GREEN STREETS AND HIGHWAYS 2010

AN INTERACTIVE CONFERENCE ON THE STATE OF THE ART AND HOW TO ACHIEVE SUSTAINABLE OUTCOMES

PROCEEDINGS OF THE 2010 GREEN STREETS AND HIGHWAYS CONFERENCE

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Preface

Our 21st Century Linear Transportation Infrastructure will be quite a different world than the current "Grey" system of one size fits all geometric designs, environmental compliance, material selections, and systems operations. As we move ahead towards rebuilding our urban, suburban and rural infrastructure we will have many substantial challenges, one of which is how transportation planners and engineers, resource agencies, and regulators address sustainable and green design. The world of highway and local street planning and design is no longer just the purview of traffic and civil engineers. Interdisciplinary project teams must be formed to address the complex multi-modal planning, regional environmental issues, context sensitive solutions, climate change, green rating systems, economic development, and other emerging and often changing issues. A new level of collaboration and understanding of how to integrate state-of-the-art practices into projects and programs will be required to meet this challenge. This first American Society of Civil Engineers (ASCE) Transportation and Development Institute (T&DI) conference on Green Streets and Highways is a major step forward and will be the foundation of many subsequent conferences and efforts for developing transportation systems that are truly sustainable. The roots of this conference began over five (5) years ago through the formation of the Green Highways Partnership (GHP). The GHP was established by the United States Environmental Protection Agency (USEPA) Region 3, USEPA Headquarters and the Federal Highway Administration (FHWA) to begin developing a transportation planning and design approach that would leave watersheds and project areas "better than before". A group of state and regional transportation agencies, environmental groups, universities, non-profit organizations, such as T&DI/ASCE, industry groups, and other stakeholders began to form a network of collaboration on developing approaches in the theme areas of **Conservation**, **Sustainable Stormwater Management**, and **Recyclable and Reuse**. This conference reflects the value of collaboration and innovation that was established in these initial efforts.

This conference is unlike many technical T&DI/ASCE conferences that focus on the presentation of papers in narrowly focused subject areas. The conference program was designed to encourage the presentation of state-of-the-art innovative practices that could be used to form a dialogue and the basis for future collaborative efforts between practitioners, industry, regulators, educators, and researchers to help develop the future direction and approach for Green Streets and Highways. The major topic areas for the conference focus around sustainable and integrated planning and design, green pavements and construction materials, watershed and environmental planning and design, and rating systems. The papers in the proceedings present the state-of-the-art in these topic areas. They include research that is focused on specific research areas as well as strategies for the integration and management of sustainable design approaches. The papers identify the technical, research, and institutional challenges

that are a reflection of where our profession is on these issues. The information presented will be essential in developing the necessary tools and education that will be required to meet this challenge.

Not all conference session presenters submitted a formal written paper to be included in this proceedings. However, PowerPoint presentations received prior to the conference were compiled onto an additional CD which was distributed to conference attendees. The presentations contained on the additional CD and those presentations subsequently received can be found on the conference website at www.green-streets-highways.org.

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ABSTRACT

The Mercer Corridor Project will be an example for how integration of land use with transportation will transform a neighborhood into a more sustainable development. Implementing this requires strong partnerships, committed leadership, and clear objectives. Traditional design related to relieving congestion puts greater value on infrastructure that provides wide streets, high speeds, and limited access without considering elements that would make a community more livable, walkable, and sustainable.

In absence of formal guidance for encouraging sustainable practices in design, materials, and construction, substantial infrastructure projects like arterial roadway reconstruction become "lost opportunities" to positively impact climate change. In evaluating solutions, other performance metrics related to livability, walkability, and interaction with land use are often secondary or rely more on subjective or qualitative information. The City of Seattle's voluntary commitment in 2005 to meeting greenhouse gas reduction targets—consistent with the Kyoto Protocols—provided direction for developing infrastructure to help meet those targets. Developing a dense urban neighborhood adjacent to Downtown and served with a streetcar along South Lake Union furthers the City's objectives toward a more sustainable neighborhood supported by sustainable travel choices.

This paper explores the methodical approach to evaluating and creating project development tools to support City sustainability objectives; it also reviews the outcomes of applying these tools on the Mercer Corridor Project, which is currently under construction. As part of the design process, tools and applications including a sustainability workshop were developed to identify the broadest range of sustainability elements and test them on the preliminary Mercer Corridor design. Because of its strong partnership, readiness for construction, transformative impact on community, commitment to economic revitalization, and sustainability, the Mercer Corridor Project was one of only two projects in Washington State to receive Transportation Investment Generating Economic Recovery (TIGER) grants. TIGER grant funding, awarded in February 2010, has allowed this project and its sustainable design elements to start construction in the spring 2010. This paper describes workshop elements that were successful, why some were not, and lessons learned during implementation.

Creating a Sustainable Neighborhood: Mercer Corridor Project

Introduction

This paper reviews the evolution of the development of the Mercer Corridor Project in Seattle, Washington. The Mercer Corridor is located just north of Downtown Seattle in the South Lake Union neighborhood (Figure 1). As shown in the figure, along with being adjacent to a developing destination and park at South Lake Union, this area is generally underdeveloped with many surface parking lots and low density development.

This narrative discusses the following topics: the area's background and history, past solutions considered, changing land use context, stakeholder values, consideration of broader objectives, and alternatives selection. With project design complete, this paper will also report on lessons learned including tools, applications, and outcomes of incorporating sustainable solutions, flexible design, and context-sensitive solutions

Figure 1. South Lake Union Area

Background and History

South Lake Union History

South Lake Union is located approximately one mile north of Downtown Seattle on the south shore of Lake Union. Figure 1 is an aerial of the South Lake Union area. This area is cut off from other urban neighborhoods by limited-access highways: Interstate 5 (I-5) on the east and State Route (SR) 99 on the west.

This area has seen little private or public investment in the latter half of the last century, even though this area has a long history of development. Pioneer David Denny opened his sawmill on the shore of Lake Union in 1892, and that was followed by the arrival of manufacturing at the turn of the century. The advent of manufacturing brought with it shipbuilding, Boeing seaplane fabrication, and a regional Model T assembly plant. Since the Great Depression, South Lake Union has evolved into an area of small businesses, warehouses, and automobile-oriented services. Despite its natural assets and proximity to the heart of the greater Seattle region, residential and job growth that came to other Seattle neighborhoods in the 1980s and 1990s passed this neighborhood by. In part this lack of development has lead to indecision and uncertainty about major transportation projects needed to improve mobility, access, and connectivity in and around South Lake Union.