A Brief History of the Pattullo Bridge

Jivan Johal and F. Michael Bartlett

Abstract The Pattullo Bridge over the Fraser River is the only major steel through-arch highway bridge remaining in British Columbia. Opened in 1937, the bridge replaced the narrow traffic lane above the railway tracks on the New Westminster Rail Bridge, improving vehicular traffic volumes. It connects the former BC capital of New Westminster with the region of Surrey and, along the Pacific Highway, the USA. Col. W. G. Swan (1885–1970) led the bridge design team, and the structural steel was fabricated and erected by the Dominion Bridge Company, both iconic names in the history of bridge engineering in BC. The Pattullo Bridge was the first major crossing into the Southern Greater Vancouver Area during a time of rapid societal expansion and has served a pivotal role, for almost 90 years, connecting suburban areas with metropolitan Vancouver. The impending replacement of the Pattullo Bridge heightens its historic importance: steel through-arch designs in BC, and so a part of British Columbia's structural engineering history will become extinct.

Keyword Pattullo Bridge

1 Introduction

The Pattullo Bridge over the Fraser River, Fig. 1, connects Bridgeview, Surrey, and New Westminster in the Lower Mainland of British Columbia. The bridge is named to honor Premier Thomas Dufferin "Duff" Pattullo, who ceremoniously opened the bridge on November15, 1937.

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Fig. 1 Pattullo Bridge in 2021 with New Westminster Rail Bridge in lower foreground. *Source* J. Johal

2 Historic Background

New Westminster was first settled in 1859 as BC's capital. It served as a vital hub for river traffic headed upstream to the Cariboo Region, which was experiencing a gold rush. The K. D. K. ferry, Fig. 2, was established as the first river crossing in 1898. It connected New Westminster and Surrey, to address an influx of economic growth and farming activities in the region as settlement grew along the southern banks of the Fraser River and into Surrey [1].

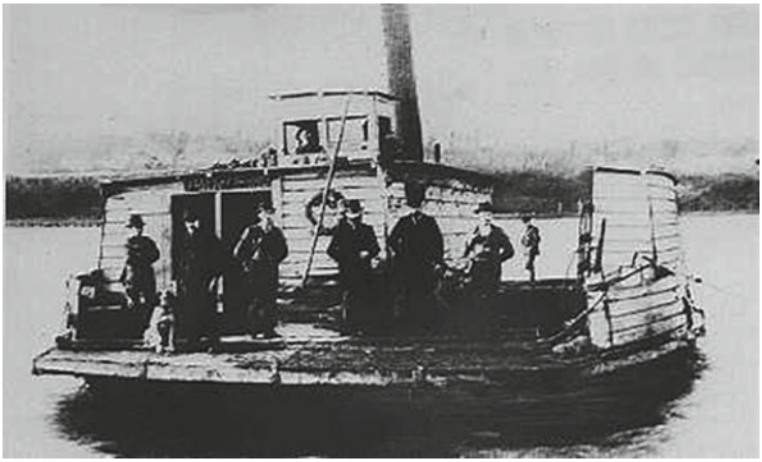

Fig. 2 K. D. K Ferry, 1900s. *Source* Surrey historical society

With the establishment of Vancouver as a major West Coast port, the city and its surrounding area became a hub for transportation and commerce. The ferry connected the agrarian areas of Brownsville, on the south shore, to the City of Vancouver via Kingsway. By 1900, the ferry was incapable of handling the increasing traffic volumes. The New Westminster Rail Bridge, shown in the foreground of Fig. 1, opened in 1904 to accommodate the newly constructed Great Northern and New Westminster Southern Railways. To relieve the ferry, it featured a 15 ft. (4.6 m) wide roadway [2], supported on its upper chords. The toll for the upper roadway was 25¢, and farmers were very annoyed to be charged 25¢ per head for cattle herded across the bridge when they would only pay 25¢ per load if the cattle was trucked across [3].

Growing vehicular traffic volumes quickly exceeded the capacity of the New Westminster Rail Bridge, particularly given the frequent interruptions caused by opening the swing arm to accommodate river traffic. Moreover, the construction of the Pacific Coast Highway to Blaine WA, a two-lane gravel road, later paved in 1923, and the Trans-Canada highway, paved east to Chilliwack by 1935 [4], markedly increased traffic volumes. And [1] notes "the Pattullo Bridge and its road networks were essential to the growth of tourism. The booming 1920s made it possible for more and more families to afford an automobile and holiday trips were no longer dependent on public transportation".

Thus, the need for a new high-level crossing was established. In 1933, an enquiry in accordance with the Navigable Waters Protection Act recommended that the new bridge can be located 200 ft (61 m) downstream of the New Westminster Rail Bridge, with the deep-water piers aligned closely with the existing railway bridge piers, Fig. 3. In November 1935 (sic), the Provincial Minister of Public Works commissioned W. G. Swan to "make surveys, obtain borings and test pile data, and proceed with the preparation of plans and specifications and estimate the cost of the new project" [2]. On April 30, 1935, a call for tenders was issued "on a unit price basis for all foundation work, combined with a lump sum price for the steel superstructure" [2]. On the closing date, two tenders were received and the lower, $3,250,000 from the Dominion Bridge Company Limited (DB), was accepted. The Northern Construction Company and J. W. Stewart Ltd. were listed as subcontractors for the substructure and approach spans, respectively. The contract was signed on August 21, 1935 [2].

As shown in Fig. 3, the north end of the bridge consists of a series of Warren deck trusses of 200 and 250 ft (61 and 76 m) spans. The main span is a 450 ft (137 m) tied through-arch, with adjacent spans of 350 ft (107 m) "similar to the Honore Mercer Bridge at Montreal" [2]. The approaches from the south consist of 1400 ft (427 m) of reinforced concrete girder spans "reinforced by light welded truss construction" [2] and the approaches from the north are two conventional 70 ft (21 m) reinforced concrete spans. The clearance under the main span is "150 ft (46 m) above normal freshet level". The deck is a 40 ft (12 m) wide reinforced concrete slab, that accommodates four lanes of traffic, and there is a six-foot (1.8 m) wide sidewalk, on the downstream side only. [2] notes that "the bridge deck is designed for uniform live

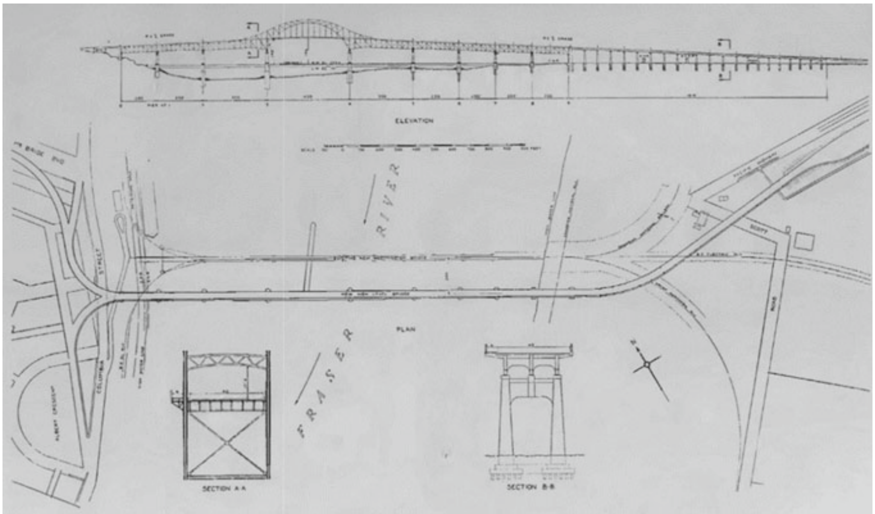

Fig. 3 General plan of bridge [2]

loading of 80–100 lb. per sq. ft. (2.8–4.8 kPa) and concentrated loading of 20-ton (178 kN) trucks, with three-fourth of the load on the rear axle. As far as applicable, Canadian Engineering Standards Association specifications govern".

Swan's selection of an arch bridge created an architecturally appealing design for the location and the through-arch readily provided for the necessary large clearance below the deck. The relatively simple Warren trusses yielded cost savings. Swan also opted for large piers for Piers 1 through 4 because the silty nature of the riverbed and the adjacent soils would require deep foundations with excessively long piles.

3 COL. W. G. Swan: Designer

William George Swan (1885–1970), born in Kincardine, ON, received a B.A.Sc. in 1908 and C.E. in 1911 from the School of Practical Science at the University of Toronto [5]. He moved west in 1910 to become a divisional engineer for CNR, responsible for the first 100 miles (160 km) of the main line from New Westminster to Yale. His service in World War I began in 1915 and was exemplary: He was promoted to Major, was twice mentioned in dispatches, and was awarded the Distinguished Service Order and the French Croix de Guerre [6]. He returned to supervise extensive construction work as Chief Engineer of the Vancouver Harbour Commission (1920–1925), served as the first elected President of the Association of Professional Engineers of British Columbia (1921) and, starting in 1925, founded his own consulting firm. In 1930, Hiram Wooster and H. A. Rhodes joined his practice, and in 1945, they formed the firm Swan, Rhodes, and Wooster. After Rhode's death in 1954, the firm continued as Swan Wooster. He was called up for service in the Second World War, with the rank of Colonel in the Corps of Royal Canadian Engineers, and served as Chief Engineer of Pacific Command, earning the Order of the British Empire in 1945. He was awarded the University of Toronto Engineering Award for Achievement in 1952, the Engineering Institute of Canada (Fig. 4).

Julian C. Smith Medal for Achievement in the Development of Canada in 1955, and an Honorary Doctorate of Science by the University of British Columbia in 1956. He was very engaged in community service and retired in 1967.

Swan noted that although the onset of the depression had weakened the influx of projects and staff, firm's contributions to the Pattullo and Lions Gate Bridge had "put us on the map again… …since then we never looked back" [7]. However, Swan's successful experience at the Pattullo Bridge became severely tainted on July 28, 1937. His only child, William MacKenzie Swan, was a fourth year Civil Engineering student at the University of British Columbia. Employed that summer as an inspector of the Pattullo Bridge construction, Bill tragically fell 30 m that afternoon and subsequently

Fig. 4 Col. W. G. Swan, 1956. *Source* City of Vancouver archives

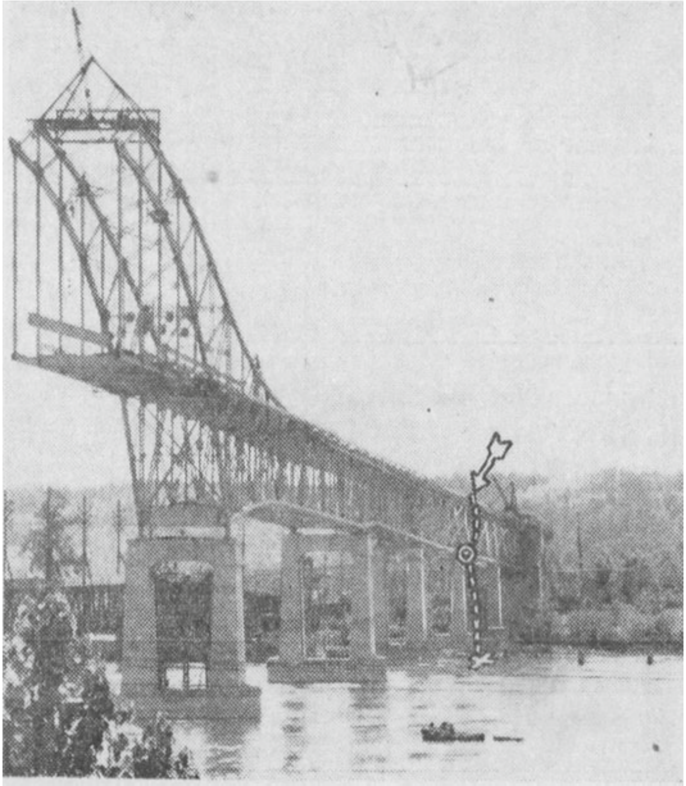

Fig. 5 Trajectory of Bill Swan's fatal fall. *Source* Vancouver Sun 1937

died of the internal injuries sustained. Figure 5, from the front page of the July 29 *Vancouver Sun*, shows the location where he fell from (arrow) his fall (dotted line) and the boggy ground where he landed (X). Jamieson [8] notes "That Swan likely obtained the job for his only son must have been a burden that he carried with him for the rest of his life".

4 Dominion Bridge Co. Ltd.: Fabricator and Erector

By the mid-1930s, the Dominion Bridge Company Ltd. was the most iconic steel fabricator and erector in Canada. The firm was spawned from the Wrought Iron Bridge Company (WIBC) of Canton Ohio. Sir John A. Macdonald's National Policy of 1878 created high tariffs that effectively prevented American fabricators like WIBC from selling bridges in Canada. With a new Canadian railway to the Pacific Ocean proposed, WIBC essentially created a branch plant in Canada, the Toronto Bridge Company, to be able to tender such projects. The key corporate officers were all from WIBC, including Job Abbott, president, John Thom, secretary-treasurer, and Abbott's staff including his brother Ira Abbott, Phelps Johnson, and General Luke Lyman [9]. "This company was a small concern and only fairly successful, since its very first contract, a one hundred and eighty foot span of 42 tons, for London, Ontario, (at the price of $4000) was dropped into the river during erection, and the company was held liable for its repair and replacement." [9]. In 1882, Abbott, as president of the company, secured funding from three Scottish investors for a new venture titled the "Dominion Bridge Company Ltd." to be sited at Lachine, in the vicinity of Montreal. In 1890, Abbot resigned from the Dominion Bridge Company to participate in field operations for the construction of the Bridgeport Bridge across the Ohio River at Wheeling WV, which was fabricated by WIBC. Phelps Johnson remained in Canada, rising up the ranks to become Chief Engineer in 1898 and subsequently served as General Manager (1892–1904), Director (1903–1926), General Manager and Chief Engineer (1904–1919), Managing Director (1910–1913), and President (1913–1919) [10].

Dominion Bridge expanded from its base at Lachine to open new branches in Toronto (1901), Winnipeg (1904), Ottawa (1909), Vancouver (1927), Calgary (1929), and Amherst, N.S. [9]. The Vancouver facility was initially a warehouse on False Creek, and the 1929 Annual Report of the company [11] notes:

> The plant at False Creek has been worked to capacity throughout the year. A new site of about thirty-five (35) acres, in the district of Burnaby about four miles from the False Creek plant, has been purchased, and construction is now proceeding on a plant which will give additional capacity of about two thousand tons per month. The property is well situated and is so laid out that as demand increases the plant may be extended to an eventual capacity of three to four times the initial development.

The "Pacific Division", headed by Allan S. Gentles, had by 1939 completed "some very interesting steel structures… …outstanding among which are the Empress Hotel Extension at Victoria; the Marine Building, Royal Bank Building, Canadian National Hotel, at Vancouver; the Burrard Street Bridge, reconstruction of the Second Narrows Vertical Lift Bridge; and the New Westminster Tied Arch Bridge over the Fraser River" [9]. Steel for the Pattullo Bridge was fabricated at the Burnaby plant, located near the neighborhoods of Willingdon and Renfrew Heights along Boundary Road.

Walter Pruden (1919–2005) joined Dominion Bridge in 1936 as an apprentice, assigned to assist journeymen and fitters with laying out the structure at the Burnaby plant [12]. He recalled that the project was "wonderful for increasing employment", observing that the number of DB plant employees increased from approximately 350 men to 600 over the course of the project, with many more employed onsite. He also recalled that the Provincial Government missed the first progress payment, forcing the company to carry on using their own resources. Perhaps fortunately for the project, when the second progress payment was due, the government was able to pay both the first and second progress payments [12]. Pruden spent 40 years with the company, eventually retiring in 1976, having been promoted to Chief Welding Inspector for the last decade of his career.

It is perhaps puzzling that very little information seems available describing the work of Dominion Bridge in fabricating and erecting the superstructure. There are no published papers in the *Engineering Journal* about it—the only mention [13] is of a presentation made by A.L. Carruthers, Bridge Engineer for the Province of British Columbia, to a meeting of the Victoria Section of the Engineering Institute of Canada on December 16, 1937. There is a 16-page supplement about the bridge in the November 13, 1937, edition of the *Vancouver Sun*—much of [2] *Engineering Journal* article [2] is reproduced verbatim, and the roles of Northern Construction Co. and J. W. Stewart Ltd. are described in detail, but there is virtually no mention of the superstructure. The last page of the supplement is clearly a full-page advertisement paid for by Dominion Bridge—but it is mostly photographs with very little text.

5 Construction

Swan [2] describes the substructure construction in detail. Steel caissons were constructed at a work area one mile (1.6 km) upstream of the bridge site where an existing wharf was repaired and launching ways constructed. The depth of water at the dock and in the channel to the bridge site was 30 ft (9.1 m), so the caissons were "completed to a stage where they drew 29 ft (8.8 m) before towing to place". Sensibly, the contractors opted to build the simplest caissons first: The sequence was therefore Caissons 1, 4, 3, and finally 2 (as shown in Fig. 3, Pier 1 is the first in-water pier at the north end of the bridge, and the tied-arch spans between Piers 3 and 4). The construction milestones for each caisson were: "Start Cutting Edge"—presumably, fabrication of the steel cutting edge; "Launched"; "Towed to Site"; "Grounded"—ballasted to sink to the river bottom; and "Sunk to Finish Elevation"—after the excavation of material from inside the caisson was complete.

The processes for Caissons 1, 2, and 3 were relatively uneventful, but "Caisson No. 4 had a rather hectic experience: it grounded in towing, suffered an extreme freshet, and finished 19 inches (480 mm) from location as maximum error". As clearly evident in Fig. 6, the "second heaviest freshet in the history of the Fraser River" caused scouring to depths of "20–40 ft (6–12 m) below the original bed level. The cutting edge of Pier 4 caisson was exposed, and the caisson was barely prevented from overturning by placing hundreds of tons of rock under the lower side, which was eight feet (2.4 m) out of level. One end of the cutting edge was three feet (1 m) out of position." It is a credit to the contractors that the remedial measures they adopted, including "removing debris", "jetting along the outside of the north portion of the cutting edge", and resuming sinking operations, reduced the maximum error to 19 inches (480 mm).

Piers 5 through 8 are supported on 35 ft (10.7 m) piles. However, Pier 5, supporting the south end of the southern 350 ft (106 m) span, was subjected to even more distress than Pier 4. The cofferdam wall was punctured and the cofferdam flooded: "for a time it was feared that the work on Pier 5 would be destroyed" [2]. The bearing value of the foundation piling was eventually restored by: backfilling around the exposed

Fig. 6 Caisson 4 in distress. *Source* [2]

portions of the piles with pit run sand and gravel, driving new sheet piles to add semi-circular ends to the rectangular Pier 5 cofferdam and installing additional piles in these regions; placing a 5 ft (3.2 m) tremie concrete seal below the surface of the original river bottom; and pressure grouting the void beneath the tremie seal. The newly rounded ends of the pier reduced the turbulence of the water flowing past it, mitigating the risk of scour, and rip rap was placed to further mitigate this risk. The remedial measures for Pier 5's cost $35,000 (almost $700,000 today) [5].

The rest of the viaduct for the approach span on the south (Surrey) side was completed with relative ease as the piers were not under water.

Construction of the approach spans commenced after the piers were completed.

The southern approach spans were reinforced concrete girders and cross-beams reinforced by light welded trusses known as the "Kane System" [2], Fig. 7. According to [14]: "the principles involved in this construction were conceived and developed by Mr. C. *(Charles)* S. Kane, the Montreal representative of the Dominion Bridge Company Ltd". The system was originally developed for building construction, where the use of concrete floors is desirable to provide inexpensive fire resistance. Kane's innovations included: making the concrete slab and beam stem into a load-carrying element; and, prefabricating the reinforcing cage as a light truss that could be erected as a unit and support the weight of the fluid concrete and necessary formwork without additional falsework.

Jacobsen [14] lists ten buildings constructed or under construction in the Montreal area between 1930 and 1932 that feature Kane System reinforcement. Appendix I of the thesis notes "the elimination of shoring, together with its other features, renders highly advantageous its adaption to bridge work". This certainly would have been attractive for the construction of the Pattullo southern approach spans.

Fig. 7 Kane system reinforcement in south approach spans. *Source* Wikipedia

The Western Bridge Company Ltd., with facilities at the south shore of False Creek on First Avenue between Main and Cambie Streets, fabricated "a considerable share" of the Pattullo Bridge steelwork, including "a number of the largest trusses that to date have been fabricated in the province" [15]. The members are mostly built-up cross-sections, assembled by riveting and welding in the shop and subsequent riveting in the field. The main chords of the arch are built up from steel plates and angles to form box sections, with oval holes in the plates to reduce weight and allow access for riveting. The web members connecting the two chords of each arch have a Pratt truss configuration. The Warren truss members are typically laced, with end batten plates, to save weight. Nonetheless, some 5300 tons (4800 tons) of structural steel was required, as well as 1815 tons (1650 tons) of reinforcing steel and 62,000 cubic yards (47,400 m^3) of concrete [16].

The structural steel was erected using Stiffleg Derricks, Fig. 8, and a smaller traveler running on the top chord of the tied arch, Fig. 5. Photographs of the time (e.g., [12]) show falsework under the exterior steel spans 1–2 and 8–9, Fig. 3, only, indicating that the other spans were initially cantilevered as erection progressed to eliminate the need for temporary supports in the river. This is confirmed by [12] who lists the lack of falsework as one of the unique features of the bridge. This is further confirmed by the presence of temporary steel attached to the top chord of the Warren trusses in Fig. 8, which increases the negative moment over the leftmost pier to facilitate cantilevering the adjacent span under construction.

Fig. 8 Construction of Span 2–3, ca. 1937. *Source* City of Vancouver archives

The bridge was illuminated with sodium vapor lamps installed by Mott Electric of New Westminster, the first installation of such lamps in Canada [17]. By the end of construction, the Pattullo Bridge cast a large and impressive shadow over its predecessor, the New Westminster Rail Bridge.

6 Opening Ceremony: November 15, 1937

The opening ceremony was grand; both marine and land parades were held on the opening day, with long lines of tugboats, fishing boats, yachts, and other craft traveling below the central arch. On the main deck, floats, bands, and a line of mounted officers crossed in a ceremonious affair. The businesses of New Westminster displayed decorated shopfronts, and school children were given a half day off to witness the event.

Shortly after noon, Premier Duff Pattullo ceremoniously opened the bridge, using an oxy-acetylene torch to cut a steel bar linking two lengths of chain draped across the roadway, Fig. 9 [18]. Walter Pruden, present at the celebration, recalled that Mr. Harry Daly, the Chief Welding Inspector for the Dominion Bridge Company's BC plant, held the premier's hand and guided him with the cutting torch [12]. Pattullo said, to commemorate the occasion, "I trust that this massive structure may be the symbol of a breadth of vision and practical measures for fulfilment thereunder in the future expansion and upbuilding of our glorious province" [18]. There were, however, two minor mishaps in the opening ceremony, which took place in "rain chilled to

Fig. 9 Premier Pattullo opens the bridge, November 15, 1937. *Source* Vancouver *Sun*

the marrow by a wind and temperature which is hardly in keeping with a bridge opening". The speech by Allan S. Gentles of Dominion Bridge was interrupted by the tugs and fishing boats letting off their horns. A canvas tarpaulin over the speakers' platform tore suddenly, causing several "high top-hatted government officials" to be drenched.

7 Operation and Economic Impact

The economic impact of the Pattullo Bridge has been immense. It was estimated that 65% of the capital cost supported construction workers, providing 1000 jobs for two years at the peak of the Great Depression [19]. It was estimated that almost 10 million people (through walking, personal commuting, public transportation, and other uses) would cross the bridge within its first year of its opening and that almost one million tons of commercial goods and other freight would be taken across the bridge [5]. Users initially paid a toll of 25¢ per crossing until 1952 to recover the capital expenses of the project.

The Pattullo Bridge facilitated significant development in Surrey and Delta and remains today an essential link between these cities and New Westminster, the Trans-Canada Highway, and the large, densely populated, economic centers of Burnaby and

Vancouver. As growth and development expand deeper into the Lower Mainland, additional crossings of the Fraser River at Port Mann and Delta, the Port Mann and Alex Fraser Bridges, respectively, were constructed to strengthen connections initially created by the Pattullo Bridge.

In 1998, the newly created South Coast British Columbia Transportation Authority (colloquially known as Translink) became the owner of the bridge, with responsibilities for maintenance and operation. The narrow lanes have been hazardous: road safety pylons were installed to divide oncoming lanes of traffic, previously only separated by paint. These two center lanes are typically closed overnight in response to a severe history of head-on accidents and related fatalities. Chain link fencing was installed to protect pedestrians using the walkway. Expensive retrofits to address seismic and other deficiencies have been carried out. Safety nets have been installed above the Columbia Street underpasses in New Westminster to protect from falling deteriorated concrete [20].

In January 2009, the entire creosote-treated timber approach span on the Surrey side was destroyed by fire. Structural girders and components from the recently completed Canada Line were integrated into the approach. On January 26, just 8 days after the fire, the bridge was re-opened to the public [21].

Currently, a replacement cable-stayed bridge is under construction. The existing Pattullo Bridge is expected to continue operating until the mid 2020s and will demolished once the new bridge is operational.

8 Historical Significance

The opening of the Burrard Street Bridge in 1932 and the Pattullo Bridge in 1937perhaps marks the start of a new generation of large-scale high-level bridges with efficient approach spans throughout the Lower Mainland of British Columbia. Earlier bridges were primarily wooden trestles (1889 Granville Street Bridge), low swing-arm bridges (1909 Granville Street Bridge, 1904 New Westminster Rail Bridge), or low-level structures (1910 Westham Island Bridge, 1929 Capilano Bridge). The trend toward large-scale high-level structures continued with construction of the 1954 Granville St. Bridge, the 1960s Narrows Bridge (renamed the Ironworker's Memorial Bridge in 1994), the 1964 Port Mann Bridge. With the replacement of the Port Mann Bridge (1964–2012), the Pattullo Bridge is now the only remaining major through-arch bridge in the region. Its impending replacement will cause the extinction of this architectural style and will diminish the legacies of prominent names within the historic BC engineering community, including Col. W. G. Swan and the Dominion Bridge Company, Ltd., Fig. 10.

The scale of the Pattullo Bridge was very significant for the Lower Mainland, and at the time of its construction, it was the longest tied-arch span in Canada. There were many longer tied-arch bridges in America, as shown in Table 1—the Pattullo Bridge would have been tied for the 17th longest of the bridges on this list.

Fig. 10 Official 1937 plaque, photographed in 2021. *Source* J. Johal

Table 1 Longest through-arch bridges in Canada and USA

Rank	Bridge	Location	Date	Main span		Reference
				(ft)	(m)	Wikipedia
1	Bayonne	New York NY	1931	1675	510.5	[22]
2	Hell gate	New York NY	1916	978	298.1	[23]
4	West end	Pittsburgh PA	1932	780	237.7	[24]
5	McKees rocks	McKees Rocks PA	1931	750	228.6	[25]
6	South side point	Pittsburgh PA	1927	670	204.2	[26]
7	Detroit-superior	Cleveland OH	1918	620	189.0	[27]
8	Bourne	Bourne MA	1935	616	187.8	[28]
9	South grand island	Grand Island NY	1935	600	182.9	[29]
9	Yaquina bay	Newport OR	1936	600	182.9	[30]
11	Old trails	Tiprock AZ	1916	592	180.4	[31]
12	Tacony-palmyra	Philadelphia PA	1929	558	170.1	[32]
13	Tyngsborough	Tyngsborough MA	1930	547	166.7	[33]
14	Bellows falls arch	Bellows Falls VT	1905	540	164.6	[34]
15	Brady street	Pittsburgh PA	1896	520	158.5	[35]
16	Jerome street	McKeesport PA	1936	455	138.7	[36]
17	Broadway	Little Rock AR	1923	450	137.2	[37]
17	Pattullo	New Westminster BC	1937	450	137.2	
–	Honoré mercier	Montreal QC	1934	302	92.1	[38]

Nathan Holth describing the Pattullo Bridge on his Historicbridges.org website [39] considers the Pattullo Bridge to be “one of the largest and oldest bridges remaining in Greater Vancouver. It also has a high level of historic integrity with no major alterations to the arch or deck truss spans”. He laments the plan to replace the bridge, noting “Greater Vancouver has very few bridges of any heritage value” and concluding “the Pattullo Bridge is a beautiful and pristine heritage bridge that should be preserved not destroyed”.

9 Summary

The Pattullo Bridge over the Fraser River is the only major steel through-arch highway bridge remaining in British Columbia. Opened in 1937, the bridge replaced the narrow traffic lane above the railway tracks on the New Westminster Rail Bridge, improving vehicular traffic volumes. It connects the former BC capital of New Westminster with the region of Surrey and, along the Pacific Highway, the USA. Col. W. G. Swan (1885–1970) led the bridge design team, and the structural steel was fabricated and erected by the Dominion Bridge Company, both iconic names in the history of bridge engineering in BC. The Pattullo Bridge was the first major crossing into the Southern Greater Vancouver Area during a time of rapid societal expansion and has served a pivotal role, for almost 90 years, connecting suburban areas with metropolitan Vancouver. The impending replacement of the Pattullo Bridge heightens its historic importance: steel through-arch designs in BC, and so a part of British Columbia’s structural engineering history, will become extinct.

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