1.1 INTRODUCTION

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Across the globe mega urban transport projects (MUTPs) are seen as critical catalysts in the process of strategic change, nation-building and urban and regional development. For the purposes of this research, MUTPs are defined in terms of the following criteria:

- Land-based transport infrastructure investments within and connecting 'urban areas' (as defined in the VREF FUT Policy Statement) in the form of bridge, tunnel, road and rail links, or combinations of these.
- Projects that entail a construction cost of over US$ 500 million at present day prices.
- Projects that are perceived as critical to the success of major urban and metropolitan development initiatives.

Traditional judgments about their successes in terms of on-time and on-budget delivery are now being tempered not only by mounting concerns over their rising costs, but also regarding risks and uncertainties about their outcomes and impacts on environmental, energy and economic and social regeneration developments.

The Bartlett School of Planning at University College London (UCL) has been awarded two grants by the Volvo Research and Educational Foundations (VREF). The first, in 2005, was a VREF Smaller Project grant to investigate the treatment of complexity, uncertainty and risk-taking in decision-making across a range of disciplines, sectors and professions with a view to seeking generic lessons in the planning, appraisal and evaluation of MUTPs. This study began in January 2006 and was completed in July 2008 with its outputs viewed as potentially very important to the work of the following VREF project. The second VREF grant, awarded in 2006, funds a five year research programme (currently underway) which began in October 2006. It is designed to both establish and operate a VREF global Centre of Excellence (CoE) in Future Urban Transport at UCL (The OMEGA Centre) to help policy-makers, planners, communities and investors better understand and judge what constitutes a 'successful' MUTP in the 21st Century. These findings are to be derived from an international study of 33 case studies in ten countries throughout the 'so called' Developed World (in Europe, USA, Australia and Asia) and placed in the public domain as a basis for global knowledge-building and sharing. The OMEGA Centre is currently one of seven VREF CoEs across the world and the only such Centre in Europe.

A principal aim of the Smaller Project for which this Working Paper (WP) has been prepared is to contribute to the advancement of the art and science of planning, appraising and evaluating land-based mega transport projects in urban and metropolitan regions of the Developed World (the research focus of the OMEGA Centre and the second VREF grant). An underlying premise of both the Smaller Project and the CoE VREF research programme is that much can be learned (and gained) from contemporary thinking about the treatment of complexity, uncertainty and risk-taking in fields in planning where these concepts have long been at the *milieu* of complex problem-solving *outside* the transport sector, and spatial and territorial planning.

This working paper (WP#1) explores and establishes the overall context of the Smaller Project. It includes: a clarification of concepts and an elaboration of key theoretical terms and parameters based on a literature review of the fields of risk, uncertainty and complexity, plus an examination of the role of strategic planning thought and its treatment of risk and complexity in complex problem-solving. It constitutes the first of a series of four WPs generated by the Smaller VREF Project; the others being: Working Paper 2: The Contemporary Treatment of Risk, Uncertainty and Complexity in Decision-making in Selected Disciplines;
Working Paper 3: The Treatment of Risk, Uncertainty and Complexity in Transport, Regional and City Planning and Urban Development and Working Paper 4: Generic Lessons for Improving the Treatment of Risk, Uncertainty and Complexity in the Planning of Mega Urban Transport Projects.

WP#2 has at its core a series of nine commissioned papers on the use of robust notions of uncertainty for decision-making and planning where complexity and risk-taking are seen as the 'norm' rather than the exception. This covers fields such as agriculture, health, natural disasters, knowledge management, insurance, banking, defense, and corporate management. The authors are leading academics and/or practitioners in these fields. The brief for each paper required authors to differentiate between generic and context/topic-specific lessons within their own specialist field. These papers are brought together in a concluding chapter of WP#2 in an effort to summarize generic and context specific lessons derived from these contributions.

WP#3 provides a set of six additional papers commissioned from selected leading researchers and practitioners – this time in the fields of urban transport, property development and project management, and city and regional policy-making and planning. These papers are brought together in a concluding chapter of WP#3 in an effort to summarize generic and context specific lessons derived from these contributions.

WP#4 consolidates the findings identified in the preceding three Working Papers and synthesises them into a series of generic lessons applicable to future planning, appraisal and evaluation of MUTPs. It highlights the scope for further investigation (as part of the CoE five year research programme) in the development of a generic planning framework and a set of related criteria with which to better plan, appraise and evaluate future MUTPs.