



Roadwork: What to look for as it happens



Roadwork projects continue to take a big bite out of local government budgets. The more local officials understand good construction practices, the better they can protect this significant community investment in road pavements.

Local officials in charge of new road or resurfacing projects should coordinate details with the contractor prior to the start of construction, including who is responsible for which aspects of the project. Do not overlook agreeing on how to manage project quality control and quality assurance.

This article offers some basic guidance in the form of simple checklists (see pages 3 and 4) for both chip seal and hot-mix asphalt projects that local officials can use during discussions with the contractor and on field visits. Some communities find it useful to retain an engineering and materials consultant to provide inspection services, particularly on more complex projects.

See the job done right

Because local officials have to live with the project results, a good quality-management program is essential, says Tom Nelson, Professor of Civil Engineering at the University of Wisconsin-Platteville and an instructor for the Transportation Information Center workshop on roadway maintenance. "Local officials have to maintain these resurfaced roads once the contractor leaves. A good job makes ongoing maintenance easier and less costly," Nelson observes.



Rubber tire roller imbedding aggregate on a chip seal project.

He adds that the high cost of materials now makes every road project a bigger investment for local governments. Developing and using a basic knowledge of materials and the application process helps in seeing a job is done right.

Nelson praises contractors in Wisconsin as pros who do excellent work. Local officials do well to work closely with their contractor during a project, he says. Being on site is part of that commitment. "You learn something every time you're out there, new approaches, new equipment and new ways to use it."

Pre-paving meetings

Director of Engineering for the Wisconsin Asphalt Pavement Association, Scot Schwandt, says WAPA members welcome regular interaction with customers. It helps them meet owner expectations—essential to doing business and staying competitive.

Schwandt recommends local officials request pre-paving meetings with contractors, typically held within days of the planned work. “For contractors on state projects, pre-paving meetings are standard,” he explains. “Owner and contractor go over the process, talk about what’s going to take place, what’s going to be achieved and pinpoint any issues that concern them.”

Another aspect of planning ahead is to address quality in the bid process. Schwandt encourages local governments that reference Wisconsin Department of Transportation specification 460 “Hot Mix Asphalt contractors submitting bids understand that WisDOT’s Quality Management Program, which outlines a comprehensive quality control and quality assurance process, is part of the bid request.

Basic checklists helpful

Most local officials are not expert at every detail of a chip seal or hot-mix asphalt project. Checklists like the ones provided (see attached) make it easier to identify potential quality issues evident on site and discuss them with the contractor.

Based on recommendations culled from various sources, this article narrowed its lists to the basics. Critical in a chip seal job, for example, is compatibility between emulsion and chips. Nelson adds a caution to local agencies that supply their own chips: Do not switch specified aggregate material without notifying the contractor; the mix balance is important to materials bonding. Rolling and sweeping of the new surface are other points in the chip seal process to monitor closely in an on-site inspection.



Work on a chip seal project.



Equipment settings and material temperature matter on an asphalt resurfacing job. Nelson notes spray bar position affects coverage of the tack coat layer. Issues of air temperature and weather conditions also belong on the agenda, along with producing a consistent blend of asphalt to aggregate.

Many reasons to be on job site

Nelson reports that local officials who routinely visit their roadwork job sites have many reasons for being there. Local officials serve as a contact point for members of the public who have questions about the project. They can use first-hand knowledge of project progress to update staff members, elected officials and residents about what is going on and the completion of key elements.

Finally, having a visible presence at the job site is good public relations. It reassures residents to see their local officials on the job, making sure the project spends public funds wisely.

Chip Seal Inspection Checklist

<input type="checkbox"/> Are asphalt and chip materials compatible? <i>The contractor usually checks and needs to know the source of chips if contracting agency provides the aggregate material. An incompatible chip/emulsion combination can separate within months. [see photo]</i>	<input type="checkbox"/> Does the chip spreader follow closely behind the asphalt distributor? <i>When using an emulsion, 100 feet or less is the recommended distance.</i>
<input type="checkbox"/> Is the chip material of a uniform size? Is it clean and free of excess dust?	<input type="checkbox"/> Does sweeping begin when there is sufficient bond between chip and binder? <i>Test-sweep a spot by hand using a whiskbroom. If you do not dislodge chips, the surface is ready to sweep.</i>
<input type="checkbox"/> Is the road surface clean and dry? Have localized surface distresses been repaired and cracks sealed?	<input type="checkbox"/> Does traffic on the fresh chip seal move at 25 mph or less? <i>Avoid opening road to normal traffic until sweeping is done.</i>
<input type="checkbox"/> Is the asphalt distributor truck spray bar set at a height that allows fans of asphalt to overlap and produce consistent double or triple coverage of the surface?	
<input type="checkbox"/> Are all spray bar nozzles set at an angle of 15 to 30 degrees from parallel with the spray bar?	
<input type="checkbox"/> Are all nozzles free of clogs? Does the spray pattern appear uniform or is there visible streaking? <i>If not uniform, the distributor should be stopped immediately, nozzles cleaned, and gaps sprayed by hand prior to restarting. [see photo]</i>	
<input type="checkbox"/> Are chips spread uniformly across the entire road surface or street?	
<input type="checkbox"/> Is the contractor using rubber-tire pneumatic rollers? <i>Do roller weight, tire size and pressure comply with manufacturer specifications? Are all tires inflated to the same pressure?</i>	

Result with incompatible materials.

Streak caused by clogged nozzle.

Hot-mix Asphalt Overlay Inspection Checklist

Is pavement surface clean, dry, and free of dust and debris? Are manhole covers and water valves raised to prevent awkward dips in the newly surfaced pavement? [see photo]

Is the mix placed at proper grade and Cross-slope and specified thickness? *Overlays help correct existing cross-slope problems and road surface drainage.*

Is tack coat asphalt applied properly? *Is distributor spray bar set at proper height to provide double coverage of tack coat, applied uniformly at the specified rate*

Does the placed surface texture appear uniform, free of segregation, tearing or scuffing? *Does the paver screed adequately control thickness, provide a smooth surface and initial compaction of the mixture? Are manual adjustments kept to a minimum? Fold paver wings over every load or not at all to avoid placing cold segregated material.*

Are approved asphalt release agents used on trucks and rollers? *Diesel fuel should not be used. Be sure trucks and equipment do not leak hydraulic fluids, oil or fuel on the road surface; leaks can cause a poor bond or strip asphalt from newly placed mix.*

Are there sufficient trucks to keep paver moving at a uniform speed, balancing production and delivery of material? *Is the amount of hot-mix asphalt material in the paver kept fairly constant to help produce a smooth surface?*

How does contractor manage weather conditions? *Do they delay or stop paving if rain is forecast early, or if it occurs during the paving process? WisDOT specifications allow hot-mix asphalt application at a minimum air temperature of 36°F.*

Did the hot-mix asphalt arrive at paving site within specified temperature range? *Check with instant-read thermo meter. Cover all loads during inclement weather or when air temperature falls below 65°F.*

How are the trucks unloaded? *Is care taken to avoid bumping the paver when backing up? Driver should raise truck bed slightly to break the load from the dump body before unloading into hopper and discharge material without spilling onto the pavement. End of load should not be cleaned out on pavement.*



Sunken manhole should have been raised before paving.