



# Kansas LTAP Fact Sheet

A Service of The University of Kansas Transportation Center for Road & Bridge Agencies

## Closing a Rural Road: Does it Make Economic Sense?

By Pat Weaver, Kansas LTAP



*Before you recommend closing a road, you must know what the annual cost of maintenance is, traffic counts for the affected segment, and what potential alternative routes exist.*



In this construction season when the bills are coming in for road maintenance, thoughts may turn to whether there are any strategies that could possibly reduce the high cost of maintaining the network of local roads. In our Summer 2013 issue of the *Kansas LTAP Newsletter*, we reported on a cost-benefit study conducted at the University of Kansas for closing bridges and at what traffic volume threshold it was justifiable. That study mentioned a companion study on the cost-benefits of closing low volume roads, published in 2011 by Michael Babcock at Kansas State University.

Does reducing the size of the road network for which the county is responsible make sense? We're revisiting the Babcock study and his recommendations. This article will describe the main points and takeaways from that study to see if it can be applied to your circumstances.

### What's the problem?

There are several reasons thoughts turn to reducing the size of the road network in Kansas as a way to reduce construction and maintenance costs. First, the number of miles of locally-owned rural roads in Kansas that fall under the jurisdiction of the cities, counties and townships totals 130,000 miles. Kansas ranks fourth among states in road miles, but 34th in population. That small tax base bears a huge burden in

maintaining the road network. In fact, one example cited in the *Kansas Long-Range Transportation Plan* was of a county with 1,000 miles of road serving 1,400 residents. The State's declining population, often concentrated in some of the most rural counties with a high per capita roadway network, is a related factor in the ability to pay for the road network.

Kansas holds the distinction of being first in the nation in percentage of local ownership of public roads at 81 percent of the total, and 50 percent of the funding for the local road system is generated from local budgets. In addition, 25 percent of the counties in Kansas own 90 percent or more of the public roads located within their borders (NACo, 2014). Kansas counties are looking for ways to contain the maintenance costs (nearly \$79 million in 2012) of that massive network. Closing a road, or designating a road as "a minimum maintenance road," may be a consideration in some circumstances.

### Is closing a road a political or an engineering decision? What does the law say?

In Kansas, the county commission has specific duties according to statute and tradition. One of those specific duties is the opening or vacating of a road. Staff may conduct the analysis and make the recommendation to the commission but, ultimately, it is the county commission's responsibility (*Kansas Local Road Management Handbook*, 2011).

In addition, State statute authorizes the Board of County Commissioners to fix a rate of a levy annually for construction, reconstruction, improvements, repair, maintenance and acquisitions of rights-of-way for county roads and bridges (K.S.A. 79-1947). State statute also designates procedures for classifying a road as a "minimum maintenance road," spelled out in K.S.A 68-5102. It provides that, if in the opinion of the Board of County Commissioners of any county "that a road is used only occasionally or is used only by a few individuals, the board may commence proceedings to declare the road a 'minimum maintenance road.'" The statute requires a hearing process for public comment and that any designated road be signed as such within 10 days. This reduces the liability associated with failure to maintain a roadway to normal standards.

A minimum maintenance road is not the same as closing



a road, but does allow it to be maintained below normal road standards. A minimum maintenance road "...needs some maintenance and should be passable during dry weather. The road should not have hidden defects that could cause an accident, such as a washed-out culvert" (*Kansas Local Road Management Handbook*, 2011).

It's vital that everyone does their homework; it is the county engineer or road supervisor's responsibility to prioritize projects, prepare project requests, and develop cost estimates. As staff, if you're considering a recommendation to your county commissioners for closing a road, you must know what the annual cost of maintenance is, what the traffic counts are for the affected segment, and what potential alternative routes exist. A good roadway asset management plan will go a long way in determining a best course of action.

### Are other states designating "minimum maintenance" roads?

In Nebraska, the process for designating a minimum maintenance road is spelled out using the following criteria: the road is not (1) a mail route, (2) a school bus route, or (3) the only access to an occupied dwelling. The county must also affirm that a public hearing was held before adopting the proposed reclassification. These requirements are consistent with the criteria used in the Babcock study, as well as with Kansas State Statute.

### Reducing your maintenance budget: Is reducing the number of miles the solution?

The primary objective of the 2011 study conducted by Babcock (2011) was to estimate the economic impact on

## To Maintain or to Close: What's Happening in Thomas and Pratt Counties



In his study on the economics of road closures, Dr. Babcock selected three counties to measure the benefits and costs of keeping the roads system as it currently exists, as well as the benefits and costs of several scenarios of simulated county road closure. The findings for two of the counties were that Thomas County would benefit by closing the evaluated segments and that Pratt County would also benefit, assuming an annual maintenance cost per mile of \$4,000, rather than the much more conservative cost of \$3,000 per mile. We followed up with the road supervisors in these two counties to find out whether the economic model had been helpful in making some of these difficult decisions.

**Thomas County.** Thomas County has a population of approximately 8,000 and area of nearly 1,100 square miles, resulting in a population density of just over 7 people per square mile. Thomas County operates as a county township road system. Thomas County's Road Department is responsible for a total of approximately 232 miles of roads, roughly divided equally between gravel and asphalt roads; in addition, the county has responsibility for approximately 175 miles of township roads. Thomas County per capita expenditures on county roads is \$279. In 2012, the county chip-sealed 10 miles of road, completed overlays on 10 miles and recycled one mile. Total road maintenance cost for the county in 2012 was \$1.5 million. Township maintenance costs was approximate \$1.3 million.

Of 10 segments considered in the study ranging in length from approximately 2-3 miles each, six of the links had an ADT of 6 or less (4 links with 2 or less). We asked Claire Schrock, road supervisor of Thomas County, whether there had been any additional consideration for closing any roads on their network. For 2012, average maintenance cost per road mile in Thomas County is approximately \$3,700, within the range of the assumptions made in the Babcock study. Schrock indicated that no changes have been made to the road network. Due to the drought in northwest Kansas, Schrock said, "it's been too dry to do much road work;" he rated the weather, specifically the drought, as the biggest challenge in road maintenance in Thomas County. "Some day we'll catch up," says Schrock.

**Pratt County.** Pratt County has a population of just under 10,000 with a land area of 735 square miles resulting in a population density of just under 14 persons per square mile. Pratt County operates as a county unit road system. The Pratt County Road Department is responsible for a total of approximately 1,400 total as gravel roads. Pratt County per capita expenditures on county roads is \$366. In 2012, the county chip-sealed 43 miles of road, completed overlays on 12 miles and graveled 1,262 miles. Total road maintenance cost for the county in 2012 was approximately \$2.9 million. In addition, Pratt County constructed 7 miles of gravel road.

Of 10 segments considered in the study ranging in length from approximately 3-7 miles each, three of the links had an ADT of 5 or less, with an additional four links less than 20 ADT. The highest ADT considered on a single link was 53.

Randy Phillippi, road supervisor for the County, said they have not pursued closing any roads since the study was done. Pratt County does have 6-7 miles of minimum maintenance roads. However, Phillippi said: "I am not sure we're getting anywhere with low maintenance roads. The condition deteriorates without regular maintenance, but the farmers still need to use the roads sometimes. Then it takes more work to fix a road in bad condition to allow access. I am not sure we're gaining a lot by doing this rather than maintaining the road on a more regular basis."



selected county road systems from reducing the size of the road system. He considered ten road segments in each of three counties: Thomas, Pratt and Brown. Selection was based on many factors, but the most important criterion was the traffic volume on the segments. Thomas and Pratt County had an average ADT of 15 on the ten segments in Thomas County at 15, half of the segments in Thomas County had 2 or less ADT per segment. Brown County No single-access roads should be considered for analysis, nor did he recommend closing single-access roads.

Babcock looked at benefits and costs of keeping the road system as it currently exists, and of several scenarios that simulated county road closure. The cost was measured by the additional travel cost of rural residents due to more circuitous routing to their destination. The benefit was measured by the avoided maintenance costs of roads removed from the network. The study assumed an annual maintenance costs of both \$3,000 (considered very conservative) and \$4,000 per mile. Norm Bowers, Local Roads Engineer for the Kansas Association of Counties, believes this range to still be a good estimate of local roads maintenance costs.

A major conclusion of the study was that rural counties will be able to save money by closing some relatively low-volume roads and redirecting those savings toward increasing the quality of the other county roads. He found that counties with relatively extensive road systems (miles of road per square mile) and relatively high population are less likely to realize savings from road closure. However, those counties with less extensive road systems and relatively low population density are more likely to realize significant savings from closing relatively low-volume roads.

One of the assumptions in the study was that no road should be considered for closure if it is a single-access road; that is, there is no alternate route to access property along that route. The difficulty, according to Bowers, is that there are very few roads in the State, particularly in the eastern part of the State, that meet that criteria. There is almost always at least one house or field for which access is needed, and it's the only route to that property.



### SAMPLE RESOLUTIONS

The County Counselors Association of Kansas has three sample minimum maintenance resolutions on their website at <http://www.countycounselors.org/index.aspx?NID=4>

The resolutions are from:

- Douglas County
- Reno County
- Saline County

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### Conclusion

Whether you consider closing a road altogether, designating it as a minimum maintenance road, or just looking for options to manage your maintenance budget, it's important to have the facts first. Identify the segments in your network with very low ADT and that are not single access; i.e., where other routes exist on which to access the rest of the road network. Those roads with low population density and less extensive road systems, according to Babcock, are likely to find benefits in considering road closure. See the next page for a follow-up on the study profiling Thomas and Pratt counties.

Note: Babcock's study did not consider the benefits and costs of bridges on the road segments. To assess the total benefits and costs, it is important to consider the calculation of benefits and costs of loss of the use of a bridge(s) as identified in the Mulinazzi study, in your calculations. See below for a link to this study. ■

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