

<b>FY 2016 Landscape Scale Restoration Competitive Program</b>	<b>Filename</b>			
	State:	NV	Keyword:	Drought
	<b>Administration Information</b>			
	Funds Requested:		300,000	
	Match:		459,000	
Score	Ranking:	Project Funding:		

<b>1</b>	<b>Applicant Information</b>				
	<b>State Forestry Agency:</b>	Nevada Division of Forestry			
	<b>Contact Person:</b>	David Howlett			
	<b>Address:</b>	2478 Fairview Drive			
	<b>City:</b>	Carson City	<b>State:</b>	NV	<b>Zipcode:</b> 89701
	<b>Phone:</b>	775-684-2506	<b>Email:</b>	dhowlett@forestry.nv.gov	

<b>2</b>	<b>Project Information</b>		
	<p><b>Is this a Multi-state proposal? Check "yes" if want to submit the same proposal with multiple state budget requests. If yes, a co-applicant menu item will appear in the on-line version for you to add other states/islands. This allows you to work on the same proposal with eah applicant requesting funds.</b></p>		<input type="checkbox"/> Yes OR <input checked="" type="checkbox"/> No
	<b>Descriptive Title of Project:</b>	Optimizing urban tree canopy coverage under water conservation programs	
	<b>Partnering Agencies / Organizations:</b>	University of Nevada (Las Vegas, Reno), Cooperative Extension Program, University of Nevada, Las Vegas, Biology Department. University of Nevada, Reno, Facilities Maintenance Service, Desert Research Institute, Southern Nevada Water Authority, Truckee Meadows Water Authority, City of Reno, City of Las Vegas, City of Henderson, Washoe and Clark Counties. The Wilbur D. May Arboretum, International Professional Development Services, Inc.	
<b>Project Duration:</b>	<input type="checkbox"/> One Year	<input type="checkbox"/> Two Years	<input checked="" type="checkbox"/> Three Years

<b>3</b>	<b>National Themes</b>	
	<input checked="" type="checkbox"/> <b>Conserve Working Forest Landscapes</b> <ul style="list-style-type: none"> <li>○ High priority ecosystem and landscapes are identified and conserved.</li> <li>○ Forests are actively and sustainably managed.</li> </ul>	<input checked="" type="checkbox"/> <b>Protect Forests From Harm</b> <ul style="list-style-type: none"> <li>○ Fire-adapted lands are restored and risk of wildfire impacts is reduced.</li> <li>○ Threats to forest and ecosystem health are identified, managed and reduced.</li> </ul>

<b>4</b>	<b>Project Overview/Purpose Statement</b>
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5 Points. 500 Characters Including Spaces – Provides a succinct and relevant overview; could easily be used to communicate critical elements and value of the project.

Climate change and water restrictions require an effective way to maintain urban tree canopy in the face of extended drought. To increase tree survival under water conservation efforts, NDF, with statewide partners, will create and disseminate an irrigation handbook and video on efficient and effective tree irrigation and conduct hands-on public outreach to ensure these guidelines are understood by industry professionals and citizens.

Project Budget						
	Grant	Leverage <sup>1</sup>			Source	TOTAL
		Match		Non-Match		
	Funds requested	Applicant	Non-federal contributors	Applicant, non-federal, and/or federal	3 <sup>rd</sup> Party Contributor/s	Total project cost
5	<b>Personnel / Labor:</b>		159000	4100	SNWA, TMWA, UNCE, UNLV, DRI, HOAs	163100
	<b>Fringe Benefits:</b>					
	<b>Travel:</b>	5000				5000
	<b>Equipment:</b>					
	<b>Supplies:</b>					
	<b>Contractual:</b>	232023				232023
	<b>Construction:</b>					
	<b>Consolidated<sup>2</sup>:</b>		300000			300000
	<b>Other:</b>					
	<b>Indirect Costs<sup>3</sup>:</b>	62977				62977
	<b>TOTAL:</b>	300000	300000	159000	4100	763100

<sup>1</sup> Leverage includes all three categories: match, non-match, and source. Funds qualifying as “match” must meet the same program requirements as grant funds (e.g., program authorities, non-federal sources). Other “non-match” leveraged funds do not need to meet the same standards (e.g., may include funds for construction, funds from other federal partners). Partnership with other USFS programs outside of State & Private Forestry, as well as other federal and state programs is encouraged.

<sup>2</sup> If any part of your match requirement is being covered through a consolidated payment grant (i.e. state spending of non-federal funds on activities that meet S&PF program authorities but are not tied to this proposal), please place it here.

<sup>3</sup> Indirect costs must be tied to an established rate. Waived indirect costs are an acceptable source of match.

## Context, Goals, and Objectives

15 Points. 2,000 Characters Including Spaces – Context clearly identifies priority landscapes and issues that are being addressed. Goals and objectives address the national themes being addressed by the project.

Nevada is the driest state in the US with reoccurring multi-year droughts. State water authorities promote conservation programs, including turf removal. These programs have an unfortunate secondary effect of high mortality of trees due to a lack of green industry knowledge on proper irrigation. Conserving trees in non-turf landscapes requires more complex irrigation knowledge. Many turf conversions are poorly executed, trees die, and the many benefits of city trees are reduced.

6 Goals: 1. Conserve and increase public benefits from working trees in Nevada urban centers (increased tree survival/canopy coverage) in concert with water conservation programs. 2. Widespread adoption of efficient irrigation practices with endorsement of major water authorities. 3. Creation of attractive and sustainable landscapes that serve as a positive example to follow to prevent future tree mortality. 4. Improve knowledge base among green industry professionals, landscape architects, and citizenry and on efficient and effective tree irrigation (including post-turf conversions) and sustainable landscape design. 5. Enhanced conservation of water in the driest state in the US. 6. Prevent temperature increases in cities and conserve energy from reduced use of air conditioning.

Objectives: 1. Develop, print and disseminate a video and 20,000 tree irrigation handbooks on effective and efficient tree irrigation, conservation of trees in landscape conversions, and sustainable landscape design. 2. Conduct at least eight full day workshops in northern and southern Nevada for 840 green industry professionals to disseminate results of handbook. 3. Conduct at least eight one-hour outreach seminars for at least 300 home owners' association representatives in northern and southern Nevada to address water conservation and tree irrigation, including information on how to hire a contractor. 4. Create stronger ties between green industry professionals and water authorities.

## Proposed Activities

20 Points. 2,500 Characters Including Spaces – Clearly describes with specificity, activities to be completed with grant funds and leveraged resources. Links specific project activities to funding amounts in the Project Budget and to stated project goals and objectives.

**Tree irrigation handbook:** With a host of statewide professional experts representing academia, university cooperative extension, the water authorities, state forestry, and green industry, we will convene quarterly (4) meetings during project year 1 to develop handbook scope, technical content, and layout (leverage, \$8.5K). Books will be translated into Spanish (grant, \$4K) and printed with northern (5,000 copies) and southern (15,000 copies) Nevada versions (grant, \$50K).

**Workshop planning/video:** based on results of the irrigation expert group, workshop curricula will be developed into workshops by (1) and NDF staff and translated into Spanish for green industry professionals and HOAs (grant, \$150K). Bilingual video will be produced to demonstrate proper turf conversions and irrigation installation on public property (grant, \$25K) Curricula/video will be available free of charge to via website.

7 **Workshops for green industry professionals:** conduct 8 full day, lecture and hands-on turf conversion and tree watering workshops free of charge for 840 professionals to be held in northern and southern Nevada over years 2 and 3 including one in Spanish in each region (leverage, \$136K). Topics to be addressed include: the need for water conservation, local soil, water, and tree root relationships, proper irrigation installation and adjustment using SLIDE rules (Simplified Landscape Irrigation Demand Estimate), and sustainable landscape design. Handbooks will be given free to all participants, and made available to green industry partners via print and website (leverage, \$500). Video will be shown at workshops and available via websites (leverage, free). Before and after workshop quizzes will evaluate the effectiveness of the education program.

**Outreach to Home Owners Associations (HOAs):** (1) will conduct at least 6 one-hour outreach events free of charge to 300 statewide HOA representatives to disseminate handbook, discuss basic irrigation needs, water conservation programs, sustainable landscape design, and how to hire a contractor (grant, \$4K and leverage, \$14K). Follow up surveys will assess the effectiveness of the HOA outreach talks. NDF urban forester will provide technical assistance and program oversight to project (non-match leverage, \$4K).

<b>Deliverables, Outputs, and Outcomes</b>	
<b>8</b>	<p><b>15 Points. 2,000 Characters Including Spaces – Defines deliverables, outputs, and outcomes which will achieve the national themes addressed by the project. Provides clear, quantitative measures of success.</b></p> <p><b>Deliverables:</b> 1. Dissemination of 20,000 copies of a clear, concise, regionally adapted irrigation handbook and a video for northern and southern Nevada in English and Spanish. 2. An updated region-specific curriculum/video created for green industry professionals and citizens to address efficient and effective irrigation, landscape conversions, and sustainable landscape design. 3. Based on curriculum at least 8 full day workshops conducted for at least 840 green industry professionals in northern and southern NV, with one each in Spanish. 4. At least 6 one hour outreach events will educate at least HOA representatives in northern and southern Nevada on tree irrigation and the need for water conservation.</p> <p><b>Outputs:</b> 1. A comprehensive and quickly accessible video and handbook on efficient and effective irrigation techniques to keep trees alive during installations and turf conversions, and sustainable landscape design. 2. Easily shareable curricula/video on tree irrigation gathered from statewide experts. 3. Eight workshops on soil and water relationships, efficient and effective irrigation, and sustainable landscape design to green industry professionals to keep trees thriving under water conservation measures. 4. Six one-hour HOA outreach events spread knowledge about tree irrigation and water conservation to private landowners who manage the vast majority of statewide urban forest resources.</p> <p><b>Outcomes:</b> 1. Handbook/video provides quick access to accurate and concise irrigation information, keeping working urban trees thriving under water conservation efforts, enhancing public benefits from statewide urban forests. 2. The knowledge gap among green industry professional and HOA residents is reduced as new information is created to address irrigation needs under growing statewide water conservation. 3. Demonstrating successful turf conversion projects on municipal land will serve as an example to protect trees on private land where significant public benefits are derived.</p>

<b>Collaboration</b>	
<b>9</b>	<p><b>15 Points. 2,000 Characters Including Spaces – Project uses coordination and partnerships with complementary state and federal programs to improve outcomes. Clearly describes how partners are committed and will add value during project development and implementation. Collaboration will clearly result in a successful cross-boundary project.</b></p> <p>Statewide experts representing academia, green industry, water authorities, and state forestry, with a common interest in maintaining urban tree canopy and conserving water, will develop the tree irrigation handbook/video during year 1 (listed in section 2). State water authorities will provide technical review of tree irrigation handbook/video. (1) will then adapt the irrigation handbook to conduct green industry workshops at their facilities in years 2-3 and broadcast the information via existing video conferencing systems to outlying rural areas. Other statewide experts from (1) and (5) and (6) will share expert knowledge and video directly with green industry professionals at workshops. Local municipalities (7, 2) will provide access to properties undergoing turf removals for video production. Spanish translations and presentations will be completed by the International Professional Development Services, Inc., who has successfully delivered urban forestry program education to underserved Spanish speaking green industry partners for 4 years. (1) will also conduct HOA workshops adapted to landowner concerns during years 2-3 This project helps to grow statewide partnerships to address a critical knowledge gap among green industry professionals and to educate the private citizens who manage the majority of urban forest resources in the state. The project leverages non-profit funding, state facilities and staff time to centralize and disseminate information about proper tree irrigation under conservation programs. This will improve the health of working urban forests, protect urban forest resources from harm related to turf conversions and other water conservation efforts, and enhance the public benefits that result from improved private urban forest management.</p>

<b>Forest Action Plan Integration</b>	
<b>10</b>	<p><b>10 points. 1,250 Characters Including Spaces – Clearly describes the need for the proposed project and relates it to one or more priority landscapes, issues, areas, or strategies identified in the Forest Action Plan.</b></p> <p>The NV State Natural Resources Assessment identifies urban forests as priority landscapes for increasing active management. On page 70, the section “Water Conservation Programs” describes the turf removal programs in southern Nevada and forced metering of water use in northern Nevada that have led to reduced and improper irrigation of trees in the state’s most populous urban centers. The Nevada Natural Resource Strategy threat #7 is: “Nevada’s urban forests are threatened with decline resulting from changes in state demographics, the economy and water conservation programs” (pg. 32). Strategies to address this issue include “Increase and improve resources and partnerships to meet the growing need for technical assistance, education and outreach” (pg. 32). Additional identified strategies include utilizing partners to provide technical assistance, providing funding to support Spanish green industry training, and seeking additional funding to address educational needs. This project directly addresses identified threats to urban forest priority landscapes from water conservation programs with education and outreach strategies outlined in the NV Forest Action Plan.</p>

<b>Meaningful Scale</b>	
<b>11</b>	<p><b>10 Points. 1,250 Characters Including Spaces</b></p> <p><b>Scale of the project is clearly based on and is appropriate for the stated goals, objectives, and outcomes including cross boundary goals. The scale is sufficient to address the national theme and priority landscape and issues.</b></p> <p>This project seeks to increase benefits from urban forests throughout the state of Nevada, but has the potential to positively influence benefits in other arid regions of the western US. The knowledge gathered from statewide experts on efficient and effective irrigation will be collected and disseminated with handbooks/video and workshops using (1) facilities and network of partners. (1) has facilities with video conferencing capabilities to connect many rural communities with planned workshops. Translations of the handbook/video and workshops into Spanish will allow underserved Spanish speaking green industry professionals access to this information. As many Nevadans live in HOAs and the management of private urban forest resources contributes to significant public benefits, outreach to HOA communities will help to conserve and enhance benefits where a majority of statewide urban forest resources are found. The handbook/video and curriculum will be shared widely among western states where conservation programs have led to declines in urban forests. The potential to enhance public benefits from working urban forests beyond Nevada is a real possibility.</p>

<b>Sustainability of Outcomes</b>	
<b>12</b>	<p><b>10 Points. 1,250 Characters Including Spaces – Project clearly results in skills and enhanced capability that extend beyond the life of the project. Project displays how this investment will lead to a specific, quantifiable, cost effective, replicable benefit that addresses national themes.</b></p> <p>A major outcome of this project is increased understanding of the need for efficient and effective irrigation under conservation programs. The handbook and video, an updated concentration of statewide expert knowledge, will be disseminated widely, and available in perpetuity on partner agency websites. With an increased knowledge base among over 1,100 green industry professionals, HOA representatives, and the general public, urban tree canopy cover will increasingly be retained under water conservation efforts. The partnerships built and strengthened with this project will help Nevadans address future issues related to urban forest resources, reducing the effects of potential future threats, including wildfire, insect and disease outbreaks, and poor cultural practices. The irrigation handbook/video and curricula will serve as a template for future updates, and as such, provide additional benefits many years after the successful completion of this project.</p>