

## **Appendix P**

### **Revegetation of Drastically Disturbed Roadsides on Fort Hood, TX**

## Revegetation of Drastically Disturbed Roadsides on Fort Hood, TX DEMONSTRATION PROJECT

TAES/TCEQ initiated the implementation of vegetation buffers on approximately 5 miles of roadside at Fort Hood, Texas (Figure 1 & 2) using dairy manure compost provided by six vendors from the North Bosque River Basin. All vendors were TCEQ approved facilities and were eligible to participate in the Composted Manure Incentive Program. In September, 2004, the bare buffer strips were treated with dairy manure compost at a rate equivalent to 405 yd<sup>3</sup>/ac (Figure 3). The compost treated sites were then seeded with oats during the subsequent winter and overseeded with a native seed mix (Table 1) in the spring 2005 to assist in establishment of vegetation buffers. Because of the previous lack of vegetation and thus, potential erosion, vegetation establishment was essential to stabilize compost treatments. Further, the established vegetation provided additional erosion protection along the roadside. Due to factors outside control of the program administrators, all sites were impacted by livestock grazing (Figure 3).

All expenditures (projected and spent) are detailed in Table 2. Funds provided for this project were used for compost purchase, land preparation, compost application and personnel salary, benefits and travel.

No measurement data were collected as application area precluded the establishment of replicated treatments, randomized plot design, or even similar application sites. Thus, comparison between compost sources (e.g. high organic matter content versus low organic matter content material) was not possible. However, visual observations in the form of photographs were collected following seed application and initial vegetation establishment. Photos document the establishment of vegetation in areas where compost was applied versus the areas where compost was not applied. Sites will continue to be photo monitored through 2005.

**Figure 1.** Representative sites for roadside revegetation programs with compost spreader (Photo by Jason McAlister).



**Figure 2.** Immediately post-treatment. (Photo by Jason McAlister)



**Figure 3.** Roadside revegetation post-application and seeding with oats. (Photo by Jason McAlister)



**Table 1.** Roadside revegetation seed mix (developed by NRCS)

<b>Fort Hood Experimental Seed Mix - 255 Acres TA 44 (FY 2005)</b>				
<b>Species</b>	<b>Full PLS Seed Rate</b>	<b>% Mix</b>	<b>lbs. PLS per Acre</b>	<b>Total PLS lbs.</b>
<b>Grasses</b>				
Sideoats Grama	4.5	50	1.13	288
Little Bluestem	3.4	5	0.34	87
Indiangrass	4.5	5	0.45	115
Buffalograss	6	25	1.5	383
Tall Dropseed	1	5	0.05	13
Switchgrass	3	5	0.3	77
Green Sprangletop	1.7		1	255
<b>Forbs</b>				
Illinois Bundleflower	4	2	0.08	20
Awnlss	4	2	0.04	11
Bushsunflower	4	1	0.04	11
Partridge Pea	4	1	0.04	11
<b>Overseed</b>				
Oats			2	

**Table 2.** Cost justification for Fort Hood activities

	<b>Compost Purchase &amp; Transportation</b>				<b>PROJECTED</b>		<b>ACTUAL</b>
	<b>Distance (miles)</b>	<b>Hauling Rate (\$3/lb mi)</b>	<b>hauling cost</b>	<b>compost cost<sup>a</sup></b>	<b>Total</b>	<b>compost cost<sup>b</sup></b>	<b>Total</b>
O'Neals	69	\$ 3.00	\$ 3,933	\$ 6,000	\$ 9,933	\$ 5,700	\$ 9,633
Producers	87	\$ 3.00	\$ 4,959	\$ 6,000	\$ 10,959	\$ 5,700	\$ 10,659
Bosque	79	\$ 3.00	\$ 4,503	\$ 6,000	\$ 10,503	\$ 5,700	\$ 10,203
Organic Residual Reclamation	80	\$ 3.00	\$ 4,560	\$ 6,000	\$ 10,560	\$ 5,700	\$ 10,260
Dairy Cow Compost	80	\$ 3.00	\$ 4,560	\$ 6,000	\$ 10,560	\$ 5,700	\$ 10,260
Gustine Compost	61	\$ 3.00	\$ 3,477	\$ 6,000	\$ 9,477	\$ 5,700	\$ 9,177
<b>TOTALS</b>	456		\$ 25,992	\$ 36,000	<b>\$ 61,992<sup>a</sup></b>	\$ 34,200	<b>\$ 60,192<sup>b</sup></b>
<b>Application of compost</b>					<b>\$ 29,800<sup>c</sup></b>		<b>\$ 16,272<sup>d</sup></b>
<b>Application Area</b>					<b>8.44<sup>e</sup></b>		<b>8.89</b>
<b>Personnel Costs</b>					<b>\$ 11,881<sup>f</sup></b>		<b>\$ 8,059<sup>g</sup></b>
<b>TOTAL</b>					<b>\$ 103,673</b>		<b>\$ 84,523</b>

<sup>a</sup> Total compost estimated to be purchased from each facility was 600 CY (a total of 20 truck loads per facility)

<sup>b</sup> Total compost actually purchased from each facility was 570 CY (a total of 19 truck loads per facility). Amount purchased from each facility was decreased from initial estimates because estimates for application services were slightly beyond budget means. Project personnel needed adequate funds to cover application service bids.

<sup>c</sup> Given 3,420 cy were purchased, application costs were estimated @ \$8.00/cy to apply compost plus \$1000 for land preparation

<sup>d</sup> Winning bid was considerably lower than estimates and provided application costs @ \$4.30/cy to apply compost plus \$1566 for land preparation

<sup>e</sup> Acreage based on calculated rate of 3 inch application is equivalent to 405 cy/A

<sup>f</sup> 3 months salary and benefits

<sup>g</sup> 2 months salary and benefits and travel costs

**Figure 4.** Livestock grazing roadside revegetation areas. (Photos by Jason McAlister (first) and Don Jones (second))

