

Inter Departmental Memo
PLANNING AND ZONING DEPARTMENT

Date: 8/6/09

To: Planning and Road Advisory Boards
From: L. Morris
Regarding: Suggestions for Specifications for Road Categories

As the group of roads that have been considered by the Combined Boards seem to fall into some specific categories, I have outlined the background ordinances and standards from the Road Department. I also contacted Cook, Flatt and Strobel, the Topeka firm who has designed a number of our bridges for some examples of the specifications they use for asphalt.

Background

The current County Zoning Order and Subdivision Regulations require a developer to use 1 of 4 kinds of paving, the Types A, B, C and D below for their new interior roads. They must also pave the County road along the frontage of their development:

Type A, 6 inch concrete over 6 inch compacted base

Type B, 2 inch asphalt over a 6 inch asphalt base course over 6 inch compacted base

Type D is a 2 inch asphalt over a 10 inch asphalt base course over 6 inch compacted base.

These 3 are rarely used by developers or the County, due to the expense.

Type C paving is a 3 inch asphalt over a 6 inch compacted aggregate base.

This is the most common surfacing used by the County, and the specification is described below.

Type E or Chip and Seal is a sealer coating process using alternating layers of oil product and smaller gravel, and it is specified by County ordinance as shown below.

Type P paving is a pervious paving as defined by the Clean Water Act, and has yet to be used in the County.

Categories

The 35 roads that were selected to be upgraded to Chip and Seal in 2006, as the proposed scope of work for the extension of the ¼ cent sales tax for a second 10 year period, have now been reviewed by the Combined Boards, resulting in the categories below. If all goes according to plan, after all 35 of the 2006 Road List have been considered, the Combined Boards will then consider recommending specific action plans for each category of road that has been identified. Below are some recommended approaches to those action plans.

Study 1 Group Roads that are potentially affected by the MoDOT plans to install exit and entry ramps at the existing bridge over Route 71, north of the new hospital. If there are no plans that affect these roads, or their improvements cannot be done in conjunction with nearby paving as a bidding opportunity, they can then be added to the other categories below. However, any construction in the area suggests that work on the County roads

occur following the construction to reduce the impact of construction activities should be considered.

Recommend resolving this study by the first quarter of 2010

Study 2 Group Roads that are potentially affected by the MoDOT plans to adapt the interchanges at 307th and 323rd Streets as part of the improvement of Route 71 to become Interstate 49. If there are no plans to affect these roads, or coordinated paving bidding is not realistic at the time that the interchange work is underway, they can then be added to the other categories below.

Recommend resolving this study by the first quarter of 2010

ROW, Right of Way Study Group, Roads with unresolved problems to be analyzed: These are roads for which the same process was used in analyzing their conditions. The results of the review indicated several key problems that do not support a capital expenditure until such time as these issues have been removed. The foremost issues are the lack of a 60 foot right of way, or of structural encroachments to that right of way that prevents adequate surface water controls to be utilized. Secondary issues are physical impediments in the form of very poor alignment such that sight distances become a potential hazard, a recurring flooding condition along the road due to the local topography, and very low traffic counts. There may also be issues of pending revisions to the road in conjunction with projects of the adjacent city, or the State.

Further analysis of land rights and actual road width conditions is recommended. The Combined Boards are not recommending providing capital for this category of roads. The Boards do recommend that the Road Department focus on correcting these issues until these roads might be added to a maintenance or capital improvement program described below.

Recommend resolving this study by the first quarter of 2010

ASPR Roads to be upgraded to Asphalt Paving: These are roads for which most of the qualification issues have been identified, and the Priority Index has been set by the Road Department and reviewed by the Combined Boards after a public hearing. These roads all have established traffic counts, evaluations by the Road Department for their historic costs, alignment and maintenance issues, have adequate right of way as indicated in the tax parceling maps, have been examined for impediments to those 60 foot right of way boundaries, have been the subject of a public review and comment process, and have been arranged by the Combined Boards into these following categories, with recommendations for the capital program implementation as shown. A final review of the actual conditions of the road substrate, ditches and other conditions by the road department will be required .

Recommend completing road structure and ditch review and scheduled construction required by the last quarter of 2009. Paving work recommended to be included in the next capital improvement plan.

CSR Roads to be upgraded to Chip and Seal Surfacing: These are roads for which the same process described above has been followed. They have been arranged by the Combined Boards into this category for the capital program implementation as shown. The recommendation is based upon this process, informed by the traffic count and historic experience with that level of traffic and this surfacing. A final review of the actual conditions of the road substrate, ditches and other conditions by the road department will be required .

Recommend completing road structure and ditch review and scheduled construction required by the last quarter of 2009. Paving work recommended to be included in the next capital improvement plan.

EHMR Roads to receive Enhanced Maintenance: These are roads for which the same review and analysis was performed. These roads are recommended for this category based upon this process. The Combined Boards recommend that traffic is of too low a frequency to effectively and economically utilize surfacing like asphalt or chip/seal, but high enough to warrant a specified program that provides maintenance work in keeping with the road conditions and traffic. A final review of the actual conditions of the road substrate, ditches and other conditions by the road department will be required.

Recommend completing road structure and ditch review and a standard schedule for maintenance by the end of 2009.

Sample Specification for different conditions:

ASPR specifications

The attached outline is taken from sample specifications for asphalt paving, developed by Cook, Flatt and Strobel, Engineers and based on KDot standards:

Pre Paving Requirements

1. Identify fences and structures encroaching into the road right of way in such a way as to prevent standard surface water controls. Develop a plan to resolve such conflicts.
2. Identify culvert elevation, width or positions which impede the ditches or road surfaces. Develop a corrective action.
3. Identify bridge replacement plans such that the road improvements are coordinated with such planning.
4. Identify drainage or structure issues within the road surface and develop a plan to improve the subsurface conditions through water diversion, mat reinforcing, and sub grade rebuilding approaches.
5. Identify alignment and hazardous sight line issues and develop a corrective action.
6. Adopt a specification for the quality of sub grade development indexed to the normal weight and load position that occurs. Take corrective action to improve any substandard areas.

7. Implement these steps for these **ASPR** designated roads prior to 2010.
8. Implement a workable asphalt specification and purchasing protocol prior to 2010

Asphalt Sample Specification

Adopt a Specification based on MoDOT or KDOT standards for asphalt paving. As a minimum, such a Spec. should address the following performance standards:

- asphalt batch aggregate size mix
- absorption character of the batch
- moisture content of the batch
- require limits on included deleterious materials
- require materials quality control sampling, testing and reporting protocols

- require compaction of 50 or 75 blows
- require a marshall stability of 1200 or 1800
- require a batch flow rate of 8 or 16
- limit air voids to 4%

- require grade control performance standards
- define joints control and location standards
- require a lay down temp at 260 to 335 degrees F
- require compaction to 92% max theoretical density before asphalt media is below 175 deg, require surface drainage quality control testing and reporting protocols

Chip and Seal Specifications

Utilize the same 6 Pre Paving Requirements as for ASPR roads and:

7. Implement these steps for these **CSR** designated roads prior to 2010.
8. Implement a workable chip and seal specification and purchasing protocol prior to 2010

The attached outline is taken from the Cass County 2006 ordinance defining paving methods. Ordinance 06-14, 7.13.06. (*Italics added for clarity*)

Base, Minimum Requirements: Subgrade shall consist of suitable construction material, free of organic or other undesirable materials, properly compacted to 95% of the Standard Proctor Density. *Compaction shall be determined by testing* Any testing required for review. Unsuitable subgrade material *after testing* shall be removed and replaced as necessary. 1 ½ inch to 2 inch sized rock shall be incorporated into and compacted as part of the base as necessary. Application rate for the base rock will be approximately 2600 tons per mile for 24 foot width roads.

Surface, Minimum Requirements:

First Application, 1 ½ inch *or smaller* rock *applied at a rate of* 1200 tons/mile for 24 foot width. The above quantity of aggregate surfacing shall be distributed and spread uniformly over the prepared subgrade prior to placing the Second Application surface course.

Second Application, 1 inch to 1 ¼ inch minus rock *applied at a rate of* 1400 tons/mile for 24 foot width. Surface shall be graded and profiled to meet the requirements of typical roadway section.

Base Rock for C&S, 2600 ton per mile

Double C&S requires Prime Oil 4694 gallons per mile

First Seal Coat of oil at 4694 gallons per mile with 3/8 to 1/2 inch rock at 190 tons per mile

Second Seal Coat of oil at 4694 gallons per mile with 3/8 to 1/2 inch rock at 190 tone per mile

EHM Specifications

Utilize the same 6 Pre Paving Requirements as for ASPR roads and:

7. Develop a schedule of inspection for the above improvements prior to third quarter 2010. Inspections should be no more than 60 days apart with the work required as a result of the inspection to be completed within 30 days of the last inspection.

8. Implement these steps for these ***EHM*** designated roads prior to fourth quarter 2010.