

The Connection

Between Transportation Technology and Local Government

Volume 20, Number 4 Winter 2007

Interagency Cooperation for Efficiency

This is the first time that SD LTAP has devoted an entire issue of *The Connection* to coping with inadequate funding and rising construction and maintenance costs. These matters have never been more challenging. All of our customers face record cost of road and street management while budgets rise slightly, remain flat, or are being cut.

This article will showcase a success story in partnering as one example of being more efficient. Wessington, S.D., a small town on the border of Hand and Beadle counties, needed help. The town needed to improve its main street which was full of potholes and in overall poor condition. They needed a “big brother” to help and Ron Blachford, Hand County highway superintendent, stepped up. He planned the successful request for Community Access funds from the state. A project was set up. The work involved drainage improvement, one valley gutter, pothole repair and leveling, followed by an asphalt overlay. But, despite the fact it was a large project for Wessington, it was very small from a contractor's perspective.

The project was actually done with a combined effort from Hand and Beadle County highway departments and the City of Miller. The Kingsbury County highway superintendent also assisted with his extensive paving experience, but did not provide equipment. The project became urgent due to the need to acquire hot mixed asphalt while a commercial plant was set up in the area on an SD DOT project on State Highway 45, which would save a significant amount of money. The project was done quickly and efficiently and Wessington is very happy with it.

Beadle County's department provided four trucks, two rollers, and a power broom. The City of Miller provided two trucks, and the Hand County department six trucks, a paver, a power broom, and a tack truck. All departments provided their own drivers and operators.



The finished project on Wessington's main street.

Construction of a valley gutter to improve drainage—always a key to road or street improvement.

Here are a few tips on making cooperative effort work successfully. First, someone has to be in charge! In this case, Ron Blachford managed the entire project. Next, everyone needs to know ahead of time what is expected. It's ideal to have a meeting ahead of time and plan. Perhaps the biggest key in planning is to determine how expenses will be paid so there are no surprises afterward and a department(s) feels they were treated unfairly. One final thought: Communication before, during and after these projects is essential to avoid misunderstandings.

There are many ways to partner to get a job done. Many departments are already doing this, and more will have to consider this to keep up with the work load. Sharing of equipment, trucks, staff and other resources such as gravel can enhance efficiency more than most realize. Blachford said that he has assisted nearly every small town in his county over the years and has worked with several neighboring counties as well. His example in partnering is exemplary. Think about this in planning for next year's work. Is a cooperative effort possible to enhance efficiency for your department?

by Ken Skorseth, SD LTAP Field Services Manager

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The Local Rural Road Safety Challenge

Even in times of scarce funding, local rural road safety continues to deserve our attention. In 2006, there were 3,123 crashes and 62 fatalities on local rural roads which was 20 percent of the total statewide, but 37 percent of total highway fatalities. Roadway departure crashes (fixed object and rollovers) account for more than 40 percent of the crashes on rural local roads, but more than 70 percent of injuries and fatalities.

In previous articles in *The Connection*, we have told you about an SD LTAP initiative to improve the safety of local rural roads. SD LTAP has received financial support from the Federal Highway Administration (FHWA) to promote the use of road safety audits (RSAs) as a tool for improving the safety performance of local roads across the state. An important part of this effort is the development of a tool box of strategies for low-cost safety improvements. We have begun work on the tool box and will be providing more detail soon.

We are now actively looking for opportunities to undertake these road safety audits. A RSA is an examination of an existing or proposed roadway by an independent, qualified team who prioritizes safety findings and reports on safety issues. We are promoting RSAs as a flexible and useful tool to improving local road safety. The RSA team can look at an existing roadway, a section of road being proposed for improvement, an intersection, or just about any other road safety issue identified by a local road manager. In making recommendations for improvements, emphasis will be made on low-cost safety countermeasures.

If you have a road safety issue you would like some help on, let us know. For additional information or assistance on road safety audits, including assistance deciding if a RSA is appropriate for your agency, contact SD LTAP at 800-422-0129.

by Ron Marshall, Western Satellite Tech Advisor



A safety audit could be done on just one trouble-some location such as a rural rail crossing that causes road safety concern.

Providing Service on Flat or Reduced Budgets

It is a time of financial difficulty at federal, state, county, city and township levels. How do we keep the holes patched, gravel roads bladed and snow plowed considering \$70/ton asphalt and \$3.40+ diesel fuel? What methods can be used on the local level to continue to provide service recognizing we will not meet all public expectations?

Communication

The first step is being able to adequately explain why a road or street will not be reconstructed, receive an overlay, or additional gravel surfacing and increased blade maintenance. Communicate with a positive and efficient attitude. Perception is reality to many people.



Department managers and elected officials need to take advantage of every opportunity to communicate their budgetary dilemmas — even in an informal atmosphere.

Next, know your budget, revenue, costs and future plans. Be able to show those who may be complaining that you are doing the best you can with available resources. Be proactive in providing information instead of reactive and defensive. Many times this is best done one-on-one with an unhappy constituent. Demonstrate you are focusing on his/her concerns.

Operational Methods

Here are four examples from our local customers in managing cutbacks, but striving to provide service:

City of Pierre

A street was built as a rural section in 1993 in a new development with 6 inches of base and 2.5 inches of asphalt mat and had a couple of chip seals in 14 years. Over the years the shoulders built up due to sanding and vegetative growth and, due to rolling terrain, the water ran on the road surface and not to the ditch. Also, heavy construction traffic because of continued development has resulted in alligator cracking in areas where water ran down the road surface due to weakening base and subgrade.

The budget did not allow for major improvements as originally scheduled and now budget prioritization, pavement management and design considerations have delayed improvement to 2012. What can be done to provide acceptable service in the interim?

This year the shoulders were trimmed to remove surface water and improve drainage and the more critical areas were square cut and patched. Next year will see more patching and a seal coat is anticipated to gain another five years of life. But loss of 90/10 state funding may impact the overall time schedule for development of this project.

City of Aberdeen

Funding for streets remains generally constant. Due to asphalt cost increases, major patching and chip seals have been changed from a five-year to seven-year rotation. Approximately 10 additional miles (some of which are rural sections) have been added to the street system due to development.

A major arterial road has had significant surface deterioration due to freeze/thaw resulting in three miles of urban section deteriorating to poor surface condition. A one-mile rural section needs reconstruction due to urbanization of the area. The need for improvement has existed for the past four years, but based on current funding, it may not be improved until 2009, five years later than desired. Loss of 90/10 state funding may cause a one-year delay in construction projects due to added federal aid design, R/W and environmental requirements.

The City of Aberdeen shared some price comparisons as follows: Asphalt surfacing in 2002 was \$35-\$40 per ton in place vs. \$70-\$80 per ton in 2007. Base course in 2002 was \$10-\$11 per ton in place vs. \$11-\$15 per ton in 2007.

Continued on next page

On average in 2002, asphalt was 3.8 times the cost of a base course. In 2007, asphalt is six times the cost of a base course. This will definitely influence design decisions.

Brookings County

The public demands good roads. For example, public input regarding stripping has been “if we do anything, we need to have the white line on the edge of the road because we really watch for that in fog and snow.” But an already tight 2008 budget, plus the elimination of the 90/10 state funding may force the county to pay for the entire cost of pavement striping (which cannot be eliminated due to safety issues) which will be a difficult challenge. To pay for this, additional budget cutting will have to be done.

A budget without many places to cut was further reduced by \$314,000 as the county commission must fund a new building as the court system now needs much more room. An increase in crime, resulting in more court work, surprisingly turns out to have a negative impact on the county highway system. Projects estimated near \$5 million

including bridges and asphalt recycling will be delayed for several years until funds are available. Some seal coating and asphalt overlay work will also be delayed resulting in continued deterioration of asphalt surfaces which could result in more costly future maintenance.

Cost of fuel, oil and construction materials continue to increase reducing what can be accomplished with the same budget. Brookings County is going into maintenance mode rather than improvement mode—just trying to “hold together what we have” to provide acceptable service.

Lyman County

In 1999 the county had nine full-time employees (FTEs) and two part-time employees to maintain 1,138 miles of road. As individuals retired they were not replaced, so in 2007 there were six FTEs and two part-time for the same miles. Overtime is limited except for snow operations.

90/10 state funding has been used for crushing and hauling gravel surfacing and losing this will have a significant

Save Your Budget! Buy South Dakota Surplus Property

South Dakota Property Management is pleased to offer you surplus equipment and merchandise with usable life and value at a reduced cost. They invite the state's political subdivisions to visit their Web site: www.sdsurplusproperty.com.

Who qualifies? Any county, municipality, township or state tribal government. You'll find an ever-changing list of surplus vehicles, equipment, office furniture and miscellaneous items for sale at appraised prices.

Presently, items are available without preregistering to purchase, however, **preregistration will be required** after February 1, 2008. You can preregister by going to the Web site and clicking on “Website for Political Subdivisions” and providing the following information:

- Political Subdivision Entity
- Contact Name
- Telephone
- Billing Address
- County
- Taxpayer Identification Number

You will be allowed two contacts to be registered to enter our site based on your Taxpayer ID number. Once you have submitted the request, our office will review your information. After your application is accepted, a login ID and password will be e-mailed to you.



A surplus snow plow purchased by a small town in South Dakota that saved them a great deal of money.

We strongly encourage each of you to take a moment to complete this process as soon as possible. All remaining items will be removed April 1, 2008, in preparation of the spring public auctions.

Please contact our office with any questions:

South Dakota Property Management
 Jeff Karst, Manager
 1320 E. Sioux Ave.
 Pierre, SD 57501
 (605) 773-4935
boasurplusproperty@state.sd.us



It has never been more important to use limited construction and maintenance dollars wisely.

impact. In previous years, 80,000 tons a year was crushed. That will be reduced to 40,000 tons. Cost for contract hauling has increased from 7 cents per ton mile to 17 cents per ton mile primarily due to increased cost of diesel fuel. County highway fuel costs have increased from \$50,000 to \$150,000 annually.

In order to adequately maintain drainage, \$50,000 was spent annually for pipe replacement. This has been reduced to \$10,000 and major roadway section improvements (grading) have been reduced from 12 miles to 2 miles annually.

The county's 40 percent share of striping on pavements was \$3,000 in the past. It may now be paid 100 percent due to elimination of the shared pavement marking program. A 90/10 bridge replacement with a box culvert was deferred from 2009 to 2010 in order to have funding for gravel crushing, which was determined to be a higher priority.

Mowers previously replaced on a five-year cycle have now been extended to 10+ years. The motorgrader replacement cycle has been extended from five to seven years. Motor-grader tires previously cost \$600 and now cost \$800 so recapping is being tried at a cost of \$350 each. One truck is 21 years old with 600,000 miles; the newest truck (1 year old) has 42,000 miles. The superintendent's pickup has 163,000 miles with no replacement in sight.

How does the Lyman County continue to provide service? They will go into a 100% maintenance mode—no improvements. But, the level of service will decline with fewer FTEs and older equipment. In addition to roadway maintenance, more time will have to be spent on equipment maintenance.

These sobering examples show the impact on providing acceptable levels of service. However, perform we must. It's the public expectation. We are back to communication as emphasized at the beginning. At the same time, we need to be "smarter" managers. Don't succumb to "cutting corners"—a thin mat or blotter on 6-inch base will no longer adequately perform under today's loads.

A minimal expenditure of 2-3 percent of project cost for engineering for asphalt or gravel surfacing projects is a sound decision to assure the correct design section is used. Always consider the cost comparison between asphalt vs. base course to get overall strength. Spending \$2,500 for engineering to determine base vs. asphalt thickness may result in a decision to add 3-4 inches of base to obtain strength and reduce asphalt thickness.

Use the costs in your area for quality material and make your own comparison. The engineering cost to make this decision may cost as little as \$2,500. A larger project may result in more engineering cost due to more engineering work such as sampling and testing but also more savings.

Consider these cost comparisons with assumption of 3 inches of base course equaling structural strength of 1 inch of asphalt:

Construction cost on one mile of street or roadway adding 3 inches of base course:

$$5280' \times 24' \times 3" \text{ of base} = 2150 \text{ ton} \times \$12/\text{ton} = \$25,600 \\ \times \$10/\text{ton} = \$21,500$$

Construction cost on one mile of street or roadway saving using one inch of asphalt pavement:

$$5280' \times 24' \times 1" \text{ of asphalt} = 765 \text{ ton} \times \$70/\text{ton} = \$53,600 \\ \times \$50/\text{ton} = \$38,300$$

Thus, adding 3 inches of base to gain strength to reduce 1 inches of asphalt could save \$17,000 to \$28,000 depending on quantity and unit cost.

Are engineers "too expensive" based on the example above? I was advised the engineering cost for an eight-mile rural project was \$6,000. What was the savings as compared to no engineering being done? At a time of reduced budgets, eliminating the use of expertise to assure we are not making poor judgment and wasting our limited funds is not the place to save. Significant saving can be gained by using engineering analysis in lieu of a nonengineering judgment.

A call to SD LTAP, which costs nothing, can provide initial guidance. It will not replace engineering analysis (which is not our function) but can save considerable cost in the long term and help you determine the next step in planning.

In this time of reduced budgets, increasing cost and continued public demand, we need to use all available resources to continue to provide service.

*by Larry L. Weiss, Central SD LTAP Provider
and Pierre City Commissioner*

Back Hauling: An Alternative for Highway Departments

For many county highway departments, the trucker's term "back hauling," is becoming a familiar slogan. It means that when you haul a product or material away from your location or proximity, you have product or material to haul as a return load to your location or proximity.

"Dead hauling," another trucking term, the practice of running empty after you have dumped your product or material or prior to picking up your product or material, used to be a common practice for many contract truckers. But because of today's inflated fuel prices, dead hauling is no longer the accepted practice. For today's trucker, any haul, regardless whether it is your common load or not, will often be acceptable.

One county highway department, who I have been in contact with, has done the math and concluded it is cheaper to use contract grain or gravel haulers giving them a back haul, rather than run the county's own fleet of trucks to haul chips for chip seal projects. After visiting one particular gravel contractor, the county was able to have the contractor bring pea rock for chips into the county and then haul sand back to the contractor's respective area or home. The selected site for this particular chip pile was in close proximity to an area sand pit, so there was not much dead hauling at all.

The contract trucker brings the pea rock into the county yard, dumps two or three loads per day, leaving the haul tickets in a mailbox set up at the county yard. In the evening, the material is pushed into the stock pile by a county employee, and the contractor is paid from the tonnage on the haul tickets. This seems to be working very well, particularly if the county doesn't have a certain time frame the material has to be delivered. Keep in mind this is probably more practical for longer hauls, rather than just a few miles.

If this alternative to delivering material is something you might be interested in, I would start by contacting the local elevators and visiting with the personnel there. Tell them of your interest in this type of service with grain or gravel haulers. They can put you in contact with contract haulers who will be more than willing to provide you with the same services. The price they will charge will undoubtedly be negotiable, as long as it fits their schedule. Keep in mind that if you can, let the contract trucker haul at their convenience. It will be more favorable, price wise, for you.



A grain hauler will often be willing to haul clean aggregate material in a grain trailer.

I was asked whether or not this is damaging to grain trucks. I believe if the trucker constantly hauled chips, especially quartzite chips or concrete rock in a grain trailer, it would significantly shorten the life of a grain box, but I doubt occasional hauling would damage the box enough to be identifiable. But keep in mind, this decision is the responsibility of the trucker.

This option allows the county to do their normal work while still getting their chips delivered to particular sites within the county. In some instances, the county will have to move the material to particular job sites where the chips will be applied if the haul is too long when doing the seal coating. If the chips must be reloaded and hauled to a secondary stockpile site, hauling can be done during months when the ground is frozen and damage to haul roads is minimal.

by Don Hosek, SD LTAP Technical Assistance Provider

Winter Driving Tip

You've seen them. They're out there. Are you one of them? The drivers that just don't have time to let the car defroster finish its job before getting on the road. They are easy to recognize with only a dinner plate sized spot of their windshield defrosted. Obviously, with such limited visibility, this is a very dangerous way to drive. Well, if you are one of those drivers, here's a tip: before you drive, fold your sun visor down close to the windshield and turn the defroster on. Doing this creates a dam, trapping the warm air from your defroster against the glass, dramatically reducing the defrost time.

Recycling Road Materials

The concept of recycling in road and street management is not new. In fact, measured by weight, asphalt pavement is the most recycled product in the USA. Yet, there are still salvaged road materials that aren't being reused. Public agencies cannot afford to waste anything at a time when virgin material costs are at record highs and are forecast to rise even higher. Another issue is the growing concern about even getting some road construction materials in the future as resources dwindle.

Despite this, a significant quantity of salvaged road surface pavement is still not being reused. Our local friends observed a fairly large quantity of salvage concrete pavement being buried late this past fall. In some cases, this is done to finish a job and restore a mobile plant site to original use. It would be much better if this material could have been saved for future use.

But, could it be our fault? Did anyone step forward and ask to work out a purchase agreement? A large, general contractor may have no choice but to do this to close a mobile plant site and get final payment for a project. Leftover material may be of little value to that contractor. Sometimes that material can easily be negotiated for and purchased by a local agency. Of course, there may be immediate cost—possibly to remove the material to another site. Or, some responsibility for cleanup and restoration of the site may be assumed if the material can be left where it is until it can be processed for future use. But, the material can be of great value in a future project. Think ahead.

There is also another way to acquire material for future use as base aggregate in construction. Accept salvage asphalt and concrete pavement, sidewalks and even concrete blocks. Mitchell has been a leader in this for many years. They accept this material at a gated and monitored site adjacent to their city maintenance shop and indiscriminate hauling and dumping is not allowed. You must be careful about monitoring what is hauled to a site such as this. It is not a substitute for the landfill. Also, you must be careful to avoid getting contaminated soil along with salvage pavements and other material. The key is simply to monitor and manage.

The tradeoff is that eventually a significant quantity of material will accumulate which costs virtually nothing. A crushing contract can be set up to process the material. Modern crushing and processing equipment will handle surprisingly large pieces of salvage material. Ron Olson, street and sanitation superintendent in the City of Mitchell



Mitchell stockpiles both salvage asphalt and concrete and then crushes and blends both materials for use as base in new construction.



This material makes excellent quality base aggregate.



In-place recycling of asphalt surfaces is an option to consider in surface rehabilitation.

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This material makes excellent base aggregate. The material is being crushed and processed at Brown County Highway Department. Note the various concrete products that are being recycled.

has proved that a blend of these materials processed by crushing will make excellent base aggregate for city projects. He has used a blend of crushed salvaged concrete and asphalt as base material in new street construction, as replacement material for dig-out repair on existing streets and even as temporary gravel surfacing.

This can be done in much smaller agencies, too. There are thousands of tons of sidewalks, driveways and concrete curbs removed each year. There are also many tons of asphalt removed for utility repairs and replacement as well. Consider setting up a site for accepting and stockpiling this material for eventual use on your projects.

Finally, in-place recycling of asphalt streets and highways is an option many must consider once again. This method of rehabilitation was not as cost effective in the last decade compared to asphalt overlays. However, with rising costs of virgin paving material, in-place recycling to restore profile and ride is a viable option. This method of rehabilitation is generally best combined with adding some virgin base aggregate and/or a liquid asphalt additive to add structural strength in the roadway. Control of the work can be more difficult and it is more weather sensitive during construction than overlay. Yet, the bottom-line cost is what you must compare to determine how to rehabilitate.

The new year will definitely bring a huge challenge to maintain a road system with budgets that are often flat, increasing slightly or actually reduced. Recycling of material is one way to cope with this challenge.

by Ken Skorseth, SD LTAP Field Services Manager

ATSSA Training Conference

The Northland Chapter of the American Traffic Safety Services Association (NCATSSA) will hold its 16th annual "How To" Training Conference March 18-19, 2008, at the Fargo Ramada Plaza Suites & Conference Center. The conference is open to city, county, state and federal agencies as well as consulting engineers and contractors. If you have questions, please contact Ken Russell, "How To" committee member, 3D Specialties, Inc., (701) 293-8599 or ken@dakotafence.com

Upcoming Events and Conferences

- South Dakota Transportation Safety Conference, February 19-20, Ramkota Inn, Pierre, SD
- Low Cost Safety Improvement for Local Roads, February 21, Ramkota Inn, Pierre, SD
- South Dakota Association of County Highway Superintendents Annual Short Course, March 19-20, Mitchell, SD
- South Dakota Asphalt Conference, April 2-3, Ramkota Inn, Pierre, SD
- South Dakota Association of Street Maintenance Managers, April 16-17, Holiday Inn, Mitchell, SD
- National Association of County Engineers Annual Conference, April 20-24, Portland, OR

Check for additional training activities on our Web site by googling "SD LTAP" and click on "Upcoming Events" and "Training and Workshops."

A Simple Road Safety Check YOU Can Do

(Note from SD LTAP: We are reprinting this in the interest of providing some guidance to local departments to make better decisions based on engineering principles. Despite budget constraints, safety cannot be compromised. However, we also caution our readers to seek engineering assistance when you are unable to make a decision you are comfortable with in providing safe roads for the traveling public.)

Roads are safer when drivers can see as far as it takes to stop. The distance it takes to notice a problem, realize a stop is necessary, and come to a complete stop is called stopping sight distance. It is important all along the road, and special attention is needed when approaching crosswalks, intersections, work zones and driveways.

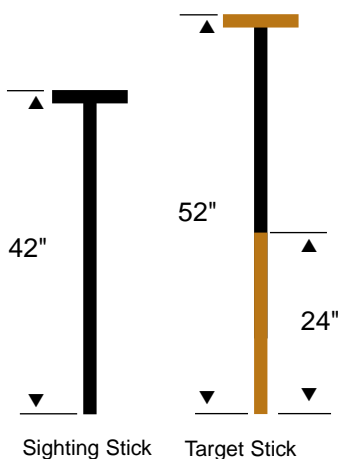
Stopping sight distance is measured using a driver's eye height of 42 inches, looking at an object 24 inches high. These correspond to the eye height of a small adult in a small car and the brake lights on passenger cars. Trucks need more distance to stop, but the driver's higher eye position allows for extra sight distance on hillcrests. However, it does not help seeing around an obstruction on the inside of a curve.

How to measure stopping sight distance

On crests, sight distance is measured along the center of the travel lane. Measuring stopping sight distance may require you to be in the travel lane with your back to traffic. Many times, measuring the sight distance along the shoulder is often close enough, but if you need to

be accurate, use caution. If necessary, have extra persons watch or flag traffic. You will need:

- An assistant
- High visibility clothing
- Sight distance measuring sticks
- A measuring wheel, long steel tape measure, or surveyor's chain
- Traffic spotters or flaggers, if needed.



Sight Distance Measuring Sticks

To measure sight distance (see Diagram 1), kneel and use the 42-inch sighting stick to get your eyes at the proper height. Have your assistant move the target stick until you cannot see the orange part on the bottom, or until the assistant reaches the distance shown in the table (see Table 1).

On curves, stopping sight distance should be measured along the travel path of the vehicle. Note in the figure that the line of sight is shorter than the sight distance. Keep in mind that brush and tall seasonal crops can cause problems that may not be obvious when you are taking your measurements (see Diagram 2).

If you can still see the orange part on the bottom of the target stick when your assistant reaches the stopping sight distance needed, then there is adequate stopping sight distance. If you lose sight of the orange part before your assistant reaches the stopping sight distance, according to the table, then you may want to make some changes.

How much is enough?

Stopping sight distance varies with speed and grade. On roads that carry less than 400 vehicles per day, less sight distance is acceptable because the chances of a conflict are lower. The chart shows stopping sight distance for various speeds and traffic volumes. These distances are for level pavement. Less distance is needed going uphill, and more is needed going downhill. As much as 20 percent more is needed on steep downgrades.

It is always better if you can provide a sight distance that is longer than the minimum shown in the table.

If you don't have enough . . .

If poor sight distance hides a safety condition, warn drivers with the appropriate warning sign. For example, where an intersection is hidden by a hillcrest or curve, install an intersection warning sign.

Sight distance improvements are often costly. Improvements may be worthwhile at places where poor sight distance has played a role in crashes that have occurred there. Sight distance improvements are more likely to be worth the cost if you can add them to other work at that

Continued on next page

location. For example, you might eliminate a dip during culvert replacement or lower a crest during full-depth pavement repair. On the other hand, they can be very effective if something simple is all that is needed, like brush clearing.

Sight distance problems can be easier to avoid than fix. Work with your planning and zoning board so new driveways, intersection or crosswalks are not built in locations with poor sight distance. Many municipalities have local laws prohibiting landowners from placing buildings or landscaping that will block sight distance at intersections.

Source: *Nuggets & Nibbles*, Cornell Local Roads Program, Vol. XXII No. 4, Fall 2003.

Table 1: Stopping Sight Distance

Traffic Speed ¹	Stopping sight distance (feet)				
	Vehicles per Day				
	0-100	100-250	250-400	>400	
		Lower risk locations ²	Higher risk locations ²		
25 mph	115	115	125	125	155
30 mph	135	135	165	165	200
35 mph	170	170	205	205	250
40 mph	215	215	250	250	305
45 mph	260	260	300	300	360
50 mph	310	310	350	350	425
55 mph	365	365 </td <td>405</td> <td>405</td> <td>495</td>	405	405	495
60 mph	435	435	470	470	570

1 Choose a speed that includes most traffic on the road. If known, use the 85th percentile speed. This is the speed that 85% of traffic is not exceeding, and 15% is exceeding.

2 Higher risk locations include intersections, narrow bridges, railroad grade crossing, sharp curves or steep downgrades; Lower risk location are areas without such features.

Source: AASHTO *Geometric Design of Very Low-volume Roads* and AASHTO's "Green Book."

Diagram 1: Measuring Vertical Sight Distance

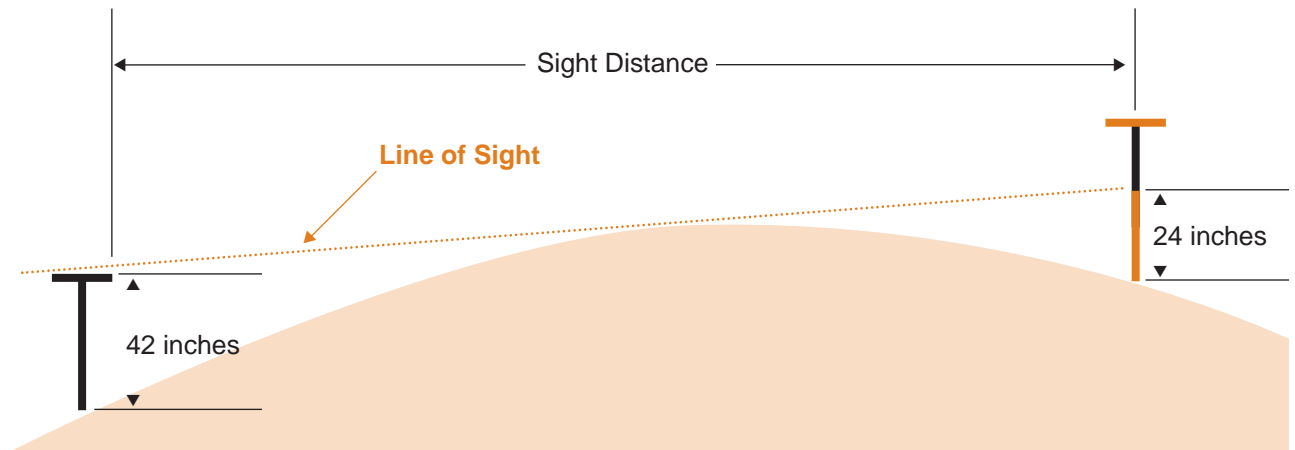
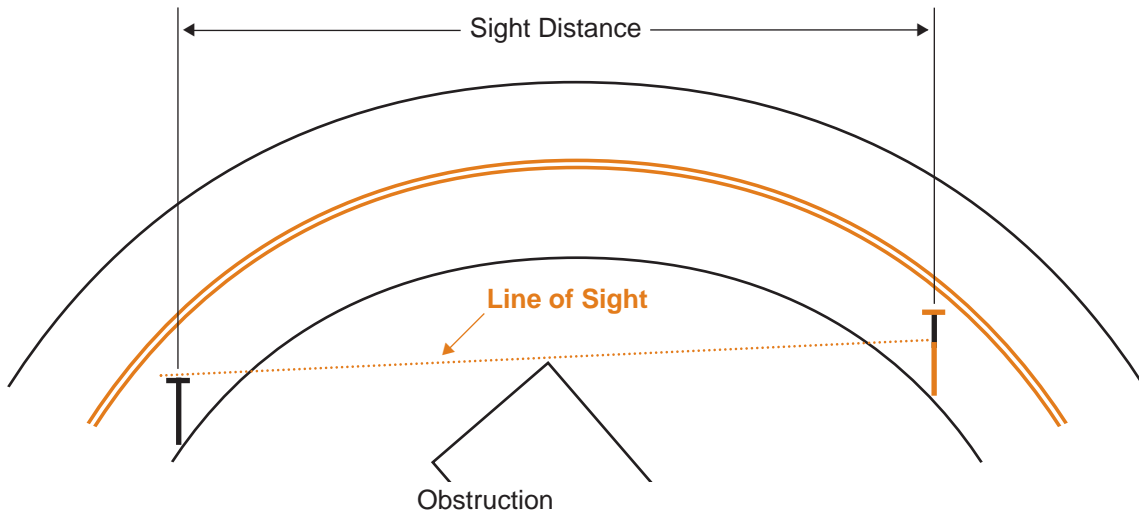


Diagram 2: Measuring Horizontal Sight Distance



Minimum Maintenance Roads

There is a tool for stretching road maintenance dollars that more townships and counties could use—exercise a legal option in state statute to designate certain roads as “minimum maintenance.” South Dakota Codified Law (SDCL) allows this designation to be made with a few simple legal steps. In fact it can even be done on the state highway system but that would be unusual. However, as maintenance costs grow and budgets rise only slowly, remain flat, or even decline, designating minimum maintenance roads may become a necessity at the local level.

In fact, the decision to consider this is demanded of township boards. SDCL 31-13-1 reads in part: “. . .The board of township supervisors . . . shall, at its annual meeting, designate which secondary roads are full maintenance roads and which are minimum maintenance roads. . . .” There is one stipulation to make this designation: According to SDCL 31-13-1.1, the board must determine “. . . that the road or a segment of the road is used only occasionally or intermittently for passenger and commercial travel. . . .”

Further, SDCL 31-13-1 states even a school route can be designated as such, but then the resolution to do so must be published. Unless legally appealed, the designation on a school route becomes final in 30 days. Townships that have not considered this matter would be wise to make it an item of business at the next annual meeting.

County commissions can also make this designation without stipulation as to when it can be done. SDCL 31-12-46 states in part: “. . . the board of county commissioners may designate any road on the county highway system as a minimum maintenance road if the board determines that the road or a segment of the road is used only occasionally or intermittently for passenger and commercial travel . . .” Both county and township boards must define clearly in their resolutions the beginning and end points of each road designated as minimum maintenance.

The maintenance reduction allowed under these statutes is spelled out in simple language. For both counties and townships, the statutes simply state: “. . . a minimum maintenance road may be maintained at a level less than the minimum standards for full maintenance roads, but shall be maintained at the level required to serve the occasional or intermittent traffic. . . .” This gives broad application to the law. But, boards need to act prudently when making this designation — these roads still have to be maintained at least at a minimal level. The “minimum maintenance” designation does not replace the “Road Closed” sign.



This is a good example of a road that serves only as a field access and is designated and signed properly as minimum maintenance.



A road that should have minimum maintenance designation.

Once the designation is made, there is one further statutory requirement that must be followed. Signs must be placed at each end of a road with minimum maintenance designation. Further, depending on the situation, if there are intersecting roads along this route, signs should be placed at each point of access. If you want further information, check the statutes quoted and any others that may apply.

The primary reason to consider this it to prioritize your road system and spend money wisely where it is most needed. Many roads are simply used as field accesses today. You cannot maintain them at the same level as those that serve residences or are primary connecting routes. These statutes give legal protection for reducing maintenance in the right places. Consider using them.

by Ken Skorseth, SD LTAP Field Services Manager

