

## KDOT MAINTENANCE EQUIPMENT MENU

The KDOT Maintenance Equipment Menu is developed from these guidelines for usage in the allocation of maintenance equipment to the District, Area and Subarea locations of the KDOT Maintenance operations.

It is recognized that this Menu is general in scope. Many localized exceptions to this Menu are necessitated by differences in highway features, traffic volume, soil conditions, snow fall accumulations, rainfall amounts, terrain, and population density. These exceptions may necessitate both additions to and deletions from the Menu.

The equipment plans developed from these guidelines represent the minimum equipment fleet necessary to provide the level of service currently dictated by KDOT Policy. This does not conclude that this amount of equipment is needed at all locations in all Districts. The Districts should use their discretion in determining whether their needs warrant all the equipment provided in the Menu, considering the above listed varying local features and other factors.

  
Approved Signature

Bureau Chief of Maintenance

9/01/2020  
Date

  
Approved Signature

Director of Operations

9/02/20  
Date

## KDOT EQUIPMENT GUIDELINES, POLICIES AND MENU

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## DEVELOPMENT OF THE KDOT MAINTENANCE EQUIPMENT MENU

The Kansas Department of Transportation is responsible for maintaining the KDOT highway system containing a 10,000 mile highway system with bridges, drainage structures, signs and markers, rest areas, buildings and grounds.

The Operations Division of KDOT maintains an equipment fleet for maintenance, construction, materials and administrative activities.

The Operations Division is divided into six geographic areas called Districts. The Districts are further divided into Areas. The Areas are divided into Subareas and Construction Offices. There are currently 25 areas and 112 Subareas throughout the state.

This equipment menu has been developed to equip the various offices to perform the required services based on mileage, terrain, roadway features, drainage and population.

The purpose of an equipment menu is to allow equipment flexibility for good economy and to gather data for in-depth analysis for future management decisions.

Utilizing the equipment menu and features inventory to revise the existing equipment menu will provide the management of equipment for effective economy of inventory and utilization. Careful consideration is also encouraged by this plan to utilize the private sector for equipment and/or contracting of maintenance work.

Metropolitan Areas are areas with Metro Engineers: District One - Areas 2, 3 and 4 and District Five – Area 5. These involve large amounts of interstate-freeway type highways with heavy traffic and many interchanges.

We are continually striving to improve our staffing and equipment plans by utilizing a computerized maintenance management system which monitors labor and equipment hours and material usage and costs by defined activities.

The activities that consistently dictate the major part of our maintenance staffing plan are snow and ice control and asphalt roadways. We have staffed and equipped ourselves to handle the average winter rather than the most severe conditions. With this as our basic premise for staffing maintenance, we have added essential equipment to utilize the staff for year-round routine maintenance activities.

In general, it is appropriate to determine the “menu allowed” quantities by totaling at the district level and rounding down when fractional units are allowed.

## STATEWIDE MAINTENANCE EQUIPMENT

The following items of equipment are listed as STATEWIDE to encourage their use across district boundaries. These units are justified for ownership based on their shared use. The quantity allowed is one of each line item unless otherwise specified.

1. AN/ERTH/SYS - **Earth anchor system.** Located in Topeka, Norton and Hutchinson.
2. BR/INSP/HVDY - **Bridge inspection unit, Heavy duty.** Located in Topeka and scheduled through Bridge Inspection in the Bureau of Structures and Geotechnical Services.
3. CL/CULV/CLNR - **Culvert cleaner, trailer mounted.** Located in Topeka, Hutchinson and Garden City.
4. CT/ROCK/CUTR - **Rock cutter.** Located in Wichita.
5. DV/POST/TKMT - **Guardrail post driver, truck mounted.** One located in Olathe and one in Norton.
6. JK/MUD/JACK - **Mud jack.** Two Statewide located in Norton and Hutchinson.
7. LT/TRAF/PORT - **Portable traffic signal set.** Three total units located in Topeka, Norton and Chanute.
8. MI/LRMT/48IN - **Milling Machine, Loader Mounted.** One located in Hutchinson.
9. MI/MGMT/72IN - **Milling Machine, Grader Mounted, 72 Inch.** One located in Topeka
10. PL/SNOW/XXXX - **Rotary snowplow, truck mounted.** /TMRT Located in Norton, or Rotary snowplow, loader mounted. /LRMT Located in Hutchinson and Olathe.
11. PP/CONC/PUMP - **Pump, Concrete.** Two Statewide located in Topeka, and Salina.
12. SH/BRDG/SET - **Bridge shoring set.** Two sets. Both sets located in Topeka (Requires contractor to set).
13. TE/TRCR/LAND - **Land Terracer.** One located in Norton and three in Garden City.

**STATEWIDE MAINTENANCE EQUIPMENTCONTINUED**

- 14. SH/TRNC/SET - **Trench Shoring Set.** Located in Topeka, Norton, and Garden City.
- 15. SL/SLUR/MACH - **Truck mounted slurry machine** located in District 6.
- 15. TR/RDIO/ADVR - **Highway advisory radio** located in Hutchinson and Garden City.

**DISTRICT MAINTENANCE EQUIPMENT**

The following items of equipment may be authorized for individual District Maintenance Equipment Plans. The quantity allowed is one of each line item unless otherwise specified. XXXX as the last four digits in the category code indicates size and configuration to be established in individual District Plans. Items allowed specifically for specialized crews are identified with a single letter designation as follows:

- B - Bridge Equipment
- S - Paint Striping Equipment
- SP – Special Equipment

- 1. AT/CRSH/ATNR - **Truck mounted crash attenuator.** As required by need. (S)
- 2. BL/SNOW/ENGN - **Snow blower, engine driven, walk behind.** Two per district.
- 3. CH/BRSH/XXXX - **Wood chipping machine.** One per two Areas or as required by need and burning ordinances, 3-point hitch /3PNT or trailer mounted. /CHIP
- 4. CL/STRP/REMV - **Pavement marking stripe remover.**
- 5. CP/AIR/100+ - **Air compressor, Over 100 CFM.**
- 6. CS/CSTR/HVDY - **Heavy duty truck mounted paint striping unit.**
- 7. CS/CSTR/LDPT - **Light duty push type paint striping unit.**

8. DK/HYDR/TKMT - **Hydraulic derrick truck with barrier gripper attachment.**
9. DR/ENGN/DRBK - **Engine driven drill breaker.**
10. DR/GRAN/DRIL - **Grain drill (grass seeder) with fertilizer attachment.**  
Two allowed
11. DZ/CRAW/XXXX- **Crawler dozer, /LTDY, /MEDY, /HVDY**
12. EX/VACU/TRMT - **Vacuum pump trailer mounted.**
13. EX/XXXX/MEDY- **Medium duty excavator, /TRAC, /WHEL.**
14. FK/FORK/XXXX - **Forklift, Three allowed. /LTDY, /MEDY.**
15. GN/ELEC/TO5K - **Portable generator. 5 KW or less. Two per district plus one for district materials lab.**
16. GN/ELEC/XXXX - **Generator, Stand-by power for complex. /T15K, /16K+ as justified.**
17. HM/AIR/HNDR - **Pneumatic hand drill. Two allowed. (B)**
18. HM/AIR/PVBK - **Pavement breaker. Five allowed per authorized air compressor. (30 to 60 lbs.) (B)**
19. HM/AIR/SKDR - **Sinker drill. (B)**
20. JK/XXXX/XXXX - **Jack, 50 ton and over hydraulic JK/HYDR/050+ or Jack, 50 ton and over mechanical JK/MECH/50+T. Total of 8 of any combination of either.**
21. LC/GAS/TRCH - **Gas torch, for thermo plastic pavement markings**
22. LF/SCSR/LIFT - **Personnel Lift, Scissor Type.**
23. LR/LOAD/XXX - **Wheel loader. /MEDY or /2-3Y allowed if necessary to carry Statewide rotary snow plow or Milling machine (Zipper) or if the district does not have both an excavator and dozer.**
24. LR/SKID/STER - **Skid steer loader with fork attachment. All other attachments as allowed by Area skid attachment menu.**
25. LT/VARI/TKMT - **Two Truck mounted variable message boards. (S)**

- 26. MO/XXXX/XXXX - **Riding lawn mower** /HDRG, /MDRG, or MO/RIDG/FRMT with optional snow blade attachment.
- 27. MX/CONC/XXXX - **Concrete mixer, ½ to 2 sack.** /1/2S, /1SAK, /2SAK.
- 28. PK/MULC/PKER - **Mulch Packer.** One per authorized seed drill
- 29. PP/WATR/3NCH - **Portable water pumps.** One allowed.
- 30. PV/ASPH/LDSP - **Asphalt laydown machine.** Medium duty paver with live hopper. Two per district.
- 31. RL/SHFT/MEDY - **Sheepsfoot rollers.** One allowed.
- 32. SA/CONC/SAW - **Concrete saw, wheel type.** 36-inch, 14-inch. Two allowed.
- 33. SB/SAND/BLST - **Sandblaster.**
- 34. SD/MULC/SPRD - **Mulch Spreader.** One bale processor allowed per authorized seed drill.
- 35. SR/SCRD/XXXX - **Screed** /ENGN engine driven, /HYDR hydraulic powered as justified.
- 36. SW/PROP/XXXX - **Self-Propelled Sweeper.** /5YD Vacuum or /MECH Mechanical street sweeper plus one per Metro area.
- 37. TK/XXXX/XXXX - **Heavy truck for use by the District Crews** (TK/DUMP/MDTD) with plow and spreader, (TK/FLAT/XXXX) with optional winch or knuckleboom crane, and/or (TK/HIGH/XXXX) and/or (TK/UTIL/MEDY). As justified by crew type, size, duties, etc.
- 38. TK/PK/XXXX - **Pickup, 1/2 to 1 ton.** One allowed for District shop (parts and supplies), heating - air supervisor, equipment inspector, and each identified crew (B), (S), and (SP) plus one additional for each excavator, dozer and bridge crews of more than 5 people. /1/2T, /3/4MT, /1TON and /6PUT.

- 39. TK/TRAC/TAND - **Tandem axle tractor.** Two allowed with additional axle if needed.
- 40. TL/DISC/TILR - **Tandem disc tiller.**
- 41. TP/XXXX/TAMP- **Tamper, air, gas or hydraulic.** Two allowed.
- 42. TR/SEMI/HVDY - **Heavy duty equipment transport semi-trailer.** Two allowed.
- 43. TR/TOOL/TRAL - **Tool Trailer, enclosed.**
- 44. TR/UTIL/XXXX - **Utility Trailer, /2WHL, /MULT.** As needed including one dedicated for hauling the skid steer.
- 45. VN/VAN/XXXX - **Cargo van.** One per air conditioning technician. /1/2T, /3/4T, /1TON or TK/PK/1TUT.
- 46. WD/ARC/PORT - **Portable arc welder** or generator GN/ELEC/TO5K

## AREA MAINTENANCE EQUIPMENT

The following items of equipment may be authorized for individual Area Maintenance Equipment plans. The quantity allowed is one of each line item unless otherwise specified. XXXX in the last four digits of the category code indicates size and configuration to be established by the District in individual area plans.

1. AG/SALT/CONV - **Salt conveyor.** One per salt dome.
2. BL/BOX/TRAC - **Box blade for tractor** (3-point hitch).
3. BL/SCAR/MILL - **Scarifier Blade for motorgrader.**
4. CK/CRSL/PULL - **Crack sealing machine,** pull type.
5. CL/CRAK/CLEN - **Router, Crack cleaner.** Two allowed per crack sealing machine.
6. CP/AIR/100+ - **Air compressor, 150 CFM.** Air tools Chipping Hammer HM/AIR/CHIP, Hammer Drill HM/AIR/HNDR, Sinker Drill HM/AIR/SKDR as needed along with a total of four (4) Pavement Breakers HM/AIR/PVBK (from 30 to 60 lbs.) per authorized compressor.
7. CR/ENGN/SMAL - **Engine driven compactor.** One allowed per two Subareas (round down at district).
8. DK/HYDR/TKMT - **Hydraulic Derrick Truck with barrier gripper attachment.** One per Metro Area.
9. DK/LTDY/TKMT - **Light Duty Hydraulic Derrick Truck.** Areas other than Metro Areas.
10. DT/ASPH/1000 - **Asphalt distributor,** truck mounted 1,000 gallons. One per two subareas (round down at district).
11. GN/ELEC/TO5K- **Portable generator,** /5KW or less.
12. GN/ELEC/XXXX - **Stand-by power plant.** /T15K, /16K+
13. HM/HYDR/PVBK- **Pavement breaker, hydraulically driven.**
14. LC/AIR/HOT - **Hot air lance.** One per authorized crack sealing machine.

15. LR/CRAW/XXXX- **Crawler loader** (maximum of three track loaders per district). /MEDY, /HVDY  
**or**  
LR/XXXX/XXXX - **Four-wheel drive wheel loader.** With quick attach bucket and forks, grapple, and V-plow as required. LR/4WDR/MEDY, LR/LOAD/2-3Y.
16. LR/BKHX/XXXX - **3/4 to 1 1/4 yard loader with backhoe** LR/BKHO/LTDY. Backhoe to have impactor attachment where needed LR/BKHI/LTDY.  
**or**  
LR/4WDR/LTDY - **light duty four-wheel drive Loader.**  
**Either option as justified up to one per subarea plus one additional backhoe if all the rest are LR/4WDR/LTDY**
17. LR/SKID/STER - **Skid steer loader** with fork attachment, and with authorized attachments as allowed per the skid steer attachment menu listed at the end of the Area section. Additional Skid Steer loader in lieu of an authorized Area wheel loader.
18. LT/FLAG/PORT - **Portable Automated Flagging Set additional units as justified.**
19. LT/SPED/TRMT - **Speed monitor trailer.**
20. MO/BOOM/XXXX- **Boom mower,** Tractor mounted /TCMT or Truck mounted /TKMT. **OR MO/SLOP/XXXX- Slope mower, heavy duty.** MO/SLOP/HVDY, MO/SLOP/MEDY, or MO/SLOP/RMCT. Boom Mower **AND** Slope Mower allowed in Metro Areas.
21. MX/BITM/PULL - **Bituminous mixer,** rotary tiller.
22. MX/CONC/1SAK - **Concrete mixer, one sack size.** One per two areas (round up at district).
23. PH/POTH/XXXX - **Pothole patcher,** /AIR, /HVDY, /MEDY, /TKMT.
24. PP/WATR/3NCH - **Portable water pump,** three inch or less.

25. RL/XXXX/XXXX - **RL/PNEU/MDSP Pneumatic self-propelled 12-ton roller.** RL/FLAT/LDSP Steel self-propelled 5-ton roller, RL/PNEU/MGMT Motorgrader mounted roller, RL/COMB/MDSP Roller Combination Pneumatic/Steel. One per two subareas plus one per area of either. (round down at district) Motorgrader mounted roller (/MGMT) does not count in overall count (max of 1 per Area). Combination Roller (/COMB/MDSP) counts as 2 rollers in the overall count. Combination Roller (/COMB/LDSP) counts as 1 roller in the overall count
26. SD/CHIP/SPRD - **Chip spreader, tailgate mounted.**
27. SD/SHLD/RETV - **Shoulder retriever.** One 3-point shoulder retriever allowed.
28. SD/SHLD/SPRD - **Shoulder material spreader.**
29. SW/XXXX/XXXX- **Mechanical power broom** – /PROP/N-PK self-propelled non-pick up, or /FRNT/LRMT loader attachment. One per 2 subareas (round up).
30. TK/DUMP/MDTD- **Dump truck** with snowplow, wing and spreader. Reversible plows may be supplemented with V-plow or one-way plows as justified. Total number for Area and Sub Area, based on SNICE Equipment Plan.
31. TK/PK/34XX - **Maintenance pickup.** /34MT, /34UT, /6PXX. One with 4-wheel drive allowed for supervisor and one with 2-wheel drive for crew of 3 or more Equipment Operators. (Only the crew pickup may be a 6 passenger cab).
32. TK/PK/XXXX - **Shop pickup.** /34MT, /34UT, /1/2T.
33. TN/DISL/TRMT - **500 gallon trailer mounted diesel fuel tank.**
34. TR/TILT/HVDY - **20 Ton heavy duty tilt top trailer.**
35. TR/TOOL/TRAL - **Tool Trailer, enclosed.**
36. TR/UTIL/XXXX - **Utility trailer.** Two per Area or as needed for work zone signing, mowers, and saws. /2WHL, /MULT, /SIGN.
37. WD/ARC/PORT - **Portable engine driven arc welder.**

## AUTHORIZED SKID STEER ATTACHMENTS

Each skid steer loaders are authorized to have a standard bucket (smooth or tooth) and fork attachments.

One Forestry Cutter attachment is allowed for every 2 Areas (round down)

One 40" Planer (milling head) attachment is allowed for every 2 Areas (round down)

One of the following attachments is allowed for every Area:

- Backhoe attachment
- Stump Grinder
- Rock Saw
- Point, Angle Tilt Dozer Blade
- Concrete Breaker

Two of the following attachments are allowed for every Area:

- Tree Sheer
- Broom
- Trencher
- Concrete Mixer
- Auger
- Angle Broom
- Grapple
- Specialty Bucket
- Rotary Mower
- 15" Planer (milling head)

## SUBAREA MAINTENANCE EQUIPMENT

The following items of equipment may be authorized for individual Subarea Maintenance Equipment Plans. The quantity allowed is one of each line item unless otherwise specified. XXXX as the last four digits in the category code indicates size and configuration to be established by the District in individual Subarea plans.

1. AG/ERTH/XXXX - **Earth Auger.** /PTO, /HYDR, /TKMT, /ENGN or attachment to Backhoe Loader.
2. AT/CRSH/ATNR - **Truck mounted crash attenuator** with a mounted arrowboard. One per subarea. Additional units as justified.
3. GN/ELEC/TO5K - **Portable generator**, 5 kw or less.
4. LR/4WDR/MEDY - **Medium duty four-wheel drive wheel loader** with fork attachment and light duty grapple attachment when justified.
5. LT/VARI/TKMT - **Truck mounted variable message board.** As justified.
6. LT/VARI/TRMT - **Variable message board**, trailer mounted. As justified
7. LT/AROW/SRTR - **Sequential arrowboard trailers, solar powered** One per subarea with multi-lane operations. Additional units as justified.
8. MG/AWD /XXXX - **Medium duty motor grader** with V-plow and/or with V-plow and wing plow /MDSW. /MEDY, with V-Plow.
9. MO/XXXX/XXXX - **Riding lawn mower** /HDRG, /MDRG, or MO/RIDG/FRMT with optional snow blade attachment.
10. MX/SALT/BRIN - **Mixer, salt brine.**
11. PF/CONE/XXXX - **Cone Platform**, Large - /LRGE or Standard – /STND. Additional units as justified.
12. TC/4WDR/XXXX - **One heavy duty tractor** with cab and air conditioning for each 80 edge line miles of highways and ramps (Figured using total area edge line miles). /HVDY with one rotary mower per tractor /M100, /HD10, or /HD15. Loader buckets may be requested along with tractors to supplement the number of loaders needed to staff remote salt/sand sites - /HVLR.

13. TK/DUMP/MDTD- **Dump truck.** Medium duty tandem axle with material spreader and reversible trip plow. Total number for Area and Sub Area based on SNICE Equipment Plan. V-plows, one-way plows as necessary.
14. TK/PK/34XX- **3/4 ton maintenance pickup.**, Two allowed, one with 4-wheel drive for supervisor and one with 2-wheel drive for crew. /34MT, /34UT. Crew unit may be a /6PXX for subareas with 9 or more EO Positions in the staffing plan.
15. TN/ASPH/STOR - **One 10,000 gallon stand mounted asphalt tank** per mixing strip. Maximum two per Subarea.
16. TN/CHLR/STOR - **Tank, de-ice chemical storage,** 20,000 gallon. One per Subarea. Additional units as justified
17. TN/DISP/ANTI - **Tank, slip-in anti-ice dispenser,** 2,000 gallon. 2 per Subarea. Additional units as justified.
18. TR/TILT/HVDY- **One heavy duty tilt top trailer.**
19. TR/UTIL/XXXX - **Utility trailer,** TR/UTIL/2WHL, TR/UTIL/MULT Two per subarea.
20. TR/UTIL/SIGN - **Sign Trailer.**
21. WS/HIPR/HEAT - **High pressure hot water washer.**

## REPLACEMENT (BUDGET YEAR) CRITERIA FOR KDOT EQUIPMENT

The following is a listing of the replacement criteria for KDOT equipment. The replacement criteria are continually updated based on historical data and ongoing analysis within KDOT.

It is recognized that these basic criteria can be superseded by an exceedingly high operating cost, the unavailability of repair parts, or a repair that is uneconomical due to the age of the equipment and the cost of repair. The usage criteria is based upon experience with the difficulty of obtaining repair parts as the equipment becomes older and the increasing body deterioration due to age and ice control chemicals.

### PASSENGER CARS - INTERMEDIATE SIZE

The general replacement criteria for passenger cars will be 100,000 miles or 7 years, or excessive body deterioration due to rust.

### PICKUPS - 3/4 TON AND LARGER (Supervisor and Crew pickups excluded)

General criteria: 140,000 miles or 9 years, or excessive body deterioration due to rust.

### 3/4 TON MAINTENANCE PICKUP

140,000 miles or 10 years or excessive body deterioration due to rust.

### UTILITY VEHICLES

140,000 miles or excessive body deterioration due to rust.

### VANS, SUBURBANS, AND 1/2 TON PICKUPS

140,000 miles or 9 years or excessive body deterioration due to rust.

### MEDIUM AND HEAVY DUTY TRUCKS

(Includes Snow Plows PL/REVS/XXXX, Spreader Hoppers SD/HOPR/XXXX and Anti-ice Brine Tanks TN/DISP/ANTI)

General criteria: 200,000 miles or 11 years or excessive body deterioration due to rust.

### M.D. MOTOR GRADER

10,000 hours or 15 years

1 YARD LOADER

10,000 hours or 15 years

1 1/2, 2, 3 YARD LOADERS

10,000 hours or 15 years

BULLDOZER

10,000 hours or 15 years

TRACTORS

5,000 hours or 14 years

EXCAVATORS

10,000 hours or 15 years

ROTARY MOWERS

8 years

MEDIUM DUTY RIDING LAWN MOWERS

5 years

HEAVY DUTY RIDING LAWN MOWERS

8 years

PAVEMENT BREAKERS, SINKER DRILLS, AND TAMPERS

10 years

CONCRETE MIXER

15 years

WATER PUMP

15 years

Replacement Criteria

SELF-PROPELLED ROLLERS

5,000 hours or 15 years

VACUUM STREET SWEEPER

10,000 hours or 10 years

NON PICKUP SWEEPER

5,000 hours or 10 years

CENTER STRIPER

10,000 hours or 15 years

AIR COMPRESSOR

5,000 hours or 15 years

DERRICK TRUCK

10,000 hours or 15 years

DISTRIBUTOR

15 years

TILT TOP TRAILER

15 years

PRESSURE WASHERS

7 years

ARROW BOARDS and VARIABLE MESSAGE SIGN BOARDS

10 years

OTHER EQUIPMENT

As a general rule, the criteria should be 5,000 hours or 15 years maximum; however, it is recognized that the criteria from some equipment is dependent on condition only.