

Roadside Revegetation

An Integrated Approach to Establishing Native Plants



Federal Highway Administration
U.S. Department of Transportation



ROADSIDE REVEGETATION

AN INTEGRATED APPROACH TO ESTABLISHING NATIVE PLANTS



Technology Deployment Program
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16. Abstract Native plants are a foundation of ecological function, affecting soil conservation, wildlife habitat, plant communities, invasive species, and water quality. Establishing locally-adapted, self-sustaining plant communities can also support transportation goals for safety and efficiency. Past obstacles to establishing native plant communities on roadsides have been technical, informational, and organizational. Effective strategies and practical techniques for revegetating the disturbed conditions with limited resources must be made available to practitioners. Multiple disciplines, ranging from engineering to soil science, ecology, botany, and wildlife science, must be able to work cooperatively, not in isolation. This report offers an integrated approach to facilitate the successful establishment of native plants along roadsides and other areas of disturbance associated with road modifications. It guides readers through a comprehensive process of: 1) initiating, 2) planning, 3) implementing, and 4) monitoring a roadside revegetation project with native plants.			
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SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
AREA				
in ²	square inches	645.2	square millimeters	mm ²
ft ²	square feet	0.093	square meters	m ²
yd ²	square yard	0.836	square meters	m ²
ac	acres	0.405	hectares	ha
mi ²	square miles	2.59	square kilometers	km ²
VOLUME				
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft ³	cubic feet	0.028	cubic meters	m ³
yd ³	cubic yards	0.765	cubic meters	m ³
NOTE: volumes greater than 1000 L shall be shown in m ³				
MASS				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
TEMPERATURE (exact degrees)				
°F	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	°C
ILLUMINATION				
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m ²	cd/m ²
FORCE and PRESSURE or STRESS				
lbf	poundforce	4.45	newtons	N
lbf/in ²	poundforce per square inch	6.89	kilopascals	kPa
APPROXIMATE CONVERSIONS FROM SI UNITS				
Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
AREA				
mm ²	square millimeters	0.0016	square inches	in ²
m ²	square meters	10.764	square feet	ft ²
m ²	square meters	1.195	square yards	yd ²
ha	hectares	2.47	acres	ac
km ²	square kilometers	0.386	square miles	mi ²
VOLUME				
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m ³	cubic meters	35.314	cubic feet	ft ³
m ³	cubic meters	1.307	cubic yards	yd ³
MASS				
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
TEMPERATURE (exact degrees)				
°C	Celsius	1.8C+32	Fahrenheit	°F
ILLUMINATION				
lx	lux	0.0929	foot-candles	fc
cd/m ²	candela/m ²	0.2919	foot-Lamberts	fl
FORCE and PRESSURE or STRESS				
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in ²

*SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380. (Revised March 2003)

ROADSIDE REVEGETATION: AN INTEGRATED APPROACH TO ESTABLISHING NATIVE PLANTS

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LIST OF ACRONYMS:

AASHTO – American Association of State Highway and Transportation Officials
AMF – Arbuscular mycorrhizal fungi, formerly called endomycorrhizae
AOSA – Association of Official Seed Analysts
AOSTA – Association of Seed Technologists Association
AWHC – Available Water-Holding Capacity
BFM – Bonded Fiber Matrix
BLM – Bureau of Land Management
CCE – Calcium Carbonate Equivalent
CEC – Cation Exchange Capacity
CRF – Control-Release Fertilizers
COTR – Contracting Officer’s Technical Representative
DEQ – Department of Environmental Quality
DFC – Desired Future Condition
DGRC – Dorena Genetic Resource Center
DOT – Department of Transportation
EA – Environmental Analysis
EMC – Ectomycorrhizal Fungi
EPA – U.S. Environmental Protection Agency
ECRM – Erosion Control Revegetative Mats
ET – Evapotranspiration Rate
FHWA – Federal Highway Administration
FS – U.S. Forest Service
GIS – Geographic Information System
LCL – Lower Confidence Limit
HWY – Highway
IBDU – Isobutylidene Diurea
IRVM – Integrated Roadside Vegetation Management
MTDC – Missoula Technology Development Center
NAPT – North American Proficiency Testing
NEPA – National Environmental Policy Act
NPDES – National Pollutant Discharge Elimination System
NRCS – Natural Resources Conservation Services
OM – Organic Matter
OHV – Off-Highway Vehicle
PAM – Polyacrylamides
PIR – Project Identification Report
PLS – Pure Live Seed
PMS – Plant Moisture Stress
PVC – Polyvinyl Chloride
RECP – Rolled Erosion Controlled Products
RGP – Root Growth Potential
ROW – Right-of-Way
RQD – Rock Quality Design Index
SME – Saturated Media Extract
SMP – Shoemaker-McLean-Pratt buffer
SRI – Soil Resource Inventory
STA – Seal of Testing Assurance
TAWHC – Total Available Water-Holding Capacity
TEUI – Terrestrial Ecological Unit Inventory
TMECC – Test Methods of the Examination of Compost and Composting
TRM – Turf Reinforcement Mats
TZ – Tetrazolium Test
UCL – Upper Confidence Limit
USDA – U.S. Department of Agriculture
USFS – U.S. Forest Service
UTM – Universal Transverse Mercator
WFLHD – Western Federal Lands Highways Division