ROAD NOTES: WHAT WILL YOUR COUNTY ROAD NETWORK LOOK LIKE IN 25 YEARS?

By Keith Browning, KAC Local Road Engineer

The Bipartisan Infrastructure Law (BIL) will bring significant federal funds to Kansas and to Kansas counties. In particular, the BIL will provide significant additional funding for bridge rehabilitation or replacement projects. While this additional funding is certainly welcome, it is important that these funds be used wisely. It will not last forever. Costs to maintain and construct roads and bridges can be expected to keep increasing while many Kansas counties are experiencing population decline and the resulting reduced tax base.

Is your current road network sustainable over the next several decades? It would be prudent for county commissioners and road department leaders to carefully consider that question and work to develop long-term plans for their county road network. Unfortunately, long-term planning usually takes a back seat to addressing immediate issues. County commissioners are elected to four-year terms, and it is rare anymore for road department leaders to remain in their position for decades. However, commissioners and road department leaders are doing their citizens a disservice if they do not look into the future beyond the next few years.

question if the current county road network is sustainable.

Vehicles on county roads have increased in size and weight. In addition to cars and pickup trucks for everyday transportation, today's farmers utilize truck tractor/semi-trailer units to haul grain and tandem axle trucks to haul supplies. Farm equipment today is heavier and larger than the equipment used decades ago. Fire trucks in many areas of the state are significantly heavier today. Even school buses are larger today than in previous decades. Most county roads and bridges were not designed to accommodate the larger vehicles. Replacement bridges typically must be wider and stronger than the bridges they replace. Federal, state, and local environmental regulations often require longer replacement bridges, as well. These factors increase the cost of replacement bridges.

Long-term planning should consider whether or not your current county road network can be sustained well into the future or if the network should be

continued next page

The county road network in Kansas is exceptionally large. According to KDOT statistics, Kansas totals 140,112 center line miles of roads, which ranks No. 4 among all states (while ranking No. 36 by population and No. 15 by land area). County roads in the state total 113,036 center line miles, which is approximately 81% of the total miles. Counties own approximately 75% of the approximately 25,000 bridges in Kansas. When the rural road network was established in Kansas, roads were used by a relatively large number of households and farms. With farm acreages increasing and population shifting to urban areas, today's rural road network serves a smaller number of households and farms. It seems logical to

This county road was improved decades ago to serve a missile facility that has since been abandoned. Long range maintenance costs could

be reduced by de-paving and turning back to a gravel surfaced road.

Rather than replacing this structure with a new bridge, would an engineered low water crossing work for this low volume road?

reduced or enlarged to meet projected future needs. Obviously, roads are needed to access rural residences and properties. However, with declining rural population and larger farms being the trend, will you need to maintain every mile of road and every bridge in the current network? Will all existing bridges eventually need to be replaced, or can some bridges be replaced by low-water crossings or even permanently closed? If it is determined a road will be needed well into the future, does the road need to remain paved or can it be turned into a rock surfaced road?

Long-term transportation planning necessarily involves determining priorities for which bridges should be replaced, and which roads should be paved, widened, or otherwise improved. When considering bridges needing to be rehabilitated or replaced, bridges that are certain to be needed decades from now should be prioritized over bridges for which the future need is uncertain. If properties in an area of the county have more than one means of access, can the service level of redundant access roads be reduced? Can certain roads be closed in the future? Or, designated as Minimum Maintenance roads? You might determine that lower priority bridges will be maintained in their current state as long as possible but will not be replaced when they reach the end of their useful life. The lowest priority bridges may eventually be closed or replaced with a lower-cost alternative.

There have been a couple of studies looking at the economics of road and bridge closures in Kansas (see Sources below). In a 2011 study, Michael Babcock, KSU Transportation Center, studied the economic impact of closing low volume roads in Brown, Pratt, and Thomas counties. A major conclusion was rural counties would be able to save money by closing some relatively low-volume roads and redirecting the savings toward increasing the quality other county roads. Counties with less extensive road systems and low population are more likely to realize these savings. In a 2013 study, Tom Mulinazzi, Steven Schrock, and Eric Fitzsimmons at KU looked into the economics of closing low-volume bridges. This study indicates only bridges with extremely low traffic and detours of nine miles or less would realize economic savings by closure. Both studies calculate user costs caused by the closure due to longer trip lengths and compare

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those user costs to savings realized by the county by closing the road or bridge. User costs and bridge replacement costs were assumed. For example, the Mulinazzi study assumed a bridge replacement cost of $150,000 for a bridge with a 75-year lifespan resulting in an annual bridge replacement cost of $2,000.

User costs and bridge replacement costs will vary for each specific location, of course. Should a comparison of user costs with savings from not maintaining the road or replacing the bridge be the defining factor in determining whether or not to close roads or bridges? Perhaps there are other factors besides user costs counties should use in making such decisions.

In determining priorities for road and bridge projects, it would be helpful to have up-to-date tools for that purpose. KDOT is gathering available data and will develop basic transportation planning tools for county use. I will work with KDOT on this effort. Such tools may not be applicable to all counties, but will help many counties conduct long-range planning. Each county is different. A county may want to develop its own tools or methods of determining priorities, which is encouraged. KDOT has stressed it does not want to determine priorities for counties. The important thing is that each county prioritizes its own road network.

Long-range planning is essential to ensure your county road network will be sustainable well into the future. County taxpayers will appreciate you providing leadership by taking a hard look at future road needs and considering your county's ability to meet those future needs. ■

Sources:

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- Babcock, Michael W. The Economics of Potential Reduction of the Rural Road System in Kansas. Report No. K-TRAN: KSU-10-5, November 2011.
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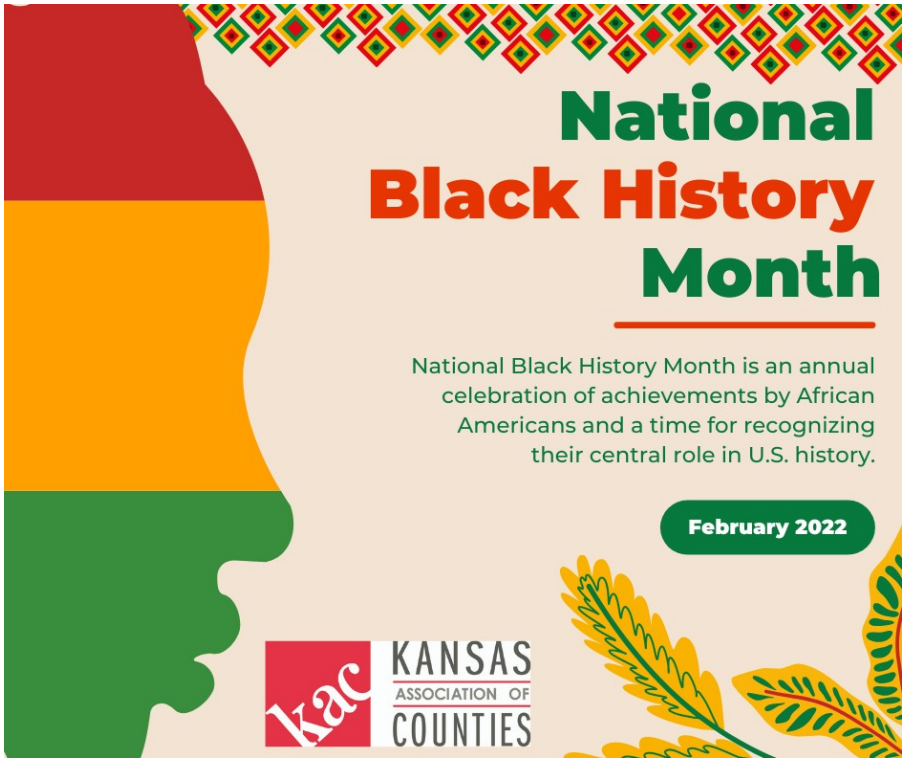

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