CHAPTER 4: INSTITUTIONAL ROLES IN THE TRANSPORTATION CONFORMITY PROCESS

LINKING TRANSPORTATION AND AIR QUALITY PLANNING:

IMPLEMENTATION OF THE TRANSPORTATION CONFORMITY REGULATIONS IN 15 NONATTAINMENT AREAS

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Chapter 4

INSTITUTIONAL ROLES IN THE TRANSPORTATION CONFORMITY PROCESS

Fulfilling the purposes of conformity depends crucially on creating stronger institutional links between two policy areas – transportation and air quality – that had operated quite independently of each other prior to enactment of the CAAA of 1990.

The previous framework of federal law did not create effective incentives for collaboration between the agencies working in the two policy areas. It required integration between separately mandated transportation and air quality planning processes. But it provided minimal federal financial aid for planning activities, and few penalties were imposed on states for failing to implement pollution reduction policies contained in their SIPs.

As a result, although air quality regulators could seek pollution reductions from the transportation sector, they frequently could not secure the commitment and cooperation of the transportation agencies in developing policies to achieve this purpose. Nor could the regulators assure that state and local elected officials would actually adopt the policies the regulators mandated. They could not ensure, therefore, that the air quality impacts of transportation policies would be taken into account in decision making, that transportation projects inconsistent with pollution reduction targets would not be undertaken, and that promised projects with air quality benefits would actually be implemented.

Enactment of the CAAA of 1990 and ISTEA created a new regulatory climate. Transportation agencies were directed to make air quality a key goal and were given strong fiscal incentives for compliance. But the intent of the conformity regulations and other provisions of the new laws was not merely to impose tougher command-and-control regulations. At least as important was establishing a procedural framework for collaboration among transportation and air agencies.

For the core regional and state agencies involved – particularly MPOs, state and regional air agencies, and state DOTs – implementation of the conformity regulations created significant stresses, not merely in terms of what conformity itself required but also in the context of broader changes stemming from the CAAA and ISTEA. Even without the conformity requirements, air quality and transportation agencies faced substantial increases in workload as well as the need to develop new skills and to build relationships with other agencies.

This chapter examines this institutional dimension of conformity. Table 4-1 identifies the core public agencies concerned with conformity in each study site. The chapter inquires first into how these agencies went about building the organizational capacity, particularly the technical tools, they needed to carry out the conformity requirements. Then it explores the development of interagency consultation practices, both in terms

Table 4-1

Core Public Agencies in Transportation and Air Quality Planning, by Nonattainment Area

NONATTAINMENT AREA	METROPOLITAN PLANNING ORGANIZATION	STATE TRANSPORTATION AGENCY	STATE AIR QUALITY AGENCY	LEAD AGENCY FOR SIP DEVELOPMENT
Atlanta	Atlanta Regional Commission (ARC)	Georgia Department of Transportation (GDOT)	Georgia Department of Natural Resources (DNR)	State AQ agency
Baltimore	Baltimore Metropolitan Council (BMC)	Maryland Department of Transportation (MDOT)	Maryland Department of the Environment (MDE)	State AQ agency
Boston	Boston MPO	The Executive Office of Transportation and Construction (EOTC)	Massachusetts Department of Environmental Protection (DEP)	State AQ agency
Charlotte	Mecklenburg/Union MPO	North Carolina Department of Transportation (NCDOT)	North Carolina Department of Environment and Natural Resources (DENR)	State AQ agency
Chicago	Chicago Area Transportation Study (CATS)	Illinois Department of Transportation (IDOT)	Illinois Environmental Protection Agency (IEPA)	State AQ agency
Denver	Denver Regional Council of Governments (DRCOG)	Colorado Department of Transportation (CDOT)	Colorado Department of Public Health and Environment (CDPHE)	Regional Air Quality Council (RAQC)
Houston	Houston-Galveston Area Council (HGAC)	Texas Department of Transportation (TxDOT)	Texas Natural Resources Conservation Commission (TNRCC)	State AQ agency

NONATTAINMENT AREA	METROPOLITAN PLANNING ORGANIZATION	STATE TRANSPORTATION AGENCY	STATE AIR QUALITY AGENCY	LEAD AGENCY FOR SIP DEVELOPMENT
Milwaukee	Southeastern Wisconsin Regional Planning Commission (SEWRPC)	Wisconsin Department of Transportation (WisDOT)	Wisconsin Department of Natural Resources (DNR)	State AQ agency
New York	New York Metropolitan Transportation Council (NYMTC)	New York State Department of Transportation (NYSDOT)	New York State Department of Environmental Conservation (DEC or EnCon)	State AQ agency
Northern New Jersey	North Jersey Transportation Planning Authority (NJTPA)	New Jersey Department of Transportation (NJDOT)	New Jersey Department of Environmental Protection (NJDEP)	State AQ agency
Philadelphia	Delaware Valley Regional Planning Com. (DVRPC)	Pennsylvania Department of Transportation (PennDOT)	Pennsylvania Department of Environmental Protection (DEP)	State AQ agency
Phoenix	Maricopa Association of Governments (MAG)	Arizona Department of Transportation (ADOT)	Arizona Department of Environmental Quality (DEQ)	The MPO
Portland	Metropolitan Service District (Metro)	Oregon Department of Transportation (ODOT)	Oregon Department of Environmental Quality (DEQ)	State AQ agency
Salt Lake City	Wasatch Front Regional Council (WFRC)	Utah Department of Transportation (UDOT)	Utah Department of Environmental Quality (DEQ)	State AQ agency
San Francisco	Metropolitan Transportation Commission (MTC)	California Department of Transportation (Caltrans)	California Environmental Protection Agency (CalEPA)	Joint: Bay Area Air Quality Mgmt District, Assoc. of Bay Area Govts, and MTC

of the "official" process required in conformity SIPs and the relationships that have emerged in practice. Then the chapter turns attention to the role that nongovernmental stakeholders, particularly environmental advocacy groups, have played in conformity.

Finally, the chapter inquires whether conformity has had a wider impact by raising the public profile of transportation and air quality issues, educating the public, and increasing the likelihood that senior policy and elected officials would feel compelled to address these issues.

Building Institutional Capacity

Contextual Conditions

CAAA. The CAAA of 1990 transformed national regulation of air pollution. In doing so, it left state governments and regional agencies with numerous new policies to develop and politically controversial regulations to draft and adopt (many under tight time deadlines imposed by Congress), as well as with new on-going tasks to carry out.

For air agencies, conformity was merely one of several challenges in transportation competing for attention – and transportation policy was only part of the sweeping scope and workload created by the CAAA. Among other transportation duties, air agency mobile source staff had to prepare inventories and forecasts of emissions, develop mobile source emission control strategies in SIPs, and see that programs such as enhanced I/M, ECO, oxygenated and reformulated fuels, and gas pump vapor recovery were successfully launched. State transportation departments and MPOs, for their part, had fewer new tasks to perform as a result of the new statute; but they recognized, some more quickly than others, that the CAAA had potentially profound implications for their policies, operations, and funding streams. Consequently, they had to devote far more attention to air quality issues, get a better understanding of the technical issues and workings of the regulatory system, and participate actively in policy debates over how pollution reductions could be accomplished.

While the states were charged with many new responsibilities, they were also left with significant uncertainty about precisely what complying with the CAAA would entail. As with most major national legislation, the new version of the Clean Air Act did not spell out in detail what all of its provisions required. Instead, it left EPA (in some instances, in consultation with DOT) responsibility for developing detailed federal regulations to implement statutory mandates, including but not limited to transportation conformity – an effort that took several years to complete. This meant that the full scope of new state responsibilities unfolded only gradually, even as statutory deadlines for proposing plans to reduce mobile-source pollution loomed ahead.

ISTEA. As demanding as the wave of change that the CAAA set in motion, implementation of ISTEA created a parallel set of pressures for the state and regional agencies in the conformity process. Congress enacted ISTEA in late 1991, and DOT elaborated its requirements in the metropolitan planning regulations issued in late October 1993, just before the conformity regulations were issued.

Among other effects, ISTEA:

- strengthened MPO authority to conduct the planning process and allocate federal funds;
- generally permitted greater flexibility in using federal funds to support the transportation system, but also created a new categorical program for projects with air quality benefits (the congestion mitigation and air quality improvement program or CMAQ);
- required a more frequent, systematic, analytic planning process that explicitly took account of new planning factors, including (but not limited to) air quality;
- required the development of a long-range transportation plan to be coordinated with the process for developing transportation control measures for the SIP;
- encouraged multi-modal planning and explicit project alternatives analysis;
- required the development of a set of six "management systems" for intermodal facilities, bridges, pavement, public transportation, safety, and congestion;[1]
- reinforced the CAAA's requirement that transportation investments be consistent with pollution reduction commitments that a state had made in its SIPs;
- mandated fiscally constrained transportation plans;
- opened the planning process more widely to institutions that in many locales had previously been secondary participants (including local governments, ports and airports, transit operators, and air quality and economic development agencies);
- mandated more active efforts to involve the general public and non-governmental stakeholders (such as shippers and freight companies, and environmental advocates) in transportation planning.

As a result, at the same time that the 1993 conformity regulations were being implemented, ISTEA was reshaping the balance of power in metropolitan transportation planning and changing longstanding institutional practices. MPOs and state DOTs were redefining their own relationships in the transportation planning and programming process, in some cases tugging and hauling over who would take the initiative. Both felt pressure to enhance their technical planning and analytic capabilities. Simultaneously, because of efforts to increase participation in planning by the public, non-governmental stakeholders, and historically peripheral public agencies, MPOs and state DOTs were hearing more voices – some new, many louder – expressing visions of the purposes regional transportation networks should serve and how they should evolve. Throughout, MPOs and state DOTs were struggling to make politically difficult choices about regional priorities, as traditional transportation plans – often featuring so many projects that, in effect, they constituted "wish

[1]Congress later made several of these management systems voluntary rather than mandatory.

lists" – were transformed into fiscally constrained plans.

State air agencies, for their part, had new opportunities to participate in and influence state and regional transportation decision making. To be effective, however, they had to learn how the planning process worked procedurally, develop expertise in the issues, and build relationships with other participating agencies and constituencies.

Against this backdrop of dramatic change in both air quality regulation and transportation planning, conformity posed significant challenges for the the key public agencies.

Organizing for Conformity

MPOs. In each of the 15 study areas, an MPO is the key implementer of conformity. These MPOs are either single-purpose agencies established primarily to carry on regional transportation planning[2] or multi-purpose regional councils that may also conduct land use, economic, and environmental planning and regularly bring together senior officials of the region's municipal and county governments.[3] MPO governing boards are typically composed of local elected officials or senior transportation agency officials, sometimes joined by citizen members. Although MPO governing boards vote the *formal* conformity determination, they are rarely deeply involved in conducting or evaluating the actual analysis. That is primarily the responsibility of MPO professional staff.[4] A high-level staff member – typically the agency executive director or deputy director or the director of transportation planning – closely oversees the process. The actual transportation and emission modeling is generally performed or coordinated by a senior technical staff member, perhaps supported by another or several other technical professionals who work full- or part-time on conformity during the planning cycle. Some MPOs receive additional support from consultants, the state DOT, or the state air agency. In addition to conducting the technical analyses for conformity, the MPO typically organizes and coordinates interagency and stakeholder consultations either through specialized "technical" or "policy" committees or by soliciting agency comments, as will be detailed below.

DOTs. State DOTs in most states are also significant participants in conformity, even though the MPO is clearly the lead institution

[2]These include the Boston MPO/CTPS, NYMTC in New York City, NJTPA in northern New Jersey, CATS in Chicago, the Mecklenburg/Union MPO in Charlotte, and MTC in the San Francisco Bay area (which also has some transportation operating functions).

[3]The multi-purpose regional councils are DRCOG in Denver, the BMC in Baltimore, ARC in Atlanta, MAG in Phoenix, Metro in Portland, H-GAC in Houston, SEWRPC in Milwaukee, DVRPC in Philadelphia, and WFRC in Salt Lake City. These organizations sometimes have a transportation policy committee that serves as the primary forum for transportation planning issues, so that the council's full governing body deals in detail only with quite prominent transportation issues.

[4]The MPOs in the study, which are nearly all larger than average and include some of the nation's largest, have full-time professional staffs ranging in size from about a dozen to about one hundred personnel. The Mecklenburg/Union MPO relies on the City of Charlotte's Department of Transportation for its staff capacity.

in each study site. At a minimum, one or more DOT staff, generally reporting to a senior manager in the planning or environmental division, maintain liaison with MPO technical staff through regular bilateral meetings and telephone communications – and often by participating in MPO technical committees with representatives of other agencies.

Beyond this basic involvement, the role of state DOTs in conformity varies, depending on the institutional strength of the MPOs involved, the number of nonattainment areas in the state, and the degree of difficulty that MPOs encounter in satisfying the requirements of the regulations.

In a few study sites (e.g., Charlotte and northern New Jersey), the technical role of the state DOT is greater than in the typical case. Because the MPOs in these areas have only a few technical staff members stretched across a range of transportation planning functions, the state DOT directly supports the conformity process by providing data, giving technical assistance, and sometimes performing elements of the analysis. In states with multiple nonattainment areas (e.g., California, Utah, Illinois, Pennsylvania, North Carolina, New York, Texas), moreover, the DOT needs more in-house conformity expertise and technical capacity because it is likely to be managing all or a substantial part of the analytic workload of conformity for *smaller* areas. In some states with several *major* nonattainment areas (such as Maryland and Pennsylvania), the state DOT, often in conjunction with the state air agency, plays a significant inter-area coordinating role, helping MPOs in the major nonattainment areas exchange information and develop consistent conformity policies and technical practices.

AIR AGENCIES. In most study sites, state air agencies perform statewide coordinating functions, contribute directly to the conformity technical work of MPO staff, participate in MPO policy discussions, and review and critique conformity analyses. In states with multiple nonattainment areas, air agency staff help coordinate conformity procedures and information for the agencies responsible for conformity in each area. State or regional air agencies typically maintain the MOBILE or EMFAC emission models for the nonattainment area,[5] in which cases they supply the emission factors for the conformity analysis.[6] They have also provided technical advice to MPO staff who work on conformity. In the course of drafting the conformity SIP, moreover, state air agencies typically have taken the lead in securing agreement on interagency consultion procedures, as will be described below.

OTHER STATE AND LOCAL AGENCIES. In most of the nonattainment areas in the study, other state and local agencies have been marginal participants in conformity. Only in Denver and the San Francisco Bay area are there regional air agencies that have been

[5]Air agencies faced only modest start-up demands to perform transportation emission analyses. Most already had the modeling capacity in place, so they needed primarily to update as new versions of MOBILE or EMFAC were released.

[6]There are exceptions, however. In Arizona, for example, the MPO is also the lead agency for air planning; so it, rather than the state air agency, performs the emissions modeling. In Boston, the MPO also does the emissions modeling in house.

closely involved in conformity policy discussions. In some nonattainment areas, other agencies also provide specific data inputs for the transportation demand modeling that feeds into the conformity analysis. For example, the land use planning agency in Chicago has worked closely with CATS in developing land use forecasts; in the Bay area, MTC, the regional air agency, and the council of governments, which does land use planning, have closely collaborated; and transit operators in several locales (e.g., northern New Jersey and New York City) provide data and modeling capacity to MPOs. Most commonly, however, the perspective of other agencies is felt in conformity when one or more of their staff members sit on the consultative committees organized by the MPO.

FEDERAL AGENCIES. The federal agencies concerned with conformity have had varying degrees of involvement at the state and regional levels. FHWA is the only federal agency to have a permanent presence in each state, as well as regional offices responsible for groups of states. In states that have significant air quality problems, FHWA division (i.e., *state*) offices assign a staff member to work with MPOs and state DOTs on conformity and other air quality issues. Depending on the size of the division office and the number of nonattainment areas in the state, this staff person may work full-time on air quality issues or combine this task with other planning or environmental activities. FHWA's nine regional offices also have air quality specialists, generally full-time, who, among other duties, work on conformity issues.[7] National-level FHWA staff in Washington, D.C., coordinate policy and consult on specialized technical questions.

EPA has also been closely attuned to the implementation of conformity. In a number of the 15 study sites, staff from one of EPA's ten regional offices have provided assistance to MPOs, state DOTs, and air agencies in understanding conformity requirements and carrying out technical analyses. EPA regional staff consult regularly with the agency's national headquarters staff responsible for conformity (who are based in Ann Arbor, Michigan) to exchange information and make sure that policy positions are coordinated. Unlike FHWA, however, EPA does not have field staff stationed in each state. Staff attention to conformity is therefore more widely spread, hence less intense in the typical case than FHWA's.

The CAAA assigns FHWA and FTA joint responsibility for the review and approval of MPO conformity determinations, but FTA has played a small role in most study sites. Like EPA, FTA has ten regional offices but lacks a state-level presence.[8] Typically, one of FTA's transit planners in each region spends less than full-time on conformity as a supplementary assignment. It is less likely, therefore, for FTA

[7]The Transportation Equity Act for the 21st Century (TEA 21), enacted by Congress in 1998, eliminates funding for these regional offices. Their functions will be partially absorbed by division offices and by four new technical assistance centers.

[8]During the latter part of the period that this study covers, DOT was establishing metropolitan-level offices, including FTA personnel, in some large cities.

to be involved in routine conformity consultations. FTA staff members do contribute to discussion of specific transit-related questions – especially in areas like Chicago, New York, or San Francisco, that have major transit networks and spend substantial proportions of their federal funds for this purpose.

Developing Technical Capacity

MPOs. Conformity made significant and stressful start-up demands on MPO technical capacity and resources, beginning with the interim conformity guidelines in 1991 and intensifying once the 1993 regulations were issued. Most of the MPOs in the study were subject to the network modeling requirements of the 1993 conformity regulations,[9] and all needed to upgrade their modeling capabilities to meet the general requirements of conformity. Typically, MPOs had to hire additional in-house technical staff and/or consultants for this purpose. The types of improvements that study area MPOs instituted in their modeling and analytic capacity varied, but they included:

- updated input data for population, employment, and land use;
- new travel surveys;
- acquisition of new travel demand software – either through adaptation of standardized packages or customized development;
- increased model detail – e.g., to reflect time-of-day (rather than 24-hour or peak/off- peak) assignments, arterial link capacities, signal-cycle variations at intersections, or volume-capacity curve variations;
- migration from a mainframe to a workstation or personal computer environment;
- installing or upgrading emissions modeling capabilities, including successive versions of EPA's MOBILE model and, in some cases, development of a post processor able to perform emissions analyses for alternative policy packages without re-running the full emissions model;[10] and
- adding feedback capabilities to reflect the effect of changes in land use, transportation capacity, and price on travel behavior – e.g., in terms of number and length of trips, mode share, destination choice, and time of day.

While conformity was often the decisive factor, these upgrades were also motivated by ISTEA's planning requirements and the provision of federal funds to strengthen planning capabilities. A number of MPOs reported that although they had significantly invested in developing transportation demand modeling capacity during the 1970s and early 1980s, they had made mostly incremental improvements during the remainder of the decade. ISTEA required regular updates of regional plans and explicit analysis of a rich set of plan-

[9]This conformity requirement applied to all ozone and CO nonattainment areas classified "serious" and above.

[10]Only a few of the MPOs in our study did emissions modeling themselves, relying instead on the state or regional air agency to mount and run the MOBILE or EMFAC model to provide emissions factors for MPO conformity analyses.

ning factors. This created workload and technical demands that many MPOs could not adequately meet. ISTEA, however, also increased the amount of federal funds available for planning; and conformity and other planning needs afforded justification for investing some of these funds in additional technical staff and modeling capacity. The pressures of CAAA and ISTEA compliance thus provided *opportunity* as well as *need* for enhancing technical capacity.

Most of the MPOs in the study now do transportation demand modeling in-house, although the smaller ones (e.g., Charlotte and northern New Jersey) sometimes procure assistance from consultants or the state DOT. Multi-purpose regional councils usually develop demographic, economic, and land use data and forecasts themselves, while single-purpose transportation agencies are more likely to rely on other regional or state agencies to supply this information. Most MPOs depend on the state air agency to carry the primary load in emissions modeling, although a few, including Boston's, have in-house capacity for emissions modeling. In Phoenix, unlike any other study site, MAG has been formally designated by the governor as the lead air quality planning agency for the nonattainment area, so it not only performs conformity analyses but also develops the area's SIPs.

During CAAA and ISTEA start-up, even though many MPOs generally regarded improvements in technical capacity as desirable, tight regulatory deadlines for new transportation plans, SIP development, and conformity – as well as active oversight and criticism by environmental advocates – made managing these changes quite stressful for many MPOs. The tight timeframe did not seem adequate for the magnitude of the task, particularly given a short supply of skilled transportation modelers. Competition for their services was intense given simultaneous recruiting by similarly-motivated transportation (and some air) agencies. Alternatively, building the skills of current staff or procuring appropriate consulting services also took considerable time. The process of making modeling improvements – typically requiring interagency consultations, detailed design specifications, acquisition of software and/or programming, testing, and implementation – frequently had to be accomplished in several iterations over a period of at least two or three years.[11]

Of the 15 study sites, New York City and Chicago had the most difficult experiences. In the early 1990s, alone among the MPOs in the study areas, NYMTC had no comprehensive network-based transportation demand model in place, although New York's major operating agencies, such as the transit authority, had specialized modeling capacity for their own needs. The large task of developing a network model for the massive and complex New York region by the January 1995 conformity deadline – difficult enough – was

[11]This study could not gather systematic comparative information about the monetary costs of upgrading MPO technical capacity to satisfy conformity requirements. Even if we had had direct access to budget data, our interview subjects had no ready way to separate conformity-related improvements from upgrades more generally prompted by ISTEA, to identify or account accurately for in-house costs (especially where personnel spent some, but not all, of their time on technical improvement activities), or clearly to separate capital investments for system development from operating costs.

complicated by a state-mandated hiring freeze that prevented NYMTC from securing adequate internal technical staff and by long delays in letting consulting contracts for model development. Not until mid-1997 was NYMTC's modeling capacity conditionally certified by FHWA for conformity analysis, pending further improvements by 1999. In Chicago, difficulties arose for quite different reasons. CATS already had an extremely complex, mainframe-based, network demand model – but one that could not flexibly accommodate the new kinds of analysis required by conformity. CATS initiated incremental improvements, the adequacy of which were sharply challenged by a coalition of local environmental advocacy groups, supported by experts working with the national Environmental Defense Fund. FHWA's division office also strongly encouraged further upgrading. As a result, over several years, CATS made ambitious, expensive enhancements to its models and collected much additional supporting data, including the land-use forecasts prepared by a sister regional agency. Litigation threats and the time pressure of making on-going conformity determinations during the maiden runs of new model sets added to the normal difficulty of implementing major innovations in technical practice.

In northern New Jersey and Baltimore, the process of technical capacity development coincided with a more general period of rapid staff growth and development. NJTPA, a new MPO which had a very small in-house technical staff, inherited some modeling capacity from NJDOT and NJ Transit, which it upgraded with consulting support. These improvements were vetted by an open public process, with significant participation by environmental advocates led by the Rutgers Environmental Law Center and affiliated with the Tri-State Transportation Campaign. Baltimore's newly reorganized MPO took over the technical resources of its predecessor, but used consultants to improve its models while simultaneously significantly increasing the size of its transportation planning staff. These efforts were spurred in part by questions raised about the adequacy of Baltimore's models by environmentalists during the interim conformity period.

MPOs in a number of other areas needed fewer changes or were able to upgrade their technical capacity with less difficulty. In the San Francisco Bay area, MTC had recently gone through an exhaustive litigation challenge to its modeling practices brought by the Sierra Club Legal Defense Fund in 1989.[12] The extensive model upgrades that MTC put in place as a result of settling the suit influenced the national policies reflected in the conformity requirements, and they positioned MTC to meet those requirements once the 1993 regulations were promulgated. Portland's Metro, with very strong in-house capabilities, refined a set of models that already had been significantly adapted to deal with air quality and land use issues. Boston's CTPS, which welcomed the overall improvements in planning capability prompted by CAAA and ISTEA, upgraded its models for conformity primarily with in-house staff. In Phoenix, MAG retained consultants to help it develop

[12]See Mark Garrett and Martin Wachs, *Transportation Planning on Trial: The Clean Air Act and Travel Forecasting* (Thousand Oaks, CA: Sage Publications, 1996) for a detailed analysis of the Bay Area situation.

modeling improvements over several years – as did H-GAC in Houston and ARC in Atlanta.

STATE AGENCIES. Compared to MPOs, state DOTs faced less conformity-related pressure for technical capacity enhancement. Most had stronger technical capabilities to begin with, and the areas for which they take primary analytic responsibility are usually smaller ones that can utilize less complex methods.

For state air agencies, by contrast, developing necessary technical resources was far more challenging. As noted above, conformity was merely one of several types of new transportation tasks that the CAAA set before state air agencies, each competing for staff attention and resources. To meet the spate of new responsibilities, most air agencies hired additional staff members who had or could develop transportation expertise, but this took time; and new staff had to be assimilated to new institutional practices and cultures. A few state air agencies (notably in Texas and North Carolina) developed in-house transportation modeling capabilities, so they would understand better what MPOs and/or the state DOT were doing and have some independent ability to assess policy alternatives.

FEDERAL AGENCIES. Both the U.S. Environmental Protection Agency and the U.S. Department of Transportation contributed to the development of organizational capacity for conformity by providing technical assistance. In a number of areas, MPO and air agency staff members praised EPA regional office staff – for example, in Denver and San Francisco – for assistance in understanding conformity requirements and carrying out technical analyses during the early phases of implementing the 1993 regulations. FHWA divisional staff also provided a great deal of information to MPOs, state agencies, and other stakeholders, helping them understand what conformity required and how it could be done. National headquarters staff mounted some more extensive technical assistance efforts – e.g., to help Denver and Atlanta deal with conformity difficulties.

Establishing Interagency Consultation Procedures

Since in all states the planning and operating responsibility for transportation and air quality policies is dispersed among many individual public agencies – state, regional, and local – the conformity regulations emphasized the need for effective interagency consultation at each stage of the conformity process. Consultation practices have emerged gradually as first the interim conformity guidelines and then the 1993 regulations have been implemented.

Start-up Issues

As discussed, the early years of CAAA and ISTEA implementation were fraught with challenges. As new and sometimes competing demands were placed on transportation and air quality agencies, many struggled to understand and implement their broadened roles and responsibilities, notably those imposed by conformity. Given the turmoil of the start-up phase, it is not surprising that the first round of

air quality and transportation planning did not occur in an idealized manner. As each group grappled with its own challenges, transportation and air quality planners did not always realize the importance of consultation and place it high on their list of priorities. Also complicating the start-up of consultation procedures was a delay in development of the federal conformity rule, which contains the most powerful inducements for interagency cooperation. Initially slated for publication in 1991, EPA instead issued interim guidance that left many important issues to be resolved in negotiations with DOT and various stakeholders. The federal rule was not completed until November 1993, concurrent with the deadline for 15% VOC reduction SIP submittals (in ozone nonattainment areas) and the first post-ISTEA transportation plan revisions in many areas.

As a result of start-up challenges, many areas missed the window of opportunity for consultation that could have informed the first set of SIPs in the CAAA/ISTEA era. In a few areas, such as Boston, Houston and Milwaukee, broad-based SIP planning task forces were established through which all actors came to the table (including both public and private interests from mobile, stationary and area sources) to evaluate various strategies for reducing emissions within each source category; to consider carefully the trade-offs among mobile, stationary and area source controls; and thus to set budgets with an understanding of their future implications. In other areas, air quality agencies dealt with each emission source category separately. In these areas, transportation planners were generally a party to TCM decisions and in some were involved in discussion of other mobile source measures and emission budgets. As will be discussed below, however, transportation planners in several areas were not sufficiently aware of the importance of their involvement in SIP planning. Thus, budgets were derived implicitly from SIP inventories without enough consideration of their implications for future conformity determinations.

Likewise, during the start-up phase, air planners were just beginning to establish their role in transportation planning. They were jockeying for a voice in the MPO, learning transportation issues and planning processes, and had not yet begun to negotiate the formal consultation procedures that would be solidified through the states' conformity SIPs. Moreover, because most MPOs and state DOTs had a project backlog that had already gone through years of planning and had strong support from local governments and interest groups, it was quite difficult politically to influence transportation priorities in the short run. As a result, air - planners frequently felt that they had too little influence on the first post-ISTEA round of transportation plans and TIPs.

Formalizing Consultation Procedures in a Conformity SIP

Part of the conformity SIP that each state was required to develop by November 1994 involved interagency consultation procedures. Wide state-to-state variation in institutional structure, however, made it impossible for the federal conformity regulations to prescribe specific arrangements for interagency consultation, as they did for some other conformity procedures. In drafting its conformity

SIP, therefore, each state had to specify a customized set of policies:

- defining the roles and responsibilities of each participating agency;
- establishing general procedures for meetings, distribution of information, and opportunities for comments;
- indicating how certain conformity-specific tasks would be accomplished – e.g., selecting transportation and emission models, defining "regionally significant" projects, identifying exempt projects, and determining the timeliness of TCM implementation;
- specifying how the public would be involved in reviewing and commenting on conformity determinations; and
- establishing a mechanism for resolving interagency conflicts.

Typically led by the air agency, concerned agencies in most states began working on conformity SIPs in 1994. Although the schedule for submission of these SIPs did not stay on track (as will be explained below), many states finished work essentially within the allotted year, building on the experience gained in their initial conformity experiences. Most developed interagency consultation procedures with little disagreement, and a number regarded the exercise of specifying responsibilities and defining processes as quite useful in clarifying expectations about how conformity would be carried out.

Although the 1993 conformity regulations explicitly permitted states to adopt conformity procedures that were more stringent than the federal requirements, many states were either barred by state statute from exceeding federal environmental requirements or faced an informal – but powerful – legislative bias against doing so. Of those that legally could impose stronger requirements, few chose to do so. Oregon made its conformity practices stronger than the requirements in several respects. Massachusetts also went notably beyond the federal rule, requiring state air agency concurrence with the MPO's conformity determination.

In a few states, drafting the conformity SIP became a matter of serious contention between the MPO and other participants. In Utah, the state DAQ initially drafted a conformity SIP based on a model developed by STAPPA/ALAPCO, a national organization of state and local air pollution officials, which, among other provisions, gave the environmental agency a veto over conformity determinations. For its part, the Salt Lake City MPO insisted on minimal oversight of its conformity decisions. The two agencies were therefore unable to reach agreement on conformity procedures.

In Colorado, the state Air Pollution Control Division (APCD) and CDOT jointly led an intensive interagency discussion about procedures to be incorporated in the Colorado conformity SIP. This involved participants statewide, not only those concerned with the Denver area.[13] APCD sought a state

[13]In addition to APCD and CDOT, other attendees included representatives from all Colorado MPOs, two members of the state Air Quality Control Commission (AQCC), several environmental advocates and business representatives, and a few unaffiliated citizens.

conformity procedure that specified in detail how the consultation process should work. Taking an opposite tack, DRCOG advocated prescribing as little procedural detail as possible to satisfy the conformity mandate. This would have left more discretion to individual Colorado MPOs to decide how to comply. The policy discussions were constrained by a state law that forbade adopting regulations that were more stringent than required by federal law. After long, detailed negotiations, APCD and CDOT eventually reached consensus, despite the unhappiness of DRCOG, the Denver MPO. DRCOG was particularly dissatisfied with a provision that specified that members of interested advocacy groups would be permitted to attend all meetings relating to conformity, along with agency representatives. The negotiations about the Colorado conformity SIP coincided with an intense debate about whether the Denver PM_{10} emission budget should be increased to solve the area's conformity difficulties, which was ultimately settled by the state legislature. (These events are described in more detail in Chapter 3.) Before the conformity SIP was formally adopted, DRCOG and some business interests indicated that they would seek changes in the draft conformity procedures through an appeal to the legislature. APCD then decided to postpone action on the conformity SIP.

Such indeterminate outcomes could remain unresolved because the original schedule for finalizing conformity SIPs was placed on hold nationally. Conformity SIPs were initially supposed to be submitted for EPA approval by November 1994, one year after the 1993 conformity rule was issued. By early 1995, with some state submissions complete and others still outstanding, the conformity "scene" was changing at both the national and state levels. In response to strong concerns raised by the National Governors' Association about the inflexibility and burdens of conformity, EPA had embarked on national consultations about how to refine the conformity rule. It was clear that a set of amendments to the November 1993 rule would be forthcoming, which might affect the specific procedures set forth in the state conformity SIPs. As a result, EPA relaxed enforcement of the deadline for submission of conformity SIPs, pending completion of what were ultimately the August 1997 amendments to the conformity regulation. These amendments set a new one-year schedule for submission of conformity SIPs – by August 1998.

As of the end of 1997, therefore, conformity SIPs for most states in the study were not yet in final form. Arizona, California, Georgia, Maryland, Massachusetts, North Carolina, and Pennsylvania had submitted SIPs but then accepted EPA's offer to defer formal action. This deferral left these states the option of amending their submissions once the 1997 amendments were promulgated without having to go through the full state regulatory process once again. Some other study states – Colorado, Illinois, New York, New Jersey, and Utah – suspended SIP development before their regulations were ready for submission to EPA. These states therefore had to restart the process once the 1997 conformity amendments were issued. By contrast, Oregon, Texas and Wisconsin submitted conformity SIPs to which EPA gave formal approval – a fact the last two states came to regret since it meant that their

SIPs would remain in effect until they developed, submitted, and secured federal approval for revisions after the 1997 amendments were issued. Oregon, however, requested EPA approval so that the provisions that exceeded federal requirements would be legally binding.

Interagency Consultation in Practice

Whatever the legal status of their conformity SIPs, the study areas have developed interagency consultation practices that go well beyond previous levels of interaction. In most, communication between transportation and air agencies was minimal before the CAAA of 1990 and ISTEA; in some, virtually non-existent. Consultation began to increase in response to the initial requirements to develop SIPs and revise transportation plans. Conformity was another major spur beginning with the interim conformity guidelines and followed by the early stages of implementation of the 1993 federal conformity rule, when all involved were struggling to understand the meaning and nuances of the complicated regulations.

These emerging relationships have led to improved relationships in *all* of the study sites. But this development has been uneven in its pace and extent across areas, and important limitations remain.

REGIONAL AND STATE AGENCIES. As agencies in each study area have gained more experience with conformity, consultation processes have evolved and generally deepened. In virtually all 15 study sites, the MPO is the organizer and focal point for interagency and stakeholder consultations on conformity. At a minimum, MPOs organize meetings of the key agencies and circulate planning documents for comment as the transportation planning cycle proceeds.[14] Beyond this, a number of MPOs (e.g., in New York, Houston, Atlanta, Denver, and Chicago) host "technical" committees that meet periodically during the planning cycle and more frequently when new regulatory issues are being addressed or problems arise. In some cases the technical committees existed before the conformity requirement and have expanded their membership and functions in response; in others, they are newly organized. These groups are typically composed of a mixture of technical and policy officials from concerned regional, state, and federal agencies, including air and transit agencies, FHWA, and EPA. Sometimes nongovernmental stakeholder groups sit on these committees or attend as observers. Among other activities, the technical committees may address transportation planning assumptions, modeling upgrades, specific project implementation issues, and interagency coordination problems – as well as the ultimate conformity determination.

Consultation goes beyond the mechanics of conformity in most, but not all, areas. Air agencies now typically participate in some fashion on the MPO committees where transportation decisions are made, so they have an opportunity to make suggestions or raise issues at a formative stage of policy development. Air quality planners have occasionally

[14]For Charlotte, the state DOT and MPO both play key roles.

secured formal powers in transportation decisions. For example, in Boston the conformity SIP includes provisions for DEP concurrence on conformity determinations and DEP's inclusion in determining the eligibility of CMAQ projects. On the other side, transportation planners in many areas are brought into the air quality process through joint committees or task forces that deal with SIP development and issues such as TCMs and CMAQ. In most areas, consultation has opened the door for both transportation and air quality planners to be involved much earlier and more deeply in cooperative efforts.

Official interactions, however, tell only part of the story of interagency consultation. As interviews conducted for this study amply revealed, *formal* consultation procedures have frequently helped to foster stronger *informal* working relationships and deeper understanding of the issues in a number of areas. Where such relationships have developed, they are characterized by frequent informal communications across agency lines, not merely distribution of documents and convening of official meetings.[15] Agency personnel discuss conformity progress and problems, exchange data and information, provide advice to each other, and strategize about dealing with stakeholders and other agencies. For example, in Portland, state air agency and Metro staff have worked extremely closely on transportation and air quality issues, along with significant involvement by the state DOT. Similarly, in Boston, MPO, air agency, and state DOT staff have worked quite closely on modeling issues and development of transportation and air quality policies. In Denver, despite policy conflicts, there has been close collaboration between DRCOG and the regional air agency, on one hand, and the state air agency and DOT, on the other; as well as frequent interchanges between regional and state agencies. In the San Francisco Bay area, there is also strong collaboration between MTC and the regional air agency and active consultation with the state agencies.

As a result of such contacts in these jurisdictions and others, increased professional intimacy and trust developed among the individuals who participate in the conformity process. Many of the state and regional offi-

[15]The formation of both formal and informal consultation patterns seems to be facilitated or impeded by an important contextual factor – the proximity of agency offices. Geographic separation of the state capital (where the state DOT and air agency are headquartered) and the home of the MPO (usually in or near the central city of the nonattainment area) can pose an obstacle – but by no means an absolute barrier – to strong interagency consultation. When state agency headquarters are at a sufficient distance from the MPO offices (and those of other involved regional agencies) to make traveling to meetings time-consuming, inconvenient, and expensive, consultation tends to be less frequent, more formal, and more likely to occur with some agencies absent. This is the case, for example, for New York City/Albany, Charlotte/Raleigh, Philadelphia/Harrisburg, and Chicago/Springfield. By contrast, where the key agencies are located in the same city – e.g., in Atlanta, Boston, Denver, Phoenix, Salt Lake City – or where the travel between the state capital and the central city of the metropolitan area is relatively convenient – e.g., between Baltimore/Annapolis, Portland/Salem, Milwaukee/Madison – it is easier for key staff to get together for meetings and to confer informally. The relatively limited degree of agency consultation in Salt Lake City and Phoenix, it should be noted, indicates that geographic proximity is not a sufficient condition for the formation of strong relationships. It seems to encourage, but not guarantee, more intensive consultation among state and regional agencies.

cials interviewed for the study stressed that, as a result of the formal and informal relationships that conformity has spurred, they have developed a much greater understanding of their counterparts' challenges and the constraints that shape their policy approaches, making it far easier to acknowledge problems and work together to solve them. Consultative relationships, once initiated, therefore tend to become reinforcing. Contacts that prove useful in one instance persist, often deepen, and become routine. New employees of one agency meet and get to know their counterparts at others, if their peers' relationships have gotten well-established. Because consultation is a utilitarian activity, however, the ebb and flow of the work cycle naturally affects the intensity of these relationships. The need to produce a "product" such as a SIP or transportation plan or program, tends to intensify the relationships; the periods between such efforts may display less interaction.

These findings about the development of closer regional and state agency relationships must be qualified, however, in certain important respects. Even where close interagency relationships develop, they do not transcend or submerge distinct institutional interests and perspectives in conformity. Nor do they fundamentally change disparities of bureaucratic or political power. Agency personnel continue to represent their own agencies and may not always be able to find common ground with their counterparts on specific matters. Interagency tensions continue to exist, and serious disagreements can erupt periodically. This was certainly true in Denver, where disagreements about the PM_{10} emission budget and the conformity SIP, among other issues, have divided the concerned agencies.

In some areas, moreover, consultation is relatively limited and focused to a great degree on formal interactions such as committee meetings, review of proposed conformity determinations by air quality planners, and comments by transportation planners on proposed SIP budgets or mobile source control measures. In these areas and some others, there seems to be far less advance discussion of issues, less informal give and take, more turf protection and focus on each agency's exclusive objectives, and – quite significantly – less reciprocal trust at the agency and personal levels.

No single explanation accounts for these situations, which include Phoenix, Salt Lake City, and New York. They stem from past institutional and personal relationships, differing perceptions of individual agency interests, and conflicting constituency pressures. In Phoenix, for example, MAG has played an important part in supporting an extensive regional road building agenda, which has strong political support from MAG's municipal government members. At the same time, MAG's role as both MPO and lead agency for SIP planning - has given it responsibility for most modeling, analysis, and policy making. Neither the air agency nor state DOT matches MAG's technical expertise in these areas; as a result, MAG engages in less interagency consultation than many other MPOs. The state air agency, in particular, regards MAG as insular and is suspicious of its commitment to air quality goals. In Salt Lake City, conflict between the MPO and air agency has arisen over several issues,

resulting in poor relationships among some key staff, mutual suspicions, and limited dialogue. In New York, the air agency and state DOT have had a wary relationship during most of the period covered by the study, differing significantly during national discussions about the 1993 conformity regulations; both have also been bureaucratically insular in carrying out their responsibilities under the CAAA and ISTEA. Although NYMTC is closely tied to NYDOT, it has a highly decentralized structure of regional committees, which creates more participants to consult and more organizational layers to coordinate; and its difficulties in complying with the network modeling requirements of the 1993 regulations have focused it more on internal matters than on interagency collaboration.

Poor interagency communication can make dealing with conformity problems more difficult than they otherwise would be, as evidenced by Charlotte's situation in 1997 when conformity lapsed. As the deadline approached, there were extensive consultations among planners in the MPO, air agency, and state DOT. Through these discussions, MPO staff believed that the air agency would revise the emission budget to accommodate higher levels of mobile source emissions, as the transportation planners had requested. The air agency decided not to revise the budgets but apparently did not adequately communicate this position to the MPO, which continued to hope for several months that this was a viable option. Similar communication problems between the MPO and air agency arose in Atlanta as its lapse loomed in 1997 – in this instance about possible additional emission control measures. Georgia DOT also controlled much of the communication between itself and the MPO, on one side, and FHWA and EPA, on the other. Whether or not better communication would have sufficed to "solve" the conformity problems in Charlotte or Atlanta – and it probably would not have – communication problems wasted time that would have been better spent in more direct discussions about how to respond to the conformity lapse.

Even in areas where strong consultative relationships have developed, important limitations remain. While state air agencies provide important technical inputs to conformity analysis in a number of study sites, they have generally been *reactive* rather than proactive participants in conformity. Resource limitations and the opportunity costs of using this scarce capacity for conformity are a major barrier. Compared to the period prior to implementation of CAAA of 1990, air agencies have built up significantly more staff expertise and experience in transportation. But the improvement does not fully meet current demands. Most air agencies still have too few staff members to deal with the wide range of mobile source issues; given their many tasks, they feel perpetually short-staffed. So conformity must compete with other priorities, including some, unlike conformity, on which the air agencies must take the lead, particularly SIP development. Many air agencies in the study report that staff workload and shortage of technical expertise prevent them from being as deeply involved in conformity as they otherwise might like.

Moreover, because a number of air agencies have little in-house technical expertise on transportation demand modeling, they are

uncomfortable probing that dimension of conformity even when they have serious reservations about how the MPO is handling it. They participate in MPO technical committees, usually speak regularly with MPO staff on a bilateral basis, and may raise questions in official comments on conformity analyses. Rarely, however, do they seriously challenge MPO technical conclusions.

State bureaucratic politics shapes this result as much as resource scarcity. Many air agency officials interviewed for this study described their work on conformity in ways that implied the following perspective: Conformity focuses on issues at the heart of the policy domain of powerful political interests. Transportation projects often have strong constituency backing – e.g., local governments, business interests, economic development organizations, construction firms and unions. The governor, legislators, and local elected officials pay close attention to these issues and constituencies. As a result, state DOTs (and the MPOs with which they are allied) are among the most politically influential agencies in state government. By contrast, air agencies confront a wide range of potentially controversial matters in addition to transportation; and they are typically subunits of state environmental departments, which have even broader regulatory agendas. Air agencies consequently must "pick their fights" carefully. Conformity rarely seems a promising battleground. Disputes have the potential to disrupt the flow of federal funds and typically relate to the transportation models about which air agencies have less claim to expertise than their transportation counterparts. The points of contention, moreover, focus on technical questions that are either difficult to explain to generalist officials (e.g., the arcana of modeling practice) or seem excessively theoretical (e.g., forecasted emissions budget exceedances two decades in the future).

Although such views of political and bureaucratic reality do not preclude challenges to MPO conformity determinations, they are cautionary. Air agencies therefore seek influence in conformity mainly through "front-end" participation on the interagency committees that discuss planning assumptions and modeling changes, in regular communication and information exchanges with their counterparts in the transportation agencies, and, to a lesser degree, by comments on completed conformity analyses. When difficulties demonstrating conformity arise, air agencies usually advise on ways to reduce or mitigate transportation emissions, interpret federal regulatory requirements, and serve as intermediaries in negotiations with EPA regional staff. In only a few instances identified in the study sites have air agencies been aligned against transportation agency positions in major conformity disputes – most notably, when DRCOG sought an increase in the PM_{10} budget for Denver.

FEDERAL AGENCIES: FHWA. In a number of study sites FHWA personnel are more tightly integrated into the conformity network than their counterparts in either EPA or FTA. In each state in the study, FHWA has division offices in the same city in which the state DOT headquarters are located. Therefore, its air quality staff members have relatively direct access to their counterparts in state and regional agencies. In all of the research sites, FHWA divisional staff participate regularly in

MPO technical committees and/or speak regularly with MPO professional staff, helping to establish the necessary data inputs and analytic parameters of the MPO's transportation demand models and procedures for conformity determinations. This involvement usually allows them to become aware of difficulties and potentially controversial analytic choices; to establish working relationships with key participants from other state, local, and federal agencies and non-governmental stakeholder groups; and sometimes to proffer advice about how troublesome conformity issues might be handled.

In a regulatory role, FHWA staff members approve MPO conformity determinations. At an initial stage, they assess whether the formal conformity determination adopted by the MPO fulfills basic requirements – e.g., satisfying the regulations about modeling procedures, passing the quantitative conformity tests, showing that TCMs are being implemented, and demonstrating that transportation plans are fiscally constrained. While this initial review typically "checks off" compliance rather than intensively evaluates the quality of the MPO's analysis, it has occasionally revealed problems that delay approval of the conformity determination. In Boston, for example, FHWA staff, with the agreement of FTA, put conformity on hold in 1994 while dealing with the question of fiscal constraint of the state TIP.

FHWA staff members also solicit comments on the conformity determination from their federal partners, EPA and FTA, and consider comments from interested stakeholders (most often environmental advocacy groups). Serious objections typically trigger intensive review of the MPO's conformity analysis. In this process FHWA division staff members play a facilitative role as well as an evaluative one. A response to the criticisms is sought from the MPO. If the disagreement is not readily settled, FHWA staff members typically convene meetings at which the interested parties discuss their positions. In some instances (e.g., in Chicago during early implementation of the 1993 regulations), repeated consultations are necessary to work out differences or determine that an impasse exists.

Within the FHWA hierarchy, the division offices take the lead in reviewing conformity determinations. When the issues raised are primarily local – e.g., questions about how specific projects should be modeled or whether certain input data is adequate – the division office typically has the decisive voice in approval, with the regional office primarily providing information and general advice rather than exercising tight oversight. Some issues have "policy" implications, however – for example, if they require an interpretation of federal regulations that might set a precedent for other areas or if decisions in other nonattainment areas are cited as justification for MPO actions. In these cases, regional staff typically play a larger role, including coordinating with EPA's regional offices and FHWA headquarters.[16] FHWA headquarters staff provide technical backup, interpret

[16]These relationships are likely to be changed by the realignment of FHWA field functions that Congress enacted in 1998 in the new Transportation Equity Act for the 21st Century (TEA-21), which succeeded ISTEA as the nation's transportation funding authorization legislation.

agency policy, promote inter-area consistency, and manage liaison with EPA headquarters staff.[17]

Although FHWA, acting in conjunction with FTA as DOT's representative, has the ultimate authority under the CAAA and the 1993 conformity regulations to decide whether the conformity determination should be accepted, it has typically imposed its own judgments only when conciliation efforts have not succeeded. In regard to modeling, for example, FHWA has pressed MPOs for change but has been willing to accept iterative improvements over several planning cycles if the MPOs have been able to institute basic changes more quickly. In Chicago, for example, FHWA delayed approval of the area's conformity determination in 1994, requiring CATS to conduct extensive further analyses; but although it pressed CATS to institute changes in modeling practice as advocated by a coalition of environmental groups, FHWA did not ultimately withhold conformity approval until these changes were fully instituted. In New York, failure to meet conformity's network modeling requirements is one reason why the MPO was unable to adopt a new TIP for several years; but when an initial operating model was finally ready in 1997, FHWA accepted the MPO's commitment to further upgrading in subsequent planning cycles. Such decisions have not always pleased stakeholders, particularly environmental advocacy groups which have sometimes wanted more pressure on MPOs to upgrade their modeling practices or change their transportation policies.

The conformity regulations give DOT the final authority to decide whether an area's conformity determination should be certified. In practice, FHWA has taken the lead; but the agency has generally worked closely with EPA and FTA to reach consensus on a federal position, sometimes managing discussions at multiple levels of the agencies. In only one instance in the study sites, however, has there been severe disagreement between FHWA and EPA. (The situation in Atlanta was described in Chapter 3.)

EPA. Regional office staff members have played active roles in implementing conformity – providing technical assistance, troubleshooting on major issues, advising and consulting with national headquarters staff, working with states and MPOs to develop conformity SIPs, and dealing with the conformity consequences of control strategy SIP revisions or disapprovals. Nonetheless, EPA's involvement in conformity at the MPO/nonattainment area level has been significantly more variable – and weaker overall – than FHWA's. Because EPA lacks a state-level presence equivalent to FHWA's divisions, its attention is more widely spread. The two or three mobile-source specialists in each EPA regional office often have many competing demands on their time, including SIP development and programs such as reformulated or oxygenated fuels, I/M, and, in the early years of CAAA implementation, the Employee Commute Option (ECO) program. With a multi-state purview, moreover, not the single-state focus of FHWA division personnel, EPA regional

[17]FHWA headquarters staff, on behalf of U.S. DOT, also coordinates FHWA, FTA, and the Office of the Secretary's ideas and comments on proposed EPA regulations for which the statute requires concurrence between EPA and DOT.

staff often have responsibility for a half dozen or more major nonattainment areas, as well as additional smaller ones. Given the small number of EPA regional personnel responsible, managing work flow is problematic. Transportation planning cycles, roughly synchronized with the federal fiscal year, may simultaneously hit key periods in several nonattainment areas; and the demands of transportation planning may overlap with peak periods of SIP development.

Achieving equally detailed familiarity and sustained contact with every nonattainment area is thus quite challenging. Each has different air quality and transportation problems, varying institutional structures, and numerous agency staff and stakeholders with whom to establish consultative relationships. Geographic distance and travel time from the regional office vary but are frequently substantial. While a number of MPOs have welcomed EPA participation in area-level planning, moreover, not all have been equally forthcoming.

All things equal, EPA regional staff are more likely to be deeply involved in conformity in those cities in which its regional offices are located. Travel is minimized, informal contact is more regular, detailed knowledge is greater. In areas removed from the regional office site, EPA staff have experienced more difficulty participating as a result of distance and limited travel budgets (which was especially problematic during several early years of conformity implementation). Thus, EPA staff members based in Region IV in Atlanta have been closely involved in that area but have been less active in Charlotte, also part of Region IV.

Overall, these circumstances seem to have greatest impact on EPA participation in the less formal, more routine (but nonetheless formative) aspects of the conformity process – e.g., the work of MPO technical committees discussing modeling improvements or the parameters of analysis. When EPA staff are not based in the nonattainment area, their infrequent personal visits and bilateral telephone contacts do not fully compensate for the knowledge and personal relationships that regular participation in these groups engenders. It is therefore more common to hear MPO or state DOT staff involved with conformity say that they do not know or are only slightly acquainted with EPA staff than to hear these people or air agency staff say the same about FHWA division staff. Some have come to regard EPA as a "regulator" more concerned with the formalities of the law than as a "problem solver."

EPA regional staff have tended to concentrate their efforts on fulfilling requests for technical assistance, coordinating with FHWA staff, and reviewing MPO conformity determinations. Even the latter work, regarded as highly important, can be squeezed by time and resource pressures. Final review and comment on conformity determinations must be completed on a tight schedule, typically 60 days or less. In a number of EPA regional offices, moreover, none of the responsible staff have in-depth experience with transportation demand modeling, which reduces their ability to probe MPO work critically. EPA regional staff have pressed MPOs to improve their modeling, but they have tended not to raise formal objections to MPO practices unless some other agency or stakeholder has done so.

Given the volume and diversity of their workload, EPA regional staff must, of necessity, pick and choose priorities for attention. In the typical case, they have deferred to FHWA judgment on transportation modeling. The amount of contact between staff of the two agencies appears to be substantial, and generally effective "partnerships" have developed at the regional level. While in some cases EPA staff would have liked to see FHWA be more aggressive in challenging MPOs, only in Atlanta has there been strong disagreement between the agencies.

EPA's mobile source headquarters staff, based in Ann Arbor, Michigan, played the lead role in drafting the transportation conformity regulations and the subsequent amendments (in close consultation with DOT, whose concurrence was required by the statute). It has also played a continuing role in interpreting the regulations, coordinating regional office mobile source specialists to ensure national consistency, and has communicated regularly with state and regional transportation and environmental agencies and other stakeholder groups. The EPA and FHWA headquarters staffs responsible for conformity have forged a close working relationship, which has facilitated relationships between their respective field staffs and with stakeholders as well as encouraged forthright discussions of policy differences that have arisen in conformity implementation.

FTA. Like EPA, FTA has ten regional offices but lacks a state-level presence, which creates the same difficulties of travel to and communication with the several nonattainment areas in each region. FTA's regional offices have far fewer staff overall than EPA's, moreover, which means FTA faces even more severe personnel constraints in dealing with conformity. FTA staff do contribute to discussion of conformity questions – especially in areas like Chicago, New York, or San Francisco, that have major transit networks and spend substantial proportions of their federal funds on this purpose. In the typical case covered by this study, though, FTA regional offices sign-off on conformity determinations, usually deferring to FHWA's more in-depth review of the issues. The new metropolitan offices that DOT is currently opening in some major cities, which will have both FHWA and FTA staff, may make it possible in the future for FTA to be more deeply involved.

Stakeholder Participation in Conformity

The conformity regulations require both that the public have opportunity to comment on conformity analyses before the determination is made and that MPOs fulfill the requirements of the DOT metropolitan planning regulations, which more generally mandate public participation in transportation planning. Using these paths of access, environmental advocacy groups have been the most active nongovernmental stakeholders in conformity, playing key roles in about one third of the 15 study sites and a more limited role in most others. Business associations are the only other stakeholder group active in conformity – and then only in a few nonattainment areas.

Environmental Advocates

Environmental advocacy groups have been significant conformity participants in a number of the 15 study sites. In several areas, they have pressed MPOs hard to upgrade transportation modeling practices, monitored (and sometimes challenged) the results of conformity analyses, and used conformity discussions as a forum to advocate alternative regional transportation and land use policies. In some areas, they have become well-integrated participants (as official members or regular observers) in the MPO technical committees that structure and review the area's conformity practices, sharing in the informal discussion and information exchange; in others, they have gained less intimate, more formal access through public participation procedures. Wide disparities exist among areas, however, in the resources and expertise that environmental advocates can mobilize (and choose to use) to influence the conformity process.

In several study sites, described briefly earlier in this chapter, environmental advocates have played prominent roles in the development of conformity practices. In the San Francisco Bay area, for example, the Sierra Club Legal Defense Fund, in alliance with other groups, successfully brought suit against the Metropolitan Transportation Council, the area's MPO, challenging the adequacy of its transportation demand modeling procedures to forecast the air quality effects of transportation projects.[18] Initiated before the CAAA of 1990 was passed but not fully resolved until several years after, the debate and resolution of the MTC suit helped shape Congressional action and the 1993 federal conformity regulations. Subsequently, the Sierra Club (not the independent Sierra Club Legal Defense Fund) has continued to provide support for a loose coalition of San Francisco area environmentalists who have pressed the MPO to accord greater attention to transportation plans based on tighter land use regulation.

Another example is Denver, where a coalition of local environmental groups – which also has strong ties to the Environmental Defense Fund (EDF) and other national environmental advocacy organizations – has been extremely active. This coalition has closely monitored DRCOG's conformity practices, lobbied for modeling improvements, participated energetically in discussions about transportation priorities (including pressing for action on transit proposals), helped secure commitments during the interim conformity period for environmental mitigation of the E-470 toll road project in anticipation of possible future conformity difficulties, and fought hard (but ultimately unsuccessfully) to prevent changes in the area's PM_{10} emission budget.

In Chicago, a coalition of local environmental groups, aided by technical experts affiliated with EDF, effectively pressed the Chicago Area Transportation Study (CATS) to institute major changes in its transportation demand modeling practices. With less success, these groups have sought changes in the area's

[18] See Garrett and Wachs, *Transportation Planning on Trial: The Clean Air Act and Travel Forecasting*.

transportation policy priorities. In Baltimore, the Chesapeake Bay Foundation and EDF raised serious questions during the interim conformity period about the adequacy of MPO modeling practices, which helped spur significant upgrading. Also during the interim conformity period, several environmental groups in North Carolina (including the Sierra Club, the Conservation Council of North Carolina, and EDF) negotiated with state agencies to include all transportation projects, whether or not federally funded, in the conformity analysis; they also pressed the state to agree that the state would perform NO_x conformity tests, whether or not the federal conformity regulations required this. In northern New Jersey, advocacy groups affiliated with the Tri-State Transportation Campaign, supported by staff from the Rutgers Environmental Law Center, have actively participated in area transportation planning. They began pushing for technical upgrading of transportation modeling during the interim conformity period, and sought public access to conformity consultations. In Atlanta, the Georgia Conservancy, Citizens for Transportation Alternatives, and EDF have been active participants in the conformity-related debate about transportation priorities, particularly during controversy about the area's proposed interim TIP in late 1997 and early 1998. In New York, a key national-level Environmental Defense Fund operative has been an active technical participant in NYMTC's efforts to develop transportation modeling capacity to comply with the conformity regulations.

These examples indicate that environmental stakeholders have used the conformity process to influence transportation planning practices and participate in public debate about transportation investments and policies. But not every study site has advocacy groups capable of effective participation. To track conformity well is time-intensive and requires significant technical skills. In each of the cases above, advocacy groups have (1) deployed paid, professional staff to work persistently on transportation and conformity issues and (2) have had in-house technical expertise on air quality and transportation modeling or have gained access to such expertise through alliances with national environmental groups or academic specialists. To participate effectively, environmental advocates have had to make efforts that, in many respects, parallel the involvement of personnel from the core public agencies. They study federal regulations and practices; attend numerous MPO committee meetings typically held during regular working hours; scrutinize voluminous planning documents; seek information and maintain contacts with activists in other nonattainment areas; discuss the issues informally with local agency staff members, simultaneously building working relationships; and prepare for and participate in public hearings. In a major metropolitan area, such activities may approximate the time demands of a full-time job. These tasks are also technically demanding. To review conformity practices thoughtfully and make credible critiques where warranted, environmental advocates must have either a working knowledge of transportation and emissions modeling or advisers with these skills. They also need solid working knowledge of the issues, practices, and procedures of both transportation planning and air quality planning and regulation, and must develop an understanding of how these

processes fit together. To the extent that these groups have credibility as litigators and skill in attracting press attention, they also enhance their influence. Environmental advocacy groups have been forceful players in conformity when they have people with the time and technical skills to be productive in these activities.

While advocates in the San Francisco Bay area, Denver, Chicago, New Jersey, Atlanta, and New York have been able to participate actively in conformity, groups in other areas frequently lack sufficient personnel and technical expertise to do so. In these situations, environmental activists typically feel "outgunned" by staff from the public agencies involved in conformity. In Houston, for example, one or two Sierra Club volunteers joined by a few other activists, each with unrelated full-time jobs and none with professional training in transportation planning, have sought to monitor the full-range of transportation policy issues, including (but not limited to) conformity. Similarly, in Salt Lake City, a small cadre of part-time Sierra Club volunteers has monitored transportation issues, including conformity. In North Carolina, because the Sierra Club's volunteer transportation activists are located in Raleigh, they have not been able to monitor events in Charlotte closely; however, they have gotten some part-time technical advice from a University of North Carolina graduate student in planning. Lack of resources puts such groups at a considerable disadvantage in the conformity process. They have difficulty staying abreast of planning and policy development because they cannot prepare for or attend all relevant meetings, and they sometimes believe they get insufficient notice or are excluded. Even when they actively question analyses and policies, they often feel uncertain whether they are reaching the key technical issues of conformity.

Although both adequate staffing and access to technical expertise appear to be necessary conditions for effective participation in conformity, these are not sufficient conditions. In several study sites, strong environmental groups that have focused on transportation issues more generally have strategically chosen not to become actively involved in the conformity process. In Portland, for example, 1000 Friends of Oregon has long had a strong, influential voice in land use, development, and transportation policy making. It has been a major proponent and sponsor of the LUTRAQ project (land use, transportation, air quality), which has studied and advocated new strategies to encourage compact urban development, featuring enhanced transit service to reduce auto dependence without compromising mobility. Although deeply enmeshed in the policy arena, 1000 Friends has chosen not to participate in the conformity process beyond keeping generally informed. This has largely been a choice about how best to use its limited staff resources, made in the context of generally close working relationships with both the MPO and the air agency as well as a belief that the organization can weigh in if a particular issue warrants attention.

In Boston and elsewhere in New England, the Conservation Law Foundation (CLF), a politically astute policy advocate with strong litigation capabilities, has been an energetic force in debates about the environmental impacts of transportation. In the late 1980s, it was the key advocate for a multi-billion

dollar agenda of air quality mitigation measures, mainly transit projects, connected to the huge Central Artery/Tunnel highway project. It was also an active participant in the stakeholder task force formed by the Massachusetts Department of Environmental Protection to develop policies to meet the nonattainment area's CAAA obligations. Early in the implementation of conformity, CLF filed unsuccessful lawsuits in Connecticut and Rhode Island alleging noncompliance with regulatory mandates. It has not litigated in Massachusetts, however, nor has it gotten actively involved in conformity in the Boston area as a participant in ongoing discussions through the transportation planning process. CLF reports that it is devoting less effort in transportation to such activities and more to work with grassroots community groups on specific projects. It has found the air quality focus of conformity insufficiently broad to accommodate CLF's larger agenda of concerns about transportation's impact on urban life. It also has come to regard conformity as a difficult tool to use in influencing transportation choices because conformity analysis occurs at the conclusion of the planning process, when fully formed project proposals are ready for inclusion in plans or TIPs.

In the 1980s, the Tucson-based Arizona Center for Law in the Public Interest (ACLPI), won litigation that compelled EPA to bring transportation policy in Phoenix directly under federal air quality regulation. While continuing actively to monitor and litigate air quality issues in Phoenix, ACLPI has chosen not to get deeply involved in conformity. It has been unwilling to commit staff to participate regularly in planning meetings; feels that its distinctive competence is in law, not technical transportation analysis; and sees few "litigation hooks" in challenging conformity determinations, given the courts' inclination to give broad deference to agency judgments on technical matters so long as procedural requirements are upheld.

Business Associations

Business groups have been active in conformity in only a few of the 15 study sites. The Greater Atlanta Chamber of Commerce has followed transportation planning issues closely and, recognizing the potential importance of the conformity process for regional development, has argued for policies to restrain growth in automobile use. In other areas, the business community has gotten involved primarily when inability to conform a transportation plan or program has threatened the flow of federal funds to the region. In Denver, for example, business representatives sit on the transportation policy committee of the MPO and the governing board of the regional air agency and thus contributed to debate about Denver's PM_{10} conformity problems; but Denver's organized business community was not a key participant. At about the same time, however, business people were involved in a task force advising Governor Romer, which helped push the area forward on transit plans. In Charlotte, at the end of the study period, business voices were heard as conformity stalled the transportation planning process. In Houston, the business community, closely engaged by Clean Air Act issues more generally, has kept abreast of conformity issues as well, but they have not gotten deeply involved. Other than these instances, business

groups do not appear to track or participate in *conformity* to a significant degree, although they may be actively involved in transportation policy more generally.

The Broader Visibility of Conformity

The architects of conformity expected that it would improve the planning process both by requiring active dialogue among the agencies and stakeholders and by bringing sharper analytic tools and better information about transportation impacts on air quality to bear on transportation policy making and investment decisions. Some thought, moreover, that conformity could have wider impact by raising the public profile of transportation and air quality issues, educating the public, and increasing the likelihood that senior policy and elected officials would feel compelled to address these issues.

Engaging Policy Makers

At least up to the conclusion of the study period – January 1998 – conformity has not generally been effective in focusing the attention of high level appointed policy makers and elected officials on the issues of transportation and air quality. The complex and highly technical nature of the conformity process has been a barrier to expanding participation in the planning arena beyond the core group of planning and policy officials who deal with it on a regular basis, except if major difficulties arise in fulfilling the conformity requirements.

REGIONAL POLICY OFFICIALS. At the regional level, this is particularly the case in study sites where the MPO is a single-purpose transportation agency. Because the scope of responsibility and expertise of these MPOs is more narrowly based, they are less likely than the multi-purpose regional councils to attract active participation from the region's key elected officials and general managers (although a few such officials who are particularly interested in transportation may serve on the policy boards of these agencies). City and county managers, mayors of major communities, and other senior elected officials tend to allocate more time to regional institutions that have wide-ranging agendas and regularly deal with politically visible issues.

The active involvement of high-level officials in MPO affairs, whether or not they are routinely involved in conformity, seems to make a difference if conformity problems arise. Although it does not guarantee that the problem can be readily solved, key decision makers are more likely to focus on the problem when they are directly connected to the MPO and have at least rough familiarity with the issues (e.g., in Denver and Atlanta) than when these individuals are more distant institutionally and substantively (as in New York City and Charlotte). They can become important participants when solutions must be worked out with other regional and state agencies, as well as with FHWA and EPA. Alternatively, if such officials have not been exposed to conformity through participation in MPO affairs, they are likely to learn about conformity difficulties only after area agencies have gone through lengthy scrutiny of modeling results. The amount of time available

before a lapse occurs has then typically shrunk, and conformity's technical complexity creates a steep learning curve that makes it difficult to appreciate the issues and potential solutions rapidly.

GOVERNORS. What applies to local public managers and elected officials is true for state-level officials as well. Conformity normally flies below the radar of governors and state legislatures. The study sites provide few examples of involvement by these elected officials in conformity issues. The typical case is handled routinely, mainly by the MPO, which is not directly under state government supervision.

Even when conformity difficulties arise, governors' offices generally remain at a distance. Generalist gubernatorial staffs expect the agencies concerned to "take care of" such matters; so long as the agencies are doing so, they have little inclination to become involved. If there are conformity disputes between the state agencies, governors do have authority under the 1993 conformity regulations to resolve them. In practice, however, neither the state DOT nor the air agency has motivation to let disputes escalate to the governor's office (although they may let the governor or his staff know that difficulties exist). Senior decision makers on both sides prefer to work out the issues themselves so they do not lose control of the outcome. Moreover, so long as the issues are seen as primarily "technical" – e.g., concerning modeling assumptions/practices or out-year forecasts – governors' offices are unlikely to feel well equipped to resolve them.

If it seems necessary to make significant "policy" changes in order to conform a plan or TIP – e.g., altering an emissions budget, changing the control measures in a SIP, or making significant changes in a transportation plan – governors' offices are more likely to stay informed about the issue but not necessarily to become directly involved. Governors want to *choose* the situations in which they either take stands on controversial issues or bring their administrations into conflict with federal agencies.

Even when prolonged conformity difficulties have caused a lapse in federal transportation funding, therefore, governor's offices have not necessarily gotten deeply involved in finding solutions. That was true in Colorado, where Governor Romer was not directly involved in Denver's difficulties in 1994-95,[19] and in Georgia, where Governor Miller had not, as of early 1998, played a major role in responding to Atlanta's conformity problems. When Charlotte's conformity difficulties finally threatened a road building project with strong political backing, however, North Carolina Governor Hunt visibly intervened, directing his department heads to become more actively involved in working out a solution. In Maryland, moreover, Governor Glendening vetoed a bill that would have limited I/M and could have caused conformity problems in Baltimore, although conformity was not the sole focus of this decision.

STATE LEGISLATORS. This study has revealed only one situation in the 15 research

[19]Although he did not play a major role in resolving Denver's conformity problems, Governor Romer has been actively involved in broader issues of transportation and air quality policy making in Colorado.

sites in which state legislatures or individual legislators have significantly participated in conformity matters. Indeed, it appears from interviews with state and MPO officials and advocacy group staff members that few legislators have much awareness of conformity (although legislative action on issues like inspection and maintenance in Maryland sometimes had actual or potential consequences for conformity deliberations). The exception to this pattern – controversy in Colorado in 1994-95 over Denver's PM_{10} emission budget – is a significant one, however. Unable to demonstrate conformity, the Denver MPO proposed – and the regional air agency supported – raising the emission budget for downtown Denver to a level within federal standards but higher than had previously been allowed by the Denver PM_{10} SIP. This proposal, bitterly contested by environmental advocacy groups and the city governments of Denver and Boulder, was approved by the state air agency for only a three-year period. Proponents feared this would lead to conformity difficulties as soon as it expired, even though it resolved problems in the short run. Therefore, proponents took their case to the Colorado legislature (which had previously created procedures for legislative review of State Implementation Plans), with the effect that the increased emission budget was subject to time limits during the period covered by the SIP.

Public Visibility

Except in the three areas – Atlanta, Charlotte, and Denver – that have experienced protracted difficulties with conformity or lapses in federal funding, conformity has had an extremely limited public profile in most of the 15 study sites. This limited visibility is problematic to the extent that conformity is intended to serve as a vehicle for educating citizens about the connections and potential policy tradeoffs between transportation and air quality.

PUBLIC PARTICIPATION. The core public agencies have had limited success in drawing attention to conformity. To the extent they have tried to do so, they have relied primarily on organizing and formally announcing public meetings, placing notices in their newsletters, and – increasingly – posting notices and technical documents on MPO websites. Consequently, very few unaffiliated citizens have availed themselves of opportunities for involvement, even when MPOs and others have exerted considerable effort to secure participation. In northern New Jersey, for example, NJTPA, urged on by environmentalists, made serious efforts in the early years of conformity to present issues for discussion in public meetings. In the first year, most of the several dozen participants represented local governments or advocacy groups, not the general public; and attendance dwindled in subsequent years. Chicago was the only study area that reported regular high attendance at its forums to elicit public comments on transportation plans and programs. This was accomplished by an intensive outreach campaign by CATS, independently reinforced and extended by advocacy groups.

MEDIA COVERAGE. In most of the study sites, there is scant media coverage of the transportation planning process in general and conformity in particular. Unless controversy arises, conformity is an inherently difficult sub-

ject for newspapers, let alone television or radio, to report. Its highly technical nature, revolving around complex regulatory requirements and arcane modeling procedures, diminishes its accessibility to both generalist reporters and the public. Because it abstractly analyzes aggregate regional emissions, conformity usually provides no concrete focus on either an event or specific projects that might command the public's interest and attention. What is problematic for newspapers is more so for the electronic media. Conformity is not a subject that can be conveyed by soundbite journalism.

Denver, however, is an exception to this general pattern. The Denver newspapers and other media have given extensive coverage to transportation and air quality issues, for example the E-470 project and transit planning. Conformity has gotten substantial attention too, primarily but not exclusively during the 1994-95 lapse in federal funding and debate about the PM_{10} emissions budget. The newspapers, in particular, not only followed the day-to-day story line but also periodically published long articles that provided contextual background. Several factors seem to account for this comparatively high public profile. First, the transportation-air quality nexus is not a new issue for Denver citizens. Prominent political leaders and organizations have frequently drawn attention to this relationship for more than a decade. Air quality concerns, symbolized by Denver's notorious "brown cloud," have been publicly connected to transportation at least since the Department of Public Health, CDOT, and business groups conducted a Better Air Campaign in the 1980s. There has also been widespread debate about the benefits and threats of the area's rapid population growth, burgeoning physical development, and increasing traffic congestion. Reporters developed expertise on this set of issues. More recently, a number of elected officials in the Denver area, particularly from Denver and Boulder, have actively sought to stimulate press and public attention to transportation and air quality issues. They spoke out forcefully on the PM_{10} emission budget controversy. Similarly, the area's media-savvy environmental groups have effectively sought public attention for these issues through public statements, testimony at public meetings, and informal contacts with the news media. These broader concerns about transportation and air quality helped frame public attention to the area's conformity problems.

The realistic possibility of an interruption of federal transportation funding also heightened media attention in other locations. Even though the newspapers in Atlanta and Charlotte had given less prior media attention to transportation and air quality issues than in Denver, coverage notably increased in each area when the threat of a conformity lapse provided a clearcut news "hook." As the difficulties in these areas stretched out over many months, the newspapers not only gave coverage to immediate incidents but also began to provide more general background on the issues. Reporters sought out comments from government and advocacy group spokespersons, increasing their opportunities to provide facts and interpret the situation. At the end of the study period in January 1998, with the Atlanta and Charlotte conformity lapses in effect, events had not proceeded far enough to make judgments about how much attention the general public would give to conformity – and how this would affect resolution of the issues.