

Idea Exchange



Signing and pavement marking

by Tom Heydel, Traffic Operations Engineer, WisDOT District 2

Beloit recycles street sweepings

Most years the City of Beloit hauls about 1600 tons of street sweepings to the landfill; through July this year they only land-filled about 260 tons. What made the change? The city is running the material through a screen to separate the fines from the trash and debris. The fines become clean fill for Streets and Parks Department uses; only the debris is hauled to the landfill.

"By the end of 2004 we expect we will have diverted 60-65% of the sweepings from the landfill," says Dick Kinzer, Beloit Streets Supervisor. Not only does the city save on landfill tipping fees, they use less labor, and also save money by not buying soil for fill.

Just how clean is the soil, and will it grow anything? The quick answers are: "very" and "yes." A Beloit employee trained in testing procedures took samples and sent them to two different labs to be tested. "The results came back completely clean except for a slightly elevated sodium content," says Kinzer. "It's clean fill and can be used for just about anything. And it is fertile enough to grow oats on its own," he says.

A street crew member suggested using a drum separator and Trommel screen on street sweepings, back in 2000. After an initial demonstration in 2001 Kinzer and DPW Director Chris Walsh made a proposal to the City Council. They estimated savings of \$14,000 per year, and projected that the equipment would pay for itself in six to seven years.

With the blessings of the Council, crews tested separator screens from several vendors. Ultimately they ordered a machine with two conveyors from Wildcat Manufacturing for a cost of \$89,000. It was delivered late in 2002 and put into service in 2003.

"It is very simple to operate and has worked perfectly with no breakdowns," says Kinzer. "It is a tremendous piece of equipment!"

In just the first half of 2004, Kinzer estimates the Streets Department has saved \$11,000 in tipping fees. They won't buy any clean fill at all this year, saving another \$4500. Cutting the volume by 60% also cuts the hauling time. Kinzer calculates that they have spent 5.5 days hauling debris to the landfill so far in 2004, rather than the 18 days it would cost under the old system. At this rate, the machine will likely pay for itself in three or four years.

"It has helped allow us to do other duties instead of hauling to the landfill," Kinzer says. "We can be out crack sealing streets and getting more infrastructure work done. Also, we save fuel, and there's less wear and tear on the trucks."

Building on this success, Kinzer's next experiment is to see if they can screen trash out of fall street sweepings and reserve the leaf matter. The clean compost could be used to enrich the pile of fill and soil.

It appears that recycling street sweepings is a winning strategy for Beloit.

Where can I find basic information on signing and marking besides MUTCD?

Two T.I.C. publications provide basic information on signing and pavement markings: Wisconsin Transportation Bulletins #7 and #9. Available from the T.I.C. either in print or on the Web site.

What should I consider when establishing a speed limit for a roadway?

See the T.I.C. publication *Setting Speed Limits on Local Roads* (No. 21) for an overview. In general consider:

- Road characteristics: land and shoulder widths, curves, sight distances
- Roadside development; driveway spacing
- Prevailing traffic speed
- Parking practices and pedestrian activity
- Crash numbers in the past 1-2 years
- Level of speed enforcement

Can I apply Part 5, Low Volume Roads, in the MUTCD to a city or town?

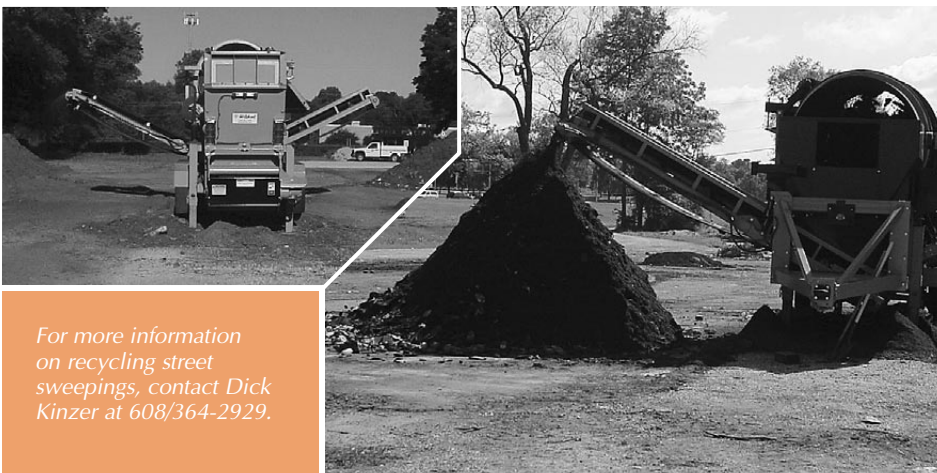
Part 5 is only for roads lying outside of built-up areas with a traffic volume of less than 400 vehicles per day. The roads can be paved or unpaved.

What does retroreflectivity mean in pavement marking?

Glass beads are dropped into the wet paint of pavement markings. At night the beads reflect light from vehicle headlights back to the driver's eye. This is called "retroreflectivity" and is different from "reflectivity" where light is dispersed rather than reflecting back to the driver.

What does a solid or a broken line mean?

A double line indicates maximum or special restrictions. A solid line prohibits or discourages crossing. A broken line indicates a permissive condition. For example on a two-lane road, a double yellow centerline means passing is prohibited. A broken yellow line means pass with care.



For more information on recycling street sweepings, contact Dick Kinzer at 608/364-2929.

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