FINAL DETERMINATION OF ELIGIBILITY:

THE KOSCIUSZKO BRIDGE
(BIN 1075699)

KINGS AND
QUEENS COUNTIES
NEW YORK, NEW YORK

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ABSTRACT

The New York State Department of Transportation proposes to make various alterations to the Kosciuszko Bridge (BIN 1075699) in the boroughs of Brooklyn and Queens, New York. In accordance with the National Environmental Policy Act, Parsons, Inc is preparing the necessary documentation. The project is under the jurisdiction of New York State Department of Transportation (NYSDOT) Region 11, and requires the regulatory oversight of the New York State Historic Preservation Office (SHPO). The potentially historic bridge extends northeast over Newtown Creek from approximately Varick Street and Meeker Avenue in Greenpoint, Brooklyn to Laurel Hill Boulevard and 54th Street in Maspeth, Queens. The area around the potentially historic bridge contains predominately commercial buildings, including industrial plants and manufacturing warehouses. EHT Traceries, Inc. conducted the on-site survey in May 2006 as a part of the proposed improvements. The methodology employed for this study was based on the Secretary of the Interior's Standards for Survey and Planning as recorded in National Register of Bulletin: *Guidelines for Local Surveys: A Basis for Preservation Planning* (1985 edition), and in accordance with New York State Department of Transportation's *Guidelines for Evaluating Historic Bridges* (September 2002). Prior to field investigation, background research was performed to provide a basis for understanding the Bridge, its history, and the built environment. Using the background research gathered, a historic narrative was prepared for the Kosciuszko Bridge, including such topics as: history of the Kosciuszko Bridge; biography of the designer and builder; commemorative aspects of the bridge; and general associations with the surrounding communities. The Kosciuszko Bridge was documented and evaluated in its entirety regarding its historic context – area(s) of significance, period(s) of significance, architectural description and integrity. Additionally, a comparative analysis of Warren truss bridges throughout the State and within the City of New York was conducted. Information for this comparison largely came from the *Evaluation of National Register Eligibility: Task C3 of the Historic Bridge Inventory and Management Plan prepared by Mead & Hunt with Allee King Rosen & Fleming, Inc.* (2002) and the accompanying NYSDOT Historic Bridge Inventory (updated 2006). This report inventoried and evaluated pre-1961 bridges that are currently located on public roads and for which the NYSDOT has management responsibility. The comparative analysis, which included other eligible and non-eligible bridges, served as a basis for understanding the integrity and context of the Kosciuszko Bridge in relation to other bridges from the same time period. After evaluating the information within the historic narrative and comparative analysis, a determination of eligibility and integrity analysis were prepared. Lastly, a New York State Historic Resources Inventory Form was completed for the Kosciuszko Bridge. Information within the Inventory Form includes the bridge's date of construction, building materials, architectural style, alterations, and use.

Applying the methodology of the *Evaluation of National Register Eligibility: Task C3 of the Historic Bridge Inventory and Management Plan prepared by Mead & Hunt with Allee King Rosen & Fleming, Inc.* (2002), it has been determined that BIN 1075699, or the Kosciuszko Bridge, is **eligible** under National Register Criterion C more specifically, NYSDOT Criterion C-6. Built in 1939, this fixed, multiple span, Warren combination (deck and through) truss bridge with overhead bracing represents a significant and unusual variation of the Warren truss type. Whereas most eligible bridges have one feature of individuality considered to be a significant variation within the post-standardization Warren truss type, the Kosciuszko Bridge possesses several including its multiple spans, Warren combination (deck and through) trusses, and

polygonal top chords with overhead bracing. According to the 2006 Historic Bridge Inventory, there are only three examples of bridges with a combination (deck and through) truss in the entire database. The *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan* found that Warren truss bridges built after 1925 were strongly influenced by standardization and do not represent significant examples of their type. They are recommended as non-eligible unless they possess historical significance, a significant variation or other unique feature or association. Significant variations or features of individuality within the post-standardization Warren truss type include: deck truss, multiple span, double-intersection truss, unusual substruts, and unusual curved top and bottom chords.[1] Structural elements of the Kosciuszko Bridge include multiple spans, Warren combination (deck and through) truss, and overhead bracing, all categorized as "significant variations or features of individuality." The Kosciuszko Bridge therefore, embodies distinctive characteristics of multiple span bridges, as well as Warren deck and thru truss types with overhead bracing. Built in 1939, the Kosciuszko Bridge reflects its period and methods of its construction. Thus, the Kosciuszko Bridge is considered eligible only under National Register Criterion C and more specifically, NYSDOT Criterion C-6. The Kosciuszko Bridge is determined not eligible for listing under National Register Criteria A, B, or D. The determination for eligibility under Criterion C-6 is supported by the following justification.

The Kosciuszko Bridge exhibits significant variation from common or standardized Warren truss types for many reasons. One of the most characteristic elements of the Kosciuszko Bridge is that it contains 22 spans. Bridges that have one or more piers in addition to the abutments are called multiple span bridges. Long bridges such as the Kosciuszko Bridge are generally multiple span bridges. The multiple spans of the Kosciuszko Bridge are considered a characteristic or defining element of the bridge. The span over the Newtown Creek measures 300 feet, while the approach spans vary from 120-230 feet. The total bridge length is 6,021 feet. There are 10 deck truss spans at the Brooklyn side, 11 deck truss spans at the Queens side, and one through truss span over the Newtown Creek.

Another significant variation of the standardized Warren truss type is a combination (deck and through) truss. In a deck configuration, traffic travels on top of the main structure while the deck slab is supported by crossbeams, stringers, floor beams and trusses. In a combination (deck and through) truss bridge, the truss system supports the bridge deck above and below the structure. The approaches of the Kosciuszko Bridge measure approximately 5,771 feet and are supported by Warren deck trusses. While the approach spans at the Brooklyn and Queens sides are supported by Warren deck trusses, the Newtown Creek span is supported by a Warren thru truss with overhead bracing. Polygonal top chords support the overhead bracing, giving it an appearance similar to that of a camelback truss.

The form of the Kosciuszko Bridge follows its function. The design for the Kosciuszko Bridge, although not attributed to a particular designer or engineer, is one that accommodates ships as well as cars. The 125 foot height of the bridge allowed ships to travel beneath it on Newtown Creek, at one time considered one of the busiest ship channels, while the 6,021 foot length provided a straighter and more direct roadway for the expressway of which it would become a part. Constructed in 1939, the Kosciuszko Bridge reflects Depression-Era Bridge Construction.

[1] Mead & Hunt and Allee King Rosen & Fleming, Inc., *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan*, prepared for the New York State Department of Transportation, Albany, New York and the Federal Highway Administration, Albany, New York, January 2002, pg. 4-50.

Bridges built during this period met the increasing demands of the traveling public.[2] Built as the first element of the future Brooklyn-Queens Expressway, the Kosciuszko Bridge played a critical part in connecting motorists to Brooklyn and Queens. The Brooklyn-Queens Expressway, a segment of I-278, was vital to the roadway improvement effort initiated in the mid-twentieth century. The purpose of this project was to alleviate congestion and improve traffic flow in and around New York. The engineering difficulties associated with the Kosciuszko Bridge accommodating both cars and boats resulted in the plan of a roadway with a longer approach than that of any previous bridge at this location. The bridge connects Brooklyn and Queens, thereby greatly aiding the transportation network and commerce between the boroughs. The connection also allowed motorists to access the Triborough Bridge, and ultimately, the 1939-1940 World's Fair in Flushing Meadows, Queens.

Of the 260 Warren truss bridges included in the Historic Bridge Inventory (updated 2006), 107 have been determined eligible for listing in the National Register of Historic Places. Of the 260 Warren truss bridges, 153 have been determined not eligible for listing in the National Register of Historic Places. Of the 107 bridges determined eligible, three are located in the New York City Region. A site visit to the three eligible Warren truss bridges (all owned by New York City Department of Transportation) in the New York City Region occurred on May 25, 2006. This visit provided an opportunity to compare the Kosciuszko Bridge with the three eligible Warren truss bridges in the New York City Region. The three eligible bridges in the New York City Region were all built during the early-standardization (pre-1925) period. All three of the eligible bridges within the New York City Region are also Warren through truss types. None of the eligible bridges however, have polygonal top chords with overhead bracing, similar in appearance to a camelback truss. The Kosciuszko Bridge was also compared with eligible bridges built post-standardization (post-1925) included in the Historic Bridge Inventory (updated 2006). The comparison of the Kosciuszko Bridge with other post-standardization bridges emphasized the significance of the fixed, multiple span, combination (deck and through) Warren truss form of the Kosciuszko Bridge because another example of this unusual configuration and combination of structural elements was not found in the State.

Although the construction of the Kosciuszko Bridge as the first element of the Brooklyn-Queens Expressway (BQE) is considered an important event, it is not one of national significance, nor is it more important than the construction of the Expressway itself or the other BQE bridges. The Kosciuszko Bridge is therefore considered not eligible for listing under Criterion A. Although the Kosciuszko Bridge honors Thaddeus Kosciuszko, it does not illustrate his important achievements; rather, it *commemorates* them. Therefore, the Kosciuszko Bridge is not eligible for listing under Criterion B. Additionally, there are other examples of Thaddeus Kosciuszko commemorations in the New York City Region. The Kosciuszko Bridge is not likely to yield information important in prehistory or history and is thus not eligible for listing under Criterion D.

[2] Mead & Hunt, *Contextual Study of New York State's Pre-1961 Bridges*, Prepared for the New York Department of Transportation, November 1999, pg. 61.

TABLE 1: COMPARATIVE ANALYSIS OF WARREN TRUSS BRIDGES

	BRIDGE TYPES											
	WARREN TRUSS BRIDGES		WARREN THROUGH TRUSS				WARREN DECK TRUSS BRIDGES		WARREN COMBINATION TRUSS (DECK & THROUGH)			
			NO OVERHEAD BRACING		WITH OVERHEAD BRACING							
PERIOD	IN NEW YORK STATE	IN NEW YORK CITY	IN NEW YORK STATE	IN NEW YORK CITY	IN NEW YORK STATE	IN NEW YORK CITY	IN NEW YORK STATE	IN NEW YORK CITY	IN NEW YORK STATE	IN NEW YORK CITY	FRYE BRIDGE	BRIDGE NO. 2255530
ELIGIBLE												
PRE-STANDARDIZATION PERIOD (PRE-1908)	29	1[3]	27	1[4]	2	0	0	0	0	0	N/A	N/A
EARLY-STANDARDIZATION PERIOD (1909-1925)	31	2[5]	26	1[6]	3	0	1	0	1	0	N/A	N/A
POST-STANDARDIZATION PERIOD (1926-1955)	47	0	20	0	18	0	9	0	0	0	N/A	N/A
SAME PERIOD AS KOSCIUSZKO BRIDGE (1938-1943)	8[7]	0	5[8]	0	2[9]	0	0	0	0	0	1	1
TOTAL ELIGIBLE	107	3	73	2	23	0	10	0	1	0	1	1
NOT ELIGIBLE										0		
PRE-STANDARDIZATION PERIOD (PRE-1909)	8	0	7	0	1	0	0	0	0	0	N/A	N/A
EARLY- AND POST-STANDARDIZATION PERIOD (1909-1925)	3	0	3	0	0	0	0	0	0	0	N/A	N/A
POST-STANDARDIZATION PERIOD (1926-1955)	137	0	86	0	49	0	2	0	0	0	N/A	N/A
SAME PERIOD AS KOSCIUSZKO BRIDGE (1938-1943)	25	0	15	0	1	0	0	0	0	0	N/A	N/A
TOTAL NOT ELIGIBLE	153[10]	0	96	0	50	0	2	0	0	0	N/A	N/A
TOTAL	**260**	**3**	**169**	**2**	**73**	**0**	**12**	**0**	**1**	**0**	**1**	**1**

[3] BIN No. 2241259 (204th Street Footbridge) is eligible under Criterion C-5.
[4] BIN No. 2241259 (204th Street Footbridge) is eligible under Criterion C-5.
[5] BIN No. 2241590 (Concourse Village Avenue) is eligible under Criterion C-5 and BIN No. 2240507 (Roosevelt Avenue) is eligible under Criteria C-5 and C-6.
[6] BIN No. 2240507 (Roosevelt Avenue) is eligible under Criteria C-5 and C-6.
[7] Two bridges are eligible under Criterion A-1; five are eligible under Criterion C-6; and for one bridge, the criterion is not explained.
[8] Two bridges are eligible under Criterion A-1; two are eligible under Criterion C-6; and for one bridge, the criterion is not explained.
[9] Both bridges are eligible under Criterion C-6.
[10] Five of the 153 bridges are categorized other than Through Truss, Deck Truss or Combination (Deck & Through) Truss.

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INTRODUCTION

The New York Department of Transportation is in the process of studying various solutions for the rehabilitation or replacement of the Kosciuszko Bridge (BIN 1075699) in the boroughs of Brooklyn and Queens, New York. The project is under the jurisdiction of New York State Department of Transportation (NYSDOT) Region, and requires the regulatory oversight of the New York State Historic Preservation Office (SHPO). Parsons Transportation Group subcontracted EHT Traceries, Inc. to perform an architectural and historical study that assesses the significance of the Kosciuszko Bridge and to make a determination of eligibility regarding the bridge's potential for listing in the National Register of Historic Places. The architectural inventory included documentation of the Bridge structure and its importance to the surrounding communities in the boroughs of Brooklyn and Queens. This document provides a context for the history of the Kosciuszko Bridge and its neighboring communities, the results and findings of a contextual study of similar bridges, and a determination of eligibility for the bridge. The document will be used not only as a planning tool, but it will also provide information needed to evaluate the resource for its significance and eligibility.

SCOPE OF WORK

The Kosciuszko Bridge was documented and photographed using the New York State Historic Resources Inventory Form. Information within the Inventory Form includes the bridge's date of construction, building materials, architectural style, alterations, and use. The bridge was then assessed to determine its contribution to the historic context of both Greenpoint and Maspeth in the boroughs of Brooklyn and Queens. The Kosciuszko Bridge was documented and evaluated in its entirety regarding its historic context – area(s) of significance, period(s) of significance, architectural description and integrity. Additionally, a comparative analysis of Warren truss bridges throughout the State and within the City of New York was conducted. This comparison, which included other eligible and non-eligible bridges, served as a basis for understanding the integrity and context of the Kosciuszko Bridge in relation to other bridges from the same time period.

PROJECT TEAM

The architectural inventory and significance evaluation for the Kosciuszko Bridge was undertaken in May 2006 by a team of architectural historians from EHT Traceries. Architectural Historian/Project Manager Janet Emery Flynn and Architectural Historian Laura FitzGerald conducted the archival research, on-site surveys, documentation, and assessments for the project, under the direction of Laura H. Hughes (Project Supervisor). The final significance evaluations were supervised by Laura V. Trieschmann (Senior Architectural Historian) and Laura H. Hughes.

RESEARCH DESIGN

ARCHIVAL RESEARCH METHODS

The methodology employed for this study was based on the Secretary of the Interior's Standards for Survey and Planning as recorded in National Register Bulletin: *Guidelines for Local Surveys: A Basis for Preservation Planning* (1985 edition), and in accordance with New York State Department of Transportation's *Guidelines for Evaluating Historic Bridges* (September 2002).

Prior to field investigation, background research was performed to provide a basis for understanding the Bridge, its history, and the built environment. Information on historic settlement in the project area was compiled from a number of sources. Resources consulted include historic photographs and both published and unpublished books and records. The results of the archival research were used to develop a general context for the historic development of the project area. The following archival repositories served as the basis for the research:

Archives and collections consulted include:

Library of Congress, Geography and Map Division, Washington D.C.
Municipal Archives, NY, NY
New York Historical Society, NY, NY
Queens Borough Public Library, Jamaica, NY
The Brooklyn Public Library, Brooklyn, NY
The New York Public Library, NY, NY

Agencies and organizations consulted by telephone and internet include:

NYC Department of Records, NY, NY
Pratt Institute Library, Brooklyn, NY
The Brooklyn Historical Society, Brooklyn, NY
The Kosciuszko Foundation, Inc., NY, NY
The Queens Historical Society, Flushing, NY

ARCHITECTURAL SURVEY METHODS

The architectural inventory and significance evaluation for the Kosciuszko Bridge project began with an on-site windshield survey. Additionally, a reconnaissance-level field survey was performed to assess the physical integrity of the Bridge as well as its setting along Newtown Creek as a whole, documenting the approximate age, condition/integrity, function/use both historic and current, construction materials, architectural details, architectural style, alterations, and additions. Color prints (35mm, 4" x 6") were used to document the bridge for the New York State Historic Resources Inventory Form. The views include full on and side views, lateral views, main span(s), architectural details, and when appropriate, streetscapes.

RECORDATION

The New York State Historic Resource Inventory Form was prepared following the on-site reconnaissance-level survey and archival research. The historic and architectural context was utilized as necessary in the completion of these documents. All on-site survey and archival findings were reviewed and analyzed by the Senior Architectural Historians at EHT Traceries, Inc. prior to the preparation of the determinations of eligibility and assessments of integrity.

ARCHITECTURAL DESCRIPTION: KOSCIUSZKO BRIDGE

The Kosciuszko Bridge is a fixed, multiple span, combination (deck and through) Warren truss bridge with overhead bracing. Part of the six-lane, Brooklyn-Queens Expressway (I-278) in Queens and Kings Counties, New York, the bridge spans Newtown Creek and the truss spans extends northeast from Meeker Avenue and Varick Street in Greenpoint, Brooklyn, to Laurel Hill Boulevard and 54th Street in Maspeth, Queens. Originally constructed as the Meeker Avenue Bridge in 1939, the bridge was renamed the Kosciuszko Bridge in 1940 to commemorate the Polish Revolutionary War hero, Thaddeus Kosciuszko. In 1960, with the completion of the Brooklyn-Queens Expressway (Interstate I-278), the Kosciuszko Bridge was officially linked to the completed highway system.

The bridge has a vertical clearance of 125 feet over Newtown Creek, and rises 175 feet in height at its highest point and 6,021.3 feet in length with a total of 22 spans that rest on 21 cast-in-place, segmental arched, reinforced concrete piers. The span over the Newtown Creek measures 300 feet, while the approach spans vary from 120 to 230 feet. There are 10 deck truss spans at the Brooklyn side, 11 deck truss spans at the Queens side, and one through truss span over the Newtown Creek.

Bridge piers rest on concrete foundations. Constructed of reinforced concrete, shafts for the piers were cast in sections according to the height of the piers—taller piers are made up of four sections, for example. The tallest piers are those supporting the main span. These piers are double cross braced, riveted steel towers on concrete bases. The pattern of the cross bracing on the main span piers has a lattice-like pattern.

Image 1: Detail of bridge piers
Image Courtesy of EHT Traceries, May 2006

Image 2: Detail of main span piers
Image courtesy of EHT Traceries, May 2006

The truss spans connect to abutments located at Meeker Avenue and Varick Street in Greenpoint, Brooklyn, and at Laurel Hill Boulevard and 54th Street in Maspeth, Queens. These abutments

lead to low level reinforced concrete approaches which are clad in brick in a stretcher bond pattern. The approaches are further decorated with interspersed panels approximately five feet wide that feature sawtooth detailing. A roll-up metal garage bay and a single-leaf metal door are located at the east elevation of the Brooklyn side of the bridge, providing access to the storage areas located within the abutments. Windows for the storage spaces are located beneath the roadway and remain at both the Brooklyn and Queens sides of the bridge. Window openings are enclosed by metal grills and rest on concrete sills. The Brooklyn viaduct has concrete rigid frames that provide vehicular access to the areas perpendicular to the bridge's approaches at Morgan Avenue, Vandervoort Avenue, Varick Avenue and Stewart Avenues.

Image 3: Detail of bridge abutments and storage spaces, *Image courtesy of EHT Traceries, May 2006*

The main superstructure element of the bridge is of the Warren deck truss type. The riveted steel deck truss extends from the abutments to the main bridge spans at each side of the bridge. The bridge's roadway is supported by concrete filled steel grating and topped by asphalt to create the road surface. The roadway is cantilevered over the trusses, supported by cross bracing beneath the I-beam-supported roadway. The roadway is lined by concrete curbs with a metal railing and three foot steel panels or splash guards. The roadway of the main span is lined with open metal railings. Light for the bridge is provided by light posts spaced evenly at the sides of the bridge.

Image 4: Detail of Warren deck truss and I-beam grating, *Image courtesy of EHT Traceries, May 2006*

The Warren through truss main span of the bridge features a superstructure made of polygonal top riveted steel chords and overhead cross bracing. Centrally located on the overhead bracing at the Brooklyn side and the Queens side are commemorative plaques. Installed when the bridge was renamed in 1940, the plaques bear the crests of the United States and Poland in addition to the "new" name of the bridge, the Thaddeus Kosciuszko Bridge. J. Frank Johnson is also recognized on the plaque as the Chief Engineer.

MAINTENANCE HISTORY

The repaving of the existing asphalt-on-concrete deck occurred in 1958. The second repaving project was initiated in 1967, at a cost of $6 million dollars. The largest improvement to date on the bridge was a 1966 replacement of the concrete deck and the elimination of the two, eight foot wide pedestrian sidewalks to accommodate wider traffic lanes. Subsequent work included the replacement of the barriers, railings, lampposts, crossbeams, and drainage system, with the intention of alleviating bridge traffic. Other rehabilitation work included a three-year repair project initiated in 1996 that reinforced the concrete piers; the general cleaning, painting, and maintenance of the structural system in 2000, and the resurfacing of the deck including general bridge and ramp repairs in 2005.[11]

PHYSICAL INTEGRITY

Overall, the bridge is in fair condition. The steel members of the bridge, particularly the superstructure, substructure and main span piers appear to be in good condition, despite rusting in some areas. However, the bridge steel that supports the roadway develops cracks in numerous locations and frequent maintenance is required. Additionally, the roadway deck also needs frequent repair to maintain a safe riding surface. Although abutment storage areas were not accessible at the time of this survey effort, it appears as though some of the storage space openings have been sealed or in filled with brick. Despite these modifications and alterations, the original form and structure of the bridge are intact.

[11] Parsons, *Kosciuszko Bridge Project*, "Chapter II: Project Identification, Evolution, Conditions and Needs and Objectives," July 1, 2005, pg. II.B-2.

HISTORIC CONTEXTS

BRIDGE CONTEXT

PENNY BRIDGE

Prior to 1815, two of the earliest crossings of Newtown Creek in the area of Meeker Avenue were primitive wooden bridges. The Newtown Bridge and Turnpike Company erected a toll bridge on stone piers after 1836 that became known as Penny Bridge. Penny Bridge connected Brooklyn to Queens and was a small swing bridge over Newtown Creek. The bridge had a vertical clearance over Newtown Creek of approximately fifteen feet and an overall length of 250 feet. Penny Bridge was the earliest bridge to span Newtown Creek. Other early Newtown Creek bridges include the Greenpoint Avenue and Grand Street Bridges. Primarily a small vehicular and pedestrian footbridge connecting the Greenpoint and Laurel Hill communities, the Penny Bridge also served as a gateway to passing vessels.

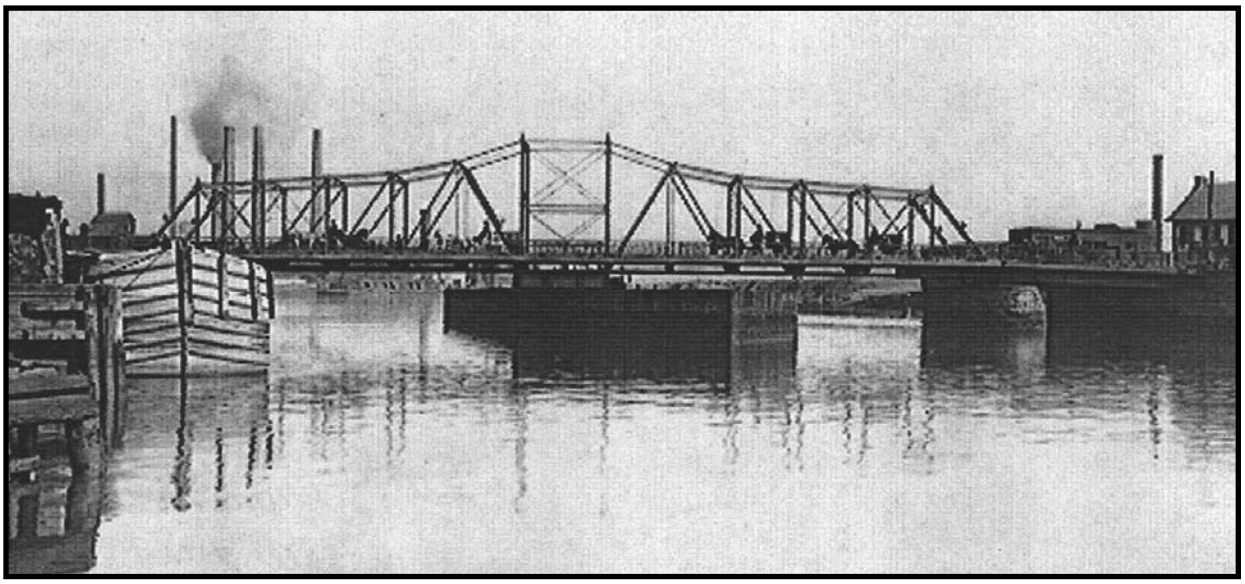


Image 5: View of Penny Bridge over Newtown Creek, 1914
Record 23906
Image Courtesy of Queens Public Library, Long Island Division

In the 1900s, Newtown Creek became crowded with larger ships, and the volume of vehicular traffic increased across Penny Bridge. These shortcomings prompted city planners to consider repairing the outdated overpass and building a new structure that reflected improvements in technology and had the structural capacity to accommodate increasing traffic demands.

The men responsible for the planning of the new bridge, located 800 feet to the east of the Penny Bridge location included Mayor Fiorello LaGuardia, John J. Halleran, the Acting Borough President of Queens, Raymond V. Ingersoll, the Borough President of Brooklyn, and Frederick J.H. Kracke, the Commissioner of Plant and Structures. Shortly before its closing, some 11,145

automobiles reportedly crossed Newtown Creek daily over the Penny Bridge, half the volume the new bridge would carry.[12]

MEEKER AVENUE /KOSCIUSZKO BRIDGE

Construction of the new steel and concrete Meeker Avenue Bridge began on May 25, 1928 at Meeker Avenue and was built simultaneously with the super highway improvements of the 1930s. Additionally, the construction of the bridge was planned with other park and road improvements to accommodate the increased traffic and number of visitors anticipated for the upcoming World's Fair in 1939-1940. This new bridge across Newtown Creek was not completed until 1939 but would become an important part of the Brooklyn-Queens Expressway, connecting Greenpoint in Brooklyn to Laurel Hill in Queens. Mayor LaGuardia predicted that Queens would "enjoy an industrial boom and a greater era of development through the opening of the new Meeker Ave. Bridge."[13]

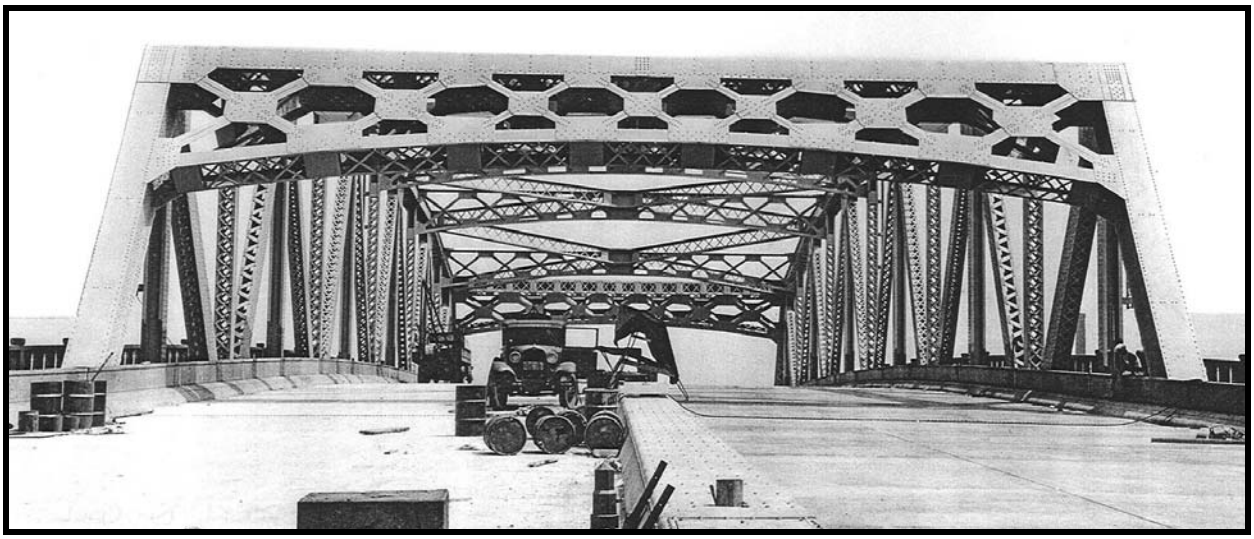


Image 6: Meeker Avenue Bridge Under Construction

Undated

BRID 0186

Image Courtesy of the Brooklyn Public Library, Brooklyn Collection

Projected costs of the Meeker Avenue Bridge were set at $2,000,000 by the Department of Public Works in 1938, just prior to the ground breaking.[14] From start to finish, each stage of construction was contracted out to different parties, leaving no single architect or engineer responsible for the design.[15]

[12] "Count Reveals Rapid Increase in Use of Span," Kosciuszko Bridge Vertical File, Long Island Division, Queens Public Library, Sept. 14, 1939.

[13] "3,000 Attend Dedication at Laurel Hill," Kosciuszko Bridge Vertical File, Long Island Division, Queens Public Library.

[14] *New York Times*, "15 New Bridges Planned by City," *New York Times*, September 11, 1938, pg. 19.

[15] *Queens borough*, "Progress on the Meeker Avenue Bridge," *Queens borough*, Feb. 1939, pg. 30.

The engineering difficulties of accommodating both cars and boats resulted in the plan of a straighter roadway with a longer approach and a higher central span than that of any previous bridge at this location. Once completed, this bridge would serve as the first component of the major interstate roadway known as the Brooklyn-Queens Expressway, linking both communities to the future interstate.[16]

Image 7: Meeker Avenue Bridge Under Construction
Undated
BRID 0188
Image Courtesy of the Brooklyn Public Library, Brooklyn Collection

The Meeker Avenue Bridge was considered distinct because the plan for its high-level fixed span form was one of the last to be built by the City.[17] It was also unique in overcoming several design and engineering obstacles, not excluding its large size. Proving especially difficult were hazardous chemicals found in the creek bed along with acidic soil, requiring planners to engineer oversized foundations and create special non-corroding coatings for subsurface elements.[18] These unexpected challenges delayed the projects' date of completion and additionally concerned city officials who had planned on the bridge to support increased traffic patterns for the soon to open World's Fair. The anticipation of the large event pressed project leaders to speed up the building process, with the intention of reaching a newly projected April 30th deadline.[19]

[16] *Brooklyn Eagle*, "Boon to Industry: Meeker Ave. Bridge Will Open up Newtown Creek to Boat Traffic, Carry Crosstown Highway to Queens," Aug. 4, 1939, pg. 13.
[17] Sharon Reier, *Bridges of New York*, New York: Quadrant Press, 1977.
[18] *Brooklyn Eagle*, "Boon to Industry: Meeker Ave. Bridge Will Open up Newtown Creek to Boat Traffic, Carry Crosstown Highway to Queens," pg. 13.
[19] "Newtown Creek Bridge Nears Completion," Kosciuszko Bridge Vertical File, Long Island Division, Queens Public Library.

The delays in construction and sudden push toward completion resulted in criticism principally directed at Mayor LaGuardia. The Mayor, however, firmly believed that this bridge was a symbolic connection to the city's parkway system as well as possessing a physical union between the boroughs of Manhattan, Brooklyn, Queens and the Bronx.[20]

The completed Meeker Avenue Bridge was a steel and concrete structure measuring 6,021.3 feet in length from abutment to abutment with five blocks of fireproof warehouse storage beneath its ramps.[21] The total length of the bridge made it longer in length than the Brooklyn Bridge, which measures 5.3 feet shy of the Meeker Avenue Bridge.[22] The Bridge carried the Brooklyn-Queens Expressway (I-278), with three lanes of traffic in each direction, 125 feet above Newtown Creek, with 8 foot wide pedestrian sidewalks on either side.[23] By projects' end, the costs reached $6,000,000.00.[24] The completed bridge was officially dedicated to the public and opened to traffic on August 23, 1939.

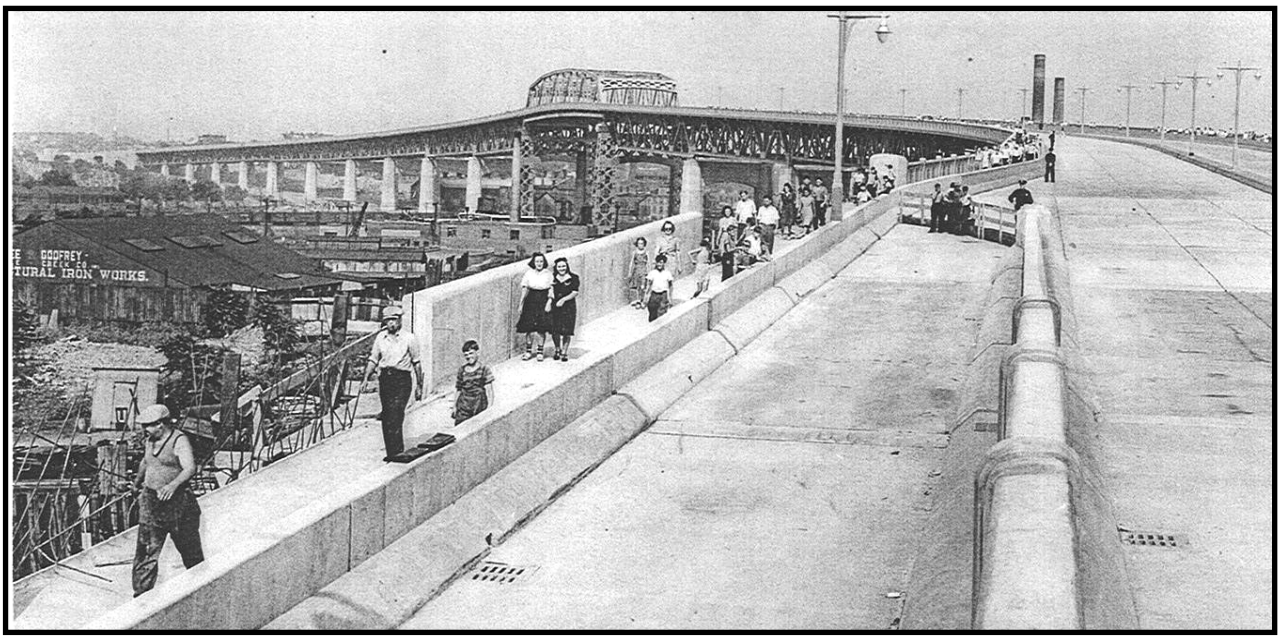


Image 8: First Pedestrians Crossing Meeker Avenue Bridge

August 24, 1939

BRID 0184

Image Courtesy of the Brooklyn Public Library, Brooklyn Collection

[20] "3,000 Attend Dedication at Laurel Hill," Kosciuszko Bridge Vertical File, Long Island Division, Queens Public Library.
[21] *Daily News*, "Bridge Ramp 'Mined' for Storage Space," *Daily News*, April 27, 1941.
[22] *Brooklyn Eagle*, "Boon to Industry: Meeker Ave. Bridge Will Open up Newtown Creek to Boat Traffic, Carry Crosstown Highway to Queens," pg. 13.
[23] *Queens borough*, "Progress on the Meeker Avenue Bridge,", pg. 30.
[24] "15,0000 Dedicate Bridge in Honor of Kosciuszko," Kosciuszko Bridge Vertical File, Long Island Division, Queens Public Library, Sept. 23, 1940.

On July 10, 1940, city and community leaders agreed to rename the Meeker Avenue Bridge in honor of Thaddeus Kosciuszko (1746-1817), a Polish Revolutionary War hero.[25] Thousands of people attended the dedication ceremony of the Kosciuszko Bridge on September 23, 1940. Many of those in attendance were of Polish descent, and lived in Brooklyn's predominantly polish community of Greenpoint. During the ceremony, Kosciuszko was praised for his spirit and for his contribution to the cause of American liberty. According to Attorney General John J. Bennett, "Thaddeus Kosciuszko exemplifies the true spirit of America. He was a stranger from another land. He did not speak our language. But he was at home here among lovers of freedom, he hated persecution."[26]

Image 9: Renaming Ceremony of Kosciuszko Bridge
September 23, 1940
BRID 0184
Image Courtesy of the Brooklyn Public Library, Brooklyn Collection

DESIGNER/ENGINEERS

The design for the Kosciuszko Bridge is not attributed to one particular designer or engineer. Rather, the bridge was built in phases for the City of New York from designs by the Department

[25] "Meeker Ave. Bridge Opens," Kosciuszko Bridge Vertical File, Long Island Division, Queens Public Library.
[26] "Bridge Dedication Draws Thousands," Kosciuszko Bridge Vertical Files, Long Island Division, Queens Public Library.

of Public Works under the direction of Major Irving V.A. Hule, Commissioner. Original plans for the Kosciuszko Bridge identify the City of New York Department of Plant and Structures/ Department of Public Works as the designers and engineers. Although the dedication plaque on the Kosciuszko Bridge identifies J. Frank Johnson of the Department of Public Works as the Chief Engineer, a Brooklyn Eagle article (3/12/1951) identifies Emil H. Praeger as the Chief Engineer. Other city officials associated with the project include: George H. Hefele, Acting Director, Bureau of Bridges; Samuel Hamburger; Engineer in Charge of Construction; and Nathan Deutschman, Resident Engineer.[27] Robert Moses, Park Commissioner for the City of New York, also worked on the project relative to the Brooklyn -Queens Expressway. Emil H. Praeger worked for Robert Moses as Chief Engineer of Consulting Engineers.

ROBERT MOSES (1888-1981)

Like other large cities in the United States, New York City experienced changing social patterns during the twentieth century, spurring new development patterns and a need for improved transportation networks. The notion of these new networks attracted the attention of many city planners and engineers, including master builder Robert Moses.

In 1924, Moses served as the president of the State Parks Council and the Long Island State Park. During his time on the State Parks Council, he became known for his leading role in contemporary design solutions in planning park systems on Long Island including the Jones, Orchard, and Jacob Riis Beaches. His accomplishments did not go unrecognized.[28] In 1934, Moses was appointed Park Commissioner of the City's Department of Parks by New York City Mayor LaGuardia to create a vast highway system connecting the five boroughs of New York for the modern automobile.[29]

As the Park Commissioner of New York, Moses was considered the brain-child for future state and city roadway improvements, influencing the design of low overpass bridges in an effort to deter commercial vehicles, while seeking variety in his designs, and sustaining a harmonious quality with the landscape.[30] The Triborough Bridge (1936), the Brooklyn-Battery Tunnel (1950), the Throgs Neck Bridge (1961), the Cross Bay Parkway Bridge (reconstructed 1939), the Bronx-Whitestone Bridge (1939), the Marine Parkway Bridge (1937), the Henry Hudson Bridge (1936), and the Belt Parkway and the Laurelton Parkway (1934-1941), were among his many projects.[31]

Upon his appointment to the City's Planning Commission in 1941, Moses continued to exude his influences on the modern landscape. On the Commission, Moses endorsed the construction of the Verrazano Narrows Bridge, the Cross-Bronx Expressway, the Staten Island Expressway, and the Brooklyn-Queens Expressway, of which the Kosciuszko Bridge was an integral part. He continued to serve as the Park Commissioner until 1960 before withdrawing himself from all park and planning associations. Robert Moses's contributions to the transportation highway

[27] "Progress on the Meeker Avenue Bridge," *QueensBorough*, February 1939, pg. 30.
[28] Kenneth T Jackson, ed., *The Encyclopedia of New York City*, Yale University: 1995, pg 774.
[29] *Washington Post*. "LaGuardia Fills 3 Cabinet Posts." *Washington Post*: Jan 19, 1934, pg. 2.
[30] Mead and Hunt, "Contextual Study of New York State's Pre-1961 Bridges," 1999, pg. 57.
[31] Wikipedia. "Robert Moses." http://en.wikipedia.org.

system greatly altered the landscape of the Empire State and helped characterize New York as a modern metropolis.

EMIL H. PRAEGER (1892-1973)

Emil H. Praeger received his license as a Professional Engineer in the State of New York after graduating from the Rensselaer Polytechnic Institute in 1915. He worked for several engineering and architectural firms before taking the position as the Chief Engineer in the Department of Parks under then Park Commissioner Robert Moses in 1934. Under the direction of Moses and Mayor Fiorello LaGuardia, Praeger studied the New York park systems with the intention of planning for future improvements.[32]

Praeger was skilled in the engineering profession and was employed as the Chief Engineer for Consulting Engineers to Robert Moses on numerous New York parkway system projects including the Brooklyn-Queens Expressway, the Verrazano Narrows and Throgs Neck Bridges, the Henry Hudson Parkway Authority, the Marine Parkway Authority, the Gowanus Expressway, the Bronx-Whitestone Parkway, the Circumferential Parkway, and the 1939-1940 New York World's Fair Site Improvement project.[33] He also is known for his work in designing the Tappan Zee Bridge over the Hudson River, the Nebraska State Capitol, Shea and Dodger Stadiums,[34] numerous institutional buildings, the National Academy of the Sciences located in Washington, D.C., as well as his work as a consulting engineer for the renovation of the White House.[35]

His services included working for the Public Works Administration, the Works Progress Administration, the Civil Works Administration as a consulting engineer, the Long Island State Park Commission, and the Madison Square Garden Corporation.[36] As an esteemed engineer and a member of many professional and technical societies, Praeger was accepted as an expert witness in controversial engineering legal hearings and was named "Engineer of the Year" in 1969.[37]

J. FRANK JOHNSON (1883-1970)

J. Frank Johnson began his career in New York City in 1903. Prior to becoming Chief Engineer for the Department of Public Works, Bridges Division, Johnson worked as an engineer for the Department of Plants and Structures, working on such projects as the Brooklyn span of the Williamsburg Bridge. In 1938, Johnson was named Chief Engineer of the Division of Bridges in the Department of Public Works. Johnson also served as Chief Engineer of the Department of Public Works and Director of the Division of Bridges, Department of Public Works prior to his

[32] *New York Times*, "Engineer is Dead," *New York Times*, Oct. 17, 1973.
[33] E. H. Praeger, Professional Resume, Kosciuszko Bridge Cultural Resources Project files, Parsons, New York.
[34] Rensselaer Polytechnic Institute, RPI: Alumni Hall of Fame: Emil H. Praeger. Http://www.rpi.edu/about/hof/praeger.html.
[35] *Washington Post*, "E.H. Praeger Named to Faculty of R.P.I. Moses Consultant to Head Civil Engineering," *Washington Post*: Feb. 19, 1939, pg. 39.
[36] E. H. Praeger, Professional Resume.
[37] *The New York Professional Engineer*, "Emil H. Praeger, PE: NYSSPE Engineer of the Year," *The New York Professional Engineer,* May-June 1969, pg. 7.

retirement in 1955.[38] During his fifty-two years in the department, Johnson led numerous engineering inspections along Vernon Avenue, the Williamsburg expanse and bridge, the Union Port Bridge, the Bruckner Boulevard expanse and bridge, and the Kosciuszko Bridge.[39]

INDUSTRIAL CONTEXT

THE INDUSTRY OF NEWTOWN CREEK

Due to its geographic location at the mouth of the East River, Newtown Creek has always been an active waterway. In the early nineteenth century, Manhattan's commercial and industrial districts were densely built up and congested, making industrial expansion difficult and expensive. Because land east of the East River was sparsely developed, places in Brooklyn and Queens offered the space necessary for large-scale plants, worker's housing, and a waterfront location.

An early industry of the Newtown Creek, because of its deepwater and low-lying shoreline, was shipbuilding. The shipbuilding days of the 1800s culminated in 1862 when the U.S.S. Monitor, the Civil War ironclad gunship that changed the history of naval warfare, was constructed at the Continental Iron Works in Greenpoint. Designed by John Ericcson, a Swedish-American inventor, the ship was built in 100 days.[40] Its design success marked the end of wooden ships and the beginning of the age of armored battleships. The Monitor fought a famous Civil War battle (March 9, 1862) in the waters of Hampton Roads, Virginia, against another ironclad, the Confederate ship C.S.S. Virginia, formerly the U.S.S. Merrimack, before sinking in a gale on December 31, 1862. [41]

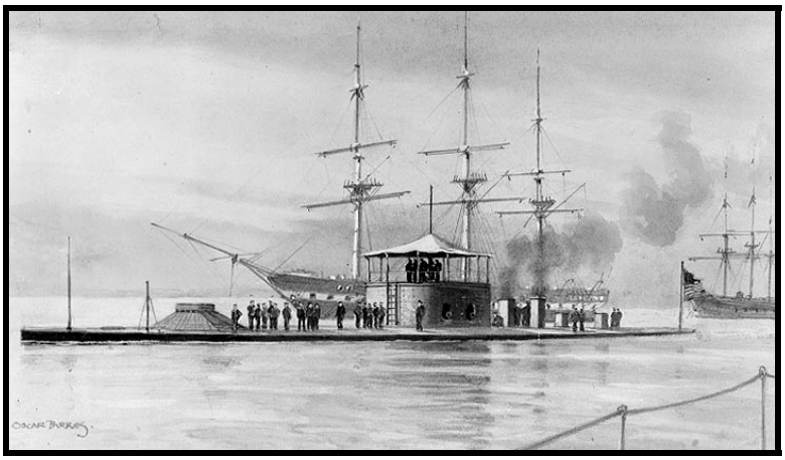


Image 10: U.S.S. Monitor, Watercolor by Oscar Parkes
Image courtesy of the Naval Historical Center

[38] *Washington Post*, "J. Frank Johnson, Ex-Head of City's Bridge Division," *Washington Post*: Apr 14, 1970, pg.47.
[39] *Washington Post*, "Bridge Expansion sets Record Pace," *Washington Post*: Apr 23, 1949, pg. 15.
[40] William G. Blair, "Anchor of Civil War Ironclad Recovered Off Cape Hatteras," *New York Times*, August 30, 1983, pg. A1.
[41] Harry Johnson and Frederick S. Lightfoot, *Maritime New York in Nineteenth-Century Photographs*, New York: Dover Publications, 1980, pg. 121.

After the Civil War, the demand by the government for vessels lessened, resulting in the closing of most shipbuilding enterprises by the 1870s. Factories producing porcelain, china, glass, refined sugar, boxes, pencils, machinery and boilers, and oil refineries emerged on the waterfront and helped to cushion the effect. By the mid-nineteenth century, Newtown Creek was an industrial center with all types of factories and refineries located along its banks. The tonnage and dollar value once carried by the creek exceeded that of any waterway in the world.[42] In 1921, Congress appropriated $510,000 for improvements to Newtown Creek (from East River to Mussel Island). In addition to straightening, the creek was also widened and deepened to accommodate more traffic. The Merchants' Association commented that, "the improvement should go far toward hastening the development of Newtown Creek as one of the most important manufacturing sections of New York City."[43]

The creek itself was of decided value in the development of the industrial activity, but was also, to some extent, a detriment to the growth of the borough in other directions. Its stagnant waters, filled with waste matter deposits, became polluted to a degree that was both disagreeable and dangerous to health and life.[44] As early as 1856, the city dumped raw sewage directly into the water, adding to the toxic sludge already present.[45] During World War II (1941-1945), Newtown Creek factories produced military equipment for the government. After the war, waste-treatment plants and garbage-transfer operations were set up on the shoreline. Eventually, automobiles, rather than boats, became the most efficient way to transport goods, changing the dynamic and historic character of the Newtown Creek. Due to the volume and types of industry on the waterfront, the area became known by its smell, causing many motorists to drive across the Kosciuszko Bridge to drive with their "windows shut and air vents closed because of the unpleasant odor."[46]

In 1967, the Newtown Creek Water Pollution Control Plant opened to treat sewage in the Newtown Creek. In 1991, the Plant was improved so that it could treat sewage with bacteria before discharging it into the creek.

[42] Phil Dante, as found in Greenpoint vertical file, Brooklyn Collection, Brooklyn Public Library.
[43] "The Maspeth Improvement," *New York Times*, November 26, 1922, pg.125.
[44] George Van Skal, *Illustrated History of the Borough of Queens*, New York: F.T. Smiley Publishing Company, 1908, pg.32.
[45] E.E. Lippincott, "Sounding a Death Knell for a Long-Forsaken Waterway," *New York Times*, February 10, 2002, pg. CY8.
[46] Byrant Mason, "Old Bridge to Take on New Air," *Daily News*, February 8, 1974, pg. KL7:1.

Image 11: Kosciuszko Bridge from the Grand Street Bridge, with a view of the Newtown Creek
EHT Traceries, May 2006

SURROUNDING COMMUNITY CONTEXT

GREENPOINT, BROOKLYN

Named by the Dutch for its grassy stretch of land along the East River, Greenpoint was originally used as farmland for the Dutch and the English in the seventeenth and eighteenth centuries. Bordered today by the Newtown Creek to the north and east, the East River to the west, and the Brooklyn-Queens Expressway to the south, Greenpoint has always been an isolated enclave, geographically separated from other areas by the industry that exists along the waterfront and by its peninsula shape. Greenpoint grew as a working-class quarter and as a bastion for immigrants, largely from Russia, Italy, Ireland, England, and Poland.

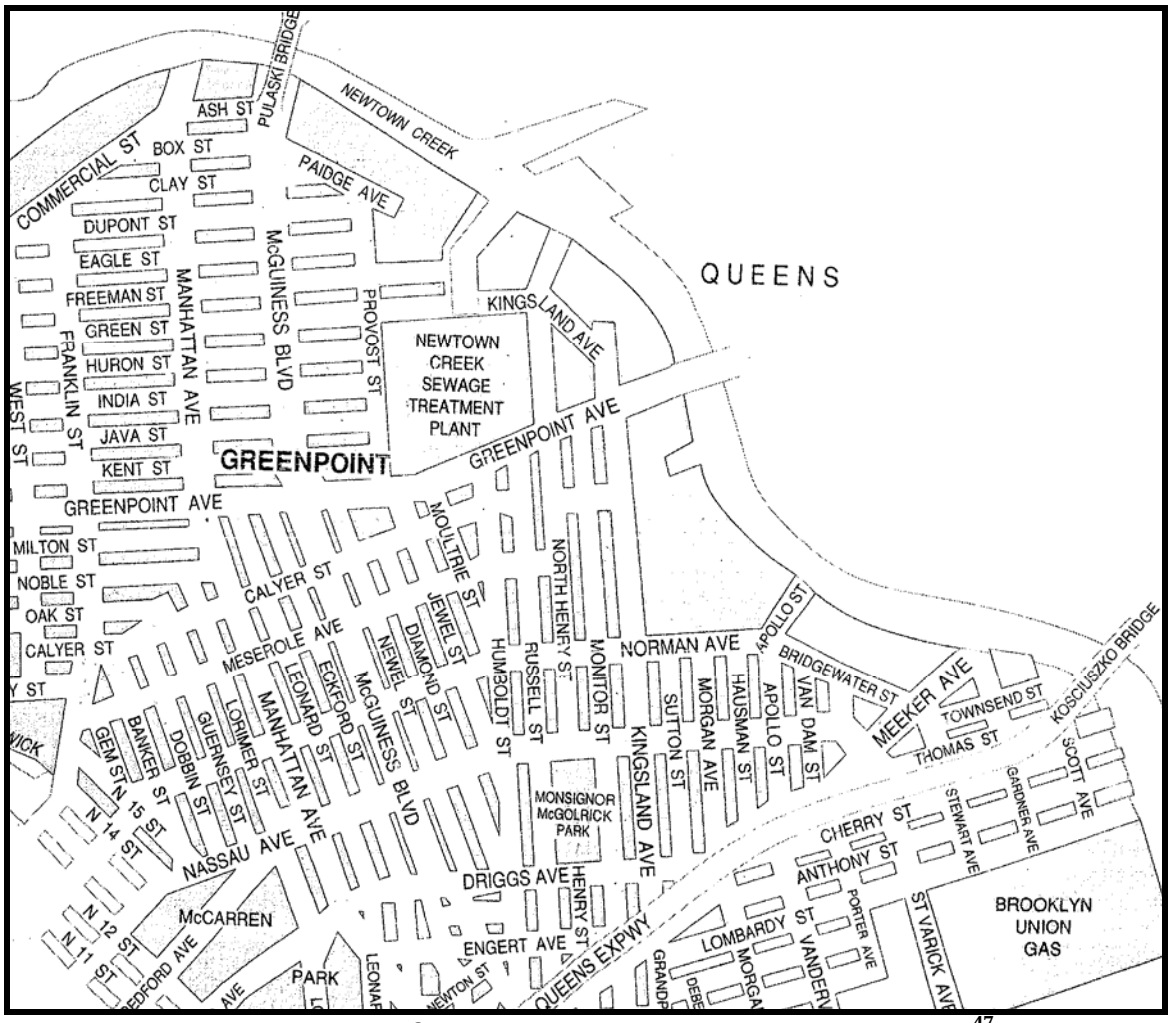


Image 12: Map of Greenpoint, Brooklyn, New York, 1998 [47]

Greenpoint was known for its industry related to the five "black arts": printing, pottery, petroleum and gas refining, glassmaking, and iron making. A sampling of Greenpoint businesses of the late-nineteenth and early-twentieth centuries are presented in Table 2.

[47] Kenneth T. Jackson, editor, *Neighborhoods of Brooklyn (Neighborhoods of New York)*, New Haven: Yale University Press, 1998.

TABLE 2: 19TH AND 20TH CENTURY BUSINESS DIRECTORY FOR GREENPOINT, BROOKLYN

NAME OF BUSINESS	TYPE OF BUSINESS
Charles Cartlidge and Company	Porcelain china Production
Brooklyn Flint Glass	Glassmaking
Bedi-Rassy Foundry	Iron Making
Continental Iron Works	Iron Making/Shipbuilding
Union Porcelain Works	Porcelain Making
Christian Dorflinger Glass Factory	Glassmaking
Orr, Fowler & Company	Lumber yard
Eberhard Faber	Pencils
Fleishmann's Yeast Plant	Yeast Production
Havemeyer Sugar Refining Company	Sugar Refining
Peter Cooper's Glue Factory	Glue Production
Brooklyn Oil Refinery	Oil Refinery
Standard Oil Company	Oil Refinery
Astral Oil Works	Petroleum Refinery
Rencoa, Inc.	Fat Rendering
Diamond Rendering Company	Fat Rendering

Over time, Greenpoint suffered from a catastrophic underground oil spill which was first discovered in 1950. Decades of oil and gas seepage have resulted in the destruction of groundwater in the area, and results in the need for environmental remediation.

Today, there are no refineries in Greenpoint but its waterfront still has many oil storage tanks, recalling the role the area once played in the development of an important national industry. In recent years, there have been proposals to rezone the unproductive land along the Greenpoint-Williamsburg waterfront for mixed-use and residential projects.

Image 13: Oil storage tanks in Greenpoint, Brooklyn
EHT Traceries, May 2006

MASPETH (LAUREL HILL), QUEENS

Maspeth is located in Queens Borough on the north side of the Newtown Creek. Perhaps ninety percent of the people passing through Queens Borough today know nothing of its history except that it contains "dismal swamps, railroad yards and factories distributing evil smells and ugly to the last degree."[48] During the nineteenth century however, much of Maspeth land was used for farming. Crops would reach the markets of New York by way of the Newtown Creek. As the area became more industrial, new factories brought jobs and immigrants, spurred housing and laid the foundation for modern Maspeth. Gradually, Maspeth became a place for immigrants to "move-up," for it was more suburban-like than Greenpoint.[49]

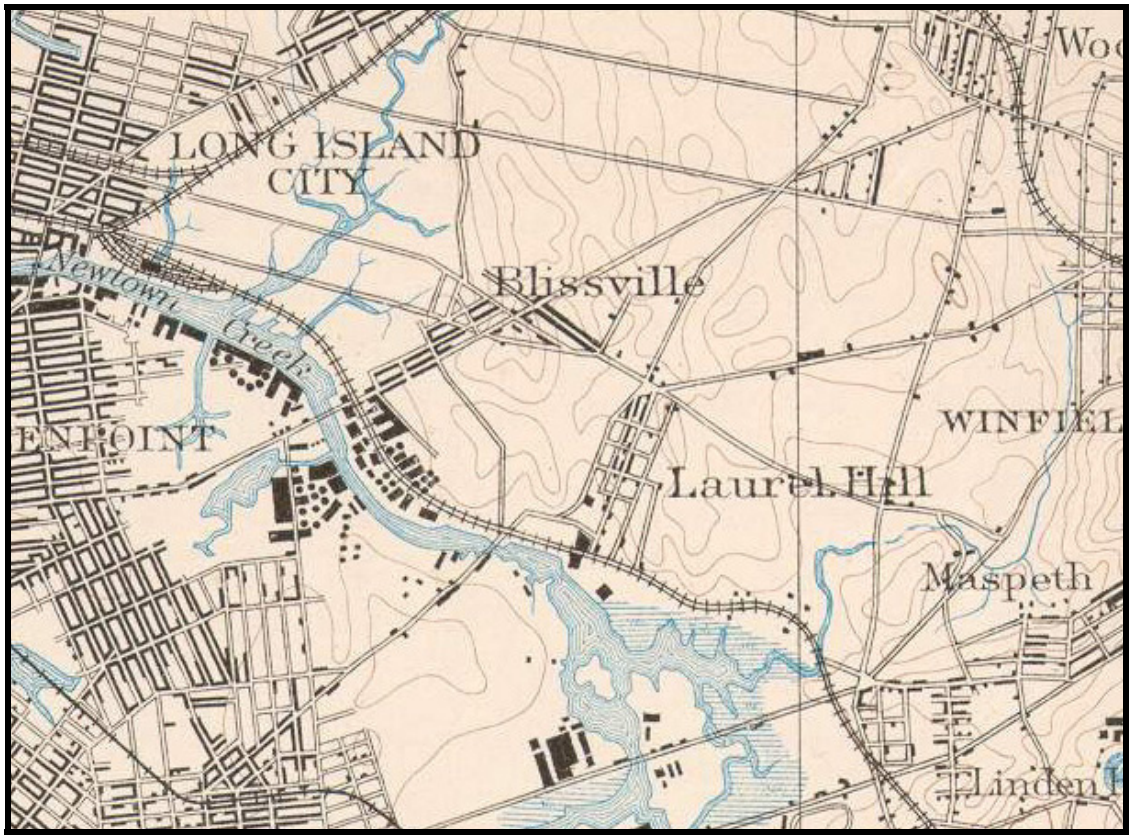


Image 14: Brooklyn, New York, Quadrangle 1891
Map Courtesy of Maptech, http://www.historical.maptech.com

West Maspeth, historically known as Laurel Hill, is the oldest part of Maspeth. Unlike East Maspeth with its orderly arrangement of numbered streets, avenues, roads, and residential areas, West Maspeth remains industrial. Originally established in 1866 by C.W. Walter and A. Baumgarten, Laurel Hill Chemical Works became the "largest producer of oil of vitriol in the United States."[50] Laurel Hill Chemical Works, called Nichol's Copper Works by local people, employed several hundred full-time workers. The other large industry employing immigrants was called the National Enameling and Stamping Company (NESC), or Haberman's Tin Factory.

[48] Van Skal, *Illustrated History of the Borough of Queens*, pg.32.
[49] John Rather, "Blue-Collar Enclave, Small-Town Spirit," *New York Times*, pg. A1.
[50] Barbara W. Stankowski, *Maspeth…our town*, 1977, pg. 30.

Located near Laurel Hill, NESC employed about 60 workers. Many of these workers found housing in the oldest section of Maspeth, near Maspeth Avenue.[51] From the area of Maspeth known as "Polack Alley," the factories at Laurel Hill were a short walk, and many residents recall the "whistles blowing in the morning and the men rising and walking in what looked like a parade to go to the factories."[52] Additionally, the Long Island and North Side Railroads lines had two stations located in the center of this industrial area.

CALVARY CEMETERY

Calvary Cemetery is located adjacent to the Kosciuszko Bridge in Laurel Hill, Queens, New York. The cemetery is bound by Borden Avenue to the north, Review Avenue to the south, Laurel Hill Boulevard to the east, and Greenpoint Avenue to the west.

The mid- to late 1800s marked a period of increasing numbers of burial grounds, including the establishment of Laurel Hill's Calvary Cemetery in 1840. In 1847, the state of New York passed a statute that prohibited cemeteries to be created in Manhattan. As a result, lands for cemeteries were settled outside of the city limits in the surrounding boroughs. Calvary Cemetery was established in sections; the first section to be developed was Old Calvary Cemetery, or First Calvary, located just west of the approach to the former Penny Bridge. As the cemetery expanded, more parcels were purchased, resulting in the creation of Second Calvary, Third Calvary, and Fourth Calvary. First Calvary is often called "Old Calvary" by long-time residents of the area, with Second, Third and Fourth all considered part of "New Calvary."

[51] Stankowski, *Maspeth…our town*, pg. 43.
[52] Barbara W. Stankowski, *Maspeth: Immigrant Conditions at the Turn of the Century*, Thesis for Studies in the History of American Immigration under Professor H. Kraus, May 18, 1976, pg. 31.

Image 15: View of Kosciuszko Bridge from Calvary Cemetery, not dated
Image Courtesy of Bridge and Tunnel Club. "Calvary Cemetery."
http://www.bridgeandtunnelclub.com.

BRIDGES OF NEWTOWN CREEK

Several bridges spanned Newtown Creek during the late nineteenth and early twentieth centuries, including the Pulaski Bridge, the Greenpoint Avenue Bridge, and the Grand Street Bridge. These overpasses served primarily as small vehicular and pedestrian bridges linking the Brooklyn community on the east to the Queens community on the west. The bridges also served as gateways to passing vessels along the industrial channel.

PULASKI BRIDGE

The Pulaski Bridge, named after Polish military commander and American Revolution fighter Kazimierz (Casimir) Pułaski (1745-1779), carries six lanes of traffic and a pedestrian sidewalk over Newton Creek and the Long Island Expressway. The bridge is orientated north-south and connects Greenpoint in Brooklyn to Long Island City in Queens by McGuinness Boulevard from the south and Eleventh Street from the north.

Image 16: Pulaski Bridge, Greenpoint, Brooklyn, New York
Image Courtesy of EHT Traceries, May 2006

Built at a cost of $11,228,000, the 2,726 foot-long bridge replaced the old Vernon Avenue Bridge. Construction on the double-leaf, trunnion-type bascule bridge began in 1947 and was coordinated by Robert Moses. An eight-foot sidewalk is present at the west side of the bridge, accessible by stairways near Ash Street, Brooklyn, and Fifty-Third Avenue, Queens. The Pulaski Bridge was opened to traffic on September 10, 1954. Public Works Commissioner and Pulaski Bridge designer Frederick H. Zurmuhlen hailed the span as "evidence that New York City is pursuing a program of highway and bridge improvements unmatched by any other city in the country."[53]

Beginning in 1976, the first year the New York City Marathon ventured out of Manhattan and into the five boroughs, the race route included the crossing of the Pulaski Bridge to get from Brooklyn to Queens.[54] In 1994, the bridge was reconstructed at a cost of approximately $40 million. The project included new approach roadways, new superstructure and approach spans, and upgrade of the bridge's mechanical/electrical systems.[55]

The construction of the bridge accommodated the many Manhattan travelers inconvenienced by the lack of subway service. It was recorded in 2003 that many commuters "walked over the Pulaski Bridge to the Vernon-Jackson station in Queens to catch the No.7 train," and according to a study published by the Citizens Housing and Planning Council of New York, an estimated 13% of Greenpoint's residents walked to work.[56]

Similar to the Kosciuszko Bridge, in comparison to the Penny Bridge, the Pulaski Bridge was able to handle more than double the traffic of its predecessor, substantiating that highway improvements were necessary in order to serve the growing communities.

[53] *New York Times*, "Bridge Linking Greenpoint Section of Brooklyn and Long Island City is Opened," *New York Times*, September 11, 1954, pg. 19.
[54] *New York Times*, "City Marathon, Oct. 24, Will Span 5 Boroughs," *New York Times*, June 22, 1976, pg. 55.
[55] Wired New York, http://www.wirednewyork.com.htm.
[56] *New York Times*, Dulcie Leimbach, "An Inviting Area, Once You Get There," *New York Times*, April 13, 2003.

GRAND STREET BRIDGE

The Grand Street Bridge connects Brooklyn and Queens over the East Branch of Newtown Creek. The bridge was named after the east-west thoroughfare between Brooklyn and Queens, from Gardner Avenue to 47th Street.

Image 17: Grand Street Bridge, Queens, New York
Image Courtesy of EHT Traceries, May 2006

Plans of these improvements, including the construction of new approaches to the bridge were expected to displace numerous homeowners.[57] Some 40,000 people were reportedly relocated on the Brooklyn side.[58]

The Grand Street Bridge is a swing type bridge with a Pratt Truss system, measuring 227' across the creek. The bridge appears to be the original structure as when it was opened on February 3, 1903 and continues to accommodate foot traffic between Brooklyn and Queens. The bridge carries two lanes of traffic, each measuring 19'-7", with 6' sidewalks on either side. The total cost of the Grand Street Bridge was $205,671.72.[59]

GREENPOINT AVENUE BRIDGE

The Greenpoint Avenue Bridge, or the J.J. Byrne Memorial Bridge, extends across Newtown Creek at 49th Street. The bridge was aptly named for its location on Greenpoint Avenue, located between Kingsland Avenue and Review Avenue.

The first drawbridge at this location, the Blissville Bridge, was built in the 1850s, though it was subsequently replaced. In 1928, construction began on a new bridge. During its construction, a temporary bridge located 200' upstream from the previous location carried traffic 24' above the creek's surface. Relocation of the old drawbridge deck was a great achievement for the engineers and architects. The total cost of the new drawbridge, after opening December 3, 1929

[57] *New York Times*, "Route to a new Bridge," *New York Times*, Jun 15, 1893, pg. 8.
[58] *Washington Post*, "A Great Eviction: Caused by Destruction of Many Homes on Manhattan Island," *Washington Post,* Jun 27, 1903, pg. 6.
[59] New York City Department of Transportation, "Grand Street Bridge Facts," http://www.nyc.gov/html/dot/.html.

was $1,923,968.23.[60] The subsequent drawbridge operated for 55 years, traversing the creek by 867 feet, until it too was outmoded and required substitution.[61]

Image 18: Greenpoint Avenue Bridge, Greenpoint, Brooklyn, New York
Image Courtesy of EHT Traceries, 2006

The current Greenpoint Avenue Bridge began construction in 1984, located 60 feet south of the old location.[62] The Greenpoint Avenue Bridge is a bascule type bridge, spanning 180 feet. The bridge carries four lanes of traffic, measuring 53 feet in each direction, with 8'-2" sidewalks on each side.[63]

IMMIGRATION/POLISH CONTEXT

THE IMMIGRANT EXPERIENCE

Growth in U.S. industry after the Civil War (1861-1865) created a demand for laborers. Due to the lack of diversified industry in Poland, there was no market for the labor of displaced peasants, and the oppression of Polish culture by Germany and Russia combined to create an attractive setting for emigration.[64] Consequently, people in Eastern countries, such as Poland, responded to the advertising of the American steamship companies that promised opportunity for employment and a chance to buy land in America. Once in New York, immigrants were approached by labor brokers who channeled them into the factories where workers were needed.[65]

[60] New York City Department of Transportation, "Greenpoint Avenue Bridge Facts," http://www.nyc.gov/html/dot/.html.
[61] *New York Times*, "The City: State Will Build New City Bridge," *New York Times*, Sep 6, 1984, pg. B6.
[62] *Ibid.*
[63] New York City Department of Transportation, "Greenpoint Avenue Bridge Facts," http://www.nyc.gov/html/dot/.html.
[64] Stankowski, *Maspeth: Immigrant Conditions at the Turn of the Century*, pg. 26.
[65] Stankowski, *Maspeth…our town*, pg. 42.

The large factories along the Newtown Creek absorbed large numbers of the newly arrived immigrants. With few choices for employment, immigrants accepted some of the harshest work in the city. In Greenpoint, the "the city's largest Polonia," the Poles worked in the refineries and iron foundries, all the while inhaling noxious fumes.[66] Working in these factories however, enabled immigrants to earn enough money to bring their families to the area. Once the immigrants arrived, they sought a location near their families and other immigrants, and within walking distance of the factories. The need to speak in their native language in order to buy food, make rental agreements, get information and fund their comforts kept the Polish immigrants concentrated in one geographic area.[67] Maspeth, Queens, and Greenpoint, Brooklyn in particular, became home to a large percentage of Polish immigrants, who settled in the area largely because of the availability of employment and the proximity of other Polish-speaking people. Others reasons included: a Polish Catholic Church nearby, a relative lived nearby, inexpensive rents, and the area greatly resembled the grassy fields of Poland.[68] It did not matter to the Poles that once the area became more industrial, it came to no longer resemble their homeland. Rather, their beliefs can be traced to a Polish proverb that "a man without land is a man without legs."[69] As surmised in a thesis on Maspeth immigrants, "Polish immigrants and their children have at last gotten what they came for; they have acquired property,…which, in their homeland, was denied to them, and for which they have hungered, even if only instinctively, since they embarked for the United States." [70]

The Polish community has been a distinctive part of this area for generations. A second wave of Polish immigrants came in the 1980s and 1990s. With its established Polish culture where English is a second language, Greenpoint has been a magnet for recent immigrants. The Polish National Hall in Maspeth and the Polish National Hall in Greenpoint remain an important presence in their respective neighborhoods. According to the 1990 census, the ethnic mix of Maspeth today is mainly Italian, Irish, Polish, and German.

THADDEUS KOSCIUSZKO (1746-1817)

Thaddeus Kosciuszko[71] (kosh-'chush-(")k0) is recognized as a hero in both North America and Europe for his military services during the Revolutionary War (1775-1781), but it was his skilled engineering achievements that made him legendary. He is remembered as a creative engineer, as well as a vibrant man who honored the values of freedom. As a prominent militant in the United States and Poland, Kosciuszko was internationally recognized for his contributions to the pursuit of liberty.

Kosciuszko was born in the Polish village of Mereczowszczyzna to a poor family of noble descent on February 12, 1746. In 1765, at the age of nineteen, Kosciuszko was admitted to the

[66] Mark Leeds, *Passport's Guide to Ethnic New York: a Complete Guide to the Many Faces and Cultures of New York*, Lincolnwood, Illinois: Passport Books, 1995, pp.256-259.
[67] Stankowski, *Maspeth…our town*, pg. 43.
[68] Stankowski, *Maspeth: Immigrant Conditions at the Turn of the Century*, pg. 28.
[69] Leeds, *Passport's Guide to Ethnic New York: A Complete Guide to the Many Faces and Cultures of New York,* pg. 255-256.
[70] Stankowski, *Maspeth: Immigrant Conditions at the Turn of the Century*, pg. 29.
[71] *The spelling of the name Kosciuszko frequently omits the "z," as the name is commonly anglicized.*

Royal Military School. After graduating in 1769, he received the King's scholarship to study military engineering in Paris, France at the Ecole Militaire. Not long after completing his studies, reports of the war in the United States had reached Europe. Hearing of this news, Kosciuszko applied his military services by aiding General George Washington. Appearing before the Continental Congress on August 30, 1776, Kosciuszko was recognized as the first foreign soldier to volunteer his services.[72]

On October 18, 1776, Kosciuszko was appointed a Colonel in the Continental Army. During his tenure in the army, he drafted plans for several forts and military camps including the fortification of the banks of the Delaware River. He continued to provide his services to the Army as the Chief Engineer for the Gates of Saratoga (1777) and West Point (1778-1780).[73]

In 1783, after six years of service, George Washington appointed Kosciuszko to the rank of Brigadier General and awarded him an honorary member of the newly founded Society of Cincinnati. He stayed in the United States for several years after before returning home to Poland to assist in their crusade for independence. In 1797, he returned to the United States, and resided in Philadelphia.

Image 19: "The Hero of Two Worlds" Kosciuszko Monument at West Point, United States Military Academy (1828)[74]

Thaddeus Kosciuszko strongly believed that the right to be free belonged to one and all. Before leaving the United States, he requested in his will that his assets be used in the emancipation of slaves to provide education and property. After returning to Poland in 1798, Kosciuszko upheld his views for the freedom of his ancestors until his death in 1817. Unfortunately, he never lived to bask in the freedom of a liberated Poland.[75]

Thaddeus Kosciuszko is a prominent war figure in both Polish and non-Polish communities across the country, for which many regions, monuments, and organizations are named after him. Kosciuszko, Mississippi, also the birthplace of television-icon Oprah Winfrey, musician Charlie Musselwhite, civil rights advocate James Meredith, and playwright Topher Payne, bears the

[72] Stephen P. Mizwa, ed., *Tadeusz Kosciuszko (1746-1817), American Revolutionary War Patriot and National Hero of Poland. An Address by Stephen P. Mizwa at the Kosciuszko Members Day Program, October 21, 1967.* (Kosciuszko Foundation, 1967), 4-5.

[73] Monica M. Gardner, Kosciuszko: A Biography (London: George Allen & Unwin, Ltd., 1992), 30-31.

[74] Stephen P. Mizwa, ed., *Tadeusz Kosciuszko (1746-1817), American Revolutionary War Patriot and National Hero of Poland. An Address by Stephen P. Mizwa at the Kosciuszko Members Day Program, October 21, 1967.* (Kosciuszko Foundation, 1967), 4-5.

[75] House, Hearings before the Subcommittee on Natural Parks and Recreation of the Committee on Interior and Insular Affairs, 92nd Congress., 2nd sess., 1972 Serial No. 92-49.

name of Kosciuszko. Recognition of the Polish patriot was also given in Kosciuszko, Indiana, and Kosciuszko, Texas, as well as a bridge in Connecticut, a park in Milwaukee and a highway in Los Angeles named the Thaddeus Kosciuszko Way, all honor the Polish icon.[76]

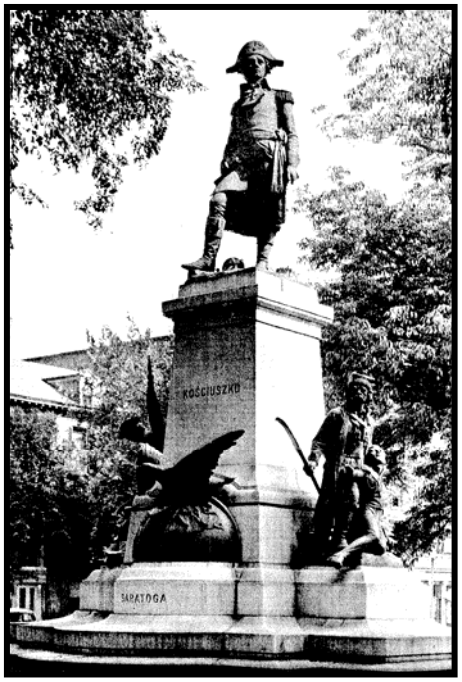


Image 20: Kosciuszko Memorial, Lafayette Square, Washington D.C. (1910)'. *Image obtained from: Tadeusz Kosciuszko (1746-1817), American Revolutionary War Patriot and National Hero of Poland: An Address by Stephen P.*

Numerous monuments are placed throughout the United States, commemorating his heroism, including a statue in Detroit, one in Pennsylvania, and another in Lafayette Square in Washington, D.C.[77] His presence has made it as far as the continent of Australia. Mount Kosciuszko, Australia's highest point is located in Kosciuszko National Park.[78]

Several other tributes dedicated to Kosciuszko in the State of New York include a statue at the West Point Military Academy, one bridge located in Albany, another bridge connecting Brooklyn and Queens, as well as an organization dedicated to the preservation and education of the Polish Culture.[79]

His home in Philadelphia, located at 301 Pine Street, was first listed in the Philadelphia National Register of Historic Places in 1957, and was surveyed by the Historic American Building Survey (PA-1342). The house was officially named the Thaddeus Kosciuszko National Memorial and listed in the National Register of Historic Places on December 18, 1970.[80]

Kosciuszko resided in this modest three-and-half-story brick house during his second visit to the United States from October 1797 to May 1798. Built in 1775 by a Quaker merchant named Joseph Few, Kosciuszko rented a small room on the second floor where he received distinguished friends and visitors like Thomas Jefferson and the Duke of Orleans, who later became King of France.[81]

[76] Wikipedia. "Thaddeus Kosciuszko," http://en.wikipedia.org
[77] *Ibid*.
[78] Tiscali, Encyclopedia Search, "Kosiuszko, Mount," Tiscali, Encyclopedia Search, 2006, http://tiscali.co.uk.html.
[79] *Ibid*.
[80] Tiscali, Encyclopedia Search, "Kosiuszko, Mount," Tiscali, Encyclopedia Search, 2006, http://tiscali.co.uk.html.
[81] House, Hearings before the Subcommittee on Natural Parks and Recreation of the Committee on Interior and Insular Affairs, 92nd Congress., 2nd sess., 1972 Serial No. 92-49.

**Image 21: Thaddeus Kosciuszko National Memorial,
301 Pine Street, Philadelphia**[82]

INTERSTATE CONTEXT

INTERSTATE I-278

Interstate I-278 is an integral highway system stretching 35.62 miles over four viaducts beginning in Elizabeth, New Jersey, and terminating in Bronx, New York. I-278 begins at the Goethals Bridge at the New York-New Jersey border along the Staten Island Expressway. From here, I-278 goes over the Verrazano Bridge into Brooklyn, where it becomes the Brooklyn-Queens Expressway. The other side of the Verrazano-Narrows Bridge is the Gowanus Expressway, a segment of the Brooklyn-Queens Expressway. It passes by the Brooklyn-Battery Tunnel and the Brooklyn, Manhattan, and Williamsburg Bridges, before going over the Kosciuszko Bridge into Queens. From there it intersects the Long Island Expressway (I-495), Queens Boulevard, and Northern Boulevard. It merges into Grand Central Parkway and goes over the Triborough Bridge into the Bronx, where it becomes the Bruckner Expressway. It ends at I-95 near the Whitestone and Throgs Neck Bridges.

BRIDGES OF I-278

Developing a means of passage over New York's numerous channels was necessary in the early 1800s to accommodate the needs of living. Into the nineteenth century, growth in expanded

[82] The National Park Service Department of Interior www.nps.gov.

territories increased the need for bridges. Continued growth and increasing populations created the need for bridges that could withstand heavier loads of traffic. New processes for making steel met these needs and gave rise to several large bridges like those seen along I-278 on the Long Island peninsula, including the Goethals, Verrazano-Narrows, Kosciuszko, and Triborough Bridges.

The Goethals Bridge opened in 1928, connecting Elizabeth, New Jersey to Howland Hook, Staten Island. The bridge measures 8,600' long, clearing 135' over the Arthur Kill waterway, and accommodates 4 lanes of traffic.[83]

The Verrazano-Narrows Bridge was completed in 1964, connecting Staten Island and Brooklyn. It is one of the largest suspension bridges in the world. The bridge is 4,260 feet long between towers with a 215' clearance over the Narrows tidal strait, and accommodates 12 lanes of traffic.[84]

The steel and concrete structure of the Kosciuszko Bridge was constructed in 1939, connecting Brooklyn to Queens. The bridge is 6,021' long, with a clearance of 125' above Newtown Creek, and accommodates 6 lanes of traffic.[85]

The Triborough Bridge opened in 1936 and is a system of bridges with three arms connecting Queens, Manhattan, and the Bronx. The East River arm is a suspension bridge, next to the Hell Gate railway bridge.

The East River Bridge is a suspension bridge which measures 2, 780' long between the towers, clearing 143' from the Hell Gate tidal channel, and accommodates 8 lanes of traffic.

The Harlem River viaduct is the west arm of the Triborough Bridge and includes a lift bridge measuring 330' long with a 55' clearance from the river in the closed position, and 135' in the open position, and accommodates 6 lanes of traffic. The Harlem River Bridge is the only portion that is not a part of I-278.

The Bronx Kills Crossing, a truss bridge, is the third arm of the Triborough Bridge. It measures 1, 699' in length, with a clearance of 55' from the Bronx Kills and accommodates 8 lanes of traffic.[86]

BROOKLYN-QUEENS EXPRESSWAY

The Brooklyn-Queens Expressway, a segment of I-278, was vital to the roadway improvement effort initiated in the mid-twentieth century. The purpose of this project was to alleviate congestion and improve traffic flow in and around New York. The construction of the Brooklyn-Queens Expressway (BQE) was a city-financed, limited access highway designed to link Brooklyn and Queens. When the BQE came off the design boards in 1941, it was considered a "dream highway," giving motorists direct access to Long Island and aiding the transportation of

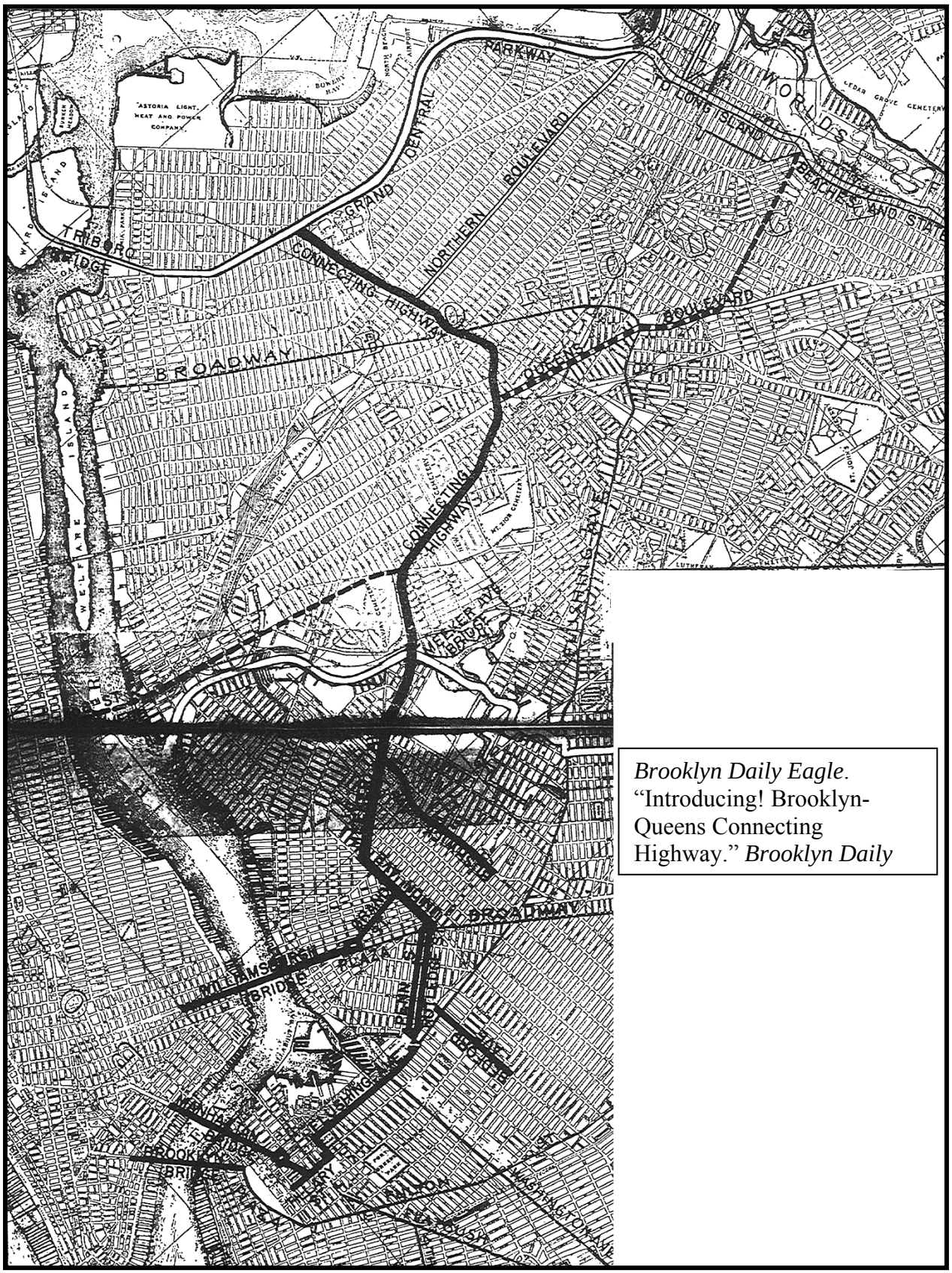
[83] Wikipedia, "Robert Moses," http://en.wikipedia.org.
[84] *Ibid*.
[85] Sharon Reier, *Bridges of New York*, New York: Quadrant Press, 1977.
[86] Wikipedia, "Robert Moses," http://en.wikipedia.org.

industry and commerce between the boroughs.[87] The "heart of the project was and is a four mile stretch in Queens consisting of 23 bridges and one pedestrian overpass." This section was to link the Grand Central Parkway in Astoria with the Queens Midtown Highway in Winfield, establishing a junction for the Brooklyn and Queens regions.[88]

Initially, the Penny Bridge connected Brooklyn and Queens over Newtown Creek, from Greenpoint on the Brooklyn side to Maspeth on the Queens side. This bridge was later replaced by the Kosciuszko (Meeker Avenue) Bridge in 1939. This viaduct allowed motorists to access the Triborough Bridge as well as the 1939-1940 World's Fair in Flushing Meadows, Queens.

The final part of the highway on the Brooklyn side was opened December 6, 1952,[89] years before the Queens side started its completion.[90] After much delay, the last part of the expressway was finally finished in 1960, completing the BQE after nineteen years. The delay in finishing the project was largely the result of diminished state and federal aid under a revised highway bill passed by Governor Thomas Dewey. The bill made the State's Department of Public Works the sole judge as to what city's highways were to be considered part of the state's arterial system. Further implications surrounding its completion were deficient funds during and after World War II, as well as swampy site conditions, and other post-war construction priorities such as schools and sewers.[91]

[87] *Long Island Star-Journal*, "Laurel Hill Boulevard 'Skyway' Project Rushed," *Long Island Star-Journal,* May 8, 1939.
[88] John San Antonio, "Road to Nowhere," *Long Island Daily Press*, June 3, 1957.
[89] *Long Island Press*, "New Link to Queens," *Long Island Press*, Dec. 7, 1952.
[90] *Long Island Daily Press,* "New Section will Finish Expressway," *Long Island Daily Press*, Aug. 14, 1961.
[91] John San Antonio, "Road to Nowhere," *Long Island Daily Press*, June 3, 1957



Brooklyn Daily Eagle. "Introducing! Brooklyn-Queens Connecting Highway." *Brooklyn Daily*

Image 22: Map of Planned Expressway

ARCHITECTURAL CONTEXT

WARREN TRUSS BRIDGES

Patented in 1846 by British engineers James Warren and Willoughby Monzoni, the Warren truss bridge and its variants constitute a commonly built metal truss bridge type of the nineteenth and early twentieth centuries. Initially introduced for railroad bridges in the early 1800s, railroad companies set the pace for bridge building during much of the nineteenth century.[92] Eventually, different truss configurations were soon applied to carriage, pedestrian, and road bridges.

The original form of the Warren truss consisted of a series of equilateral triangles in which the diagonals carried both compressive and tensile loads. Later, verticals were added to serve as bracing for the entire triangular web system between parallel top and bottom chords. Other common elements of Warren truss bridges include: through or pony truss arrangement, iron or steel construction, and pinned, bolted or riveted construction. Like the Pratt truss, the Warren truss was widely built throughout the United States from the middle of the nineteenth century well into the twentieth century, and spawned many variants, including a double intersection, or lattice, subtype in which two triangular truss systems are superimposed with or without verticals. Warren truss spans with verticals typically span 30 to 150 feet in span length.

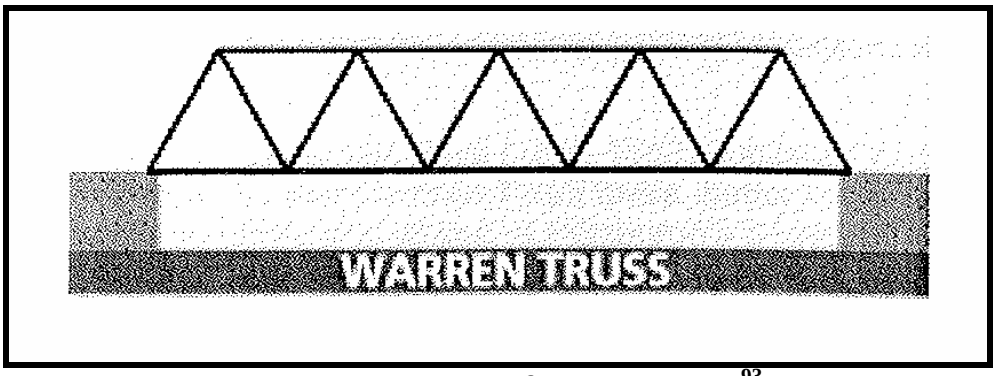


Image 23: Example of Warren truss [93]

According to the 2006 Historic Bridge Inventory, there are 107 Warren truss bridges in the State of New York that have been determined eligible for listing in the National Register of Historic Places (See Table 3, a reprint of Table 1 for convenience). There are 153 Warren truss bridges determined not eligible for listing in the National Register of Historic Places. The *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan,* prepared by Mead & Hunt and Allee King Rosen Fleming, Inc. further separates Warren truss bridges into three time periods: pre-standardization, early-standardization and post-standardization.

[92] Mead & Hunt and Allee King Rosen & Fleming, Inc., *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan*.
[93] Bridge Basics, " http://pghbridges.com/basics.htm

TABLE 3: COMPARATIVE ANALYSIS OF WARREN TRUSS BRIDGES

	BRIDGE TYPES											
	WARREN TRUSS BRIDGES		WARREN THROUGH TRUSS				WARREN DECK TRUSS BRIDGES		WARREN COMBINATION TRUSS (DECK & THROUGH)			
			NO OVERHEAD BRACING		WITH OVERHEAD BRACING							
PERIOD	IN NEW YORK STATE	IN NEW YORK CITY	IN NEW YORK STATE	IN NEW YORK CITY	IN NEW YORK STATE	IN NEW YORK CITY	IN NEW YORK STATE	IN NEW YORK CITY	IN NEW YORK STATE	IN NEW YORK CITY	FRYE BRIDGE	BRIDGE NO. 2255530
ELIGIBLE												
PRE-STANDARDIZATION PERIOD (PRE-1908)	29	1[94]	27	1[95]	2	0	0	0	0	0	N/A	N/A
EARLY-STANDARDIZATION PERIOD (1909-1925)	31	2[96]	26	1[97]	3	0	1	0	1	0	N/A	N/A
POST-STANDARDIZATION PERIOD (1926-1955)	47	0	20	0	18	0	9	0	0	0	N/A	N/A
SAME PERIOD AS KOSCIUSZKO BRIDGE (1938-1943)	8[98]	0	5[99]	0	2[100]	0	0	0	0	0	1	1
TOTAL ELIGIBLE	107	3	73	2	23	0	10	0	1	0	1	1
NOT ELIGIBLE										0		
PRE-STANDARDIZATION PERIOD (PRE-1909)	8	0	7	0	1	0	0	0	0	0	N/A	N/A
EARLY- AND POST-STANDARDIZATION PERIOD (1909-1925)	3	0	3	0	0	0	0	0	0	0	N/A	N/A
POST-STANDARDIZATION PERIOD (1926-1955)	137	0	86	0	49	0	2	0	0	0	N/A	N/A
SAME PERIOD AS KOSCIUSZKO BRIDGE (1938-1943)	25	0	15	0	1	0	0	0	0	0	N/A	N/A
TOTAL NOT ELIGIBLE	153[101]	0	96	0	50	0	2	0	0	0	N/A	N/A
TOTAL	**260**	**3**	**169**	**2**	**73**	**0**	**12**	**0**	**1**	**0**	**1**	**1**

[94] BIN No. 2241259 (204th Street Footbridge) is eligible under Criterion C-5.
[95] BIN No. 2241259 (204th Street Footbridge) is eligible under Criterion C-5.
[96] BIN No. 2241590 (Concourse Village Avenue) is eligible under Criterion C-5 and BIN No. 2240507 (Roosevelt Avenue) is eligible under Criteria C-5 and C-6.
[97] BIN No. 2240507 (Roosevelt Avenue) is eligible under Criteria C-5 and C-6.
[98] Two bridges are eligible under Criterion A-1; five are eligible under Criterion C-6; and for one bridge, the criterion is not explained.
[99] Two bridges are eligible under Criterion A-1; two are eligible under Criterion C-6; and for one bridge, the criterion is not explained.
[100] Both bridges are eligible under Criterion C-6.
[101] Five of the 153 bridges are categorized other than Through Truss, Deck Truss or Combination (Deck & Through) Truss.

ELIGIBLE PRE-STANDARDIZATION WARREN TRUSS BRIDGES

By the late nineteenth century, the Warren and Pratt truss types came to dominate bridge construction.[102] Warren truss bridges built prior to 1909 represent the early period of bridge standardization in New York. These bridges represent a group of structures built as the type was evolving and represent uncommon or innovative examples of the type, as well as good examples of the Warren truss-type as it came to be constructed. Variations of pre-1909 Warren truss bridges includes deck trusses, multiple spans, double-intersection trusses, unusual sub struts or unusual curved top and bottom chords.

TABLE 4: ELIGIBLE PRE-STANDARDIZATION WARREN TRUSS BRIDGES (1885-1908)

DATE BUILT	NUMBER OF BRIDGES
1885-1890	1
1891-1896	1
1897-1902	16
1903-1908	11
DATE N/A	0
PRE-1908 TOTAL	**29**

According to the *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan*, all pre-1909 Warren truss bridges are considered to be **NRHP-eligible** unless they have a significant integrity problem. There are 29 pre-standardization bridges that have been evaluated and determined eligible for listing in the National Register of Historic Places (Table 4). Of these 29, one bridge (BIN 2241259) is located within New York City (NYSDOT Region 11). Nine pre-standardization Warren truss bridges in New York State have been determined not eligible for listing in the National Register of Historic Places; none of these bridges are located within New York City (NYSDOT Region 11).

ELIGIBLE EARLY- AND POST-STANDARDIZATION WARREN TRUSS BRIDGES

The early-standardization period for Warren truss bridges is considered to be 1909 to 1925 (Table 5). Warren truss bridges built during this period possess structural elements as they gradually became common to the Warren truss type. According to the *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan*, Warren trusses from the early-standardization period are considered **NRHP-eligible** unless they have a significant integrity problem. Thirty-one early-standardization Warren truss bridges have been evaluated and determined eligible for listing in the National Register of Historic Places. Of these 31, only two are located within New York City (NYSDOT Region 11). Three early-standardization Warren truss bridges have been determined not eligible for listing in the National Register of Historic Places; none of these bridges are located within New York City (NYSDOT Region 11).

[102] Mead & Hunt, *Contextual Study of New York State's Pre-1961 Bridges*, pg. 31-32.

TABLE 5: ELIGIBLE EARLY-STANDARDIZATION WARREN TRUSS BRIDGES (1909-1925)

DATE BUILT	NUMBER OF BRIDGES
1909-1919	22
1920-1925	9
1909-1925 TOTAL	**31**

Bridges built after 1925 are categorized in post-standardization period, or 1926 to 1955 (Table 6). Post-standardization bridges were strongly influenced by standardization of design and generally do not represent significant or unique examples of their type. According to the *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan,* Warren truss bridges built post-standardization are considered **not eligible** for the National Register of Historic Places unless they possess historical significance, or a significant variation or other unique feature or association, due to their reliance on the standardized design. Forty-seven post-standardization Warren truss bridges have been evaluated and determined eligible for listing in the National Register of Historic Places. Of these 47, none are located within New York City (NYSDOT Region 11). One hundred and forty-one post-standardization bridges have been determined not eligible for listing in the National Register of Historic Places; none of these bridges are located within New York City (NYSDOT Region 11).

TABLE 6: ELIGIBLE POST-STANDARDIZATION WARREN TRUSS BRIDGES (1926-1955)

DATE BUILT	NUMBER OF BRIDGES
1926-1931	19
1932-1937	17
1938-1943	8
1944-1949	0
1950-1955	3
POST-1925 TOTAL	**47**

NON-ELIGIBLE WARREN TRUSS BRIDGES

According to the 2006 NYSDOT Historic Bridge Inventory, there are 153 Warren truss bridges determined not eligible for listing in the National Register of Historic Places in the State of New York. Of these 153, 141 were constructed during the period of post-standardization, from 1926 to 1955. An evaluation of the 141 post-standardization Warren truss bridges determined not eligible for listing in the National Register in New York State was also examined. None of the 141 bridges are located in New York City. The NYSDOT Historic Bridge Inventory database provides limited information on the reasons for ineligibility.

Principally, bridges determined not eligible for listing in the National Register do not possess architectural or historical significance to meet the National Register Criteria for eligibility. Moreover, these structures: are not associated with the events that have made a significant contribution to the broad patterns of our history or prehistory (NRHP Criterion A); are not associated with the lives of persons significant in our past (NRHP Criterion B); do not embody the distinctive characteristics of a type, period, or method of construction, or do not represent the work of a master or possess high artistic values, or do not represent a significant a distinguishable entity whose components lack individual distinction (NRHP Criterion C); or do

not yield, or are not likely to yield, information important to prehistory or history (NRHP Criterion D).

Integrity problems were identified for 24 of the 141 non-eligible bridges (See Table 7). Many of these 24 bridges have been altered and do not possess sufficient integrity to warrant inclusion into the National Register of Historic Places. The most common integrity problem among non-eligible bridges is the replacement of main members. Other examples of alterations that may affect the integrity of bridges includes: raising vertical clearance for overhead trusses; adding non-original main structural main members; replacing or removing main structural members; widening a bridge with new structural members; changing or removing a rail or parapet that is integral to the superstructure; removing the superstructure, or lengthening a superstructure with additional spans. [103]

TABLE 7: INTEGRITY PROBLEMS OF THE NON-ELIGIBLE, POST-1925 WARREN TRUSS BRIDGES IN THE STATE OF NEW YORK

INTEGRITY PROBLEM	NUMBER OF OCCURRENCES
Replacement of main structural members	13
Raised vertical clearance for overhead trusses	1
Added main structural members, unoriginal to the structure	3
Change in rail or parapets that is integral to the superstructure	2
Replacement of main structural members and change in rail or parapets	2
Removed main structural members	1
Widened with additional structural members	2
TOTAL	**24**

[103] Mead & Hunt and Allee King Rosen &Fleming, Inc., *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan*, pg. 3-2.

ARCHITECTURAL SURVEY RESULTS

COMPARATIVE ANALYSIS: WARREN TRUSS BRIDGES IN THE NEW YORK CITY REGION

In an effort to properly understand the historic context of the Kosciuszko Bridge, a comparative analysis of eligible Warren truss bridges was conducted. The comparative analysis, which included other eligible bridges in New York City and the State of New York, served as a basis for understanding the integrity and context of the Kosciuszko Bridge in relation to other bridges from the same time period. A comparison to non-eligible bridges was limited due to the lack of information provided in the inventories.

The majority of this information was obtained from Mead & Hunt and Allee King Rosen & Fleming, Inc.'s *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan*, prepared for the New York State Department of Transportation, Albany, New York and the Federal Highway Administration (January 2002), and the accompanying NYSDOT Historic Bridge Inventory (updated to 2006). The inventories were created from a list of bridges in which NYSDOT has direct ownership, jurisdiction or funding assistance. The Historic Bridge Inventory includes bridges owned by the following entities: NYSDOT; New York City Department of Transportation; Genesee State Parks and Recreation Commission; Interstate Bridge Commission; Lake Champlain Bridge Commission; Lake George Park Commission; Long Island State Parks and Recreation Commission (except bridges on eligible or listed parkways); Niagara Frontier State Park Commission; Other State Department; Authority or Commission; Capital District State Park Commission; Central New York State Park Commission; City of New York State Park Commission; Finger Lakes Park and Recreation Commission; Bureau of Indian Affairs; U.S. Forest Service; National Park Service; Bureau of Land Management; Bureau of Reclamation; Military Reservation/Corps of Engineers; various other Federal, County; Town; City, and Village bodies; and other entities. It is also important to note that the Historic Bridge Inventory excludes a large number of bridges owned by the following entities: Metropolitan Transit Authority (MTA); Triborough Bridge and Tunnel Authority (TBTA); Monroe County Water Authority; Niagara Falls Bridge Commission; New York State Bridge Authority; New York State Thruway Authority; Ogdensburg Bridge and Port Authority; Palisades Interstate Park Commission; Port of New York Authority; Power Authority; Seaway International Bridge Authority; Taconic State Park Commission; Thousand Islands Bridge Authority; Transit Authority; Tri-State Transportation Commission; Allegany State Park Authority; Nassau County Bridge Authority; Buffalo and Fort Erie Public Bridge Authority; East Hudson Park Authority; New York City Department of Water, Supply, Gas and Electric; Railroad; Long Island Railroad; NS or CSX (formerly Conrail/Penn Central); Private-Industrial; Private-Utility. Additionally, most canal systems and parkways were not addressed because they have previously been evaluated for inclusion in the National Register.[104] The excluded entities, particularly MTA and TBTA, own a number of Warren truss bridges in the New York City Region. As a result, eligibility comparisons with these bridges are beyond the scope of this study.

[104] Mead & Hunt and Allee King Rosen & Fleming, Inc., *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan*, pg. 1-7.

According to the 2002 *Evaluation*, there are three eligible Warren truss bridges in the New York City Region, the same region as the Kosciuszko Bridge. Each site visited was surveyed to observe its design and function, as well as determine its association to the surrounding communities. This analysis served as a source of comparison when evaluating the eligibility of the Kosciuszko Bridge in comparison to the eligible Warren truss bridges in the New York City Region. A brief description of the three eligible Warren truss bridges in the New York City Region follows. Bridges are separated according to the year they were constructed. This section is followed by the comparative analysis of Warren truss bridges in the State of New York.

ELIGIBLE PRE-STANDARDIZATION WARREN TRUSS BRIDGES

This section provides a comparative analysis and discussion of the presence of the three Warren truss bridges in the New York City Region. One of the bridges was constructed during the pre-standardization (pre-1909) period, and two are from the early-standardization period (1909-1925). There are no examples of Warren truss bridges from the post-standardization period (1926-1955), including the 1938-45 period when the Kosciuszko Bridge was constructed.

TABLE 8: BRIDGE NO. 2241259, BRONX, NEW YORK

Bridge No. 2241259 Location: Kingsbridge County: Bronx Year Built: 1904 Feature Carried: 204th Street Footbridge Engineer/Designer: New York and Harlem Railroad Material: Steel Design type: Thru-truss, no overhead bracing Construction features: Riveted, truss system construction Reason for Historic Determination: Exhibits features common to a particular bridge type	

Built in 1904 by the New York and Harlem Railroad, Bridge No. 2241259, also known as the 204th Street Footbridge has a thru-truss design with no overhead bracing. Located between Bedford Park and Bronxdale, Bronx, New York, the steel bridge is of riveted, truss system construction. The bridge lies perpendicular to the New York and Harlem Railroad, running east and west along 204th Street. This footbridge was likely part of a five mile Grand Boulevard and Concourse planned for the City of New York in 1902. This plan aimed to connect the great parks of the city, including the Botanical Gardens - formerly part of Bronx Park. At the same time, a system of "driveways" was proposed to be incorporated into the overall plan.[105] Of the

[105] *New York Times*, 'New York's Great New Driveway," *New York Times*, Aug. 17, 1902, pg. 24.

29 eligible bridges built pre-standardization, the 204th Street Footbridge is the only example in the New York City Region.

ELIGIBLE EARLY- AND POST-STANDARDIZATION WARREN TRUSS BRIDGES

There are 222 Warren truss bridges in New York that date to the early- or post-standardization period. Of these 222 bridges, 78 are considered eligible for the National Register of Historic Places. Two of the 78 eligible bridges are located in the New York City Region (BIN 2241590 and BIN 2240507).

TABLE 9: BRIDGE NO. 2241590, BRONX, NEW YORK

Bridge No. 2241590 Location: Melrose County: Bronx Year Built: 1922 Feature Carried: Concourse Village Avenue Engineer/Designer: Bethlehem Steel Bridge Corporation Material: Steel Design type: Thru-truss, no overhead bracing Construction features: Riveted, truss system construction with bridge plate Special Recognition: Aesthetic treatment of decorative panels Reason for Historic Determination: Dates to period of early standardization	

Bridge No. 2241590, is located in South Bronx, New York, in the Concourse Village community. The high-skew bridge, running north-south, carries Concourse Village Avenue East over the Conrail railroad tracks. Built in 1922 by the Bethlehem Steel Bridge Corporation, the steel bridge features a riveted, truss system construction with a bridge plate. Decorative panels appear at the concrete deck at either side, and feature squared inlays. Only one of the trusses remains intact. The truss at the west side appears to have been removed. Bridge No. 2241590 was built in 1922, during the period of early-standardization and possesses structural elements common to the Warren truss type.

TABLE 10: BRIDGE NO. 2240507, QUEENS, NEW YORK

Bridge No. 2240507 Location: Over I-678 and Flushing Road County: Queens Year Built: 1924 Feature Carried: Roosevelt Avenue Engineer/Designer: Arthur McMuller Material: Steel Design type: Thru-truss combination (thru and deck) Construction features: Unknown connection, truss system construction Reason for Historic Determination: Dates to period of early standardization and demonstrates individuality or variation of features within a particular bridge type	

Bridge No. 2240507, also known as the Roosevelt Avenue Bridge, is located in Queens, north of Flushing Meadows and Corona Park near Shea Stadium. The bridge is an extension of Roosevelt Avenue, passing over Interstate I-678 and the Flushing River. At the time of its completion, the Roosevelt Avenue Bridge was described as the largest bascule movable bridge in the world. The total cost of construction reached $2,600,000.00. The double-deck structure accommodates mass transit above and four lanes of vehicular traffic below the superstructure, with sidewalks on either side. This bridge displays outstanding engineering qualities, including its load bearing capacity and its 152 foot long bascule leafs, each weighting 4,000,000 pounds.[106] Following a 1952 renovation, the bridge was rehabilitated again in 1979 in response to a city-wide effort to repair rundown bridges.[107] Bridge No. 2240507 was built in 1924, during the period of early-standardization and possesses structural elements common to the Warren truss type, and demonstrates individuality or variation of features as a thru-Warren truss-type. Additionally, Bridge No. 2240507 serves as the only eligible example in the State of a combination truss (through and deck).

[106] *New York Times*, "Flushing Extension of Corona Subway Ready to Open," *New York Times*, Jan 8, 1928, pg. 189.
[107] Anna Quindlen, "A Federal Grant to Help Rebuild 126 City Bridges," *New York Times*, Mar 20, 1979, pg. B1.

COMPARATIVE ANALYSIS: WARREN TRUSS BRIDGES IN THE STATE OF NEW YORK

In an effort to properly understand the historic context of the Kosciuszko Bridge, a comparative analysis of eligible Warren truss bridges in the State of New York was conducted. The majority of this information was obtained from Mead & Hunt and Allee King Rosen & Fleming, Inc.'s *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan*, prepared for the New York State Department of Transportation, Albany, New York and the Federal Highway Administration (January 2002), and the accompanying NYSDOT Historic Bridge Inventory (updated to 2006). There are 107 eligible Warren truss bridges in the State of New York. Relevant bridges were researched to determine their design and function. This analysis served as a statewide-comparison source when evaluating the eligibility of the Kosciuszko Bridge. For this analysis, only those bridges built early- and post-standardization were researched, because they are the same era of construction as the Kosciuszko Bridge.

While Mead & Hunt and Allee King Rosen & Fleming, Inc.'s *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan* and the accompanying NYSDOT Historic Bridge Inventory (updated 2006) provided the basis for our comparative analyses, there were limitations with the information provided. The Kosciuszko Bridge, for example, is not identified in the Historic Bridge Inventory as a Warren truss bridge. Additionally, information that is provided about the Kosciuszko Bridge is largely incomplete or, such as the year of construction and the general type of the main span, were incorrect.

This section provides a comparative analysis of bridges in New York State that have significant variations from common or standardized Warren truss types built during the early- and post-standardization time periods. The analysis includes a comparison of bridges with the following features: multiple spans; deck truss; and overhead bracing.[108]

WARREN TRUSS MULTIPLE SPAN BRIDGES

The two preceding sections provided a general analysis of all types of Warren truss bridges within New York State and a comparative analysis of all types of Warren truss bridges in New York City. This section provides an analysis of Warren truss bridges with a variation, the presence of multiple spans.

ELIGIBLE EARLY- AND POST-STANDARDIZATION WARREN TRUSS MULTIPLE SPAN BRIDGES

Bridges are made up of several primary components including piers, spans, abutments and the deck, or the roadway. Piers support the weight of the spans, which, in turn, carry the roadway, while abutments support the ends of the bridge. The distance between two adjacent bridge piers is called the span. Bridges that have one or more piers in addition to the abutments are called multiple span bridges. Most long bridges are multiple span bridges. One of the most

[108] The multiple span feature is a design element that is addressed by Mead & Hunt, Allee King Rosen & Fleming, Inc.'s *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan* rather than the Historic Bridge Inventory (updated 2006).

characteristic elements of the Kosciuszko Bridge is that it contains 22 spans. The span over the Newtown Creek measures 300 feet, while the approach spans vary from 120 to 230 feet. The total bridge length is 6,021 feet.

TABLE 11: ELIGIBLE EARLY- AND POST-STANDARDIZATION WARREN TRUSS MULTIPLE SPAN BRIDGES IN THE STATE OF NEW YORK

YEAR BUILT	NUMBER OF OCCURRENCES
EARLY-STANDARDIZATION (1909-1919)	2
EARLY-STANDARDIZATION (1920-1925)	1
POST-STANDARDIZATION (1926-1931)	9
POST-STANDARDIZATION (1932-1937)	8
POST-STANDARDIZATION (1938-1943)	4
POST-STANDARDIZATION (1944-1949)	0
POST-STANDARDIZATION (1950-1955)	2
TOTAL	**26**

According to the *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan,* there are 26 bridges in the State of New York that are considered eligible for listing in the National Register of Historic Places because of their multiple spans, for they are considered to be a significant variation or feature of individuality within the post-standardization Warren truss type (Table 11). None of the bridges determined eligible for their multiple span variation are within the New York City Region.

The majority of these bridges were constructed during the 1930s. Improvements to steel during this time (post-standardization) increased the material's strength and durability. As a result, span lengths were able to increase and new designs were used.[109] Four of the 26 eligible multiple span bridges were constructed in the same time period as the Kosciuszko Bridge, from 1938 to 1943. These bridges have been determined eligible under Criterion C-6, for their demonstration of individuality or variation of features within a particular bridge type.

Image 24: Photo showing the multiple spans and deck truss of the Kosciuszko Bridge
EHT Traceries, May 2006

[109] Mead & Hunt, *Contextual Study of New York State's Pre-1961 Bridges*, pg. 30.

Bridge No. 3344680 is located in Orange County, New York, approximately 3.1 miles north of Goshen. Built in 1938, the main span of this Warren truss bridge is an adjacent box type. Construction features include railroad rail truss and girder members, riveted truss details, a polygonal Warren Truss top chord, and a truss leg bedstead.

Bridge No. 1014500 is located in Orange County, New York, at the junction of Route 17 and the wall Wallkill River. Built in 1940, the main span is as a box adjacent design type with railroad rail truss and girder members, riveted truss details, and a polygonal Warren Truss top chord.

Bridge No. 1048230 is located in Warren County, New York, at the junction of Route 418 and the Hudson River. Built in 1941, the main span of this Warren truss bridge is an adjacent box type. Construction features include riveted truss details and a polygonal top chord

Bridge No. 3328360, the Frye Bridge, located near Springville, Erie County is discussed in further detail in a subsequent section of this report due to similarities to the Kosciuszko Bridge that include more than its multiple span variation.

WARREN DECK TRUSS BRIDGES

This section provides an analysis of Warren Truss bridges with deck trusses. This section provides an analysis of Warren Truss bridges with deck trusses. In this configuration, the bridge deck is supported from below by trusses.

ELIGIBLE EARLY- AND POST-STANDARDIZATION WARREN DECK TRUSS BRIDGES

The main component of any bridge is the superstructure, which comprises of a slab, girder, and trusses. In a deck configuration, traffic travels on top of the main structure. In a deck truss bridge, the truss supports the bridge deck. The approaches of the Kosciuszko Bridge are supported by Warren deck trusses.

Image 25: Detail showing Warren deck truss of the Kosciuszko Bridge
EHT Traceries, May 2006

According to the Historic Bridge Inventory, there are 10 Warren deck truss bridges dating to the early- and post-standardization period in the State of New York that are considered eligible for listing in the National Register of Historic Places, for they are considered to be a significant variation or feature of individuality within the post-standardization Warren truss type (Table 12). None of the bridges determined eligible for their Warren deck truss-type are within the New York City Region, nor were any constructed within 1938 to1943, the same time period of the Kosciuszko Bridge. Two Warren deck truss bridges dating to the early- and post-standardization period were determined not eligible for listing in the National Register of Historic Places. Neither of the non-eligible bridges was built during the same time period as the Kosciuszko Bridge.

TABLE 12: ELIGIBLE EARLY- AND POST-STANDARDIZATION WARREN DECK TRUSS BRIDGES IN THE STATE OF NEW YORK

YEAR BUILT	NUMBER OF OCCURRENCES
EARLY-STANDARDIZATION (1909-1919)	1
EARLY STANDARDIZATION (1920-1925)	0
POST-STANDARDIZATION (1926-1931)	4
POST-STANDARDIZATION (1932-1937)	2
POST-STANDARDIZATION (1938-1943)	1
POST-STANDARDIZATION (1944-1949)	0
POST-STANDARDIZATION (1950-1955)	2
TOTAL	**10**

One bridge built between 1932 and 1937 was determined eligible based on its Warren deck truss type, Criterion C-6, for its demonstration of individuality or variation of features within a particular bridge type. Bridge No. 1004310 is located in Rensselaer County at Route 7, approximately 0.7 miles southeast of Hoosick. Built in 1932, the main span is aluminum, wrought-iron, or cast-iron box spread with a standard plan design and an unknown truss connection.

ELIGIBLE EARLY- AND POST-STANDARDIZATION MULTIPLE SPAN/ DECK TRUSS BRIDGES

According to the *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan,* six of the 78 bridges built during the early- and post- standardization period are eligible for the National Register of Historic Places for their multiple span/deck truss variation of the Warren truss-type (Table 13). The Kosciuszko Bridge features both a multiple span and a deck truss design. The approaches to the bridge are supported by Warren deck trusses, while the bridge itself is made up of 22 spans.

TABLE 13: ELIGIBLE EARLY- AND POST-STANDARDIZATION MULTIPLE SPAN/ DECK TRUSS BRIDGES IN THE STATE OF NEW YORK

YEAR BUILT	NUMBER OF OCCURRENCES
EARLY-STANDARDIZATION (1909-1919)	0
EARLY-STANDARDIZATION (1920-1925)	1
POST-STANDARDIZATION (1926-1931)	3
POST-STANDARDIZATION (1932-1937)	1
POST-STANDARDIZATION (1938-1943)	1
POST-STANDARDIZATION (1944-1949)	0
POST-STANDARDIZATION (1950-1955)	0
TOTAL	**6**

Only one of the six examples is within the New York City Region, the Roosevelt Avenue Bridge (Bridge No. 2240507), in Queens, New York (previously presented in Table 7). Built in 1924, this bridge is eligible because it dates to the period of early-standardization. The Roosevelt Avenue Bridge also exhibits individuality in that it is a double-deck structure that can accommodates mass transit above and four lanes of vehicular traffic through the superstructure, with sidewalks on either side. Bridge No. 2240507 was determined eligible under Criteria C-5 because it dates to the period of early-standardization, and C-6, for its demonstration of individuality or variation of features within a particular bridge type, specifically its multiple span/deck truss type.

While Bridge No. 2240507 is located within New York City, it was not constructed during 1938 to 1943, the same time period as the Kosciuszko Bridge. One of the six eligible multiple span/deck truss examples constructed during the same time period as the Kosciuszko Bridge is Bridge No. 1024720. Located at the junction of Route 40 and the Hoosic River, in St. Lawrence County, New York Bridge No. 1024720's main span is aluminum, wrought-iron, or cast-iron box spread with a standard plan design and an unknown truss connection. Built in 1942, Bridge No. 1024720 was determined eligible under Criterion C-6, for its demonstration of individuality or variation of features within a particular bridge type, specifically its multiple span/deck truss type.

Located in Saratoga County, Bridge No. 1006730 was constructed in 1932, slightly earlier than the Kosciuszko Bridge. Nevertheless, Bridge No. 1006730 could be considered contemporaneous with the construction of the Kosciuszko Bridge. Bridge No. 1006730 is located near the junction of Route 9N and the Hudson River. The main span of the bridge is aluminum, wrought-iron, or cast-iron box spread with a standard plan design and a riveted truss connection. Bridge No. 1006730 was determined eligible under Criterion C-6, for its demonstration of individuality or variation of features within a particular bridge type, specifically its multiple span/deck truss type.

WARREN THROUGH TRUSS BRIDGES WITH OVERHEAD BRACING

This section provides another level of comparative analysis: Warren through truss bridges with overhead bracing.

ELIGIBLE EARLY- AND POST-STANDARDIZATION WARREN THROUGH TRUSS BRIDGES WITH OVERHEAD BRACING

Bridges that feature a through truss configuration enable traffic to travel through the superstructure (usually a truss), which is cross-braced above and below the traffic; in many instances, thru truss bridges feature overhead bracing. The main span of the Kosciuszko Bridge is a Warren through truss with curved overhead bracing, similar to a camelback truss.

Of the 78 eligible Warren truss bridges from the early- and post-standardization period, only 21 bridges feature overhead bracing (Table 14). These bridges are not eligible for their overhead bracing alone or because they are a through truss type. Rather, the overhead bracing is considered an aspect of the design type. None of the 21 evaluated and NRHP-eligible bridges that feature overhead bracing are located in the New York City Region. There are however, two bridges that were built during the same time period as the Kosciuszko Bridge, 1938 to 1943. Forty-nine Warren through truss bridges with overhead bracing were determined not eligible for listing in the National Register of Historic Places. One of the 49 non-eligible bridges was built during the same time period as the Kosciuszko Bridge.

Image 26: Polygonal top chords and overhead bracing of the Kosciuszko Bridge
EHT Traceries, May 2006

TABLE 14: ELIGIBLE EARLY- AND POST-STANDARDIZATION WARREN THRU TRUSS BRIDGES WITH OVERHEAD BRACING IN THE STATE OF NEW YORK

YEAR BUILT	NUMBER OF OCCURRENCES
EARLY-STANDARDIZATION (1909-1919)	0
EARLY-STANDARDIZATION (1920-1925)	3
POST-STANDARDIZATION (1926-1931)	8
POST-STANDARDIZATION (1932-1937)	7
POST-STANDARDIZATION (1938-1943)	2
POST-STANDARDIZATION (1944-1949)	0
POST-STANDARDIZATION (1950-1955)	1
TOTAL	**21**

Bridge No. 1048230 is located at the junction of Route 418 and the Hudson River, in Warren County, New York. Built in 1941, the main span is identified in the Historic Bridge Inventory, as a box adjacent design type with jack-arches running perpendicular to the stringers, and camelback trussing. Bridge No. 1048230 was determined eligible under Criterion C-6, for its demonstration of individuality or variation of features within a particular bridge type, specifically its multiple spans.

Bridge No. 1005950 is located in the Watertown Region of New York, approximately 4.6 miles north of the junction of Route 9 and Route 22. Built in 1940 by the American Bridge Company, the main span is a slab, box adjacent design type, with bridge plate, jack-arch runs perpendicular to the stringers, and a Warren truss polygonal top chord. According to the Historic Bridge Inventory (2006), Bridge No. 1005950 was determined eligible; however the database does not list the criterion under which it is eligible.

COMPARISON WITH THE FRYE BRIDGE, NEAR SPRINGVILLE, ERIE COUNTY, NEW YORK

Whereas the above comparisons analyzed bridges with one single variation from standard Warren truss bridges (that are also present in the Kosciuszko Bridge), this section discusses the Frye Bridge (Bridge No. 3328360), located 3.2 miles southwest of Springville, New York in Erie County. The Frye Bridge has several similarities with the Kosciuszko Bridge, and thus serves as an excellent comparison. The similarities include construction occurring in 1939, riveted truss, railroad rail members (truss and girder) and a polygonal top Warren truss chord. According to the *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan,* the Frye Bridge was determined eligible for listing in the National Register of Historic Places for its demonstration of significant variations or features of the Warren truss-type (Criterion C-6), namely its multiple spans.

Image 27: Frye Bridge, *Parsons, May 2006*

Similar to Frye Bridge, the Kosciuszko Bridge is constructed of riveted steel and has multiple spans. The Kosciuszko Bridge however, measures 22 spans in length, while the Frye Bridge has only two spans. Consequently, the Frye Bridge is dramatically shorter than the Kosciuszko Bridge. The Kosciuszko Bridge is also much taller (175') than the Frye Bridge (approximately 25'). The difference in height is largely attributed to the creeks that the bridges cross. The bridge spans the Connoisarauley Creek and carries Hammond Hill Road. Unlike the Connoisarauley Creek, the Newtown Creek was once one of the major world ports, and necessitated a tall structure so that large vessels could traverse the creek beneath the Kosciuszko Bridge. The Connoisarauley Creek appears to be more of recreational water source than an industrial one, such as the Newtown Creek.

Both Frye Bridge and the Kosciuszko Bridge feature polygonal top chords. The *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan* indicates that polygonal top chords are "not considered to be a significant variation among the post-standardization Warren trusses because they were a common feature after 1908."[110] The Kosciuszko Bridge however, has overhead bracing in addition to polygonal top chords, creating an appearance similar to a camelback truss. Unlike the Kosciuszko Bridge, the Frye Bridge features a pair of, or double top chords at each side; the Kosciuszko Bridge contains one set of polygonal top chords. The Frye Bridge roadway is supported by adjacent box-type girders. A box beam or box girder bridge is a fixed bridge consisting of steel girders fabricated by welding steel plates into various box-shaped sections. The box girder has good load-distribution characteristics that are easily adaptable for curved geometric configurations and various span lengths.[111] The Kosciuszko Bridge roadway is supported by Warren deck trusses.

[110] Mead & Hunt and Allee King Rosen & Fleming, Inc., *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan*, pg. 4-50.
[111] Mead & Hunt, *Contextual Study of New York State's Pre-1961 Bridges*, pg. 28.

COMPARISON WITH BRIDGE NO. 2255530, HERKIMER COUNTY, NEW YORK

According to the Historic Bridge Inventory (2006), there is one other eligible bridge constructed in 1939, the same year as the Kosciuszko Bridge. Located in the City of Little Falls, Herkimer County, New York, Bridge No. 2255530 carries Hansen Avenue. Bridge No. 2255530 was constructed in 1939, the same year as the Kosciuszko Bridge. The main span of Bridge No. 2255530 is a Warren through truss without overhead bracing. Bridge details include a bridge plate and a polygonal top chord and its decorative rail or parapets. According to the *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan,* the bridge was determined eligible for its association with Depression-era work relief programs (Criterion A-1).

DETERMINATION OF ELIGIBILITY: DISCUSSION OF CRITERIA

The preceding sections examined the number and types of eligible bridges within the New York State and New York City Regions. This section analyzes whether they Kosciuszko Bridge should be considered eligible to the National Register of Historic Places on its own merits.

NATIONAL REGISTER OF HISTORIC PLACES CRITERIA

The National Park Service has developed four criteria for assessing the historical significance and eligibility of cultural resources to the National Register of Historic Places of cultural resources (See Table 15). At least one criterion of the National Register Criteria of Evaluation must be met for a property to be considered eligible to the National Register of Historic Places (NRHP). Usually, a property should be at least 50 years old to qualify for listing in the National Register. Federal laws and regulations regarding the management and treatment of historic properties (NRHP eligible resources) are invoked by the property's National Register-eligibility as determined in consultation with the appropriate State Historic Preservation Officer. However, it is not necessary that a potentially eligible property actually be listed in the National Register to be subject to special management considerations.

TABLE 15: NATIONAL REGISTER OF HISTORIC PLACES CRITERIA[112]

CRITERION	ASSOCIATION	CHARACTERISTIC
A	Event	Properties associated with events that have made a significant contribution to the broad patterns of U.S. history
B	Person	Properties associated with the lives of persons significant in U.S. history
C	Design/Construction	Properties that embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
D	Information Potential	Properties that have yielded, or may be likely to yield, information important in prehistory or history

NEW YORK STATE DEPARTMENT OF TRANSPORTATION EVALUATION CRITERIA

The New York State Department of Transportation (NYSDOT) uses the above-mentioned National Register criteria for assessing historic significance of historic bridges. The National Register criteria as applied to NYSDOT's, pre-1961 bridge inventory were developed through consultation among NYSDOT, its consultants, the State Historic Preservation Office and the

[112] National Park Service, *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*, National Park Service: Washington, D.C., 1997 edition.

Federal Highways Administration.[113] Eligible bridges must meet one or more of the seven eligibility criteria detailed in Table 16.

TABLE 16: NYSDOT ELIGIBILITY CRITERIA FOR BRIDGES[114]

CRITERION	CHARACTERISTIC
A-1	Associated with historic events or activities
A-2	Associated with historic trends
C-3	Represents the work of a master
C-4	Possesses high artistic value
C-5	Demonstrates pattern of features common to a particular bridge type
C-6	Demonstrates individuality or variation of features within a particular bridge type
C-7	Demonstrates evolution of a particular bridge type

This section analyzes the Kosciuszko Bridge's ability to meet National Register of Historic Places and NYSDOT eligibility criteria (see Tables 15 and 16).

Criterion A: Property is associated with events that have made a significant contribution to the broad patterns of our history.

Newtown Creek has always been an active waterway. In the early nineteenth century, Manhattan's commercial and industrial districts were densely built up and congested, making industrial expansion difficult and expensive. Because land east of the East River was sparsely developed, places in Brooklyn and Queens offered the space necessary for large-scale plants, worker's housing, and a waterfront location. An early industry of the Newtown Creek, because of its deepwater and low-lying shoreline, was shipbuilding. After the Civil War, the demand by the Government for vessels lessened, resulting in the closing of most shipbuilding enterprises by the 1870s. Factories producing porcelain, china, glass, refined sugar, boxes, pencils, machinery and boilers, and oil refineries emerged on the waterfront and helped to cushion the effect. By the mid-nineteenth century, Newtown Creek was an industrial center, considered one of the busiest waterways in the world. During World War II, Newtown Creek factories produced military equipment for the government. After the war, waste-treatment plants and garbage-transfer operations were set up on the shoreline. Eventually, automobiles, rather than boats, became the most efficient way to transport goods, changing the dynamic and historic character of the Newtown Creek.

At the time of the construction of the Kosciuszko Bridge in 1939, the surrounding environment was highly industrial. Factories, foundries and refineries lined the Newtown Creek waterfront, with the Calvary Cemetery located in the distance on the Queens side of the Newtown Creek. Neighborhoods on either side of the bridge were home to mostly Polish immigrants who worked in the nearby industries and used Newtown Creek crossings to get to work. The bridge was

[113] Mead & Hunt and Allee King Rosen & Fleming, Inc., *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan*, pg 1-14.

[114] Mead & Hunt and Allee King Rosen & Fleming, Inc., *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan*, pg 3-6.

planned and designed for this site for the following reasons: increased traffic (boat and automobile) could be accommodated on the creek; a link would be established between Brooklyn and Flushing (the site of the 1939-1940 World's Fair); and to serve as a piece of the eventual Brooklyn-Queens Expressway. Due to its role as part of the Brooklyn-Queens Expressway, and because its pedestrian lanes were removed, the Kosciuszko Bridge is no longer associated as a pedestrian link between Brooklyn and Queens. Other Newtown Creek bridges such as the Grant Street Bridge, Pulaski Bridge and Greenpoint Avenue Bridges, are smaller in scale and better serve their surrounding communities. All three bridges retain their pedestrian walkways and represent a neighborhood connection rather than an interstate highway.

The Kosciuszko Bridge has a greater association with the Brooklyn-Queens Expressway (BQE or I-278) than it does to the Newtown Creek or the surrounding communities in Brooklyn and Queens. The BQE was vital to the roadway improvement effort initiated in the New York City Region in the mid-twentieth century. The purpose of the project was to alleviate congestion and improve traffic flow in and around New York. The construction of the Brooklyn-Queens Expressway (BQE) was a city-financed, limited access highway designed to link Brooklyn and Queens. Initially, the pedestrian friendly Penny Bridge connected these two areas over the Newtown Creek, from Greenpoint on the Brooklyn side to Maspeth on the Queens side. This bridge was later replaced by the Kosciuszko (Meeker Avenue) Bridge in 1939. This viaduct allowed motorists to efficiently access the Triborough Bridge as well as the 1939-40 World's Fair sites in Flushing Meadows, Queens. After much delay, the last part of the expressway was finally finished in 1960, completing the BQE after nineteen years. Continued growth and increasing populations created the need for bridges that could withstand heavier loads of traffic. New processes for making steel met these needs and gave rise to several large bridges. The Kosciuszko Bridge is one of four bridges, including the Goethals, Verrazano-Narrows, and Triborough Bridges, that serve the route of the Brooklyn-Queens Expressway.

Although the construction of the Kosciuszko Bridge as the first element of the Brooklyn-Queens Expressway is considered an important event, it is not one of national significance, nor is it more important than the construction of the Expressway itself or the other BQE bridges. **The Kosciuszko Bridge is therefore considered not eligible for listing under Criterion A.**

Criterion B: Property is associated with the lives of persons significant in our past.

Although the Kosciuszko Bridge honors Thaddeus Kosciuszko, it does not illustrate his important achievements; rather, it *commemorates* them. **Therefore, the Kosciuszko Bridge is not eligible for listing under Criterion B**. Additionally, there are other examples of Thaddeus Kosciuszko commemorations in the New York City Region and other parts of the country. The American Revolution brought men such as Kosciuszko to the forefront of the American experience. After losing their ancestral rights by the joint action of Prussia, Russia, and Austria in 1795, Polish freedom fighters were ready to fight for freedom and the rights of man in the New World.[115] Kosciuszko is remembered as a creative engineer, as well as a prominent militant in the United States and Poland. Internationally recognized for his contributions to the pursuit of liberty, Kosciuszko honored the values of freedom. Americans honored Polish heroes such as Kosciuszko by naming roads, streets, community centers, and even towns after them. The

[115] Mark Leeds, *Passport's Guide to Ethnic New York: a Complete Guide to the Many Faces and Cultures of New York*, Lincolnwood, Illinois: Passport Books, 1995, pg. 254.

Pulaski and Kosciuszko Bridges are just two of the numerous examples in New York. Additionally, the presence of these bridges in close proximity to one another reflects the prevalence of Polish citizens in the area, as both heroes were revered by the Polish community. Thaddeus Kosciuszko is a national hero rather than a local New York hero; his actions appeal to the Polish across the nation.

Other bridges or roads in New York that honor Thaddeus Kosciuszko include the Thaddeus Kosciuszko Bridge (locally known as the Twin Bridges) in Halfmoon, New York. The Thaddeus Kosciuszko Bridge consists of a pair of identical steel arch bridges that span the Mohawk River between the Towns of Colonie and Halfmoon, New York. Built in 1959, the bridge is a through arch design, and carries Interstate 87. Other examples include: Kosciuszko Street and the Kosciuszko Street Subway Station in Brooklyn, New York.

Criterion C: Property embodies the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possess high artistic values, or that represents a significant and distinguishable entity whose components may lack individual distinction.

Applying the methodology of the *Evaluation of National Register Eligibility: Task C3 of the Historic Bridge Inevntory and Management Plan* prepared by Mead & Hunt with Allee King Rosen & Fleming, Inc. (2002), BIN 1075699 is eligible under National Register Criterion C and more specifically, NYSDOT Criterion C-6. Built in 1939, this fixed multiple span, Warren combination (deck and through) truss bridge with overhead bracing represents a significant and unusual variation of the Warren truss type. Whereas most eligible bridges have one feature of individuality considered to be a significant variation within the post-standardization Warren truss type, the Kosciuszko Bridge possesses several including its multiple spans, Warren deck and through trusses, and polygonal top chords with overhead bracing. Moreover, the Kosciuszko Bridge demonstrates its individuality from the post-standardization Warren truss type because of its significant combination (deck and through) truss type. According to the Historic Bridge Inventory (updated 2006), there are only three examples of bridges with a combination (deck and through) truss in the entire database. The *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan* found that Warren truss bridges built after 1925 were strongly influenced by standardization and do not represent significant examples of their type. They are recommended as non-eligible unless they possess historical significance, a significant variation or other unique feature or association. Based on an analysis of eligible bridges in the 2002 Mead & Hunt and Allee King Rosen & Fleming report, significant variations or features of individuality within the post-standardization Warren truss type include: deck truss, multiple span, double-intersection truss, unusual substruts, and unusual curved top and bottom chords.[116] Structural elements of the Kosciuszko Bridge include multiple spans, Warren combination (deck and through) truss, and overhead bracing, all categorized as "significant variations or features of individuality." The Kosciuszko Bridge embodies distinctive characteristics of multiple span bridges, as well as combination (deck and through) Warren truss types with overhead bracing. This eligibility determination is supported by the following justification.

[116] Mead & Hunt and Allee King Rosen Fleming, Inc., *Evaluation of National Register Eligibility, Task C3 of the Historic Bridge Inventory Master Plan*, pg. 4-50.

The Kosciuszko Bridge exhibits significant variation from common or standardized Warren truss types for many reasons. One of the most characteristic elements of the Kosciuszko Bridge is that it contains 22 spans. Bridges that have one or more piers in addition to the abutments are called multiple span bridges. Long bridges such as the Kosciuszko Bridge are generally multiple span bridges. The multiple spans of the Kosciuszko Bridge are considered a characteristic or defining element of the bridge. The span over the Newtown Creek measures 300 feet, while the approach spans vary from 120 to 230 feet. The total bridge length is 6,021 feet. There are 10 deck truss spans at the Brooklyn side, 11 deck truss spans at the Queens side, and one through truss span over the Newtown Creek.

Another significant variation of the standardized Warren truss type is a combination (deck and through) truss. In a deck configuration, traffic travels on top of the main structure, while the deck slab is supported by crossbeams, stringers, floor beams and trusses. In a combination (deck and through) truss bridge, the truss system supports the bridge deck above and below the structure. The approaches of the Kosciuszko Bridge are approximately 5,771 feet and are supported by Warren deck trusses. While the approach spans at the Brooklyn and Queens sides are supported by Warren deck trusses, the Newtown Creek span is supported by a Warren thru truss with overhead bracing. Polygonal top chords support the overhead bracing, giving it an appearance similar to that of a camelback truss.

According to the Historic Bridge Inventory (updated 2006), of the 222 early- and post-standardization Warren truss bridges in the State of New York, 78 have been determined eligible for listing in the National Register of Historic Places. Of those 78, three are located in the New York City Region. A site visit to the three eligible Warren truss bridges occurred on May 25, 2006. This visit provided the opportunity to compare the Kosciuszko Bridge with the three eligible Warren truss bridges in the New York City Region. Of the three eligible bridges, one was constructed during the pre-standardization (pre-1909) period, and two are from the early-standardization period (1909-1925). All three of the eligible bridges within the New York City Region are Warren thru truss types. None of the eligible bridges however, have polygonal top chords with overhead bracing, similar in appearance to a camelback truss. The Kosciuszko Bridge was also compared with eligible bridges built post-standardization (post-1925) in the State of New York. The comparison of the Kosciuszko Bridge with other post-standardization bridges in the State emphasized the significance of the fixed, multiple span, combination (deck and through) Warren truss form of the Kosciuszko Bridge because another example with the same unusual configuration of structural elements was not found in the State.

The form of the Kosciuszko Bridge follows its function. The design for the Kosciuszko Bridge is one that accommodates ships as well as cars. The 125 foot vertical clearance of the bridge allowed ships to travel beneath it on the Newtown Creek, at one time considered one of the busiest world ports, while the 6,021 foot length provided a more direct roadway for the Brooklyn-Queens Expressway of which it was a part. Constructed in 1939, the Kosciuszko Bridge reflects Depression-Era Bridge Construction, for bridges built during this period met the increasing demands of the traveling public.[117] The engineering difficulties associated with the Kosciuszko Bridge accommodating both cars and marine vessels resulted in the plan of the bridge with a longer approach than that of any previous bridge at this location. The Bridge was built to connect Brooklyn and Queens, thereby greatly aiding the transportation network and

[117] Mead & Hunt, *Contextual Study of New York State's Pre-1961 Bridges*, , pg. 61.

commerce between the boroughs. The connection also allowed motorists to access the Triborough Bridge, and ultimately, the 1939-1940 World's Fair in Flushing Meadows, Queens. The design for the Kosciuszko Bridge is not attributed to one particular designer or engineer. Rather, the bridge was built in phases for the City of New York from designs by the Department of Public Works.

Criterion D: Property has yielded, or may be likely to yield, information important in prehistory or history.

The Kosciuszko Bridge is not likely to yield information important in prehistory or history. Built in 1939, the Bridge does not contribute to the understanding of prehistory or human history. **Therefore, the Kosciuszko Bridge is not considered eligible under Criterion D.**

INTEGRITY ASSESSMENT

Although it is recommended that the Kosciuszko Bridge be declared eligible for inclusion in the National Register of Historic Place, an analysis to measure the integrity of the site is also warranted. An assessment and evaluation of integrity were made of the Kosciuszko Bridge following the National Register's four-step methodology.

1) Define the essential physical features that must be present for the structure to represent its significance.

The physical features essential to convey the significance of the bridge are its Warren truss system (deck and thru), multiple spans, overhead bracing, piers, and approaches. These features are directly associated with the original design and construction of the Kosciuszko Bridge in 1939.

2) Determine whether the essential physical features are sufficiently visible to convey its significance.

The essential physical features of the Kosciuszko Bridge are sufficiently intact. Despite the numerous renovations to the bridge including the removal of the pedestrian walkways in 1967, there is a sufficient amount of structural fabric remaining to convey its type and era of construction.

3) Determine whether the structure needs to be compared with similar properties.

Because Warren truss bridges were widely built throughout the United States from the middle of the nineteenth century to well into the twentieth century, the Kosciuszko Bridge must be compared with similar properties to determine if the Kosciuszko Bridge is a significant example of a Warren truss bridge. By comparing the Kosciuszko Bridge with other Warren truss bridges of the same period, it is possible to assess its historic integrity and National Register-eligibility. The Kosciuszko Bridge was compared with eligible bridges in the New York City Region and other post-1925 bridges in the State of New York. According to the Historic Bridge Inventory, there are no post-1925 eligible Warren truss bridges in the New York City Region

4) Determine, based on significance and essential physical features, which aspects of integrity are particularly vital to the structure under construction and if they are present.

After the review of the bridge's history, physical appearance, and significance, it has been determined that the following aspects of integrity should be considered as critical to the bridge's ability to convey that significance: LOCATION, MATERIALS, SETTING, DESIGN, WORKMANSHIP, FEELING, AND ASSOCIATION.

ASPECTS OF INTEGRITY RELATED TO NATIONAL REGISTER ELIGIBILITY

The National Register defines integrity as "the ability of a property to convey its significance." Using the National Register's four-step methodology, this section examines the seven aspects of

integrity are LOCATION, DESIGN, SETTING, MATERIALS, WORKMANSHIP, FEELING, and ASSOCIATION (Table 17). It is not required that an historic property display all these qualities.

TABLE 17: ASPECTS OF INTEGRITY RELATED TO NATIONAL REGISTER-ELIGIBILITY[118]

Quality	Description
Location	The place where the historic property was constructed or where the historic event occurred
Design	The combination of elements that create the form, plan, space, structure, and style of a property
Setting	The physical environment of a historic property. This quality refers to the character of the property's location. It involves how the property is situated and its relationship to surrounding features and open space. For districts, setting is important not only within the boundaries of the property, but also between the property and its surroundings
Materials	The physical elements that were combined or deposited during a particular period of time and in particular pattern or configuration to form a historic property. The choice and combination of materials reveal the preferences of the creator(s) and suggest the availability of particular types of materials and technologies. A property must retain the key exterior materials dating from the period of its historic significance. If rehabilitated, those materials must have been preserved
Workmanship	The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. Workmanship is the evidence of artisans' labor and skill in constructing or altering a building, structure, object, or site and may apply to the property as a whole or to individual components
Feeling	A property's expression of the aesthetic or historic sense of a particular period of time. Feeling results from the presence of physical features that, taken together, convey the property's historic character
Association	The direct link between an important historic event or person and a historic property. A property retains association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer

Each aspect of integrity was then evaluated independently and assessed a low, moderate, high, or none level of integrity (explained in Table 18).

[118] National Park Service, *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*, National Park Service: Washington, D.C., 1997 edition.

TABLE 18: DESCRIPTION OF LEVELS OF INTEGRITY

LEVEL OF INTEGRITY	EXPLANATION
Low	The resource or element(s) of a resource dates to the historic period(s) of significance of the building or is a later, sensitive repair, but does not represent a substantial amount of historic fabric, is not distinctive, nor does it make any measurable contribution to the property's or the resource's historic appearance or system of construction.
Moderate	The resource or element(s) of a resource makes a significant contribution to the property's or the resource's historic appearance or as an integral part of the resource's historic construction, or it has acquired significance in its own right or makes an important contribution to other historic periods or levels of significance identified for the property, or the resource or element(s) of a resource meet the criteria of HIGHEST INTEGRITY but preservation is not feasible.
High	The resource or element(s) of a resource is associated with those qualities for which the property was determined significant and dates from this period of significance, or the resource or element(s) of a resource is highly distinctive architecturally and dates to the property's period of significance, and the level of damage or deterioration is such that it is still feasible to preserve.
None	The resource or element(s) of a resource does not contribute to the historic significance of the property.

EVALUATION OF THE SEVEN ASPECTS OF INTEGRITY

LOCATION- ***Defined by the National Register as "the place where the historic property was constructed or the place where the historic event occurred."***

The Kosciuszko Bridge, originally known as the Meeker Avenue Bridge, was constructed over Newtown Creek to serve as a link between Brooklyn and Queens. Prior to the construction of the Kosciuszko Bridge, the passage from Brooklyn to Queens was provided by Penny Bridge, a small swing bridge over Newtown Creek. One of three bridges spanning the Creek, including the Greenpoint Avenue Bridge and the Grant Street Bridge, Penny Bridge was primarily a small vehicular and pedestrian footbridge connecting the Greenpoint and Laurel Hill (Maspeth) communities. People that worked in nearby communities were able to walk to work at Newtown Creek factories using these bridges.

Historically, this site has had a long association with New York industry. In the 1900s, Newtown Creek became crowded with larger ships, and the volume of vehicular traffic increased across Penny Bridge. These shortcomings prompted city planners to consider repairing the outdated overpass and building a new structure that reflected improvements in technology and had the structural capacity to accommodate increasing traffic demands. Additionally, the Kosciuszko Bridge provided a potential link for Brooklyn to Flushing, the site of the 1939-1940 World's Fair, and a critical element to an arterial road system known as the Brooklyn-Queens Expressway.

The Kosciuszko Bridge has been continuously used as a link between Brooklyn and Queens in this location since its construction in 1939.

Therefore, a high level of integrity of location has been retained.

MATERIALS- ***Defined by the National Register as "the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.***

The materials found in the construction of the Kosciuszko Bridge are typical of other bridges from the same time period and of the same method of construction. The Kosciuszko Bridge is constructed of riveted steel with concrete piers. A tar coating was applied to some piers where they were in contact with acidic soil. Steel was a common structural element in the 1930s because improvements increased the material's strength and durability. As a result, span lengths were able to increase and new designs were used.[119] Highway bridges in particular, were able to better withstand the heavy loads associated with vehicular traffic because they were made of steel. The roadway was originally a reinforced concrete slab, replaced with a concrete filled steel grid deck. The materials and elements present in the Kosciuszko Bridge are consistent with elements common to Warren truss bridges: diagonals and verticals that withstand tensile and compressive forces, through truss arrangement, steel construction, and riveted construction. The

[119] Mead & Hunt, *Contextual Study of New York State's Pre-1961 Bridges*, pg. 30.

Kosciuszko Bridge is unique however, in that it has a combination (deck and through) Warren truss, as well as multiple spans, and overhead bracing.

Overall, the bridge is in fair condition. Repairs to the bridge after its completion include several repaving projects, the first of which was the repaving of the existing asphalt-on-concrete deck in 1958. The second project, initiated in 1967, was a $6 million repaving project. The largest improvement to date on the bridge was a 1966 replacement of the concrete deck and the elimination of the two 8 foot wide sidewalks to accommodate wider traffic lanes. Additional work included the replacement of barriers, railings, lampposts, crossbeams, and the drainage system. The roadway suffers from pot holes and the structural members of the bridge, which are original, are rusted in some areas. Most Kosciuszko Bridge repairs are attributed to years of damage caused by decades of carrying heavy traffic loads. Gradually, these repairs have lessened the integrity of materials of the Kosciuszko Bridge.

Therefore, a moderate level of integrity of materials has been retained.

SETTING- Defined *by the National Register as "the physical environment of the property." Unlike LOCATION which refers to the specific place where a resource was built or an event occurred, SETTING refers to the character of the place as a property. SETTING includes both the relationship of the resources with the space within the property's boundaries, and the relationship of the property as a while to its surroundings.*

At the time of the construction of the Kosciuszko Bridge in 1939, the surrounding environment was highly industrial. Factories, foundries and refineries lined Newtown Creek waterfront, with the Calvary Cemetery located in the distance on the Queens side of Newtown Creek. The neighborhoods on both sides of the bridge, Greenpoint and Maspeth, were home to many immigrants who worked in the nearby industries. The bridge was planned and designed for this site so that increased traffic could be accommodated on the creek; a link would be provided from Brooklyn to Flushing (the site of the 1939-1940 World's Fair), and to connect with the Brooklyn-Queens Expressway. Pedestrian walkways were included in the design for the bridge so that the people who worked in the nearby industries could walk to work. The Kosciuszko Bridge no longer serves as a link for pedestrians between Brooklyn and Queens. Although the original configuration of the bridge is largely intact and it remains in its original location, the setting of the surrounding environment has changed. The Newtown Creek is no longer as widely used as it was in 1939. While the waterfront remains in use, it is not the area of burgeoning industry that it was in the early- to mid-twentieth century.

Therefore, a moderate level of integrity of setting exists.

DESIGN- *Defined by the National Register as "the combination of elements that create the form, plan, space, structure, and style of a property."*

The design of the Kosciuszko Bridge reflects its function of accommodating both cars and boats. With vertical clearance of 125 feet above Newtown Creek, the height of the bridge allowed for marine vessels to travel Newtown Creek beneath the bridge rather than, in the case of the former Penny Bridge, waiting for the bridge to turn. The engineering difficulties of accommodating both cars and boats resulted in the plan of a bridge with a longer approach than that of any

previous bridge at this location. Additionally, hazardous chemicals found in the creek bed, required planners to engineer oversized foundations and create special non-corroding coatings for some subsurface bracing.[120]

The Kosciuszko Bridge is a fixed, multiple span, combination (deck and through) Warren truss bridge with overhead bracing and verticals. Because Warren truss bridges were one of the most common bridge types in the early twentieth century, Kosciuszko Bridge elements including its 22 spans, combination (deck and through) truss with overhead bracing are considered significant and unusual variations of the Warren truss type. The combination truss design in particular, is rare within the State, according to the Historic Bridge Inventory (updated 2006); there are only three examples in the entire database.

The bridge design is not attributed to a specific architect or designer and is instead considered a product of the New York Department of Public Works. Although the Kosciuszko Bridge has suffered from the loss of original elements such as pedestrian walkways, light posts and median at the center of the roadway, its original structural design is largely intact.

The Kosciuszko Bridge retains a moderate level of integrity of design.

WORKMANSHIP- ***Defined by the National Register as the "physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property."***

The Kosciuszko Bridge is a product of Depression-Era construction. Built to serve the traveling public, the bridge was designed to accommodate marine vessels and cars. The 125 foot vertical clearance of the bridge enables marine vessels to travel Newtown Creek beneath the bridge, and the length and plan of the bridge provides a streamlined route for more cars than the former Penny Bridge. To achieve this configuration, bridge designers employed a fixed, multiple span, combination (deck and through) Warren truss type with overhead bracing. Steel, concrete and brick were chosen as the main materials for the construction, ensuring the bridge's durability and adaptability of the design to the site. The combination of structural systems of the Kosciuszko Bridge can perhaps be attributed to its multi-phase construction, a product of the New York Department of Public Works. Although the configuration is unusual for Warren truss bridges from the 1930s, it is compatible with its use. Most post-standardization Warren truss bridges all have the same elements. The Kosciuszko Bridge however, has significant variation from the common post-standardization types, instead reflecting the workmanship of Depression-Era construction.

The integrity of workmanship at the Kosciuszko Bridge is high.

FEELING- ***Defined by the National Register as a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, taken together, convey the property's historic character.***

[120] *Brooklyn Eagle*, "Boon to Industry: Meeker Ave. Bridge Will Open up Newtown Creek to Boat Traffic, Carry Crosstown Highway to Queens," Aug. 4, 1939, pg. 13.

Structural elements present on the Kosciuszko Bridge including its combination (deck and through) Warren truss, overhead bracing, brick clad approaches with sawtooth details, and multiples spans continue to reflect its original period of construction. When the Kosciuszko Bridge was built in 1939, the Newtown Creek was a major world port, and necessitated a tall bridge so that large vessels could traverse the creek beneath it. Although the Kosciuszko Bridge continues to link the Brooklyn and Queens communities, Newtown Creek no longer necessitates the design of the bridge. The Kosciuszko Bridge no longer serves as a link between Brooklyn and Queens for pedestrians. In 1967, pedestrian walkways present on the bridge were removed to accommodate wider vehicular traffic lanes, thereby prohibiting pedestrians from crossing the bridge on foot. Yet, built as the first element of the Brooklyn-Queens Expressway, the bridge was designed with a 6,021 foot length and 125 foot vertical clearance to accommodate vehicular traffic and the future interstate. The Kosciuszko Bridge continues to faithfully serve the Brooklyn-Queens Expressway as it was intended.

Therefore, the Kosciuszko Bridge retains a moderate level of integrity of feeling.

ASSOCIATION- ***Defined as "the direct link between an important historic event or person and a historic property." A property retains its association if that is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer.***

For the past 67 years, the Kosciuszko Bridge has continuously linked Brooklyn and Queens, New York. Formerly used by Brooklyn and Queens commuters who worked in the Newtown Creek factories, the Kosciuszko Bridge became no longer accessible to pedestrians when its pedestrian walkways were removed in 1967. Built as the first element of the Brooklyn-Queens Expressway in 1939, the Kosciuszko Bridge has served as a BQE bridge for a longer period than it did as a pedestrian bridge. Ironically, the Kosciuszko Bridge is now associated more with the Brooklyn-Queens Expressway than it is with its surrounding communities in large part because of the removal of the pedestrian walkways. The height and length of the bridge aid it furthering the association of the Kosciuszko Bridge with the Brooklyn-Queens Expressway.

The Kosciuszko Bridge retains a moderate to high level of integrity of association.

DETERMINATION OF ELIGIBILITY FOR LISTING IN THE NATIONAL REGISTER OF HISTORIC PLACES

Applying the methodology of the Evaluation of National Register Eligibility: Task C3 of the Historic Bridge Inventory and Management Plan prepared by Mead & Hunt with Allee King Rosen & Fleming (2002), it has been determined that BIN 1075699 (Kosciuszko Bridge) is eligible under National Register Criterion C and more specifically, NYSDOT Criterion C-6. Built in 1939, this fixed, multiple span, Warren combination (deck and through) truss bridge with overhead bracing represents a significant and unusual variation of the Warren truss type. Whereas most eligible bridges have one feature of individuality considered to be a significant variation within the Warren truss post-standardization subtype, the Kosciuszko Bridge possesses several including its multiple spans, combination (deck and through) Warren trusses, and overhead bracing. Moreover, the Kosciuszko Bridge demonstrates its individuality from post-standardization Warren truss bridges because of its combination (deck and through) span type. According to the Historic Bridge Inventory, there are only three examples of bridges with a combination (deck and through) truss in the entire database. The Kosciuszko Bridge therefore, embodies distinctive characteristics of multiple span bridges, as well as combination (deck and through) Warren truss types with overhead bracing. Built in 1939, the Kosciuszko Bridge reflects its period and methods of its construction.

While the construction of the Kosciuszko Bridge as the first element of the Brooklyn-Queens Expressway is considered an important event, it is not one of national significance, nor is it more important than the construction of the Expressway itself or the other BQE bridges. The Kosciuszko Bridge is therefore considered not eligible for listing under Criterion A. Although the Kosciuszko Bridge honors Thaddeus Kosciuszko, it does not illustrate his important achievements; rather, it *commemorates* them. Therefore, the Kosciuszko Bridge is not eligible for listing under Criterion B. Additionally, there are other examples of Thaddeus Kosciuszko commemorations in the New York City Region. The Kosciuszko Bridge is not likely to yield information important in prehistory or history and is thus not eligible for listing under Criterion D.

RECOMMENDATIONS FOR FURTHER RESEARCH

Based on the research completed for this Determination of Eligibility, the Kosciuszko Bridge is also associated with broader themes such as the "Transportation and Recreation Network of Robert Moses," or the "Brooklyn-Queens Expressway."

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APPENDIX