenue. Streets like Knight, Cambie and MacDonald got transit after zoning and have almost no retail at all.

Retail prefers flat land; Davie and Robson have few stores on the hill. Commercial Drive had ample housing thus healthy retail. But Venables went through a swampy area; it became industrial. The original geography of Vancouver can be discerned; park, school and industrial sites were often marshy areas not suitable for housing.

BC Electric powered homes and industries. Horne-Payne switched from coal to hydroelectric by linking Coquitlam Lake to Buntzen Lake, named after a company manager, then power stations on Indian Arm. He linked Allouette Lake to Stave Lake power and diverted the Bridge River for Seton Lake power.

Horne-Payne built a factory in New Westminster that produced hundreds of streetcars. BC Electric's focus on technology and experts influenced culture. Its corporate headquarters was BC's first modernist high-rise, now a condominium.

Studies show BC Electric invested more and took less than most other city systems. Voters refused to purchase BC Electric, believing government ownership would mean increased taxes. CP Rail was profitable while the government owned CN and PGE required constant tax subsidies. Indeed, after the Province nationalized BC Electric in 1961 taxpayers have subsidized transit ever since.

Horne-Payne faced a boom and bust economy; the value of Vancouver building permits peaked in 1913 and 1929 at \$20 million plunging to \$2 million shortly after.

The gas-powered automobile expanded the city radius to twenty kilometers. One landowner built the Lions Gate Bridge so cardriving homebuyers could reach his properties. BC Electric shifted to gas buses although even today electric trolley buses largely follow the original streetcar lines.

Vancouver's expansion began with the Powell Line, to the original High Street, Cordova then Granville and Pender.

Westminster, now Main Street, crossed a company bridge, the High Street, then Granville and Pacific.

Over the Granville Bridge, on Broadway seven trestles over streams, eventually the looping Fairview Beltway.

In New Westminster, Columbia climbing to Queens Park to sixth and sixth.

The Central Park interurban line like Kingsway avoided crossing water by taking the highest route, linking these isolated settlements, initiating Metrotown and Collingwood, leading South Vancouver and Burnaby to incorporate.

Hastings role strengthened. The Robson line opened the West End. The Stanley Park line by the all-important post office, down Pender and Georgia.

The planned Bidwell line was changed to Denman, then up Davie.

Main and Powell were extended. BC Electric acquired the Kitsilano Trestle and a line serving industry on False Creek, Main Street to 33rd to the Mountain View Cemetery and the rock quarries making possible the Queen Elizabeth gardens.

A ferry bringing passengers to the North Shore was at the Inner Harbour's widest, slowest moving point. Four times a day this large body of water rushed through the treacherous First Narrows at often ten times the speed.

Horne-Payne had wanted a rational line on Third Street, but the region's first public consultation process forced a substandard route.

The mainline up Lonsdale, another to Lynn Valley. Horne-Payne purchased the forest up to the Capilano Suspension Bridge and gifted it as the park we enjoy today.

The Sockeye Express climbed around the Quilchena Park Plain, source of some of the world's largest timber, to a place it called Kerrisdale, downtown Point Grey, with a City Hall, now residential towers. This line to Steveston led fishing and farming to flourish.

**Georgia and Keefer, Broadway to Fraser, Robson to Recreation Park.**

The Royal Columbian, British Columbia's first hospital. A freight line to a brickyard led to the flatter Marpole line for heavy goods from New Westminster on to Vancouver.

**4th Avenue was the original line west to Alma giving its finer grained retail.**

Powell, the original line to East Vancouver, to the PNE entrance. Hastings gained prominence with a line to Boundary Road.

A line went up Kingsway then Fraser to 51st, then Victoria to 43rd.  
Cordova linked to Granville

A bridge enabled the Fraser Valley line, opening up new communities. Lumber mills and farms flourished and BC Electric brought thousands of gallons of milk to Vancouver every day. It avoided the massive but shallow Sumas Lake. The province built the Vedder Canal and drained the Lake. Chilliwack incorporated anticipating the arrival.

Broadway only went to Trafalgar, the end of CPR property.

Main extended to 50th then 63, Richards and Cambie to Hastings,  
The Burnaby Lake line is now the Trans Canada freeway. Its boulevard on First Avenue veered off at Nanaimo to join Commercial Drive. First Avenue was never meant to be an arterial and still looks residential.

Powell to Venables on Commercial, Kingsway to Earles, Broadway to Commercial  
Granville to King Edward,

Main to the Marpole line  
Fraser to 59th

4th up Alma to 10th to Sasamat to 4th later to Drummond, 41st to Dunbar,

To Fraser Mills the largest in Canada 2. A connector on Sixth Street 3. A bridge over the Fraser to Queensborough, The Highland cutoff which is still used by the Expo line today

Granville to Oak on 33rd, Oak to Broadway, then Oak to Main on 16th, Connaught/Cambie Bridge linked to Robson, Richards to Drake, Nanaimo to Broadway, the east half of False Creek was filled from the Grandview Cut, Crown bypass 16th to Dunbar, 41st from Boulevard to Main, Oak Street to Marpole, Victoria to 54, Kingsway to Earles, Hastings to Ellesmere, Fraser connected to Marine Drive, the Powell line linked to Hastings. The PNE entrance moved though it still feels like the back door.

Granville Island streets follow the old BC Electric rails.

Broadway to Alma then the Dunbar bypass led Crown to close.

Horne-Payne cancelled the streetcar to Rupert Street and instituted Metro Vancouver's first bus line signalling the beginning of the end for streetcars.

BC Electric had expanded its network conservatively. Many streetcar companies had gone broke and there was no government to bail them out. Horne-Payne rarely approved extensions unless there were contributions by landowners and there was development already in the area.

He refused to get involved in land speculation or property development focussing solely on the core business. Because decisions were made in London, there was a buffer from public and political pressure. Metro Vancouver was more compact because of BC Electric.

Robert Horne-Payne sold BC Electric and passed away, leaving a region that had grown organically through market forces with little government involvement. He had built the transportation and energy skeleton of Metro Vancouver.

### **Supplemental Video Class Notes**

Robert Horne-Payne was a young man in London who was a financier. He came out to British Columbia in the late 1800s and met William Cornelius Van Horne who was overseeing the building of the Canadian Pacific Railway line to Vancouver. He got him interested in financing railway infrastructure. The original street car company in Vancouver and New Westminster, went broke, and Horne-Payne purchased the assets and created the BC Electric Streetcar Company.

The assets...