

County Public Right-of-Way Use Maintenance and Design Policy

Bourbon County, Kansas

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INTRODUCTION

The Board of County Commissioners of Bourbon County (“the Board”) has the power under Kansas Statutes Annotated 19-101a to regulate activities within the county right-of-way and to authorize and require permits and assess fees in connection with such regulation also including statute K.S.A.17-1902(e) which prohibits the use or occupation of specific portions of the county right-of-way.

The Bourbon County Board of Commissioners has determined that it is necessary and desirable and in the best interests of Bourbon County to require a permitting process for the general health, welfare and safety of the public and to require application and permit fees for certain services when those services are provided by the Bourbon County Road and Bridge Department.

No person, firm, corporation, association, utility, or entity, shall enter upon the county right-of-way of Bourbon County, or in any manner establish a physical presence on, upon, in or over the county right-of-way of Bourbon County, for the purpose of constructing, maintaining or repairing infrastructure, or related facilities or appurtenances, temporary, permanent, private or public thereto, without the express written permission of Bourbon County.

The following policies and standards shall be considered as forming an integral part of every permit issued for construction, maintenance or repairing of infrastructure upon County Public right-of-way under County jurisdiction. The work authorized by any permit shall be done at such time and in such manner as shall be consistent with the safety of the public and shall conform to all applicable policies and standards of Bourbon County as herein specified, except where the Bourbon County Road and Bridge Supervisor, in his or her discretion, grants prior written approval to deviate from such standard plans and specifications, orders, or regulations. The Bourbon County Road and Bridge Supervisor shall develop guidelines to implement the granting of waivers authorized pursuant to this Policy.

The work may be performed by the Occupant or by a Contractor hired by the Occupant but for simplicity either will be referred to in these construction requirements as “Contractor.” If Bourbon County finds at any time, that the work is not being or has not been performed properly, the Contractor (upon being notified by the County) shall immediately stop any new installation, and take the necessary steps at Contractor’s own expense, to place the previous work in condition to conform to said requirements or standards.

All activities associated with the Bourbon County Public right-of-way shall be conducted in such a manner that emergency vehicles, school buses, commercial, agriculture and residential traffic shall have the right-of-way and will be able to operate with minimal interruption.

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PERMITS AND STANDARDS

It is unlawful for any person to make or to cause or permit to be made any installation or construction of infrastructure upon Bourbon County right-of-way under County jurisdiction without first obtaining from Bourbon County a permit authorizing such construction.

The Bourbon County Road and Bridge Department shall issue a permit to construct infrastructure only if the Applicant has the legal authority to occupy and use the County Public right-of-way for the purposes identified in the application for the permit.

No permit for maintenance shall be required when repair work to a County Public right-of-way is to be completed within a period of forty eight (48) hours. Also a permit is not required to install a street light, street tree, traffic sign, traffic signal, line markers and survey markers. Permit requirements pertaining to emergency construction are addressed in the Permits Section.

APPLICATIONS

Applications for permits shall be submitted in format and manner specified by Bourbon County and shall contain the following:

- name, address, telephone, and facsimile number of the Applicant of the facility to be installed, maintained, or repaired within the County Public right-of-way.
- description of the location, purpose, method of installation, and surface and subsurface area of the proposed construction.
- construction start date and end date or number of construction days.
- traffic control plan, if necessary.
- construction plans shall consist of three (3) sets of 8 ½" x 11" or 11" x 17" sheets; 24" x 36" sheets will only be accepted when smaller sheets would be illegible, that shall include a description of the proposed project, adequate drawings to indicate the location of the proposed utility with respect to the County Public right-of-way line and the edge of the road, noting all construction details such as depths, type of materials, operating pressures, voltages, vertical and horizontal clearances, etc.

Prior to construction, Bourbon County shall reserve the right to review all construction staking of the project in accordance with approved permits.

Permit application for pipelines carrying hazardous materials shall display the names of company officials who can be contacted on a 24-hour basis in case of an emergency. The Utility Company shall notify Bourbon County Road and Bridge Department of all changes in the calling list within seven (7) days of such change.

Validity of Application and Permit - A valid application shall consist of a complete application for permit, application fee, project time schedule, traffic control plan, project location maps and construction plans. A valid permit shall consist of an approved application for permit, permit fee, proof of insurance, surety bond, if required and updated project time schedule.

Revocation of Permit – In lieu of bond, Bourbon County may revoke the permit and remove any work performed for failure to complete a project as described in the Permit or failure to comply with this policy. The Permittee or ROW Occupant shall reimburse the County for any cost incurred by the County to restore the County Public right-of-way. The County will not authorize any other permit for the Permittee or ROW Occupant until the Permittee or ROW Occupant has either reimbursed Bourbon County or restored the right-of-way.

Terms and Limitations - The approved permit shall specify the location, extent, and method of construction, the start date and end date and duration of the project, the Permittee to whom the permit is issued, and any conditions placed on the permit.

Changes in the scope of work for any issued permit by Bourbon County to a Permittee or ROW Occupant will require prior review and approval by Bourbon County Road and Bridge Supervisor.

Emergency Construction - If there is an emergency necessitating response work or repair, the Permittee or ROW Occupant which has been granted permission hereunder to occupy the County Public right-of-way may begin that repair or emergency response work or take any action required under the circumstances, provided that the Permittee or ROW Occupant notifies Bourbon County Road and Bridge Supervisor no later than twenty-four (24) hours after beginning the work and timely thereafter meets any permit or other requirement had there not been such an emergency. Any damage to the County Public right-of-way will be restored in accordance with the Bourbon County Public Right-of-Way Use Guide and this policy. The Permittee or ROW Occupant shall take all reasonable safety measures and temporary traffic control measures consistent with the "Manual of Uniform Traffic Control Devices" (MUTCD), U.S. Department of Transportation, FHWA, or the State of Kansas Traffic Control Standards, to protect the traveling public during repairs and cooperate fully with local law enforcement.

Final Inspection – To receive acceptance of the work authorized by a permit, completion of the work must be verified with a final inspection by the Bourbon County Road and Bridge Supervisor or County's Representative. It is the Contractor's responsibility to call for a final inspection. If work or restoration is found to be defective or insufficient the Contractor shall complete said work and call for re-inspection.

ACTION ON APPLICATIONS FOR PERMITS TO CONSTRUCT

Notice of Approval of Application or Permit - Bourbon County will return the Notice of Approval within fourteen (14) days of submission. Delivery of Notice of Approval does not constitute a permit without payment of permit fee.

Notice of Incomplete Application or Permit - If the application is deemed to be incomplete, Bourbon County shall promptly advise the Applicant in a written, electronic, or facsimile communication of the reasons for rejecting the application as incomplete.

Denial of Application or Permit - Bourbon County hereby reserves the right to prohibit the use or occupation of specific portions and/or all of the County Public right-of-way. If the County denies a request to use or occupy a specific portion and/or all of the County Public right-of-way, the Applicant shall be served a notice of such denial by first class mail within seven (7) days after the County receives the Application for Permit. The notice shall indicate that the Applicant shall have ten (10) days from the date of receipt of the notice to request a public hearing. Failure to do so shall constitute a waiver of the person's right to contest the denial before the governing body. The hearing shall be held by the governing body within thirty (30) days after the filing of the request therefore, and the Applicant shall be advised by Bourbon County of the time and place of the hearing. Following the public hearing, if the County governing body denies an Applicant's request to use or occupy a specific portion and/or all of the County Public right-of-way such determination may be appealed to the district court.

Duration of Application and Permit - Applications for utility and all other infrastructure projects shall be valid for three (3) months from Application Received Date. Permits for utility and all other infrastructure projects shall be valid for six (6) months from the Notice of Approval Date. Applications for transmission pipeline and access entrances shall be valid for twelve (12) months from Application Received Date. Permits for transmission pipeline and access entrances permits shall be valid for eighteen (18) months from the Notice of Approval Date.

Notice of Construction - The Contractor or ROW Occupant must notify the Bourbon County Road and Bridge Supervisor of a proposed construction start date fourteen (14) days before commencement of work and one (1) day before work is initiated and again at the completion of all work. Notification procedure is to phone and email the contact person indicated on the Permit. If no answer, leave a voicemail message stating the company name, contractor name, location of work, contact person, permit number and call back phone number then follow up with an email with the same information. All work shall be completed with the designated construction time indicated on the agreements and permits.

Non-Transferability of Permits - Permits are not transferable from owner to owner.

Permit to be Available at Project Site - The permit or a copy of the permit shall be available for review at the project site for the duration of the project and shall be shown, upon request, to any law enforcement officer or any employee of a Bourbon County agency, board, commission, or department with jurisdictional responsibility over activities in the County Public right-of-way.

PAYMENT AND FEE SCHEDULE

Application Fee - Each applicant shall pay to Bourbon County an application fee for each application for permit submitted by Applicant in accordance with the Bourbon County Permit Fee Schedule.

All application fees are non-refundable.

All application fees are to be submitted with the application to the Bourbon County Road and Bridge Department.

Permit Fee - Each applicant shall pay to Bourbon County a permit fee for each approved permit submitted by applicant in accordance with the Bourbon County Permit Fee Schedule.

All permit fees are non-refundable.

All permit fees shall be submitted fourteen (14) days prior to commencement of work.

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CONSTRUCTION STANDARDS

Kansas One - Call - In accordance with Kansas State Chapter 66: Public Utilities, Article 18: Utility Damage Prevention, any person excavating in the County Public right-of-way shall comply with the requirements of Kansas One-Call regarding notification of excavation and marking of subsurface facilities. Such person shall provide underground service location with the assigned number for the permit to excavate or other information as may be necessary to properly identify the proposed excavation.

RESTORATION OF THE PUBLIC RIGHT-OF-WAY

Backfill Requirements - Normal backfill requirements are compacted material removed from the trench. Under existing or future sidewalks and pavements, special backfill is required as shown on the Typical Construction Details, which is part of this policy. Notify Bourbon County of the schedule for backfilling under pavement and sidewalks so the County Road and Bridge Supervisor or County's Representative has an opportunity to inspect the backfill while in progress. Failure to give adequate notice is basis for withdrawal of the permit as well as having the work rejected.

Road Replacement - Roadways will be repaired in accordance with the Typical Road Maintenance and Repair Techniques which is a part of this policy. Notify the Bourbon County Road and Bridge Supervisor of the schedule for paving to provide an opportunity by the Road and Bridge Supervisor or County's Representative to inspect the repair while in progress. Failure to give adequate notice is basis for withdrawal of the permit as well as having the work rejected.

Sidewalk and Curb Replacement - Sidewalk and curb replacement shall be poured and finished to match existing sidewalk & curb. Remove sidewalk and curb to the nearest joint. Concrete shall be 4,000 psi with air entrainment, cured with a spray-on curing compound, and protected from hot and cold weather for seven (7) days when necessary. Sidewalk shall not be less than four inches (4") thick.

Cleanup and Restoration Time - Immediately after completion of a project within the County Public right-of-way, the road and Public right-of-way shall be restored to a condition equal to that existing before commencement of the described work.

Restoration Methods - All materials and construction methods used to restore the roadway surface, base and subgrade shall be equal to or better than that required by the current edition of the "Kansas Department of Transportation Standard Specifications for Road and Bridge Construction."

Ditches - Restore all ditches and slopes to the original configuration.

Yards - Disturbed areas in yards shall be smoothed and hand raked. All areas shall be sodded except for trenches or plow marks less than twelve inches (12") wide, which shall be seeded and mulched. Any landscaping items, shrubs, and trees destroyed or damaged by the work shall be replaced at the cost of the Contractor or ROW Occupant.

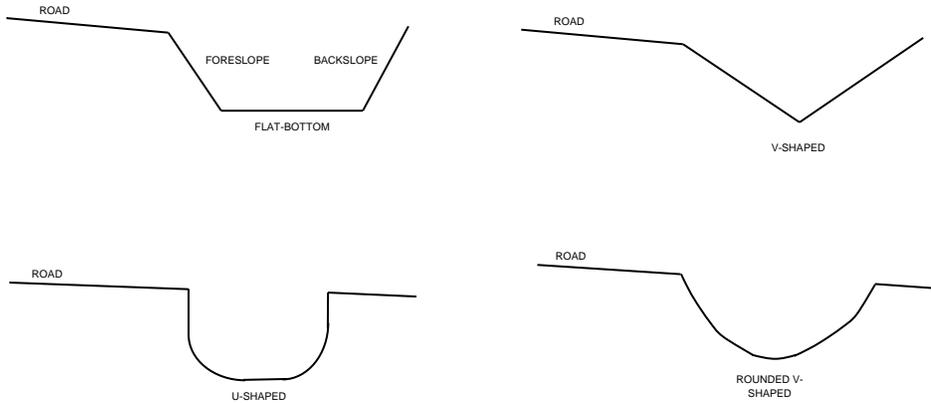
Repair - Any Occupant of the County Public right-of-way is hereby required to repair all damage to a County Public right-of-way caused by the activities of that occupant for which permission has been given hereunder, or of any agent affiliate, employee, or subcontractor of that Occupant, while occupying, installing, repairing or maintaining facilities within the Bourbon County Public right-of-way and to return the County Public right-of-way, to its functional equivalence before the damage pursuant to the applicable current policies, permits and agreements of Bourbon County. If the Occupant fails to make the repairs required by Bourbon County, the County may affect those repairs and charge the Occupant the cost of those repairs.

Settlement - The Contractor shall be responsible for repairing any settlement resulting from this work for one year after work is completed.

DITCH PROFILE AND GRADING

General – Properly constructed ditches should resist erosion, be self-cleaning, and discharge onto nearly level vegetated areas, thus maximizing the length of time between regarding, thereby reducing maintenance costs. Ditches should be located on the uphill side of the roadway to prevent runoff from flowing onto and over the road surface.

Grading – Ditches should extend the shoulders with smooth transition to a shallow foreslope. Side slopes of 4:1 are recommended, with 2 ½:1 being the maximum slope. Excavate roadway ditches at a bottom elevation 1:2 feet below the road base and the longitudinal grade of the ditch should be one percent (1%) or more. Deeper ditches may be necessary to provide positive drainage patterns. The ditch bottom should be rounded V-shaped (preferred), parabolic, or flat, as shown below, and at least two feet (2') wide to disperse the flow and slow the velocity. Do not construct U-shaped ditches. Ditches shall have a one percent (1%) gradient, with one-half percent (1/2%) minimum, to insure proper flow.



Lining – Line ditches which have a channel slope less than five percent (5%) with grass, and line those which have a five percent (5%) or greater channel slope with geo-fabric or aggregate filter underlain riprap or other material. Line ditches as soon as possible to prevent erosion and to maintain the ditch profile. Whenever possible, excavate ditch only as far as lining can catch up before the next expected or potential rainfall event.

Aggregate for ditch lining shall be specified by construction plans or by the County Road and Bridge Supervisor for County's Representative and shall meet the requirements of Table 1: Stone for Aggregate Ditch Lining (D₅₀) under Section 1114: Stone for Riprap Ditch Lining and other Miscellaneous Uses in the KDOT Standards Specifications for State Road and Bridge Construction. The gradation requirements are as follows:

Table 1: Stone for Aggregate Ditch Lining (D ₅₀)												
Size D ₅₀	Max. Size	Percent retained on standard square mesh sieves*										
Inch	Inch	8"	6 ½"	6"	5"	4"	3"	2 ½"	2"	1 ½"	1"	½"
1	2										50	85
2	4							15*	50		85	
3	6					15*	50			85		
4	8				15*	50			85			
5	10		15*		50			85				
6	12	15*		50			85					

* Suggested

Ditch lining aggregates shall meet the following minimum quality requirements:

Specific Gravity, sat. & surf. dry, min. (KT-6, Procedure I)	2.40
Soundness, min. (KTMR-21)	0.85
Wear, max. (KTMR-25)	45%
Absorption, max. (KT-6 Procedure I)	6.0%

Cleaning & Maintenance – Roadside ditches play a substantial role in providing adequate drainage for the roadway. It is important that the road ditches be properly shaped and sloped and remains free of vegetation and debris. Check all ditches two (2) times a year or after heavy precipitation events, when they become clogged with sediments or debris, to prevent ponding, bank overflows, and road washouts. All entrance culverts shall remain clear with no obstructions, to promote good drainage. Regrade ditches **only when absolutely necessary** and line with vegetation or stone as necessary. If regrading of ditches is necessary it should be limited to late spring or summer, after spring rains have diminished and drier weather has set in, and when vegetation can re-establish itself.

BEST MANAGEMENT PRACTICES (BMP)

Determine limits of disturbed area and install perimeter BMPs – Flag area to be disturbed by grading, cutting, filling and utility installation. Flag limits of area to be disturbed or keep from unnecessarily disturbing land. Assess site drainage and pick a standard drawing of BMPs to use on this site. Install silt fence where water sheets off of the construction site.

Grading/Excavating – Install all perimeter BMPs prior to a grading or excavating activities.

Stabilize Stockpiles – Install BMPs to stabilize stockpiles of dirt or other erodible material to prevent sediment from reaching the street or breaching perimeter protection. This might include covering the stockpile, or additional silt fence around the stockpile.

Temporary Construction Entrance – A temporary construction entrance is required at the beginning of the grading process and shall be constructed of two to three inch (2"-3") rock and shall be at least twenty-four feet (24') wide and fifty feet (50') long (unless length has to be less due to inadequate right-of-way). Thickness of the rock shall be adequate to support construction traffic and must be a minimum of six

inches (6"). The temporary construction entrance will occasionally need to be cleaned of accumulated mud and dirt.

Curb Inlet Protection – Use standard gravel filter bag arrangement for curb inlet protection. The bags are burlap or synthetic net about twenty-four inches (24") long and six inches (6") high. Bags are filled with three-quarter inch ($\frac{3}{4}$ ") screened rock and placed around the inlet are with no evident gaps between the bags.

Area Inlet Protection – If the area inlet is complete, gravel filter bags as described above may be placed around the inlet. If the inlet is not completed it may be necessary to use staked hay bales placed around the inlet. Hay bales should be tightly packed and staked down with at least two (2) 2" x 2" x 4' stakes per bale.

Maintenance – The Contractor is responsible for maintaining and repairing all BMPs as needed throughout construction. Failure to have BMPs properly placed and maintained will delay required inspections.

Inspections – The Contractor shall perform periodic inspections to ensure erosion and sediment control measures are functioning as designed. In addition to periodic inspections, an inspection shall be conducted of BMPs after each rain event. Any problems noted during these inspections shall be corrected immediately.

Installation of Sediment Fence – Dig a trench at least six inches (6") deep along the fence alignment. Drive posts at least eighteen inches (18") into the ground on the downslope side of the trench. Space posts a maximum of six feet (6'). Fasten support wire fence to upslope side of posts, extending six inches (6") into trench. Attach continuous length of fabric to upslope side of fence posts. Try to minimize the number of joints. Avoid joints at low points in the fence line. Where joints are necessary, fasten fabric securely to support posts and overlap to the next post. Place the bottom one foot (1') of fabric in the six inch (6") deep trench (minimum), lapping toward the upslope side. Backfill trench with compacted earth or gravel.

Sediment Fence Maintenance – Inspect sediment fences at least once a week and after each rain event. If the fabric of the sediment fence collapse, tears, decomposes or becomes ineffective, replace promptly. Remove the sediment deposits as necessary to provide adequate storage volume for the next rain and to reduce pressure on the fence. Contractor shall take care to avoid damaging or undermining the fence during cleanout.

Final Grading – BMPs may be removed in order to complete final grading and sodding of the construction area. If sodding of the construction is delay, the company or owner is required to maintain BMPs until the sod can be put down.

SEEDING AND SODDING

All disturbed grassed areas within the County Public right-of-way shall be rehabilitated by covering with topsoil and seeding or sodded in accordance with the specification stated below. Areas shall be maintained until turf is established.

Grass Seed – Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.

Seed Species – Seed of grass species as follows:

Type “A” seed mixture shall be used for established lawns. Type “A” seed mixture shall be as follows:

<u>Kinds of Seeds</u>	<u>Minimum Pure Live Seed (%)</u>	<u>Rate of Pure Live Seed (lbs. per acre)</u>
Alta Fescue or Kentucky 31 Fescue (Festuca Elatior Var. Arundines)	75	25
Rye Grass (Lolium Perenne or L. Multiflorum)	80	25
Kentucky Blue Grass (Poa. Pratensis)	75	20
Creeping Red Fescue (Festuca Rubra)	85	10
Total		80 lb/acre

Type “B” seed mixture shall be used for road ditches and right-of-ways, established waterways and other areas designated. Type “B” seed mixture shall be as follows:

<u>Kind of Seeds</u>	<u>Minimum Pure Live Seed (%)</u>	<u>Rate of Pure Live Seed (lbs. per acre)</u>
Alta Fescue or Kentucky 31 Fescue (Festuca Elatior Var. Arundines)	75	90
Rye Grass (Lolium Perenne or L. Multiflorum)	80	50
Total		140 lb/acre

Lime – Lime shall be agricultural limestone, complying with ASTM C 602, containing a minimum eighty-five percent (85%) calcium carbonate equivalent, Class O, with a minimum ninety-five percent (95%) passing through No. 8 sieve and a minimum fifty-five percent (55%) passing through No. 60 sieve.

Fertilizer – Fertilizer shall be uniform in composition and free flowing. Fertilizer shall be 12-12-12. Apply fertilizer at a rate of 500 pounds per acre.

Mulches – Provide air-dry, clean, and mildew-free with no viable seeds of noxious weeds, threshed straw of wheat, oats, or barley. Apply mulch at a rate of two (2) tons per acre and anchored into the soil a minimum of three inches (3”) to provide standing stubble mulch.

Soil Stabilizer – Stabilize the mulch with a synthetic emulsion similar to HYDRO STOCK 8500. Apply stabilizer uniformly in accordance with the manufacturer’s recommendations. In lieu of emulsions, it is acceptable to embed or anchor the mulch into the soil by using an approved disc type roller having flat serrated discs spaced not more than ten inches (10”) apart and equipped with cleaning scrapers.

Water - Water shall be free from oil, acid, alkali, salt, etc., and shall be from an approved source prior to use.

Lawn Preparation – Limit lawn subgrade preparation to areas to be planted. Prior to fertilizing, liming, and seeding operations and after final grading, the areas to be seeded shall be harrowed or raked to provide a smooth seed bed.

Seeding – Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds five miles per hour (5 mph). Evenly distribute seed by sowing equal quantities in two different directions at right angles to each other. Do not use wet seed or seed that is moldy or otherwise damaged. Sow seed at a rate of 8 to 10 pounds/1,000 square feet. Rake seed lightly into top one-eighth inch (1/8") of topsoil, roll lightly. Watering with fine spray is optional.

Acceptance of Seeded Area - Acceptance of seeded areas will be based upon having a dense, well-rooted turf, capable of preventing all erosion. Grass areas which show signs of erosion, ruts, etc., will not be acceptable. Seeded areas shall be mowed to a height of three inches immediately prior to inspection. Lawns that do not comply with the County requirements shall be reestablished until lawns are satisfactory.

ROAD CLOSURE

Individual Permit Required – A separate road closure permit is required for each and every road closure, where the road is closed to traffic for more than fifteen (15) minutes and the remainder of the construction period traffic is carried through construction with one lane open using flaggers for traffic control.

Traffic Control Plan – The Permittee or ROW Occupant shall provide a traffic control plan for each and every road closure, and furnish the plan to Bourbon County Road and Bridge Supervisor for review and approval at least seven (7) business days prior to closure.

Procedure – Permittee will coordinate closure with the Bourbon County Road and Bridge Supervisor and shall notify any local Fire Departments, Highway Patrol, Sheriff Department, and School Districts, Postal Service and all utilities that will be affected by the road closure, and shall comply with the permit requirements relating thereto, and the policies on road closure. Prior to closure the Permittee or ROW Occupant will have all traffic control and signing in place. Closure timing will allow for morning work and school commutes. The road cannot be closed or open without the specific permission of the Bourbon County Road and Bridge Supervisor. Permission to close the road will be based on having proper signing in place and equipment on the job to perform the planned work. Permission to open the road will be based on proper repair of the pavement and shoulder so the road can be safely open to traffic. Normally Bourbon County will have a representative on site at the time the road is closed and opened. It is important that the Permittee or ROW Occupant keep the Road and Bridge Supervisor informed of scheduling of backfilling and pavement repair to insure proper inspection and minimize the time the road is closed to traffic.

Insurance - An original insurance certificate must be on file with Bourbon County Roads Department during the operations of the road closure as specified in the Road Closure Permit.

The certificate of insurance shall show that the Applicant has secured liability and property damage insurance for all elements of the proposed operations, having a single limit for Bodily Injury Liability and Property Damage Liability combined of an amount not less than two million dollars (\$2,000,000) naming Bourbon County and its officers, agents, and employees as additional insured.

A faxed copy of the certificate of insurance from the insurance company will be accepted but must be followed by the original in the mail.

Notification – The Permittee or ROW Occupant will make the notification of a closure and opening of the road to local emergency services, school districts, post offices, utility companies and others required by Bourbon County or shown on the Notification of Road Closure sheet.

TRAFFIC AND PEDESTRIAN SAFETY

Execution – Operations shall be so conducted at all times as to permit safe and reasonably free-moving travel over the roads within the limits of the work. If Bourbon County or County's Representative finds at any time, that proper signing is not in place, or that conditions may not permit safe travel through the work area, the Contractor (upon being notified by the County) shall immediately stop work, and take the necessary steps to correct any traffic safety concerns.

Signs - The Contractor shall provide all safety measures for the movement of traffic and pedestrians in compliance with the version current in Kansas of the Manual on Uniform Traffic Control Devices (MUTCD). These include all signs, warning devices, barricades, flaggers and equipment. Warning devices, signs, and barricades shall be kept clean and in good repair.

Flaggers - Flaggers will be required when one lane of traffic is closed or obstructed, except on local streets inside subdivisions.

Damage to Road - If signs, pavement or other facilities within the Bourbon County Public right-of-way are damaged, and may be hazardous for traffic, the damage shall be immediately repaired by the Contractor or ROW Occupant.

Open Excavations - Open excavations shall be fenced if left unattended. Excavation near the roadway shall be cribbed or sheeted if necessary to prevent damage to the roadway.

OPERATIONS

Existing Facilities - Contractor must protect all existing utility installations.

Easement - The issuance of a permit does not in any way imply an easement on public or private property.

Wet Weather - No work, other than emergency work, will be permitted on the County Public rights-of-way when the soil condition is wet enough to cause rutting or other damage to the right-of-way.

Cutting Trees - The permit herein granted does not confer upon the Permittee or ROW Occupant the right to cut, remove, or destroy trees or shrubbery within the legal limits of the County Public right-of-way or relieve Permittee or ROW Occupant from obtaining any consent otherwise required from the owner of the property adjacent thereto.

Ditches - All ditches and drain lines shall remain open and operative.

Driving Limitations - No driving is allowed onto the road from a ditch, on earth shoulders, or over curbs where damage will occur.

Lugs on Equipment - No lugs shall be used on equipment traversing a paved road which may damage the road surface.

Clean Up – Roadway surface and shoulders shall be kept clean, neat, and presentable throughout construction.

Storage - Generally, materials shall not be stored within the County Public right-of-way. Materials shall not be stored within ten feet (10') of the edge of the road.

Parking - Equipment of vehicles when not in use shall not be parked on roadway. Equipment shall not be parked at night within the County Public right-of-way.

OVERSIZE/OVERWEIGHT VEHICLES

Permit Required – No person shall operate or move within a Bourbon County Public Road, or cause another to operate or move, a vehicle or combination of vehicles if vehicle or combination of vehicles is of a size or weight of vehicle or load exceeding the maximum specified under Article 19 of Chapter 8 of the Kansas Statutes Annotated, and amendments thereto, or of a height exceeding the maximum specified at K.S.A. 17-1914, and amendments thereto, without first receiving Permit from Bourbon County for such operation.

The following maximum dimensions and weight shall apply to the permit:

Max. Width	16 ft., 6 in.
Max. Length.....	126 feet
Max. Height	15 feet
Max. Single, non-drive axle	22,000 lbs
Max. Single, drive axle	24,000 lbs
Max. Tandem axle	45,000 lbs
Max. Triple axle	60,000 lbs
Max. Quad or more axle.....	65,000 lbs
Max. Gross Weight.....	150,000 lbs

Jurisdiction – The permits issued by Bourbon County for Oversize/Overweight Vehicles only applies to County Roads under the jurisdiction of the Bourbon County, Kansas as authorized by the Bourbon County Board of Commission. The Oversize/Overweight Vehicle Permit does not release the Permittee from complying with other existing laws that may apply to the movement or from obtaining additional permits which may apply to the movement on other roadways being used, such as State, Private or Municipal roads.

Professional Consultation – The Bourbon County is authorized and has sole discretion to utilize professional consultants for all or any portion of the review of an Movement of Oversize/Overweight Load Permit application. When the County determines professional consultation is necessary, the Applicant shall deposit an amount that the County estimates as compensation for professional consultation. The County shall then retain the professional consultant on the matters determined necessary. If the deposited amount is greater than the actual consultation fee, the overage shall be refunded to the Applicant upon Permit issuance or denial. If the deposited amount is less than the actual consultation fee, the underage shall be paid by the Applicant prior to Permit issuance.

Carrier Responsibility – Any Permittee who accepts a permit issued by Bourbon County shall be deemed to have agreed to the following conditions: (a) to be knowledgeable of the laws contained in K.S.A. 1996 Supp. 8-1911, as amended, and their standards and policies; (b) to hold the County harmless, and to indemnify the County as immune from all suits, claims or damages arising from the movement of vehicles; and (c) to pay Bourbon County for damages within the County Public right-of-way caused by the permitted vehicle.

Public and Private Liability – The Permittee assumes all responsibility for injury to persons or damage to public or private property, including his own, caused directly or indirectly by the transportation of vehicles or vehicles and objects authorized under the Oversize/Overweight Vehicle Permit. The Permittee agrees to hold Bourbon County harmless from all suits, claims, damages, or proceedings of any kind, and to indemnify Bourbon County for any claim it may be required to pay arising from the movement.

Liability Insurance – Permits are not valid if insurance expires. The Applicant, driver(s), vehicle(s) and/or load(s) thereon shall carry liability insurance in the following amounts: (a) Housetrailers, manufactured

homes, and mobile homes not exceeding 16 ½ ft in width: insurance amounts as provided by K.S.A. 8-1911(h)(3), and amendments thereto;

- (b) Automobile Bodily Injury liability – each person \$ 500,000
- Automobile Bodily Injury liability – each accident..... \$ 1,000,000
- Automobile Property Damage liability – each accident..... \$ 1,000,000
- Automobile Single Limit policy..... \$ 1,000,000
- General Liability – per occurrence/aggregate..... \$ 1,000,000

Proof of insurance shall accompany the vehicle and/or load and person insured during movement in Bourbon County.

Legal Load Heights and Weights – The maximum legal heights and weights allowed on Bourbon County roadways are the following:

Legal Width	8 ½ ft.
Legal Height	14 ft.
Legal Length (Single Motor Vehicle)	42 ½ ft.
Legal Length (Truck-Trailer Combinations)	65 ft.
Legal Length (Tractor-Trailer Combinations).....	No Limit
Legal Length (Single Semi Trailer)	59 ½ ft.
Legal Length (Each Trailer when pulled in Tandem).....	28 ½ ft.
Single Axle	20,000 lbs
Tandem Axle	34,000 lbs
(Tandem axles with centers less than forty inches (40") apart are counted as one axle)	
Maximum Gross Weight Limit.....	80,000 lbs
(Interstate Highway)	
Maximum Gross Weight Limit.....	85,500 lbs
(Other Highways)	

(The weight on any group of axles is limited by bridge postings.)

Route Check – The Permittee shall check the proposed route of travel for adequate clearance, road detours, construction projects, and other conditions that may affect the movement of an oversize/overweight vehicle. All county road and bridge load postings must be obeyed. For information on roadway/bridge conditions/load postings, contact the Bourbon County Road and Bridge Department.

Validity of Permit – Any of the following actions shall immediately void the permit and subject the Permittee to appropriate legal action: (a) Misrepresentation of information set forth in an application for permit; (b) Any operation on Bourbon County roads or bridges posted for a load limit less than the gross weight of the move; (c) Any operation on closed Bourbon County road or bridges closed to traffic; (d) Any operation on roadways or bridges that are not maintained or under the jurisdiction of Bourbon County; (e) a change or erasure on the issued Oversize/Overweight Vehicle permit.

Times of Movement – Movements of oversize/overweight vehicle or combination of vehicles shall be made one-half hour before sunrise to one-half hour after sunset on weekdays (Monday through Friday) and from one-half hour before sunrise to noon on Saturdays. Movements shall not be made from noon on the day proceeding and continuing until daylight of the 1st day after the holidays here listed: New Year’s Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas, except with the approval of the Bourbon County Road and Bridge Department Supervisor or when emergency repair movements are necessary and in the best interest of public safety and welfare.

Speed – Maximum speed shall be 45 M.P.H. on all permit movements or 5 M.P.H. above the minimum posted speed limit except when otherwise specified on the permit. Legal weight and legal height vehicle or combination of vehicles are allowed to travel at the legal maximum speed limit.

Weather Conditions – When visibility is unduly impaired by rain, snow, fog, smog, or at any time travel conditions are considered to be unsafe by the Bourbon County Road and Bridge Department, state or local police, the police may direct or escort the movement to a place of safety off the roadway, and movements shall be postponed until weather conditions permit a safe move.

Flagging – The movement requires the display of clean, plain, red or orange flags that is not less than 12 inches square. One flag shall be displayed at each of the four corners of the vehicle or load; and if any portion of the load extends beyond the width of the corner flag, one additional flag shall be displayed at the widest point on each side of the vehicle or load.

Escorts – When escorting loads more than fourteen feet (14') wide, the following conditions apply: (a) A front and rear escort vehicle is required for vehicles/loads that exceed fourteen feet (14') in width or ninety feet (90') in length; (b) Warning signs must be displayed on the front of the permit vehicle and on the rear of the permit vehicle or load if the vehicle, load, or combination exceed legal length or a width of ten feet (10'); (c) When moving an oversize/overweight load, the driver of each escort vehicle and the person driving the permitted vehicle shall have the ability to communicate verbally with each other, using two-way equipment; (d) Unless conditions dictate a different following distance, escorting vehicles shall travel at a distance not to exceed three hundred feet (300') in front or three hundred feet (300') to the rear of the load; (e) Warning lights shall be installed on the top of each escort vehicle and shall be in good operating condition, emit a rotating or flashing amber light, be mounted on top of the towing vehicle, and be readily visible at a distance of not less than 1,000 feet.

Warning Sign – A warning sign shall be used by movers of oversize/overweight loads in the following manners and circumstances: (a) Each vehicle transporting oversize manufactured houses or modular sections of buildings shall have an oversize warning sign attached to the rear of the manufactured home or modular section being transported; (b) Oversize/Overweight loads shall have attached to the front of the transporting vehicle and to the rear of the load an oversize warning sign; (c) Warning signs shall be readily visible from a distance of five hundred feet (500') from one-half hour before sunrise to one-half hour after sunset and shall be removed from the vehicle when the load being transported does not exceed legal dimensions; (d) An escort warning sign or oversize warning sign shall be attached to the front or to the top of each vehicle preceding the load being transported, and a similar sign shall be attached to the top or to the rear of the vehicle trailing the load being transported.

Vehicles Used – The vehicles and equipment used to make movements within Bourbon County Public right-of-ways shall be properly licensed, registered, insured, operated, and equipped in accordance with the Laws of the State of Kansas or any political subdivision or administrative agency thereof having jurisdiction. Also, the vehicles and equipment used shall be designed, built and have the capacity to safely make the move.

Common Regulations – (a) An oversize/overweight permit shall be carried in the permitted vehicle. The permit shall be made available for inspection by any law enforcement authority upon request. An enforcement authority may revoke a permit if the permit vehicle operator or permit holder violates the terms of the permit. For the operator of a permitted vehicle, the effect of having a permit revoked is the same as operating without a permit. After revoking a permit, an enforcement authority may take enforcement action against the permit vehicle operator, the permit holder, or both; (b) Any vehicle and/or load being moved shall not be left unattended while located in the County Public right-of-way; (c) When approached by any emergency vehicle, applicant shall immediately move far enough to one side of the roadway to allow sufficient clearance for the passage of such emergency vehicle; (d) The movement shall not impede other traffic in an unreasonable manner and at no time shall traffic be blocked from use of the County roadway.

STOP WORK ORDER, PERMIT MODIFICATION, AND PERMIT REVOCATION

When Bourbon County has determined that a ROW Occupant has violated any of the applicable policies or permits that a project poses a hazardous situation or constitutes a public nuisance, public emergency, or other threat to the public health, safety, or welfare, or when the County determines that there is a paramount public purpose, Bourbon County or County's Representative is authorized to issue a stop work order, to impose new conditions upon a permit, or to suspend or revoke a permit by notifying the Permittee or ROW Occupant of such action in a written, electronic, or facsimile communication.

Enforcement – Bourbon County prohibits unauthorized work to be performed within the County Public right-of-way in accordance with Kansas Statue 68-545. Any occupation of the Bourbon County Public right-of-way without first obtaining written permission from the County shall be guilty of a misdemeanor. A citation resulting in fines may be issued to the Contractor or ROW Occupant. Unauthorized work performed without Bourbon County or County's Representative inspecting the work may be required to be removed and reinstalled with proper inspection by Bourbon County or the County's Representative. All disputes in regard to citations will be handled through the Bourbon County District Court in accordance with County Codes and Regulations.

Conformity to Laws - The project shall conform to all applicable laws, regulations and codes covering said installations. All construction shall conform to regulations of governmental agencies for the protection of the public.

POST-EXCAVATION REPAIR, MAINTENANCE, AND PAVEMENT FAILURE

Repair and Maintenance Obligation of Occupant - Each Occupant that causes construction to be done in the Bourbon County Public right-of-way shall be responsible to maintain, repair, or reconstruct the project site as to maintain a condition acceptable to Bourbon County or County's Representative until such time as the County Public right-of-way is reconstructed, repaved, or resurfaced by Contractor.

Subsurface or Pavement Failures - In the event that subsurface material or pavement over or immediately adjacent to any excavation should become depressed, broken, or fail in any way at any time after the work has been completed, the Bourbon County Road and Bridge Supervisor shall exercise his or her best judgment to determine the person(s) responsible, if any, for the failure in the subsurface or surface within the County Public right-of-way and shall designate such person as the responsible party. The Road and Bridge Superintendent shall notify said person(s) of the condition, its location, and the required remedy, and such person(s) shall repair or restore, or cause to be repaired or restored, such condition to the satisfaction of the Road and Bridge Supervisor within seventy-two (72) hours of the notification. The Supervisor may extend the time for the responsible party to repair or restore the affected County Public right-of-way.

Repair by the County - If, in the judgment of the Bourbon County Road and Bridge Supervisor, the site of an excavation is considered hazardous or if it constitutes a public nuisance, public emergency, or other imminent threat to the public health, safety, or welfare that requires immediate action, the Road and Bridge Supervisor may order the condition remediation by a written, electronic, or facsimile communication to the person(s) responsible, if any for remedying the condition and shall designate such person as the responsible party.

Any Contractor performing work within the County Public right-of-way is hereby required to repair all damage to the County Public right-of-way caused by the activities of that ROW Occupant for which permission has been given hereunder, or of any agent affiliate, employee, or subcontractor of that occupant, while occupying, installing, repairing or maintaining facilities within the County Public right-of-way and to return the public right-of-way, to its functional equivalence before the damage pursuant to the applicable current policies, permits and agreements of Bourbon County. If the Contractor fails to make

the repairs required by Bourbon County, Bourbon County may affect those repairs and charge the Permittee or Contractor the cost of those repairs. The cost of repairs will compensate Bourbon County for any costs associated with the administration, construction, consultants, equipment, inspection, notification, remediation, repair, restoration, or any other actual costs incurred by Bourbon County that were made necessary by reason of the repair or restoration undertaken by Bourbon County.

Relocation of Utilities - Whenever requested by Bourbon County, in order to accomplish construction and maintenance activities directly related to improvements for the health, safety and welfare of the public, an Occupant promptly shall remove its facilities from the County Public right-of-way or shall relocate or adjust its facilities within the County Public right-of-way at no cost to the political subdivision. Such relocation or adjustment shall be completed as soon as reasonably possible within the time set forth in any request by Bourbon County for such relocation or adjustment. Any damages suffered by Bourbon County or its Contractors as a result of such ROW Occupant's failure to timely relocate or adjust its facilities shall be borne by such Permittee or ROW Occupant.

BONDS AND INSURANCE

PERFORMANCE, PAYMENT, AND OTHER BONDS

Contractor or ROW Occupant shall furnish a performance bond to Bourbon County in the amount of at least equal to one hundred percent (100%) of the original contractor price of the project as security for the faithful performance of the work to be performed within the County Public right-of-way. If the contract price increases, an additional amount equal to one hundred percent (100%) of the increase. The Contractor or ROW Occupant shall furnish a payment bond to Bourbon County in an amount of at least equal to one hundred percent (100%) of the original contract price. If the contract price increases, an additional amount equal to one hundred percent (100%) of the increase. The amount of the payment bond must be no less than the amount of the performance bond. These bonds shall remain in full force and effect during the term of the Project and continuing in full force and effect for one (1) year after the final completion of the work to be performed within the County, except as provided otherwise by State or other Laws or Regulations or by Contract Documents. The Contractor shall also furnish such other bonds as are required by Bourbon County for work to be performed within the County Public right-of-way.

All bonds shall be in the form prescribed by Bourbon County except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

Bourbon County shall not make any claim on said surety bond until sixty (60) days after the mailing of written notice to Contractor or ROW Occupant specifying a default hereunder by Contractor or ROW Occupant, during which sixty (60) days the Contractor or ROW Occupant may cure such default. Contractor or ROW Occupant is obligated to maintain such financial assurance until completion of all work in Bourbon County as evidenced by inspection of all work by the County Road and Bridge Supervisor or County's Representative.

The County may draw upon the Performance and Payment Bond only if and to the extent that the Contractor or ROW Occupant fails or refuses to perform repairs or to pay the costs of performing repairs.

Draw conditions are as follows and the County or County's Representative or a member of the Board of Commissioners shall certify that all the following draw conditions have been met:

- a.) That the County or County's Representative has complied with the requirements; and
- b.) That Contractor or ROW Occupant has failed or refused to perform repairs or to pay the costs of performing repairs; and
- c.) That the County has performed such work and/or had such work performed; and
- d.) That the County has incurred expenses for the performance of such work; and
- e.) The County has provided to Company the amount of such expenses.

If the County draws upon the Performance and Payment Bond, the County or County's Representative shall provide a full accounting of the amount of the draw(s) and the costs of repairs to the Contractor or ROW Occupant.

If the surety on any bond furnished by Contractor or ROW Occupant is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of this policy, Contractor or ROW Occupant shall promptly notify Bourbon County or County's Representative and shall, within twenty (20) days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of this policy and Bourbon County.

Escrow Accounts - For small local public utility projects where not more than two road cuts within the County Public Right-of-Way will occur, Bourbon County will allow the use of a "cash bond" that will be deposited in an Escrow Account to be submitted by the ROW Occupant or Contractor to Bourbon County.

For work within an asphalt surface area, the bond amount shall be \$40.00 per lineal of foot per two foot (2') wide section, anything over two foot (2') wide shall be rounded up to the next two foot (2') width.

Work performed in the County Public right-of-way, but is not in an asphalt surface area (e.g. gravel surface or dirt) the bond amount shall be \$10 per lineal foot per two foot (2') wide section.

LICENSED SURETIES AND INSURERS

All bonds and insurance required by Bourbon County shall be purchased and maintained by Contractor or ROW Occupant shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be requested by Bourbon County or County's Representative.

CERTIFICATES OF INSURANCE

Contractor or ROW Occupant shall deliver to Bourbon County or County's Representative, with copies to each additional insured and loss payee required by Bourbon County, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor or ROW Occupant is required to purchase and maintain.

Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

Failure of Bourbon County to demand such certificates or other evidence of Contractor or ROW Occupant's full compliance with these insurance requirements or failure of Bourbon County to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor or ROW Occupant's obligation to maintain such insurance.

Bourbon County does not represent that insurance coverage and limits established in this Policy necessarily will be adequate to protect Contractor or ROW Occupant.

The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor or ROW Occupant's liability under the indemnities granted to Bourbon County under this Policy.

CONTRACTOR'S INSURANCE

Contractor or ROW Occupant shall purchase and maintain such insurance as is appropriate for the Work being performed within the County Public right-of-way and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other

obligations under this Policy, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
 - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

The policies of insurance required by Bourbon County shall:

1. with respect to insurance required by Bourbon County, be written on an occurrence basis, include as additional insured's (subject to any customary exclusion regarding professional liability) Bourbon County or County's Representative, and any other individuals or entities identified by Bourbon County, all of whom shall be listed as additional insured's, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insured's, and the insurance afforded to these additional insured's shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided in this Policy or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Indemnification Section of this Policy;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty (30) days prior written notice has been given to Bourbon County and Contractor and to each other additional insured requested by Bourbon County to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Policy will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work; and
6. include completed operations coverage:

- a. Such insurance shall remain in effect for one year after final payment.
- b. Contractor shall furnish Bourbon County and each other additional insured requested by Bourbon County, to whom a certificate of insurance has been issued, evidence satisfactory to the County and any such additional insured of continuation of such insurance at final payment and one year thereafter.

The limits of liability for insurance required by Bourbon County shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation, and related coverages under the Contractor's Insurance Section of this Policy:

- a. State: Statutory
- b. Applicable Federal (e.g., Longshoremen's) Statutory
- c. Employer's Liability \$ 500,000

2. Contractor's General Liability under the Contractor's Insurance Section of the Policy which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody, and control of the Contractor:

- a. General Aggregate \$ 2,000,000
- b. Products - Completed Operations Aggregate \$ 1,000,000
- c. Personal and Advertising Injury \$ 1,000,000
- d. Each Occurrence (Bodily Injury and Property Damage) \$ 1,000,000
- e. Property Damage liability insurance will provide Explosion, Collapse, and Underground coverages where applicable.
- f. Excess or Umbrella Liability
 - 1) General Aggregate \$ 5,000,000
 - 2) Each Occurrence \$ 5,000,000

3. Automobile Liability under the Contractor's Insurance Section of the Policy:

- a. Bodily Injury:
 - Each Person \$ 1,000,000
 - Each Accident \$ 1,000,000
- b. Property Damage:
 - Each Accident \$ 1,000,000
- c. Combined Single Limit of \$ 1,000,000

4. The Contractual Liability coverage required under the Contractor's Insurance Section of this Policy shall provide coverage for not less than the following amounts:

- a. Bodily Injury:

Each Person	\$ 2,000,000
Each Accident	\$ 2,000,000

- b. Property Damage:

Each Accident	\$ 2,000,000
Annual Aggregate	\$ 2,000,000

5. The following entities shall be listed on policy as additional insureds:

- a. Bourbon County and its officers, agents, and employees

INDEMNIFICATION

By accepting this permit and commencing the work, the Permittee agrees to indemnify and hold harmless Bourbon County from all claims, actions, lawsuits or damages of any kind and description which may accrue to or be suffered by any person, corporations, other entity, or real or personal property by reason of performance of the work, character of materials used or manner of installations or construction, or the maintenance or operation of the installations, or improper occupancy of the County Public right-of-way or public or private real or personal property, and in the case any such claim is made or an action or lawsuit is commenced against Bourbon County for damages arising out of any of the above causes, the Permittee shall, upon notice from the county of such claim or commencement of such action or lawsuit, defend the same at the Permittee's sole costs and expense shall fully satisfy any judgment after said lawsuit shall have been finally determined adversely to the county. This hold harmless and indemnification shall survive expiration of the permit.

Permittee assumes all liability for Permittee and any of its respective related entities' agents, employees, contractors, subcontractors, material suppliers, vendors, transport providers, designees and representatives.

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ROAD DESIGN, REPAIR AND MAINTENANCE STANDARDS

ROAD DESIGN

Design Speed – Bourbon County will, when conditions allow, design and maintain roads to the maximum speed allowed by Kansas Statutes. K.S.A. 8-1558 establishes a maximum speed limit on any county or township highway, 55 miles per hour, except when a special hazard exists that requires lower speed for compliance with K.S.A. 8-1557. Local authorities may alter the maximum speed limit in accordance with K.S.A. 8-1560(h).

Width of Road - The road width is defined as the combined width of traveled way and the shoulders. The minimum width of traveled way for rural roads is sixteen feet (16'), and the minimum shoulder is two foot (2'). These minimum values are to be increased based on road classification, design speed, and traffic levels as shown in Table 2: Total roadway width (ft) by road classification below:

Design Speed	Rural Secondary Roads		Minor Roads
	Class 1	Class 2	Class 3
35	18 ft	18 ft	18 ft
40	18 ft	18 ft	20 ft
45	20 ft	20 ft	20 ft
50	20 ft	20 ft	20 ft
55	22 ft	----	20 ft

Note: Total roadway width includes the width of both traveled way and shoulders.

Intersections

- A.) Roads shall be laid out as to intersect as nearly as possible at right angles. No road shall intersect any other road at an angle of less than seventy degrees (70°).
- B.) Road jogs with center line offsets of less than one hundred twenty-five feet (125') shall not be permitted.
- C.) Property lines at road intersections shall be rounded with a minimum radius of twenty-five feet (25').

Intersection Sight Distance - The driver of a vehicle approaching an at-grade intersection should have an unobstructed view of the entire intersection, including any intersection traffic-control devices, and sufficient lengths of the intersecting road to permit the driver to anticipate and avoid potential collisions. Guidelines for intersection sight distance at intersection between very low-volume local roads are discussed below:

Use the following procedure for determining required signing based on sight distance:

- A.) Determine the operating speed for each intersection approach.
- B.) Using the operating speed, determine the intersection sight distance from Table 3: Intersection Sight Distance.
- C.) The observer with the sighting rod and the assistant with the target rod should position themselves on different approaches at the appropriate distance from the intersection.
- D.) The observer sighting over the sighting rod should determine if the top of the target rod is visible. If the target rod is visible, then the clear sight triangle has been achieved.
- E.) If the clear sight triangle is less than the distance given for stop control, stop signs should be used.
- F.) If the clear sight triangle is greater than the distance given for stop control, yield signs may be used.
- G.) If the clear sight triangle is greater than the distance given for no control, no control signs are required based on sight distance.
- H.) The intersection sight triangle analysis should be performed for all legs considering traffic approaching from both the right and the left.

If further guidance is needed for conditions not addressed in this section, refer to AASHTO *Green Book*, Fourth Edition (2001), pages 654 to 681.

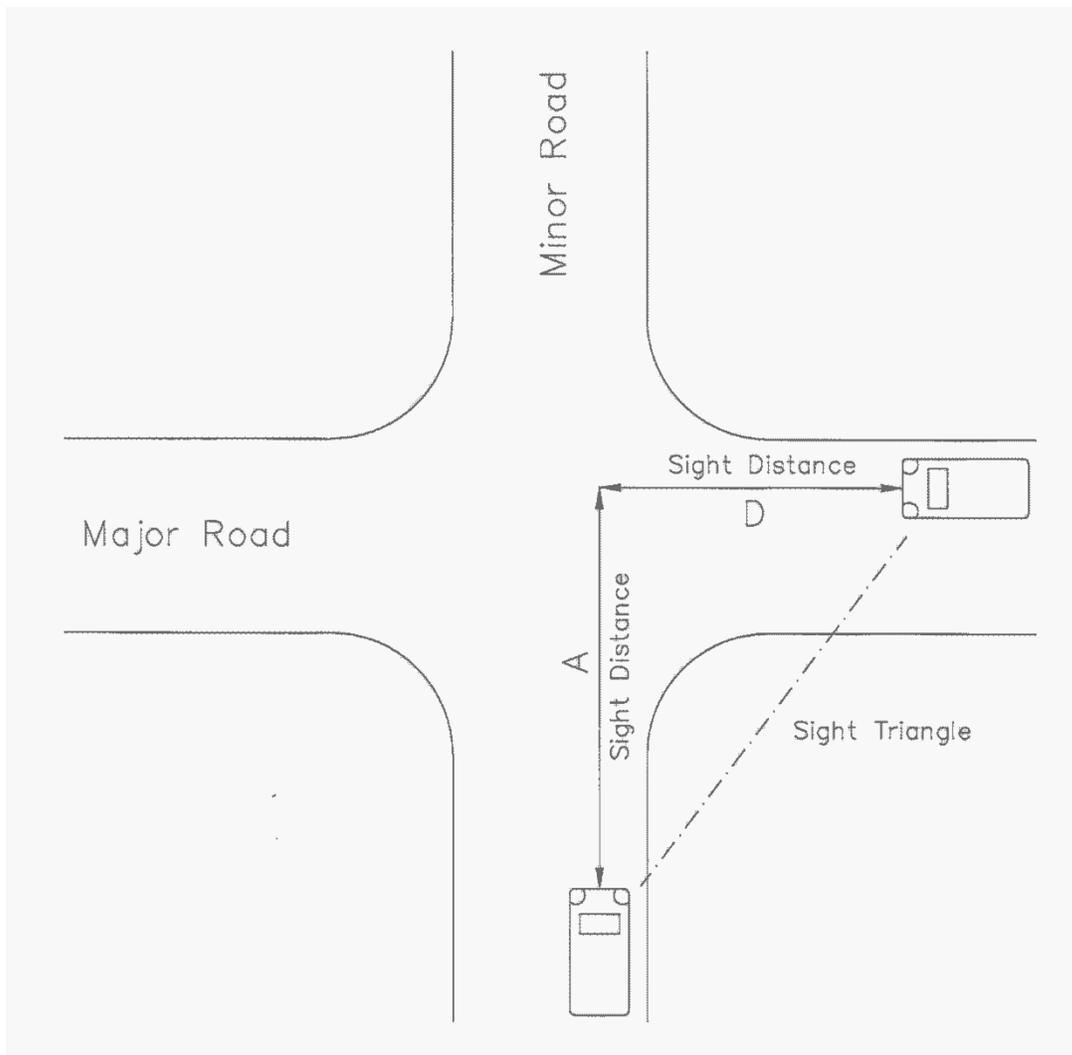


Table 3: Intersection Sight Distance

	Distance (ft)	Operating Speed (mph)					
		10	20	30	40	50	60
Stop Control	D	110	225	335	445	555	665
	A	50	50	50	50	50	50
No Control	D	---	90	140	195	245	325
	A	---	90	140	195	245	325

¹ values in the table are for passenger cars on 3% grade, see AASTHO Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT \leq), Chapter 4, Intersection Sight Distance, page 40 – 47 for adjustment factors.
² downgrades require an increased distance
³remove vegetation higher than three (3) feet in the clear sight area

Stopping Sight Distance - The length of road that is visible ahead of the driver should be long enough to enable a vehicle traveling at the design speed to stop before reaching a stationary object in the road. The design criteria for stopping sight distance on very low-volume roads vary with traffic volumes levels and the proximity of intersections, narrow bridges, railroad-highway grade crossings, sharp curves and steep grades, but the design criteria does not vary between road classifications of county roads. Sight distance criteria applicable to new construction projects and to existing county roads are presented below in Table 4: Minimum sight distance (ft) for specified design traffic volumes and location types.

Table 4: Minimum sight distance (ft) for specified design traffic volumes and location types				
	0-100 veh/day	100 – 250 veh/day		250 – 400 veh/day
Design Speed (mph)	All locations	“Lower risk” locations ¹	“Higher risk” Locations ²	All locations
35	170	170	205	205
40	215	215	250	250
45	260	260	300	300
50	310	310	350	350
55	365	365	405	405
60	435	435	470	470

¹ away from intersections, narrow bridges, railroad-highway grade crossings, sharp curves, and steep downgrades
² near intersections, narrow bridges, or railroad-highway grade crossings, or in advance of sharp curves or steep downgrades

Minimum Curve Radius/Maximum Degree of Curvature – For road curve design guidelines of very low volume local roads refer to AASTHO Guidelines for Geometric Design for Very Low-Volume Local Roads (ADT ≤ 400), Chapter 4 Design Guidelines.

Pavement Surface Crown - Pavement surface crown, or cross slope, should be A-shaped, **NOT** a parabolic shape to provide proper surface drainage. The surface crown for county roads typically ranges from two to six percent (2%-6%), depending on the pavement surface material. A summary of surface crown requirements is provided in Table 5: Surface Crown Design Requirements.

Table 5: Surface Crown Design Requirements	
<u>Road Classification</u>	<u>Surface Crown</u>
<i>Rural Secondary Road</i>	
Class 1 - Paved Surface	2% or ¼” per foot of fall
Class 1 – Gravel Surface	4% or ½” per foot of fall
Class 2 – Gravel Surface	4% or ½” per foot of fall
<i>Minor Road</i>	
Class 3 - Paved Surface	2% or ¼” per foot of fall
Class 3 - Gravel Surface	4% or ½” per foot of fall
Class 3 - Dirt Surface	4% or ½” per foot of fall

Right-of-Way Width - Unless otherwise specified, an easement or County Public right-of-way must be at least sixty feet (60') in width (30 feet each side of center line). Depending on the site conditions and use of the road, Bourbon County may, at its discretion, require more or less right-of-way than specified herein.

TYPICAL ROAD SURFACE TYPES AND CLASSIFICATION

Typically, a county road is constructed with the type of surface consistent with the nature and volume of the traffic it accommodates. The four road surface types that are typically constructed in Bourbon County are asphalt surface roads, chip seal surface roads, gravel surface roads and dirt surface roads.

Bourbon County Road System is composed of approximately 1000 miles of roadway. The miles per road type are as follows:

Table 6: Mile per Road Type	
<u>Road Type</u>	<u>Miles of Road</u>
<i>Paved Roads</i>	158.25
<i>Unpaved Roads</i>	
Gravel Surface	796.00
Soil Surface	46.05

District Classification - The Bourbon County road system is further classified in the following districts:

Table 7: Miles of road per District Classification	
<u>District Classification</u>	<u>Miles of Road</u>
<i>District 1</i>	
Gravel Surface	385.00
Dirt Surface	28.55
<i>District 2</i>	
Gravel Surface	211.00
Dirt Surface	15.00
<i>District 3</i>	
Gravel Surface	200.00
Dirt Surface	2.50

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ASPHALT ROAD SURFACE AND BASE DESIGN

SUBGRADE DESIGN

Approval of Materials – Asphalt materials shall be approved by the Bourbon County Road and Bridge Supervisor or County's Representative prior to use in the work. The County Road and Bridge Supervisor or County's Representative may accept a certified analysis by the material supplier laboratory when a copy of the certified analysis accompanies each shipment of asphalt to the project. The County Road and Bridge Supervisor or County's Representative reserves the right to perform tests of the asphalt received on the job.

Summary – This section includes subgrade preparation at locations which have been previously graded.

Subgrade Clearing – Before beginning preparation of the subgrade, all sod and other vegetation shall be removed from the roadbed. The subgrade surface shall be brought to the specified lines, grades and cross-section, as indicated on the construction plans or approved by the Bourbon County Road and Bridge Supervisor or County's Representative. Tolerance allowed on all lines, grades and cross-sections shall be no more than one-quarter of an inch (1/4"). If existing pavements or bridges are encountered, excavate the subgrade at all control points to a depth that will allow placement of the required thickness, flush with the existing surface. Use a transition (from normal to special section) of sufficient length to prevent an abrupt or noticeable change in grade. Contractor or ROW Occupant shall remove and dispose of any excess material.

Subgrade Compaction – After clearing, the top six inches (6") of the subgrade for pavements shall be compacted to not less than ninety-five percent (95%) of the standard proctor maximum density as measured by AASHTO T-99, Method C and within a tolerance of plus three percent (3%) and minus two percent (2%) of the optimum moisture content. The tolerance applies only to the top six inches (6").

Protection and Maintenance of Subgrade - The subgrade shall be protected from action of the elements or others. Any action (eg. Settlement or erosion) that damages the subgrade prior to placing the pavement thereon, shall be repaired and the specific lines, grades, cross-section, tolerance, density, and moisture content range reestablished.

The Contractor shall protect all existing improvements from damage resulting from his subgrade operation. Any improvement damaged shall be repaired or replaced by the Contractor at their own expense.

Rolling Test – Once the subgrade has been brought to the final construction elevation, but prior to approval of the subgrade for paving, all lanes shall be roll tested in their entire length. The subgrade will not be acceptable if rutting, pumping, or deformation of the subgrade results from the roll test. This testing will be done by the Contractor at their own expense, and will be in addition to the applicable moisture and density testing.

Equipment for roll testing shall be tandem dump truck (one front and two rear axles) carrying the maximum allowable legal load.

The truck shall proceed slowly along each traffic lane, allowing the County Road and Bridge Supervisor or County's Representative to walk alongside and observe the results. Areas failing the roll test will be reworked and retested prior to approval of the subgrade for paving.

BASE AGGREGATE DESIGN

Base Aggregate Mixing – The mixing methods are:

- Central Plant Method. Use a stationary mechanical mixing plant to uniformly mix the water and aggregate.
- Road Mix Method. After the aggregate is placed in a uniform windrow, use a motor grader, or other equipment approved by the Bourbon County Road and Bridge Supervisor or County's Representative, to uniformly mix the water and the aggregate.

Mix the aggregate with sufficient water to allow compaction of the mixture to the specified density. If the aggregate is predominantly limestone, use the central plant. Use a central plant or road mix method to mix types of granular aggregate other than limestone, or to mix any type of aggregate if the original contract quantity is less than 15,000 square yards.

When required or specified, mix calcium chloride with the aggregate at the approved rate. Add the calcium chloride (in solution, flakes, pellets or granular) at the same time the water is mixed with the aggregate.

Base Aggregate Material – Provide one of the types of aggregates for use in aggregate base construction as shown in Table 8: Gradation and Plasticity of Aggregates for Aggregate Base Construction. Material shall comply with Section 1104: Aggregates for Aggregate Base Construction of the KDOT Standard Specifications for State Road and Bridge Construction.

Type AB-1 or AB-2 may be singularly or any combination of crushed stone, crushed or uncrushed gravel, sand, sand-gravel, or limestone gravel mixed with soil or other qualified binder material.

Type AB-3 is at least 85% limestone or dolomite produced by mechanical crushing.

Deleterious Substances: Provide aggregates that are free from weeds, sticks, grass, roots and other undesirable foreign matter.

Table 8: Gradation and Plasticity of Aggregates for Aggregate Base Construction											
Type	Percent retained on standard square mesh sieves*									P.I.	Liquid Limit (Max.)
	2"	1 1/2"	1"	3/4"	3/8"	No. 4	No. 8	No. 40	No. 200		
AB-1	0	1-10		5-40		35-75	54-85	78-95	90-98	0-6	25
AB-2*			0		1-35		25-50	60-75	78-90	1-6	25
AB-3**	0	0-5		5-30		35-60	45-70	60-84	80-92	2-8	30

* The fraction passing the No. 200 sieve shall not exceed 2/3 of fraction passing the No. 40 sieve.
 ** For grading factors less than 4.00 but greater than 3.75, provide additional materials as a penalty at a rate of 1.5% for each 0.05 less than 4.00 grading factors. Use a maximum lot size of 500 cubic yards or tons to determine penalty. Average all tests within the lot to determine penalty.

Base Aggregate Placement – The base aggregate material shall be uniformly spread in successive layers to such depth that when compacted, the base will have the minimum thickness specified. The maximum compacted thickness of any layer of aggregate base is six inches (6"). If the thickness is greater than six inches (6"), spread and compact the aggregate base in multiple lifts of equal thickness with a maximum lift thickness of six inches (6"). The maximum compacted thickness of any layer may be increased to eight inches (8") when vibrating compaction equipment or other compaction equipment is approved by the Bourbon County Road and Bridge Supervisor or County's Representative. On aggregate course projects without shoulders, construct all lifts, regardless of thickness, with an edge slope of 1:1 or

flatter. If the aggregate base is constructed in more than one (1) layer, allow sufficient time for the initial layer to cure to prevent any rutting or surface distortion from equipment being used to place the succeeding layers.

The base aggregate material shall meet the required specification Section 1104: Aggregate for Aggregate Base Construction of the KDOT Standard Specifications for State Road and Bridge Construction immediately before compaction operations are commenced. If, for any reason, segregation occurs in excess of ten percent (10%) variation from the gradation required in Table 8: Gradation and Plasticity of Aggregates for Aggregate Base Construction or if the materials become contaminated, such segregated or contaminated materials shall be removed and replaced with suitable materials at the expense of the Contractor or ROW Occupant. The limited segregation of ten percent (10%) variation will be ascertained by a sieve analysis of a minimum one hundred (100) pound sample taken from the in-place base course. However, when crushed stone is used, segregated surface areas may be corrected by adding limestone screenings of such gradation and quantity as required to fill the surface voids and firmly bind the loose material in place.

Shaping and compacting shall be carried on continuously until a true, even and uniform surface or proper grade and cross-section is obtained, and until the density of the complete base is a least ninety-five percent (95%) of maximum density as determined by AASHTO T-99. The proper moisture content shall be maintained by wetting the surface as required during shaping and compacting operations.

After compacting the aggregate base, trim the surface to the specified lines and grades. On projects having more than 20,000 square yards of aggregate base, use automatic grade controlled equipment to trim the compacted aggregate base. In irregular areas, trim the aggregate base by wetting, blading and rolling. Compact the trimmed surface of the aggregate base with a smooth-wheel or a pneumatic-tire roller. When necessary, lightly scarify and blade the surface to eliminate equipment imprints while performing final rolling.

Curing and Maintenance of Aggregate Base – Allow the aggregate base to cure before any heavy equipment is allowed on the aggregate base. Curing of aggregate bases constructed of AB-1 or AB-2 is complete when the moisture content is a maximum of sixty percent (60%) of the optimum moisture content. Curing of aggregate bases constructed of AB-3 is complete when the moisture content is a maximum of seventy percent (70%) of the optimum moisture content. The Bourbon County Road and Bridge Supervisor or County's Representative will perform testing to determine when the cure of the aggregate base is complete. It may be required that the surface of the aggregate base be kept moist during the curing period to prevent loss of surface material. Do not apply asphaltic surfacing until the aggregate base is cured. Maintain the base until the surfacing is applied.

Shoulders, Entrances and Side Roads – When shoulder construction is not included in the project, reconstruct, compact and shape the existing shoulder from the top of the completed aggregate base to the shoulder line. Shape the shoulders to provide a uniform shoulder line.

Raise the grade of entrances and side roads to meet the edge of the completed aggregate base. Construct, compact and shape the entrances and side roads full width with shoulders and shoulder radii adjacent to the shoulders of the roadway.

PRIME AND TACK COAT DESIGN

Summary – This section includes the application of liquid asphalt to a prepared pavement (concrete, asphaltic concrete), or granular base.

Prime and Tack Coat Material – Bituminous prime or tack coat shall be MC-30 in conformance with Section 1204: Cutback Asphalt from the KDOT Standard Specification for State Road and Bridge Construction.

Material to be Treated	Application Usage	Type of Emulsion or Grade of Cutback	Application Rate Gal/SY	Application Temperature °F	Cure Time at 70°F
Treated Base; ie, lime, fly/ash, cement	Prime	MC-30	0.1 – 0.3 Gal/SY	85-120	12-24 hrs
Untreated Aggregate Base w/ Fines	Prime	MC-30	0.1 – 0.3 Gal/SY	85 - 120	12 - 24 hrs

Sand Cover – Sand Cover, if used, shall be any clean granular mineral meeting the following grading requirements. When tested with laboratory sieves one-hundred percent (100%) shall pass the No. 4 sieve and not more than two percent (2%) shall pass the No. 200 sieve. The moisture content of the sand shall not exceed three percent (3%) by weight.

Pressure Distribution – The distributor shall be so designed, equipped, maintained and operated that liquid asphalt at even heat may be applied uniformly on variable widths of surface up to fifteen (15') feet at readily determined and controlled rates from 0.02 to 1.00 gallons per square yard, with uniform pressure, and with an allowable variation from any specified rate not to exceed 0.02 gallons per square yard. Distributor equipment shall include a tachometer, pressure gauges, a calibrated tank and thermometer for measuring temperatures of tank contents. Distributors shall be equipped with a power unit for the pump, and full circulation spray bars adjustable laterally and vertically. The calibration of all distributors must be approved by the Bourbon County Road and Bridge Supervisor or County's Representative, and the Contractor shall furnish all equipment, material and assistance necessary if calibration is required.

Preparation of Existing Surface for Tack Coats – The existing surface shall be free of all dust, loose material, grease or other foreign material at the time the tack is applied. Shape, blade and broom side roads that receive asphalt treatment, at the same time as the roadbed surface. When required by Bourbon County Road and Bridge Supervisor or County's Representative, Contractor or shall give the broomed surface of an earth subgrade or a water-bound base course or subbase a light application of water (approximately 0.1 gallon per square yard) before the asphalt material is applied.

Preparation of Existing Surface for Prime Coats – The surface to be primed shall be shaped to the required grade and cross-section, shall be free from all ruts, corrugations, segregated material or other irregularities, and shall be uniformly compacted by rolling. The surface shall be firm and slightly damp when primer is applied. Delays in priming may necessitate reprocessing or reshaping to provide a smooth compacted surface.

Application for Asphalt Material for Tack Coats – Asphalt emulsion shall be applied uniformly with a pressure distributor at the rate specified in Table 9: Liquid Asphalt Material Recommendation, under the Prime and Tack Coat Design section of this policy, or as approved by the Bourbon County Road and Bridge Supervisor or County's Representative to be within a minimum of 0.05 and a maximum of 0.15 gallons per square yard. Water may be added to the asphalt emulsion and mixed therewith in such proportion that the resulting mixture will contain not more than fifty percent (50%) of added water, the

quantity of added water shall be approved by the Bourbon County Road and Bridge Supervisor or County's Representative. The application of the resulting mixture shall be such that the original emulsion will be spread at a specified rate either identified on the construction plans or approved by the Bourbon County Road and Bridge Supervisor or County's Representative. The asphalt emulsion shall be heated at the time of application to a temperature in accordance with construction plans, or as approved by the Bourbon County Road and Bridge Supervisor or County's Representative. The tack shall be properly cured and the tacked surface shall be cleaned of all dirt and surplus sand before the next course is placed.

The tack coat shall be applied in such manner as to cause the least inconvenience to traffic and to permit one-way traffic without pickup or tracking of the asphalt emulsion.

Application for Asphalt Material for Prime Coats – Bituminous material shall be applied to the width of the section to be primed by means of a pressure distributor in a uniform, continuous spread. The subgrade shall be moistened before the prime is applied. The application rate shall be as specified in Table 9: Liquid Asphalt Material Recommendation, under the Prime and Tack Coat Design section of this policy or approved by the Bourbon County Road and Bridge Supervisor or County's Representative between 0.1 and 0.5 gallons per square yard. The primer shall be heated at the time of application to a temperature in accordance with the limits provided in Table 9: Liquid Asphalt Material Recommendation, under the Prime and Tack Coat Design section of this policy.

Care shall be taken that the application of bituminous material at the junctions of spreads is not in excess of the specified quantity. Building paper shall be placed over the ends of the previous applications and the joining application shall start on the building paper. Building paper used shall be removed and satisfactorily disposed of. Pools of primer material remaining on the surface after the application shall be removed.

When traffic is maintained, not more than one half of the width of the section shall be treated in one application and one-way traffic will be permitted on the untreated portion of the roadbed. As soon as the bituminous material has been absorbed by the surface and will not pick up, traffic shall be routed to the treated portion and the remaining width of the section will be primed.

The primer shall be properly cured, and the primed surface shall be cleaned of all dirt and surplus sand before the next course is placed.

Application of Sand Cover – If the asphalt material is not completely cured within the maximum specified curing time, sufficient sand shall be spread over the surface with a mechanical spreader to blot up the excess asphalt. The rate of application shall be specified by the Bourbon County Road and Bridge Supervisor or County's Representative. Prior to placing an asphalt paving course, all loose sand shall be swept from the primed or tacked surface.

ASPHALTIC CONCRETE SURFACE AND BASE DESIGN

Summary – This section includes the construction of asphalt concrete base and/or asphalt concrete surface.

Asphaltic Material – Asphaltic concrete surface and base material shall be provided in accordance with construction plans or as required by Bourbon County Road and Bridge Supervisor or County's Representative. No material shall be used until it has been approved by the Bourbon County Road and Bridge Supervisor or County's Representative. All costs associated with material testing, certification and the preparation of trial mixes to determine the job mix formula shall be the responsibility of the Contractor. Representative samples of all materials proposed for use under these specifications shall be submitted to the testing laboratory by the Contractor, at the Contractor's expense, for testing and the preparation of trial mixes to determine the job-mix formula. Additional tests necessary for determining conformance with the

requirements specified in this Policy will be performed under the supervision of the Bourbon County Road and Bridge Supervisor or County's Representative without cost to the Contractor, unless testing is the responsibility of the Contractor in the Contract Documents.

Asphalt - Asphalt cement used in the manufacture of asphalt paving mixtures shall conform to the Performance Graded system. The PG graded material used shall conform to the provincial grade used by KDOT or as designated by Bourbon County Road and Bridge Department or County's Representative. In the Bourbon County area, the provincial grade is a PG64-22.

These general guidelines may not address all project conditions. American Public Works Association (APWA) strongly recommends that a Licensed Engineer in the State of Kansas apply sound pavement design principles when designating mix type and selecting asphalt cement grade based upon individual project conditions.

The asphalt cement shall conform to ASTM D 6373 and APWA Type 3-01 specification (50 compaction blows per face). Sampling shall be in accordance with ASTM D 140.

The Contractor or Asphalt Supplier shall submit a quality assurance plan for the asphaltic cement to the Bourbon County Road and Bridge Supervisor or County's Representative that conforms to AASHTO PP 26. They shall also submit a temperature-viscosity chart showing the recommended mix and compaction temperatures for non-modified asphalts, and shall provide the specific gravity of the asphalt.

Aggregate – The quality of aggregates used in Asphaltic Concrete shall conform to the following:

<u>Course Aggregate (Retained on the No. 4 Sieve)</u>	
LA Abrasion (ASTM C 131)	35% loss (maximum)
Soundness using Mag. Sulfate (ASTM C 55 5 cycles)	15% loss (maximum)
Total shale, clay, coal and lignite content (ASTM C 142)	1.0% by weight (max.)
 <u>Fine Aggregate (Passing the No. 4 Sieve)</u>	
Organic Content	1% maximum
The parent material of manufactured sand must also meet the requirements for course aggregate shown above.	

Sampling shall be in accordance with ASTM D 75. Gradation analysis shall be in accordance with Standard Method of Test for Material Finer than No. 200 Sieve in Mineral Aggregates by Washing, ASTM C 117 and Standard Method Test for Sieve Analysis of Fine and Coarse Aggregate, ASTM C 136.

Composition of the Mix – Asphaltic concrete mixtures shall consist of Mineral Aggregates and Asphalt Cement within the following limits for Asphaltic Concrete-Type 3-01 specified by Bourbon County.

- Aggregate 1: ½" Quality Crushed Limestone
- Aggregate 2: 3/8" Quality Crushed Limestone
- Aggregate 3: Quality Limestone Screenings
- Aggregate 4: River Sand

Asphalt Cement for Asphaltic Concrete Type 3-01

Percent by Weight of Total Mixture	4% - 7%
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Table 10: Asphaltic Concrete-Type								
Total Percentage Passing by Weight								
Sieve Size		25%	25%	35%	15%		Specs. For Type 3-01	
mm	US	Agg. 1	Agg. 2	Agg. 3	Agg. 4	Composition	Min.	Max.
50	2"	100.0	100.0	100.0	100.0	100.0	100	100
37.5	1 ½"	100.0	100.0	100.0	100.0	100.0	100	100
25	1"	100.0	100.0	100.0	100.0	100.0	100	100
19	¾"	100.0	100.0	100.0	100.0	100.0	100	100
12.5	½"	70.0	100.0	100.0	100.0	92.5	85	100
9.5	3/8"	24.7	100.0	100.0	100.0	81.2	70	90
4.75	# 4	2.5	18.8	99.1	99.4	54.9	50	70
2.36	# 8	2.0	2.5	66.5	96.1	38.8	37	47
1.18	# 16	1.9	2.2	43.4	90.3	29.8	26	36
0.6	# 30	1.7	2.0	30.7	81.0	23.8	18	30
0.3	# 50	1.5	1.9	23.4	56.7	17.5	12	22
0.15	# 100	1.4	1.7	19.0	8.2	8.7	6	15
0.075	# 200	1.2	1.5	16.3	0.4	6.4	4.0	10.0

In addition to the above limits, the difference between the "Percentage Passing Square Mesh Sieve" of successive sieve sizes shall not exceed 25.

The fraction of material retained on the No. 4 (4.75 mm) Sieve shall be composed of particles with not less than 75% having two or more fractured faces, and not more than 20% by weight of that fraction shall be composed of flat or elongated particles.

The maximum permissible variation allowed by Bourbon County for an asphaltic concrete design mix shall be as followed:

Permissible Gradation Variation from Asphaltic Concrete Type 3-01 (Percent by Wt. of Total Mix)

U.S. Standard Sieve Size

No. 4 and Larger	4.0
No. 8, 16, 30 and 50	3.0
No. 200	1.0
Asphalt Cement	0.3

Design of the Mix - The Asphaltic Mix Design used by Bourbon County for Asphaltic Concrete Cement Type 3-01 was optimized using four asphalt contents (4.0, 4.5, 4.8, 5.5 AC). Table 11: Mix Design Requirements of Asphaltic Concrete Cement Type 3-01 below lists the mix properties at the optimum asphalt content chosen (4.8% AC). The mixing temperature range is 305 to 315 °F and the compaction temperature range is 285 to 295 °F.

Table 11: Mix Design Requirements of Asphaltic Concrete Cement Type 3-01

Property	APWA 3-01 Specification		Test Results*	
Optimum AC Content	NA		4.8 ± 0.2	
Bulk Gravity of Mix (G _{mb})	NA		2.366	
Mix Density (lbs/ft ³)	NA		147.6	
% Air Voids	3-5		3.9	
% VMA	NA (AI MS-2: 14 min.)		12.7	
% Voids Filled	NA (AI MS-2: 65-78)		69.5	
Dust Proportion	NA (AI MS-2: 0.6 – 1.2)		1.67	
Stability (lbs)	1,500 min.		4,040	
Flow (0.01")	8-16		14	
*Test Result are from the local supplier that supplies Bourbon County with Asphaltic Concrete Cement Type 3-01. Note: NA = Not Applicable AI MS-2 Specifications are provided for information only.				
Property	Test Method	Specifications	Test Results*	
Flash Point, °C	AASHTO T 48	230 min.	310	
Rotational Viscosity, Pa's	@ 135°C	AASHTO T 316	3.0 max.	0.396
	@ 165°C		Report	0.111
Specific Gravity	@ 15.6°C	AASHTO T 228	Report	1.033
Density, lbs/gal			Report	8.60
Absolute Viscosity, Poise	60°C	AASHTO 202	Report	2,307
Penetration, 100g, 5 sec, dmm	25°C	AASHTO T 49	Report	75
Dynamic Shear , kPa	@ 65°C	AASHTO T 315	Report	1.42
AFTER RTFOT				
Mass Loss, %		AASHTO T 240	1.0 max.	0.498
Dynamic Shear, kPa	@ 64 °C	AASHTO T 315	2.2 min.	4.47
PRESSURE AGING RESIDUE (100°C, 300 psi, 20hr.)		AASHTO R 28		
Dynamic Shear, kPa	@ 25 °C	AASHTO T 315	5,000 max.	4,150
Creep Stiffness, Stiffness, MPa (60 sec.)	@ -12 °C	AASHTO T 313	300 max.	173
m Value			0.300 min.	0.344
Kansas DOT SUPERPAVE™ Binder Grade, PG:			64-22	
This material does meet requirements of the Kansas DOT, Section 1200, Performance Binder, PG 64-22, for those properties tested.				

Mixing Temperature for Bourbon County Asphaltic Concrete Cement Mix – The suggested mixing temperature range is 154 °C to 160 °C (310 °F to 320°F). The suggested compaction temperature range is 143 °C to 149 °C (290 °F to 300 °F).

Preparation of the Area to be Paved – The area to be paved shall be true to line and grade, and shall have a properly prepared surface prior to the start of the paving operations. It shall be free from all loose or foreign material.

Where a base is rough or uneven, a leveling course shall be placed and properly compacted before the placing of subsequent courses.

When leveling course is not required, all depressions and other irregularities shall be patched or corrected, and the work approved by the Bourbon County Road and Bridge Supervisor or County’s Representative before the paving operation begins.

The area to be paved shall be primed or tacked uniformly in accordance with the requirements of the Prime and Tack Coat Section of this policy.

The surfaces of curbs, gutters, vertical faces of existing pavements and all structures in actual contact with asphalt mixes shall be painted with a thin, complete coating of asphaltic material to provide a closely bonded, watertight joint.

Weather Limitations – When the moisture of the aggregate in the stockpile or from the dryer interferes with the quality of mix production, or with normal plant operations, or when pools of water are observed on the surface to be paved, the mixing and placing of hot-mix asphalt will not be permitted without the permission of the Bourbon County Road and Bridge Supervisor or County’s Representative.

Hot Mix asphalt paving shall not be mixed or placed when the ambient air or base temperature is below 40°F (4.4°C), or when there is frost in the subgrade or any other time when weather conditions are unsuitable for the type of material being placed without expressed approval of the Bourbon County Road and Bridge Supervisor or County’s Representative.

Asphalt mix laydown temperatures and rolling times shall conform to the follow specifications:

Base Temp.	1-1/2”	2”	3” and Greater
40-50°F (4.4-10°C)	300°F (149°C)	285°F (141°C)	275°F (135°C)
50-60°F (10-16°C)	295°F (146°C)	280° (138°C)	270° (132°C)
60-70°F (16-21°C)	285°F (141°C)	275° (135°C)	265° (129°C)
70-80°F (21-27°C)	280° (138°C)	270° (132°C)	265° (129°C)
80-90°F (27-32°C)	270° (132°C)	265° (129°C)	260° (127°C)
90°+F (32°+C)	265° (129°C)	260° (127°C)	255° (124°C)
Rolling Time	12 minutes	15 minutes	15 minutes

Regardless of the temperature, final acceptance of the asphalt mat shall be based on density and roller test patterns. Rolling times shown are maximum times during which target density must be achieved.

Transportation of Asphalt Mix – The asphalt mix shall be transported to the job site in vehicles with tight metal bottoms, clean of all foreign material which may affect the mix. If a release agent is used, it must comply with State and Federal environmental regulations. The dispatching of the vehicles shall be so scheduled that all materials delivered may be placed in daylight unless the Bourbon County Road and Bridge Department Supervisor or County's Representative approves artificial light. Delivery of the material to the paver shall be at a uniform rate and in an amount within the capacity of the paving and compacting equipment.

Hauling trucks shall be provided with covers of sufficient size and weight to completely cover the truck bed to protect the load and to prevent cooling of the upper surface. Failure to have the load completely covered shall be sufficient cause for rejection of the entire load. The load shall remain covered until the truck is next in line to be unloaded. In no case shall a load remain uncovered for more than ten (10) minutes before starting to use the load. If for any reason there is a delay in completely using a load, the remaining part of the load shall be recovered until it can be used. It shall be the responsibility of the Contractor to inform all truck drivers of their provisions before starting work.

Spreading and Finishing – The spreading and finishing of each course shall be to the thickness and width indicated on the construction plans. The suggested minimum lift thickness shall be three times the nominal maximum size of the mix. Nominal maximum is defined as the first sieve size larger than the sieve which retains at least ten percent (10%) of the aggregate by weight.

Spreading and finishing shall be conducted in the following manner:

Mechanical Pavers - The base and surface courses shall be spread and struck-off with a mechanical paving machine. The paving machine shall be operated so that the material does not accumulate and remain along the sides of the receiving hopper. The wings of the spreader hopper shall not be emptied (flipped) between tuck loads.

Equipment which leaves tracks or indented areas which cannot be corrected in normal operation, or which produces other permanent blemishes or fails to produce a satisfactory surface, shall not be used. The screed auger shall be operated approximately $\frac{3}{4}$ full and the hopper conveyor shall not be allowed to run out of material during the paving operation.

Longitudinal joints and edges shall be constructed to true lines. Lines for the paver to follow in placing individual lanes will be established parallel to the centerline of the proposed roadway. The paver shall be positioned; and operated to follow closely the established line.

Sufficient trucks shall be used to continuously supply asphalt to the paver. Delays in the paving operation shall be kept to a minimum.

The Contractor shall make every effort to minimize the number of passes heavy equipment makes over uncompleted roadway sections.

When using pavers in echelon, the second paver shall follow the edge of the material placed by the first paver. The length of each laydown pass shall be limited, depending on weather conditions, to assure a hot joint and obtain proper compaction.

As soon as the first load of material has been spread, the texture of the unrolled surface shall be checked to determine its uniformity. Segregation of materials shall not be permitted. If segregation occurs, the spreading operation shall be immediately suspended until the cause is determined and corrected. Transverse joints in succeeding courses shall be offset at least two feet (2'). Longitudinal Joints shall be offset at least six inches (6"). The longitudinal joints shall be laid out so that the surface joint is under the lane markings where possible.

Any irregularities in alignment left by the paver shall be corrected by trimming directly behind the machine. Distortion of the pavement during this operation shall be avoided.

Edges against which additional pavement is to be placed shall be placed on a thirty degrees (30°) (2:1) bevel, or as specified by the Bourbon County Road and Bridge Supervisor or County's Representative. Any irregularities in the surface of the pavement course shall be corrected directly behind the paver. Excess material forming high spots shall be removed by a shovel or lute. Indented areas shall be filled with hot mix and smoothed. Broadcasting of material shall not be permitted.

Hand Spreading - In small areas where the use of mechanical finishing equipment is not practical, the mix may be spread and finished by hand. The material shall be distributed uniformly to avoid segregation of the coarse and fine aggregate. Broadcasting of material shall not be permitted. During the spreading operation, all material shall be thoroughly and uniformly distributed by lutes or rakes. Material that has formed into lumps and does not break down readily shall be removed. Following placing and before rolling, the surface shall be checked with templates and straightedges and all irregularities corrected.

Compaction - A minimum of three rollers shall be used for compacting mixes unless otherwise approved by the Bourbon County Road and Bridge Supervisor or County's Representative. Additional rollers shall be used as necessary to provide specified pavement density.

Immediately after spreading, each course of the pavement mixture shall be compacted by rolling. The initial or "breakdown" rolling shall be accomplished with a steel-wheeled vibratory roller. The pneumatic-tired roller shall be used to knead and compact the pavement mixture following the initial rolling and preceding the final rolling. Care shall be exercised in the use of the pneumatic-tired roller to ensure that the pavement mixture is sufficiently cooled to avoid "picking up" of the mixture on the tires of the roller, and also to ensure that the pneumatic-tired rolling is completed before the mixture becomes too cool to allow satisfactory finish rolling. Final, or finish rolling, shall be done with a steel-wheeled roller. The sequence of rolling operations may be changed with the approval of the Bourbon County Road and Bridge Supervisor and County's Representative. All rolling shall be longitudinal, starting near the edge of the pavement. Alternate trips of the roller shall be of slightly different lengths. The initial rolling shall take place as closely behind the laydown machine as the temperature and condition of the mat will allow.

The motion of the roller shall be slow enough at all times to avoid displacement of the hot mixture. The initial compaction roll shall be accomplished with the roller drive wheel leading the tiller wheel. Any displacement occurring as a result of reversing the direction of the roller, or from any other cause, shall be corrected immediately by the use of rakes and fresh mixture when required. To prevent adhesion of the mixture to the roller, the wheels shall be kept properly moistened, but excess water will not be permitted.

The surface of the mixture after compaction shall be smooth and true to established section and grade. Any surface which is segregated, or is in any way defective, shall be removed and replaced with fresh hot mixture at the Contractor expense, and shall be immediately compacted to conform with the surrounding area.

Rolling Procedure Thin Layers (Lifts): When placing a thin lift (less than two inches (2") compacted thickness) in single-lane width or full width, the mixture should be rolled in the following sequence:

- 1.) Transverse joint.
- 2.) Outside edge.
- 3.) Breakdown rolling, beginning on the low side.
- 4.) Intermediate rolling; same procedure as Step 3.

- 5). Finish rolling.

When paving a thin lift in echelon, or when abutting a previously placed lane or other lateral restraint, the mixture should be rolled in the following sequence:

- 1). Transverse joint.
- 2). Longitudinal joint.
- 3). Outside edge.
- 4). Breakdown rolling, beginning on the low side.
- 5). Intermediate rolling; same procedure as Step 4.
- 6). Finish rolling.

Thick Layers (Lifts): When placing a thick lift (two inches (2") or more compacted thickness) in single-lane width or full width, the mixture should be rolled in the following sequence:

- 1). Transverse joint.
- 2). Breakdown rolling, beginning 12 to 15 in. interior to the lower unsupported edge. The return pass shall be made with the edge of the roller three inches (3") exterior to the unsupported edge of the pavement.
- 3). Breakdown rolling of outside edge. Repeat the process described in Step 2 above on the other longitudinal edge.
- 4). Intermediate rolling, beginning on the low side.
- 5). Finish rolling.

When paving a thick lift in echelon, or when abutting a previously placed lane or other lateral restraint, the mixture should be rolled in the following sequence:

- 1). Transverse joint.
- 2). Longitudinal joint.
- 3). Breakdown rolling, beginning at the longitudinal joint.
- 4). Intermediate rolling, beginning on the low side.
- 5). Finish rolling.

When paving in echelon, two to three inches (2"-3") of the first mat shall be left unrolled, and rolled when the joint between the lanes is rolled and after the second mat is placed. Edges shall not be exposed more than fifteen (15) minutes without being rolled. Particular attention shall be given to the construction of transverse and longitudinal joints in all courses.

In laying a surface mix adjacent to any finished area, it shall be placed sufficiently high so that, when compacted, the finished surface will be true and uniform. Where the grade is slight, a level will be used to insure drainage to the desired outlet.

Transverse joints - When the transverse joint is next to an adjoining lane, the first pass shall be made with a static steel-wheeled roller moving along the longitudinal joint for a few feet. The surface will then be checked with a straightedge and corrections shall be made if necessary. The joint then shall be rolled transversely, with a six (6") inch of the drum width on the newly laid material. This operation shall be repeated with successive passes, each covering an additional six to eight inches (6"-8") of the new mat, until the entire width of a drive roll is on the new mixture. During transverse rolling, wooden boards of the proper thickness should be placed at the edge of the pavement to give the roller a surface to drive on once it passes the edge of tile mat. If boards are not used, transverse rolling must stop six to eight inches (6"-8") short of the outside edge to prevent damaging it, and the edge must be compacted later during longitudinal rolling. Transverse joints shall be carefully constructed and thoroughly compacted to provide a smooth riding surface. If the joint has been distorted, it shall be trimmed to a line. The joint face shall be tacked before the fresh material is placed against it.

Longitudinal joints: Longitudinal joints shall be rolled directly behind the paving operation. The edge to be joined shall be tack coated. The paver screed shall be set to overlap the first mat by one to two inches (1"-2"). The elevation of the screed above the surface of the first mat should be equal to the amount of roll-down expected during compaction of the new mat. For large aggregate mixes, the coarse aggregate in the material overlapping the cold joint should be carefully removed and wasted, leaving only the finer portion of the mixture to be pressed into the compacted lane at the time the joint is rolled. For mixes with smaller coarse aggregate, such as surface courses, the overlapping material should be pushed with a lute into a hump over the joint area prior to compaction.

Edges: The edges of the pavement shall be rolled concurrently with or immediately after rolling the longitudinal joint. In rolling pavement edges, roller wheels shall extend two to four inches (2"-4") beyond the pavement edge provided the lateral displacement is not excessive.

Breakdown Rolling: Breakdown rolling shall immediately follow the rolling of the longitudinal joint and edges. Rollers shall be operated as close to the paver as necessary to obtain adequate density without causing undue displacement. The breakdown roller shall be operated with the drive wheel nearest the laydown machine. Exceptions may be made by the Bourbon County Road and Bridge Supervisor or County Representative when working on steep slopes or super-elevated curves.

Intermediate Rolling: Pneumatic-tired rollers shall be used for intermediate rolling. The intermediate rolling shall follow the breakdown rolling as closely as possible and while the paving mix is still of a temperature that will result in maximum density from this operation. Pneumatic-tired rolling shall be continuous after the initial rolling until all of the mix placed has been compacted to the required density. Turning of pneumatic-tired rollers on the hot paving mix which causes displacement shall not be permitted.

Finish Rolling: The finish rolling shall be accomplished while the material is still warm enough for the removal of roller marks. All roller marks shall be removed by the finish rolling operation. All rolling operations shall be conducted in close sequence.

In places inaccessible for the operation of standard rollers as specified, compaction shall be performed by trench rollers or others approved by the Bourbon County Road and Bridge Supervisor or County's Representative. The trench roller shall be operated until the lift is thoroughly compacted. Hand tamping, manual or mechanical, may be used in such areas, if such operations will give the required density.

Density and Surface Requirements - The completed asphalt concrete paving shall have a density equal to or greater than ninety-five percent (95%) for Asphalt Concrete Base and ninety-six percent (96%) for Asphalt Concrete Surface. Density is based on laboratory specimens and made from plant mix conforming to the job mix formula. Density testing shall conform to ASTM D 2950 or ASTM D 2726 or D 1188.

If cores are used to determine density, one or more tests (one test equals three cores) will be taken for each tonnage lot and averaged to determine acceptance. Two (2) cores will be taken from the lane being paved, and one (1) core centered on the longitudinal joint with the adjoining lane. The Bourbon County Road and Bridge Supervisor or County's Representative will mark the locations of all cores.

The compacted surface shall be one-quarter of an inch (1/4") above the edge of curb. All unsatisfactory work shall be repaired, replaced or corrected. The surface of the final course shall be of a uniform texture and conform to line and grade shown on the plans.

The field control density will be based on the density of plant produced mix compacted in a laboratory.

GRAVEL ROAD SURFACE AND BASE DESIGN

SUBGRADE DESIGN

Subgrade Clearing – Before beginning preparation of the subgrade, all sod and other vegetation shall be removed from the roadbed. The subgrade surface shall be brought to the specified lines, grades and cross-section, as indicated on the construction plans or approved by the Bourbon County Road and Bridge Supervisor or County's Representative. Tolerance allowed on all lines, grades and cross-sections shall be no more than one-quarter of an inch (1/4").

Subgrade Compaction – After clearing, the top six inches (6") of the subgrade for pavements shall be compacted to not less than ninety-five percent (95%) of the standard proctor maximum density as measured by AASHTO T-99, Method C and within a tolerance of plus three (3%) percent and minus two percent (2%) of the optimum moisture content. The tolerance applies only to the top six inches (6").

Protection and Maintenance of Subgrade - The subgrade shall be protected from action of the elements or others. Any action (eg. Settlement or erosion) that damages the subgrade prior to placing the pavement thereon, shall be repaired and the specific lines, grades, cross-section, tolerance, density, and moisture content range reestablished.

The Contractor shall protect all existing improvements from damage resulting from his subgrade operation. Any improvement damaged shall be repaired or replaced by the Contractor or ROW Occupant at their own expense.

Rolling Test – Once the subgrade has been brought to the final construction elevation, but prior to approval of the subgrade for paving, all lanes shall be roll tested in their entire length. The subgrade will not be acceptable if rutting, pumping, or deformation of the subgrade results from the roll test. This testing will be done by the Contractor or at their own expense, and will be in addition to the applicable moisture and density testing.

Equipment for roll testing shall be tandem dump truck (one front and two rear axles) carrying the maximum allowable legal load.

The truck shall proceed slowly along each traffic lane, allowing the County Road and Bridge Supervisor or County's Representative to walk alongside and observe the results. Areas failing the roll test will be reworked and retested prior to approval of the subgrade for paving.

BASE DESIGN

Base Aggregate Material – Provide one of the types of aggregates for use in aggregate base construction as shown in Table 13: Gradation and Plasticity of Aggregates for Aggregate Base Construction. Material shall comply with Section 1104: Aggregates for Aggregate Base Construction of the KDOT Standard Specifications for State Road and Bridge Construction.

Type AB-1 or AB-2 may be singularly or any combination of crushed stone, crushed or uncrushed gravel, sand, sand-gravel, or limestone gravel mixed with soil or other qualified binder material.

Type AB-3 is at least eight-five percent (85%) limestone or dolomite produced by mechanical crushing.

Deleterious Substances: Provide aggregates that are free from weeds, sticks, grass, roots and other undesirable foreign matter.

Table 13: Gradation and Plasticity of Aggregates for Aggregate Base Construction											
Type	Percent retained on standard square mesh sieves*									P.I.	Liquid Limit (Max.)
	2"	1 1/2"	1"	3/4"	3/8"	No. 4	No. 8	No. 40	No. 200		
AB-1	0	1-10		5-40		35-75	54-85	78-95	90-98	0-6	25
AB-2*			0		1-35		25-50	60-75	78-90	1-6	25
AB-3**	0	0-5		5-30		35-60	45-70	60-84	80-92	2-8	30

* The fraction passing the No. 200 sieve shall not exceed 2/3 of fraction passing the No. 40 sieve.
 ** For grading factors less than 4.00 but greater than 3.75, provide additional materials as a penalty at a rate of 1.5% for each 0.05 less than 4.00 grading factors. Use a maximum lot size of 500 cubic yards or tons to determine penalty. Average all tests within the lot to determine penalty.

Base Aggregate Placement – The base aggregate material shall be uniformly spread in successive layers to such depth that when compacted, the base will have a minimum thickness specified. The Contractor may construct the base in any number of layers that he chooses except that in no case shall any individual layer have a compacted thickness of more than four inches (4"). Each layer shall be compacted as hereinafter specified before any succeeding layer is placed.

After spreading a layer of material, water in an amount sufficient to insure the desired compaction shall be added and uniformly mixed with the base aggregate in a manner to prevent segregation. Excess moisture resulting in runoff shall be avoided. If for any reason, the material and subgrade become too wet to permit satisfactory work, they shall be allowed to dry to a moisture content that will permit satisfactory work.

The base aggregate material shall meet the required specification of Section 1104: Aggregates for Aggregate Base Construction of the KDOT Standard Specifications for State Road and Bridge Construction immediately before compaction operations are commenced. If, for any reason, segregation occurs in excess of ten percent (10%) variation from the gradation required in Table 13: Gradation and Plasticity of Aggregates for Aggregate Base Construction or the materials become contaminated, such segregated or contaminated materials shall be removed and replaced with suitable materials at the expense of the Contractor. The limited segregation of ten percent (10%) variation will be ascertained by a sieve analysis of a minimum 100 pound sample taken from the in-place base course. However, when crushed stone is used, segregated surface areas may be corrected by adding limestone screenings of such gradation and quantity as required to fill the surface voids and firmly bind the loose material in place.

Shaping and compacting shall be carried on continuously until a true, even and uniform surface or proper grade and cross-section is obtained, and until the density of the complete base is a least ninety-five percent (95%) of maximum density as determined by AASHTO T-99. The proper moisture content shall be maintained by wetting the surface as required during shaping and compacting operations. Final rolling shall be accomplished by use of a self-propelled smooth-wheeled roller.

Surfacing Aggregate – Provide one of the types of aggregate for surfacing or subgrade modification for secondary roads as show in Table 14: Gradation Requirements for Aggregates for Surfacing or subgrade Modification for County Secondary Roads. Material shall comply with Section 1112: Aggregates for Surfacing or Subgrade Modification for County Secondary Roads in the KDOT Standard Specifications for State Road and Bridge Construction.

Table 14: Gradation Requirements for Aggregates for Surfacing or Subgrade Modification for County Secondary Roads										
Type	Material	Percent retained on standard square mesh sieves*							Gradation Factor	
		2"	1 1/2"	1"	3/4"	3/8"	No. 4	No. 8		No. 30
SS-3	Crushed Stone		0	0-15		45-85			90-100	
SS-5	Crushed Stone	0	0-5	0-30		45-90			90-100	
SS-14	Limestone Gravel		0							

*After removal of all deleterious substances

Percentage of Wear – The percentage of wear of surface aggregate shall not exceed fifty-five percent (55%) when tested by ASTM C131.

Deleterious Material – The percentage of deleterious material shall not exceed the following:

Table 15: Deleterious Substances						
Type	Material	Passing No. 200 Mesh Sieve		Sticks (wet)	Clay Lumps & Friable Particles	Combination*
		Note 1	Note 2			
SS-3	Crushed Stone	8.0	15.0	2.0	5.0	5.0
SS-5	Crushed Stone	8.0	15.0	2.0	5.0	5.0
SS-14	Limestone Gravel	7.0	30.0			

*Of any deleterious substances except material passing No. 200 (2).

The sum of the percentages of all deleterious substances shall not exceed ten percent (10%).

Surface Construction – Aggregate surfacing shall be placed in one lift on the roadway to the lines and dimensions as shown on construction drawings or as requested by Bourbon County. The depth of the aggregate shall be six inches (6") unless otherwise directed.

Aggregate shall be distributed and spread uniformly over the prepared base and then incorporated into the upper two to four inches (2"-4") of the paving bed by the use of blade, tiller, scarifier, or disk until a uniform mixture of aggregate and soil is obtained.

The mixture shall then be shaped and compacted until a true uniform surface of proper cross section is obtained and until there is no visible evidence of further consolidation.

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DIRT ROAD SURFACE AND BASE DESIGN

BASE DESIGN

Base Clearing – Before beginning preparation of the base, all sod and other vegetation shall be removed from the roadbed. The base surface shall be brought to the specified lines, grades and cross-section, as indicated on the construction plans or approved by the Bourbon County Road and Bridge Supervisor or County's Representative. Tolerance allowed on all lines, grades and cross-sections shall be no more than one-quarter of an inch (1/4").

Base Compaction – After clearing, the top six inches (6"), the base shall be compacted to not less than 95% of the standard proctor maximum density as measured by AASHTO T-99, Method C and within a tolerance of plus three percent (3%) and minus two percent (2%) of the optimum moisture content. The tolerance applies only to the top six inches (6").

Protection and Maintenance of Base - The base shall be protected from action of the elements or others. Any action (eg. Settlement or erosion) that damages the subgrade prior to placing the pavement thereon, shall be repaired and the specific lines, grades, cross-section, tolerance, density, and moisture content range reestablished.

The Contractor shall protect all existing improvements from damage resulting from his base operation. Any improvement damaged shall be repaired or replaced by the Contractor at their own expense.

Rolling Test – Once the base has been brought to the final construction elevation, all lanes shall be roll tested in their entire length. The base will not be acceptable if rutting, pumping, or deformation of the base results from the roll test. This testing will be done by the Contractor or at their own expense, and will be in addition to the applicable moisture and density testing.

Equipment for roll testing shall be tandem dump truck (one front and two rear axles) carrying the maximum allowable legal load.

The truck shall proceed slowly along each traffic lane, allowing the County Road and Bridge Supervisor or County's Representative to walk alongside and observe the results. Areas failing the roll test will be reworked and retested prior to approval of the subgrade for paving.

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ROAD REPAIR AND MAINTENANCE TECHNIQUES

CHIP SEAL STREET IMPROVEMENTS

Chip Sealing is a common pavement maintenance practice performed by Bourbon County on their asphalt roads that extends the pavement life and provides a good driving surface. This work shall consist of the application of a thin, uniform layer of emulsified asphalt to the existing pavement surface in order to extend the time between asphalt overlays, eliminate the need to crack seal, provide an effective moisture barrier for the underlying pavement against water intrusion by sealing cracks and prevent deterioration of the asphalt surface from the effects of aging and oxidation due to water and sun. Cover aggregate shall then be uniformly distributed upon the asphalt layer and seated in place with the use of a rubber-tired roller. Any excess aggregate material shall be removed, leaving a durable wearing surface.

Emulsified Asphalt Material – The asphaltic sealant material that shall be applied to the roadway surface shall be a RS-1HM Emulsified Asphalt consist of an emulsified asphalt KDOT mix modified with a 1 ½% polymer meeting the criteria of ASTM D-97 as shown below in Table 16: Requirements of a RS-1H Emulsified Asphalt. The contractor shall provide the Bourbon County Road and Bridge Supervisor or County’s Representative with design mix and specification of the cutback asphalt for approval before the start of any roadway work.

A sample of the emulsified asphalt may be taken from any of the distributors or delivery tankers on the job site. Failure of the emulsified asphalt to meet the materials specification criteria approved by the County Road and Bridge Supervisor or County’s Representative at the time of application shall require the Contractor at his own expense, to correct all unsatisfactory areas. No additional areas shall be sealed until correction has been made to the satisfaction of the County Road and Bridge Supervisor or County’s Representative.

Table 16: Specification for RS-1H Emulsified Asphalt			
Tests	RS-1H		RS-1HM Test Results*
	Min.	Max.	
Viscosity, Saybolt Furol @ 122°F, sec	75	300	124.5
Specific Gravity, 60°F			1.0246
Pounds/Gallon, 60°F			8.533
Residue by Distillation, % by wt	65	-----	71.3
Oil Distillate, (% by Volume)	-----	-----	
Sieve Test, % retained	-----	0.50	0.0224
Storage Stability Test, 1 Day, %	-----	1	0.50
Demulsibility:			
35 mls. @ .02N CaCl ₂ , %	60	-----	
50 mls. @ .10N CaCl ₂ , %	-----	-----	71.3
Tests on residue from Distillation:			
Penetration, 100g., 5 sec., 77°F	75	150	132
Ductility, 77°F, cms	800	-----	80+
Solubility in TCE, wt.%	97.5	-----	99.46

*Test Result are from the local supplier that supplies Bourbon County with the RS-1HM Modified Emulsified Asphalt w/ 1 ½% Polymer

Cover Aggregate – Aggregate materials shall consist of any approximately cubic and uniformly-graded, hard, durable 100 percent crushed and washed limestone, sandstone, lightweight aggregate, basalt/porphyry, granitic material, steel slag, gravel or chat and shall meet the physical and gradation properties shown below unless approved by the Bourbon County Road and Bridge Supervisor or County’s Representative.

Physical properties required of the aggregate materials –

Los Angeles Abrasion (ASTM C 131)	35% loss (maximum)
Soundness using Mag. Sulfate (ASTM C88)	15% loss (maximum)
Total Shale, clay, coal, and lignite content	0.5% by weight (max.)
Absorption	4.0% (max)

Gradation – Typical gradation of cover aggregate, which consists of Limestone chips, shall conform to the following percentages:

Table 17: Typical Gradation for Chip Seal Chips*											
Material	Percent retained on standard square mesh sieves										
	1”	3/4”	1/2”	3/8”	# 4	# 8	# 16	# 30	# 50	# 100	#200
Limestone Chips	0	0	0-5	15-35	70-100	95-100	98-100	98-100	100	100	100
<small>*Typical Gradation was provided by local quarry where Bourbon County obtains the material for Chip Seal</small>											

Cleaning before Sealing – After all holes and cracks have been repaired to the satisfaction of the Bourbon County Road and Bridge Supervisor or County’s Representative, and immediately before sealing the Contractor shall thoroughly clean the area to be sealed with a mechanical pickup type sweeper to insure proper adhesion of the new seal coat to the existing pavement. The roadway shall be dry before applying the seal coat.

Sealing – After the roadway has been prepared the Contractor shall apply the cutback asphalt by means of an approved distributor. Provisions shall be made by the Contractor to properly protect the curbs and gutters from the asphaltic spray. The specific rate of application for the cutback asphalt will vary by each job and will be determined by the Bourbon County Road and Bridge Supervisor or County’s Representative.

Immediately after the application of the asphalt, the Contractor shall, by means of a self-propelled mechanical spreader, apply a uniform layer of cover aggregate. This material shall be spread at the rate specified by the Bourbon County Road and Bridge Supervisor or County’s Representative. The application rate shall be set to prevent bleeding of the asphaltic material through the cover aggregate. If material is spread on any area in excess of the amount specified by the County Road and Bridge Supervisor or County’s Representative, the surplus shall be immediately removed and placed elsewhere as directed. Hand spreading will be permitted only in those areas not accessible to the mechanical spreader.

Immediately after spreading the cover aggregate, the entire surface shall be rolled with multiple-wheel, pneumatic-type rollers. Rolling shall be continued until a thoroughly compacted surface with a uniform aggregate coverage has been obtained, a minimum of 6 passes. The Bourbon County Road and Bridge Supervisor or County’s Representative may require additional rollers if one roller cannot keep up with the operations. The first pass of the rollers over the cover aggregate shall not exceed three miles per hour (3 mph). The rollers shall not exceed five miles per hours (5 mph) during any rolling operation. Forty-eight

(48) hours after spreading the cover aggregate, the entire surface shall be swept with a mechanical pickup type sweeper to remove any loose or excess cover aggregate.

During the sealing operation as described above, the Contractor or ROW Occupant shall cooperate with Bourbon County or County's Representative in arranging a program and schedule of work so traffic may be handled or routed around or through the section being sealed. Whenever possible, the roadway will be closed; but when this is not possible, the sealing will be done in strips while traffic is diverted to the balance of the roadway. No traffic will be permitted on the sealed portion of the roadway until rolling is completed. All traffic control signage shall conform to the current MUTCD handbook for traffic control in work zones.

When bleeding occurs or more material is required, additional cover aggregate shall be spread as directed. As soon as the cover material has adhered to the surface, and the emulsion is thoroughly cured all excess cover aggregate shall be removed with a mechanical pickup type sweeper. This curing period is generally forty-eight (48) hours, but may be adjusted by the County Road and Bridge Supervisor or County's Representative.

SPOT PATCHING FOR BASE FAILURE OR ROADWAY CUTTING

Areas where base failure or cutting of the roadway has occurred, or where the asphalt surface is broken out shall be repaired prior to any maintenance sealing operations. The failed sections shall be marked for review by the County Road and Bridge Supervisor, and shall be removed by sawing a neat rectangular hole into the pavement. The failed material shall be removed without damage to the adjacent pavement. Where base failures have occurred, the pavement shall be removed to the subgrade which shall be corrected to the satisfaction of the County Road and Bridge Supervisor prior to patching. Unstable material shall be over excavated and replaced with base materials meeting the requirements of Asphaltic Concrete Surface and Base Design under the Asphalt Road Surface and Base Design section within this policy. All surfaces shall be properly primed and tacked in accordance with the Prime and Tack Coat Design section within this policy.

The prepared hole shall be patched with hot-mix asphaltic patching material by placing in layers not to exceed two inches (2"); each layer being thoroughly compacted before the next layer is placed. After the patching material is placed and raked to a uniform surface, it shall be thoroughly compacted by rolling with a roller. The edges shall be well bonded with the old surface. The completed patch shall be in the same plane as the existing pavement.

GRAVEL ROAD REPAIR AND MAINTENANCE

Gravel surfacing is common on low-volume county roads. If properly constructed and maintained, a gravel surfaced road provides a low-cost structure that can more than adequately support low-volume traffic conditions. However, proper maintenance is the key to the performance of this roadway surface type.

Typically, in the maintenance and repair of a gravel road, the following seven distresses/conditions must be addressed:

- Improper cross section
- Inadequate road drainage
- Corrugations
- Dust
- Potholes
- Ruts
- Loose aggregate

Gravel Road Repair Options - The types of repairs and maintenance that are recommended for a gravel surfaced road is related to the types and severities of distresses evident in the road surface. A summary of the recommended gravel road maintenance and repair options are provided in Table 18: Gravel Road Repair Techniques.

Table 18: Gravel Road Repair Techniques		
Distress Type	Distress Severity	Typical Repair Techniques
Improper surface crown	Low	Blade surface of roadway.
	Medium	Blade surface or blade surface and add material (water and aggregate), then re-compact.
	High	Cut to subgrade, add aggregate, shape, add water, and compact.
Improper roadside drainage	Low	Clean ditches.
	Medium	Clean out culverts. Reshape, construct, and improve inslopes of ditches. Eliminate secondary ditches.
	High	Re-grade ditches, construct special ditch grade, and raise the ditch grade line. The installation of larger culverts, ditch dams, rip rap, geotextiles, or under drains may also be necessary.
Corrugations	Low	Blade surface.
	Medium	Blade surface or blade surface and add material (aggregate and water), then compact.
	High	Cut to subgrade, add new aggregate (or alter gradation), shape, add water, and compact.
Dust stabilization	Low	Add water to surface.
	Medium	Add a stabilizer (e.g. calcium chloride) to the surface.
	High	Increase stabilizer use -or- Cut to subgrade, add stabilizer, water, and compact -or- Cut to subgrade, add aggregate and stabilizer, shape, water, and compact. -or- Upgrade to a paved surface.
Potholes	Low	Blade surface roadway.
	Medium	Blade surface or blade surface, add material (water, aggregate, or mix of calcium chloride and crushed gravel), and compact.
	High	Cut to subgrade, add aggregate, shape, add water, and compact.
Ruts	Low	Blade surface roadway.
	Medium	Blade surface or blade surface, add material (water, aggregate, or mix of calcium chloride and crushed gravel), and compact.
	High	Cut to subgrade, add aggregate, shape, add water, and compact.
Loose aggregate	Low	Blade surface.
	Medium	Blade surface or blade surface, add material (restore gradation and water), and compact.
	High	Cut to subgrade, add new aggregate, shape, add water, and compact.

TYPICAL GRAVEL ROAD MAINTENANCE FOR BOURBON COUNTY

Blading Districts - Bourbon County is divided into three (3) maintenance districts. District 1 has four (4) graders and operators for grading gravel roads and plowing snow. District 2 and District 3 each have two graders and operators for grading roads and plowing snow.

Regraveling - Over time, the gravel layer thickness becomes significantly reduced due to dusting and the pushing of loose gravel to the shoulders and ditches. In these instances, it is necessary to add new gravel to the roadway surface. The aggregate material, whether for repair of an existing gravel surfaced road or for a new gravel-surfaced road, should comply with the gradation and durability requirements shown in Table 19: Gradation Requirements for Aggregates for Surface or Subgrade Modification for County Secondary Roads which is the recommendation from the Section 1112: Aggregates for Surfacing or Subgrade Modification for County Secondary Roads of the Kansas Department of Transportation Standard Specifications for State Road and Bridge Construction.

Surfacing Aggregate Gradation – All gravel materials shall conform to the following gradation KDOT 1112, Type SS-3, Type SS-5, or Type SS-14:

Table 19: Gradation Requirements for Aggregates for Surfacing or Subgrade Modification for County Secondary Roads										
Type	Material	Percent retained on standard square mesh sieves*							Gradation Factor	
		2"	1 1/2"	1"	3/4"	3/8"	No. 4	No. 8		No. 30
SS-3	Crushed Stone		0	0-15		45-85			90-100	
SS-5	Crushed Stone	0	0-5	0-30		45-90			90-100	
SS-14	Limestone Gravel		0							

*After removal of all deleterious substances

Deleterious Material – The percentage of deleterious material shall not exceed the values in the table below for each respective type:

Table 20: Deleterious Substances						
Type	Material	Passing No. 200 Mesh Sieve		Sticks (wet)	Clay Lumps & Friable Particles	Combination*
		Note 1	Note 2			
SS-3	Crushed Stone	8.0	15.0	2.0	5.0	5.0
SS-5	Crushed Stone	8.0	15.0	2.0	5.0	5.0
SS-14	Limestone Gravel	7.0	30.0			

*Of any delirious substances except material passing No. 200 (2).

Graveling Maintenance Schedule - Gravel roads within Bourbon County are graveled on an as needed basis. Typically the County applies a scatter coat of aggregate to existing gravel roads yearly. This is putting a thin layer of surface aggregate material on an existing road surface. Prior to the application of rock the blademan will assure that all berms have been removed and the road has a proper crown.

Table 21: Bourbon County Current Road Maintenance Schedule			
Maintenance Schedule	Rural Secondary Roads		
	Asphalt	Gravel	Dirt
Centerline/Edge Striping	Every 3 yrs	N/A	N/A
Chip Seal	Every 3 yrs	N/A	N/A
Overlay			
Sign Replacement	As needed		
Sign Inspection	Annually		
Drainage Maintenance	3-5 miles per district per year, or as needed or after large rains or snow storms		
Mowing	3 times per yr	1 time per yr	1 time per yr
Road Reconstruction			
Blading Cycle		Monthly	2 time per yr
Snow Removal Priority	1st	2nd	3rd

Surface Blading - Blading of the gravel surface is periodically necessary to restore proper pavement crown and remove minor corrugations, potholes, and ruts. When blading a gravel road (especially in the spring or when adequate moisture is present, the top two to four inches (2"-4") of gravel should be scarified and reshaped to provide the necessary crown and to eliminate the surface irregularities. When dry conditions exist, only light blading should be done, and care should be taken not to disturb any crust that exists.

Bourbon County accepts two (2) different blading techniques.

A.) 2/3 PASS

This is a maintenance blading. The operator takes the windrow and passes it across the roadway, thus smoothing the road, with some cross-slope modification and only minor potholes in need of filling. This should be done when proper cross-slope is already obtained or when the roads need to be covered quickly.

B.) 5/6 PASS

This is pulling both edges to the middle to maximize the building of cross-slope. During this process the berms are to be removed. This should be done at least twice a year.

Surface Blading on Curves – Superelevation on curves helps keep vehicles on the road. The transition between the crown and the superelevation should be smooth. The following procedure should be followed when grading a curve.

- A.) Gradually eliminate the crown 100 to 150 feet before starting into the curve.
- B.) A constant bank should be maintained throughout the curve. Do not blade a crown on the curved part of the road.
- C.) Maintain proper shoulder slopes on the superelevated section of the road.

D.) Gradually transition the road surface back from superelevation to crown.

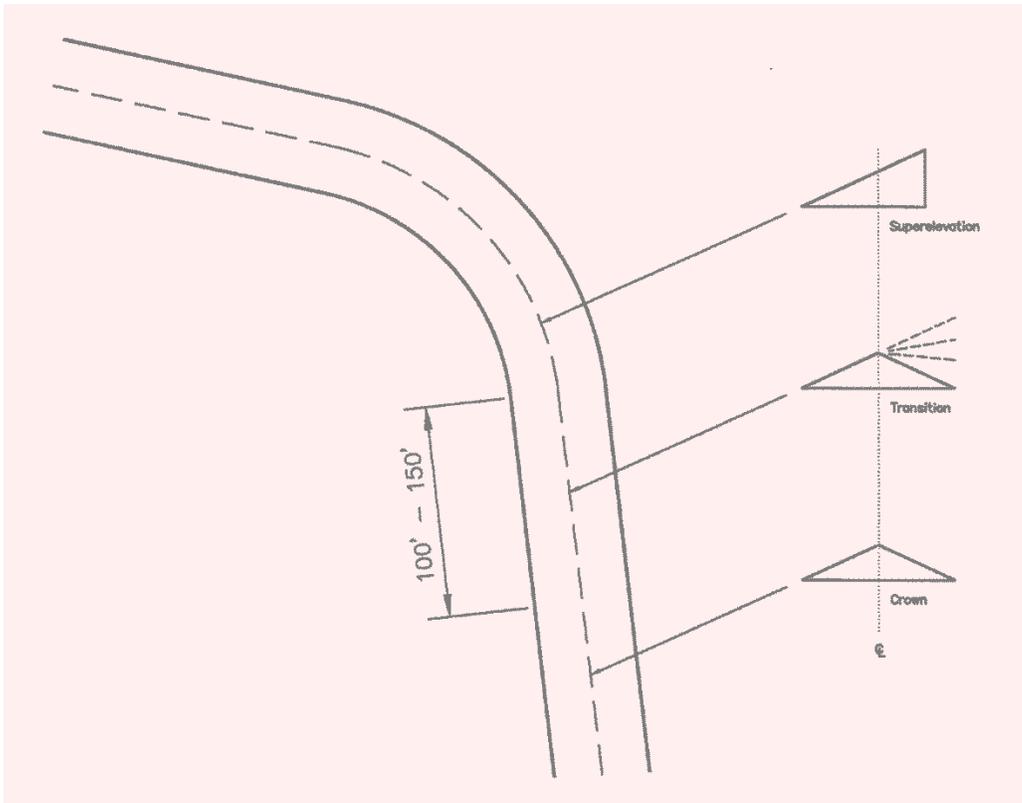


Figure 1: Grading a Curve

Surface Blading a Controlled Intersections – The primary road should retain its crown. The crowns of the intersecting roads gradually should be eliminated starting about one hundred feet (100') from the intersection. At the intersection the side roads should be flat to match the primary road.

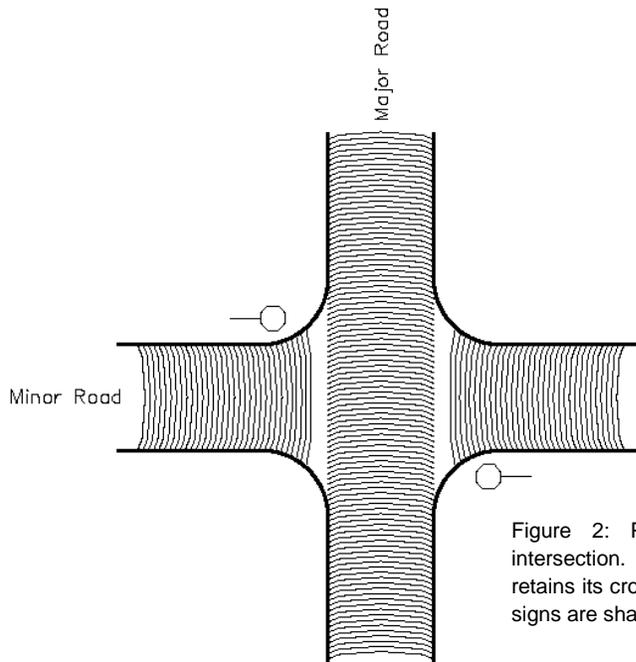


Figure 2: Proper shape of a controlled intersection. Notice that the through road retains its crown. Side roads with stop or yield signs are shaped to match edge of the road.

Surface Blading an Uncontrolled Intersection – At uncontrolled intersections, the roads should have their crowns gradually eliminated starting about one hundred feet (100') from the intersection. The intersection is flat allowing vehicles to pass through without a noticeable hump or dip from any direction. Blademan shall take caution and not make the intersection lower so that water collects.

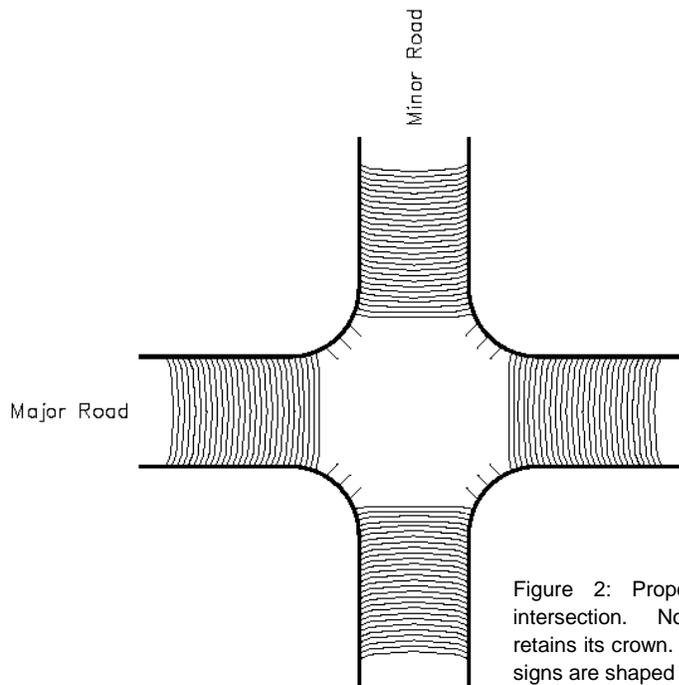


Figure 2: Proper shape of a controlled intersection. Notice that the through road retains its crown. Side roads with stop or yield signs are shaped to match edge of the road.

Surface Blading an Intersection with Paved Roads

At intersection with a paved road the blademans should begin to eliminate the crown on the gravel road about one hundred feet (100') from the edge of the pavement. At the intersecting point, the gravel should match the paved surface.

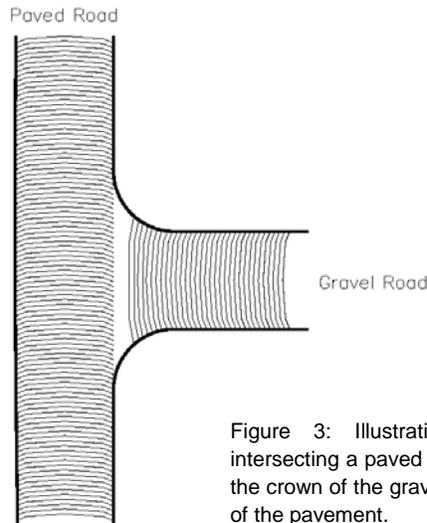


Figure 3: Illustration of a gravel road intersecting a paved road. Gradually eliminate the crown of the gravel road to match the edge of the pavement.

Surface Blading Railroad Crossings – The following procedure should be followed when grading a railroad crossing.

- A.) Gradually eliminate crown on road, starting about fifty (50) to one-hundred (100) feet before road intersects railroad tracks.
- B.) Do not blade loose aggregate onto railroad tracks. Always stop the grader after you have bladed on each side of the tracks and check to make sure there is no loose aggregate on any part of the tracks or between tracks and metal flanges along the tracks. If there is, use a broom or hand shovel to remove it.
- C.) Check to see if an extra pass or two is needed to eliminate crown and to meet the grade of the railroad tracks.

Dust Control - Blademen are to be aware of all of the dust control areas in their district both oil and magnesium chloride. The blademen are expected to check the dust control areas on a regular basis in order to ascertain the conditions of the road and make proper repairs.

Clearing of Snow Routes - Storms vary in intensity, volume and length so that no two (2) events are totally similar. As such, the determination of if and/or when snow remediation activities on Bourbon County maintained roads commence shall be a determination of the Road and Bridge Supervisor with the following guidelines:

- Priority 1: Maintain all asphaltic roads.
- Priority 2: Maintain all weather connections from population centers to asphaltic roads.
- Priority 3: Maintain all weather school and postal routes.
- Priority 4: Maintain all weather residential routes to nearest collector road.
- Priority 5: Other roads within Bourbon County.

ENTRANCES ONTO COUNTY ROADS

Permit Required – Anyone creating a new entrance location or any change or modification of an existing entrance onto Bourbon County Public right-of-way shall first be required to obtain an Access Entrance Permit from the Bourbon County Road and Bridge Department. Bourbon County will install all permanent and temporary access entrances.

Payment of Costs Associated with Access Entrance – The property owner or permittee is responsible for paying for the initial access entrance materials and construction or modification of existing entrances. Bourbon County will install the access entrance at the cost shown on the current Bourbon County Access Entrance Fee Schedule. Payment must be made to the County before the access entrance will be installed.

Access Entrance Ownership – After installation of new access entrance, the culvert pipe will become the property of Bourbon County and they will be responsible for culvert maintenance.

Entrance Criteria – The Bourbon County Road and Bridge Supervisor will review the location and construction plans to determine if there is adequate sight distance, correct slope between road and fence line and other specific criteria determined by the Bourbon County as follows:

- A.) Adequate sight distance along a road in each direction from any given point of access where a vehicle must stop before entering the roadway.
- B.) The finished surface elevation of an entrance to a County roadway shall initially be sloped away from the road at about a four percent (4%) slope to prevent surface water from draining onto the County roadway.
- C.) The entrance centerline lying within the County Public right-of-way shall be at a right angle to the centerline of the road for a minimum of thirty feet (30%) from the new edge of the shoulder of the roadway.

Culvert Pipe Requirements – If the location of the entrance is approved, the Bourbon County Road and Bridge Supervisor will determine if a culvert pipe is required, the size of opening required and the length of pipe required.

- A.) Type of Culvert Pipe – Culvert pipes shall be approved by the Bourbon County Road and Bridge Supervisor. Used culvert pipe showing rust or having holes will not be approved. New culvert pipe shall meet the requirements of Section 1904: Corrugated Metal Pipe and End Sections of the KDOT Standard Specifications for State Road and Bridge Construction. The following new pipe types are approved:
 1. Corrugated Metal Pipe (2 -2/3" x 1/2" Corrugations): 15", 18", 24", 30", 36" & 42" (14 gauge); 48" (12 gauge); and 60" (10 gauge).
 2. Corrugated Metal Pipe End: 15", 18" & 24" (16 gauge); 30" & 36" (14 gauge); 42" & 48" (12 gauge); and 60" (10 gauge).
 3. Tied reinforced concrete pipe (2000D Class or better – no rejects).
 4. PVC plastic pipe (SDR 35 or better).

- B.) Size of Culvert Pipe – The size of the culvert pipe will be determined by Bourbon County based on the drainage area. A fifteen inch (15”) diameter is the smallest size culvert pipe that will be allowed.
- C.) Length of Culvert Pipe – The Bourbon County Road and Bridge Supervisor will determine the length of culvert pipe based on the top width requested, entrance use, ditch depth and type of road being entered. The following criteria shall be followed:
 - 1. A minimum of sixteen foot (16’) entrance top is required.
 - 2. A minimum of thirty foot (30’) culvert pipe is required.

Entrance Installation and Restrictions

- A.) Bourbon County will install all permanent and temporary access entrances within the County Public right-of-way.
- B.) Access entrance installation shall be according to access entrance details and standards within this Policy.
- C.) Access entrance fill shall be compacted by tamping or rolling.
- D.) No filling will be permitted in the County Public right-of-way other than necessary to construct the proposed entrance.
- E.) No excavations will be made within the limits of the traveled portion of the roadway.
- F.) The construction, future repair or maintenance of entrances shall be carried on in such a way as not to interfere with or interrupt traffic on the roadway.
- G.) Private property may not be used so as to obstruct or encumber the County Public road right-of-way, or interfere with safety, comfort, and the use of the County roadway users.
- H.) Nothing in this policy shall preclude Bourbon County from entering upon any access entrance on the County Public right-of-way and performing necessary maintenance for the protection of the County roadway.

Grandfathered Entrances – Existing approved entrances will continue to be maintained by Bourbon County. When culvert pipe replacement is necessitated, the County will furnish a new culvert pipe or the same length as removed, whichever is longer, at no expense to the owner. A permit will be required if additional length of culvert pipe is requested.

Entrance Surfacing – A gravel surface on the entrance will be provide by Bourbon County. Entrance surfacing removed by the County during road construction will be replaced with gravel by the County at no expense to the owner.

Roadway Constructions and Replacement of Entrances – Any access entrances removed for road construction will be replaced by the County at no cost to the owner. At the request of the owner and with proper location approval, the County may construct additional entrances at the time of roadway construction with the owner responsible for the cost of the access entrance.

Removal of Entrance by Owner – If need to be, Owner may remove culvert and access entrance on their property at their expense. Drainage ditch shall be restored to provide adequate positive drainage flow. If

at some time in the future, the property owner wished to reestablish the entrance, they will have to start the permit process over again and are responsible for cost of reinstalling the access entrance.

DUST CONTROL

Pre-Approval – Bourbon County requires that each contractor who wished to do dust control work within the right-of-way in Bourbon County first be pre-approved by the Bourbon County Road and Bridge Department.

Cost of Dust Control – Any Applicant desiring to have a dust control material applied to a section of the County Public right-of-way shall be responsible for hiring an approved contractor. Cost of the contractor for labor and/or materials shall be the responsibility of the Permittee.

Insurance – All contractors desiring to provide dust control services in Bourbon County shall submit a certificate of insurance in an amount not less than \$1,000,000 aggregate with Bourbon County named as additional insured.

Materials – Contractors shall certify that all materials used for dust control are free and clear of toxic materials affecting the environment, the public, and livestock. A listing of ingredients shall be submitted stating the composition and percentages of each ingredient in the mixture and a material safety data sheet (MDS). Certification shall state that the mixture meets or exceeds applicable DNR and EPA regulations.

Season of Dust Control Application – Dust control material may only be placed within the Bourbon County Public right-of-way from May 1 to October 1 of each year. Prior to and after these dates, regular road maintenance will be performed.

Marking Dust Control Area – The Applicant or Contractor shall mark with lime green plastic flags the area of road that is to be treated for dust control. The flags shall be placed on both sides of the road at each end of the dust control area and embedded in the road shoulder, at the break of the slope. The flags shall be placed at the time of the permit application. Bourbon County will not be liable for blading through unpermitted and/or unmarked dust control areas.

Permit Applications – Bourbon County shall accept the dust control permit applications and collect the permit fee from the Applicants.

Obligations of Applicant – No obligation to the Applicant shall be made by Bourbon County or inferred by the contractor. It is the obligation of the Permittee to keep all of the flags up marking the limits of the dust control area for the entire season. It is also the obligation of the Permittee to fill any depression in their dust control area with loose gravel from the side of the road. Grader operators will be instructed to avoid blading the marked dust control areas unless potholes over one inch (1") in depth or washboarding develop.

Obligation of County – It is the responsibility of Bourbon County to maintain the road system and reserves the right to make alterations or improvements to its Public right-of-way and/or property at any time the County of Commissioners deems necessary. If a dust control section should become rough or potholed, Bourbon County will do corrective blading to repair the rough areas without compensation to the resident for damage to the dust control surface.

COUNTY BRIDGE STANDARDS

Bridge and Culvert Evaluation Guidelines - An assessment of the structures along a specified truck route will be performed by Bourbon County Road and Bridge Department to determine which structures will require modification or avoidance during the short term access requirement. This assessment will, at a minimum, consist of observing current load posting, structure condition, and determination of any required upgrades. Should the existing structure be load posted at less than the anticipated short term truck loads, then strengthening or replacement measures will need to be designed by a Kansas P.E. For structures under twenty (20) feet in length, no load ratings will be available and a structural evaluation of each will be necessary if the condition of the structure warrants it in the opinion of the County representative. If these structures under twenty (20) feet are concrete and there is no indication of structural capacity issues, then no structural upgrade may be necessary.

Bridge and Approach Railing - The existing bridge railings, approach railings, transition railings, and end treatments shall be reviewed by the County's Engineer Representative to determine if improvements in the safety of these systems are needed. Good engineering judgment should be used when determining the appropriate railings and treatments with consideration given to things such as accident history, traffic volumes, and roadway classifications. As a general rule, the treatments chosen for the project should represent a significant improvement in the safety at the site when compared with the existing conditions.

Load Posting - Replacement structures shall be designed in a manner such that the proposed structure will not require load posting for normal legal loads allowed in the jurisdiction in which the structure is located. For rehabilitated structures, it is recommended that the design parameters of the project be chosen such that no load posting is required or there will be an improvement in the load posting for normal legal loads allowed in the jurisdiction in which the structure is located. However, it is recognized that there will be situations where elimination or an improvement in the load posting on a structure may not be the most prudent use of the federal funds available for the project. When this scenario is encountered, the County's Engineer Representative must submit a design exception which includes a summary of their findings and recommendations regarding load postings and submit it to KDOT for review and concurrence.

BRIDGE DESIGN GUIDELINES FOR IMPROVEMENTS

General Guidance - The County's Engineer Representative is responsible for determining the appropriate design parameters to use for structures on a project. The design of the structure should consider a practical design approach to promote the efficient use of the financial resources of the local public agency (LPA). Additionally, the design should meet the needs of the LPA and shall not result in any items that will be deficient.

All information that is submitted for the project shall be in completed form and shall be signed and sealed by a professional engineer. The submittal of the design computations is not required unless specified in other areas of this section. However, the consultant or LPA are required to make these computations available upon request by KDOT or FHWA.

Plan Information - The County's Engineer Representative is responsible for determining the appropriate level of detail to provide on structural plans. Sufficient detail shall be provided so as to clearly identify all material and dimensional requirements and allow for the construction of all structural components in accordance with the engineer's design.

Structural drawings shall provide an appropriate general notes section that contains all pertinent design criteria for the structure. Examples of common things that should be included in the general notes section are identification of all design loads, identification of the design unit stresses for structural components, identification of the bearing pad and joint filler requirements, and identification of reinforcing steel

clearances. The general notes should also identify the appropriate AASHTO design code that was used along with any significant exceptions. Additionally, the plans should identify the applicable construction specifications (for example: Kansas Standard Specifications) that are to be used for the project.

Drawings shall include a summary of estimated quantities for the structure along with a reinforcing bar list and bending diagrams. The appropriate hydraulic data, geotechnical information, a pile data table, and footing design bearing values shall be provided as the site location or design features dictate. Providing these items ensures that the contractor can provide an accurate and competitive bid based on the design plans.

Bridge Width - The bridge width is measured between the roadway faces of the barrier curbs on the structure. The appropriate width to use on a project is to be determined by the engineer of record with the only underlying requirement being that the roadway width chosen shall not result in a structure that is deficient for the future design year AADT.

In general, it is recommended that, as a minimum, the bridge width match the approach roadway width. The County's Engineer Representative should take into consideration the needs of the LPA as well as local users such as agriculture operations or other commercial operations. A practical design approach to the project should be considered to maximize the use of available funding for a structure. In some situations, it may be prudent to build a single lane structure. An example of this situation might be an extremely low AADT, dead end roadway that will only have passenger vehicles traveling on it.

Design Loading - The County's Engineer Representative is responsible for determining the appropriate design loading to use on a structure. The design loading should be consistent with the appropriate AASHTO design methodology. Additionally, the resulting structure should not be considered deficient based on the future design year AADT and the structure should not require a posting for normal legal loads.

Railing - The County's Engineer Representative shall be responsible for determining the appropriate bridge railings, approach railings, transition railings, and railing end treatments to use on a project. Site specific conditions such as accident history, AADT, posted speed limits, sight distance, roadway width and other appropriate things should be considered along with input from the LPA to determine the best solutions for the project site. For structures that are either located on or cross KDOT right of way, the appropriate KDOT standards and design criteria shall be used.

For roadways with $AADT \leq 400$, the use of standard height and/or crash-tested railing is optional. For guidance on this matter, the Guidelines for Geometric Design of Very Low-Volume Local Roads ($ADT \leq 400$) should be used as a resource. The LPA and County's Engineer Representative may select from a variety of curbing or railing types deemed to be suitable for use based on the site specific conditions for the project.

Structure Inventory and Appraisal Sheet - The engineer of record must complete a Structural Inventory & Appraisal Sheet (SI&A) for all replacement and rehabilitated structures that meet the NBI definition of a bridge or culvert. The SI&A must be completed in accordance with the Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges (RCG).

Load Ratings - Load ratings calculations are required for all structures that will be classified as a highway bridge or culvert. The load rating method used shall be consistent with the design code that was used. The engineer of record shall submit a signed and sealed load rating summary sheet along with load rating calculations when the plan sheets are submitted for the project. For the Load and Resistance Factor (LRFR) rating method, the load rating summary sheet shall include inventory and operating design load level rating factors for the HL93 vehicle. In addition, inventory and operating design level load ratings in tons for the HS20 vehicle shall be provided for comparison to the HL93.

DEFINITIONS

For purposes of this Article, the following terms shall have the following meanings:

“Contractor”, “Occupant”, “Utility Company” or “ROW Occupant” means any person, firm, corporation, association, utility, or entity, which enters upon the Public right-of-way of Bourbon County, or in any manner establishes a physical presence on, upon, in or over the Public right-of-way of Bourbon County, for the purpose of installing, constructing, maintaining or operating lines, conduits, wires, fiber optic wires, cables, pipes, pipelines, poles, towers, vaults or temporary facilities.

“Policy” shall mean this Bourbon County Public Right-of-Way Use, Repair and Maintenance Policy adopted by the Board of Commissioners of Bourbon County, Kansas.

“County” shall mean the County of Bourbon, Kansas.

“Road and Bridge Department” shall mean Bourbon County Road and Bridge Department.

“Supervisor” shall mean the Road and Bridge Supervisor for Bourbon County.

“County’s Representative” shall mean any person, firm, corporation, association, or entity, which is appointed by the Bourbon County Board of Commissioners to represent Bourbon County.

“Construction” shall mean any work above or below surface or subsurface of the Bourbon County Public right-of-way, including, but not limited to opening the or County Public right-of-way; installing, servicing, repairing or modifying any facility(ies) in or under the surface or subsurface of the County Public right-of-way, and restoring the surface and subsurface of the County Public right-of-way.

“Facility” or “Facilities” shall include, but not be limited to, any and all cables, cabinets, ducts, conduits, converters, equipment, drains, handholds, manholes, pipes, pipelines, splice boxes, surface location markers, tracks, tunnels, utilities, vaults, and other appurtenances or tangible things owned, leased, operated, or licensed by an owner or person, that are located or are proposed to be located within the County Public right-of-way.

“Private Utilities” means privately owned facilities which convey or transmit commodities as defined in this Policy but devoted exclusively to private use.

“Public Utilities” means facilities which convey or transmit commodities as defined in this Policy and directly or indirectly serve the public or any part thereof.

“Transmission Pipeline” means a pipeline system, other than a gathering line, that transports or conduct crude oil, gas, hydro carbon or any other substance from a source or sources of supply to one or more distribution centers, or to one or more large-volume customers, or a pipeline install to interconnect sources of supply.

“Owner” shall mean any person, including Bourbon County, who owns any facility or facilities that are or are proposed to be installed or maintained in the County Public right-of-way.

“Applicant” shall mean an application for permit

“Permit” shall mean a permit to construct, install, service, repair or modify any facility(ies) as it has been approved, amended, or renewed by the Bourbon Road and Bridge Department.

“Permittee” shall mean the applicant to whom a permit to construct has been granted by Bourbon County in accordance with this Policy.

“Person” shall mean any person, corporation, partnership, any municipal excavator, or any governmental agency.

“County Public right-of-way” shall mean the area across, along, beneath, in, on, over, under, upon, and within the dedicated public alleys, boulevards, courts, lanes, roads, sidewalks, spaces, streets, and ways within the County, as they now exist or hereafter will exist and which are or will be under the permitting jurisdiction of the Bourbon County Road and Bridge Department.

“Roadway” shall mean that portion of the road extending from outside shoulder line to outside shoulder line or between curb lines.

“Oversize/Overweight Vehicles or Loads” means a vehicle or load exceeding the maximum sizes and weights defined in K.S.A. 8-1902, 8-1904 and 8-1909.

REFERENCES

3. AASHTO Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT < 400), 2001.
4. Guide for Accommodating Utilities within ROW for Counties & Small Cities in Kansas, LTAP, March 2007.
5. FHWA Gravel Roads Maintenance and Design Manual, SD LTAP, November 2000.
6. Traffic Control Devices for Low-Volume Roads – Part 5, 2009 Edition.
7. Rural Road Design, Maintenance, and Rehabilitation Guide, SDOT Office of Research, Sept. 1995.
8. Field Guide for Unpaved Rural Roads, LTAP, July 2004.
9. KDOT Utility Accommodation Policy, 2007.
10. Rural Road Condition Survey Guide, SDOT Office of Research, July 1995.