

CHAPTER 6: TOWARD A NEW PLANNING “ARENA”

LINKING TRANSPORTATION AND AIR QUALITY PLANNING: IMPLEMENTATION OF THE TRANSPORTATION CONFORMITY REGULATIONS IN 15 NONATTAINMENT AREAS

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TOWARD A NEW PLANNING “ARENA”

Among conformity’s purposes was to establish an institutional and procedural framework – a new planning “arena” – within which the set of state and regional agencies and stakeholders concerned with transportation and air quality would organize their many policy interactions. Although securing compliance with Clean Air Act mandates was a presumed minimum requirement, some observers expected that conformity – combined with other innovations prescribed by ISTEA, such as regular updating and fiscal constraint of regional plans – would have more far-reaching impacts. More and better demographic, economic, land use, travel, and air quality data would be gathered and evaluated with sharper analytic tools. Agencies and stakeholders would articulate and openly discuss their goals, propose alternative policies to achieve them, assess feasibility and tradeoffs, and consider whether and how to implement them. The improved planning process, in turn, would inform public discussion of transportation and air quality issues and provide a stronger basis for deliberation by appointed policy makers and elected officials.

Given the historic separation of these domains, this was an ambitious set of expectations. In conclusion, therefore, it is well worth focusing on whether and how much conformity has contributed to creating such a planning arena in the 15 study sites and what limitations exist.

Better Data and Analytic Tools

The interviews conducted for this study reveal a broad professional consensus that, at least in the study sites, conformity-related improvements in planning methods are genuine and valuable not only for air quality regulation but also for other planning purposes.

A few individuals pointed to the opportunity costs of conformity-induced modeling enhancements, arguing that they come at the expense of other potential changes in analytic practice, especially more extensive analysis of alternative planning scenarios. This outcome results not so much because these practices are mutually incompatible but because limited time and resources make it difficult or impossible to do both.

But most individuals interviewed for the study believe that the conformity requirement that transportation planners use advanced analytic tools and the latest available planning assumptions to forecast transportation demand and mobile source emissions – coupled with the infusion of ISTEA funds to hire technical staff and collect more recent, often more detailed, data about demographic trends, land use, and travel behavior – has led to significant improvements in planning capabilities in all of the study sites, though in varying degrees. Moreover, one might expect these changes to have increased impact as they are used and refined in successive planning cycles.

Although enhanced modeling and planning methods might eventually have been adopted as a result of ISTEA planning requirements alone, most transportation planners interviewed for the study believe that conformity pushed technical planning changes significantly faster than would otherwise have happened. A number of environmentalists, however, expressed impatience with the scope and pace of these changes, arguing that MPOs often took too long to implement changes and have not gone far enough in adopting new methods. Transportation planners asserted, in turn, that the advocates underestimated the difficulty of instituting change, especially in the context of the sweeping scope of new ISTEA planning requirements.

While the balance between these views is arguable in any particular situation, it seems more striking that across the study sites the direction of change is consistent, even if the results are not equal in all cases. Interviews for this study strongly suggest that the culture of transportation planning, which at the working level had previously given little attention to air quality, has been significantly affected. Improvements in transportation modeling and the principle that air quality impacts should be taken into account by transportation planners are widely accepted by transportation planners.

Improvements in transportation planning have served not only to focus transportation planners on the goals and requirements of the Clean Air Act but also have had a direct effect on air quality planning. Improved forecasts of VMT, the finer detail achieved through technical enhancements, and the increased frequency of the regional analysis provide air planners with a better understanding of the

geographic distribution of transportation impacts and changes over time. New planning tools have thus been deployed to achieve far greater integration of transportation and air quality analysis than previously existed. In several areas, air quality planners have capitalized on the modeling improvements by incorporating VMT estimates from the travel demand models into the budget setting process. Most agree that using the same VMT growth assumptions in the budgets and the analysis of transportation plans/programs better integrates transportation and air quality planning and creates a more valid comparison for conformity. Use of the improved models and data also enhances the air quality planning process by giving air planners information helpful in selecting appropriate and sufficient SIP measures.

Analysis and the Regulatory Process

It is important to distinguish, however, between acceptance of air quality analysis for *planning* purposes as opposed to *regulatory* purposes. Conformity shapes policy decisions that affect air pollution, mobility, economic development, and quality of life in the metropolitan areas in this study. Large sums of federal aid – as well as legal authority to proceed with projects using that money – are also at stake in the process. As a result, many transportation and air planners continue to have significant differences about how the conformity analysis is conducted and what impacts it has on the quality of decision making.

While most transportation planners in MPOs and state DOTs regard the results as valuable for thinking about transportation and air quality “futures” and the possible effects of alternative policies, some resent the absolute priority that air quality goals have over all other goals in transportation planning. Many, moreover, question the validity of using the model outputs for making conformity determinations, arguing that conformity conveys an alarmingly false image of precision. These planners point to baseline estimates that at best approximate actual conditions, the plausible range of assumptions about future rates of change in key variables, the known imperfections of even state-of-the-art transportation demand models, the acknowledged shortcomings of the emission models, and the incompatibility of model structures that makes it analytically problematic to use the output of the demand models as input for the emission models. Many transportation planners therefore express deep skepticism about using current modeling techniques, which taken together have a wide band of possible error, to make long-range forecasts of future pollution – especially when these results are used for a threshold regulatory test in conformity potentially affecting the flow of large amounts of federal funds for their plans and projects.

These feelings are sometimes intensified because of inconsistencies between the planning assumptions incorporated in SIPs and those in the conformity analysis. Not all areas have used the outputs of travel demand models for estimating transportation emissions in their SIP development process, particularly during the initial years after the CAAA of 1990 was enacted. Moreover, because the conformity

regulations require transportation planners to use the latest planning data and assumptions available, the data and assumptions used for conformity may differ significantly from those used – perhaps a few years earlier – in developing a pertinent SIP.

Inconsistencies between the data and planning assumptions in a SIP and a later conformity analysis do not always make it more difficult to demonstrate conformity. Indeed, sometimes the assumptions embedded in SIPs make it easier to conform a transportation plan than would be the case if the SIP were updated. But if the reverse is true, transportation planners often express frustration that the complexities and slowness of the state regulatory and federal approval processes make it quite time consuming – and often impractical within the time frame of regular transportation planning cycles – to update SIP planning assumptions.

By contrast, many air planners and environmental advocates, while acknowledging some shortcomings, contend that the modeling results used in conformity analysis provide a sufficiently good approximation of current reality and future development patterns to warrant their use for conformity, especially given their view that it is critically important to achieve Clean Air Act goals. Others argue that emission models underestimate mobile source pollution, so that transportation projects get the benefit of the doubt. Some suspect that MPOs shade the transportation demand analysis to produce favorable results.

Another divergence in the perspectives of transportation and air planners on the regulatory process deserves mention. Conformity permits the modeling to take “credit” for improvements in vehicle emission control systems or beneficial changes in fuel composition only when these are mandated by federal regulations and/or adopted in legally enforceable regulations by the state.

Many transportation planners and advocates regard this as an artificial feature of the planning system. They contend that it is poor policy to be forced to forgo what they regard as transportation improvements which would otherwise be permissible simply because the time frame of decision making on national technology policies is independent of – and therefore imperfectly synchronized with – the timing of their conformity decisions.

For example, a nonattainment area may be experiencing serious conformity problems while, simultaneously, significant changes in national regulation of automobile emission control systems and fuels may be under debate and likely to have major impacts on mobile-source emissions during the time frame of the conformity analysis. For example, while Charlotte has been experiencing a conformity lapse, there has been intense national discussion of the Tier II controls, possible extension of controls to new vehicle types (e.g., to sports utility vehicles), and possible changes in the sulfur content of gasoline.¹

¹It should be noted, however, that these controls would not affect Atlanta’s conformity problems, which arise from an inability to demonstrate conformity in 1999, its ozone attainment year.

Many air agencies and environmental advocates argue that until such controls are legally mandated, it is inappropriate for conformity to recognize still-speculative emission reductions. Once transportation projects are approved, they are difficult or impossible to reverse if emission reductions from technology measures do not materialize.

Confronting Conformity Difficulties

In the framework of the CAAA of 1990, conformity is an analytic “trip-wire” to alert policy makers to inconsistencies between two sets of policies – air quality planning (codified in state implementation plans) and transportation planning (codified in transportation plans and programs). Indeed, in many instances, conformity results in serious reconsideration of evolving mobile-source emission issues more quickly than would occur through periodic SIP revisions alone.

In the 15 study sites, this reconsideration tends to occur in distinct phases. First, planners carefully re-examine the modeling on which the conformity analysis is based to confirm that a problem exists and to discover its magnitude. When conformity difficulties are significant, they must then deal with the institutional and political dynamics of changing either the transportation plan/program or the applicable SIP so that conformity can be demonstrated.

Re-examining the Models

When an MPO encounters difficulties in showing that its transportation plan or program satisfies the requirements of conformity, the most common initial response, as Chapters 3 and 4 have shown, is exhaustive re-examination of modeling data, methods, and results.

Through the process of reconsidering planning assumptions and modeling techniques, the transportation agencies seek to reduce the possibility that conformity penalties might result from “technical” difficulties in the modeling rather than “real” future problems revealed by conformity forecasting of emissions. Environmental agencies, in turn, seek to discover whether the analysis has been conducted appropriately and whether genuine conformity problems exist. As a result of such scrutiny on both sides, errors have been discovered, improved estimates of key parameters have been secured, and refinements of modeling methods have been introduced.

The character of consultation and stakeholder participation appears to have important consequences for the credibility and longer term effects of the analytic process.

In areas with less intense interagency consultation practices, reassessment of modeling methods is likely to be performed primarily by MPO staff, sometimes with little visibility to other agencies and stakeholders. In a number of these cases, as described in Chapter 4, air agencies and environmental advocacy groups lack sufficient staff resources or technical skills to participate actively and effectively scrutinize

the MPO’s work. But MPO autonomy comes at a cost: reduced confidence by outsiders in the results. The opacity of the process tends to increase suspicions that the MPO’s interest in “passing” the conformity tests has colored its analysis.

By contrast, when the analytic issues of conformity have been the focus of careful “up-front” discussion and debate among interested agencies and stakeholders, either early in the planning cycle or in previous cycles, reconsideration is more likely to be an open process. While sometimes contentious and not always fully eliminating doubts on either side, these efforts have nonetheless tended to strengthen confidence in the results. Transportation planners are more likely to regard any remaining problems in demonstrating conformity as “real” rather than modeling artifacts; and air planners and advocacy groups are less likely to harbor suspicions that conformity has been demonstrated by technical manipulation.

As successive cycles of conformity analysis are undertaken, effective interagency consultation creates greater mutual confidence in the analytic process. In turn, this allows both sets of planners and other stakeholders to focus more clearly on substantive issues and policy choices rather than on disputes about modeling.

Generating Policy Debate

Conformity was also clearly intended to get policy officials, elected executives, legislators, and a broad array of stakeholder groups to confront the *policy* dimensions and

tradeoffs of transportation and air quality. Nonetheless, data from the 15 study sites suggests that it can sometimes be problematic to move discussion of conformity problems beyond the relatively small circle of transportation and air quality professionals and the few stakeholder representatives who deal with it on a regular basis. In some of the study areas, this has led to considerable delay in confronting the roots of their conformity problems.

As discussed in Chapter 4, the complexity of conformity modeling and analysis can be a barrier for less technically sophisticated participants. This has been a problem in areas like Charlotte and Atlanta, where, encountering severe conformity problems, the transportation and air quality professionals have spent a year or more probing the models and analysis, looking for technical fixes to the problem, but only slowly getting high-level officials and the public to address the underlying issues. Thus, the expectation of conformity architects that public debate would be spurred by conformity problems has been partially frustrated by the technical nature of conformity discussions.

It is not the case that public discussion is suppressed. Denver's experience with PM_{10} conformity difficulties demonstrates that vigorous policy debate can develop as an area wrestles with its conformity problems. Similar public debates have emerged in Atlanta and Charlotte during 1998 (a period outside the time frame of this study). In these instances, the causes, consequences, and possible solutions of the area's air quality and transportation difficulties have gotten a good deal of

public attention, including from key elected leaders.

Nonetheless, there seems to be a substantial lag period as conformity difficulties move from a primarily bureaucratic setting that involves a small number of technical personnel from public agencies (and perhaps similar people from a few private groups) to a more visible, public policy process that addresses the underlying issues and debates options and tradeoffs.

The Institutional Dynamics of Changing Transportation and Air Quality Plans

In the event of conflict between transportation plans and air quality commitments, the conformity regulations permit an MPO or state, in principle, to resolve the inconsistency by making changes to its transportation plans/programs, its SIPs, or both. To resolve a conformity problem, an area might choose to make changes in transportation plans/programs (e.g., by dropping, scaling back, or exploring alternatives to major highway capacity expansion projects, or by adding air quality beneficial projects). Alternatively, policy makers might decide in a given case that it made sense to add new mobile source control measures to the SIP (e.g., fuel requirements or a strengthened inspection and maintenance system) or to make tradeoffs between mobile and other sources.

Giving nonattainment areas flexibility in deciding how to meet national pollution standards was a key element of the underlying philosophy of the 1990 Clean Air Act Amendments. As a practical matter, however, it has

often proven more difficult to make such changes than some of the architects of conformity anticipated.

Many environmental advocates and air planners have been frustrated that the transportation planning/programming process has proven less pliable than they hoped or expected. MPOs are not autonomous, hierarchical, executive-driven decision-making bodies; and project selection is not the result of a small group of policy makers acting at a single decision point. Instead, MPOs build policy and political consensus on the projects that comprise transportation plans through bargaining and negotiation, over extended periods of time, among diverse interests inside and outside of government. To disaggregate the final package of projects that appear in a regional transportation plan or program is therefore politically arduous and time consuming.

This problem is exacerbated by the weak link between transportation planning and land use regulation that exists in virtually all of the study sites. Although conformity must take account of the likely outcomes of land use regulation, the core regional and state agencies responsible for conformity – the MPO, the air agency and the state DOT – generally have no direct authority over land use decision making and regulation. So development projects independently initiated by local governments or private developers may create pressures for transportation improvements that have the potential to cause conformity difficulties.

Even where MPOs have land use *planning* responsibilities, which not all of them do have,

they do not have land use *regulatory* authority – with the exception among the study sites of Portland’s Metro. Local and county governments typically wield this power – and these entities are not direct participants in conformity except through their representation on the MPO board.

From the transportation side, therefore, it frequently seems attractive to resolve conformity difficulties by seeking changes on the air quality side – i.e., in the state implementation plan. But this path encounters other kinds of difficulties.

Although legally required practices vary, in many states revising a SIP may necessitate not only a process of drafting and internal agency clearance by legal counsel and policy officials but also public hearings and adoption by some form of environmental regulatory board. Depending on the state, this may take many months, sometimes more than a year. During the study period, moreover, SIP amendments also had to be reviewed and approved by EPA before they could be used in conformity determinations. This frequently took longer than a year. The August 1997 conformity amendments are intended to reduce this aspect of the problem by permitting nonattainment areas to use a newly *submitted* emission budget after 45 days instead of waiting for formal EPA approval of the budget.

This time frame for SIP revision is rarely compatible with the rhythms of the transportation planning process, which is often connected to an annual cycle of project programming and the triennial long-range planning process required by ISTEA. To go through the

SIP revision process is almost always to delay the normal schedule for developing and initiating new plans/programs.

Seeking changes in a SIP is also burdensome for air planners. They often have competing priorities for time and resources, including meeting *new* SIP development responsibilities. Not unlike the political process that produces transportation plans, emission budgets usually represent consensus policies established after long periods of negotiation among stakeholders from different emission-source sectors. Reopening budget allocation decisions can ignite politically potent intersectoral disputes. Air planners are therefore often reluctant to manage SIP revisions. Given these facts, it is not surprising as Chapter 5 reported, that making SIP changes was not a common approach to solving conformity problems in the 15 study sites.

While changing plans is difficult on both sides, it is ultimately transportation plans that are placed at risk by conformity difficulties. This was clearly intended by the legislative architects of the conformity provision of the CAAA of 1990. Federal transportation funding is a large, politically significant sum in most states. A threat to its use is a way of getting attention from policy makers and many stakeholder groups that a problem exists in transportation and air quality plans. Whether or not the solution lies on the transportation side – and what that solution ought to be – may be less important than getting decision makers and constituencies focused on the air quality problem and searching for a solution.

But it is also true that the officials with direct responsibilities for the program at risk – in MPOs and state DOTs – have direct influence over only *some* of the potential ways of

resolving inconsistencies between transportation and air quality plans. Air planners have far less incentive to consider SIP changes. To the extent, therefore, that conformity is meant to allow even-handed consideration of the *means* of resolving inconsistencies between transportation and air quality plans, the difficulties in changing SIPs and the disparities in the timing of the two planning processes is problematic. It will be instructive to see whether the August 1997 conformity amendments make a material difference in the way nonattainment area policy makers seek to resolve conformity difficulties.

Conformity as an Evolving Process

This study is a snapshot of conformity during a particular period, but like any regulatory process conformity is evolving and responding to new situations. In addition to the issues noted in this chapter, conformity must adapt to the new National Ambient Air Quality Standards for ozone and particulate matter, which will make new areas subject to regulation. New tools for analyzing transportation demand and the effects of transportation policies on pollution are in development. The impact of conformity over the long run on transportation planning/programming may be greater than it has been to date – as new plans and projects take account of conformity in their formative stages, not just as they are being finalized.

EPA and FHWA, the sponsors of this study, are planning a second phase to follow these developments, which will certainly warrant analysis to measure progress and identify problems.