

Compaction...
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material cools rapidly. For example, at 60 degrees F base and air temperature, a mat 3 inches thick will cool to 185 degrees F in about 30 minutes. A mat 1-1/2 inches thick will cool in only about 10 minutes. This illustrates the importance of early rolling of thin lifts.

Rolling

The three types of self-propelled rollers currently used are: (1) steel wheeled static, (2) steel wheeled vibratory, and (3) pneumatic rubber tired. Each type does its job by applying pressure over a contact area. As the material is forced into a small volume and mix temperature drops, the resistance to further movement increases preventing the roller from penetrating into the mat. Usually, the largest amount of compaction takes place during the first pass and then rapidly diminishes with subsequent passes. Vibratory rollers should compact much more rapidly.

Over-compaction

Although over-compaction is a common worry, it is seldom a real problem. Over-compaction occurs when a mix is reduced in volume to a point where air void content is lower than the design value. Usually compaction is designed for about 3 percent air voids on interstate highways, and usually the best compaction efforts during construction can reduce the mix to about 5% air voids. Traffic, over a period of years, provides the additional compaction to achieve design air void percentage.

Crushing of aggregate, perceived by some to be over-compaction, is really caused by poor practices. Aggregate crushing can be caused by:

- Using aggregate that is too large with respect to lift thickness,
- Using aggregate with low strength,
- improper use of vibratory roller,
- Using a steel-wheeled roller on a mat that is too cold to be compacted.

When mat temperature falls below 175 degrees F, steel-wheel rolling for compaction should cease. In general, over-compaction should be of very little concern, while poor compaction is of major concern. Adequate attention to this single detail can add several years to the service lives of many pavements.

KUTC Newsletter, University of Kansas Transportation Center, Vol. 13, No. 1, February 1991. ■

Billing for Sign Damage

It all adds up to Big dollars

The city of Menomie, Wisconsin, has a system for billing drivers who damage street signs, lights, and traffic signals. Ninety percent of the time they recover the full replacement cost.

So, you may be thinking, it's only \$25 or \$50 to replace that damaged parking sign - hardly worth the paper work. But think about the time somebody knocked over a \$3,000 street light pole. And multiply that \$25 or \$50 times the number of replacements you make a year. The result can be significant.

Besides, as Vada Husby, Menomie City Treasurer/Controller, says: "People need to be responsible for their actions. It's worth it even if it's a small amount."

Menomie's system is simple. The police department sends copies of accident reports to the street department when there is sign damage. The sign technician makes the repairs and then notes on his time-sheet; the time, materials, and equipment he used.

The streets department secretary writes a bill when she does the payroll. Repair charges include: labor, fringe benefits, materials, and equipment costs. The bill goes to the city treasurer for routine collection.

Tagging System

The Wisconsin Department of Transportation has developed a system of tags to help it match accident reports with sign damage bills. The investigating officer attaches one part of the tag to the damaged sign, and tears off the end with a matching number to staple to the report.

When an accident report comes in, the DOT's Risk Management Office automatically notifies the driver, the insurance company and the car's owner of the bill for damages. Then the department uses an automated billing system to print bills and send collection letters.

Think about it. How much is your sign budget every year? Could you get some of that back simply by setting up a billing system?

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FHWA Releases Metric Conversion Policy and Timetable

The conversion will be mandatory, not voluntary as in the past, for all procurements, grants and other business related activities

Implementing legislation approved in 1988 (see Washington Report, February 1991), the Federal Highway Administration (FHWA) released in late April its policy and timetable for an orderly conversion to the metric system.

The conversion applies to all FHWA manuals, documents, publications, reporting and construction contracts. All programs authorized under titles 23 and 49, United States code, and related highway acts shall also be converted to metric.

The conversion will be mandatory, not voluntary as in the past, for all procurements, grants and other business related activities -- except to the extent that such conversion is impractical or is likely to cause significant inefficiencies or loss of markets to U.S. firms.

FHWA is not proposing any exceptions to this conversion at this time.

The proposed conversion timetable according to the Federal Register (April 5, 1991), is as follows:

- Develop FHWA metric conversion plan by May 1991;
- Initiate revision of pertinent laws and regulations that serve as barriers to metric conversion by May 1992;
- Convert FHWA manuals, documents and publications by May 1994;
- Complete data collection and reporting by May 1995; and
- Direct federal and federal-aid construction contracts by September 20, 1996.

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