

Chapter 1 Introduction

In 1994 the Franklin County Commission, now known as the Franklin Regional Council of Governments (FRCOG), produced *Design Alternatives for Rural Roads*. This reference guide provided information about the highway design process in Massachusetts, and looked at the elements of road design that can influence a project's ability to blend into the rural landscape and retain its natural and historic character. This publication is an update of the 1994 manual, and includes new information about MassHighway's efforts to establish "context sensitive design" guidelines, reviews the MassHighway 1997 Low Speed-Low Volume design standards, examines Bicycle Accommodation as a component of project design, and offers numerous case examples of road and bridge projects.

The desire to have a safe and efficient transportation network in Franklin County ranks high among the region's residents. Doing so in a manner that respects and maintains the region's rural and historic landscape is reported as being equally desirable. Franklin County is characterized by a landscape of beautiful natural features. There are great hills, forests, meadows, lakes, rivers, and wetlands. Many of the town centers have retained historic buildings, parks, and monuments. Outside of the village centers, the region is a dramatic mixture of forest and farmland punctuated by old farms and homesteads, sugarhouses and covered bridges.

Throughout this landscape is a vital network of roadways. In a broad context, the major roadways allow commerce and travelers to enter and travel throughout the County. On a local level the roads link the various communities. Many of these roadways still retain elements that are an integral part of the area's character, including stonewalls, mature trees, and roadway layouts that generally blend with the overall landscape in terms of size, scale and location. It is important that new road and bridge construction and reconstruction projects consider not only efficient transportation, circulation, and safety, but also consider how the proposed design fits into Franklin County's unique, rural landscape.

In addition, a significant and growing segment of our region's economy is tourism. Travelers are coming to Western Massachusetts in increasing numbers to experience our back country roads, farms, mountains, and villages. Much of the appeal is traveling to various destinations via rural highways that feel like a *part* of the landscape, rather than super highways that feel like they cut *through* the landscape and detract from its natural beauty.

In most cases, transportation engineers adhere to design "guidelines" that have been developed by government agencies at the federal or state level. These guidelines are generalized to apply across a variety of settings and, therefore, tend to be of sufficient scale to accommodate the more intense needs of urban and suburban environments. Furthermore, recommended designs regularly exceed the suggested minimum guidelines because often the primary goal is to

enhance the level of safety, comfort, and convenience of drivers, and aesthetic considerations may be secondary. Transportation designers may also face budgetary restrictions that constrain innovative or creative designs or the use of alternative, more aesthetically pleasing materials. Such factors often lead to conservative designs that can radically change the visual character of the rural landscape.

Recognizing this issue and that one size may *not* fit all, in 1997 MassHighway amended their manual of Highway Design and issued the “Low Speed-Low Volume” design standards for the resurfacing, rehabilitation and reconstruction of existing low speed/low volume roads. The new standards reduce lane and shoulder width requirements for roads that have low speeds and carry low volumes of traffic. At the same time, the Bicycle Accommodation law went into effect, requiring that all new construction and reconstruction projects be designed with adequate width for safe bicycling. Consequently, while these two actions are supported by many of the region’s residents, they have created a challenge for project engineers to design transportation improvements that limit road widening to retain rural character, but also provide adequate width and shoulders to accommodate safe bicycling.

Reconciling this potential conflict is a new and important consideration of road and bridge design in the rural landscape. It is also a growing topic nationally, as the Federal Highway Administration has begun supporting “context sensitive design” in the development and maintenance of transportation infrastructure. At the same time, Massachusetts is also looking at ways to implement Context Sensitive Design and meet the needs of different communities and situations across the Commonwealth. The Commissioner of MassHighway’s Design Issues Working Group (DIWG), of which the FRCOG is a participating member, is exploring ways to make Context Sensitive Design a more realistic option for communities, and has begun developing “Community Roads Program”, essentially a footprint road program. More information about this Task Force and its work is included throughout this publication.

The purpose of this publication is multi-fold. First, it is intended to give town officials and concerned citizens an explanation of the current design process in Massachusetts for the re/construction of roads and bridges, so that they are well informed about how a project proceeds from start to finish and take the opportunity to participate. Secondly, the new Low Speed-Low Volume design standards and the Bicycle Accommodation Law are reviewed to highlight some of the opportunities and challenges for developing context sensitive designs. Next, certain detail elements of project design that are critical to how the completed project appears are examined, including lane and shoulder width, bridge designs, guardrails, retaining walls, and streetscapes/lighting. Numerous case examples are included both to illustrate points being made in the text, but also to provide readers with a compilation of actual projects in Massachusetts that may give them ideas on how alternative materials or designs can be used in their towns. In addition, the case studies include both positive and negative examples to demonstrate how successful projects implemented a context sensitive design, or where unsuccessful projects went wrong. Finally, this publication suggests how to get what you want while

working within the existing highway design format. It keeps rural issues in the conversation about road and bridge improvements, and points out areas for improvement in terms of design and use of aesthetic materials. However, this manual does not recommend new design standards. That is a much larger and more complex issue currently being studied by the aforementioned statewide task force (DIWG). This publication is intended to provide communities with an array of information that they can use now to help assist their efforts to achieve safe roads and bridges without sacrificing their rural or historic character.

This report is intended to be an informational publication to be used as a planning tool, and the Franklin Regional Council of Governments takes no responsibility for decisions made in actual road designs. All actual alternative design ideas and decisions need to be developed based on sound engineering judgment and with the approval of the town(s) and other relevant agencies. For easier reference of the information contained in this publication, a glossary of terms is included at the back of this report in Appendix D.