

Building Urban Resilience and Sustainability (BURST): Integrating Adaptive Infrastructure Systems with Institutional and Ecological Functions

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Summary: This project will develop a new approach for the conception, analysis, and design of urban infrastructures that is consistent with the sustainability paradigm. It is organized around the principle that resilient and sustainable infrastructures result from a combination of analysis and design, the incorporation of technological advances, intelligent planning, and the interplay of human adaptation and response to the physical and ecological environment. BURST seeks to integrate expertise and findings from engineering systems analysis, information management, agent-based modeling; natural, urban, and industrial ecology; urban planning, economic development, and information theory. This Area of Excellence proposal is the first part of a plan to enhance both research and pedagogical strengths in the area of Urban Sustainability and Resilience at UIC. It is directed at a progressive series of proposal submittals, culminating in a multi-institutional submission to NSF's Sustainability Research Network (SRN) program during its next planned announcement in the fall of 2013. The funding goal initiated by BURST is intended to result in annual research expenditures of \$10 million within five years. The second part of the plan is a proposal to the Chancellor's Cluster Initiative to form an interdisciplinary diversity cluster on Urban Sustainability and Resilience aimed at a set of key faculty hires that will leverage existing strengths at UIC, and catalyze continued growth. The ultimate goal is to propel UIC to a national and international leadership position in the area of urban sustainability and resilience, again within a period of five years.