## LINKING TRANSPORTATION AND AIR QUALITY PLANNING:

IMPLEMENTATION OF THE
TRANSPORTATION CONFORMITY REGULATIONS
IN 15 NONATTAINMENT AREAS

## Arnold M. Howitt and Elizabeth M. Moore

Taubman Center for State and Local Government John F. Kennedy School of Government Harvard University

March 1999

A Report to the
U.S. Environmental Protection Agency
and the
Federal Highway Administration,
U.S. Department of Transportation

## **ACKNOWLEDGMENTS**

It is a genuine pleasure to thank the many people who have made this research possible. We owe our most important debt of gratitude to the more than 230 individuals – identified by name in an appendix to this report – who were interviewed and provided other data about the transportation conformity process. Their knowledge and insight are reflected on virtually every page that follows. Without the cooperation, patience, and candor of all of these people – sometimes provided on multiple occasions – this study quite literally could not have been carried out.

From the outset, the researchers were promised full intellectual independence by the federal agency sponsors, EPA and FHWA. That independence has been scrupulously respected by the federal agency staff with whom we have worked closely throughout this project. Particular assistance, for which we are extremely grateful, was provided by Laura Voss, Meg Patulski, Kathryn Sargeant, and Margo Oge of the Environmental Protection Agency, and Lucy Garliauskas and James Shrouds of the Federal Highway Administration.

At Harvard, our efforts have been ably supported by Treina Fabre, Sophie Delano, and James Scafide, who served at various points as research assistants, and by Rochelle Furman, Kate Fitzpatrick, and Julie Zanotti, who transcribed numerous interview tapes. Sandra Garron effectively managed project finances, and Julie Zanotti deftly performed many other administrative tasks that kept the project moving. On several occasions, Stephanie Abundo and Todd Olmstead took time out from their Ph.D. research to provide helpful technical assistance.

Joshua Anderson was a partner with one of the authors in conducting an earlier study of implementation of the transportation provisions of the Clean Air Act Amendments of 1990. The current work has benefitted significantly from his earlier efforts.

The people at the Taubman Center for State and Local Government are genuinely delightful companions, supportive colleagues, and thoughtful commentators. Alan Altshuler, David Luberoff, Mary Graham, and Jay Walder, in addition to those mentioned above, deserve special thanks for their support, but others too numerous to mention by name are responsible for creating a unique and stimulating environment.

The authors of this study are solely responsible for the accuracy of the data presented here and for the generalizations and conclusions they have reached. They have benefitted greatly, however, from the careful review and scrutiny of all or parts of this manuscript by representatives of the federal agencies and some of their interview respondents. The authors are extremely grateful to these commentators, who have saved them from errors of omission and commission, while helping them refine their interpretations of the data. Any shortcomings that remain, however, are the exclusive responsibility of the authors. Neither the project's federal sponsors nor Harvard University necessarily agree with or endorse the findings and conclusions presented here. Those are ours alone.

Arnold M. Howitt and Elizabeth M. Moore March 1999

## **TABLE OF CONTENTS**

Acknowledgements	iii		
Table of Contents	v		
Executive Summary ix			
Chapter 1: The Conformity Assessment Project			
Project Purposes Focal Questions Selection of the Research Sites Research Methods and Data The Research in Perspective Outline of the Report	2 3 8		
Chapter 2: The Purposes and Requirements of Transportation Conformity	12		
Policy Antecedents Purposes and Expectations Pollution Reduction and Public Health A Procedural Framework and Incentives Improving the Planning Process Public Deliberation and Decision Making Advancing the Environmental Advocacy Agenda Conformity Requirements The 1991 Interim Conformity Guidance The 1993 Conformity Rule Performance Standards Procedural Requirements Penalties and Penalty Triggers Amendments to the 1993 Conformity Rule The August 1995 Amendments National Highway System Designation Act of 1995 The November 1995 Amendments The August 1997 Amendments	14 14 15 16 17 18 19 20 21 22 24 25		
Chapter 3: Implementing the Transportation Conformity Requirements	28		
Passing the Emissions Tests  Budget Test  Build/No-Build Test  Less-than-1990 Test	30 36		

	Using the Required Modeling Techniques	37
	Demonstrating Timely Implementation of SIP TCMs	38
	Meeting the Fiscal Constraint Requirement	
	Links to SIP Failures	
	Human Error	40
Cha	apter 4: Institutional Roles in the Transportation	
	Conformity Process	41
	Building Institutional Capacity	44
	Contextual Conditions	44
	Organizing for Conformity	46
	Developing Technical Capacity	
	Establishing Interagency Consultation Procedures	52
	Start-up Issues	
	Formalizing Consultation Procedures in a Conformity SIP	53
	Interagency Consultation in Practice	56
	Stakeholder Participation in Conformity	64
	Environmental Advocates	65
	Business Associations	68
	The Broader Visibility of Conformity	69
	Engaging Policy Makers	69
	Public Visibility	71
Ch.	enter E. Conformity Effects on Transportation and Air Ovelity Plans	70
Cha	apter 5: Conformity Effects on Transportation and Air Quality Plans	
	Effects of Conformity on Transportation Plans and Programs	
	Effects on Highway Projects	
	Effects on Transit, Other TCMs, and Land Use Planning	80
	Conformity and Air Quality Planning	
	1992 CO and PM <sub>10</sub> SIPs	
	1993 VOC Reduction SIPs	
	Effects on Subsequent SIP Planning	89
	Conformity Effects on SIP TCMs	92
	Other SIP Impacts	93
Ch.	antor 6: Toward A New Planning "Arona"	06
CII	apter 6: Toward A New Planning "Arena" Better Data and Analytic Tools	
	Analysis and the Regulatory Process	
	Confronting Conformity Difficulties	
	Re-examining the Models	
	Institutional Dynamics of Changing Transportation and Air Quality Plans .	
	Conformity as an Evolving Process	101 103
	COMPORTING AS AN EXCIPINE FIGURESS	103

Appendix I: Glossary of Abbreviations	. 104
Appendix II: Conformity Profiles of 15 Study Sites	. 106
Atlanta	. 106
Baltimore	. 108
Boston	. 109
Charlotte	
Chicago	. 113
Denver	
Houston	
Milwaukee	. 117
Northern New Jersey	
New York	
Philadelphia	
Phoenix	
Portland	
Salt Lake City	
San Francisco	
Suit I fulleigee	. 12
Appendix III: Interview Subjects by Study Site	. 125
Atlanta	. 125
Baltimore	. 126
Boston	. 126
Charlotte	. 127
Chicago	. 128
Denver	. 129
Houston	. 130
Milwaukee	. 131
Northern New Jersey	. 132
New York	. 133
Philadelphia	. 134
Phoenix	. 135
Portland	. 136
Salt Lake City	. 137
San Francisco	
National	. 139
Appendix IV: Sources of Population and Transportation Data	. 140
Appendix V: Report Authors	. 143
****	
Figures and Tables	
Figure 1-1: Nonattainment Areas in the Study	
Table 1-1: Growth Rates of Population and Vehicle Miles Traveled by Study Site	6

Table 1-2: Nonattainment Classifications for Study Sites by Pollutant	7
Table 3-1: Types of Conformity Problems by Nonattainment Area	29
Table 3-2: Problems Meeting the Conformity Requirements by	
Nonattainment Area	31-32
Table 4-1: Core Public Agencies in Transportation and Air Quality by	
Nonattainment Area	. 42-43
Table 5-1: Population and VMT Growth Rates by Higher- and Lower-Growth	
Study Sites	76