



**SCOTT COUNTY ENGINEER'S OFFICE**

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MEMO

TO: Dee F. Bruemmer  
County Administrator

FROM: Jon Burgstrum  
County Engineer

SUBJ: Discussion of Utah Avenue Safety concerns

DATE: July 14, 2015

S. Utah Avenue on the west side of Davenport has sections that are both city and county. In May of 2014 a resident in the Whispering Oaks subdivision asked the city and county to install guardrail along Utah Ave due to the steep slopes. We completed an engineering study and determined that installing guardrail at the critical slopes was not warranted. However, the City installed two sections of guardrail along Utah within their right-of-way.

In June of 2015 we received another request to install guardrail on S. Utah Avenue from a different resident. This resident requested the county to install guardrail similar to the city's installations. We reviewed our previous engineering study and the existing conditions of S. Utah Avenue. This information is detailed in the attached Engineering Report. It was determined that installing guardrail at the critical slopes is not warranted.

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July 14, 2015

RE: Engineering Report for Requested W-Beam Guardrail Installation on S. Utah Avenue

### Background:

City of Davenport property owner Gary Lord, 665 S. Utah Avenue, Davenport, IA 52804, called the week of March 10, 2014 requesting guardrail installations at high fill locations along S. Utah Avenue near his residence.

City of Davenport property owner John Brewer, 732 N. Utah Avenue, Davenport, IA 52804, submitted an action center email on June 17, 2015 requesting guardrail installations along S. Utah Avenue similar to recent installations made by the City of Davenport on the east side of S. Utah Avenue.

S. Utah Avenue is located on a corporate line between Scott County and the City of Davenport. Scott County has jurisdiction over the west side of S. Utah Avenue from Hwy 61 north approximately 0.5 miles.

### Research:

The Scott County Engineer's Office performed a field review of S. Utah Avenue and determined that two high fill areas exist within county right-of-way. The first area is approximately 200 feet in length and begins approximately 690 feet north of the intersection of S. Utah Avenue and Hwy 61. The second area is approximately 650 feet in length and is located approximately 1,200 feet north of the intersection of S. Utah Avenue and Hwy 61. Measurements were taken to determine the approximate fore slope ratio, fill section height, and length of high fill. The 2004-2014 crash history for run off the road crashes was reviewed for S. Utah Avenue between Telegraph Road and Hwy 61. Four crashes have occurred with two minor injuries. S. Utah Avenue is posted with a 35 mph speed limit. Iowa Department of Transportation Instructional Memorandum No. 3.215, Clear Zone Guidelines, was reviewed to determine if the high slope area is considered a critical slope. Based on the fore slope ratio and fill section height, the area is considered a critical slope. A benefit-to-cost (B/C) analysis was performed to help analyze the proposed installation of guardrail as a safety improvement for run off the road crashes. The B/C analysis resulted in a 0.86:1 ratio. A fatal crash occurred at a critical slope location on the east side (Davenport side) of the road in 2011. The major cause of the accident was listed as driving too fast for conditions and the condition of the driver was listed as influenced by alcohol. The driver lost control of the vehicle and struck a tree. This crash was not included in the B/C analysis due to the major cause of the accident listed as driving too fast for conditions.

Assessment:

It would be difficult to install guardrail along the 650 feet stretch of high fill area. The shoulder width varies along the route and is an average of 4 feet in width. The steep fore slope would require that the guardrail is placed close to the edge of pavement to prevent the posts from tipping over time and may require the posts to be longer and made of a more durable material than the typical installation. Also both installations do not allow the end treatment to be installed with a flare as we typically design. It is also important that a traversable area exists behind the terminal end section to prevent vehicles from overturning down the steep fore slope after breaking through the terminal. The location of existing driveways may interfere with extending the guardrail to provide this traversable area. It should be noted that barriers themselves are fixed objects and that no barrier is 100% safe. It is our opinion, based on the 35 mph speed limit, low B/C ratio, and insufficient existing shoulder width, installation of w-beam guardrail is not warranted at this time. However, we have contacted the city to investigate the possibility of painting pavement markings on S. Utah Avenue between Telegraph Road and Hwy 61. Many pavement marking safety studies have been performed by Federal Highway and independent consultants over the past sixty years and results show that adding centerlines and edge lines is a cost-effective crash-reducing treatment.

Sincerely,

Jon Burgstrum, P.E.

County Engineer

Angie Kersten, P.E.

Assistant County Engineer