

American Association of State Highway and Transportation Officials (AASHTO)
444 North Capitol Street, N.W., Suite 249
Washington, D.C.

2002 AASHTO President's Transportation Environmental Award Nomination

Compost Program Texas Department of Transportation



How has this team performed exemplary service, which has furthered the transportation activities of the department and had a positive impact on transportation nationwide or on a regional basis?

The Compost Program Team:

- researched composting and the benefits it could bring to highway construction and maintenance
- formulated a comprehensive specification in order that contractors would use the product
- developed regional workshops, demonstrations, and training on its use
- promoted the concept at trade shows
- formed new partnerships to help local areas solve environmental waste problems
- awarded the largest EPA Clean Water Act grant ever issued
- continued research for new compost resources and uses

TxDOT is now seen as the largest governmental market for compost in Texas.

Background: Utilizing compost for erosion control is economically and environmentally beneficial. Control of soil erosion on right of ways should be considered in construction and maintenance. Economically, soil erosion can be costly and the contractor must reapply soil, seed, fertilizer, and mulch/wood fiber blankets. Repeated applications are expensive.

Traditional methods work only if the soil is quality soil. A method to increase soil quality and support adequate vegetation as needed. Environmentally, compost adds organic material and improves growing capabilities to existing topsoil. The most basic part of revegetation, a 4-inch topsoil seedbed, is actually soil with little or no organic material to sustain grass growth, and poor topsoil leads to severe erosion.

Highway construction practices have been viewed as potential contributors of non-point source pollution caused by sediment runoff from improperly maintained or vegetated construction sites. Compost, a recycled material, can alleviate this problem by providing a barrier between rainfall and surface soil to dissipate the impact of rainfall and reduce erosion. By using compost, a market is created for organic material that may have previously been dumped in a landfill or land-applied, a method that in some cases may adversely affect water quality.

Team: TxDOT contacted TNRCC to investigate utilizing compost as an alternative to traditional erosion-control methods. If erosion could be avoided, TxDOT could save time and money in projects. TNRCC had been urging municipalities to compost biosolids and organic

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wastes as an alternative to landfilling. Many cities had successful programs; others had difficulties in public education and in marketing their compost product.

Recognizing the potential for utilizing composts made from many organic materials, it became apparent that TxDOT had the potential to become a major partner in the statewide waste reduction effort. The Design Division formed a committee to develop a comprehensive specification for compost. Committee members included TNRCC, TxDOT engineers and vegetation managers, recycling coordinators, Texas Transportation Institute and private and municipal composters.

The process of creating a working specification involved polling other states about their experiences with compost. Some states had worked with compost, but few had specifications. Input was also requested from the US Composting Council. In January of 1998, the TxDOT compost specification was approved.

TEAM EFFORTS: With a specification in place, the team's next goal was to encourage the districts to begin including it in their plans. The team decided that the best approach to get the districts educated about compost and how it could be used in construction projects was to demonstrate compost applications in the field. The districts were asked to suggest sites where erosion had been a problem in the past. TNRCC played an important role in the demonstrations by securing the compost and coordinating with a contractor to provide the services of applying the compost.

The district demonstrations allow TxDOT personnel to observe the effectiveness of the material over time. As additional successful demonstration projects were completed, the team decided to incorporate a workshop with the demonstrations. The workshops give an overview of the specification, the effectiveness of the material, the categories of compost outlined, and instruction on inspecting the material. The workshops and demonstrations have afforded TxDOT personnel, municipal personnel, and the contracting industry a first-hand opportunity to observe the erosion control benefits of compost. As local municipalities see the potential TxDOT market for compost, they see that compost production can indeed be a viable alternative to landfilling this important organic resource.

Facilitating communication between the supplier, contractor, and sub-contractor was important as well. The Design Division developed materials directly aimed at those who were new to doing business with TxDOT. This information included AGC and TxDOT personnel contacts as well as information on how to navigate the TxDOT website to see which upcoming projects specified compost. TxDOT engineers and contractors were in turn made aware of the compost suppliers and applicators in their areas. Additional information as well as before and after photos were posted on the TxDOT website.

With so many opportunities available for promotion, it was decided that the program needed a theme and logo for identification purposes. With the help of the Texas Transportation Institute, the team developed a logo, brochure, poster, and booth backdrop panels to help in

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the promotional effort. Booth opportunities at the Associate General Contractors Annual Trade Show, National Roadside Vegetation Manager's Assoc. as well as various TNRCC and TxDOT agency conferences, facilitated more discussion between industry contacts.

IMPACT: District support of the compost program has been overwhelming. Faced with the frustrations of establishing adequate vegetation on highway construction and maintenance projects, districts have been eager to try an alternative to traditional methods. During FY 2001, TxDOT specified over 100,715 cubic yards of compost. To date, for FY 2002, 155,111 cubic yards of compost have already been specified.

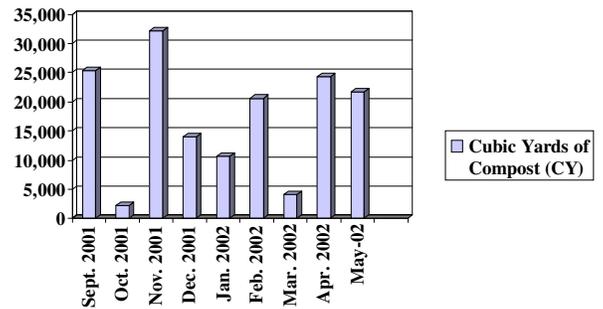
The innovative TxDOT compost program has been highlighted in newspaper articles and industry publications. Team members have been requested to make presentations at several national conferences. In addition, the team has been contacted by numerous states seeking information about the program, including the most recent, where TxDOT was invited to present to the Tennessee DOT. The TxDOT compost specification is regarded to be the most comprehensive DOT compost specification in the nation. And TxDOT is considered the leader in utilizing compost on highway construction and maintenance projects; currently specifying more compost than any other state DOTs. As other states become aware of the effort, they continue to request information on the TxDOT program.

STATE IMPLEMENTATION: As the successful district demonstrations continue, more and more districts are specifying compost. Five district engineers have formally instructed their staff to specify compost on all projects that previously called for topsoil. To date, compost is being utilized on projects in over half of TxDOT districts (13 out of 25).

In addition to the statewide effort, TxDOT is utilizing compost to help solve water quality problems in the northern region of Texas. With the high concentration of dairies located in the Bosque/Leon River watersheds, years of traditional disposal methods, namely land applying manure, have resulted in severe water quality problems for the downstream cities of Waco and Temple.

In an attempt to remedy the problem, an EPA grant known as the State of Texas Compost Incentive Program, was proposed at a joint TxDOT/TNRCC commission meeting in September of 2000. This program is the **largest Clean Water Act 319 grant ever awarded by the EPA**. The grant makes \$1 million available to districts located within a 150-mile radius of the watershed. The

Compost Volumes Specified FY 2002



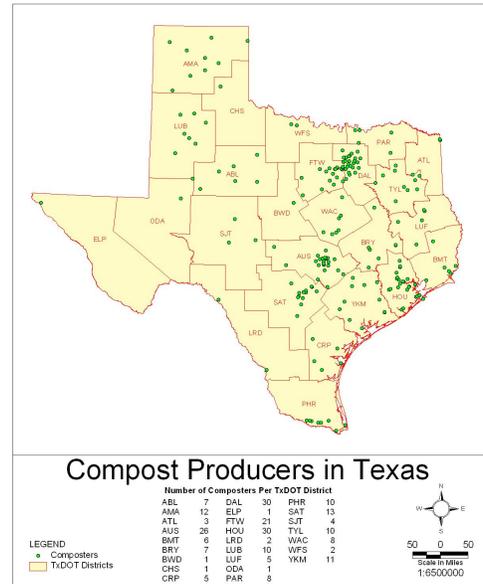
Total Volume (as of May) 155,111 CY

“Both the achievements of your program and the excellent cooperative partnership with TNRCC truly sets your operation apart from others in the United States. It is a model we would like to see emulated nationwide,”
said Jean Schwabb,
USEPA

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seven eligible districts include: Abilene, Austin, Brownwood, Dallas, Fort Worth, Waco, and Wichita Falls. Any of these districts are eligible to receive \$5 per cubic yard as an incentive to cover freight costs if they specify the use of composted dairy manure from the watershed in their construction projects. TxDOT agreed to purchase a minimum of 200,000 cubic yards of composted dairy manure over a three-year period. Two years into the three-year program, TxDOT is very close to achieving its commitment. As of May 2002, 146,774 cubic yards of dairy manure compost have been specified through the program.

In addition to utilizing compost as a soil amendment for erosion control, compost is now also used as a more effective alternative to silt fencing. A combination of compost and wood chips comprises a compost filter berm that is used to successfully filter water while retaining sediment. After construction is complete, the compost berms are simply left in place to decompose over time. Removal costs are saved and unlike silt fencing materials, there is no waste to be taken to the landfill. Compost filter berms present yet another opportunity to use this beneficial recycled material.



FUTURE IMPACT: The effectiveness of compost has proven to be a superior alternative to traditional erosion control methods. As the largest end-user of compost in the state, TxDOT has become an active partner in the effort to reduce waste, while at the same time helping to improve water quality. Because of the success of the State of Texas Compost Incentive Program, **the EPA has extended the grant and added an additional \$1.02 million to the TxDOT incentive budget.**

This TxDOT/TNRCC team worked to develop specifications, promote the benefits of compost, and bring together the road-building industry and compost suppliers. Because of their efforts, municipalities now have a larger market for this valuable product, and TxDOT is considered to be a major player in the effort to reduce waste.



A compost demonstration in Dallas/Spur 408 (left). Vegetation growth one year later (right).



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