## Planned Program 2 (Summary)

### 1. Name of the Planned Program

Developing Tools for Decision-Making

### 2. Brief summary about Planned Program

The major area of emphasis of this planned program will be the development of tools for decision-making through the use of theoretical and empirical analysis including experiments, surveys, case studies, and other forms of data gathering and analysis. This analysis will be undertaken in the areas of incorporating sustainability into the planning and design process, development of land-use planning tools, environmental and natural resource economics, industrial organization economics, and consumer economics. Integral with the program will be the testing and application of these new tools in communities in the region. This planned program represents a true transdisciplinary effort with participation from stakeholders, decision makers, and researchers. In the planning area we will focus on developing common platforms for planning initiatives and decision-making processes to guide and inform change. The approach is to examine economic development by assessing existing physical, environmental, social and economic opportunities and limitations in order to prescribe coordinated strategic actions to generate new economic activities. In the applied economics area, we will conduct research to inform the decision making of governments, companies, organizations, and individuals in the areas of industrial organization, competition policy, food safety, environmental health, environmental policy, natural resource management, and consumer economics. Theoretical, empirical, and experimental methods will be applied to public policy issues in these areas. In the natural resources area we will combine landscape ecology, GIS, and land-use modeling techniques into an open source approach examining the impact of regulations and incentive programs. In the design area we will research post-industrial landscapes, with under used brownfields and vacant land parcels, which provide opportunities for the re/introduction of ecological infrastructure. Using landscape ecological principals, spatial modeling methods will be explored and developed to aid policy and decision makers in locating and prioritizing ecological infrastructure interventions. These models will analyze spatial patterns for ecologic, hydrologic, economic, and social health. They will be adaptable and fully able to model different scenarios of uncertainty and stochasticity. In conjunction with other studies, these models could be used to aid in decision making for large-scale infrastructure projects such as combined sewer overflow remediation and water quality planning. Ecological infrastructure models would be especially useful in the analysis of our region, which has core post-industrial cities and rapidly urbanizing rural landscapes.

**3. Program existence :** New (One year or less)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

## V(B). Program Knowledge Area(s)

### 1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 123 | Management and Sustainability of Forest Resources | | | 15% | |
| 603 | Market Economics | | | 30% | |
| 605 | Natural Resource and Environmental Economics | | | 11% | |
| 606 | International Trade and Development | | | 6% | |
| 607 | Consumer Economics | | | 3% | |
| 610 | Domestic Policy Analysis | | | 5% | |
| 801 | Individual and Family Resource Management | | | 3% | |
| 803 | Sociological and Technological Change Affecting Individuals, | | | 4% | |
| 804 | Human Environmental Issues Concerning Apparel, Textiles, and | | | 2% | |
| 901 | Program and Project Design, and Statistics | | | 18% | |
| 903 | Communication, Education, and Information Delivery | | | 3% | |
| | **Total** | | | 100% | |

## V(C). Planned Program (Situation and Scope)

### 1. Situation and priorities

The life, physical and social science research that policy and decision makers rely on is often not integrated or presented in a manner that contributes to effective decision making. For example, the science may have uncertainty limits that impact its direct applicability. This program will address the need for adaptive approaches in planning, design and management. This can be accomplished through well-conceived, and scientifically-rigorous hypotheses, which then can be implemented and monitored to learn if and how various alternatives were successful. Science-based decision-making can have immediate benefits for citizens, businesses, communities and governments by providing new technologies and analyses that improve human health, environmental protection, natural resources use, tourism, and family well-being. Nationwide, interest in sustainable community design is significant, as expressed in a range of issues and programs including: smart growth and community character, urban ecology,

storm-water management and green infrastructure. The impacts of development can be ameliorated to a large extent by the use of innovative land use planning, sustainable development concepts, and best management practices. Nationally and internationally, there is strong interest in the design of policies that take private (individual, group, and company) incentives into consideration in order to yield the most effective outcomes. These incentives may stem from physical, economic, or social factors. All of the following groups need tools for science-based decision making: government agencies, natural resource professionals (including agency personnel, foresters, wildlife biologists, regional planners, environmental consultants, and land managers), natural resource based businesses (loggers, commercial fisherman, farmers, pesticide applicators, development and site design professionals), agricultural and food-based businesses, local land use officials (members of boards of health, planning boards, conservation commissions and other volunteer governance committees), local departments of public works and water departments, community opinion leaders, environmental and conservation organizations (non-profit environmental organizations, land trusts, watershed groups and conservation districts), K-12 educators (public and private school teachers and environmental educators) and families. These groups need up-to-date information that contributes to public health, resource conservation, strong communities, environmental protection, biosecurity, and family well-being.

### 2. Scope of the Program

- Integrated Research and Extension
- In-State Research
- Multistate Research

## V(D). Planned Program (Assumptions and Goals)

### 1. Assumptions made for the Program

Government and private decision makers rely on scientific research to develop defensible guidelines and rules to inform their decisions. Planning and decision making often require collaboration between multiple jurisdictions and parties. A transdisciplinary approach can achieve highly integrated research, planning, and management. Scientific-based decision-making needs to rely on evidence and findings from across the physical, life, and social sciences. Private and public decision making can be informed by, and its effectiveness can be improved by, understanding of the economic incentives facing individuals and organizations. These issues of sustainable design and regional planning are important even in the best of economic times, to bring opportunities to disadvantaged cities, to capitalize on aging infrastructure and to (re)build better communities. Responsibility for managing land use and development, and mitigating its impacts, falls principally on local officials who enforce state and local statutes related to zoning, planning, wetlands, public health and water supply.

### 2. Ultimate goal(s) of this Program

to develop platforms for science-based decision making by municipal, state, and regional, federal, and international authorities, to assist town officials, state regulators, and regional planning groups while engaging citizens in integrated decision making, to optimize the planning process for community and regional development

## V(E). Planned Program (Inputs)

### 1. Estimated Number of professional FTE/SYs to be budgeted for this Program

| Year | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| 2009 | 0.0 | 0.0 | 1.7 | 0.0 |
| 2010 | 0.0 | 0.0 | 1.7 | 0.0 |
| 2011 | 0.0 | 0.0 | 1.7 | 0.0 |
| 2012 | 0.0 | 0.0 | 1.7 | 0.0 |
| 2013 | 0.0 | 0.0 | 1.7 | 0.0 |

## V(F). Planned Program (Activity)

### 1. Activity for the Program

Conduct research and produce refereed publications in the scientific literature.

### 2. Type(s) of methods to be used to reach direct and indirect contacts

| Extension | |
|---|---|
| **Direct Methods** | **Indirect Methods** |
| • {NO DATA ENTERED} | • {NO DATA ENTERED} |

### 3. Description of targeted audience

Foresters, Industry, Economic Analysts, Health Care Professionals, Low Income Families, Food Service Personnel

## V(G). Planned Program (Outputs)

### 1. Standard output measures

**Target for the number of persons(contacts) to be reached through direct and indirect contact methods**

| | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| Year | Target | Target | Target | Target |
| 2009 | 0 | 0 | 0 | 0 |
| 2010 | 0 | 0 | 0 | 0 |
| 2011 | 0 | 0 | 0 | 0 |
| 2012 | 0 | 0 | 0 | 0 |
| 2013 | 0 | 0 | 0 | 0 |

### 2. (Standard Research Target) Number of Patent Applications Submitted

**Expected Patent Applications**

**2009 :** 0 **2010 :** 0 **2011 :** 1 **2012 :** 1 **2013 :** 0

### 3. Expected Peer Review Publications

| Year | Research Target | Extension Target | Total |
|---|---|---|---|
| 2009 | 45 | 0 | 0 |
| 2010 | 45 | 0 | 0 |
| 2011 | 45 | 0 | 0 |
| 2012 | 45 | 0 | 0 |
| 2013 | 45 | 0 | 0 |

## V(H). State Defined Outputs

### 1. Output Target

- # of refereed manuscripts

**2009 :**4 **2010 :**5 **2011 :** 5 **2012 :**5 **2013 :**6

## V(I). State Defined Outcome

### 1. Outcome Target

Accurate research made available and shared

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2009 :**0 **2010 :** 0 **2011 :** 0 **2012 :**0 **2013 :** 0

### 3. Associated Institute Type(s)

•1862 Research

### 4. Associated Knowledge Area(s)

- 603 - Market Economics
- 605 - Natural Resource and Environmental Economics
- 606 - International Trade and Development
- 607 - Consumer Economics
- 610 - Domestic Policy Analysis
- 801 - Individual and Family Resource Management
- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
- 901 - Program and Project Design, and Statistics

## V(J). Planned Program (External Factors)

### 1. External Factors which may affect Outcomes

- Public Policy changes

**Description**

The research conducted in this planned program will influence public policy but it also needs to adapt to changes in existing public policy.

## V(K). Planned Program (Evaluation Studies and Data Collection)

### 1. Evaluation Studies Planned

- Other (scientific peer review)

**Description**

Evaluation will be done through the established scientific review process in the open literature and the merit review process.

### 2. Data Collection Methods

- Journals

## V(J). Planned Program (External Factors)

### 1. External Factors which may affect Outcomes

- Natural Disasters (drought,weather extremes,etc.)

**Description**

The management practices that are most appropriate are strongly influenced by extremes of weather.

## V(K). Planned Program (Evaluation Studies and Data Collection)

### 1. Evaluation Studies Planned

- Other (scientrific peer review)

**Description**

Evaluation will be done through the established scientific review process in the open literature and the merit review process.

### 2. Data Collection Methods

- Journals

**Description**

{NO DATA ENTERED}