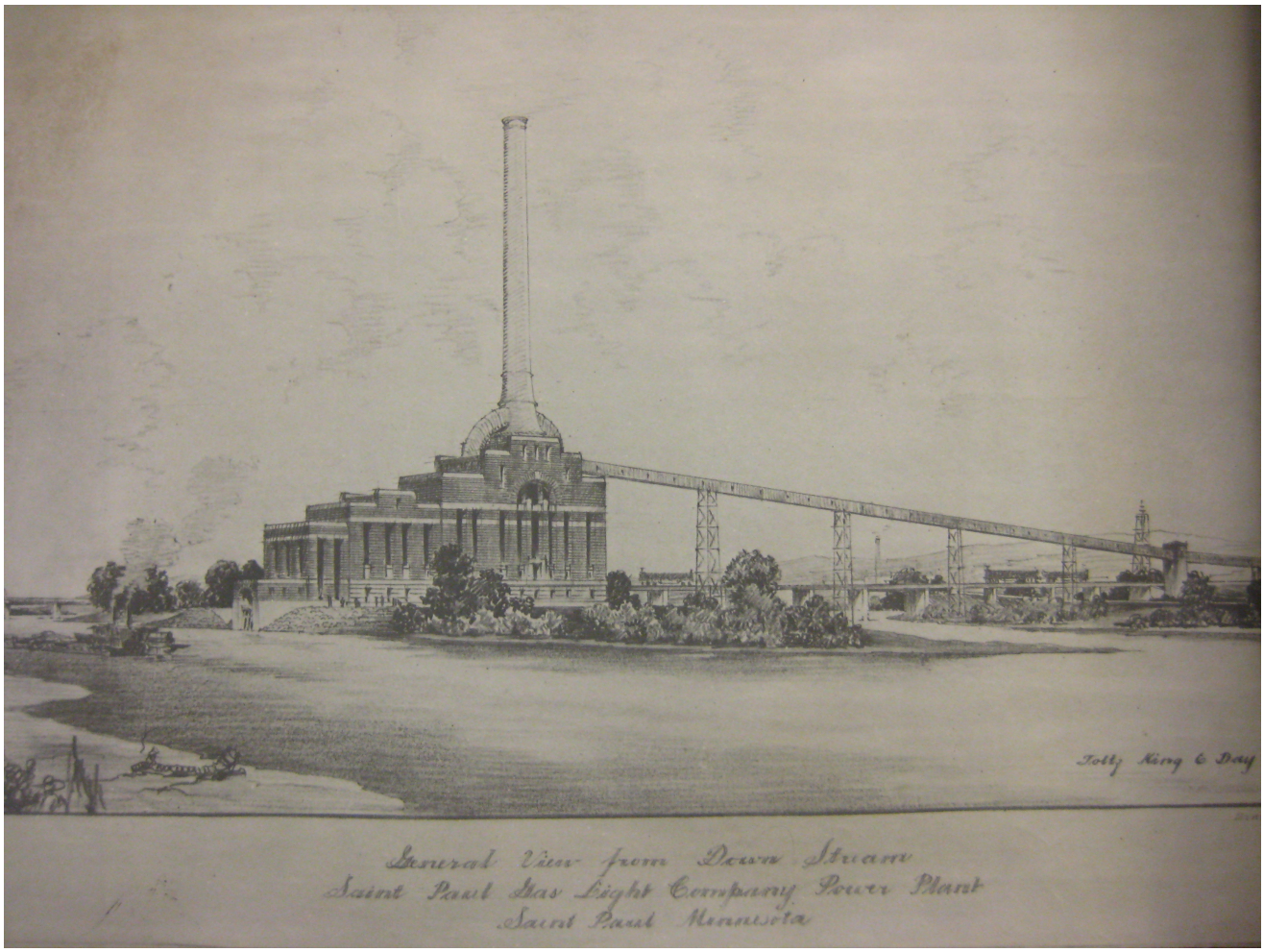
PART 2

SITE SIGNIFICANCE



credit

The St. Paul Gas Light Company and Electric-Steam Power Generation in Early Twentieth-Century St. Paul

At the time of Island Station's completion in 1924, the St. Paul Gas Light Company had been associated with gas and electric production for more than 40 years. Emerson McMillin & Co. and its American Light and Traction Company of New York had owned the St. Paul firm since 1895. The company's name, however, had remained unchanged since 1856. The original charter granted the right to construct a coal gasification plant to supply the City of St. Paul and its citizens with illuminating gas for lamps and street lights.

The manufacturing process for gas was well understood in the United States by the late eighteenth century, and the first gas company was incorporated in Baltimore, Maryland in 1816 (Hershmann 1948:78). Coal gasification plants converted raw coal into gas piped to customers through gas mains installed in city streets.

2.1 Pioneer Period, 1856-1882

The prominent incorporators of the St. Paul Gas Light Company were Alexander Ramsey, Edmund Rice, Charles Oaks, William L. Banning, and Joseph (James) Hoy. Ramsey, who served as the first company president, was the first territorial governor of Minnesota and Rice was a member of the 1851 territorial legislature and also president of the St. Paul and Pacific Railway. Oaks would become a partner in the St. Paul banking firm Borup and Oaks, and Banning was a Philadelphia legislator, banker, and lawyer. Hoy, a resident of Trenton, New Jersey, was a partner with Gregory A. Perdicaris in Perdicaris & Hoy, gasworks contractors (Trenton City Directory 1859: 167). Henry Sibley, Minnesota's first governor, became company president in 1867 and served until his death in 1891 (Meyer 1957:10).

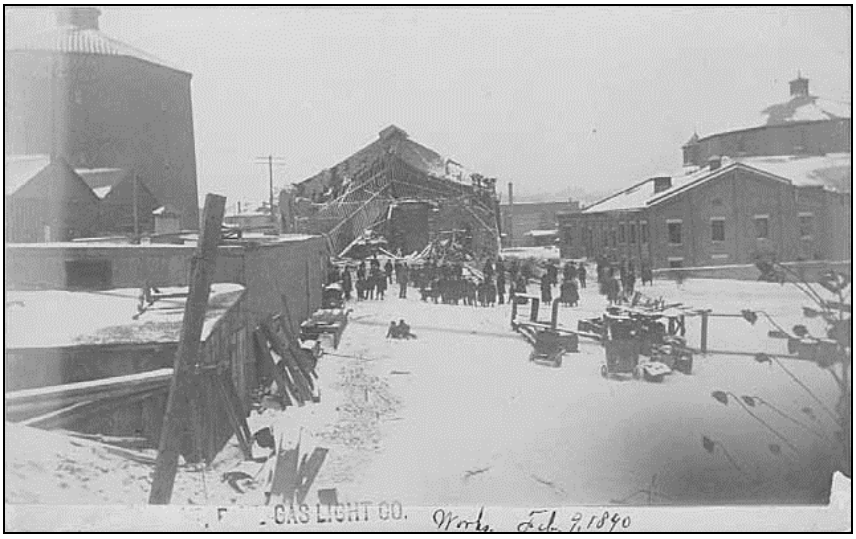


Figure 12. St. Paul Gas Light Company Gas Works after an explosion, 5th and John streets, February 9, 1890.

Perdicaris and Hoy constructed the company's gas works at 5th and John streets in 1857. The plant was put in operation during a severe point in the Panic of 1857 (Meyer 1957:8; Williams 1876:381). The facility produced about 15,000 cubic feet of gas per day and initially served fewer than 100 customers (*SPPP* 4 Dec 1924). The plant complex included a 30- by 54-foot generating room, a 27- by 29-foot purifying house, a 13- by 13-foot office and meter room, and a 40,000-cubic-foot storage tank. The City of St. Paul contracted with St. Paul Gas Light Company to supply 155 gas lamps, but only 60 were

installed by 1861 (Phelps 1984:8; Meyer 1957:8). The firm struggled through the 1860s and early 1870s, despite extension of the initial system of gas mains to the old State Capitol and along St. Peter and Summit Avenues (Phelps 1984:8). Business increased, however, and by 1873 there were 160 street lamps. Gas mains reached up Fort Road to Ramsey Street and by 1879 the company operated "20 miles of mains, generated 25 million cubic feet of gas, consumed over 3,500 tons of coal and employed 25 to 40 men depending on the season" (Phelps 1984:8-1).

During the poor economy of the early 1870s, one characterized by financial depression and industrial bankruptcies yet a need for improved public works and utilities, investors in firms such as St. Paul Gas Light Company managed to capture lucrative government contracts. Under the leadership of Henry Sibley, the St. Paul Gas Light Company "acquired both exclusive privileges in city contracting and virtually unlimited powers to determine where and when businesses and residences received wrought iron pipe, gas fittings, and gas and steam services" (Willis 2005:155).

2.2 Electric Service: 1882

The St. Paul Gas Light Company expanded into electric service in 1882, when it acquired an electric arc generator from the Fuller Electric Company of Brooklyn, New York (Meyer 1957:8). In 1885 the St. Paul Gas Light firm built an electric generating plant on Hill Street. This short street extended from Eagle Street and Kellogg Boulevard across a parcel now occupied by the Science Museum (Sanborn 1885:27b; Meyer 1957:9). The area surrounding the plant was occupied by foundries and other riverfront industries. In 1894 the company began a series of acquisitions, beginning with the franchise of the East Side Electric Company. Also in 1894, they acquired the Edison Electric Light and Power Company's seven-year-old plant at College and Cedar Streets (Meyer 1957:8; Sanborn 1904 Sheet 458). In 1896, they purchased the franchise of the West Side Electric Company (Meyer 1957:10). Through this period they offered both alternating and direct current to their customers (Meyer 1957:9).

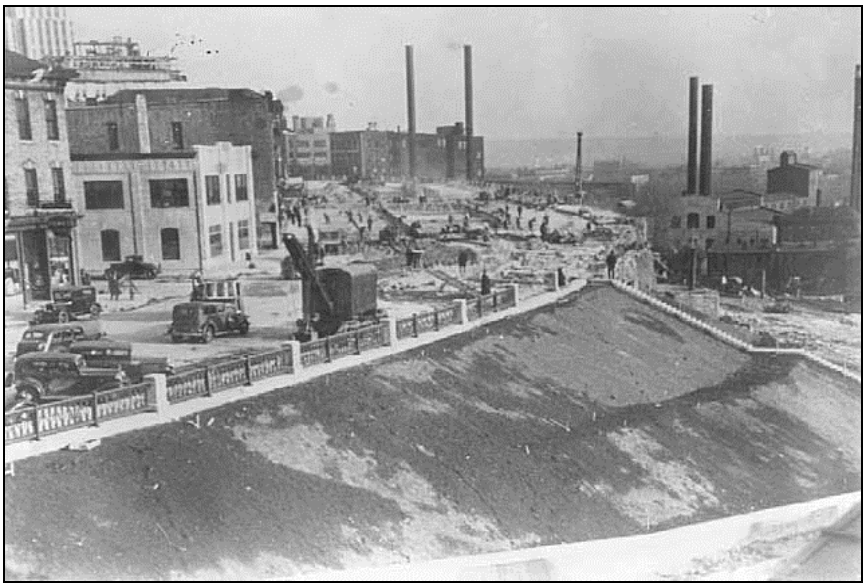


Figure 13. Hill Street Station (1885), at far right below Kellogg Boulevard, 1938.

Company offices occupied a number of locations, including 4th and Jackson streets (1860-1891) and the New York Life Building (1891-1896); between 1919 and 1925 the office was located at 6th and Cedar (Meyer 1957:10).

Downtown St. Paul was served by several other small firms, including the St. Paul Light, Heat and Power Company and the Economy Steam Heat Company. They each provided several large business blocks. St. Paul Light, Heat and Power, on 4th Street between Wabasha and Cedar, was acquired by St. Paul Gas Light in 1894 and was known as the 4th Street Station (Meyer 1957:9). The Hill and 4th Street stations supplied both alternating and direct current and the Hill Street station supplied 500-volt direct current for the St. Paul City Railway (Meyer 1957:9). Hill also served as a steam heating plant, and steam mains and electric cables were tunneled through the sandstone underlying the plant and downtown area (Meyer 1957:9).

Concurrently, the company's customer base for gas expanded with the development of consumer appliances such as stoves. Street light service also initially expanded but gas was gradually being replaced by arc electric systems. In 1884 St. Paul had a total of 905 public street lamps, of which 45 were electric, 345 gas, and 515 oil (Phelps 1984:8-1).

In 1891 company ownership was transferred from local control to financier Henry Villard of New York. In 1893, Crawford Livingston, James J. Hill, William R. Merriam, and H. M. Byllesby led a return to local ownership (Meyer 1957:10). This lasted only until 1895, when the company turned over 8,000 of 15,000 company shares to Emerson McMillin & Co. of New York (*Minneapolis Tribune* 2 Nov 1894:6). Emerson McMillin & Co. was among national firms that, like H. M. Byllesby's, consolidated small local energy suppliers into large conglomerates. American Light and Company, an Emerson McMillin & Co. subsidiary formed in 1900, controlled the St. Paul Gas Light Company after that date.

Wrangling over gas rates with customers and the State Board of Equalization and local municipalities was common. In 1894, for example, company president Crawford Livingston defended the Minneapolis Gas Light Company's rates, noting "the popular impression is, I think, that nearly every one uses gas; it is like that other mistaken idea about gas companies, that they are robbers and thieves . . . (*Minneapolis Tribune* 9 Jan 1894:3; 3 Oct 1905:2).

By 1897 the St. Paul Gas Light Company had installed a total of 3,362 street lamps and a number had been abandoned because of conversion to electricity. In 1901, the company unsuccessfully attempted to recover damages from the City of St. Paul on the cost of setting lamps that had been discontinued (St. Paul Gas Light Co. v. St. Paul 1901:181).

2.3 Electrical Expansion, 1900-1925

Electrical capacity increased in 1900 with construction of the St. Croix Power Company's hydroelectric plant at Apple River Falls, Wisconsin (Morton 1900:879). Power was transmitted 28 miles to the St. Paul Gas Light Company's new Cedar Street Substation at 381 Cedar Street between 5th and 6th streets (Phelps 1984:8-2). The Wisconsin plant, like the St. Paul Gas Light Company, was controlled by the American Light and Traction Company of New York. The substation allowed the St. Paul company to connect with a 25,000-volt line from the Wisconsin plant; Meyer notes that the three miles of line extending from Cedar Street were composed of lead-covered cables, one insulated in paper and the other in rubber. He described these as "the highest voltage cables in use anywhere in the world for a number of years" (Meyer 1957:10-11; American Institute of Electrical Engineers 1900:834).
In this period, "although some large buildings in St. Paul had combination steam heat and electric plants and provided electricity to the immediate area, the St. Paul Gas Light Company had no significant competition" (Bradley 2004:10). This would end in 1910, when Consumers Power purchased the Northern Heating and Electric Company, a St. Paul firm that owned a steam plant at 76 Kellogg Boulevard known as the 3rd Street Station (Westbrook 1983:31; Phelps 1984:2).

Although the St. Croix Power Company's plant provided additional electrical capacity, by 1913, it was calculated that nearly 25 percent of the power was lost in transmission (Phelps 1984:8-2). Possibly, with its focus on gas, "some observers noted" that the St. Paul Gas Light Company "did not push the electric business vigorously enough" (Phelps 1984:8-2). This statement, however, does not seem compatible with the investment made in a new plant during 1922-24.

Gas Utility Development

St. Paul Gas Light Company's gas customer base expanded with the growth of the city. In 1914, the National Gas Association sponsored a conference at the Minneapolis Armory that exhibited "new inventions, new ideas, the improvements for lighting, heating and power by gas." More than 14,000 square feet of space featured exhibits for the "housekeeper, the merchanter or the manufacturer . . . including thousands of different lamps, heaters, bake ovens, furnaces, and engines" (*Minneapolis Morning Tribune* 29 No. 1914:D10).

A conflict arose in 1910 over location of a gas storage facility on a 20-acre tract near Randolph Avenue southwest of the High Bridge; the site was deemed by the City Council to be too close to the city's general hospital (*SPPP* 3 Nov 1910). The ordinance prohibiting the facility was repealed in 1913 and the structure was erected (Phelps 1984:8-2; Figures 2, 14, 17).
At this time, 343 miles of gas mains lined St. Paul and annual sales were 1.23 billion cubic feet (Phelps 1984:8-2). The company may have eyed expansion of its gas capacity: in 1915 the Western State Coke Company announced that it would build a gas plant on a 50-acre tract in the St. Paul Midway. One source noted, "it is asserted that gas will be furnished to the St. Paul Gas Light Company" (*Minneapolis Morning Tribune* 30 Sept 1915:11). This became the Koppers Coke Plant at 1000 Hamline Avenue (razed 1979).

2.4 H. M. Byllesby & Company and Northern States Power

H. M. Byllesby established Byllesby & Co. in 1902. With his partners, H. M. Byllesby's purpose "was to purchase small struggling utility companies and transform them into well-run operations" (Bradley 2004:8). In 1910 Byllesby led the merger of the Washington County Light and Power Co. and the Stillwater Gas and Electric Co. into the Consumer's Power Company (Meyer 1957:12). Northern States Power was initially a holding company and financier for the subsidiary Consumer's Power. Prior to reorganization in 1916 and adoption of the name Northern States Power, Consumer's Power expanded across southern Minnesota to Faribault and Mankato, Minnesota, to Galena, Illinois, and northwest to Fargo, North Dakota. In 1912 Consumers Power acquired the Minneapolis General Electric Company. In 1915, the company relocated its general office from Chicago to Minneapolis. During this period they also constructed transmission lines to its market areas and added two units to their Riverside plant in Minneapolis. A 4,000-kw steam turbine was added to the 3rd Street Station (Meyer 1957:11).

Reorganization in 1916 included adoption of the name Northern States Power Company and financial restructuring. Byllesby & Co. remained the parent of NSP (Meyer 1957:157; Bradley 2004:9). In this period, St. Paul Gas Light Company continued to provide electric power to St. Paul, along with NSP. St. Paul Gas Light, with the larger customer base, purchased power from NSP, but NSP limited the amount to 15,000 kw. Meyer characterized the competition between the firms as intense (1957:12, 13).

Such consolidation was typical of the early twentieth century across the United States. The many small independent electric companies that proliferated during the late nineteenth century were incorporated into larger firms resulting in more economy of scale. Across the river in Minneapolis, by 1893 the Minneapolis General Electric Company (MGE) absorbed the Minnesota Brush Electric Company, the West Side Power Company and the Minneapolis Electric Light and Power Company as well as properties of the Minneapolis Electric Subway Company (Meyer 1957:3; Stark 2005:8).

2.5 NSP High Bridge Plant

In 1922 NSP announced plans for a new High Bridge Plant because the demand for power taxed all of its facilities, including those at the Riverside Plant and Main Street Station in Minneapolis as well as its 3rd Street Steam Plant in St. Paul (Bradley 2004:10). The $5,000,000 plant, designed by the Byllesby Engineering & Management Corporation, was part of an $ 80,000,000, 10-year-development program that would triple the amount of power available to the Twin Cities (Bradley 2004:10, 20). Transmission lines linked the new plant and existing plants, allowing them to act as reserve suppliers and ensuring cost saving and continuity of service. The High Bridge Plant was one of six placed in service by Byllesby & Co. in 1924, including those in Oklahoma and Washington (*Byllesby Monthly News* Feb 1925:cover).

Bradley observes, "Simplicity, economy, and convenience, rather than the use of the newest and most expensive equipment, guided planning for the [NSP] plant. Its design drew upon standard plans for spaces and equipment arrangements adopted by Byllesby & Co. The engineers decided to use mechanical stokers instead of the newer pulverized coal system to feed the boilers" (Bradley 2004:21).

Figure 14. NSP High Bridge Plant (1924), in 1958, looking northeast.

2.6 Island Station Power Plant

Growth of the St. Paul Gas Light Company had been hampered by direct competition from NSP as well as the limit set on electric power that could be purchased from NSP. Phelps notes, "although the Gas Light Company still possessed a majority of St. Paul customers its facilities were unable to meet customer demand. Consequently it began to buy power from NSP through a connection between NSP's Third Street Station and the Hill Street Station. Squabbles arose between the two companies over the power contract," resulting in limits on the amount of power available for sale (Phelps 1984:2-8).

In 1922 the St. Paul Gas Light Company hired Toltz, King & Day to produce plans for its new 25,000-kw Island Station steam plant less than a mile from the NSP High Bridge Plant. Unlike the NSP facility, it was designed to burn pulverized coal, a new technology for steam generation developed in the United

States. By 1918, the City of Milwaukee's use of pulverized coal at its 200,000-kw Super-Power Station caught the attention of a national and international audience. Such pulverized fuel was also employed for stationery boilers, steam locomotives, steamships, cement kilns, and many types of steel-manufacturing furnaces (Harvey 1920:89-91). Island Station was designed to burn lignite coal, which was believed to be eight to ten percent less expensive than burning lump coal (*SPPP* 27 Aug 1924).

In 1918, the *EMF Electrical Year Book* noted that pulverized or powdered coal was being used in several large installations, "notably in Milwaukee and Seattle" (EMF 1918: 566). Pulverized coal provided "closer control and better mixing of fuel and air" (EMF 1918: 566). Coal was pulverized to a flour-like fineness, and injected into the furnace under high pressure along with heated air. Preparation of coal for pulverizing required extensive equipment, which limited the use of pulverized coal to large boiler rooms.

However, the high cost of the initial installation, difficulty disposing and removing the molten ash and eliminating ash dust, and danger of explosion were among potential problems of the new technology (Harvey 1920:94). Because of the additional cost of building a pulverized coal plant, one English engineer speculated in 1920 that until more plants giving "successful and economical results" in England and in Europe were seen in operation, the "real expansion and general use of pulverized coal will perhaps be somewhat slow" (Harvey 1920:95).

Neverthless, the *St. Paul Pioneer Press* described pulverized coal as one of the "latest advances in steam engineering" (*SPPP* 4 Dec 1924). Wesley King of Toltz, King & Day predicted, "the plant will be one of the most modern in the United States, representing engineering practice not found in more than ten steam-electric plants in the country" (*SPD* 29 May 1923). According to the *St. Paul Dispatch,* the initial construction was to be the first unit of a plant planned to eventually produce 100,000 kw.

Construction took place between March 1, 1923, and December 1, 1924, when the plant was placed in service (Phelps 1984:8-3; *SPPP* 24 April 1925). Construction cost was estimated at between $1,125,000 and $1,500,000 (*SPPP* 21 Dec 1924). The company boasted, "fifty-two million gallons of water, more than twice as much as the entire city uses through the city water department, passes through the new Island plant" (*SPPP* 21 Dec 1924).

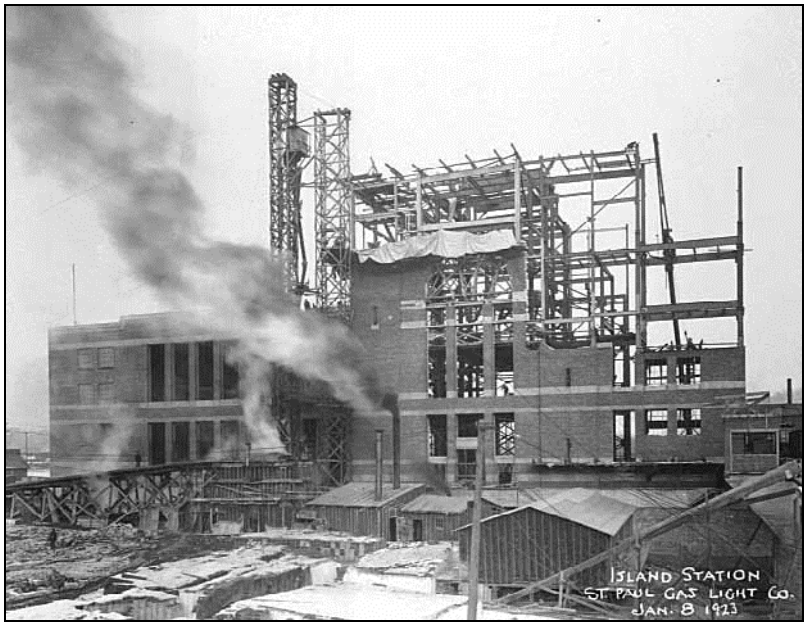


Figure 15. Island Station construction, looking east, January 8, 1923.

Figure 16. Island Power Plant Station construction, looking northwest, ca. 1924. (NWAA)

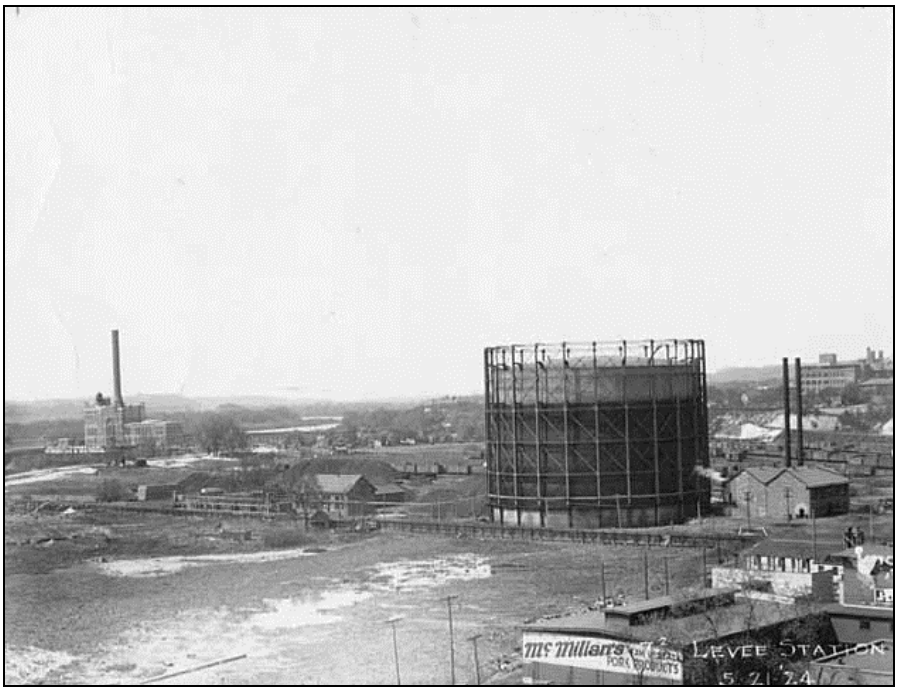


Figure 17. Island Station landscape, 1924. The recently completed plant is in the background at right; the St. Paul Gas Light Company gas storage facility is in the foreground, along with the McMillan pork packing plant.

Figure 18. Island Station from plant bridge, looking south, 1924.

In 1924 the company claimed 47, 933 electric customers and 58, 694 gas customers in St. Paul, calling itself "St. Paul's Gas and Electric Company" (*Current-Gas* 1924; *SPPP* 24 April 1925). At the time, the company was characterized as supplying a city of 257,000 "all of the gas service and approximately 70 percent of the electric light and power service" (Phelps 1984:8-3). It employed more than 800 workers, and maintained more than 700 miles of electric lines (*SPD* 4 Dec 1924).

In 1925, its gross earnings were $5,347,165 and net earnings totaled $1,676,741.00 (Phelps 1984:8-3). In April 1925, construction began on the St. Paul Gas Light Company Service Building and Warehouse at Rice and Atwater streets. Also designed by Toltz, King & Day, it was "necessitated by the company's rapid growth" (*Current-Gas* 1925). Other company advertisements featuring the new facility exclaimed "For Better Service and a Bigger St. Paul."

Figure 19. St. Paul Gas Light Company Service Building (1925), Rice and Atwater streets. (NWAA)

At the same time, plans were underway for the construction of a hydropower plant at the High Dam opposite the proposed Ford automotive plant, and the *St. Paul Dispatch* announced that the Island Station Plant and NSP plants, as well as "other numerous other important plants beginning to take form, lent "absolute assurance that St. Paul is on the verge of a great era of industrial development unparalleled in its history" (SPD 27 Dec 1922:1).

On December 31, 1925, NSP acquired the St. Paul Gas Light Company. This was part of NSP's acquisition of a number of small Minnesota power companies, and part of their strategy to purchase, rehabilitate, and build public utility properties. A total of 42 companies were acquired in seven years during the 1920s under Byllesby's leadership (Meyer 1957:150). Between 1926 and decommissioning in 1973 it was used a "subsidiary power plant to supplement increased consumer demand" (Phelps 1984:8-4). Rail coal delivery was replaced by truck shipments from the NSP stockpile.

2.7 The St. Paul Gas Light Company and the Growth of Early Twentieth-Century St. Paul Neighborhoods

> Public utilities before they will increase their output and expend large sums of money to building plants must feel very certain that the future of the city will justify such action. Two splendid examples of confidence in the future of the city are the power plants of the St. Paul Gas Light Company and the Northern States Power Co. Both of these companies foresee a healthy future for St. Paul.
>
> "Evidences of Progress Seen in Every Section of City as Previous Records are Broken," *St. Paul Daily News* 24 August 1924.

St. Paul was built on the foundation of what boosters termed the "Gateway to the Northwest." Throughout the late nineteenth and early twentieth centuries, nine railroads operating twenty-three lines and the Mississippi River funneled agricultural and manufactured products from the hinterland into the city's elevators, warehouses, and factories (*SPPP* 17 Dec 1922:3). Despite a weak economy in the early 1920s, growth as a banking, livestock, manufacturing and warehousing center continued: by December 1922, the

St. Paul Pioneer Press reported that the freight business was surging and deposits in financial institutions climbed $15 million along with retail business growth (*SPPP* 17 Dec 1922:2). The percentage of construction for manufacturing purposes rose from 10 percent in 1920 to 57 percent in 1923 (*SPDN* 24 Aug 1924). The steep increase in population during the late nineteenth century (from 41,473 in 1880 to 133,156 in 1890, for example), had tempered between 1910 and 1920 following World War I. Population growth resumed during the 1920s, rising from 234,698 in 1920 to 271,606 in 1930.

The decision to expand the American Light and Traction Company's St. Paul Gas Light subsidiary with the new Island Station electric-steam plant was supported by what the *St. Paul Pioneer Press* called "the Dawning of General Prosperity" (*SPPP* 23 Dec 1922). Nearly 900 manufacturing plants produced $250 million in products for U. S. and international markets. Printing and publishing, boots and shoe manufacture, dairy and livestock products, furs, and foundries and machine shops accounted for much of the total. The *Pioneer Press* reported that at the end of 1922 "there was a renewed confidence in business on the part of manufacturers and jobbers" (*SPPP* 23 Dec 1922).

In 1923, amidst reports that a $5-billion dollar building boom was forecast for the United States, St. Paul newspapers outlined the need for more electricity, especially to fuel electric conveniences (*SPPP* 4 March 1923:7). "The public wants electricity," noted one writer, outlining the demand for improved illumination and labor-saving appliances such as electric ranges and ironing and washing machines (*SPPP* 4 March 1923:7). The builders of new homes, according to the *Pioneer Press*, were taking an interest in the homes "they are about to construct, and making intensive studies of the situation as regards wiring and electrical equipment; they are becoming electrically-wise" (*SPPP* 4 March 1923:7).

The installation of electric streetcar lines and public utilities traced the development of the city's neighborhoods. In 1920, 17 percent of the city's population lived within a mile of downtown; by 1930, this figure fell to 11 percent (Zellie and Peterson 2001:18). In October 1923 it was reported that about 200 building permits for dwellings had been issued per month over the past 20 months, with a corresponding surge in telephone and utility installations. Home ownership continued its gradual increase, with 46 percent of residents owning homes (*SPPP* 12 Oct 1923:8).

Neighborhood retail interests in the outlying sections of the city, housing "grocers, meat dealers, druggists and small dry goods merchants" were housed in new buildings, with "up-to-date lighting systems and window displays that add greatly to the attractiveness of the neighborhood" (*SPPP* 17 Dec 1922:5). Also in late 1923, newspaper reports of new construction in the western section of the city praised the "New District" around the Ford Motor Company's new plant for transportation and utility improvements that were transforming a "wilderness" into a "city-like section" (*SPPP* 21 Oct 1923:9). This area is now Highland Park. The company was granted a temporary permit for use of the high dam, the first step in the process of hydroelectric plant-building, on March 3, 1923 (McMahon 2007:11). With construction of the plant, 8,000 jobs were predicted to increase the city's population by 25,000 (*SPDN* 24 Aug 1924).

The plant spurred what was called the "greatest building campaign in the history of the Twin Cities" and several thousand building lots were platted around the automotive plant nucleus at Ford Parkway and Mississippi River Boulevard. Realtor Den E. Lane was the leader in marketing the area, putting more than 600 acres on the market in 1925. The prospect of such development and thousands of new customers was likely a leading factor encouraging the American Light and Traction Company and its St. Paul Gas Light Company subsidiary to invest in its new plant, although the investment would prove to be short-lived. In August 1924 Island Station advertised in the *St. Paul Daily News* with photographs of the new plant and captioned, "our city is growing, added demands are being made for service—we are prepared to meet these demands and in addition hereto assure our patrons of the best of service" (*SPDN* 24 Aug 1924).

2.8 Island Station, 1925-2012

NSP acquired Island Station in December 1925 and operated it on a standby basis. NSP's need for increased electrical power during and after World War II was met by their enlargement of the High Bridge and Riverside plants, and by addition of the Black Dog plant as well as additional substations and transmission lines (Meyer 1957:157; Bradley 2004:9).

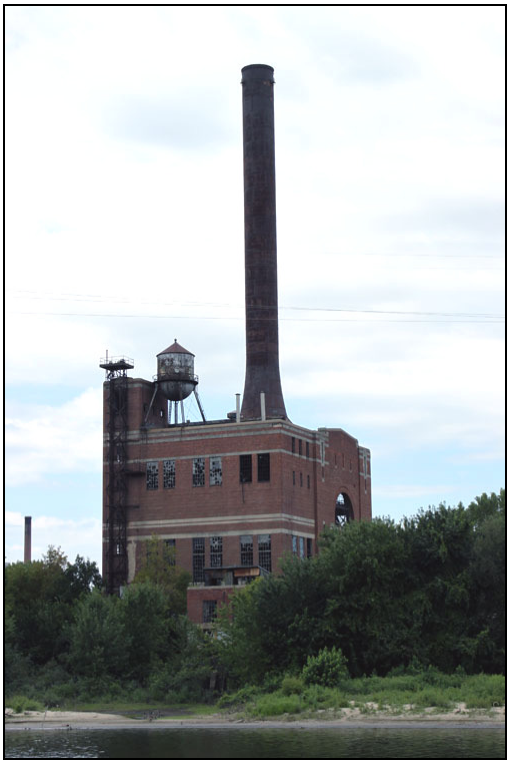


Figure 20. Island Station, looking northwest, 8/17/12. (Christine Boulware)

NSP decommissioned Island Station in 1973. In 1985 John Kerwin purchased the property and initially proposed a phased development including a 100-unit rental conversion, 20 townhouses, and some commercial use (Barge 1985:14). He also converted a portion of the plant into artist studio space. Island Station LLC purchased the property in 2003 and SpringPointe Development Inc. proposed a 235-unit condominium with a 20-slip marina. The project stalled and Breckner River Development LLC purchased the plant in 2003. Current plans are for redevelopment of the site. In October 2012, the St. Paul City Council adopted an interim ordinance prohibiting issuance of City permits pending the current study of the station's historic significance and the adoption of the Great River Passage Master Plan by the City Council. In the interim, the plant building and river setting have been the focus of significant public attention as the site is a component of the City of St. Paul's *Great River Passage: A Master Plan for Saint Paul's 17 Miles of Mississippi River Parklands* (City of St. Paul 2012).

In recent years, Island Station has been the subject of many University of Minnesota College of Design architecture and landscape architecture student design studios (Ross 2009; Traucht 2009). It is also the focus of blogs and online photographic essays by interested community members and the subject of frequent press updates.

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