INCLINED PLANE BRIDGE
Pennsylvania Historic Bridges Recording Project
Spanning Stonycreek River at State Rt. 3022 Spur
Johnstown
Cambria County
Pennsylvania

HAER No. PA-454

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
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HISTORIC AMERICAN ENGINEERING RECORD

INCLINED PLANE BRIDGE

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Location:	Spanning Stonycreek River at State Rt. 3022 Spur, Johnstown, Cambria County, Pennsylvania.
USGS Quadrangle:	Johnstown, Pennsylvania (7.5-minute series, photorevised 1972).
UTM Coordinates:	17/676230/4465790
Date of Construction:	1890.
Designer:	Unknown.
Contractor:	Sparks and Evans, substructure; Phoenix Bridge Company (Phoenixville, Pa.), superstructure.
Present Owner:	Pennsylvania Department of Transportation.
Present Use:	Vehicular bridge.
Significance:	This single-span, pin-connected Pennsylvania through truss bridge was constructed across the Stonycreek River in conjunction with an inclined plane railway shortly after the Johnstown Flood of 1899. Both the bridge and the inclined plane were built to provide a means for escaping future floods and to encourage the development of, and settlement in, the Cambria Iron Company-owned hilltop town of Westmont. The bridge roadway was partially reconstructed in 1962, but most of the span retains its original members. The Inclined Plane Bridge was listed in the National Register of Historic Places in 1988.
Historian:	J. Philip Gruen, August 1997.
Project Information:	This bridge was documented by the Historic American Engineering Record (HAER) as part of the Pennsylvania Historic Bridges Recording Project - I, co-sponsored by the Pennsylvania Department of Transportation (PennDOT) and the Pennsylvania Historical and Museum Commission during the summer of 1997. The project was supervised by Eric DeLony, Chief of HAER.

Some of the details are hazy, but the story is well-known. At 4:07 p.m. on 31 May 1889, after two days of steady rain, the central section of the South Fork Dam caved in and sent approximately 20 million tons of water on a 14-mile journey down the Little Conemaugh River toward the city of Johnstown, Pennsylvania. By the time the twenty-to thirty-foot-high wall of water arrived at the Pennsylvania Railroad Bridge over the Conemaugh River, it had accumulated a mass of debris that included railroad cars, steel wires, rails, timber, animals, and humans. The Stone Bridge held back the debris, but a fire erupted by dusk and proceeded to destroy many of those who were struggling to survive. More than 2,200 people lost their lives in the Johnstown Flood, and the town suffered more than $17 million in damages.[1]

While the destruction wrought by the flood is still at the forefront of the American memory regarding Johnstown, equally remarkable was the rapidity with which the city was rebuilt.[2] It would be many years before Johnstown would claim to be "flood-proof," but the road to recovery began almost immediately.

Instrumental to the city's rebuilding efforts was the Cambria Iron Company, the city's largest employer and the backbone of its economic prosperity. Some of the company's mills had been completely destroyed in the flood, but enough of the overall operation survived for the company to be back in business within a few weeks. By late July, the company was confident enough in Johnstown's redevelopment potential that it purchased land atop a hillside overlooking the Stonycreek River and the city and began planning a new town called Westmont. The success of the development, however, hinged upon the construction of an inclined plane railway to hoist passengers to the top of that hill (known as Yoder Hill), and a 225'-0", single-span bridge to transport people from the city to the foot of the incline. By June 1890, the bridge at the inclined plane was under construction, and by June 1891, the Pennsylvania truss span became a vital conduit for people heading to the brand-new inclined plane. This bridge, and the incline it served, not only contributed to the ensuing success of the Westmont development, but also provided a visible escape route from the city in the event of future rising waters. During the flood of 17 March 1936, the bridge and incline transported more than 4,000 city residents to safety.

Today, with the rivers widened and channelized, Edgehill Road and other roads long since the preferred mode of access between the city and Westmont, and the bridge principally serving pedestrians heading to an attraction marketed as "the world's steepest vehicular incline," the Inclined Plane Bridge plays a contemporary role largely at odds with its seemingly more

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[1] There have been many other floods in Johnstown over the years — both before and after 1889 — but it is the 1889 flood that is commonly referred to as the "Johnstown Flood." The flood is one of the nation's greatest calamities in terms of lives lost. Eleven years later, however, a devastating hurricane in Galveston, Texas, wrecked most of that city and claimed nearly 6,000 lives.

[2] The legacy of the flood has been the principal tourist draw in Johnstown for many years. Since the flood, at least ten books have been published about it, and the Johnstown Flood Museum and the Johnstown Flood National Memorial are two of the city's principal attractions.

utilitarian beginnings. Even so, the bridge serves as a reminder of the city's resiliency and its entrepreneurial spirit in the wake of its epic disaster. It stands, together with the incline, as physical evidence of the city's restoration after the flood.

Battling the Landscape

Battles with nature are synonymous with Johnstown's history. To some extent, the city is fated to periodically succumb to nature's ways, for it is situated at the confluence of two rivers in a valley with steep hills rising on either side. Melting winter snows combine with frequent heavy rainfall to regularly transform the meandering rivers into raging torrents. Both despite and because of its geography, Johnstown grew significantly in the nineteenth century as a transfer point on the Pennsylvania Main Line Canal and by extracting the rich coal deposits and iron ore from its hillsides.

The Allegheny Portage Railroad was the final link in the Pennsylvania Main Line Canal, which was intended to provide a quick mode of transportation between Pittsburgh and Philadelphia, and to compete with the Erie Canal. The portage railroad, completed in 1834, was a unique system of railroads and steam-powered inclined planes crossing the Allegheny Mountains. At various points in the journey, boats, freight, and passengers were transferred from one mode of transportation to the next.

From Pittsburgh, boats reached Johnstown via the Pennsylvania Main Line Canal along the Allegheny, Kiskiminetas, and Conemaugh rivers. At Johnstown, the boats were transferred to the portage railroad, by which they progressed on the steep route over the mountains to Hollidaysburg.[3] Although this system was only in operation from 1834 to 1857 (the Pennsylvania Railroad put it out of business), the need to provide a convenient transportation link between Philadelphia and Pittsburgh played a direct role in Johnstown's development. Later, the canal indirectly contributed to the disastrous flood, and thus to the construction of the Inclined Plane Bridge.

In order to supply the Pennsylvania Main Line Canal with enough water to operate during the dry summer months, a canal engineer proposed the construction of an 850'-0"-long earth-filled dam. This created a reservoir along the Little Conemaugh River near the village of South Fork, 14 miles upstream from the city of Johnstown. The South Fork Dam was begun in 1838, and after a series of delays, it was finished in 1852, just six months before the completion of the Pennsylvania Railroad.

In 1857, the canal went out of business, and the dam passed through several hands before its height was increased by an engineer readying it for a new role: impounding a lake for the South Fork Fishing and Hunting Club. The club failed to maintain the dam, however, and the

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[3] From Hollidaysburg, the boats plied the canal along branches of the Juniata River and the Susquehanna River. At Columbia, freight and passengers transferred to a railroad, which sped them to Philadelphia.

dam eventually gave way in late May 1889 during a heavy rainstorm, causing the Johnstown Flood.[4]

The damage wrought by the flood's path was astronomical. People, buildings, and miles of railroad tracks were destroyed or lost. With the exception of the Pennsylvania Railroad's Stone Bridge, which held back the debris, every bridge in the flood's path was washed away. In the wake of the flood, Johnstown was physically cut off from the outside world.

The rebuilding effort after the flood focused partly on the reconstruction of the city's links to larger cities, such as Pittsburgh, from which relief supplies could flow and to which, eventually, manufactured goods could be exported to help the city regain its economic strength. Much of the rebuilding was due to the Cambria Iron Company, which had been established in 1852 and which, by the 1860s, had become the nation's largest producer of iron rails for railroads. In 1867, the company produced the nation's first commercial steel railroad rails, and by 1876, it was the nation's largest rail producer.

By the 1880s, approximately one-third of Johnstown's population was affiliated with the Cambria Iron Company. The company participated actively in the social welfare of its workers while involving itself in civic affairs. It erected the town hospital, for example, where company employees received free treatment, and it operated a night school for its employees. It also established a city library, an opera house, and a clubhouse.[5] Some of its members, meanwhile, held leading positions in local government, and the company's policies were generally supported by the *Johnstown Tribune,* the city's major newspaper.[6] In addition, the Cambria Iron Company owned much of the surrounding hillside acreage for its iron and coal deposits, thus allowing it to control and regulate supplies. Although the company's mills were badly damaged in the flood, its Lower Works buildings, where most of the rails were produced, remained intact, and the company set to work producing steel to get the city moving again shortly after the flood.[7]

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[4] Many scholars have seized upon the club's general neglect of the dam's necessary upkeep as the principal cause for the flood. See, for example, David G. McCullough, *The Johnstown Flood* (New York: Simon & Schuster, 1968); Karl Berger, ed., *Johnstown: The Story of a Unique Valley* (Johnstown: Johnstown Flood Museum, 1984); or Nathan D. Shappee, *A History of Johnstown and the Great Flood,* (Ph.D. diss., Univ. of Pittsburgh, 1940). For more information on the construction of the dam, see Carl W. Condit, *American Building Art: The Nineteenth Century* (New York: Oxford Univ. Press, 1960), 258-9.

[5] McCullough, *Johnstown Flood,* 71.

[6] Ewa Morawska, *For Bread with Butter: The Life-worlds of East Central Europeans in Johnstown, Pennsylvania, 1890-1940* (Cambridge: Cambridge Univ. Press, 1985), 83-90.

[7] Although the principal output for the Cambria Iron Company were the iron and steel rails produced by the Lower Works, the company was also involved in the production of bar iron, steel wire, bolts, and nuts. In 1902, the company opened up its Franklin Plant and experimented with by-product coke ovens; in later years, it produced car axles, railroad cars, wheels, rods, and wires. In 1916, the company was taken over by Midvale Steel and Ordnance Company, and in 1923, it was bought out by Bethlehem Steel. See Richard A. Burkert and Eileen Mountjoy Cooper, *Uphill All the Way: Johnstown and Its Inclined Plane* (Johnstown, Pa.: Cambria County Tourist Council, Inc., 1985), 12-13.

Westmont, the Incline, and the Bridge

Realizing that there would be a demand for new houses following the flood, particularly in elevated localities around the city proper, the Cambria Iron Company purchased privately held farmland atop Yoder Hill, divided it up, and put lots for the new town of "Tip-Top" up for sale. The company's intent was to provide "cheap" houses both for their employees and the citizens of Johnstown in close proximity to the business district.[8] The Cambria Iron Company regularly advertised the lots for sale in the *Johnstown Tribune* at prices and terms "to suit every class of purchasers."[9] The company hired acclaimed landscape architect Charles Miller to design the new development.[10]

In conjunction with the new town, the Cambria Iron Company proposed both the inclined railway and "a substantial single-span bridge, at a high level above the river, connecting at the west end with an inclined railway."[11] The borough of Westmont, with lots sold already sold in 1889 and the first resident occupying a home by January 1890, became one of America's early planned suburban communities, and one of the nation's few inclined plane suburbs.[12]

The success of the Westmont development, however, would not have been possible without the construction of the inclined plane and bridge, for there was no easily accessible road leading from Johnstown to the top of Yoder Hill. The inclined plane and the bridge were considered part of the same system from their inception, and articles about the progress of their construction in the *Johnstown Tribune* rarely mentioned one without the other.

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[8] "New Town on Yoder Hill: It Will be Tip-Top in Name and Fact," *Johnstown Weekly Tribune* (26 Jul. 1889), 1.

[9] For example, see the advertisement in the *Johnstown Tribune* (31 May 1990), 3.

[10] Charles Miller had previously landscaped Johnstown's Grand View Cemetery, the grounds for the 1876 Centennial Exposition in Philadelphia, and the Bryn Mawr community outside of Philadelphia. Miller's designs largely followed the tenets of the late nineteenth century American picturesque, which preserved the rural and pastoral feel of the setting by incorporating irregularities into a planned scheme. See Natalie Gillespie and Cheryl Powell, "Westmont," in *The Character of a Steel Mill City: Four Historic Neighborhoods of Johnstown, Pennsylvania,* ed. Kim Wallace (Washington, D.C.: Historic American Building Survey/Historic American Engineering Record, 1989), 119.

[11] "New Town on Yoder Hill," 1.

[12] The communities that sprang up around Pittsburgh's Mount Washington, near the drop-off point for the Monongahela Incline and the Duquesne Heights Incline Plane, predate the Westmont development by about twenty years. It is probable that Cambria Iron Company promoters were aware of Pittsburgh's inclines and the economic boost they provided for its hilltop towns. By the 1880s, eleven inclined planes were operating in Allegheny County. The term "inclined plane suburb" is the author's adaptation of the more common term "streetcar suburb," coined by Sam Bass Warner, Jr., in reference to the early suburbs of Boston that grew as streetcar lines extended from the center city; see *Streetcar Suburbs: The Process of Growth in Boston 1870-1900* (Cambridge, Mass.: Harvard Univ. Press, 1962).

To build and manage the incline, the Cambria Iron Company formed the Cambria Inclined Plane Company. This company hired the services of the Sparks and Evans Company to complete the excavations, foundation, and masonry work for the plane and the bridge. Sparks and Evans had built the nearby Pennsylvania Railroad stone arch bridge that had played such a major role during the flood. The Cambria Iron Company furnished the incline plane machinery, while the structural iron and steel for the plane and bridge were supplied by the Phoenix Bridge Company of Phoenixville, Pennsylvania. The total cost of the bridge and the incline together, prior to construction, was estimated to be in the neighborhood of $100,000.00.[13]

Work on the bridge and incline began on 11 June 1890, as employees of Sparks and Evans began clearing the roadway for the tracks.[14] The first crossing over the Stonycreek River, a pontoon used for transporting materials for the workers, was thrown over the river at this time. A week later, excavation for the bridge's eastern abutment had commenced.[15] The beginning of construction stimulated a flurry of lot purchases in Westmont, including the sale of fifteen lots in one day.[16] The construction of both the bridge and the incline proved to be something of a civic attraction, as many citizens came to the site on Sundays to watch the operation and speculate when the incline would be finished.[17]

By the end of the year, the iron and steel work for the bridge was finished, and on 20 March 1891, only the bridge's trestle approach from a spur of Johns Street, parallel with the river and rising 12'-0" to the bridge floor, awaited completion. The bridge was completed shortly thereafter, and by June 1891, the incline was also open for business.[18] An 1894 photograph of

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[13] "The New Inclined Plane: A Great Undertaking That is Nearly Completed," *Johnstown Tribune* (21 Mar. 1891), 1; "The Town on the Hilltop: Recent Lettings of Important Contracts," *Johnstown Tribune* (6 Jun. 1890), 1. Total construction costs for the incline came to $133,295.90. Burkert and Cooper, however, argue that the tracks for the incline were all made by the Cambria Iron Company; see *Uphill All the Way,* 8-9.

[14] The Inclined Plane Bridge was but one of a number of bridges planned and erected in and around the Johnstown area following the 1889 flood. As construction commenced on the Inclined Plane Bridge, there was much debate about what new bridges should be built and where, and whether the rivers should be widened to alleviate the effects of future flooding. See, for example, "Permanent Bridges and the Rivers," *Johnstown Tribune* (26 Jun. 1890), or "What About the Bridges?," letter to the editor, *Johnstown Tribune* (21 Aug. 1890).

[15] "Work on the Westmont Incline Plane," *Johnstown Tribune* (18 Jun. 1890), 1.

[16] "A Westmont Boom," *Johnstown Tribune* (20 Jun. 1890), 1.

[17] "Working on the Westmont Incline and Bridge," *Johnstown Tribune* (25 Aug. 1890), 1.

[18] The inclined plane railway, designed by Samuel F. Diescher and modeled after the ten inclined planes built for the Allegheny Portage Railroad, was built as a cable-driven system with a 896'-5" runway and was initially powered by a steam-driven cast-iron drum. Two 42-ton cars, each with a 15-ton, 80-passenger capacity, were attached to the 1,130'-0" cables, supplied by John A. Roebling's Sons Company of Trenton, New Jersey. The incline climbs the hill at a 71 percent grade, making it the steepest extant inclined railway in the United States.

the bridge and incline shows that a ticket booth for the incline also existed on the east side of the bridge, next to a set of stairs.[19]

Inclined Plane Bridge Details

The completed bridge was of a common type for road bridges by this time: a Pennsylvania truss. The Pennsylvania truss is essentially a Pratt through truss with a polygonal top chord and subdivided panels, the latter of which stiffen the truss under heavy loads. Although more expensive than a simple Pratt truss, the Pennsylvania truss, also known as a Petit truss after its designer, was a considerably stronger bridge type than the Pratt, and in the aftermath of the 1889 flood, it is likely the Cambria Iron Company wished to provide a strong span over the Stonycreek River. At 232'-0" in length, however, the Inclined Plane Bridge is on the small side for a Pennsylvania truss, which generally range from 250'-0" to 600'-0".[20]

The twelve-panel truss includes sub-ties and portal bracing. Each panel measures 19'-4" and is pin-connected and riveted.[21] The middle panels reach a maximum height of 38'-3", and the center-to-center truss spacing is 26'-3". The original 17'-0"-wide timber decks, measuring 17'-0" between curbs, and 6'-0"-wide sidewalks are comprised of 3" by 8" wooden members, supported by sixteen 4" by 14" wooden stringers running longitudinally between the built-up deck beams. The roadway and sidewalk are flanked by timber curbs.

The bridge's structural members are a combination of wrought iron and steel, indicative of late-nineteenth century bridge engineering as steel members slowly phased out wrought iron in American truss bridge construction. Here, the portal bracing and upper chords are made of structural carbon steel, the vertical and diagonal compression members alternate between steel and wrought iron, and the bottom chords are made of dual wrought-iron eye-bars.[22] The bridge is canted at a 3.4 percent slope from east to west, probably to ease the separation of pedestrian and vehicular traffic (the incline was originally a double-decker structure, with space for pedestrians below and wagons and horses above).[23] The bridge substructure includes the coursed ashlar abutments and wing walls supplied by the Cambria Iron Company.

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[19] Burkert and Cooper, *Uphill All the Way,* 9.

[20] T. Allan Comp and Donald Jackson, "Bridge Truss Types: A Guide to Dating and Identifying," American Association for State and Local History Technical Leaflet No. 95, *History News* 32, No. 5 (May 1977).

[21] These measurements are taken from the 1996 inspection conducted by A. G. Lichtenstein and Associates. Since the bridge has had no substantial alterations over the years, these measurements should provide a reasonably accurate reading of the original condition. See A. G. Lichtenstein and Associates, "S.R. 3022, Section 001: Inclined Plane Access Bridge: Engineering Report and Alternative Study" (Langhorne, Pa.: A. G. Lichtenstein and Associates, Inc., 1997), 6-8.

[22] Lichtenstein, "S.R. 3022," 8.

[23] Burkert and Cooper, *Uphill All the Way,* 8. The two-level system was apparently unpopular with riders, and the cars were reconstructed in 1921.

Although the bridge was completed before the incline, the bridge was not officially opened to the public until 1 June 1891, when the incline received its first passengers. Local citizens, who had been waiting nearly two years for the opening of the incline, crowded onto the bridge to take rides on the inaugural day.

The Inclined Bridge Through the Years

Through the remainder of the nineteenth century and into the twentieth, the bridge suffered little damage and a 1931 *Johnstown Tribune* article declared the bridge "in fairly good condition."[24] Nevertheless, by this time the approach ramp was in poor condition and required replacement. In 1931, the inclined plane and bridge was owned and operated by Bethlehem Steel, which was now occupying the former Cambria Iron Works buildings in the city. Bethlehem had taken over the incline company in 1923, after acquiring the assets of the Cambria Iron Company from the Midvale Steel and Ordnance Company of Philadelphia. That company had originally bought Cambria in 1916.[25]

Although the incline set a record in 1919 when 1,356,293 people and 124,825 vehicles used it, by 1931, ridership had declined and the Bethlehem Steel Company was in financial trouble. The lack of ridership was caused by the increased use of automobiles on Millcreek Road and Diamond Boulevard, worn equipment, and the decay of the bridge approach. Rather than pay for the approach repairs, Bethlehem opted to close it to automobile traffic entirely and restrict the bridge to pedestrians only. Later, the company considered discontinuing service altogether on the grounds that the incline had become obsolete.

By 1931, however, the incline had become a tourist attraction for Johnstown. Therefore, the city of Johnstown and Cambria County considered paying for the approach reconstruction, even though it was technically under private ownership.[26] In May 1935, however, the borough of Westmont purchased the bridge, the incline, and the approach from the Bethlehem Steel Company for one dollar.[27]

Almost one year later, on 17 March 1936, the bridge and incline provided a crucial service during the most severe flood since 1889. As the rivers rose that day, approximately 4,000 people crowded onto the approach, the bridge, and into boats to reach the incline in order

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[24] "The Inclined Plane," *Johnstown Tribune* (28 Jan. 1931).

[25] The control of the Cambria Inclined Plane Company is detailed in Burkert and Cooper, *Uphill All the Way,* 12-13.

[26] A 28 Jan. 1931 article in the *Johnstown Tribune* noted that "hundreds of the guests of the city yearly enjoy the novelty of the ride up and down the plane, with its unequaled view of the business district."

[27] Westmont residents at this time comprised most of the incline's business.

to be hauled up to the dry land of Westmont.[28] The service provided by the incline in this moment of crisis pointed up its vital role to the city and spurred the securing of funds for the reconstruction of the approach and an overall bridge rehabilitation.

In October 1936, federal Works Progress Administration authorities approved a $17,812 grant to repair the wooden approach and provide new wood stringers, handrails, and decking on the bridge.[29] Work began in September 1937, and by 10 February 1938, vehicular traffic had resumed. The resumption of vehicular service kept the inclined plane in business for a while and business boomed during the inter-war years, but by the 1950s, new highways and improved transportation had once again cut into the incline's sustainability, and Westmont could no longer afford to maintain it.[30]

The incline ceased operation on 31 January 1962, but the Cambria County Tourist Council, recognizing the incline's potential as a tourist attraction, had been securing funds to purchase and restore the incline.[31] On 11 April 1962, together with the Johnstown Chamber of Commerce, the tourist council leased the incline for ten years at $10.00 per year. The council paid for some repairs on the incline and the replacement of its steam engine with a 400-horsepower electric motor. The incline resumed operation on 4 July 1962.

Virtually no work had been completed on the bridge since the 1930s, however, and by the 1960s, the beams, stringers, and decking for the roadway needed repair, and the approach ramp was riddled with potholes. The Pennsylvania Department of Highways, which had become the custodian of the bridge in 1964 when it and the approach were declared to be part of Legislative Route 215 (later L.R. 525 and presently a spur of State Route 3022), provided the necessary repairs in 1965 for $12,000.00. The repairs were encouraged by D. K. Park, president of the Cambria County Tourist Council, who pointed out that the incline was an "attraction" and advertised statewide, and that its operation was of "vital concern to virtually every citizen of the

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[28] Not everybody rode the incline; some actually clambered up the hillside alongside the rails when a rumor spread that the massive Quemahoning Dam had broken. In 1938, the incline was recognized at the second annual "Flood Anniversary Dinner" for its role in the 1936 flood. See "Incline Plane was Means of Taking Many to Safety," *Johnstown Tribune* (Mar. 1936), vertical files, Johnstown Area Heritage Association, Johnstown, Pa.

[29] "Bridge, Approach of Inclined Plane Will be Repaired," *Johnstown Tribune* (30 Oct. 1936).

[30] "The Inclined Plane," *Johnstown Tribune* (6 Dec. 1952), vertical files, Johnstown Area Heritage Association, Johnstown, Pa.

[31] Newspaper advertisements as early as the 1930s had promoted the incline as an attraction, but it was not until the 1960s that there was an effort to make tourism one of its primary functions.

Greater Johnstown Area."[32] Delays in the reconstruction of the bridge, Park explained, would halt service during the crucial tourist season. The repairs ended up costing $15,000.00.[33]

The rehabilitation included the replacement of the timber decking, nailers, stringers, and curbs of the roadway, in addition to the construction of new wooden stairs from the foot of Johns Street to the bridge deck. In addition, the plans called for a new galvanized steel chain-link fence to be constructed along both sides of the bridge.[34]

With a newly reconstructed bridge and the incline under the ownership of the Cambria County Tourist Council, both the bridge and the incline entered a new chapter in their history. Instead of primarily serving as access to the incline for citizens heading to or from their homes in Westmont, the bridge was increasingly traversed by tourists, who used it to reach the other side and pay a fare to ride the "world's steepest vehicular incline" for a panoramic view of Johnstown and the surrounding countryside.[35]

The incline was nominated to the National Register of Historic Places on 18 June 1973. The bridge followed suit, principally because of the role it played during the 1936 flood, on 20 September 1982.[36] The incline received a $3.6 million rehabilitation in 1983, after its ownership was transferred once again — this time to the Cambria County Transit Authority for $1.00 on 12 April 1982. The incline and bridge reopened in the late summer of 1984.

Today, the incline, the Johnstown Flood Museum, and the Johnstown Flood National Memorial are the major attractions for out-of-town visitors. The incline's popularity was boosted in 1991 with the construction of a new visitor's center at the top, and in 1993, by a new $600,000.00 pedestrian walkway leading directly from the foot of Vine Street to the bridge. While fewer and fewer locals use the bridge, it nevertheless receives plenty of tourist traffic, and together with the incline, helps generate a healthy percentage of the city's overall tourist revenue.

Strolling across the bridge before being whisked high above Johnstown and its channelized rivers, it is easy today to lose track of the roles the bridge and the incline once played in Johnstown's recovery from the 1889 flood. The bridge was instrumental not only

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[32] D. K. Park, to Victor Leopold, 19 Feb. 1965, bridge inspection files, BMS No. 11-3022-0010-0000, PennDOT District 9-0, Hollidaysburg, Pa.

[33] The Department of Highways did not commence the work until the tourist season, which necessitated the bridge's closure for a brief period.

[34] Pennsylvania Department of Highways, Bridge Division, "L.R. 525 Spur City of Johnstown Station 1+18, Bridge at Inclined Plane over Stonycreek River, General Plan of Bridge Repairs, Sheet 1 of 1," 4 Mar. 1965.

[35] The incline underwent an extensive restoration from 1978 to 1984, which included a computerized rehabilitation of the stations, cars, and principal structural elements.

[36] It should not be overlooked, however, that the bridge and incline once again provided safety service and was a principal conduit for the hauling of relief supplies during the 20 July 1977 flood, when 1,431 people used the incline to escape the rising waters. For the following three weeks, it provided transportation for an increased number of local residents who would have otherwise had difficulty reaching their places of employment due to flood circumstances.

because it provided access to the incline lifting people to the Cambria Iron Company's new residential development of Westmont, but also because it provided both psychological assurance and transportation to many citizens who had survived one of America's biggest disasters.

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APPENDIX: Suggestions for Further Research

Some questions concerning the Inclined Plane Bridge arose during the research and writing of this report. Some of these questions, due to limitations in the scope of the Pennsylvania Historic Bridges Recording Project - I, remain unanswered. It is suggested that scholars interested in this bridge consider pursuing the following:

1. What was the cost of the bridge?

2. Why did the Cambria Iron Company, with much of its huge steel works back in operation shortly after the flood, select the Phoenix Bridge Company to supply the bridge parts?

3. Who actually designed the bridge?