OHIO DEPARTMENT OF TRANSPORTATION

HISTORIC BRIDGE SURVEY REPORT

6/9/2011

SFN #: 6704506 **County:** PORTAGE **Municipality:** WINDHAM TWP

NR Rec: **Not Eligible** **Previous Inventory/Date:** **Status:**

ODOT District: 04 **Owner:** STATE **Lat/Long:** 41.140600 / 81.012400

Location: 5.78 MI E OF SR 88 **UTM:**

Feature On: SR 303

Feature Intersected: BR EAGLE CREEK

Type: THRU GIRDER **Design:** SHAPED

Material: REINFORCED CONCRETE

Railing Type:

 # Spans: 1 **Overall Length:** 62 ft. **Out to Out Width:** 29.4 ft. **Roadway Width:** 23.1 ft.

Year Built: 1928 **Alteration (Date):** **Source:**

Designer/Builder OHIO STATE HWY DEPT

Setting/Context:

The bridge carries a 2 lane road over a stream in a sparsely developed, rural setting.

Physical Description:

The 1 span, 62'-long, reinforced-concrete thru girder bridge has paneled, shaped girders with blocky end posts and articulated floorbeams.

Integrity:

Summary of Significance:

The 1928 thru girder bridge is a late and undistinguished example of a standardized bridge type in use from the mid 1910s to 1930s. It is not technologically significant. Reinforced-concrete thru girder bridges are composed of a pair of cast-in-place longitudinal girders and transverse floorbeams or deck slab (the former is the case with most Ohio examples) that are connected by the arrangement of the steel reinforcing bars. The roadway passes between the paired girders, which are the main supporting members and also serve as railings. The girders are commonly very large in appearance (18" to 30" wide and 4' to 6' deep) and have deep panels to save on weight. The depth of the girders is related to span length with the longer the span the greater the depth. In many cases, the girders are shaped to achieve the greatest depth of beam at mid-span where it is required to support the design moments (stresses). The shaped girder is a design detail to accommodate longer and/or wider spans and/or heavier design loads, it is not aesthetic.

Like other reinforced-concrete bridge types, including the slab and T beam, the thru girder appeared nationally and in Ohio during the first decade of the 20th century. The oldest surviving example in the state, dated to 1905, is located in Morrow County (5930669, Phase 1A Survey, 2008). In Ohio, the type does not appear to have been widely used until after its adoption as a state standard in 1915. Of the approximately 60 identified surviving examples, only three are confirmed to predate 1915. Between 1915 and 1924, the department issued standard plans for thru girder bridges in span lengths ranging from 27’ to 65’ and roadway widths from 16’ to 24’, which account for the vast number of Ohio’s surviving examples. They also developed an unusual, and perhaps unique to Ohio, cantilevered thru girder design that was adopted as a standard in 1922. The only known surviving example of the cantilevered design is in Gallia County (2742322).

The thru girder bridge type played a prominent role in state and county efforts to improve Ohio's roads and bridges in

the 1920s, but over time it proved to be one of the least successful of the standard designs and its use was diminishing by 1929 and had ended by 1940. The majority of Ohio's surviving examples (35 of 60) date from 1922 to 1930. Over time, the thru girder proved to be less economical than T beams for the same range of span lengths and was limited to relatively narrow roadway widths (about 24' max.). By 1928, George A. Hool, a noted authority on reinforced-concrete bridge construction, reported that "from a standpoint of economy, the thru girder should not be built except where insufficient headroom or other local conditions prevent the use of the deck girder [T beam]." Thru girders were also difficult to widen, a concern that was increasingly on the minds of bridge engineers by the late 1920s.

The body of engineering knowledge soon reached the conclusion that thru girders were not as successful or versatile as other standard types. The thru girder can be viewed as a 'dead end' in the evolution of bridge technology, and this limits the bridge type's significance. Many state highway departments did not use thru girders or stopped building them in the 1920s. And even though Ohio's engineers continued to use thru girders somewhat longer than engineers in many other states, they reached the same conclusions about their disadvantages. The thru girder's contribution to the historical development of Ohio's highways simply was not as great as many other standard types because of its limitations and shorter period of use.

Reviewed By/ Date: JPH (2/08)

Notes:

For Eligible Bridge:

Level of Significance:

Justification:

In Management Plan (2009)? No