

FY 2010 RESEARCH PROBLEM STATEMENT

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TITLE ([more info](#))

Development of geographically-based native plant species lists and guidance for the right-of-way with emphasis on minimal maintenance and carbon sequestration.

PROBLEM (Description of need) ([more info](#))

ODOT owns and maintains thousands of miles of roads and the right-of-ways associated with them. At issue is the time, energy, and cost associated with effectively managing vegetation in right-of-ways to assure the integrity of the road system (e.g., allowing for surface water flow and/or absorption) and the safety of the traveling public (e.g., maintaining site visibility, minimizing fire hazards) while focused on a "no maintenance" economic goal. In addition, regulatory and voluntary pressure is increasing at federal, state, and local levels to reduce transportation department use of exotic plant species that often require high maintenance (e.g., routine mowing of grass), and opt instead for low-maintenance native plant species in the right-of-way. Not only has ODOT been challenged by the Oregon Transportation Commission to shift the balance of native to exotic species in the right-of-way in favor of natives, but ODOT Highway Division management has charged the Office of Maintenance to develop a geographic suite of planting options that will reduce, minimize, or all together eliminate roadside vegetation management. Further, there are expectations at all government levels to minimize greenhouse gas emissions, particularly carbon dioxide (CO₂). Vegetation naturally removes ("sequesters") CO₂ from the air, and state transportation agencies have an opportunity to reduce their total emissions and potentially earn revenue (through the sale of "carbon credits" on an emissions trading market) by changing vegetation-management practices on right-of-ways (FHWA, Successes in Stewardship, September 2008). Regrettably, ODOT is only in the infant stages of developing geographically-based native plant species lists for the right-of-way that emphasize low maintenance or carbon sequestration options.

PROPOSED RESEARCH, DEVELOPMENT OR TECHNOLOGY TRANSFER ACTIVITY ([more info](#))

- Summarize what other DOTs have done regarding the use of native vegetation in right-of-ways and carbon sequestration initiatives (e.g., NMDOT).
- Identify the native plant species that already grow along ODOT right-of-way and determine their suitability for expanded use on the right-of-way.
- Identify additional native plant species that appear to be suitable candidates for use on the right-of-way.
- Determine the geographic range of the plants on the suitability list and identify logical geographic zones that plant lists will be developed for.
- Establish geographically-appropriate test plots for suitable native plants that were identified during the activities outlined above.
- For native plants that "make the cut," perform a cost-benefit analysis comparing maintenance of the natives with that of the vegetation currently growing along the right-of-way.
- Compare carbon sequestration rates between the native species explored above with current right-of-way vegetation.
- Develop a guidance document that lists suitable native plants to use on right-of-ways across the various geographic areas of the state and provides the cost-benefit analyses for native plant maintenance and carbon sequestration.

BENEFITS [\(more info\)](#)

SCOPE - If funded, the results of this project will have statewide applicability.

SCHEDULE - If low maintenance native plants can be identified for use in the right-of-way, Maintenance staff will have more flexibility in their schedules because mandatory mowing and other forms of vegetation management (e.g., for safety) will occupy less maintenance time.

BUDGET - If low maintenance native plants replace higher maintenance exotic plants in the right-of-way, there should be significant cost savings across the state. In addition, if plants can be identified that are high in carbon sequestration, there is the potential for ODOT to parttake in the carbon credits trading market and earn revenue (as is being currently explore by NMDOT with the backing of FHWA).

SAFETY - If low growing native plants can replace right-of-way grass (e.g., that must be mowed to retain sight visibility and reduce fire hazards), safety will not be dependent on a vegetation maintenance schedule.

ENVIRONMENT - One of the major threats to native species is the proliferation of exotic species. Because the environment is one of seven values that ODOT has to guide decision-making (i.e., "We provide services and facilities in ways that protect and enhance the environment." ODOT Web Homepage), using native plants in the right-of-way instead of exotics when they are cost effective and don't compromise safety is a logical course of action.

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Problem Statement Number: