

Inter-Urban Railway Electric Substation at Brennan Last surviving connection to the interurban railway and Johnston Station?



On the west edge of the property of ACCO Unlimited north of NW Johnston Drive, stands, as it has for 101 years, a square dark brick building. Walkers and riders on the Interurban Bike Trail pass it each time they travel the trail to the ice cream store or another link on the trail. Do they know what it was and its importance to Johnston back in the early 1900's?

The Interurban railway ran from Des Moines to Perry, via Johnston Station, Camp Dodge, Herrold, and Granger. Delivering goods and people to the various stops, it would stop in the Lovington area and at the spot where it crossed Merle Hay Road, to pick up passengers when flagged down. Then it would continue to the station to complete a delivery. That big brown building was one of six transfer stations providing power to the Interurban line as it traveled to and from Des Moines. The brick building is approximately 28 by 28 feet and one and a half stories tall. There are only three left in the Des Moines area—two in Des Moines and the one in Johnston.

The stop in our area became known as Johnston Station, named after its station master, John Johnston. The area known as Johnston Station continued to grow, eventually becoming the City of Johnston which was incorporated in 1969.

The Inter-Urban Railroad was incorporated in 1899 and in 1902 a line was built to Colfax. In 1906 the line to Perry was built. In 1917 and 1918 it provided military traffic to Camp Dodge. In 1922 it was renamed the Des Moines and Central Iowa Railroad. Again during WWII it thrived with transportation between Des Moines and Camp Dodge. In 1949 passenger service was stopped on the line through Johnston. The trains went to diesel engines and continued to provide freight service to industrial areas. In 1968 the line was sold to the Chicago & North Western Railroad. Many of us remember the engineer sounding the horn (can't really call it a whistle) as it went past the football field during Friday night games. Might have even stopped and watched the game a few times. The track is no longer running along that field; it all has been removed through Johnston.

ACCO Unlimited is in the process of planning a construction project for their property at 5105 NW Johnston Drive. Part of their plan is to demolish the inter-urban substation located on this property. ACCO has indicated a willingness to donate the building to the City of Johnston if it can be relocated prior to the planned construction in the late summer or early fall of 2018.

The City of Johnston, the Johnston Historical Society and other interested parties are exploring options for usage and relocation in order to preserve this building. Suggestions have been made as to what to do with this building. Everything from a museum in Johnston Commons or a trail rest stop to a Kayak/Canoe Rental Facility in the planned Gateway Water Trail.

If a reasonable use and location for this building can be found, would you be willing to make a commitment to contribute to the cost of moving and restoring this facility?

Fundraising, grants and other financial efforts will need to be made to save this building.

The goal of the following report is to provide sufficient information in the format of a Technical Advisory Network (TAN) report to determine if this property is eligible for nomination to the National Register of Historic Places and, hence, emergency state historic preservation assistance to help fund its proposed relocation. The building presently is located on industrial property. Its owner wishes to demolish the building to expand industrial operations but has offered to donate the building to the City of Johnston, if the city relocates it to another site.

Iowa Site Inventory Form

State Historic Preservation Office
(January 2016)

State Inventory Number: 77-11844 New Supplemental
9-Digit SHPO Review & Compliance (R&C) Number: _____
 Non-extant Year: _____

Read the *Iowa Site Inventory Form Instructions* carefully, to ensure accuracy and completeness before completing this form. The instructions are available on our website.

• Property Name

A) Historic name: Inter-Urban Railway Electric Substation at Brennan

B) Other names: Johnston Substation, Johnston Powerhouse

• Location

A) Street address: 5105 NW Johnston Drive

B) City or town: Johnston (Vicinity) County: Polk (77)

C) Legal description:

Rural: Township Name: _____ Township No.: _____ Range No.: _____
Section: _____ Qtr: _____ of Qtr: _____

Urban: Subdivision: _____ Block(s): _____ Lot(s): _____

• Classification

A) Property category: *Check only one*

- Building(s)
- District
- Site
- Structure
- Object

B) Number of resources (within property):

If eligible property, enter number of:		If non-eligible property, enter number of:	
Contributing	Noncontributing		
1	Buildings	---	Buildings
---	Sites	---	Sites
---	Structures	---	Structures
---	Objects	---	Objects
1	Total	0	Total

C) For properties listed in the National Register:

National Register status: Listed De-listed NHL NPS DOE

D) For properties within a historic district:

- Property contributes to a National Register or local certified historic district.
- Property contributes to a potential historic district, based on professional historic/architectural survey and evaluation.
- Property does not contribute to the historic district in which it is located.

Historic district name: _____ Historic district site inventory number: _____

E) Name of related project report or multiple property study, if applicable:

MPD title

Historical Architectural Data Base #

• Function or Use *Enter categories (codes and terms) from the Iowa Site Inventory Form Instructions*

A) Historic functions

1409 Rail-Related/other support structure

B) Current functions

75 Vacant/Not in Use

• Description *Enter categories (codes and terms) from the Iowa Site Inventory Form Instructions*

A) Architectural classification

06C 19th & Early 20th Century Revivals/Classical Revival

B) Materials

Foundation (visible exterior): n/a

Walls (visible exterior): 03 Brick

Roof: 08 Asphalt

Other: _____

C) Narrative description SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED

• **Statement of Significance**

A) Applicable National Register Criteria: Mark your opinion of eligibility after applying relevant National Register criteria

- Criterion A: Property is associated with significant events. Yes No More research recommended
- Criterion B: Property is associated with the lives of significant persons. Yes No More research recommended
- Criterion C: Property has distinctive architectural characteristics. Yes No More research recommended
- Criterion D: Property yields significant information in archaeology/history. Yes No More research recommended

B) Special criteria considerations: Mark any special considerations; leave blank if none

- A: Owned by a religious institution or used for religious purposes. E: A reconstructed building, object, or structure.
- B: Removed from its original location. F: A commemorative property.
- C: A birthplace or grave. G: Property less than 50 years of age or achieved significance within the past 50 years.
- D: A cemetery

C) Areas of significance

Enter categories from instructions

02 Architecture

14 Transportation

D) Period(s) of significance

1917-1949

E) Significant dates

Construction date

1917 check if circa or estimated date

Other dates, including renovations:

1949

F) Significant person

Complete if Criterion B is marked above

G) Cultural affiliation

Complete if Criterion D is marked above

H) Architect/Builder

Architect

Builder/contractor

I) Narrative statement of significance SEE CONTINUATION SHEETS, WHICH MUST BE COMPLETED

• **Bibliography** See continuation sheets for the list research sources used in preparing this form

• **Geographic Data** Optional UTM references See continuation sheet for additional UTM or comments

Zone	Easting	Northing	NAD	Zone	Easting	Northing	NAD
1				2			
3				4			

• **Form Preparation**

Name and Title: William C. Page, Public Historian Date: 02-23-18

Organization/firm: City of Johnston, Iowa E-mail: page@dwx.com

Street address: 520 East Sheridan Avenue (Page) Telephone: 525-243-5740

City or Town: Des Moines State: IA Zip code: 50313-5017

• **ADDITIONAL DOCUMENTATION** Submit the following items with the completed form

A) For all properties, attach the following, as specified in the Iowa Site Inventory Form Instructions:

1. Map of property's location within the community.
2. Glossy color 4x6 photos labeled on back with property/building name, address, date taken, view shown, and unique photo number.
3. Photo key showing each photo number on a map and/or floor plan, using arrows next to each photo number to indicate the location and directional view of each photograph.
4. Site plan of buildings/structures on site, identifying boundaries, public roads, and building/structure footprints.

B) For State Historic Tax Credit Part 1 Applications, historic districts and farmsteads, and barns:

See lists of special requirements and attachments in the Iowa Site Inventory Form Instructions.

State Historic Preservation Office (SHPO) Use Only Below This Line

The SHPO has reviewed the Site Inventory and concurs with above survey opinion on National Register eligibility:

- Yes No More research recommended
- This is a locally designated property or part of a locally designated district.

Comments: _____

SHPO authorized signature: _____ Date: _____

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State Historic Preservation Office
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Site Number: 77-11844
Related District Number:

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Inter-Urban Railway Electric Substation at Brennan	Polk (77)
Name of Property	County
5105 NW Johnston Drive	Johnston
Address	City

METHODOLOGY

The goal of this report is to provide sufficient information in the format of a Technical Advisory Network (TAN) report to determine if this property is eligible for nomination to the National Register of Historic Places and, hence, emergency state historic preservation assistance to help fund its proposed relocation. The building presently is located on industrial property. Its owner wishes to demolish the building to expand industrial operations but has offered to donate the building to the City of Johnston, if the city relocates it to another site.

NARRATIVE DESCRIPTION

Site

The Inter-Urban Railway Electric Substation at Brennan is situated on Northwest Johnston Drive between Merely Hay Road and Lower Beaver Road in the City of Johnston, Iowa. The substation stands about 834 feet above sea level. The surrounding land is rolling with industrial and agricultural useage. The substation stands on the west edge of property owned by ACCO Unlimited Corporation, a manufacturer of commercial water treatment chemicals and equipment. The Trestle-to-Trestle Trail, a realigned historic corridor of the Des Moines & Central Iowa Railway, is situated immediately to the west. The substation faces the east-northeast. The inter-urban railway tracks originally ran about eight feet in front of the substation but are nonextant. The substation's site is particularly impressive, situated, as it is, on a rise in the upland above the Beaver Creek valley. A power pole is situated directly northwest of the substation. Although this pole is modern, it lends a feeling of historic function to the substation. A concrete slab is situated adjacent to the substation on its south elevation. The age and function of this feature is unknown.

Building

Built in 1917, the Inter-Urban Railway Electric Substation at Brennan is a 1.5-story building of masonry construction. It rests on a heavy-duty concrete slab sufficient to support heavy equipment. The building features walls of solid brick construction. The brick is brownish-maroon in color. A brickworked cornice is situated above the upper windows on the front and side elevations but not on the rear of the building. A parapet, capped with a clay tile copping, also is situated on these three elevations. The roof is of asphalt composition and slopes from front to rear. Two metal ventilators are situated on the roof. The parapet blocks them from view at grade.

Three small window openings are situated at grade on both the south and north elevations. One small window is located on the rear elevation at grade. Two slightly larger window openings are situated near the roof on the south, east, and north elevations. All of these window openings are now infilled with lighter-colored brick set back slightly from the elevation planes.

An overhead vehicular door centers the front facade of the building. The door itself is of metal and a modern replacement. A pedestrian door opening is situated to the north of the overhead door. This opening is now infilled with brick set back slightly from the plane of the elevation.

Although this report did not survey the interior of this building, it is said to be one large room without any extant historic equipment.

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Johnston

Address

City

NARRATIVE STATEMENT OF SIGNIFICANCE

Background

The Inter-Urban Railway Electric Substation at Brennan formed part of the Inter-Urban Railway Company's system of electrified trolley lines serving Central Iowa at the end of the 19th century and during the first half of the 20th century. The Brennan facility relayed power along the Inter-Urban's Beaver Valley Division, a line that served points between Des Moines and Perry, Iowa.

The Inter-Urban Railway was incorporated on April 21, 1898. Construction on the Beaver Valley Division began in 1905. Service on this division began the following year—to Granger in February 1906; to Woodward in June 1906; and to Perry in November 1906. Perry was the greatest extent of the division. In addition to passenger service, the Beaver Valley Division linked freight transport to the Chicago Great Western Railroad.

The construction of Camp Dodge provided an unexpected boon for the division. Already in 1916, a troop encampment was established at the base to train troops for disturbances south of the border in Mexico. The outbreak of World War I in Europe in 1914 and America's entry into the war in 1917 led to the expansion of Camp Dodge as a training base. To serve the troops, trolley cars sometimes ran continuously to and from the camp and downtown Des Moines.

In 1917, the Inter-Urban Railway Company upgraded its service. In a *Des Moines Register* article, the company asked soldiers to have patience with the inadequate service the interurban line had been providing. Under the headline

Please Consider These Facts Before You Condemn the
Inter-Urban Railway and Its Service
To Camp Dodge

the company announced that it had "Expended on Camp Dodge Improvements. . . from July 1 to Oct. 1, 1917" \$15,000.00 for electric substations and transmission lines. (*Des Moines Register*, Saturday, November 10, 1917) This dates the construction of the Brennan facility.

Following the end of World War I, much of Camp Dodge was shuttered and ridership on the inter-urban plummeted. The agricultural economy in Iowa, like the rest of the Midwest, entered an economic depression, as demand for foodstuffs, artificially elevated by the war in Europe, returned to normal. The Beaver Valley Division, like the rest of the Inter-Urban Railway, languished in these contracted economic conditions. The road filed for bankruptcy about 1921.

In 1922, the Des Moines & Central Iowa Railway took over the Inter-Urban's assets in a reorganization and reactivated the Beaver Valley Division operations. Then, in the early 1940s, another boom for the division occurred as Camp Dodge was reactivated as a military training center in conjunction with World War II.

Following World War II, the Des Moines & Central Iowa Railway lost ridership as activity at Camp Dodge declined, as it had following World War I. In May 1949, Murray Salzberg, a New York scrap dealer and investor, bought the line and changed its name to the Des Moines & Central Iowa Railroad Company (DM&CI). Salzberg quickly acted to end passenger service. The last electrical service between Des Moines and Perry occurred on September 28, 1949. The line continued to handle diesel locomotives for freight. Then in 1969, Salzberg sold the line to the Chicago & Northwestern. (Carlson: 77-78) As of today (2018), the DM&CI retains its corporate identity, although in inactive status. (Iowa Secretary of State)

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Architecture

The Inter-Urban Railway Electric Substation at Brennan is National Register eligible, locally and under Criterion C, because of its architectural design. The building calls attention to a new architectural form emerging in the early 20th century: the electric substation. The example at Brennan provides a fine, representative example of such a design. Although many such substations were built throughout the Des Moines metropolitan area in the early 20th century, only three or four are known to be extant.

With the growing commercial availability of direct electrical current to power public transportation all across the nation, the need for architecture to house facilities associated with this type of power burgeoned. Direct electrical current transmits only a relatively short distance from the powerhouse of its source. Relay stations along electrified trolley lines must boost this direct current—achieved by generators in substations powered by alternating current—to keep the direct current flowing.

The Inter-Urban Railway Electric Substation at Brennan exemplifies major design elements required for such an early 20th-century electric substation in central Iowa. These elements include protection against electrical fire; adequate ventilation; sufficient height to house equipment; security against outside menace; and an exterior appearance appropriate for its function.

The Brennan facility was constructed as a fireproof building. It features a concrete slab floor, masonry walls, and a pre-formed concrete modular ceiling. The ceiling is of particular interest because of its unusual design. Taken together, all of these materials protected the building and its equipment from the spread of fire.

The Brennan facility required a cooling system to dissipate the heat generated by the electricity its equipment produced. When open, the small windows at grade and those near the ceiling affected natural convection currents to vent this heat. The need for ventilation explains the building's usual placement of windows at grade and near the roof. Ventilators on the roof provided another source of natural cooling.

The Brennan facility's 1.5-story height was determined by its need to house a series of tall and massive switches and meters mounted vertically on its interior wall. Electric units such as these could be ten feet tall or taller. This need for interior volume for equipment, as well as for adequate ventilation, precluded a 1-story building.

Because of the danger associated with high voltage, preventing unauthorized entrance to these buildings played an important role in their architectural design. The electric substation at 1522 Clark Avenue in Des Moines, for example, features a steel pedestrian door. Although its overhead vehicular door is now replaced, it too likely steel was of steel. Neither the original overhead vehicular door nor the original pedestrian door at the Brennan facility remains extant, but they too likely were of steel.

The architectural design of the Brennan facility signals through its architectural design its ability to provide dependable power for public transportation. The block-like massing of the building and its use of dark colored brick convey a fortress-like feeling. (This feeling of impregnable power is heightened by the building's siting, which, unlike many other electric substations, topographically dominates its surroundings.) Dependability is important quality for a public transportation company to project. The Inter-Urban Railway Electric Substation at Brennan visually conveys that quality to the viewer through its architectural design.

Other architectural considerations to protect the building and equipment from vandalism also might have factored in its planning. (See "Recommendations for Further Research and Discovery" below.)

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Johnston

Address

City

Transportation

The Inter-Urban Railway Electric Substation at Brennan is National Register eligible, locally and under Criterion A, because of its historical significance in association with the Beaver Valley Division of the Inter-Urban Railway and its successor, the Des Moines & Central Iowa Railway. The Beaver Valley line was the longest active interurban line in the Des Moines metropolitan area during the 20th century and arguably its most profitable. The Inter-Urban Railway Electric Substation at Brennan calls attention to this line. It produced the alternating electrical current required to boost the direct electrical current used to power trolley and freight cars, which in turn promoted public transportation, communications, and residential and economic development within central Iowa. Today, the Inter-Urban Electric Substation at Brennan remains the sole surviving substation along the Beaver Valley Division line.

Surviving Contemporary Examples

The Inter-Urban Railway Electric Substation at Brennan remains one of the few surviving examples of this architectural form in the Des Moines metropolitan area. It is the only such surviving example along the Beaver Valley Division.

The rarity of the Brennan facility becomes even more apparent when compared with facilities associated with other interurban lines across the metro. Although a comprehensive survey of these facilities does not yet exist, a list of Des Moines Railway Substations remaining as of 1951 does. This list includes ten substations. (Figure 6) A preliminary survey found only three extant. Although the use of the word rarity should be used with caution, it seems appropriate when evaluating the status of the Inter-Urban Railway Electric Substation at Brennan among its erstwhile peers.

Among these few surviving examples, the electric substation at 931 Kirkwood Avenue stands along a diagonal swath of land once part of the trolley right-of-way. The Polk County Assessor's Office dates the construction of this building to 1900, a close approximation to the correct date of 1917. The building provided relay power for the Fort Des Moines branch of the Des Moines City Railway Company. It was converted into a single-family dwelling many years ago. Its design features cubic massing, 2-story brick construction, a 33 x 28 foot footprint, two windows on elevations near the roof, a parapet on three sides, and a flat roof. All of these characteristics conform to contemporary trolley substation design in the Des Moines metro area and to the facility at Brennan. A 2-bay carport, built in 1973, is attached to the southeast corner of the Kirkwood substation. Its front facade faces the diagonal right-of-way. The main floor possesses 924 square feet. An upper living area possesses 739 square feet. This example demonstrates how an historic substation can be successfully converted to modern use.

PERIOD OF SIGNIFICANCE

The period of significance for the Inter-Urban Railway Electric Substation at Brennan is 1917 to 1949. The year 1917 marks the date of its erection. The year 1949 marks the time when electrically powered service along the Beaver Valley Division ceased.

RECOMMENDATIONS FOR FURTHER RESEARCH AND DISCOVERY

The Fort Dodge, Des Moines & Southern Railway—another early 20th century trolley line—sold electrical power to private entities along its tracks. These entities are known to include farmers (Richard Simpson) and perhaps other private parties. Because the Des Moines & Central Iowa Railway might have done likewise, this story deserves further research as an area of significance for the interurban phenomenon. In bringing electrification to certain central Iowa farms, interurbans made mechanized equipment—like milking machines—feasible for nearby farms. Such farms of tomorrow demonstrated the benefits of electricity long before rural electrification became widely available for other rural customers.

The inventory of Des Moines & Central Iowa Railway substations, prepared in March 1951, should be checked for accuracy. It lists 11 substations in metropolitan Des Moines with two listed as extant. At least a third remains extant today in Des Moines at 415 East Tiffin Avenue. There might be others. Additionally, the list did not include a substation at East 14th Street south of Broadway, a facility of the Fort Dodge, Des Moines & Southern Railway.

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Polk (77)
County
Johnston
City

AERIAL VIEW LOCATING PROPERTY

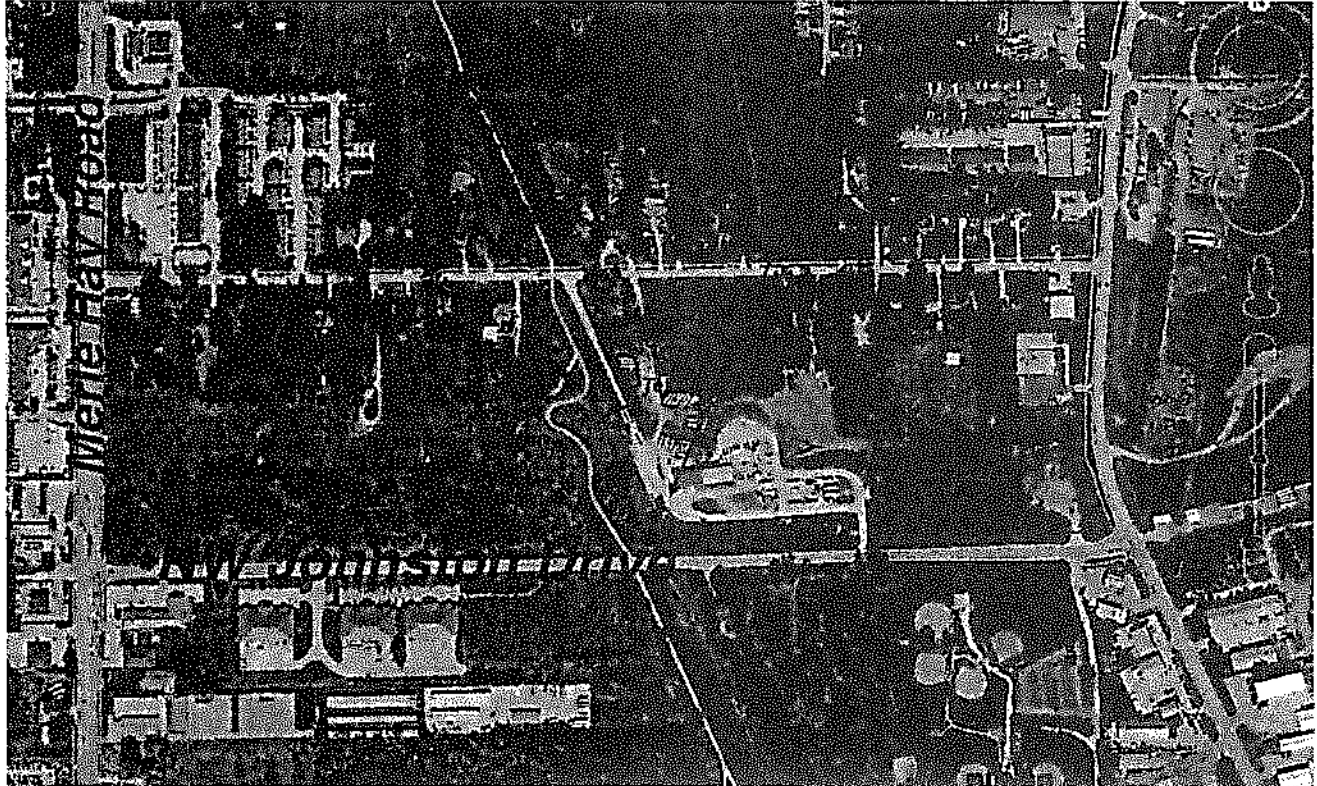


Figure 1

The arrow locates the Inter-Urban Railway Electric Substation at Brennan. ACCO Unlimited Corporation stands directly to the east and the Trestle to Trestle trail runs along the abandoned interurban line to the west. When the Brennan substation was originally built, the interurban track ran east of the building.

Source: Google Earth, January 28, 2018.

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AERIAL VIEW LOCATES BUILDING

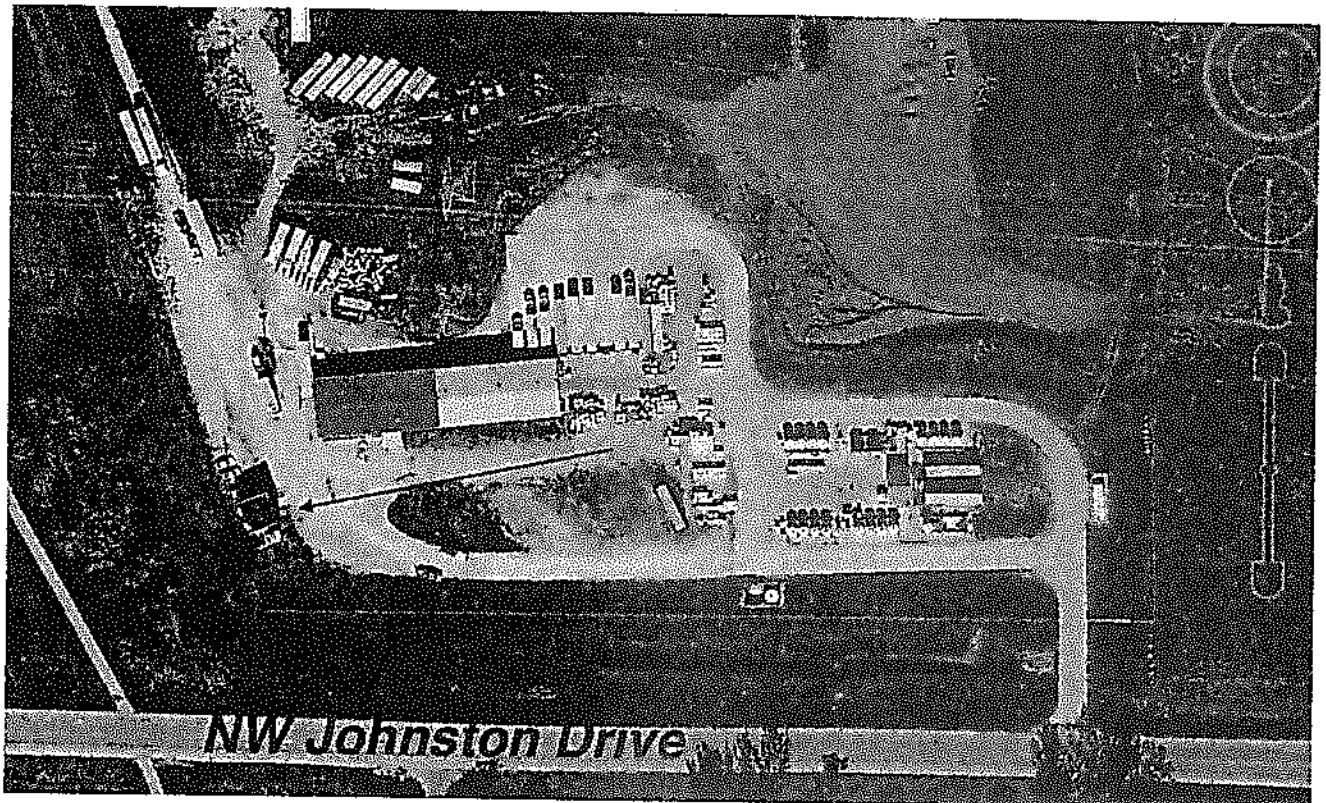


Figure 2

Addressed at 5105 NW Johnston Drive, the Inter-Urban Railway Electric Substation at Brennan (arrow) stands on property owned by the ACCO Unlimited Corporation.

Source: Google Earth, January 28, 2018.



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ROUTE OF BEAVER VALLEY DIVISION IN 1917

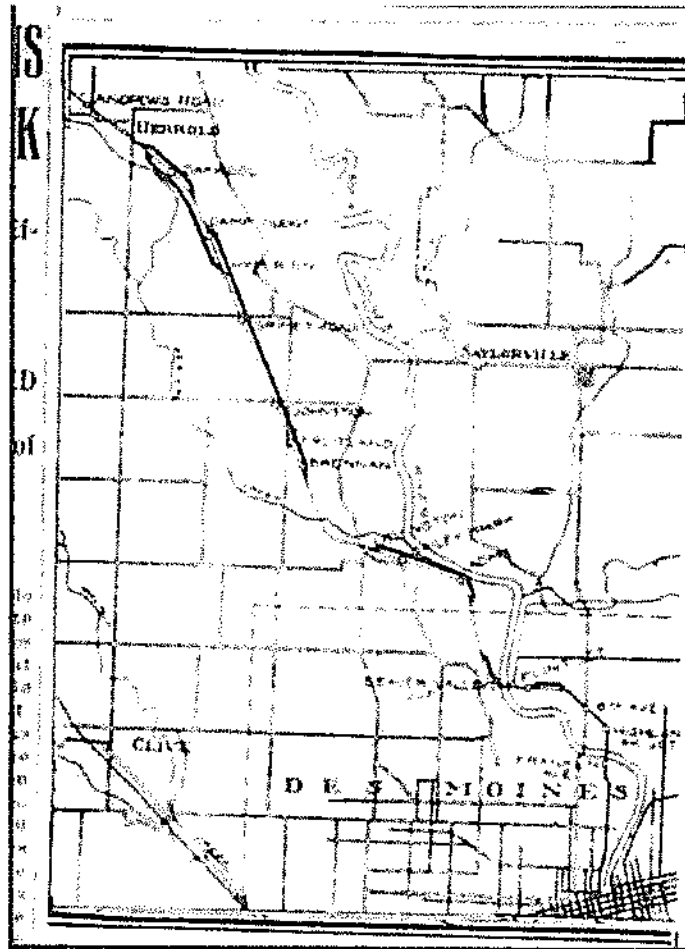


Figure 3

This map locates points along the Inter-Urban Railway Company's Beaver Valley Division. Beginning at the Des Moines River on Des Moines' north side, the map locates Franklin Avenue, Highland Park Junction, 6th Avenue, Flint Junction, Beaver Valley Junction (west side Des Moines River), Aene, Dailey Park, Lovington, Brennan, Fruitland, Johnston, Grimes Road, Hyperion, Camp Dodge, Oakwood, Herrold, and Andrews Road. The division terminated at Perry, Iowa.

The caption to this map notes: "Flint yards to Herrold now in double track, except a short stretch from Brennan to Fruitland, now being rushed to completion."

Source: *Des Moines Register*, Sunday, December 30, 1917, p. 22.

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INTER-URBAN RAILWAY TRACKAGE IN JOHNSTON

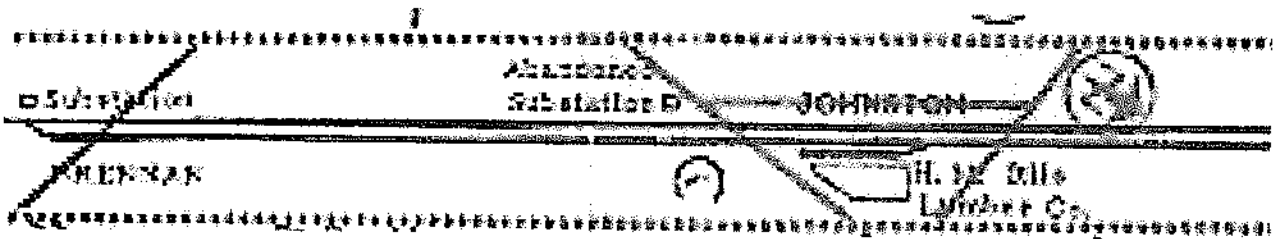


Figure 4

This map shows the location of the Inter-Urban Railway Electric Substation at Brennan (far left). An abandoned substation is shown between it and the Hill's Lumber Company located near today's Johnston town center. The abandoned substation is nonextant.

Source: *Iowa Trolleys*, Map insert.

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HISTORIC PHOTOGRAPH

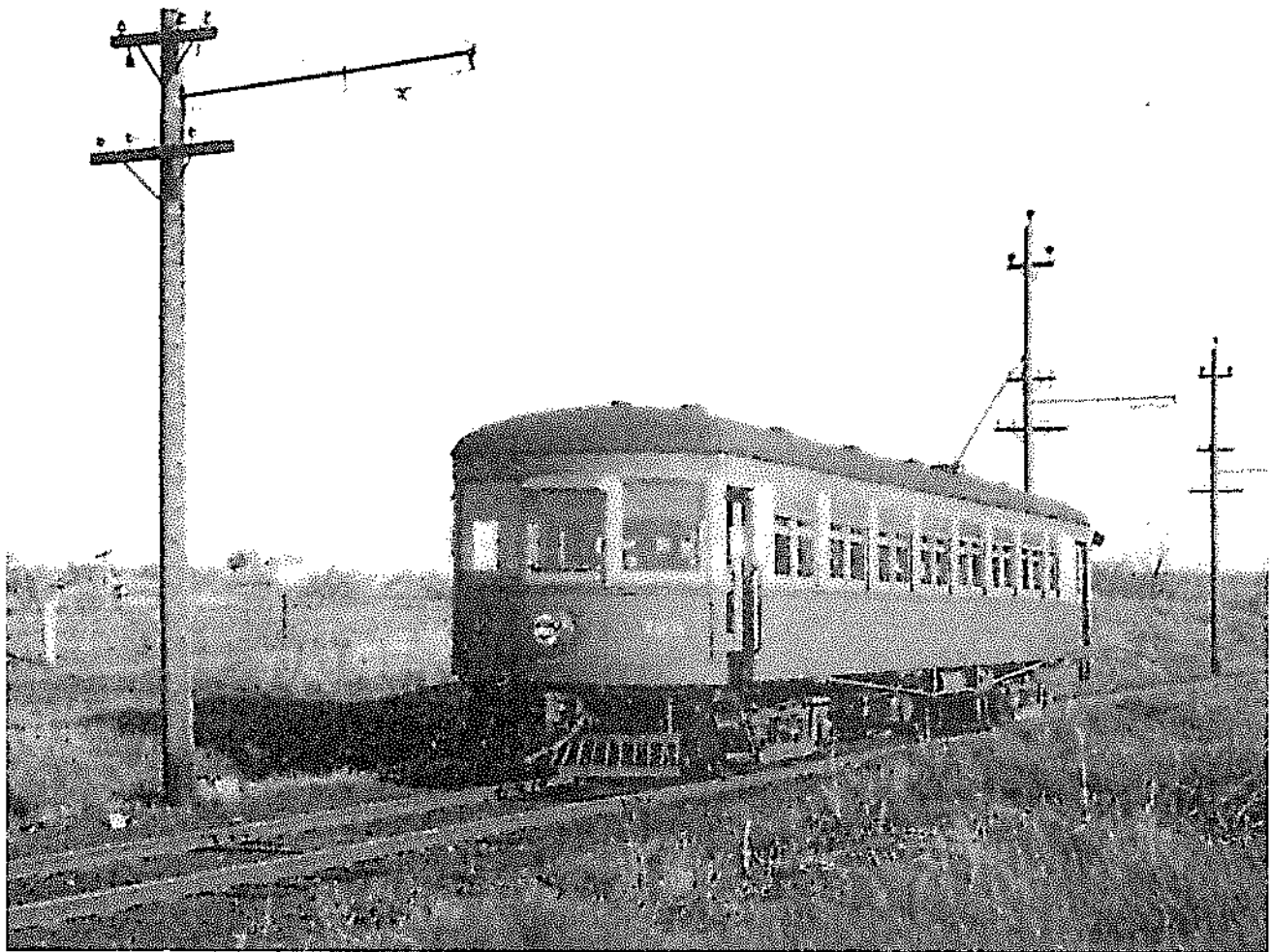


Figure 5

A trolley car on the Beaver Valley Division line heads to Perry, Iowa, on May 8, 1937. The photo nicely illustrates the alternating current and direct current power lines mounted on power poles running adjacent to the tracks. The alternating current lines are mounted on the poles' crossbars. The direct current lines are mounted on the arms extending over the right-of-way and directly above the trolley's conductor pole.

Source: *Iowa Trolleys*, p. 15.

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DES MOINES RAILWAY COMPANY ELECTRIC SUBSTATIONS

DES MOINES

Substations listed below were extant as of March 1951.

* = Known extant in February 2018. Others may also be extant.

49 th & Urbandale	500 kw
415 East Tiffin Avenue*	1500 kw
24 th & High	1500 kw
12 th & High	1000 kw
East 33 rd & Easton	500 kw
931 Kirkwood Avenue*	500 kw
East 14 th & Des Moines St.	750 kw
East 2 nd & Walnut St.	1000 kw
1522 Clark Street*	750 kw
Polk Blvd & Chamberlain	750 kw

Figure 6

