NEW FRANKLIN VIADUCT

BRIDGE NUMBER K744

HISTORIC AND PHOTOGRAPHIC DOCUMENTATION

HOWARD COUNTY, MISSOURI

ROUTE 5

MODOT JOB NUMBER J2P0428

FEBRUARY 2010

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HISTORIC AND PHOTOGRAPHIC DOCUMENTATION

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FEBRUARY 2010

HISTORIC DOCUMENTATION
BRIDGE K744

I. Introduction

Location: Highway Bridge carrying Missouri State Route 5 over Katy Trail, New Franklin, Howard County, Missouri

Construction Dates: 1939-1940

Present Owner: Missouri Department of Transportation, Jefferson City, Missouri

Present Use: Highway Bridge to be removed and replaced by at grade crossing

Significance: The New Franklin Viaduct (bridge K744) is significant as an example of an urban railroad grade separation funded through the 1936 Federal Aid to Highways bill, which made eliminating hazards to safety at railroad crossings a major focus of state transportation departments in 1938 and 1939.

Historian: Karen L. Daniels, Historic Preservation Section, Design Division, Missouri Department of Transportation, February 2010.

II. History of Bridge K744

Howard County, Missouri was organized on January 13, 1816 and originally comprised all of northwest Missouri and portions of southern Iowa. It contained an area of nearly 22,000 square miles. The first county seat of the newly formed county was the community of Franklin, located on the Missouri River, across from the present day community of Boonville. Franklin, named after Benjamin Franklin, was formed in 1816, and became the county seat in 1817.[1]

The town grew rapidly because of its location on the Missouri River and because it was the western most settlement on the river. It became the original launching point for the Santa Fe Trail, the commercial route between the American west and the Mexican Territory. In 1818 a United States Land Office was opened in the courthouse to grant claims to western lands. In the Missouri territory, the community was second in size only to St. Louis.[2]

In 1823 the county seat was moved to Fayette, and in 1825 the county was reduced to its present boundary, which contains about 463 square miles. Many of the citizens of the county also moved with the relocation of the county seat, especially those associated with governing the county and the lawyers.[3]

Severe flooding in 1826 and 1828 ate at the sand foundations of Franklin, and by 1828 only three town lots and the Franklin Academy had not been pulled into the river. In 1828 the shareholders of the Franklin Town Company purchased 240 acres of land about two miles east of the original community location and platted a new town. The town property was purchased from James Alcorn for the sum of $1,500. The first trustees of the town were Abiel Leonard, David Workman, Nathaniel Hutchinson, Joshus Hobbs, Alphonso Wetmore, Lewis Switzler and Lindsay Marshall. The town was officially named Franklin when it was incorporated in 1833, although it was referred to as New Franklin.[4]

Many of the buildings from Franklin were removed to the new town before the flooding inundated them. Early businesses in the new community included a blacksmith shop owned by Willis Robertson, a business house owned by James Alcorn, and a hotel.[5]

To keep the trading advantage that being on the river had brought the original community, building an all weather road connecting New Franklin to the river was of primary importance to the new community. They first tried to build a railroad to the river,

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[1] Grabe, Lucille A., *History of New Franklin* (no publisher, 1982), 1; Smith, T. Berry and Pearl Sims Gehrig, *History of Chariton and Howard Counties, Missouri* (Topeka, KS: Historical Publishing Company, 1923), 82; Williams, Walter, *A History of Northeast Missouri* (Chicago: Lewis Publishing Company, 1913), 354.
[2] Grabe, 1; Smith, 83; Williams, 354.
[3] Grabe, 1; Smith, 85; Williams, 354.
[4] Grabe, 1; Kountz, Robert. "New Franklin from Flood to Katy," *Katy Milepost* (April 2002), http://www.mostateparks.com/katytrail/milepost/past/newfranklin.html (accessed August 20, 2008); Smith, 85.
[5] Kountz; Smith, 85.

but that effort never materialized. Next, in 1839, the legislature authorized a road to be paid for by a lottery. The first road authorized was a macadam surface road, but in 1853 the legislative authority was changed to include a plank road. This road also did not materialize, and the lottery authority was revoked by the Missouri legislature around 1880.[6]

The desire to build a railroad was reemerged in 1867 when the town started efforts to extend the Hannibal & Central Missouri Railroad through New Franklin. It was the Missouri, Kansas and Texas (MKT) Railroad that finally brought the railroad to New Franklin when they constructed their North East Extension from Sedalia to Moberly in 1873.[7]

In addition, through the Missouri, Kansas and Eastern Railway Company they constructed a line between New Franklin and St. Louis in 1892, which was absorbed into the MKT system in 1896. At the junction of the two lines, a community called Franklin was formed about a mile west of New Franklin.[8]

About this same time, Franklin was made a division point on the MKT, providing employment for many in the communities. A mechanical department, car repair department, dispatchers and agents worked out of the Franklin division. In 1923 the divisions based in Sedalia and Mokane were consolidated and moved to Franklin as well. During World War II more than 400 engineers were working out of Franklin.[9]

Since Franklin was the location of division shops and a roundhouse, there were many switching tracks leading into the community to the south of New Franklin. Where Missouri Route 5 crossed there were eight tracks for motorists to cross. In 1927 the State Highway Department had graded and graveled the road, and in 1932 paved it with Portland concrete cement.[10]

The 1936 Federal-Aid Highway Act included funding for the elimination of hazards to life at railroad grade crossings. Nationally $50 Million was to be distributed annually in the fiscal years ending in 1938 and 1939—distributed by a formula based on population, railroad mileage and highway mileage. The funding could be used for projects that eliminated the hazards to life at grade crossings, the reconstruction of existing crossing

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[6] Smith, 85-86; Williams, 78.
[7] Kountz; Masterson, V. V. *The Katy Railroad and the Last Frontier* (Columbia, MO: University of Missouri Press, 1992), 193-194; Smith, 86.
[8] Kountz; Masterson, 249; Smith, 129-130.
[9] Kountz; Masterson, 264; Landis, Mike "The "M" in the MKT Katy's Missouri Heritage 1870-1988 and Beyond," http://www.missouri-central.railran.net/history1.html, (accessed July 8, 2009); Schumaker, Gus, "The MKT Railroad," in *Stories of Howard County, Missouri*, ed. Elaine Derendinger, Melba Fleck and LaVaugh Miller (South Howard County Historical Society, no date), 79.
[10] Missouri State Highway Commission, "Plan and Profile of Proposed State Road, Federal Aid Project 5-43, Howard County," (Jefferson City, MO: Design Division, 1927); Missouri State Highway Commission, "Plan and Profile of Proposed State Road, Federal Aid Project 5-43(A), Howard County," (Jefferson City, MO: Design Division, 1932).

structures, the protection of grades at crossing or the relocation of highways to avoid crossings. No state matching funds were required for the program.[11]

The MKT identified the grade crossing in New Franklin as a top priority for these grade separation funds, and the Central District of the State Highway Department made the New Franklin crossing their highest priority for the fiscal year 1938 funds.[12] The crossing had been the location of several severe and fatal accidents as motorists had to wait for trains or switch engines to clear the crossing.[13]

Planning for the crossing began in October 1936 through discussions between the MKT and the State Highway Department.[14] By late 1937 preliminary plans had been submitted to the Bureau of Public Roads (BPR) in Omaha for review and comments received back.[15]

Although discussions about the viaduct were apparently widely known in 1937 and 1938, the earliest mention of it in the local newspapers was in July 1938 when it was reported that State Highway Department employees had been in town during the previous two months collecting data on the crossing. In addition, it was reported that plans for the viaduct called for a steel structure that would be "one of the most elaborate overpasses in the state."[16]

The BPR recommended several changes in the plans to improve the aesthetics and site distance of the structure. Some of their recommendations were incorporated into the final plans—for instance they recommended providing sidewalks on both sides of the bridge or on the west side if provided on only one side.[17]

While working on the changes suggested by the BPR it was also decided to recommend that this grade crossing be given an unusual amount architectural treatment. In a letter from the Chief Engineer to the BPR he explained that the Highway Commission

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[11] Betters, Paul V., Cities and the 1936 Congress (New York: Arno Press reprint of US Conference of Mayors Publication, 1978), 14.

[12] F. Ringer to C. W. Brown, November 20, 1936, Bridge Correspondence File, Bridge Division, Missouri Department of Transportation, Jefferson City, MO; Harry D. Griffith to C. W. Brown, November 9, 1936, Bridge Correspondence File, Bridge Division, Missouri Department of Transportation, Jefferson City, MO; Missouri State Highway Commission, "Minutes of the Meeting of the State Highway Commission Held in Jefferson City, Missouri, March 20-21, 1939," As held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation, Jefferson City, MO, 37.

[13] "Injured in Railroad Crossing Accident," *New Franklin News* February 12, 1937, 1; "Want to Raze Viaduct at N. Franklin," *The Democrat-Leader* January 30, 1993, 1.

[14] F. Ringer to C. W. Brown, October 12, 1936, Bridge Correspondence file, Bridge Division, Missouri Department of Transportation, Jefferson City, MO.

[15] C. W. Brown to Clifford Shoemaker, October 26, 1937, Bridge Correspondence file, Bridge Division, Missouri Department of Transportation, Jefferson City, MO; Clifford Shoemaker to C. W. Brown, October 27, 1937, Bridge Correspondence file, Bridge Division, Missouri Department of Transportation, Jefferson City, MO; C. W. Brown to Clifford Shoemaker, November 25, 1937, Bridge Correspondence file, Bridge Division, Missouri Department of Transportation, Jefferson City, MO.

[16] "May Build Katy Viaduct This Year," *New Franklin News*, July 8, 1938, 1.

[17] Clifford Shoemaker to C. W. Brown, October 27, 1937, Bridge Correspondence file, Bridge Division, Missouri Department of Transportation, Jefferson City, MO.

"believe[d] the site, being located between the towns of Boonville and New Franklin, is of sufficient importance to deserve some architectural treatment," which was estimated to cost only 6% more than a grade crossing without the treatment.[18]

Providing adequate clearance above the railroad tracks was necessary during the planning of the viaduct, and close coordination with the MKT Railroad was necessary. The MKT indicated that they needed nineteen feet vertical clearance over each track during construction. The bridge grade was raised two feet to provide the necessary clearance and still provide for the architectural treatments.[19]

Designing the viaduct apparently did not present many technical difficulties, with providing adequate site distances and the placement of the sidewalks being the issues addressed most in correspondence between the State Highway Department and the BPR. Plans apparently originally called for the sidewalks to be located on the east side of the structure. The BPR suggested that sidewalks be placed on both sides of the structure or, if cost was an issue, on the west side since the plans showed the presence of houses and a church south of the railroad on the west side.[20]

In April 1938 the State Highway Department submitted revised plans to the BPR incorporating the changes they had suggested as well as the architectural treatment the bridge was to receive.[21] In May the BPR approved the plans for the structure.[22]

In September 1938 the MKT Railroad and the State Highway Department filed an application with the Public Service Commission for authority to build the viaduct and abandon the at-grade separation.[23]

In late 1938 the State Highway Department started to acquire right of way for the project, and was presented with one of the largest challenges to the project—the issue of damages to adjacent property owners. Several properties went to condemnation to determine damages, and as late as August 1939 the fate of the viaduct appeared doubtful as the damages for some of the properties was returned at more than the appraised value of the properties.[24] Despite these issues the request for bids was issued in early September, with a bid opening on September 22.[25]

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[18] C. W. Brown to Clifford Shoemaker, April 26, 1938, Bridge correspondence file, Bridge Division, Missouri Department of Transportation, Jefferson City, MO.
[19] Roy C. Johnson to N. R. Sack, Inter-Department Memo, June 15, 1938, Bridge Correspondence file, Bridge Division, Missouri Department of Transportation, Jefferson City, MO.
[20] Clifford Shoemaker to C. W. Brown, October 27, 1937, Bridge Correspondence file, Bridge Division, Missouri Department of Transportation, Jefferson City, MO, 2.
[21] C. W. Brown to Clifford Shoemaker, April 28, 1938, Bridge Correspondence file, Bridge Division, Missouri Department of Transportation, Jefferson City, MO.
[22] Clifford Shoemaker to C. W. Brown, May 17, 1938, Bridge Correspondence file, Bridge Division, Missouri Department of Transportation, Jefferson City, MO.
[23] Missouri State Highway Commission and Missouri-Kansas-Texas Railroad Company, "Application," to Public Services Commission, No. 9616, 1938, As held by the South Howard County Historical Society, New Franklin; "Application filed for Katy Overpass Here," *New Franklin News*, 23 September 1938, 1.
[24] "Highway Department to State Condemnation," *New Franklin News*, 31 March 1939, 1; "Viaduct Condemnation Proceedings Start," *New Franklin News*, 30 June 1939, 1; "To the Citizens of the City of

When the bids were opened the Carrothers & Crouch Construction Company of Kansas City had the low bid of $197,185.09, considerably lower than the estimated $210,000. With other construction costs for entrances, drainage, street approaches and other necessary construction around $31,000 the total construction cost for the viaduct was about $225,000.[26]

Preliminary work of moving water mains started the week of October 13, and that same week representatives of Carrothers & Crouch arrived in New Franklin with machinery, and the superintendent's office was under construction.[27] By mid-November forms for the pilings were being constructed.[28] It was estimated that construction would take about one year. Many local workers were hired during construction, and it was anticipated that the project would alleviate all unemployment in Franklin and New Franklin during construction.[29]

Figure 1. Otto Vieth and the Carrothers & Crouch Engineering Crew.

(Courtesy of South Howard County Historical Society)

As work began, regional newspapers commented on the plans for the viaduct, reporting the specifications for the bridge: it would span eight tracks of the MKT Railroad, be entirely of reinforced concrete, would have twenty-three spans of forty-eight feet and six

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New Franklin," *New Franklin News*, 28 July 1939, 1; "Fate of Viaduct Appears Doubtful," *New Franklin News*, 25 August 1939, 1.

[25] "Viaduct Construction Bids Issued," New Franklin News, 8 September 1939, 1.

[26] Missouri State Highway Commission, "Minutes of the Meeting of the State Highway Commission Held in Jefferson City, Missouri, September 26-27, 1939," As held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation, Jefferson City, MO, 37; "Kansas City Company Gets Viaduct Contract," *New Franklin News*, 29 September 1939, 1.

[27] "Preliminary Viaduct Work Started this Week," *New Franklin News*, 13 October 1939, 1.

[28] "Viaduct Construction Underway," *New Franklin News*, 17 November 1939, 1; "To Begin Actual Work on Katy Viaduct," *The Democrat-Leader*, 24 November 1939, 1.

[29] "Things are Looking Up in New Franklin," *New Franklin News*, 27 October 1939, 1.

spans at fifty-four feet for a total length of 948 feet [this length does not include the abutments].[30] The architectural features were often commented upon, with the *New Franklin News* even reporting that "architectural treatments have been given to all parts of the structure--the large plane surfaces and abrupt angles often seen on bridges have been avoided."[31]

The *New Franklin News* provided regular reports to its readers about the progress of construction and providing their own estimates for when construction would be done. They noted rapid progress in May of 1939 and predicted the viaduct would be completed by August.[32] In June they reported that more than half of the spans had been completed and that the viaduct should be completed by the first of September.[33]

Figure 2. Viaduct construction over MKT Railroad tracks.

(Courtesy South Howard Historical Society)

In September the New Franklin News began reporting that the viaduct was nearing completion, and about plans for a dedication ceremony. In describing the viaduct, the September 6 paper edition said, "the architectural features of the structure add much to its beautification, exceeding the expectations of practically all in this community. It is said to be one of the finest structures of its kind in the state."[34]

By the end of September the viaduct itself was complete and the work on the approaches and side access roads was well underway.[35]

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[30] "New Architectural Plan for Viaduct," *Daily News*, 21 October 1939, 1.
[31] "Architectural Beauty to Feature Viaduct," *New Franklin News*, 27 October 1939, 1.
[32] "Rapid Viaduct Construction," *New Franklin News*, 24 May 1940, 1.
[33] "Construction of Viaduct Progressing," *New Franklin News*, 28 June 1940, 1.
[34] "Viaduct Nearing Completion," *New Franklin News*, 6 September 1940, 1.
[35] "Viaduct Construction is Being Rushed," *New Franklin News*, 20 September 1940, 1; "Speeding Construction of Overpass," *New Franklin News*, 27 September 1940, 1.

In mid-September the community began planning the dedication ceremony in earnest. Business groups and the City Council formed committees for publicity, entertainment, finance, speakers and decorations.[36] On September 27 a "Queen of the Overpass Dedication" contest was announced: all single girls in the town, between the ages of 16 and 25, were eligible to be queen with the public making the nominations and votes being purchased with theater tickets at the local Roxy Theatre.[37]

The viaduct dedication was officially set for October 23, 1940.[38] The ceremonies started at 11:00 in the morning with the first of four free movies at the Roxy Theatre. By 1:00 around 2,500 people had gathered to witness a parade and the dedication ceremonies. Several area bands, including the Kemper Military Band, the Central College Band, the Central College All-Girl Band, the Boonville High School Band, the Glasgow High School Band and the Fayette and Boonville high school drum and bugle corps participated in the parade, and gave performances later in the day. Special trains ran from Boonville and Fayette to accommodate the performers and the crowd.[39]

Ceremony Chairman, Senator C. S. Duncan presided over the ceremonies; V. B. Saville, division engineer for the Central Division representing the SHD cut the ribbon on the viaduct; Mayor Bowman made the first speech, and the featured speaker was Dan Nee, Director of Internal Revenue for the Western Division of Missouri. Mr. Nee spoke about the evolution of transportation in Missouri. C. W. Watts of the MKT Railroad followed, expressing thanks for making the viaduct construction a reality. The celebration continued into the evening with a dance at the George Allen Building where the 128th Field Artillery Band of Maryville was the featured band.[40]

The dedication was considered one of the largest happenings in the history of the community, and was reported in neighboring communities as well. Fayette and Boonville both reported on the festivities.[41] The day before the event there was a full-page advertisement in the Boonville Daily News congratulating New Franklin on the completion of the new structure.[42]

In the *Biennial Report* covering 1939 and 1940 the State Highway Commission included the New Franklin structure in the list of more important projects completed during the reporting period.[43]

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[36] "Plans Inaugurated for New Viaduct Dedication," *New Franklin News*, 13 September 1940, 1.
[37] "Queen Contest for Overpass Dedication," *New Franklin News*, 27 September 1940, 1.
[38] "Viaduct Dedication to be held October 23," *New Franklin News*, 11 October 1940, 1.
[39] "Overpass is Officially Dedicated," *New Franklin News*, 25 October 1940, 1; "Dedication of New Viaduct at New Franklin," *The Democrat-Leader*, 25 October 1940, 1; "2500 Attend Dedication of N. F. Overpass," *Daily News*, 24 October 1940, 1.
[40] "Overpass is Officially Dedicated," *New Franklin News*, 25 October 1940, 1, 4.
[41] "Overpass is Officially Dedicated," *New Franklin News*, 25 October 1940, 1; "Dedication of New Viaduct at New Franklin," *The Democrat-Leader*, 25 October 1940, 1; "2500 Attend Dedication of N. F. Overpass," *Daily News*, 24 October 1940, 1.
[42] "2500 Attend Dedication of N. F. Overpass," *Daily News*, 24 October 1940, 1.
[43] Missouri Highway Commission, *Twelfth Biennial Report of the State Highway Commission of Missouri*. (Jefferson City, MO: State Printing Office, 1940), 190.

Construction concluded on November 18, 1940, and the final inspection was completed that day as well. In December 1940 it was recommended that the State Highway Commission accept the structure.[44] When the final audit for the project was completed it was revealed that the viaduct had a cost under run of over $5,000, which was attributed to changes in the size of sewer pipes laid as part of the project, and the piles not needing to be sunk as deeply as originally estimated, since they found a proper bearing at a higher elevation than anticipated.[45]

New Franklin was home to the MKT switching yard until 1986 when the railroad ceased operation of its line between Machens and Sedalia. Flooding had been an issue on the line since shortly after construction, and when flooding occurred the MKT was forced to use the parallel Missouri Pacific route south of the Missouri River. Severe flooding in October 1986 washed out several miles of the line. In 1987 it was officially abandoned by the MKT as a rail line, and in 1988 the line was donated to the State of Missouri and became the Katy Trail State Park.[46]

In 1993 the Missouri Department of Transportation (MoDOT) proposed removing the viaduct. The reasons cited at the time were the maintenance costs of the structure. A newspaper article at the time noted that when the structure was constructed the MKT yard was a "busy place" and noted several fatal accidents at the crossing. By 1993 the yards had been removed and the most dangerous thing there was the Katy trail where pedestrians and bicycles would have to yield to highway traffic. At the time it was projected that the viaduct would be removed between 2000 and 2007, and cost $820,000 to remove the structure and rebuild the highway.[47]

In 2008 MoDOT again proposed removing the viaduct. It was noted that the viaduct was nearing the end of its useful life. Although there was some local opposition to the removal, the New Franklin City Council voted to endorse the removal, and send a letter of support for MoDOT's application, by a vote of 3-2.[48] Awarding of the project that will include the removal of the viaduct is scheduled for October 2009, and it is anticipated that reconstruction of the entrance to New Franklin will be complete by June 2010.[49]

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[44] J. J. Corbett to V. B. Saville, December 2, 1940, Bridge Correspondence file, Bridge Division, Missouri Department of Transportation, Jefferson City, MO.

[45]Missouri State Highway Commission, "Minutes of the Meeting of the State Highway Commission Held in Jefferson City, Missouri, February 11, 1941," As held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation, Jefferson City, MO, 30-31.

[46] Landis; Missouri State Parks and Historic Sites, "General Information" Katy Trail State Park, http://www.mostateparks.com/katytrail/generalinfo.htm (accessed August 21, 2009); City of New Franklin, "Interesting Facts About New Franklin," http://newfranklin.missouri.org/facts.htm (accessed August 21, 2009).

[47] "Want to Raze Viaduct at N. Franklin," *The Democrat-Leader*, January 30, 1993, 1.

[48] "MoDOT Eyes Radical Change for New Franklin Viaduct Entrance," *The Democrat-Leader*, August 5, 2008; Shirley James, "'Fast and New' is not Always Best; NF Viaduct Should be Preserved," *The Democrat Leader*, November 26, 2008; "NF Council Endorses Removal of Viaduct," *The Democrat Leader*, December 9, 2008.

[49] "Schedule Data for J2P0428," Project Status System, Missouri Department of Transportation (accessed August 21, 2009).

III. Construction Contractor: Carrothers & Crouch

The Carrothers & Crouch Construction Company of Kansas City, Missouri was awarded the contract for the New Franklin viaduct.[50] The principals in the company were H. H. Carrothers and W. W. Crouch, Junior.

Carrothers had been in the construction business since the mid-1920s when he and partner A. F. Erbacher formed the Carrothers Construction Company.[51] In 1924 the company was awarded a contract with the Missouri State Highway Department for work on Route 2 in Jackson County.[52]

By 1934 W. W. Crouch had become a partner and the company was known as Carrothers and Crouch. In that year they had a contract for work on Route 41 in Cooper County.[53]

For the New Franklin project, Otto Vieth was appointed as the Construction Superintendent, in charge of the daily operations at the construction site.[54]

In 1941 the company won two highway contracts—one for an underpass in Bolivar, Polk County, and a second for highway work in Ozark County.[55] Due to material shortages caused by U. S. participation in World War II, they requested to be released from the project in Bolivar.[56]

IV. Physical Description of Bridge K744

In a 1939 letter to Railway Age magazine, the New Franklin viaduct was briefly described as consisting "of fifteen 48' and six 54' special concrete deck girder spans with attached sidewalks and stairways and is supported by special bents and hollow abutments to which are further attached retaining walls. Special attention is given to aesthetic effects of this structure."[57]

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[50] Missouri State Highway Commission, "Minutes of the Meeting of the State Highway Commission Held in Jefferson City, Missouri, September 26-27, 1939," As held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation, Jefferson City, MO, 37; "Kansas City Company Gets Viaduct Contract," *New Franklin News*, 29 September 1939, 1.

[51] "Registration of Fictitious Name" As held by Secretary of State, Jefferson City, MO, http://www.sos.mo.gov/BusinessEntity/soskb/Filings.asp?738688# (accessed August 21, 2009)

[52] Missouri State Highway Commission, "Minutes of the Meeting of the State Highway Commission Held in Jefferson City, Missouri, December 4, 1924," As held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation, Jefferson City, MO, 12.

[53] Missouri State Highway Commission, "Minutes of the Meeting of the State Highway Commission Held in Jefferson City, Missouri, March 13, 1934," As held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation, Jefferson City, MO, 75.

[54] "Viaduct Construction to Start," *New Franklin News*, November 10, 1939, 1.

[55]Missouri State Highway Commission, "Minutes of the Meeting of the State Highway Commission Held in Jefferson City, Missouri, October 25, 1941," As held by the Secretary to the Missouri State Highway Commission, Missouri Department of Transportation, Jefferson City, MO, 18.

[56]Missouri State Highway Commission, "Minutes of the Meeting of the State Highway Commission Held in Jefferson City, Missouri, May 11-12, 1942," As held by the Secretary to the Missouri State Highway Commission, Jefferson City, MO, 3.

[57] N. R. Sack to Railway Age, November 16, 1939, Bridge correspondence file, Bridge Division, Missouri Department of Transportation, Jefferson City, MO.

Designed in 1938 and constructed in 1939-1940 the New Franklin Viaduct (Bridge No. K744) on Route 5 in Howard County, was constructed entirely of reinforced concrete. The length of the bridge is 1,461' 6", with a twenty-four foot wide deck width. The viaduct rises 45' to a maximum elevation of 733.8' above sea level. The structure originally arched over eight tracks of the MKT Railroad line; it currently crosses over the Katy Trail.[58]

The substructure of the bridge contains two hollow abutments with retaining walls and eighteen bents. On the construction plans the bents are numbered from the north to south, with the abutments being included in the count; therefore, the north abutment is identified as number one and the south abutment is number twenty.

Abutment 1 was constructed in eight sections, each section numbered by the concrete pilasters at each end, the pilaster at the north end of the viaduct being number one. Each section was 30' in length, except for section 8-9, which was 33' 6" long. No pilings are noted on the construction plans under section 1-2, 2-3 or 3-4. Sections 4-5, 5-6, 6-7 and 7-8 have four piles under the concrete retaining walls and the intermediate and near end cross beams, and section 8-9 has three piles under the intermediate cross beams. Each pilaster has one pile under the concrete footing. The abutment is hollow and closed by retaining walls. A retaining wall finished section 8-9; it has pilasters on each end and in the center, with steel doors in the bays created by the pilasters. The pilasters had a base that was 4' high and 4' 6" wide, the pilasters tapered toward the top. Each pilaster base has two pilings under the footings. An arch connects the pilasters, with the radius of the arch being the radius of a 9' 6" circle. The steel doors are 4' X 2' 6" and are set in metal jambs.

Figure 3. Forms for bents. (Courtesy South Howard County Historical Society)

[58] Missouri State Highway Department, "Bridge over M. K. T. R. R. Tracks, State Road Thru New Franklin, Project No. FAGM 292 C(1)(R3). Microfiche copy, Bridge Division, Missouri Department of Transportation, Jefferson City, MO.

Bents 2-6 and 14-19 are identical. The two outer piers are each supported by four pilings under a 6’ square footing, and the central pier is supported by five pilings under a 6’ X 8’ 3” rectangular footing. The columns are generally square with chamfered edges, which taper to a square base on the outer columns and a rectangular base on the center column. The beam has a curve with a nine-foot eight-inch radius between columns.

Bents 7 and 13 are identical. The two outer piers are each supported by four pilings under a 6’ square footing, and the central pier is supported by five pilings under a 6’ X 8’ 3” rectangular footing. The columns are generally square with chamfered edges, which taper to square bases on the outer columns and a rectangular base on the center column. The beam has a curve with a 9’ 6” radius between the columns.

Bents 8-12 are identical with the west column supported by five pilings under a 6’ X 8’ 3” rectangular footing, the interior column supported by six pilings under a 6’ X 9’ rectangular footing, and the east column supported by four pilings under a 6’ square footing. The space between the west and interior columns was 19’ 2 3/4” on centerline, and the spacing between the interior and east columns is 12’ 8 3/4” on centerline.

Figure 4. Abutment 20. (Courtesy South Howard County Historical Society)

Abutment twenty is constructed in nine sections, each separated by a pilaster. Section 1-2 is 33’ 6” long; the remaining sections are each 30’ long. The retaining wall that closes the hollow abutment has a pilaster on each end and one in the center. Each pilaster has a base 4’ high and 4’ 6” wide, supported by two pilings; the pilaster tapers toward the top. Connecting the pilasters are arches with the radius of a 9’ 6” circle. A 4’ X 2’ 6” steel door with steel frame is located in each arched bay. There are pilings under each wall and two rows under the cross beams supporting the road deck. In sections 1-2 and 4-5 there are three sets of piles, and in sections 2-3, 3-4, 5-6 and 6-7 there are four sets of piles

under the intermediate beams and near end beams; these are in addition to the piles under the end beams. Plans show no piles under sections 7-8, 8-9 or 9-10.

Spanning between abutment 1 and bent 7 and bent 13 and abutment 20 are thirteen spans of three parallel 48’ concrete deck girder spans; the two outside girders are 17” and the center girder is 21”. From inside edge to inside edge these girders are 10’ 8 1/2” apart with a continuous arch in between. Each girder includes a curve starting 10 1/2” from each end. Above the deck girders are roadway girders, which are 27’ wide from edge to edge and symmetrical around the centerline of the roadway. The girders are 3’ 8 1/2” from the base to the bottom of the road deck on the outside and at the center, and 18” from the bottom of the deck to the top of the curb. Ten inches of this is the road deck. The curbs overhang the bottom of the girder by 2 1/2” on each side.

Spanning between bents 7 and 13 are six spans of four 54’ concrete deck girder spans. From west to east there is a 13” girder, a 5’ 5” space with an arch with a 2’ 6” radius, then three 21” girders spaced 10’ 2 1/2” apart with curved arches between. Each girder includes a curve starting 2’ 1” from the edge. Above the deck girders are roadway girders that are 31’ 10” from edge to edge, and 3’ 8 1/2” from the base of the girder to the base of the road deck and 18” from the base of the road deck to the top of the curb. Along the top profile, from west to east there is 18” from the outside edge of the girder to the edge of the sidewalk, a 5’ 4” sidewalk, a 4” curb, two 12’ lanes, and 8” to the outside edge of the girder.

Figure 5. Forms for pouring of deck and roadway girders.

(Courtesy South Howard County Historical Society)

Figure 6. Reinforcing steel for roadway girder.

(Courtesy South Howard County Historical Society)

Figure 7. South end of viaduct, showing end pilaster.

(Courtesy South Howard County Historical Society)

Incorporated into the bents are pilasters, which extend above the girders and form part of the balustrade for the viaduct. With the exception of the pilasters at each end of the viaduct these pilasters and the pilasters in the abutments were given the same decorative finished. The end posts (pilaster 1 on abutment 1 and pilaster 10 on abutment 20) had a 7' deep foundation, of which 10" were above ground. Above this were a 2' 7 7/8" base and a pilaster formed of stepped rectangular shapes, which have been curved to soften the edges. In total the base and pilaster were 11' high. (See plan sheet 2 for details and elevations of the end pilasters.) The pilasters were removed from the bases at some point prior to this project. The remaining pilasters are formed of two stepped layers of

rectangular shapes, curved to form a streamlined appearance. They are 4’ 3” wide on their face and 21 1/2” deep at the top with the projecting layer being 9” deep. The pilasters vary in height, being integral parts of the bents.

The abutments have a closed balustrade formed of concrete with a concrete cap and formed balusters with curved tops on the outer side, and shallow flat shapes on the inner side. The remaining balustrade is open and each girder, and is formed in three sections between pilasters. The balusters are 4” square cast concrete with a curved top on the outside edge, and fit a concrete cap on the inside. Located in each section of balustrade are two baluster columns, which are 15” wide with a raised concrete lozenge shape.

Located between bents 7 and 8 and 12 and 13 are stair towers, which provided access to the sidewalk over the railroad tracks. The stair towers are designated 7A and 12A to indicate their location. The approach stairs, located under the viaduct, are four-step platform stairs with the back poured against bents 7 and 13. This blends into the first run, which has 23 steps to a platform; after doglegging on the platform, the upper run has 23 steps to the sidewalk on the viaduct. The stair balustrade is identical to that used on the viaduct. The end elevations of the stair towers are identical with two columns, each 2’ 4” wide and a handrail, 4’ 5” wide, at the platform level; below the platform is a single round head arch with a 2’ 3” radius. The elevations with stair runs each have three unequally spaced columns, each 21 1/2” wide, the stair head, 5’ 6” wide, and a handrail, 8’ 3/4” wide; there are roundhead arches under the platform level with the arch under the stairs having a 2’ 3” radius and the arch under the platform having a 3’6 3/8” radius. The columns and handrails on the stair towers have the same aesthetic treatments as the pilasters and balustrade on the viaduct.

New Franklin Viaduct over the Katy Trail (Bridge No. K0744)
Route 5, Howard County, Missouri

Photographer: Randall Dawdy, Missouri Department of Transportation
Date: September 22 – 23, 2009
Location of Negatives: Digital Images Provided to
Missouri State Historic Preservation Office

V. Photo Index:

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#14 of 35. Bridge K0744. Stair Tower 12A and steps at Span 12-13. View to west.

#15 of 35. Bridge K0744. Stair Tower 12A. View to west.

#16 of 35. Bridge K0744. Approach stairs and first run at Span 12-13. View to north.

#17 of 35. Bridge K0744. Bent 13. View to north.

#18 of 35. Bridge K0744. Stair assembly at Span 12-13. View to northeast.

#19 of 35. Bridge K0744. Stair assembly at Span 12-13. View to northeast.

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#21 of 35. Bridge K0744. Stair Tower 12A. View to south.

#22 of 35. Bridge K0744. Southwest side. View to southeast.

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#31 of 35. Bridge K0744. North approach, Abutment 1. View to south.

#32 of 35. Bridge K0744. North approach. View to south.

#33 of 35. Bridge K0744. Detail at Span 18-19. View to east.

#34 of 35. Bridge K0744. Bent 19. View to northeast.

#35 of 35. Bridge K0744. Abutment 20 detail. View to southeast.

VI. Photographic Methods and Processing:

The archival photographs were taken and processed according to the standards for photographs accompanying NRHP documentation (NPS 2008). Randall Dawdy, a MODOT senior historic preservation specialist, took the photographs on September 22-23, 2009 using a digital single lens reflex camera. Images were captured in a raw (nef) format, which was manipulated for light

contrast before being converted to a tagged image file format (.tiff) and printed. Images were numbered according to the NRHP Photographic Imaging Policy (NPS 2008) and burned onto three compact discs, which were provided to the SHPO along with this report.

Prints were made on Epson Premium Glossy Photo Paper and used Epson Matte Black UltraChrome K3 Ink, both identified as "best" practices by the NRHP photo policy, and which Epson identifies as having an 85-year permanence under glass (NHRP 2009, Epson 2009). Kept in archival conditions the materials will exceed the 75 year permanence standard for the NRHP, which is the standard being used for this project. A copy of the Epson rating is attached.

The .tiff images were burned onto Delkin Archival Gold compact discs, and provided to the SHPO in that format. In addition, a copy of the .tiff file will be maintained by the MODOT historic preservation section.

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EPSON PREMIUM PHOTO PAPERS						
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Premium Semigloss Photo Paper		22 years			77 years	In progress
EPSON MATTE PAPERS						
Double-Sided Matte Paper	15 years					
Enhanced Matte Paper			71 years		76 years	110 years
Matte Paper Heavyweight	18 years	30 years	105 years			Over 150 years
Photo Quality Ink Jet Paper		8 years				In progress
PremierArt™ Matte Scrapbook Photo Paper for Epson			94 years		108 years	In progress
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UltraSmooth Fine Art Paper					108 years	
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EPSON GLOSSY PAPERS						
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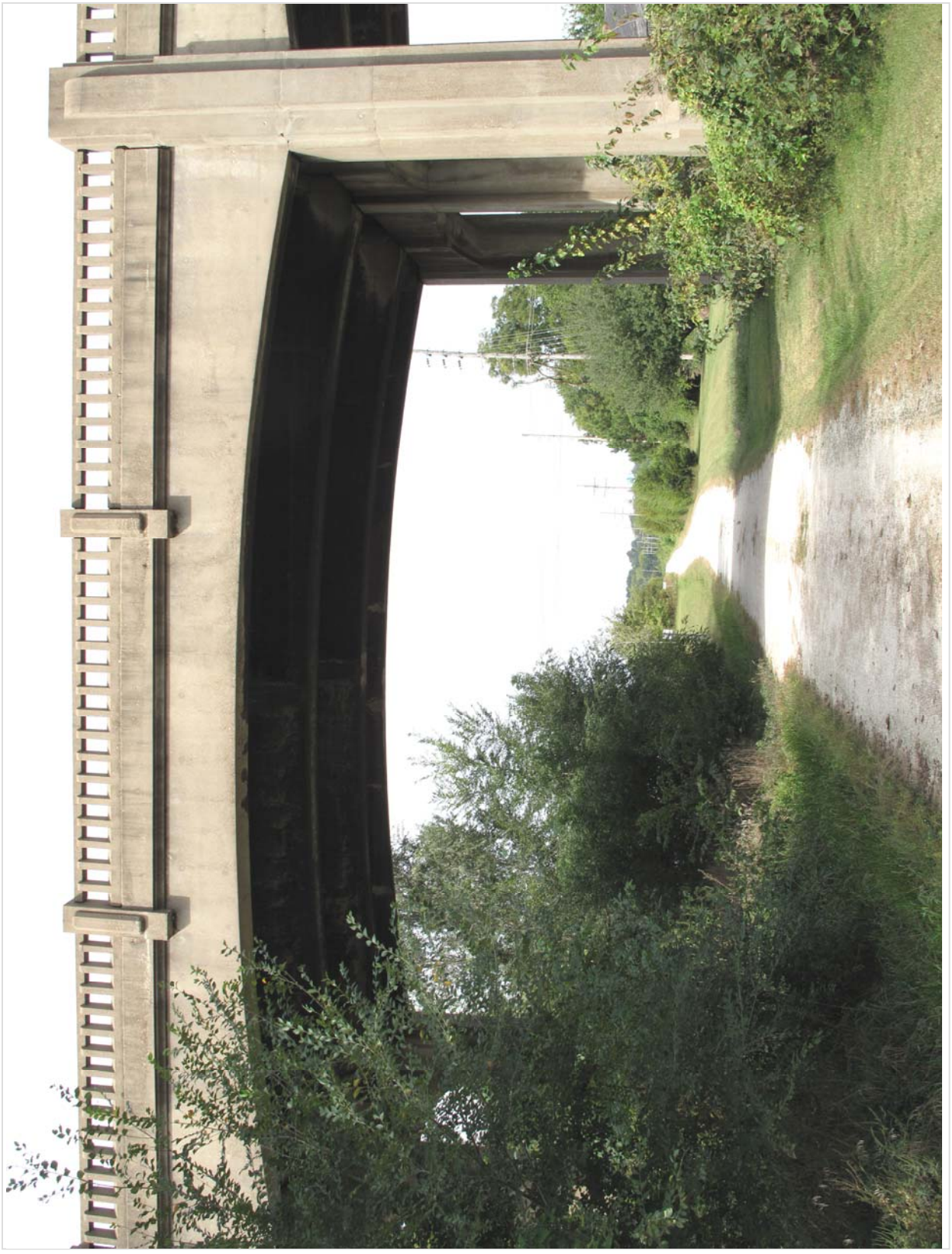

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