

2nd NIAC Workshop on Urban Science & Engineering

Cities house more than 70 percent of the U.S. population; provide many essential services for states, regions and the nation; and are meccas of innovation. Yet, cities also face enormous challenges. Cities consume a major portion of the nation's energy, produce a corresponding amount of greenhouse gases, are saddled with aging infrastructures, and are plagued with traffic congestion. Cities also are vulnerable to major disruptive events (e.g., earthquakes, tsunamis, hurricanes, disease outbreaks, and cyber attacks) for which they are often ill prepared, and all cities must cope with the changes wrought by climate change.

Cities are complex systems that result from the interaction of humans with physical, chemical, biological systems. Advances in computing, communications, and sensor technologies offer the possibility of dramatically advancing our understanding of the properties and behavior of cities, as well as fueling the expectation that this knowledge can be used to enhance the efficiency, sustainability, resiliency, and livability of cities. Although cities already collect an enormous amount of information, some of which is made available to the public, the resulting databases often are discrete entities with varying formats that may or may not be pertinent to improving the most important aspects of city life.

The **2nd Workshop on Urban Science & Engineering** is sponsored by the Northwest Institute for Advanced Computing (NIAC), a joint endeavor of Pacific Northwest National Laboratory and the University of Washington. Urban science and engineering was identified as a topic of interest to both institutions in bilateral meetings in 2013-2014 and was the topic of an informal workshop on July 21, 2014 in the offices of the Puget Sound Regional Council in Seattle. The first workshop brought together faculty and staff from PNNL, UW, and a number of other organizations in the Seattle area for a lively discussion about the opportunities for enhancing the efficiency, sustainability, resilience, and livability of cities.

The 2nd NIAC Workshop on Urban Science & Engineering is structured to continue the discussions begun in 2013-2014. The draft version of the agenda is now available online.