Approved: March 31, 2005
Date

MINUTES OF THE HOUSE TRANSPORTATION COMMITTEE

The meeting was called to order by Chairman Gary Hayzlett at 1:30 P.M. on March 10, 2005 in Room 519-S of the Capitol.

All members were present except:
Representative Anthony Brown- excused
Representative Pat George- excused
Representative Jim Yonally- excused

Committee staff present:
Hank Avila, Kansas Legislative Research
Bruce Kinzie, Revisor of Statutes Office
Betty Boaz, Committee Secretary

Conferees appearing before the committee:
Col. William Seck, Superintendent, KS Highway Patrol
Deb Miller, Secretary, KS Dept. of Transportation
Rodrick Bremby, Secretary, KS Dept. of Health and Environment

Others attending:
See attached list.

Representative Hayzlett opened the meeting. The Committee members heard a briefing on the State's fatality and injury rate by Col. William Seck, Superintendent of Kansas Highway Patrol (Attachment 1), Secretary of Transportation Deb Miller (Attachment 2) and Roderick Bremby, Secretary of Health and Environment (Attachment 3). They concluded their briefing by saying the KDHE, KDOT and the Kansas Highway Patrol will be using their collective resources to bring attention to Kansas' roadway fatalities and injuries. They are holding community forums across Kansas during March and are stepping up their media efforts to raise awareness and asked the Committee to join them in this effort. Secretary Miller introduced some members of the Federal Highway Safety Board who were present. After all the Committee members questions were answered the Chairman thanked Col. Seck, Secretary Miller and Secretary Bremby for the briefing.

Chairman Hayzlett drew the Committee's attention to a letter from James R.Simerl, (Attachment 4) concerning the National Bridge Inspection Standards Review and asked the Committee to review the letter and they would try to get back to it next week.

There being no further business, the Chairman adjourned the meeting. The next meeting will be at 1:30 in Room 519-S on March 16, 2005.

HOUSE TRANSPORTATION COMMITTEE GUEST LIST

DATE: Mar. 10, 2005

NAME	REPRESENTING
Col. William Seck	Kansas Highway Patrol
Rebekah Gaston	Rep. Long
DAVID SCHWARTZ	KANSAS DEPT. OF TRANS.
Bob Alva	Federal Highway Adm.
Mike Bowan	FHWA
Wendall C. Meyer	FHWA

HOUSE TRANSPORTATION COMMITTEE GUEST LIST

DATE: Mar. 10, 2005

NAME	REPRESENTING
Deb Miller	KDOT
Carolyn Mendenhall	Ks St Ns Assn
Lori Haskett	KDHE
Kimberly A Thompson	Scanlon Engineering
Maggie Thompson	KDOT
Julie Lorenz	KDOT
Tom Whitaker	KMCA
Jose Rappiata	Kearney & Assoc.

"STOP THE EPIDEMIC"

Motor vehicle death and injury are at epidemic levels and we need cures.

Presented by
Col. William Seck, Superintendent, Kansas Highway Patrol
Deb Miller, Secretary, Kansas Department of Transportation
Roderick Bremby, Secretary, Kansas Department of Health and Environment

Col. William Seck, Superintendent, Kansas Highway Patrol

Four-hundred and fifty-six [1] men, women, and children were killed in motor vehicle crashes on Kansas roadways in 2004. In addition to those who died, some two thousand others suffered disabling injuries, and nearly twenty-three thousand more suffered non-incapacitating injuries.

Four-hundred and fifty-six people. That's more than the populations of the towns of Abbyville, Admire, Agenda, Agra, Albert, Alden, Alexander, Allen, Alta Vista, Alton, Arcadia, Assaira, Athol, Atlanta, Aurora, and Axtell. And that's only the As.

In Kansas, on average, more than one person is killed every day in motor vehicle-related crashes and every 21 minutes, someone is injured.[2]

As a Highway Patrol Superintendent, I am all too familiar with the toll these traffic deaths and injuries take on families and friends and being in those situations strengthens the resolve of every Kansas Highway Patrol officer to do what we can to prevent those incidents. To us, it's our routine daily activities that mean so much and go so far. To the public we serve, it may not seem as important until they become personally involved.

The writing of a speeding ticket may seem trivial to some but its purpose is to slow drivers down in hopes of preventing a crash. Likewise, the writing of a ticket for a seat belt violation. It's amazing how many times officers are asked, "Isn't there a murder that you could be preventing somewhere?" But the officer knows that writing the ticket is an important task. To our officers it is an effort to prevent a senseless death like the one last month where a mother of two small children died after the vehicle she was driving rolled over on top of her after she was thrown from the vehicle .

And then there is the impaired driver. Troopers have zero tolerance for impaired driving, and they make arrests in hopes that people will learn from the experience – ultimately changing behaviors.

But if we hope to truly have a measurable impact – not only on impaired drivers, but also on all drivers who engage in dangerous behaviors – we need to find additional ways to intervene. I, along with my colleagues, Secretary Miller and Secretary Bremby plan to do exactly that.

Deb Miller, Secretary, Kansas Department of Transportation

More than 25,000 people were injured or killed last year…all in traffic accidents on Kansas streets, roads and highways. [3]

And all in spite of very aggressive KDOT maintenance and construction programs designed to make Kansas roads among the safest in the nation.

But the best roads in the world can't protect people from what caused 99 percent of those injuries and deaths. And what caused them was *driver error.*[4]

Our research reveals the many kinds of driver error that contribute to vehicle crashes and their resulting injuries. Things like …

- Distraction and inattention
- Failing to yield
- Speeding
- Following too closely
- Using alcohol and drugs
- Not wearing a seat belt

The best roads in the world can't protect inattentive or impaired drivers. To make matters worse, the odds of these travelers surviving a crash diminish even more if they aren't wearing a seat belt. And we know that a third of them are not wearing a seat belt.

In fact, when we look at over-all use of seat belts, a survey of child seat-belt and car-seat use in Kansas last year found that while 81 percent of children younger than four were belted into car seats, only *half* of their siblings ages 5 to 14 were belted in properly.[5]

Statistics also show that 32 percent of all drivers and passengers aged 14 or older do not wear seat belts.[6] And on rural county roads, especially in western Kansas, nearly 50 percent of drivers don't wear seat belts.[7]

All of these situations are cause for concern. All of us presenting today are concerned for other reasons, too. Based on the most recently available statistics for Kansas…

- Vehicle crashes are the number one killer of Kansas children.[8]

- Thirty-seven percent of all crashes in Kansas occur in rural areas. Those crashes account for 75 percent of all crash fatalities statewide.[9]

- Seventy-six percent of all people killed in vehicle crashes in Kansas were not wearing a seatbelt.[10]

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- Kansas ranks 43rd in seatbelt use in the U.S.[11]
  (68% vs National 80%)

These are some of the statistics. But statistics tell only part of the story. We can't begin to quantify the feelings of the victims' families, friends, and loved ones.

It is for all of these reasons that lowering the national fatality rate is a top priority of the United States Department of Transportation. As a state, I believe we also need to make the reduction of highway fatalities a top priority. That is why I along with Secretary Bremby and Col. Seck of the Kansas Highway Patrol, have joined together to raise awareness of this issue and ultimately, to craft an action agenda to lower the fatality rate on our state roadways.

Roderick Bremby, Secretary, Kansas Department of Health and Environment

We've titled our presentation here today Stop the Epidemic. Motor Vehicle deaths and injuries are at epidemic levels and we need cures. We don't have a solution today and we are not here to point fingers at any person or groups of persons or to ask you for any legislation. We are here to ask for your attention and awareness.

Nationally, roadway safety is a serious public health issue. In 2003 there were 42,643 fatalities and almost 3 million injuries on our nation's roadways. Every 16 seconds of every hour of every day there is a traffic fatality or injury.

We're here to let you know that three major agencies *do* consider these deaths and injuries one of our state's most serious public health problems.

Because roadway fatalities happen one at a time, often times we don't realize the impact of the total number of lives lost. But the problem is every bit as serious as any threat of disease that would affect 25,000 people in Kansas every year.

In 2004, West Nile virus claimed a combined 540 lives in the *United States* – 456 people perished in automobile crashes in *Kansas*.[12]

We have recounted the human and emotional toll that motor vehicle crashes take. And while we cannot place a monetary value on a human life, we must acknowledge that they also take an economic toll.

On a state level, fatal and injury crashes cost every person in Kansas more than $1,015 every year. Last year, it totaled more than $3 billion dollars.[13]

Indeed, the share borne by taxpayers is staggering: national averages indicate that the public pays 13 percent of the cost of crash injuries treated in an emergency department; 26 percent of the cost of injuries requiring hospitalization; and 48 percent of the cost of injuries treated in a rehabilitation hospital.[14]

According to the National Insurance Institute for Highway Safety, even the economic impact associated with not wearing a safety belt is staggering. They report that, on average, hospital costs for an unbuckled crash victim are 50 percent higher than those for a belted victim. Society bears about 85 percent of these costs, not the individual involved.[15] Those costs accrue via increased automobile insurance premiums; increased health and disability premiums; lost future earnings; legal and investigation costs; long-term and home care; home and vehicle modifications; aids and appliances; medical, ambulance, hospital and rehabilitation; property damage; family services and more. We

also have to consider employer productivity losses – costs that ripple through the economy as employers hire and train replacement workers.

High as these costs may be, they fail to account for the pain and suffering caused by life-altering injuries and death.

Rest assured. Those of us who are concerned for the health and safety of our citizens are not idly standing by while the death and disability statistics mount. There are efforts by the Highway Patrol to more strictly enforce existing traffic laws. KDOT is funding programs such as the new *Click It or Ticket* program and state-wide sobriety check points. KDHE leads Kansas SAFE Kids, Inc., a coalition of more than 60 statewide and regional organizations and businesses, dedicated to preventing unintentional injuries to Kansas children ages 0 to 14.

Still, there is much more that needs to be done.

We are all in a position to do something about this problem. And the time to be proactive has never been better, because the challenges facing us in the future are even more daunting:

- Certain groups, particularly older and younger drivers, are already over-represented in vehicle crashes, and those groups are expected to grow significantly. [16]

- Aggressive driving and speeding are becoming more common with increased travel and congestion.

- With yearly increases in travel and no improvement over our current safety performance, fatalities and injuries could increase by 50 percent by 2020.[17]

So, the *goal* is a simple one: to save lives; prevent injuries; reduce crashes. The *solution* is more complex.

KDHE, KDOT, and the Kansas Highway Patrol will be using our collective resources to bring attention to Kansas' roadway fatalities and injuries. We are holding community forums across Kansas in March and are stepping up our media efforts to raise awareness. We hope you will join us in this effort.

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[1] From KDOT Bureau of Traffic Safety. 456 is the count to date. Official number for 2004 to be released
in June 05

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[2] From KDOT Bureau of Traffic Safety. Actual number of fatalities, per Chief of KDOT Bureau of Traffic Safety Pete Bodyk, is 1.2 persons per day.

[3] From KDOT 2003 Kansas Traffic Safety Statistics. www.ksdot.org/burTransPlan/prodinfo/2003factsbook/Quick%20Facts.pdf

[4] KDOT Bureau of Traffic Safety. www.ksdot.org/burTrafficSaf/teen/stats.asp

[5] KDOT Kansas Safety Belt Education Office. The Pulse. Winter 2005. Reporting results from on-going Child Safety Seat Survey, 2002 -03 survey year and 2003-04 survey year.

[6] KDOT. State of Kansas Highway Safety Plan, FFY 2005.

[7] Annual Kansas Safety Belt Observational Survey.

[8] KDHE. Table 56. Deaths from 39 Selected Causes by Age-Group and Sex of Decedent, Kansas, 2003. For children aged 1 – 21.

[9] KDOT Bureau of Traffic Safety.

[10] KDOT Bureau of Traffic Safety.

[11] KDOT Bureau of Traffic Safety.

[12] U.S. Center for Disease Control.

[13] KDOT Bureau of Traffic Safety.

[14] National Highway Traffic Safety Administration. *NHTSA 2020 Report.* http://www.nhtsa.dot.gov/nhtsa/whatis/planning/2020Report/2020report.html. Future Trends.

[15] National Insurance Institute for Highway Safety.

[16] National Center for Injury Control and Prevention. http://www.cdc.gov/ncipc/cmprfact.htm and *NHTSA 2020 Report.*

[17] National Highway Traffic Safety Administration. *NHTSA 2020 Report.*

November 12, 2004

National Bridge Inspection
Standards Review

Mr. Warren L. Sick, P. E.
Assistant Secretary and
State Transportation Engineer
Kansas Department of Transportation
Topeka, Kansas 66612

Dear Mr. Sick:

We have completed our annual review of KDOT's administration of the National Bridge Inspection Standards (NBIS) in Kansas. The purpose and scope of this review is to evaluate the effectiveness of KDOT's inspection program for State bridges and its oversight of Local Public Authority (LPA) bridge inspection programs. A copy of the review report is attached. This review will be followed-up by in-depth reviews of State and local bridge inspection records and field reviews. Also, per your November 3, 2004 letter, we will be scheduling a more in-depth review of the program with the aid of our Headquarters and Resource Center experts.

If you have any questions concerning this review or our future plans, please contact Steve Toillion, Division Bridge Engineer, at 785-267-7299 ext. 311 or steven.toillion@fhwa.dot.gov.

Sincerely yours,

James R. Simerl
Engineering Services
Team Leader

Enclosure

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[redacted]

(A) PURPOSE AND SCOPE

The purpose of the review is to evaluate the policies, procedures and operating practices used by the Kansas Department of Transportation (KDOT) to fulfill the requirements of the National Bridge Inspection Standards (NBIS) (23CFR650C). This review was conducted at KDOT's central office. KDOT is in substantial compliance with the requirements of the NBIS. That is to say that they do perform inspections, prepare reports, and determine ratings. However, there are some parts of the program that present opportunity for improvement.

(B) OBJECTIVES

This review is to determine if KDOT is conducting inspections, preparing reports and determining ratings in accordance with the NBIS.

The second objective is to identify areas of KDOT's bridge inspection program that could be improved to enhance quality and effectiveness of their program. This includes identifying areas from KDOT's program that can be shared with others as "best practices."

(C) APPLICATION OF STANDARDS (23CFR650.301)

The total number of NBI length structures in Kansas is 25,943 (2003 data, Item 5a = 1 for over records).

The total number of State owned NBI bridges:

Item 22 Code	Description	No. of Bridges
01	State Highway Agency	4799
11	State Park, Forest, or Reservation (Wildlife & Parks)	98
21	Other State Agencies	6
31	State Toll Authority (KTA)	370
	Total	5273

The total number of locally owned NBI bridges:

Item 22 Code	Description	No. of Bridges
02	County Highway Agency	19525
03	Town or Township	12
04	City or Municipality	981
12	Local Park, Forest, or Reservation	0
25	Other Local Agencies	6
32	Local Toll Authority	0
	Total	20524

The total number of all other NBI bridges:

Item 22	Description	No. of Bridges

Code		
26	Private (other than RR)	6
27	Railroad	6
60	Other Federal Agencies (not listed below)	7
61	Indian Tribal Government	0
62	Bureau of Indian Affairs	38
63	Bureau of Fish & Wildlife	8
64	US Forest Service	0
66	National Park Service	0
67	Tennessee Valley Authority	0
68	Bureau of Land Management	0
69	Bureau of Reclamation	5
70	Corps of Engineers (Civil)	20
71	Corps of Engineers (Military)	0
72	Air Force	0
73	Navy/Marines	0
74	Army	54
75	NASA	0
76	Metropolitan Washington Airports Service	0
80	Unknown	2
	Total	146

(D) INSPECTION PROCEDURES (23CFR650.303)

(1) General

KDOT's Bridge Management Section (BMS) is responsible for inspecting state owned structures. A consultant hired by the Kansas Turnpike Authority (KTA), inspects the toll authority's bridges. Locally owned bridges are inspected by the owner or under contract to consultants. The local inspection program is under the oversight of the Bureau of Local Projects (BLP). The methods of inspection, the types and amounts of data and the program oversight vary greatly between the BMS bridges and the BLP bridges. The data is also kept separate except for the creation of the NBI submittal. The Bureau of Planning collects data from several databases to create the annual NBI submittal.

The BMS conducts dual inspections collecting both NBI and PONTIS element level data for state bridges. They do not currently use the NBI translator program although they have compared the results of the translator to their actual inspections. The BMS collects a total of 347 data items, of which 116 of these are required by NBI. Only NBI data is collected for the BLP. PONTIS Lite is provided to local agencies to input their data but it is not required and only a few actually use it. They do not use any PONTIS elements. In general the local agencies feel that Pontis, is NOT user friendly and does not provide reports relevant to locals. However, a hand full of consultants use Pontis on behalf of some counties.

The BMS uses two manuals for all State bridge inspections at this time. For NBIS inspections they use the KDOT Bridge Inspection Manual, 1996 Edition. For element level inspections, they use the KDOT PONTIS Bridge Inspection Manual, 1996 Edition. They are currently working on combining these manuals into one to match their new bridge inspection form (BIF). The BLP does not have an inspection manual. They refer to the coding guide, the AASHTO Manual for Condition Evaluation of Bridges and the Bridge Inspector's Training Manual/90 (Bridge Inspector's Reference Manual)

Before 2001, the BMS did dual inspections, both PONTIS and NBI. The PONTIS inspections were recorded on a pen-based computer while the NBI inspections were recorded on paper. These forms were combined into one paper form, the BIF, in 2002. The special inspection squad uses laptops to record field notes. Consultants inspect the BLP bridges. The method of data collection is left up to them.

The following types of inspections are performed for State Bridges:

1. Initial (Inventory) inspections – The BMS calls this an "In-Depth" inspection. When there is repair work done by contract or a new bridge is constructed, this inspection is done within 90 days.
2. Routine (Periodic) inspections – Bridges will have a one-year inspection frequency if the condition rating for the deck, superstructure or substructure has a rating of five or less, or a culvert rating of four or less. All other bridges have a two-year inspection frequency.
3. Damage inspections are conducted on an as needed basis.
4. In-Depth inspections (*a close-up, hands-on inspection of one or more members above or below the water level to identify any deficiencies not readily detectable using routine inspection procedures.*) –
    a. Fracture critical inspections (FC) – Some FC inspections are considered routine; these are done on an annual basis. The other or non-routine FC inspections and snooper inspections vary from two months to four years.
    b. Underwater inspections (UW) – In-house inspectors do smaller rivers and streams, on a one to four year frequency. Commercial divers are used on the larger rivers, on a 5-year frequency.
    c. Routine Snoopers are bridges with special conditions such as being long, tall (high), or having other special features. The frequency on these varies from one to twelve years. The majority of these are steel bridges.
    d. Pin and hanger bridges are inspected on a one to two year frequency.
5. Special (Interim) inspections (*scheduled at the discretion of the Bridge Owner. It is used to monitor a particular known or suspected deficiency, such as foundation settlement or scour, fatigue damage, or the public's use of a load posted bridge*) are conducted on an as needed basis.

For Local Bridges:

1. Initial (Inventory) inspections – If a bridge is rehabilitated or constructed with HBRRP funds, an inventory inspection will be done within 180 days. If federal funds

are not used, the data will not be picked up until the next routine inspection. 23 CFR 650.311 (b) states that "Newly completed structures, modification of existing structures which would alter previously recorded data on the inventory forms or placement of load restriction signs on the approaches to or at the structure itself shall be entered in the State's inspection reports and the computer inventory file as promptly as practical, but no later than 90 days after the change in the status of the structure for bridges directly under the State's jurisdiction and no later than 180 days after the change in status of the structure for all other bridges on public roads within the State." It is recommended that the BLP create a process by which all bridge that fit these criteria, not just those receiving HBRRP funds, meet this 180-day time limit.

2. Routine (Periodic) inspections – These are all done on a two-year frequency.
3. Damage inspections are done on an as needed basis.
4. In-Depth inspections –
    a. FC – These are done every 2 years as part of the routine inspection.
    b. UW – The BLP will let statewide contracts for the UW inspections of local bridges. The statewide contract is a three year contract which is for two years and has inspections in year one and three, with nothing in the middle year.
    c. Pin and hanger bridges are inspected on a one to three year frequency.
5. Special (Interim) inspections

For State owned bridges, a minimum of two inspectors make up a bridge inspection team. Typically maintenance personnel also accompany the inspectors. For local inspections, the state does not track the number of people involved in conducting the inspection. They only have record of who signs the inspection report. It is recommended that the BLP develop a process for certifying and tracking the inspectors of local bridges.

The amount of time spent by inspectors on each bridge or the total number of bridges that a typical inspector does in a year varies depending on the type of inspection. What is listed here is the range of time spent per bridge for different types of inspections. For routine inspections, the BMS will do 15 to 20 bridges per day. On other types of inspections, they spend the following amount of time: FC – 4 hours to 3 weeks, Pin and Hanger – ½ to 3 days, Routine Snoopers – 4 hours to 1 week, UW – 5 hours to 2 days with in house divers, waders – 10 per day. The BLP estimates that the local agencies spend about 20 minutes per bridge. Since consultants do the majority of the local inspection, the amount of time isn't known.

The BMS inspects their bridges out of central office. They will occasionally contract out the inspection of large bridges, inner city interchanges, and commercial divers for the large rivers. The KTA uses consultants to inspect their bridges. Consultants typically inspect non-State bridges. There are a few exceptions where a local entity will inspect their own bridges. These include the City of Topeka, and Counties of Miami, Saline, McPherson, Sedgwick, Reno.

Inspection oversight is handled through two departments within the DOT. State owned bridges are handled through the BMS, which is in the State Bridge Office. Non-State owned bridges are handled through the Bureau of Local Projects. An organization chart is

attached (Attachment 1).

The BMS is divided into four units; Bridge Evaluation, Bridge Inspection, Special Inspections and Maintenance Plans. The Bridge Evaluation unit does the load ratings, scour analysis and issues special permits. The Bridge Inspection unit does the routine inspections, in-depth (inventory) inspections. The Special Inspection unit does fracture critical, underwater, routine snoopers, pin and hanger, other special, and complex inspections. The Maintenance Plans unit develops plans for replacements and repairs that are handled through the BMS. The BMS has one position dedicated to Pontis administration and overall computer support of the section.

The BLP has two individual working with the local inspection program. The Bridge Inspection Engineer is responsible for managing the local bridge inspection program. The second individual is the Bridge Inspection Technician and is responsible for data entry, bridge location maps and the historic bridge log. These two individuals are responsible for a program of 20524 bridges.

The State transportation department is responsible for the inspection, reports, load ratings and other requirements of the NBIS for all non-Federal and non-tribal bridges within a State, regardless of public authority ownership. A public authority delegated with the authority by the State to inspect bridges could jeopardize State compliance with the NBIS if it fails to properly comply with the inspection standards. Therefore, although a State may delegate the authority to inspect, it is ultimately the State's responsibility to ensure compliance with the NBIS. The delegation of inspection and reporting does not relieve the State transportation department of any of its responsibilities under the NBIS. With this in mind, KDOT management may want to take a look at the overall NBI program to determine the most effective and efficient way to manage the program to meet the needs of the FHWA, KDOT and the local agencies. Some States inspect all of the bridges within the State. This greatly simplifies the oversight of the program as well as improves the consistency of the data. This approach may not be practical in a state with a much larger population of bridges such as in Kansas. Currently, KDOT's oversight of the NBIS is split between the BLP and the BMS. There are very few similarities between the NBI programs in the two sections. This makes the management of the overall program much more difficult. The data bases are separate and don't look anything alike. The methods for collecting data, saving information, sharing information, following up on findings, etc. are very different. This results in inefficiencies, duplication of efforts and a reduction in communication. To determine the most efficient and effective means of program management, it is recommended that KDOT examine their organizational structure, resources and oversight responsibilities with respect to the NBI program.

Consultants are used very little for BMS inspections. Consultants are only used for commercial diver underwater inspections (24 bridges total on the Missouri River & portions of the Kansas River) and on fracture critical inspections for 10 bridges on a large urban interchange in Kansas City (major traffic control problems and time issues). This results in less than 1% of the BMS's inspections being done by consultants. Consultants are used for most of the non-State owned bridges. They conduct the routine, underwater

and special inspections on these bridges. There are five counties and one city that do their own inspections. This results in about 2176 local bridges, or about 11%, that are not inspected by consultants.

Inspected By:	Owner	Consultant
State	99%	1%
Non-State	11%	89%
Total	29%	71%

The BMS conducts an average of 4000 inspections per year, at an average per bridge cost of $360. This is approximately $1,440,000 per year. The factors used to come up with this cost include: salary and overhead of 16 employees that are involved with inspection, per diem, snooper replacement (2), snooper maintenance, vehicles replacement (3), mileage, traffic control, and misc. equipment. The BLP spends an average of $200,000 per year for a couple of statewide contracts for special inspections. The local agencies fund the routine inspections, so the total cost of non-state owned bridges is unknown

The following types of NDE/NDT equipment are used for inspection:

NDE/NDT Technology	Routine Use	Special Case Use
Eddy Current – detect crack ends		X
Ultrasound – pin and hanger, Locals also	X	
Dye Penetrant – crack detecting		X
DM2E Electronic thickness gage		X
Chain Drag, Locals also	X	
Pachometer – rebar clearance		X
Fathometer – channel depth	X	

(2) Load Rating

The BMS has a Bridge Evaluation section that conducts their load ratings. Working (or Allowable) Stress Method (AS) and Ultimate Strength (or Load Factor) Method (LF) are both used for rating bridges in Kansas. A registered professional engineer oversees the ratings. To insure that the load ratings for the local bridges were completed and up to date, the BLP used HBRRP funds to get all of the local bridges load rated. Eighty-five of the counties were done in 1992 and 1993. The remaining twenty counties were done between 1995 and 1999. The BLP does not currently house copies of the bridge files for local bridges. This information is housed in files kept by the bridge owners. Thus, they do not have copies of the actual load ratings or know when a new rating is conducted. Professional Engineers conduct the load ratings for the locals using both AS & LF.

All of the bridges have been load rated.

All but a handful of NHS bridges have been load rated by LF.

The initial load rating for State bridges is normally performed between the time the bridge is let for construction and when it is opened to traffic. The load rating for a local

bridge occurs at inventory inspection.

Bridges are re-load rated when there has been a significant change in condition ratings or based on the inspector's judgment. Generally, this occurs when a condition rating goes to a four. Bridges are also re-rated following a repair or rehabilitation.

The maximum legal load under state law is 85,500 pounds.

The heaviest vehicle configuration that is allowed without a permit is 85,500 pounds. Anything over legal is looked at on a case-by-case basis. The heaviest load allowed with a permit to date is 700,000 pounds.

(3) Posting and Closing

Kansas' state highway bridges are rated for seven standard vehicles that are representative of the actual vehicles on the highways.

"Rating" trucks are the standard truck configurations used by KDOT for the rating and posting of bridges and short span structures. The standard trucks are the "H", which is a design truck; the "T-3", "T3S2", and "T3-3", which are recommended by AASHTO; the "HS", which is required by FHWA; and the "T130" and "T170" used for special permits on State Highways. County and city bridges do not need to be rated for the T130 and T170 vehicles.

Bridges are load rated for Inventory and Operating Ratings based on the HS vehicle as required in the FHWA Recording and Coding Guide, December 1995. The bridges are posted between inventory rating (IR) and operating rating (OP). For state system bridges, section 4.12 "Bridge Posting Philosophy and Guidance" of the KDOT Design Manual is attached for reference (Attachment 2). For additional information concerning rating and posting on local roads and streets, see the "Supplemental Coding Guide for Bridge Inspection and Rating", March 1993, KDOT Bureau of Local Projects (Attachment 3).

The following table shows the number of bridges for each code in Item 41

Owner	Description	Total	Null	A	B	D	E	G	K	P	R
				Open	Posting needed, not in place	Shoring	Temp Structure	New not yet open	Closed		
1	State	4799		4750		3					
2	County	19525		10032	1106	1	61	7	210		
3	Twp	12		9	1						
4	City	981	1	844	18	1	1	6	10		
11	StPark	98		75	10				8		
21	Oth St	6		5							
25	OthLoc	6		5							
26	Private	6		2							
27	RR	6		4					1		
31	StToll	370		369							
60	OthFed	7		7							

62	BIA	38		35	3						
63	FishWld	8		5	1						
69	BurRec	5		1	2						
70	COE-civ	20		11					9		
74	Army	54		39	8				1		
80	Unknown	2		2							
	Totals	25943	1	16195	1149	5	62	13	239	8224	55

There are a total of 8279 bridges that are posted and 1149 bridges that should be posted and are not. Earlier this year we looked into why this second number is so high. It was discovered that a local bridge would be coded B for the following reasons: the bridge has been re-rated and new signs are needed, one or more signs are missing or even damaged. This information is typically given to the county following the inspections. There is currently no process in place to follow up on the actions taken by the counties. The county may install the signs immediately but the inventory is not updated until the next inspection cycle. It is recommended that the BLP should establish a procedure to follow-up on this issue to insure that the posting signs are installed and that the inventory is updated. This should reduce the number of bridges that require posting in the inventory.

(4) Scour Evaluation

3212 of the 3459 State bridges over waterways have been evaluated for scour. This leaves 247 bridges to be evaluated. 242 bridges have been determined to be scour critical. The recently developed Bridge Inspection Form (BIF) does include Item 113, "Scour Critical Bridges". If a bridge is listed as scour critical, the inspector pays special attention and notes any special condition in the bridge level notes field of Pontis. This information is electronically stored in a history file in Pontis. Any evidence of scour is also brought to the attention of maintenance personnel at the Area review meeting. The Area review meeting is a follow up meeting with maintenance personnel after every bi-annual bridge inspection. The state does not currently have action plans developed for their scour critical bridges.

19040 of the 20347 non-states owned bridge over waterways have been evaluated for scour. This leaves 1307 bridges to be evaluated. 112 bridges have been determined to be scour critical. The BLP does not know if the locals maintain action plans on scour critical bridges. The bridge owners are told they need to be watched. No additional information is provided nor is follow-up made.

These numbers are based on the biannual submissions from KDOT. The numbers vary a little from what is in the inventory. There has been very little improvement in the numbers over several years. This is an area that the Division would like to spend more time to determine how the state has been administering this program. It is recommended that the BMS & the BLP establish plans of action for their scour critical bridges.

The BMS takes channel profiles on the bridges that require underwater diver inspections, on some bridges requiring wader inspections and on all bridges with exposed footings. The profiles are usually taken off of the rail for waders and with a fathometer if divers are

used. A CADD file is maintained that adds the new channel profile each time a profile is taken, therefore maintaining a history of the channel profile. For local agency bridges, channel profiles are taken with the underwater inspections. Comparisons of current and previous profiles are not normally compared unless some other problem is noticed.

(5) Underwater inspections

The BMS has trained inspectors who do most of their under water (UW) inspections. Commercial divers under the supervision of a consultant engineer do approximately 20 structures on the State's system. Local agencies may perform their own, contract for hire, or use a KDOT statewide UW inspection contract.

For UW inspections, the State uses the following to determine what type of inspection is done:

Inspection Type	Water Depth (ft)
Visual done during routine inspection	0-2
Wader	2-4
In-house Diver (Bobber)	4-7
In-house Diver	>7
Commercial Diver	Missouri R. & Portions of Kansas R.

Most underwater inspections are completed on a 4-year cycle. There are a few that have a one or two year inspection frequency. The BMS has one structure that is monitored during every event for a certain depth and is closed until the condition can be verified. The UW reports are fairly detailed. They provide information on the various design details. They locate and describe all field problems identified. A photo is taken at all locations or a general photo is taken if the defect is found to be repetitive.

After all UW are completed, the BMS provides both the Area and District personnel with reports and a recap of maintenance needs. These needs also go into a maintenance database and are only changed when all repairs are completed. If a major problem is found during the inspection it is handled as needed. For the BLP, the inspection results are reported to the owner. Findings and follow up action reports are placed in the local bridge file. The State has not followed up.

UW inspection findings are usually considered in the substructure condition rating.

(6) Fracture Critical details

The BMS maintains a critical features list, which lists all of their bridges requiring the various types of special bridge inspections including FC inspections. Their FC reports provide information on the various design details. They locate and describe the field problems found. A photo is taken at all locations or a general photo is taken if the defect is found to be consistent. The FC inspections are completed within the touch of the inspector. They inspect all members and all connection whether they are tension or compression members. The BMS is confident that the bridges with FC members are

properly coded in the NBI and that the members are properly identified in the bridge files.

The local agency bridge owners are responsible for insuring the FC inspections are done and properly coded in the inventory. The BLP does not currently monitor these inspections. A local agency consultant recently reported that none of the steel trusses in one county were coded as FC. A quick search of the NBI data shows that there are 790 steel trusses in the inventory. 671 of these are coded as FC and 119 are not coded as FC. The inventory alone is not adequate to insure that FC bridges are being properly identified. It is recommended that the BLP develop a process to insure that FC bridges are properly identified, that the FC members on those bridges are properly identified and that the inspection procedures for those members are identified.

Based on the interview it is believed that the status of the FC components is clearly identified in the reports. This was not verified during this review. Another review is in the process of being scheduled.

(7) Fatigue prone details

As mentioned with the FC details, the results here are based on interviews with the BMS and the BLP. These items will be verified during the next review. Both report that fatigue prone details are identified for inspections. For BMS bridges, the details are noted in the special critical bridge notations. For the BLP bridges, there should be notes in the bridge's file.

(E) FREQUENCY OF INSPECTION (23CFR650.305)

The routine inspection frequency in Kansas is two years. Other types of inspections, as discussed earlier in this report, will vary in frequency. The two years, is often reduced due to condition. About 10% of the bridges have less than 24 months for an inspection frequency.

For BMS bridges, the inspection date has previously been checked by software that is run annually. The BMS has recently developed a report in Pontis for inspection dates, frequency, and any delinquent inspections. This report is run numerous times throughout the year. The BLP leaves the responsibility up to the bridge owner. The BLP is developing a notification process.

Frequency of Inspections	No. of Bridges
= 2 years	23166
< 2 years	2748
> 2 years (When approved by HQs)	0

Note: There are 4 bridges without a frequency coded.

(F) QUALIFICATIONS OF PERSONNEL (23CFR650.307)

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The BMS's inspections are mostly done out of their headquarters office. There is a satellite office in Ellsworth, KS. This results in a smaller number of full time inspectors. These inspectors have all been through manual 90 BIRM training. Some are PE's and most have many years of experience. The BLP does not maintain a list of qualified inspectors. They require that a PE sign all inspection reports.

At the State level, there are two individuals in charge of the organizational units responsible for bridge inspection, reporting and inventory. One is the State's Bridge Management Engineer who is in charge of the State's bridge inspection program. The other is the BLP Bridge Inspection Engineer who is in charge of the local bridge inspection program. Both of these individuals currently meet the NBIS qualifications.

The BMS has nine individuals that are team leaders. They do meet NBIS qualifications. The BLP does not track this information for local inspections.

The BMS conducts an annual in-house consistency review. They meet, review their manual and discuss items that have come up through the year. NHI courses are periodically held. These are usually hosted by the BLP. The BMS also sends a representative to the Midwest Maintenance Engineer's Meeting.

The primary issue the BMS faces in obtaining and retaining qualified inspectors is salary. The local agencies primarily use consultants for their inspections. They are not aware of any problems with obtaining qualified consultants.

(G) INSPECTION REPORTS (23CFR650.309)

For BMS bridges, a team leader is assigned an area of bridges. The team inspects the bridges and makes recommendations in the field. When they return to the office, the team leader will review the consolidated reports. Maintenance and contract items are recommended and reviewed by the individual in charge. This info is then entered into the computer at the central office including photos and notes. All of the information is then presented at an area review meeting to discuss the findings with the district personnel.

Consultants primarily do the local inspections. The exact methods vary between consultants. They conduct the inspections, update the files, make repair and maintenance recommendations and submit the NBI data electronically via disk or email to the BLP.

Each file contains photos looking down the roadway and side views of the structure. Additional photos are recommended for maintenance items and things that may cause a rating change. Sketches are used when an illustration is required to show something that can't be seen in the photo or if something is measured. This is true for both State and Local bridges.

The BMS's bridge inspection information is kept in a variety of formats. They have been moving towards having everything electronically. However, they also maintain hard copy files on each bridge. For the BLP bridges, the bridge owners are responsible for maintaining the bridge files. The local agencies maintain hard copies of the files. The NBI portion of the data is submitted electronically to the BLP. The BLP does not currently maintain any additional information on the bridges.

(H) INVENTORY (23CFR650.311)

The BMS's data is entered at central office after the inspection information has been reviewed. The local agencies submit the NBI data electronically to the BLP. The BLP then runs the data through the federal Edit Update Program. If major errors are found the data will be returned. This process is repeated until the BLP accepts the data. The Kansas Turnpike Authority (KTA) is responsible for inspecting their bridges and submitting the data. They submit the data to State's BMS for review. Some validation checks are performed on the data. The state receives paper copies of reports. The NBI portion of the data is stored electronically.

The inventories are continuously being updated as inspections are completed and/or data is submitted.

(I) QUALITY ASSURANCE AND QUALITY CONTROL

The BMS uses mixed inspection teams. By rotating who inspects with who and what bridges they will inspect. They conduct office reviews of each inspection report to check for data validity and have a data person who also sees all of the data and uses the Pontis system to check for data validity. Supervisors review the reports. The BMS meets with each of KDOT's Area Offices to discuss the inspection findings and they have an annual meeting to discuss inspection issues. The BLP does a cursory review of the NBI data and runs it through the federal Edit Update Program. They realize that they need to be doing more in this area and are beginning to work on a web portal for the submittal of local data. The web portal would contain more checks of the data. It is recommended that both the BMS and the BLP create a formal documented process for insuring the quality of the program. This includes the quality of the inspections and the quality of the data.

(J) NBIS AND MAINTENANCE REVIEWS

When an item is noted on the inspection report it is assigned to various work lists. The work lists include: A – contract repair (BMS), B – paint (BMS), C- signing (Area), D-District Maintenance and 307 – Area Maintenance. The items on the A & B list are handled directly from the BMS. Most repair plans or details are generated through the BMS; therefore they feel there is little chance of an oversight. The BMS is also a key player in generating funding for any emergency repairs. In some more critical cases they have reduced their inspection intervals to track that a needed repair has been completed. The District and Area Offices handle the work on the C, D, & 307 lists. When the inspections in a particular Area are finished the BMS conducts an Area Review Meeting with the Area and District personnel to discuss their findings and recommendations. All of the reports and various lists are proved at this time. The maintenance lists are maintained in a database and are only changed when all repairs are completed. Each Area and District decides their own priority and what each can do. This varies throughout the state down to the sub-area level. All maintenance activities are tracked and maintained for cost of materials and labor and equipment hours on a database. For BLP, the condition or maintenance is reported to the local agency by the consultant. Findings and follow up action reports are placed in the local bridge file. The methods for the locals vary with each agency and in many cases; elected officials make the decision.

Maintenance work performed on the A list and some D list items are tracked and updated with photos. Other items may not be updated until the next inspection. The BLP does not track maintenance activities done by the local agencies.

(K) FOLLOW-UP ACTIONS ON CRITICAL RECOMMENDATIONS

The BMS & the BLP define any item that could affect the safety of the public as a critical recommendation.

The BMS has policy for documenting and tracking critical recommendations. It covers all structures found with conditions that require the structure to be posted, cribbed, or closed. A copy of the policy from the State Inspection Manual is attached (Attachment 4).

The BLP relies on the local agencies to track and follow-up on critical findings that are reported to them.

The BMS recorded that twelve bridges were either posted or cribbed in 2003. The BLP does not track critical recommendations so there is no way to report on how many were found and acted upon.

The BMS sends copies of the correspondence sent to the Districts and Areas to the FHWA Division Office. This includes routine information as well as more critical inspections such as damage inspections, postings and cribbings. The BMS also maintains a Bridge Restriction list/map that is published twice a year. This is also sent to the FHWA Division Office.

It is recommended that the BLP establish a formal process of tracking critical findings to insure that these critical items are addressed and don't slip through the cracks.

(L) BRIDGE MANAGEMENT

KDOT uses a formal bridge priority formula to prioritize and select bridge preservation and improvement projects. Bridges with needs that do not receive high priority are addressed through a separate budget dedicated to the BMS. The local agencies set the priority for their projects.

KDOT has not opted to use HBRRP funds for system preservation at this time.

(M) PRIORITY IMPROVEMENTS

Listed below is a summary of the findings found in this report. The three highest priorities for improvement include:

1. Throughout this report many inconsistencies were noted between the BMS and BLP with implementing the overall NBI program in Kansas. We feel that there may be an opportunity for KDOT to improve their responsibility and responsiveness in management of the NBI program. To determine the most efficient and effective means of program management, we encourage KDOT to examine their organizational structure, resources and oversight responsibilities.

2. Following the completion of priority number one listed above, KDOT should document and implement processes to insure that the local bridge inspection program meets the intent of the NBIS. This includes thorough inspections by qualified inspectors, accurate and complete inventory data and the ability to track and monitor

such things as: load ratings, postings, closings, scour evaluations, scour action plans, UW inspections, FC inspections, special inspections, and follow-up actions.

3. KDOT needs to revisit their scour program with respect to the development of action plans. Scour critical bridges have been initially screened and identified, and get special note during field inspection. However, there is no action plan to address these scour critical bridges. A number of these bridges have already been replaced or are programmed for replacement.

The BMS is interested in more information on inspecting post-tensioning and how to inspect the tendons. The BLP is interested in having improved national QC/QA computer software. Data quality is an important issue that should be addressed on a national basis. The Edit Update program does a few checks, but there are many items it does not check. They believe that the data quality across the nation could and should be improved by a nationally developed and applied QC/QA computer program.

During this review the Division Office emphasized the BMS & BLP oversight of the NBI program.

KDOT has identified all of the bridges with offset diaphragms and they have instituted a program to inspect all of these up close with snooper inspections. Some very small cracks have been identified and they want to head off a problem before it becomes a problem.

(N) SUMMARY OF RECOMMENDATIONS

Recommendation 1, Section (D)(1): Initial (Inventory) inspections – If a bridge is rehabilitated or constructed with HBRRP funds, an inventory inspection will be done within 180 days. If federal funds are not used, it will not be picked up until the next routine inspection. 23 CFR 650.311 (b) states that "Newly completed structures, modification of existing structures which would alter previously recorded data on the inventory forms or placement of load restriction signs on the approaches to or at the structure itself shall be entered in the State's inspection reports and the computer inventory file as promptly as practical, but no later than 90 days after the change in the status of the structure for bridges directly under the State's jurisdiction and no later than 180 days after the change in status of the structure for all other bridges on public roads within the State." The BLP needs to create a process by which all bridges that fit these criteria, not just those receiving HBRRP funds, meet this 180-day time limit.

Recommendation 2, Section (D)(1): For the BLP, a letter accompanies the NBI data that is submitted to the State from the consultant that does the inspection. This letter is stamped by a P.E. This may be the individual who has actually participated in the bridge inspections or it may be someone in the office who is overseeing the inspection contract but not the individual who is actually conducting the inspections. From the information that is submitted, KDOT does not have any way of knowing who conducted the actual inspection and what their qualifications are. KDOT should develop a process for certifying and tracking the inspectors of local bridges.

Recommendation 3, Section (D)(1): Throughout this report many inconsistencies were noted

between the BMS and BLP with implementing the overall NBI program in Kansas. We feel that there may be an opportunity for KDOT to improve their responsibility and responsiveness in management of the NBI program. To determine the most efficient and effective means of program management, we encourage KDOT to examine their organizational structure, resources and oversight responsibilities.

Recommendation 4, Section (D)(3): There are a total of 8279 bridges that are posted and 1149 bridges that should be posted and are not. Earlier this year we looked into why this second number is so high. It was discovered that a local bridge would be coded B for the following reasons: the bridge has been re-rated and new signs are needed, one or more signs are missing or even damaged. This information is typically given to the county following the inspections. There is currently no process in place to follow up on the actions taken by the counties. The county may install the signs immediately but the inventory is not updated until the next inspection cycle. The BLP should establish a procedure to follow-up on this issue to insure that the posting signs are installed and that the inventory is updated. This should greatly reduce the number of bridges that require posting.

Recommendation 5, Section (D)(4): There has been very little improvement in the scour program numbers over several years. This is an area that the Division would like to spend more time on to determine how the state has been administering this program. The State should have plans of action in place for the scour critical bridges. This is an area that the Division would like to spend more time to determine how the state has been administering this program. It is recommended that the BMS & the BLP establish plans of action for their scour critical bridges.

Recommendation 6, Section (D)(6): It is recommended that the BLP develop a process to insure that FC bridges are properly identified, that the FC members on those bridges are properly identified and that the inspection procedures for those members are identified.

Recommendation 7, Section (I): It is recommended that both the BMS and the BLP create a formal documented process for insuring the quality of the program. This includes the quality of the inspections and the quality of the data.

Recommendation 8, Section (K): It is recommended that the BLP establish a formal process of tracking critical findings to insure that these critical items are addressed and don't slip through the cracks.

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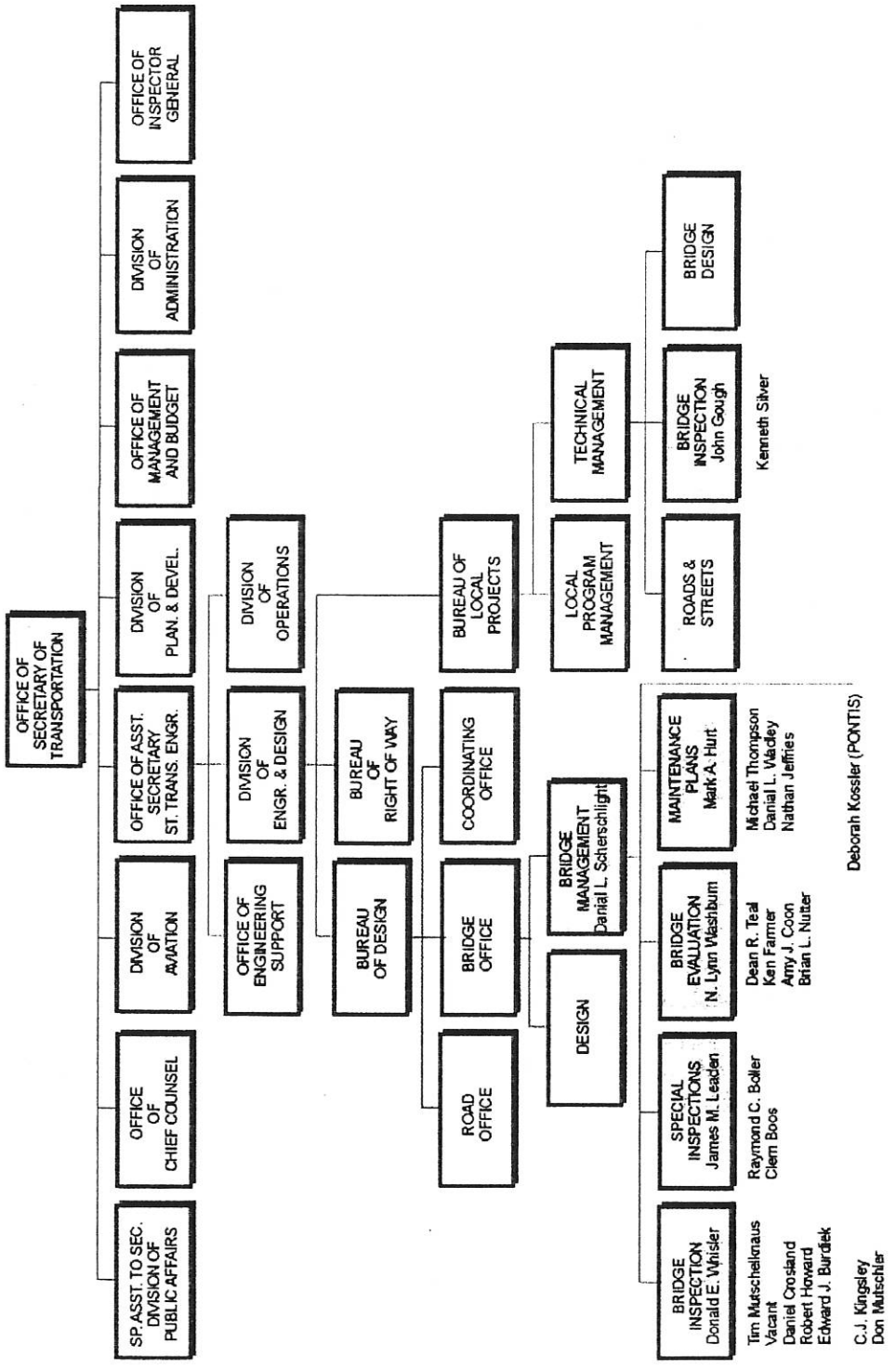
ATTACHMENTS

Attachment 1

Organizational Chart



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KDOT Design Manual – Volume III – Bridge Section

4.12Bridge Posting Philosophy and Guidance

FIGURE 4.12.1.1aBRIDGE POSTING PHILOSOPHY AND GUIDANCE

1. Bridges with Inventory Load Ratings at or above legal loads do not require posting.

2. Bridges with Operating Load Ratings below legal loads must be posted.

3. For bridges with legal loads between Inventory and Operating Load Ratings, further investigation may be needed to determine if and at what level a bridge should be posted. As a general rule, post at approximately midway between the Inventory and Operating rating (See Section "4.7 Posting Policy"). Care should be taken not to handicap local commerce while at the same time protecting the public investment and safety.

   Listed below are several conditions concerning the structure that could help in this decision making process. Ratings can be applied to most of these conditions and these ratings can be then used to determine an overall increase or decrease in the load rating capacity of the structure.

   a. The Age of the Structure: Possible ranges: 0 to 15, 30 to 45, more than 60 years old.

   b. Condition of the Structure: Good, fair or poor. Visible cracks, deterioration near and below joints, reduced bearing area on or at the piers and major problems with the deck or other elements.

   c. Working Stress and Load Factor Load Ratings: Lower rating levels should be treated with more care. The Load Factor ratings should be the more accurate of the ratings because of the improvements in the method.

   d. Structure Type: Fracture Critical Structures (2 Girder) should be posted conservatively. Structures with significant amounts of fill (boxes, pipes, arches, etc.) may have a wide range between inventory and operating ratings to consider. The inventory ratings may be below zero with very good operating ratings. Whether a structure is continuous or simple span should also be considered.

   e. Structural Material: Steel structures are generally lighter weight and, because of this, will have a smaller range between inventory and operating ratings. They also may have hinges and other details more prone to deterioration than concrete structures.

   f. Evidence of Distress: Does the bridge have visible cracking to indicate it is being overstressed?

g. Public Needs or Location: Is the structure under consideration of special concern to the area? Does the absence of this bridge cause a long detour or other hardship to the community?

h. Traffic Count, ADDT: What is the volume of traffic across this structure? Low, medium, or high? How much of this volume is trucks?

i. Inspection Frequency and Level: Is the structure inspected by a certified inspector or licensed engineer? Monthly, every 6 months, yearly or every 2 years?

j. Maintenance Level: Is the bridge being maintained intensely, moderately, or almost not at all?

k. Future Plans for this Location: If this structure is deteriorated or weak, is a new bridge or rehabilitation being considered soon? If not, you may wish to lower the posting to extend the life of the structure until something can be done.

4. Posting Signs: Bridges with low ratings (where the 3rd through 5th rating trucks are below 15 tons), should be posted with the one-truck sign because these vehicles with no payload are already near this weight. If these numbers are higher, the three-truck sign should be used to avoid unduly penalizing them.

5. KDOT has chosen to round posting numbers to 5 ton increments except for one-truck signs or the first number on the three-truck sign. This does not necessarily apply to local authorities as they set their own posting policies.

6. KDOT has developed a sample worksheet that may be used as an aide in deciding on the posting level of a structure. The philosophy behind this worksheet is to start at the midpoint between Inventory and Operating levels and add or subtract from there. The attached sheet is only an example of how it could be developed and may be modified if so desired. This sheet is only a guide and should be used with proper engineering judgment based on bridge inspection and load rating experience.

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BLP 3/93 "Supplemental Coding Guide for Bridge Inspection & Rating"

ITEM 205 - Kansas Load Rating 10 Digits

Code in Operating Gross load in tons (two digits) for each of five vehicle types: Type 2, Type 3, Type 2Sl, Type 3S2, and Type 3-3. Ratings are to be determined by structural analysis and shall correspond to the controlling maximum stress at operating level. Load ratings are to be based on maximum legal load under state law for these vehicle types. Refer to vehicle configurations in Appendix "C" of this guide.

The National Bridge Inspection Standards, 23 CFR 650.303 (c), state that:

"Each structure required to be inspected under the Standards shall be rated as to its safe load carrying capacity in accordance with Section 4 of the AASHTO Maintenance (sic) Manual. If it is determined under this rating procedure that the maximum legal load under State law exceeds the load permitted under the Operating Rating, the bridge must be posted in conformity with the AASHTO Manual or in accordance with State law."

ITEM 206 - Kansas Posted Weight 6 Digits

This item represents the recommended posting of the bridge. If only one type of vehicle requires posting, code that vehicle and code the other portions NA - Not Applicable. If the bridge does not require posting, code NA for all portions of the item. Coding of Item 70 should correspond to the posting requirements of Items 205 and 206.

206A - (2-digits) - Most restrictive load of either the Type 2 or the Type 3 Vehicle in tons. (MUTCD R12-5 2-axle truck)

206B - (2-digits) - Most restrictive load of either the Type 2S1 or the Type 3S2 Vehicle in tons. (MUTCD R12-5 3-axle tractor semi-trailer)

206C - (2-digits) - Load of the Type 3-3 Vehicle in tons. (MUTCD R12-5 4-axle truck trailer combination)

The FHWA Coding guide states under Item 70 that: "The National Bridge Inspection Standards require the posting of load limits only if the maximum legal load in the State produces stresses in excess of the operating stress level."

The posted load should fall between the operating gross load and the inventory gross load. In determining the posted load, the overall condition of the bridge should be considered.

The AASHTO Manual for Maintenance Inspection of Bridges states that:

"No bridge will be limited to a weight of less than three (3) tons at operating level. A bridge must be closed if not capable of carrying three (3) tons at operating level."
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[redacted]

CRITICAL MAINTENANCE:

The most important duty of a Bridge Inspector is to ensure the safety of the traveling public. The timely reporting of any critical inspection findings is essential in ensuring that the proper action is taken as soon as possible to prevent the premature closing or collapse of any structure.

All structures found with conditions that require the structure to be posted, cribbed, or closed shall be reported immediately to the following:

1) Area Office.
2) District Office.
3) Bridge Management Section.

All bridges which need to be posted shall be handled in the following manner:

1) Report the structure immediately when discovered as indicated previously.

2) The actual field conditions shall be provided to the Bridge Management Section through video tapes, photos, sketches, special field inspection, etc. The structure shall be re-evaluated for it's current load carrying capacity. Once the capacity is known, a letter shall be sent to the Bureau of Traffic Engineering, under File No. 1505A, "Bridge Restrictions", recommending a load posting be installed. The Bureau of Traffic Engineering shall submit the proper documentation for both the construction of the signs and the placement.

3) The signs are then constructed, delivered to the Area, and installed in accordance with the KDOT Highway Sign Manual.

All bridges which need to be cribbed (providing temporary supports) shall be handled in the following manner:

1) Report the structure immediately when discovered as indicated previously.

2) The actual field conditions shall be provided to the Bridge Management Section through video tapes, photo, sketches, special field inspection, etc. The structure shall be re-evaluated for it's current load carrying capacity. Once the capacity is known, the decision shall be made as to the amount and type of cribbing recommended. A letter shall be sent to the Bureau of Program Management, under File No. 1506A, "Problem Bridges", informing them of the revised conditions for further programming considerations.

3) District and/or Area forces shall install the cribbing as soon as possible to ensure public safety.

All bridges which need to be closed either partially or entirely shall be handled in

the following manner:

1) Report the structure immediately when discovered as indicated previously.

2) The structure shall be closed immediately to all traffic is there is any doubt to the public's safety. The actual field conditions shall be provided to the Bridge Management Section through video tapes, photos, sketches, special field inspection, etc. The structure shall be re-evaluated for it's current load carrying capacity. Once the capacity is known, the decision shall be made as to whether or not the structure should remain closed. Cribbing or other repairs might be required before the structure can be reopened. A letter shall be sent to the Bureau of Program Management, under File No. 1560A, "Problem Bridges", informing them of the revised conditions for further programming considerations.

3) District and/or Area forces shall install any required cribbing and/or complete any necessary repairs soon as possible to allow the structure to be reopened to traffic and ensure public safety. If contract repairs are necessary the District will have to request funding through the Bureau of Construction and Maintenance.

The Area shall report all critical maintenance activities (including postings, cribbings, or other repairs) daily as they are completed on D.O.T. Form 303, "Area Weekly Report" whether completed by Area or District forces. COLOR PHOTOGRAPHS of all cribbing installed and repairs completed shall be sent to the Office of the Bridge Management Section within two weeks of it's completion to ensure proper documentation.

The FHWA requires that each State have a Critical Maintenance Action Plan which ensures that all required work is completed quickly and followed-up with documentation as to what was done and when it was completed.

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