TCRP Project J-06/Task21 FY ‘01
A New Process for Determining TCRP New Paradigms Research Topics

Report on the Process
Submitted to
TCRP New Paradigms Working Group

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1. Background

The transit, or public transportation, industry in the United States has had a bumpy ride for several decades now. Capital and operating subsidies are at an all time high, even while transit’s share of total passenger miles traveled has been declining steadily. Several factors are responsible for this situation, including changes in individual and corporate behavior, technological trends, industry structure, land-use patterns, institutional frameworks, and government policies.

One way to respond to the problem might simply be to ignore it, since the market appears to be providing unenthusiastic signals for transit. In other words, it could be argued that there is no need to mend a broken transit industry if it cannot compete effectively with other modes of transportation, mainly the personal vehicle.

There are, however, many compelling reasons to try to revive transit use. They relate primarily to the so-called “external costs” of the conventional transportation system, that is, costs that are not properly priced into the market. For every passenger mile traveled, a transit option is generally safer, more fuel efficient, less polluting, and generally leaves a smaller ecological “footprint” than a motorized personal vehicle. These are important considerations because road accidents are the leading cause of injury and death in the United States; we rely extensively on costly and insecure petroleum sources; transportation makes substantial contribution to global greenhouse gas emissions; and it causes serious problems of urban air pollution and congestion. In addition, the entire infrastructure to support private vehicles, including parking, fuelling systems and highways, is tied to numerous other local and regional environmental problems, such as sprawl, oil spills, depletion of freshwater resources and groundwater pollution. Finally, public transportation provides mobility options to the poor, the elderly, and the disabled, otherwise known as “transit dependents.”

The Transit Cooperative Research Program (TCRP) was established in 1992 as an applied research program to focus on issues significant to the transit industry. TCRP has funded over 150 research projects primarily on the basis of approved problem statements solicited from the transit community and researchers. The main emphasis of these projects has been on the urgent operational concerns within the industry, such as fleet operations, safety and security, equipment and infrastructure, and specialized services, as well as capacity building and planning and policy issues.

In 1996, TCRP launched an initiative to try to explore new research areas that would extend the horizon of transit research, in part, to answer the question: “what fundamental changes are needed to get the public transportation industry out of crisis?” As an expression of its commitment to the New Paradigms initiative, TCRP has provided more than $4.6 million during the past six years (roughly 7% of its funding on an annual basis) for 23 “blue sky” and cutting edge research topics. These projects have focused on technology, organization, innovative modes of service, livable communities, and transit-oriented development.

In earlier efforts, the New Paradigms research program was primarily related to the organizational structure and responsiveness of the industry itself. Two major reports were published in 1999.

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1Note, of course, that there are several hidden subsidies to support the private automobile. See, for instance, J. Murphy and M. Delucchi, A review of the literature on the Social Cost of Motor Vehicle Use in the United States, *Journal Of Transportation and Statistics*, vol 1, no. 1, 1998, pp. 16-42; D. Lee *Full Cost Pricing of Highways*, U.S. Department of Transportation, 1995. However, on a per passenger-mile basis, they may not be higher than transit subsidies in the U.S., at least, in part because of low ridership rates and a relatively recent spurt in capital investments in rail transit.

See, for instance, M. A. Delucchi Should We Try to Get the Prices Right?, *Access*, Number 16, University of California Transportation Center, Berkeley, pp. 14-21, Spring (2000).
and 2000, each laying out the broad parameters for fundamental change in transit policy. They describe changing trends in transportation and society that are contributing to the growing sense of crisis associated with managing personal mobility and access needs within cities and communities. They indicate vital changes needed in planning, policy formulation, marketing, technology development and operations, and broadly identify each area as ripe for paradigmatic shifts and recommend a strategic change from transit asset management to service delivery.

Tellus Institute has developed and tested a broadened process for creating research topics for TCRP’s New Paradigms initiative. In so doing, we have tried to “push the envelope” of the discourse in order to identify breakthrough cutting edge topics that could potentially impact transit over the medium to long-term. This report describes the outcome of the process and provides recommendations for taking the process forward.

2. Approach

By definition, a paradigm shift is a bold and innovative change in thinking. In 1962, Thomas Kuhn, who coined the term, wrote in *The Structure of Scientific Revolutions* that scientific advancement is not evolutionary, but a “series of peaceful interludes punctuated by intellectually violent revolutions”, where “one conceptual world view is replaced by another” (p.10). This means that revolutionary scientific change cannot be expected to take place spontaneously; but nor is it the natural outcome of some new policy or grant-making opportunity. Kuhn uses the word paradigm to mean the model that an entire (or nearly entire) community of scholars holds about a particular area of knowledge. A paradigm can change only when established ideas within a body of knowledge are confronted with new ways of thinking brought on by growing discontent at the margins of scientific or policy research.

This presents a dilemma. New paradigms require agents of change who are willing to challenge conventional approaches and ways of thinking. But it is natural to resist change, particularly when that change challenges one’s world-view. In transit, the conventional world-view may consist of certain relatively fixed ideas about the role of transit within transportation in general, specific definitions of what modes and operating practices count as transit, beliefs concerning technology choices, land-use constraints, institutional arrangements, jurisdictional limits, and so on. How can we then develop an ongoing process of “new paradigms” research in transit through what Kuhn calls the methods of “normal science”? In other words, how can we expect radically new research results that would challenge conventional world-views to emerge from the very same community that upholds these views?

Part of the solution may lie in another of Kuhn’s discoveries, that new paradigms are invented when the traditional paradigms are in a state of crisis. As we have seen above, the transit industry in the United States is already at a crossroads and the time is ripe to explore entirely new ways of thinking. Under these circumstances, a new paradigm can best emerge in a setting that encourages boldness in thinking and clarity in the expression of new concepts and ideas. We consider this to be the primary role of TCRP’s New Paradigms initiative, to conduct research that could generate novel and integrated solutions to the multiple problems faced today by the larger transportation community.

The approach we have suggested for bringing in fundamentally new ideas for transit research should be based on the following considerations:

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First, ongoing discourse on the crisis in transit needs to be opened out to researchers outside the traditional confines of transit.

Second, such conversations themselves need to be expanded to include concerns that may currently seem marginal to day-to-day concerns of transit.

Third, they should be open-ended and unconstrained; in such circumstances, issues that may seem “settled” or even “common knowledge” may end up being pried open again by “outsiders” and “non-experts.” This is perhaps the hardest thing for practitioners in the field to accept, and yet crucial if fundamental change in thinking needs to be brought about.

While there are no guarantees that these arrangements would magically generate a set of innovative paradigms, the entry of new participants would likely broaden the research agenda, which in turn, could potentially shift the center of gravity of the field towards an altered way of thinking about transit.

3. Process Design

Based on the considerations given above, we designed a process with the following steps:

1. Invite researchers and practitioners in a variety of fields allied with transit, transportation and land-use planning, economics, and public policy to engage in a **structured** and **moderated** e-mail based dialogue for a limited length of time. The idea is to be as inclusive as possible while still maintaining a coherent exchange of ideas among participants.

2. Organize the dialogue around 3-4 themes that are at the margins of current transit discourse, but which are important for understanding the reasons for the current crisis in transit. For the purpose of the initial round of developing research topics, we proposed the following themes:
   a. **Automobility and its relation to transit**: the land-use infrastructure and institutions (legislation, policies) supporting the automobile and innovative ways to address them in the context of transit (covering a wide set of issues from Smart Growth and Transit-Oriented Development to Transit prioritization, ITS, congestion pricing, etc., and beyond);
   b. **Technical and institutional “path dependence” (or how history matters)**: the ways in which past decisions about transit, land-use and transportation in general have constrained what we can do today, and how policies, measures, and investments made today will affect what is possible tomorrow.
   c. **Ethical perspectives in transportation**: the growing concerns about balancing equity and efficiency in transportation, and more generally, public policy, including, but not limited to, issues of whether and how limited funds for transit should be prioritized, how social and environmental considerations should be brought into transportation planning, what, if any, conflicts among ethical perspectives these choices could produce, and how they could be resolved;

3. Use the results of the dialogue to extract new research topics for consideration by the TCRP panel, from which full-fledged problem statements could be developed.

We proposed that the themes selected should **not attempt to cover the full set of issues that lie at the boundaries of transit**. Thus, in 2002, they were based on a preliminary survey of the literature.

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4 The closest model to the one being proposed here was a series of email dialogues conducted by the Shell Foundation in 2001 on sustainable energy and transportation (http://www.shellfoundation.org/dialogues/)
on transit and land-use/transportation policy to identify wide-ranging areas of concern. In other words, there are several ways to cut up the pie, and each slice ought to be idiosyncratic by design, just enough to be important thematically, and yet sufficiently distant from so-called “core” areas of concern in order to warrant interesting discussion among participants. Indeed, the more controversial (and yet expansive) the choices could be, it was felt the more likely there would be fresh interchange among participants.

An email dialogue format was proposed to facilitate interaction around specific thematic areas. This was done for a number of reasons, including:

a) Minimal costs to facilitate discussions among a large number of people from various parts of the world;

b) Open format for lengthy discussions, with sufficient time available for thoughtful dialogue (e.g., participants can decide when to initiate discussions or respond to them, based on their personal convenience);

c) Low transaction costs to participate in discussions, compared to other forms requiring travel, sophisticated equipment or additional software.

We recognized, nevertheless, that there were some disadvantages, including:

a) Difficulty in controlling the direction, pace and thematic focus of the discussions;

b) Absence of direct, face-to-face interactions, which could yield other benefits from the intangibles of personal communication;

c) Absence of presentational materials, which provide valuable communication tools and insights.

4. Expected Outcome and Risk Factors

At the start of the dialogue, we felt that the best possible outcome would be the creation of a fundamentally new set of understandings concerning the most urgent research questions for transit in the United States. These new insights could then become the launching pad for research that would truly represent a paradigm shift for public transportation. Such an outcome would be conceivable given a sufficiently broad mix of participants, dialogue themes and active contribution to the discussion. At the same time, we realized this was an overly ambitious goal from a limited exercise covering several weeks among a small set of actors.

A second-best outcome, which would also be closer to the objectives of the project, would be the identification of emerging research themes for transit that are sufficiently important and yet beyond the pale of conventional research on transit. These themes could then form the basis for developing around a dozen or so specific research questions from which the TCRP panel could select problem statements for future funding.

There are, nevertheless, some risks associated with this exercise:

- **Insufficient participation:** This risk can be mitigated by casting the net as widely as possible, and by using personal contacts with well-known leaders in transportation and land-use planning to encourage others to participate.

- **Lack of focus in the discussion:** This consequence is less easy to avoid. It may even be considered an acceptable risk, in part, because of the challenge in this project to bring together diverse groups of interested actors to tread what may be hitherto unexplored ground. However, the process can retain focus by emphasizing strong core themes and
by having active moderators ensure that the discussions are broadly goal-oriented, that is, they are geared towards generating useful research topics.

- **Lack of consensus**: This is perhaps the least important risk, at least in this process. In this exercise we expect to encounter divergences in research approaches and questioning arising from differences in world-views. The attempt here is to draw out from the debates the most urgent areas requiring new research. At the same time, disagreement in a dialogue can deteriorate into a form of discord that reduces focus, which is why the comments associated to the previous risk are also relevant here. A related risk is intellectual bullying—notably individuals who through the force of their personalities or knowledge-base overly sway and potentially distort discussions. This risk could be effectively offset with the help of mature and intelligent moderators.

- **Lack of meaningful outputs**: If borne out, this outcome would not only make the current exercise wasteful (by not developing any new research topics), but it would also seem to suggest that the proposed process itself is mistaken. Given the broader agenda of the exercise, however, even this is an acceptable risk at a relatively low cost. In fact, the lack of meaningful inputs in any one attempt does not necessarily indicate that future attempts to replicate the process should be abandoned. At least a review of the strengths and weaknesses of the dialogue would have to be conducted before one could come that conclusion. Mitigating this risk would also not be easy, except by trying to mitigate all the other risks presented above, which may have some collateral benefits towards generating meaningful outputs.

5. Implementation

5.1 Summary

Tellus and its partners, Robert Cervero (UC Berkeley, Professor of Planning) and David Gurin (former Deputy Commissioner of Transportation, New York City) invited approximately 250 individuals to participate in an email dialogue scheduled between Feb 2-March 10, 2002, to help develop new, cutting edge ideas for research to effect a paradigm shift in transit.

The invitations were accompanied by a short description of the project and expectations for the dialogue. Many formal requests for participation were followed up by personal emails or telephone calls, to persuade individuals to take the invitations seriously. Eventually, there were 87 participants in the dialogue.

The dialogue was structured using Yahoo Groups’s free email listserv service. Invitees were given instructions on how to sign up to receive and post messages from their email addresses. A guest yahoo id was also provided (Sign-in id: “tcrpguest”; password: “transport”).

The dialogue itself was divided into four segments, each lasting around 10 days and focusing on a specific theme (Session 1: Automobility; Session 2: Institutional Path Dependence; Session 3: Ethical Perspectives; Session 4: Other Issues). A description of the first three themes is provided in Appendix A. Each segment was launched by a moderator, who then attempted to steer the course of the conversation to ensure there wasn’t too much off-topic discussion, before concluding the session with a summary (see Appendix B).

At the end of the four sessions, the participants were presented with a set of research topics that emerged from the entire discussion, to solicit additional comments and responses. Appendix C contains a final summary of the most promising research topics. Appendix D includes a selection from this summary, following deeper “mining” from the dialogue, to identify ones that have the potential to be considered as New Paradigms research statements.
5.2 Invitees

We wanted to include a healthy mix of insiders and outsiders. Insiders were needed to clarify the state-of-the-science to outsiders. Outsiders were needed to question the "black-box" assumptions hidden in the insiders' models and approaches.

Tellus and its consultants drew up a preliminary list of invitees; others, including those who had attended an earlier TCRP New Paradigms Workshop in Westfields, were also invited. Overall, it is estimated that approximately 250 persons were invited, either directly by Tellus and its consultants, or through informal invitations by some of the participants. The tables below provide summaries of the types of invitees to the dialogue (Note that these are rough estimates, since the identities of many of the invitees were difficult to establish).

<table>
<thead>
<tr>
<th>Table 1. Broad categories of invitees</th>
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<tbody>
<tr>
<td>Academic</td>
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<td>47%</td>
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<table>
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<th>Table 2. Specific areas of focus/interest</th>
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<tr>
<td>General Transportation/ Land-Use Policy</td>
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<td>Transit Policy</td>
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<tr>
<td>Public Policy</td>
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<tr>
<td>Transit/Paratransit Operations</td>
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<tr>
<td>Environmentalist Advocacy</td>
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<td>Political Science</td>
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<td>Sociology</td>
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The definition of “insider” could be taken to be either narrow or broad. If it means only those directly concerned with transit/paratransit research, advocacy, planning or operations, roughly 35% of the invitees were insiders. If it were to include those concerned with other urban land-use and transportation issues, the fraction goes up to roughly 3/4th of the invitees. If it were to include anyone who has ever concerned himself/herself with transit issues at a professional level, the number would perhaps increase even more, although this was difficult to estimate.

5.3 Participation

Eighty seven persons (about 35% of invitees) signed up for the dialogue. Of these, roughly 50% were estimated to be involved with transit policy/operations, but about 75% were connected with transportation/land-use policy as well as transit. (Given the uncertainty of the identities of many of those signed up and the smaller sample size than the invitees, it is not reasonable to represent them as in Tables 1&2). About 40 participants posted 487 messages during this entire period (the rest remained silent observers). Their distribution is shown in Figure 1.
We note that the majority of messages were related to the first session (automobile dependence and land-use, but at no time were there fewer than 5 messages per day, except on the few occasions when Yahoo’s service was down, towards the end of the dialogue.

The majority of messages were posted by fewer than 10% of the participants. Two of these persons could be seen to be outside the traditional confines of transit (or at least relative newcomers to the field), but were definitely members of the broader transportation and land-use community. Figure 2 is a schematic of the actual number of postings by participant. Note that the figure is for illustrative purposes only and that the names reflect “email identities” rather than actual individuals (although the two correspond with each other in many instances).
6. Conclusions and Recommendations

The dialogue resulted in intense discussions over several weeks among some of the most well-known figures in the broader area of transportation and land-use. There were also a few prominent outsiders who contributed to the debates. Appendices B and C provide a cross-sectional view of the content of the dialogue, which was of fairly high quality, by most objective criteria.

Below, we attempt to address some questions relating to the efficacy of process adopted, which are helpful for developing recommendations for the future.

A. Was there Sufficient Participation in the Dialogue?

Based on Section 5 above, the answer to this question is “Yes.” A number of measures seem to verify this, including the number of individuals signed-up, number of organizations represented, number of disciplines represented, number of messages per day, etc.. It is also borne out by qualitative indicators relating to the level of discussion, types of questions raised and addressed, and so on. It may be noted, however, that fewer “outsiders” could be brought into the dialogue than were expected.

B. Did the Dialogue Help to Change the Transit Paradigm?

As expected, the dialogue did not result in any single set of ideas that could radically transform public transportation. Instead, a number of existing ideas that are important within transit discourse came to the surface and were challenged, modified, or reworked in the dialogue. In other words, a large part of the existing transit paradigm already seems to contain clues as to where new research ought to come from. This finding is consistent with views expressed by
some recent historians of science, who suggest that all scientific theories and hypotheses should be structured so as to “contain within them fairly clear clues and prescriptions as to how they should be developed and extended. They should be open-ended structures that offer a research programme.” (Chalmers, 1999, p. 81).

At the same time, the dialogue produced a unique opportunity for discussion among the experts and non-experts around themes that they would normally not find themselves engaging in professional meetings, workshops or other discussions. Thus, even if research on, say, the use of smart cards and vouchers for transit and para-transit services may be discussed in mainstream forums, their introduction in the dialogue resulted in discussions that were somewhat more open-ended, with academic experts, for example, having to consider “out-of-the-box” questions from novices as well as professionals with varying experiences in other countries. This meant that the process by itself was enriching, regardless of the outcomes for new research.

C. Did the Dialogue Produce Meaningful Research Topics

Second, a number of meaningful research topics did emerge for further investigation, as shown in Appendix C. While only a select few of them are perhaps worthy of consideration within the New Paradigms framework (Appendix D is a starting point), most constitute important areas of research.

D. Should this Dialogue be Repeated and, if so, How?

Based on the evident interest, high quality, and low costs of the dialogue format, there appear to be good reasons to repeat it in subsequent years. However, there may be no guarantees that new research topics worthy of being classed as New Paradigms topics will emerge consistently through this method. Indeed, while a number of participants in the dialogue expressed satisfaction with the dialogue and offered suggestions for making changes in the future, many were not hopeful that cutting edge research topics would automatically spill out of this process.

As described in Section 3, above, the email format had disadvantages as well as advantages. Given that all the costs incurred in the process were related to consultant and sub-contractor fees and not to the logistics of travel, lodging, or even web services, one could assume that if cost were an object, the current process would be a clear winner over some alternatives (including meetings/workshops and focus group discussions).

Nevertheless, at least a few modifications need to be made if this process were to be repeated:

a) Carry out sufficient groundwork to prepare invitees, especially “outsiders.” This appears to be necessary to increase the participation of outsiders and also to lessen the confusion about goals and objectives. It would imply explaining through personal contacts and communications the objectives of the dialogue, their expected role, likely intellectual benefits, outcomes, etc.

b) Explore improved technologies and software, including special “live chats”, web presentations. This may be helpful in maintaining focus and interest, and also provide the opportunity for periods in the dialogue that simulate “face-to-face” discussion. Also, there is the need to use software that improves the separation of individual discussions into “threads”.

c) Develop narrower themes, with greater separation from each other. As a first attempt, it seemed appropriate to have three relatively broad themes. However, we realized that this

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6 Telephone-based interviews are another possible way to develop new paradigms research topics, but their efficacy was not evaluated in this project.
meant sufficient overlap among them, so that, for instance, people would bring up issues relevant to the ethics theme while discussing automobility, or questions about land-use and automobile dependence while discussing path dependence. Also, the first theme (automobility) turned out to be so large that most of the discussion dwelt on it. Of course, the risk is that increasing the focus may further alienate the outsiders. But questions can perhaps be posed in such a way that would be both relatively focused and still benefit from an outside perspective. It may perhaps be useful to constitute a small committee of participants from the present dialogue and select outsiders to draft discussion themes for a subsequent round.

d) Increase the budget for carrying out the tasks. The current project was budgeted for $25,000, or roughly 25-30 person-days for a senior consultant. As it turned out, 4 senior consultants and one associate were engaged in preparation, design, participation, monitoring and evaluation of the dialogue, over roughly a six-month period. The dialogue itself lasted 6 weeks, when activities were most intense. It is anticipated that by project completion, about 45 person-days of senior consultant time and 30 person-days for one or two associates would have been used, indicating that actual costs incurred would be roughly double the project’s budget. In a subsequent round, it would be wise to set the budget at around $75,000, to cover additional preparation, software licensing as necessary, and perhaps travel to one or two key professional meetings to establish contacts.
Appendix A

Selected Themes for 2002 Dialogue

i) Automobility and its relation to transit

For the better part of the 20th century, transportation planners in the United States have tended to treat the personal car almost as if it were the ultimate prosthetic device to meet people’s mobility and access needs. The car may also provide means within the cultural context of this period to meet a number of other apparent social and personal needs, including the experience of individual autonomy.

Since the heights of the so-called Automobile Age, during the third quarter of the century7, the proliferation of automobile culture has meant the construction of massive motorways designed for local travel in increasingly expansive metropolitan regions, subsidized parking, and tax policies that charged highway use far lower than its social costs and provided subsidies for low-density living.

Consequently, the United States steadily lost an average of 1.5 million acres of farmland each year since 1960 to strip malls, highways, roads, parking lots, resorts, service stations, single family homes, and the like, while the average number of cars in use grew nearly five times and the average vehicle miles traveled per American increased by nearly half. The negative consequences of these changes are well known; they include sprawl, loss of open public spaces, congestion, inefficient transit performance, loss of mobility and access for the poor, elderly and the disabled, and local and global environmental pollution8.

Automobility thus represents a complex set of institutions (that is, rules, practices, habits, laws) and infrastructure that have emerged during this period and now reinforce both automobile dependency and sprawl9. One of its outcomes for transit planning is that the latter has been consigned a small seat at the corner of the policymaking table.

Transit policies have hence been limited largely to addressing the special transportation needs for a small subset of the population—traditionally, the so-called “transit dependents” within cities and, of late, automobile-owning “choice riders” who use commuter rail10—with little or no capacity or agenda to deal with broader issues of transportation and land-use planning per se. While transit is often viewed as a complement to the automobile in serving the needs of those with mobility disadvantages, it is often thought of as a competitor with regards to serving middle-income choice travelers. Are such doctrines valid? Does and should each have its own niche markets?

Fostering the development of a new transit paradigm might mean advancing research related to the emerging paradigms of “New Urbanism” and “Smart Growth” initiatives. In turn, this would

imply having to consider bold ideas that examine *modal shifting towards transit* in the near term, *the integrated management of land-use and transportation* in the medium-term, and ultimately the potential for *reducing car ownership and usage* in the long-term. This world-view operates on the premise that transit’s marketplace needs to be reshaped in ways that, over time, make it more cost-competitive – e.g., transit-oriented development. An alternative paradigm might be development-oriented transit – that is, accepting the landscape wrought by the past century of increasing automobility, and making transit more responsive and adaptive. This approach could lead to a different set of policy responses, such as new forms of transit (e.g., paratransit), delivery approaches (cooperatives; mobility brokers), and regulatory forums (e.g., relaxing market entry restrictions).

In short, the New Paradigms research program could seek to more fully explore ways to “mainstream” transit initiatives into the transportation and land-use policy arena, while remaining fully cognizant of the cultural, technical and institutional barriers posed by automobility. Institutional, technological, and regulatory reforms that allow transit to be more responsive to the automobile-shaped marketplace might also have an important place in the portfolio of New Paradigms research.
**ii) Technical and institutional “path dependence”**

The built environment in the United States has been fundamentally transformed by transport systems, first by rail and transit development, and later, more radically, by the whole enterprise of automobility. To a large degree, therefore, *land-use patterns and the types of fixed stock, fuels, and other machinery we use have been locked in*, leaving very few choices for alternative options and systems.

What about institutions (that is, rules, legislation, practices, habits, etc.) and organizations? As it turns out, path dependence can be observed here as well. For example, political and cultural constraints have affected decision-makers’ disposition towards the automobile versus transit; and transit organizations’ internal activities have themselves been constrained by particular forms of organizational learning.

In other words, history is responsible for the way our rules have been framed and for the ways in which organizations behave, which in turn *locked in much of the shape of transportation policy*. For the most part, that shape has been one that has privileged the automobile and its infrastructure and institutional requirements, while severely circumscribing the role of transit and related land-use and inter-modal linkages.

We propose that research into institutional change should be a core task in TCRP’s New Paradigms agenda, taking into account recent developments in the fields of New Institutional Economics and organizational theory.

Transit research needs to develop a clearer theoretical understanding of the physical, institutional and cultural constraints to change, and the conditions and options available and the time-frame required to overcome inertia and lock-in.

For instance, the prevalence of automobility has deep institutional and technical roots, and cannot be explained away solely as a unique ideological commitment that Americans have towards personal transportation and its promise of random and universal access. Innovative research in this field would therefore have to be cross-disciplinary, involving economic and cultural history, game theory, organizational theory and urban and transportation geography.

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iii) Ethical perspectives in transportation

Transportation policy research has been driven primarily by technical and economic considerations rather than social policy debate as such, which often inadvertently conceals the normative basis of researchers’ findings. At the same time, transit policies, in particular, have always had a direct normative constituent, to the extent that they have focused on ensuring that persons in metropolitan regions who are disadvantaged without cars, on account of age, disability or income, could continue to reach destinations safely and expeditiously12.

Moreover, environmental concerns have recently placed what is primarily an ethical mandate to reduce pollution per passenger mile traveled, even though this has generally been interpreted as a governmental obligation to force technological improvements on vehicles, rather than a personal responsibility to reduce driving. Nonetheless, even these imperatives are often at odds with fiscal constraints, stakeholder interests and land-use choices.

One way to examine the potential for a major paradigm shift in transit policy is to employ the lenses of different ethical perspectives while exploring policy problems, and be sensitive to the possibility that divergent policy conclusions may emerge from different points of view.

*Ethical paradigms are not always explicit in the results and recommendations of policy research.* Often, researchers assume that traditional cost-benefit analysis provides a universal and rational basis for making normative policy judgments. But, sometimes this may yield results that are not necessarily in the public interest. For instance, if net benefits were measured only in terms of passenger miles served, then a public transportation investment for a given community may not seem worthwhile, even though it means that the poor, the disabled and the elderly end up with fewer on no mobility options.

Thus, a utilitarian standpoint on a particular transit concern might lead to policy conclusion far from a communitarian (that is, one based on consensus among stakeholders on the socially optimum options) or a rights-based framing of the problem (that is, one based on a determination of how “rights” should be allocated fairly); however, there may be little or no discussion of these distinctions. Moreover, although it is important to examine whether there are convergences and scope for achieving common ground among these perspectives in specific policy programs, there is generally no guarantee that this would happen.

It is important to develop research topics for transit research that forefront this dilemma, so that they involve explicit discussions on how different ethical perspectives might be used to throw light on specific policy-related concerns, and explore the potential for an expanded discourse and compromise.

Some of these research topics may be context-specific, but we would also hope to promote generalized research that endeavors to provide integrated solutions to problems involving apparently incommensurable needs: economic versus social cost-benefit analysis, cultural and intergenerational issues, the relevance and desirable scope of stakeholder dialogues, rights of the disabled and minorities, the role of subsidies and cross-subsidies, visions of urban life and vitality, etc.

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Appendix B

Moderator Launch and Synopsis Emails

Session I. Automobility and Its Relation to Transit

Robert Cervero, Moderator

Launch Email (February 2, 2002)
We know the clichés: "out of the box", "no more business as usual", "take no prisoners" ...

This enterprise is about challenging and perhaps altering paradigms surrounding public transit, in a Kuhnian sense. We're all aware that transit continues to struggle in most places and know to a large degree why. As incomes rise so do private consumption levels -- thus the trend toward more and bigger cars, detached houses on big lots, spread-out campus-style workplaces, etc., etc. While most pronounced in the U.S., this cycle is truly worldwide. Transit's eroding market shares, also global in scope, are a by-product of powerful economic trends and lifestyle choices. Critics are quick to charge, however, that the car's ascendancy and transit's decline have been "greased" by public polices that under-price parking, travel during congested periods, and the scarcity value of clean air and fossil fuels.

This "cyber-dialogue", to take place from February 4 to 13, is devoted to "Automobility and Its Relation to Transit". I hope our energies go less toward rehashing the sources of transit's woes and, dare I say, "car-bashing", to thinking creatively about how transit can co-exist, supplement, complement, or successfully compete with the car and the spread-out city it is associated with (or, of course, how to alter the spread-out city).

The "White Paper", authored by Chella Rajan of Tellus Institute, frames the scope of our challenge. As moderator, I'll appear at two junctures: now, to kick off the discussions, and toward the end, to synthesize things and hopefully articulate some research agendas with "paradigm-shifting" promise that fall out of the discussions. Remember, the aim is to push new frontiers, thus be bold, challenge conventional wisdoms, and cast aside (at least for now) preconceptions. If this works out, some things will likely come across as implausible and perhaps even a bit nutty. Let's go beyond the same ole laundry list and nudge the envelope a bit. Below I've lobbed 5 issues -- take a shot at any. May the fun begin!

Market Niche or General Mobility Provider?

The first issue I'll raise is whether transit has, should, and will always be relegated to a highly specialized role, serving limited and targeted niche markets (e.g., the poor, disabled, residents of big, dense cities), or can it be more like the car, functioning as an across-the-board "mobility provider". This question gets at whether transit is and should be a competitor or a complement to the car, or some combination thereof. If you have a firm position, let it be known, and importantly, share ideas on what might be done across several fronts to turnaround transit's decline given the roles you've outlined.

Land Use and Transit

What role does land-use planning and management have in transit's future? Poly-centrism is a truly global phenomenon, propelled by telecom-driven decentralization and an on-going need for
commercial activities to cluster. Name a metropolis that doesn't have mixed-use sub-centers?
Might there one-day be a marriage of polycentrism and "New Urbanism/Smart Growth" to create
"Transit Oriented Development" (TOD) on a truly regional scale? Seizing upon sub-centers as
building blocks and creating a critical mass of TODs could produce the kinds of built forms that
sustain high-quality, high-performance transit. If you buy this, what research needs to be done to
inform public policy-making on "best-case futures" for the long-range planning and coordination
of transit and urbanization. And is it essential that other things be thrown into the mix, be it
congestion pricing or "Intelligent Transportation System" fixes? Where do the knowledge gaps
lie in all this?

Development Oriented Transit

The TOD world-view operates on the premise that transit's marketplace needs to be reshaped in
ways that, over time, make buses and trains more cost-competitive. A different perspective is
"development oriented transit" (DOT) -- that is, accepting the landscapes wrought by the past
century of automobility, and making transit more responsive and adaptive to unfolding trends.
Does this perspective have saliency, and if so where does it lead in the quest for strategies that
bump up transit ridership? What institutional, technological, and regulatory tensions might
surface under the DOT model? Do any researchable things fall out of this?

Telecom and Transit

The cyber-age, and the "erosion of space" it is associated with, will prove with time to be transit's
death knell, according to some. Are telecommunicactions, telematics, and e-tailing fundamentally
and unalterably at odds with transit? Are there untapped and creative roles for transit in this
realm? Do tele-communities of cyber-workers and information-processors living on the far-flung
fringes represent new, yet-to-be-probed market niches? As urban-rural distinctions disappear and
commutersheds spill-over metropolitan and state boundaries, does there become a need for "high-
tech/high-speed" transit? Institutionally, who should be keeping track of such things and putting
the wheels of progress into motion?

Auto-Oriented Policies

In the industrialized world, history shows auto-restraints and disincentives generally impact
ridership more than transit incentives. Cross-elasticities between auto prices and transit demand
are sometimes twice as high as transit fare elasticities. Today, punitive policies reach well
beyond pricing -- Mexico City's Hoy No Circula ("Days Off the Road") program, Penalosa's "car-
free day" experiments in Bogota, and Amsterdam's GWL-terrain car-restricted residences being
cases in point. Does and should transit's future lie in tightening the reigns on the use and
ownership of cars? Need distinctions be made between auto-disincentives and auto-equalizers
(e.g., leveling of the playing field)? Does being pro-transit necessarily equate with being anti-
auto? Are car-restraint policies ideological, pure and simple, or are they firmly rooted in
principles of welfare economics? Can they be creatively folded into other initiatives that
progressively move transit forward?
SYNOPSIS: Automobility and Its Relation to Transit (February 10, 2002)

Discussions of the past 8 days have been rich, thoughtful and spirited. As of February 9 (late-evening, PST) we had 120 posts from 24 different folks -- thanks to all. Here's my shot at a summary (an undertaking, at times, akin to herding cats) before handing off the baton to the next moderator.

In general, this group was more drawn to defining problems and their sources than pursuing "cutting-edge" ideas (indeed, a number of you eschewed the very notion of paradigmatic thinking early on). I floated a few scenarios that admittedly bordered on sci-fi, and others advanced new ideas as well, though most of the dialogue went to scoping contemporary issues -- certainly a worthwhile pursuit. Hopefully in 2-3 week's time, a set of promising research agendas will emerge. My only disappointment is that so far no women have joined in. Plenty of women were invited. Is this new-paradigming stuff a fraternal kind of thing?

I've organized this synopsis into headings, thus feel free to skip to what interests you. I've held back personal opinions so far, however as I transition into a co-participant, I've added my 2-cents here and there. In most cases, I've identified individuals using initials (e.g., HD = Hank Dittmar). "Codes" are at the end.

1. PROBLEMS. Early discussions identified key problems plaguing transit, including: under-pricing of the car and market distortions like free parking; public monopolies that squelch competition and market-based solutions; slow speeds relative to car travel; NIMBY resistance to compact, infill development; poor performance measures and lack of accountability. Not everyone agreed on problems -- e.g., mis-pricing of car was often cited as a problem (TL, JL), though others (MD) noted full-cost subsidies per passenger-mile are less for car than transit. <RC: Aggregate costs of car subsidies dwarf those of transit, and if car subsidies were narrowed, ridership gains would lower cost per pass-mile.>

2. FIVE QUESTIONS. The group addressed the five questions I initially raised, both directly and indirectly. Discussions are summarized below more or less in the order of attention given.

* TOD. "Mass transit needs mass", though opinions differed by how much. Those sympathetic to TOD noted: we need a "development process" for TOD that is as effective as the zoning and lending that supports AOD (auto-oriented development) (HD); re-urbanization and jobs-housing balance will aid transit (BP) and this can be market-driven, as in Perth (PN); new developments on the fringes should be required to have transit (RD).

A number of folks were more skeptical, believing the U.S. will never have the densities (any time soon), outside of a handful of big cities, for transit to grab more than a few percent of trips (AB, MD, JS). By implication, the focus should be on DOT -- mainly, ramping up speeds to better serve the spread-out city. Density is important, though land-use mix and shape also matter, and as researchers, extra care should be exercised on all this. Clashing numbers were posted, possibly because of different metrics -- a city's gross densities...
(population/land area) can be one-third net-net residential densities (population/residential land area net of public streets, parks, water, etc.) There's also the ecological fallacy trap, as HD warned, of relying on aggregate metro-level stats to study person-level activities like mode choice. Kenworthy & Laube (1999) measure a simple elasticity of transit trips per capita and population density of +.85 (as a simple log-linear correlation). Using intermediate-level data across 285 light-rail stations in North America, the TCRP H-1 Transit and Urban Form (1996) study found the elasticity of daily boardings as a function of residential densities to be +.59. This study, however, failed to include a travel-time predictor in the model; a follow-up analysis using a more fully specified model on the same data base (applied to the Charlotte NC busway project) found the elasticity to be +.22. A study (Transportation Research D, 2002) I recently completed of disaggregate mode-choice among residents of Montgomery County MD (pretty well-served by transit) found density-elasticites of +.10 to +.51, depending on type of land use. In general, studies show destination-densities (e.g., workplace, shopping) matter more than residential densities (since most folks can park-and-ride), though policy focus is often on the latter. Bus-only Ottawa-Carleton averages more trips per capita than the rail-served San Francisco Bay Area despite one-eighth the population and low residential densities mainly because workplaces and shopping have been concentrated on the busway.

Some (AB, WC) stressed the importance of corridor densities. LA averages high densities (by US standards), though I'd add they're generally "dysfunctional" (in the sense they're uniformly moderately high without many blips on the gradient) from a transportation point of view -- they're high enough to cause mass congestion but not concentrated enough to support mass transit. I would add also having balanced land uses to produce bi-directional flows is key. At the extreme, a monocentric metropolis with all jobs in the center means over-subscription in one direction and empty back-hauling in the other. Stockholm's high transit numbers are significantly due to this -- trains and buses are filled in both directions (55%-45% peak directional splits). This wasn't by happenstance, but rather carefully orchestrated growth along linear axes (the same story as Curitiba), courtesy of land-banking and extending transit well in advance of demand. Transit-supportive growth, without question, needs forward-thinking planning. As some (RG, PN) noted, a lot of the variation in modal splits isn't explained by density; John Pucher and others have argued that pricing policies and TDM (traffic calming, auto-restraint programs) are generally as important (and also reinforce densities) and more important predictors than cultural, historical, or topographic/meteorological factors. (Note: Swedes have fairly high car-ownership rates; they tend to use cars more judiciously and selectively -- e.g., evening shopping, weekend excursions and far less for the daily grind of getting to and from work; ditto Curitabanos).

* Service/DOT (Development-Oriented Transit). This topic got more ink (pixels) than any -- specifically, the need to make buses and trains speedier relative to their chief competitor, the car (HD, LS, SB, WC, KO, MD) though one post noted "predictable transportation is more important than speed" (RM). Others (TL) noted "financial incentives" and car-disincentives can be more effective than transit travel times in affecting modal splits. <I believe the empirical literature supports this. Historically, transit service elasticities
(ridership as a function of travel time) have been around +0.6 in the U.S. (with moderate variation -- e.g., higher among choice riders). Cross-elasticities between auto prices and transit ridership generally are higher -- +0.74 to +1.08 (also with moderate variation). (Sources: P. Mayworm, et al., Patronage Impacts of Changes in Transit Fares and Services, Ecosometrics, 1980; R. Cervero, Transit Pricing Research: A Review and Synthesis, Transportation, Vol. 17, 1990). Also, as Meyer, Kain and Wohl reminded us in 1965, transit has to compete with the car on the collection, line-haul, and distribution segments. It often does OK on the line-haul segment, especially in bigger cities with HOVs; it's the access and egress ends of trips where it usually falters. BRT (of the seamless transfer variety) and commercial-paratransit can help on these fronts.

Some were supportive of the DOT idea: because of low densities, more flexible, paratransit-like services better fit the landscape of trip O-Ds than point-to-point rail systems (AB, MD, WC). TL was skeptical whether private paratransit would provide sufficiently high service quality. JS saw little interest to date in traditional rubber-tire solutions and suggested serious attention be given to PRT (as in Cardiff) -- a marriage of rail and the car. LS and others questioned the cost-effectiveness of such approaches, though according to JS, PRT can cost as little as $10 million per mile (versus upwards of $200 for heavy rail).

* Technology. The group generally held technology in high regards, some focusing on the potential beneficial roles to transit of clean-fuel technologies like CNG and fuel cells (MD, DS) while others emphasized telematics and wireless communications (BP, RM, BD). Smart paratransit and smart carsharing gain importance, according to DS, as long as densities remain low in most US settings.

Some disagreement surfaced over whether technology was superior to expanding transit in coping with problems related to energy dependence and air pollution (local and global). Some differed on the degree to which future oil embargos or price shocks might prod politicians into serious action -- partly reflecting disagreement over when renewable fossil-fuel supplies will begin to run out. MD questioned whether near-term energy shortages would affect travel choices much. DS felt they could inspire technological changes to transit (e.g., hydrogen buses). TL reminded, in several posts, that technology often shifts the problems -- it might reduce tailpipe emissions, but gains in automobility can clog streets. Pro-transit policies, TDM, and pricing that internalizes external costs and raises pump prices (like 'pay as you drive' insurance), he stressed, can achieve win-win results (e.g., reduced energy consumption and pollution as well as congestion relief). RG also views transit as vital to reducing transportation energy consumption -- "tethered vehicles" propelled by electricity fueled from wind turbines provides a renewable and sustainable energy source. MD suggested low ridership doomed transit as an energy solution. LS noted fuel use per passenger-KM is 1/6 to 1/3 less for transit as the car in Europe.

Regarding telecom and telematics, some felt it would benefit transit by upgrading information on the quality and availability of transit (BP) and also lead to urban clusters such as the Silicon Valley (TL), though some suggested with time they could be a stronger force toward decentralization (LS).
* Auto-Policies. Several folks felt auto-disincentives and/or market-rate pricing of the car would bump up ridership more than pro-transit policies. MD was more dubious about the role of pricing for anything but congestion relief, partly because elasticities are too low to effectuate a big enough change in ridership to reduce energy consumption, tailpipe emissions, or accident rates. Again, he stressed technology and regulations over pricing as socially optimal.

Early on in the cyber-chat, a fairly spirited discussion ensued over the role of pricing and market-based solutions versus planning and interventionist approaches. This was triggered by a suggestion we identify "end states" from which we could work backwards to identify things with paradigm-shifting potential. Several commentators (AP, KO, RM) were critical, suggesting we avoid "god-like decrees" about the future. Consumer-oriented, market-based approaches, some suggested, are preferred. Others (TL, JL, PN) countered markets are OK if prices signals are right, however often under-pricing distorts consumer preferences. Free parking, down-zoning, housing subsidies, etc., JL noted, are hardly "neutral" policies; some leveling of the playing field is thus in order, thus justifying planning interventions. CR outlined a host of push and pull factors propelling sprawl, some that occur outside of markets. RM and others cautioned that sprawl might have hidden costs, but it also has hidden benefits. The benefits of car-dependent sprawl might far exceed unborne external costs of the car culture.

* Niche Markets. There was less interest in this topic. TL felt transit's role should be complementary to the car. DP identified one largely untapped niche market as the 14 million university students in the U.S. Deeply discounted passes can translate into filling empty off-peak buses. <RC: they can also indoctrinate young adults to transit as a bona fide form of mobility. Zurich offers deeply discounted annual passes to the youth (under 18) to win them over to transit during their impressionable years, before they reach car-buying years and habits settle in. Of course, to do this requires first-rate transit, which Zurich has.>

3. PROCESS. Some discussions focused on what I will call "process" -- less the ends, more the means. Some suggested we approach the quest for "new paradigms" incrementally focusing on modest, pragmatic ideas (KO) and identifying "tipping points" (HD). TL emphasized the importance of a balanced, comprehensive approach that creates multiple "win-win" outcomes -- specifically, a balance of social-cost pricing, land-use management, and TDM.

Pilot demonstration programs garnered attention. KO felt only small-step demos had much chance with the U.S. Congress. MB agreed, but suggested private foundation support as an alternative for out-of-the-box initiatives. HD saw this as a possibility, and PN felt political realities might one-day force what now seem like pie-in-the-sky proposals to be introduced, thus let's build these ideas and "like good journalists, stick them in the drawer" until the time comes. DN suggested demos might work well for small areas that are on a track to become sprawling, congested ones. AL noted demonstrations were a central idea of the TCRP's new paradigms initiatives and suggested we study the political-economy of transit innovations as close as we study how to model discrete-choice behavior. Politics can't be viewed as solely a hurdle; they can be empowering
and catalyzing (AL, CR). In Perth, transit benefits became a political issue, leading to bold initiatives (like eliminating the road department) (PN). TL and others cautioned against being hemmed in by political myopia: breakthroughs will never occur if we're co-opted by today's rules. BP felt education also has a role, suggesting we start teaching environmental planning and urban design in high school, like we do recycling.

4. RESEARCH. While we have several weeks to go till we build a research agenda, some topics fell out of the first week's discussions: (1) thresholds of densities and service features necessary to support different forms of paratransit and transit; as an update to the Pushkarev and Zupan work, this work should explicitly set density and land-use thresholds for suburban centers (versus just CBDs); (2) building on UMTA's Service and Methods Demonstration (SMD) programs of the early 1970's, pilot-demonstrations are needed to help us better measure elasticities: transit service and price elasticities and cross-elasticities; knowing how elasticities vary with density and land-use configurations is particularly important; (3) refinement of "New Starts" criteria to better define land-use factors that most strongly influence transit ridership; (4) more disaggregate studies on how land-use variables, including density, influence corridor-level ridership; and (5) benefit-cost evaluations that compare pricing and transit-service strategies versus regulation and technology in reducing transportation-sector fuel consumption and air pollution.

CODES:
AB = Alan Bertaud
AP = Alan Pisarski
AL = Anthony Perl
BD = Bob Dunphy
BP = Buz Paaswell
CR = Chella Rajan
DN = Dick Nelson
DS = Dan Sperling
DP = Don Shoup
HD = Hank Dittmar
JL = Jonathan Levine
JS = Jerry Schneider
KO = Ken Orski
MB = Marlon Boarnet
MD = Mark DeLucchi
LS = Lee Schipper
PN = Peter Newman
RC = Robert Cervero
RG = Richard Gilbert
RM = Richard Mudge
SB = Steve Bernow
TL = Todd Litman
WC = Wendell Cox
Launch Email (February 13, 2002)

Our first session of this on-line search for new paradigms in transit included a torrent of analyses and policy recommendations. But we are still left with the question of how to accomplish change. In this second session (February 14-22) we invite consideration of "path dependence," shorthand for the ways in which past decisions constrain what we can do today. As a government official I found it was only by dint of extraordinary political and bureaucratic effort that any change was possible. It was a daunting struggle just to wrest a single lane away from private vehicles in order to reserve it for buses. It took years to develop support for closing streets to traffic. And suburban development patterns oriented to transit are still mostly planners' dreams rather than built realities.

But transit was once more than a dream. Unfortunately there is some amnesia about this, but American cities (including Los Angeles) before World War II were, as many European cities still are, places with dense centers, where people lived within walking distance of shopping streets, and a trolley ride from downtown jobs or shopping. Our cities were not the centerless sprawls of today, and they had ingenious transit. New York had a thousand miles of trolley lines in the nineteen twenties. And so did Los Angeles! Both cities had comfortable suburbs with spacious homes that were well served by railroads and fast interurban trolleys (60mph when on their own rights of way).

So while searching for guidance about the future we should consider our past. With this in mind, I suggest the following topics for discussion:

What Can We Learn from History?

What if the new paradigm really is the old paradigm? New urbanism began as "neo-traditional urbanism." It found that people, given the choice, are willing to pay well for houses in neighborhoods with some resemblance to those of pre-war America, even though no developer has yet been able to include the old transit infrastructure. Rail transit is a communal operation, open to all with the price of a ticket and consuming only narrow corridors of land. Autos are mostly private, consume a lot of land, are usually the second largest expenditure for a family, and are not available to those too young, too old or too poor. I'll stop
there, so as not to transgress Robert Cervero's warning against "car bashing," but I think it's worthwhile to ask what are the transportation implications of the new urbanist vision? Much of the dialogue so far has been about economics, important indeed, but how about some visual and spatial thinking? For example, how do we insure that walking, the oldest mode, is possible for a reasonable proportion of trips?

The role of Democratic Politics

Chella Rajan's paper points out that "automobility has deep institutional and technical roots, and cannot be explained away solely as a unique ideological commitment that Americans have toward personal transportation." It's often said that European cities are different from ours because of culture, but in fact citizens of Paris, London, New York and Toronto all had to fight nearly identical battles against highways that would have eviscerated them. Had the Lower Manhattan Expressway been built there would be no Soho today. And it was only one of many cross-city highways on the drawing boards. New York and other cities were just too big and too politically contentious to allow the changes the highway lobby had in mind. How well known is this aspect of urban history? How well understood are the political forces that wrote the rules that shaped American cities? What is the current role of the highway lobby? While communities have been able to organize against highway projects it has been much tougher to organize for transit. Can organizing strategies and tactics used against highways be used for transit-oriented land-use planning? Shouldn't the Portland experience in all its aspects be a subject of intense research?

The Role of Planning Officials

Planning and transportation departments all over the country are full of graduates who have learned the environmental discrepancies between automobiles and transit, but they feel powerless to make changes. Path dependence, even if they are unlikely to call it that, takes the air out of them soon after they are hired. They are compelled to design for change within familiar assumptions. The unfamiliar - the new paradigm? - brings political trouble to their bosses and they soon learn to get along by going along. Can we compile evidence showing that treading new paths actually has political rewards? Jaime Lerner, the former mayor of Curitiba (he is also an architect and planner) told me that when he proposed keeping cars off the major downtown shopping street most merchants opposed it. But he staked his job on it and when it was a success the same merchants were grateful. Can we research the anatomy of these kinds of successes?
Public Information

For a deep snore try reading most official documents on transportation. Yet there are some lively unofficial alternatives. Mobilizing the Region is a weekly electronic newsletter published by an advocacy group in New York. It tracks, analyzes and opines on most issues that relate to transportation in the metropolitan region. The thousands of articles it has by now published add up to a rich portrait of the state of transportation in the New York region. How can we encourage reporting and of this sort in other regions? Given the importance of transportation in American life it scarcely gets its due in public discourse. Can publications like Mobilizing the Region change institutions? Electronic newsletters may seem distant from the implementation of transit, but as democrats we have to believe that public discussion is necessary to shape public policy.

Bureaucratic Problems

One of the most disappointing aspects of being a public servant is the bureaucratization of environmental concern (e.g. the EIS) and citizen participation (e.g. the MPO). These have become rich providers of income to consulting firms, but they are not always the real inquires and democratic processes that were intended. How can we prevent well-meaning legislation from becoming rote process? How can we keep process from winning over substance?

Taking A Longer View

Overlooking long term environmental threats may be the most damaging effects of path dependence. Evermore vehicles keep rolling off the world's assembly lines with only limited changes in technology despite pollution and global warming. Can these stark environmental dangers be catalysts for planning improvements in public transportation? What kind of legacy will our business-as-usual attitude be handing down to future generations?
SYNOPSIS: Technical and Institutional Path Dependence (or How History Matters) (February 23, 2002)

At noon EST February 22 there were 102 postings for the second session. A few were carryover conversations from the first session, but most postings addressed in some fashion the concerns of the second session. The ideas, examples, descriptions and prescriptions seemed to flow into four sections – history, politics, path dependence, and breaking out of path dependence. The last section yielded two more specific examples of breaking out of path dependence – in marketing and in operating transit. Where research subjects or new paradigms are suggested Italic are used.

History

The intimate connection between transportation and land use is an axiom of city planning. So while transportation determines land use – there could be no Manhattan skyscrapers without subways and no San Fernando Valley sprawl without freeways – it’s also true that housing and development policy help create the framework for transportation.

“Imagine if there had been a VA loan program for the rehabilitation of small cramped apartments after World War II. Wouldn’t that have meant cities would have gotten a larger market share.” (HD) That would have meant a larger market share for the varieties of housing (medium to high density) traditional in cities. It also could have meant a larger market share for the kinds of transportation (buses, streetcars, subways) that served these densities.

HD mentioned another example of how past policy prefigures present reality. He cited a study of federal payments that found “on balance payments to suburbs came in the form of wealth creation such as the mortgage interest deduction, while payments to cities came in the form of income support such as food stamps.” The study further noted that “programs that affect the cost of residential investment strongly favor newer suburbs over cities.” What is often described as a value-neutral marketplace in fact “reflects a powerful set of interventions…by government subsidies, standards, and the like, and that these embody a set of values.” (HD)

The postwar years were characterized not only by government incentives for residential and commercial location in the suburbs but also by disincentives for location in the city. This took the form of “blacklisting” or “red-lining,” which meant the refusal of banks to lend money in neighborhoods they felt to be undesirable. This was often because of race, but it also had to do with a notion of city planning that began well before the war. It favored the segregation of uses and sought to prevent by zoning the mixture of uses common in traditional districts. The suburbs were an opportunity to build single-use districts.
But in our own time the results are that nobody likes the way America looks, according to the American Planning Association. (JH) The APA blames this on “continued reliance on the standard city planning and zoning laws which most states approved back in the 1920s.” The APA’s “Growing Smart” legislative handbook predicts vast growth is still going to happen and makes new proposals to guide growth under the banner of “smart growth,” which includes everything from laws that assist preservation of farmland to those that promote TODs or regional tax base sharing.

But DN notes that recent progressive planning, even when it includes “urban villages” and hopes to preserve local shopping streets finds itself catering to auto-oriented development. DN says “we must develop a better understanding of how auto-oriented land use can come to pass in spite of well-meaning policy statements. Why is it that even when progressive growth policies are enacted, nothing really changes”

CR notes that the culprits aren’t always land use or transportation policies themselves but sometimes more general policies. For example, California’s Proposition 13 “led to increasing state control over local fiscal policy; reduced leverage over tax incentives for land-use planning; caused counties and some large cities to assume significantly greater and riskier debt; and increased sprawl in the pursuit of development for additional property and sales tax revenue.” This suggests research that examines tax policies as well as planning policies, past and present, with regard to their effects on transportation.

In response to the moderator’s introduction, noting the ubiquity of transit in dense prewar American cities, AB wrote, “housing was much more expensive in the past.” For the present, he pointed out that housing on a per square meter basis is much more expensive in dense Paris than in sprawling Los Angeles. But TL pointed out that too many factors affected the cost of housing to guarantee a simple formula of high density equals high cost and vice versa. Certain automobile-related infrastructure costs can increase the cost of housing, while transit-oriented development can incorporate affordable housing.

“Speaking of history,” JS reminds us, “some might enjoy reading about the New Systems effort, recorded in a publication called Tomorrow’s Transportation, published in 1968 (34 years ago). (http://faculty.washington.edu/jbs/itrans/reflect2.htm) ...It represents a time when the Feds provided some significant funding designed to break-out of the path dependence that is still with us today.”

**Politics**

It’s not possible to discuss transportation politics in the United States without noting the role of the highway lobby. The Highway Trust Fund has its funding ups and downs but does continue to pour huge sums into highway construction and repair with much lesser sums reserved for transit infrastructure. HM tells about the Nevada senator who will work tirelessly to end congestion by building more highways, despite the fact that adding lanes has rarely succeeded in solving congestion problems. (I think it was HD who, in another forum, commented that adding lanes to solve traffic congestion is like loosening your belt as a solution to obesity.)
HM notes that the FY 2003 budget for public transit is $7.23 billion, which is a 7.2% over FY 2002, but still pales in comparison to the $27.75 billion highway program budget called for in Senator Reid's bill. HM says that if we are to have transit structure comparable to our highway structure we have to dramatically increase the proportion of Federal Excise Tax on fuel that is dedicated to transit. A dramatic increase of this sort would be a new paradigm. And research could indicate how much “auto-competitiveness” it might buy, though there are also, as indicated in a number of postings, other factors to be measured.

Capitalizing on the highway structure already engraved on the land, commercial interests make locational decisions. DN asks what research we need to better understand the processes of the commercial market planners? DN elaborates: “These are the folks who determine the shape of our urban landscape and our travel patterns. They make decisions every day that lock-in automobility as the only possible path. A modest starting point might simply be a cross-disciplinary dialogue with them at TRB, perhaps named for Ray Kroc who helped start us on the path we now want to depart from.”

Citizen involvement rather than rote approval by planning officials can lead to planning with different goals than those of highway or commercial interests. SC says “my vote is for more decision making tools that open up transportation planning and service provision decisions to the users and the general public, who either pay or are affected by the decisions or both.” And she sees hope in the work the Center for Neighborhood Technology is doing for TCRP as well as policy modeling examples that TL introduced in his postings.

One user-friendly model (http://vla.ifs.org.uk/models/mets22.html) will calculate, for example, the effects of a 3 (or any other amount of) pence per mile user charge for driving in London. For each additional penny charged to auto drivers it will tell us the change in total miles travelled per day by the bus fleet. It can also tell us the change per day in subway and commuter rail travel. The effects of a fare change are among other variables that can be plugged into the model. To what extent will such publicly available tools for transportation planning really change the field and its paradigms?

Path Dependence

HD notes the moderator “raises some key points about the path dependence of the transit industry. Its slowness to embrace smart cards, its failure to engage aggressively in marketing the commute benefit to major employers, and a lack of attention to modern marketing, all point to the fact that the industry has not yet embraced the definition of itself as mobility managers.” Others discussants also brought up the concept of mobility managers, which was promoted for awhile but never seemed to have grasped the imagination of the industry. KO speaks of “monopolist instincts” in the transit industry, with “little movement toward deregulation” despite efforts to create private entrepreneurial “mobility managers” in 80s. He hopes that now a new generation of transit managers are “more receptive to new ideas and to competition.”
HD sees the federal government, with its large funding involvement, as the means of prompting the transit industry to embrace the concept or mobility manager or a similar idea. In research terms “how can we restructure transit funding programs so that they encourage operators to make their service more competitive with the automobile in terms of speed, directness, reducing transfers and transfer time, and ease of payment? This is indeed a path dependence question, and it involves the transit industry directly, not the whole of society.”

Another illustration of path dependence is the propensity of elected officials and bureaucrats to underestimate the disposition of citizens to favor environmentally friendly transport modes. (RG noting an OECD survey.) At the same time the citizens underestimate the willingness of the officials to favor the same thing. This is a circular misunderstanding that favors the status quo.

WC observes that even where light rail systems have been built in the US “you cannot even get to downtown on auto competitive service for much of the alignment of the routes, much less anywhere else.” The purpose of the TCRP program (and, by extension, of this e-dialogue) is to produce new ideas that can inform and "educate" the transit operator and other public officials -- who alone can translate these ideas into practice (WC).

**Breaking out of Path Dependence**

In response to WC who wrote about people without kids as the ones moving back to the cities, PN writes from the Australian perspective: “Safety is also not the issue it is with your cities. This surely would suggest that social change could create better urban outcomes and that rather than always arguing that they are impossible you should try to help the changes along. Transit quality is part of that change process.” PN argues strongly that path dependence is a situation we can change.

JU feels that “the historical pattern of path dependence … can lead to a sense of historical inertia… the interesting question is what is the car-mobility equivalent to say the QWERTY keyboard, ie what are those 'small' 'accidental' changes/innovations that may provoke a wholly different pattern of path dependence. After all if small changes can produce big effects, and if there are 'tipping points' (cf Gladwell), then we should consider when/where/why these small changes might engender a different mode of mobility.” JU notes in this regard the quick acceptance in Europe of the mobile phone and the movement away from land lines. He wonders whether this could have implications for a shift away from automobiles and asks what might tip the balance?

RM also notes the unpredictability of change. Maybe there will be fewer trips altogether, especially if everyone “takes the I train” – we just don’t know where the internet will take us. There still could be changes in path dependency based on technological change.

DR points to Curitiba and Bogota as examples of breaking the dominance of autos, even by the relatively simple (by North American standards) act of prohibiting parking on sidewalks. Both these South American cities have embraced busway networks, vehicle circulation bans
on varying days of week, and car free days. *How did planners and elected officials manage to break with existing auto-centered forces?* A power analysis suggests that the elite (and merchants) are heavily invested in automobility. What was the catalyst? The changes happened despite land use regulations that “often precluded certain development types that are transit supportive.” LS points out that it just may take a “visionary mayor” make such changes occur.

**Transit Marketing**

TL notes that marketing programs can significantly reduce auto travel, including shifts to cycling, walking and ridesharing, not just transit. Individual Marketing (IndiMark(tm)), for example, involves phone contact with all households in the area, identifying the proportion of respondents who would be interested in making some changes in travel behavior, and supplying them with information – including transit timetables, maps of cycling routes, information on local facilities.

Another technique that has been applied in suburbs in Adelaide and Brisbane is called Travel Blending (Travel Blending®). It is based on the hypothesis that if people have an understanding of the aim of reducing the adverse impact of private motor vehicle use in relation to their own lives, they will be in a position to make the changes that best suit their own circumstances. “Travel Blending,” a similar program in Santiago, reduced trips and time spent travelling.

**Transit Operations**

In a test WC feels the standard has to be that 80% of the jobs in the urban area must be reachable by auto competitive service from 80 percent of the residences at no more than 1.5 times the auto travel time. This would include a maximum walk of ¼ mile to the transit stop. Others recommend measuring different characteristics, including the importance of non-work CBD trips not made by car (KJ) or “a multicriteria assessment (JS).” TL contends there are so many determinants of transit use, especially land use. In most places even a 4 to 8 % shift to transit would require tripling current transit use. Reducing excessive auto use or improving transit ridership growth rate relative to auto travel growth might be more realistic goal. And we should measure “transportation improvements to provide the widest possible range of Benefits.” (TL)

TL also says equity, environmental and economic development objectives that should be measured. He notes economic incentives like parking cash out and location efficient mortgages that could have effects on reducing auto traffic without construction of new lines. TL warns against any single criteria in measurement. There are incentives to “create the virtuous cycle in which a significant portion of middle-class people will choose to live in transit-accessible areas and use transit part-time, therefore increasing transit revenues and demand for further service…” TL emphasizes that “*One of the paradigm shifts needed is to shift our goal from simply increasing transit ridership to creating a more efficient and equitable transportation system, of which transit is one component.*”
HM, following up on HD’s comment on need to make operators more imaginative, suggests picking, say, Phoenix, Detroit and Atlanta for research on how to improve transit. 

*What do we need to do to force change, and its governance, market, business model...?*

HN modifies this by suggesting that a criterion for selection might be extent of policy intervention, so that Portland would likely be included. He would compare the history of development in each, especially in their suburbs. “The key is system integration to bring together all these modes into a common operating environment… one cannot be restricted to just how to get people out of automobiles and into traditional transit rail and buses.

BP says that the TCRP new paradigms group has identified institutional change as one of the major issues and asks "can transit, as currently structured and managed and governed, deliver all that these the discussions would like to see or are we looking for totally new models? KO notes in this regard that transit is a difficult institutional context.

TN writes, “the old paradigm is that transit provides owned/operated/subcontracted Services.” She suggests the new paradigm is “transit is the coordinator of mobility in the community via all current modes of people movement already operating in the community.” *TN reminds us of the new paradigms should make the auto part of the transit rather than a competitor, suggesting research along these lines.*

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JU = John Urry
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KJ = Ken Jackson
LS = Lee Schipper
PN = Peter Newman
RG = Richard Gilbert
RM = Richard Mudge
SB = Steve Bernow
SC = Sarah Campbell
TN = Tish Nettleship
TL = Todd Litman
WC = Wendell Cox
Session III. Ethical Perspectives in Transportation
Chella Rajan, Moderator

Launch Email (February 24, 2002)

Ethics in the Aristotelian sense, as someone said to me recently, relates very broadly to the need to place limits on our activities as individuals, as members of local, national and global communities. Today’s ethics are therefore underpinned by the need to lead balanced personal lives, ensure equity (within and across communities), and maintain the health of the planet for future generations and non-human life forms. The challenge that this group needs to take on is that in a world with these ethical limits (global concerns, biodiversity concerns, equity issues and the need for balanced personal lives) what are the transportation paradigms that emerge? Let us therefore concentrate on two imperatives in our discussions this week: Focus on emergent paradigms within the ethical limits developed above; organize our contributions to the discussion towards further developing the ethical framework.

We've had all this excitement these past few weeks over “hard” topics like CBD and non-CBD density and topographical requirements for auto-competitive transit, social costs of autos versus transit, and so on. Yet, several of us have repeatedly brought up questions relating to planning vs. pricing and, more generally, about what we "ought" to do concerning the future of transit. In other words, the tone of the nearly 300 messages so far has been both positive and normative. The task now is to push the envelope further, on the normative side of the equation, because there is potentially important philosophical underbrush that we still need to clear.

While we do what is recommended in the first paragraph, here are some details to consider as points at which public transportation confronts ethical issues:

1. There’s the question of organizational ethics within the industry itself; transit organizations need to conform to standard codes of business ethics, codes that could broadly be summed up under those involving the honesty and integrity of officials at all levels. These are undoubtedly important issues, but insofar as they are common to all organizations with structures similar to the transit industry, I suspect we’re not going to get very far towards uncovering new questions of interest by dwelling much on this aspect of ethics. Still, the floor is open to those who want to raise useful questions here.

2. There are multiple questions relating to how the industry relates to the public it serves. What’s the proper role of transit in the 21st century? Should it remain a niche mode, to serve mainly transit dependents? Or, should so-called “choice riders” outside the CBD be served as well? If so, should this allocation be viewed as a zero-sum game, given limited resources, and how should resources be shared between the two groups of riders? Will new technologies like BRT produce new ethical dilemmas concerning fiscal allocation; what criteria should be used to address them?

3. Then, of course, there are the grand questions relating to transit and the wider world. Should we try to increase transit’s share under the assumption that it would produce greater environmental and social goods for existing and future generations? How could that be reconciled with conventional and alternative notions of personal autonomy? What about developing countries, and their transportation and growth needs? For instance, if the economies of China and India continue to grow at 5-7% per year, what transportation choices should they opt for? As policy advisors concerned with the environment, should
we leave those choices to the “market” or try to influence other countries to move towards transit?

A few further points to note before we begin. While it seems that we’ve already started to have some preliminary discussion on ethics, few of us have explicitly revealed the philosophical origins of our normative positions. Are we libertarians, utilitarians, rights-based liberals, or communitarians? (Summaries of these distinctions can be found in http://www.nhtsa.dot.gov/people/economic/BurdenInjury/keynote_1.htm, http://www.mc.cc.md.us/faculty/~bsoderbe/public_html/outline.htm. More detailed information on each: http://clipper.spinnaker.com/GVLA/lib_faq.htm; http://web.ukonline.co.uk/g.mccaughan/g/essays/utility.html; http://plato.stanford.edu/entries/liberalism/; http://info.bris.ac.uk/~plcdib/lect9.html.) Does it matter what our world-views are as long as they do not form intellectual blocks to problem solving? How do they influence the direction and scope of policy? Are some of the conflicts around policy directions in transit, land-use and transportation really about incommensurable world-views? Or can we agree to disagree about big issues, but still form consensus around the smaller, but still meaningful ones?

In other public policy forums, notably health care and education, the battle lines are drawn somewhat more clearly. The arguments essentially come down to this: are basic health care and education “rights” due to everyone; should they be designed to achieve the maximum aggregate benefits at the least cost; or should they simply be made available according to market demand? While there is obviously some overlap among the three options, there are also deep differences around the definition of costs and benefits and how the allocation of resources should be conducted. The holder of each position will offer strong reasons that are sometimes incommensurable with the “paradigms” of the others. Rights-based liberals (who may be distinct from the political definition of “liberals”) may argue that basic medical care and education resources should be distributed so that the least advantaged receive the highest marginal benefits; utilitarians might view aggregate cost-benefit ratios as the main metric for decision making; libertarians may insist that market choice would result in the optimum allocation; and communitarians may suggest that the community should define the basis for the social allocation and definitions of costs and benefits. But the appropriate course of action may involve taking into account all of the above or perhaps none of the above.

In transportation, for various historical reasons, ethical distinctions have for long been blurred by the notion of “efficiency” that has dominated the discourse. But efficiency is of course an ethical position itself (it’s generally identified with utilitarianism). Almost any deliberation on transit, including the discussions we’ve had here, has had to rely on cost-benefit analysis to justify the merits of one option over the other. Yet, there is still a lot of debate about defining the boundaries of costs and benefits. Should the costs be limited to direct, monetizable ones, or should they include unborne social costs? And what about benefits? Can we quantify the benefits of door-to-door transportation? How do they relate to the benefits and costs of so-called “livable communities”, walkability, and so on?

I’m not suggesting that we debate this last set of issues in this session. More exhaustively than anybody else I know, Mark DeLucchi has employed the tools of utilitarian analysis to try to estimate the costs (if not the benefits) of personal transportation, and yet even he has had to grapple with the boundary question (e.g., how to estimate highway costs, what about parking?). But more significantly, he’s the one shying away from utilitarian conclusions, by questioning the use of pricing externalities to determine modal choice, saying that society should be guiding those decisions based on other considerations (see, for instance, M. A. Delucchi Should We Try to Get
Some might say that we must reconcile ourselves to the fact that decisions around transportation and land-use will invariably be influenced by the bias of our individual world-views, constrained by past decisions, technologies and institutions, and structured by existing institutions, new technologies and politics. But at the end of the day, only a collective problem-solving approach will allow us to come up with viable new options to address transportation’s challenges. The point of this exercise is to see how far we can go within the ethical limits outlined at the outset, and then to go on to engage in the “art of the possible.”

SYNOPSIS: Ethical Perspectives in Transportation (March 4, 2002)

This has been a hard session, and as tricky as it’s been to wrap our minds around the ethics’ theme, I’m grateful to everyone for making a sincere effort. It’s harder still for me to summarize your arguments without misrepresenting them, but here’s my first take:

Framework issues

CR proposed that we consider 3 different, and progressively broader, levels of ethics as it applies to transit: organisational ethics, distributional justice issues concerning transit users; and environmental and social impact questions within and across generations, and within and across societies. He also suggested that we make an attempt to articulate the ethical paradigms that inform policy making, in order that we can identify as clearly as possible the philosophical origins of divergent positions.

TL framed ethical issues in terms of distinctions among horizontal equity (fairness in allocation of resources); vertical equity with respect to income (allocation of costs across income classes); and vertical equity with respect to mobility and ability (adequacy of service to disadvantaged classes). He argued that transportation equity analysis is often incomplete because it tends to focus only on one or two of these dimensions.

RC also had a three-way taxonomy: (1) biased forecasts/doctored economic analyses; (2) environmental "injustices”; and (3) distributional inequities. He went on to propose that the third not be addressed in any special way, but by promoting efficient pricing and efficient transfer payments in the form of vouchers.

Ethics in Decision-Making

RC’s mention of biased forecasts/doctored analysis brought in a flurry of responses, with many indicating that this was becoming a commonplace problem. There appeared to be general agreement that consultants and politicians have a convergence of interests when it comes to touting expensive transit projects. RL gave an example from Asia of pork-barrel politics influencing rail-line routing and technologies and suggested that the political economy of transit decision-making be researched. TN said that the example could be applied to North American
projects as well, and that it indicated that unplanned services could reduce the potential for corruption and other unethical practices.

JS suggested that we study the culture of federal grant making and what incentives are needed for consultants to break free from business-as-usual in order to consider low capital cost alternatives to huge investments in rail transit. DN provided the example of how a federal agency charged with protecting the public had not only failed to warn SUV buyers but also suppressed internal studies that documented the risk of turnovers. This led to the quandary: should regulators be regulated, or should we simply provide better protection for whistle-blowers.

TN and AP felt that individuals are becoming more used to freedom of choice and would not accept planning practices that seem to pass judgment on travelers rather than attempt to serve them.

On public participation in decision-making, TL said middle-class professionals, who have their own equity perspectives, dominate transportation decision-making. While increased public participation could address this at the margin, he felt that some important equity perspectives could still be overlooked. TL suggested that while there is no objective starting point, TCRP could produce a guidebook for incorporating comprehensive equity analysis into transportation decision-making, including transit planning, in which we should acknowledge multiple perspectives and issues. BP felt that equity is about race, class and political power; and who makes decisions. He wondered whether, as we move towards more "innovative transit solutions", we would actually improve the acknowledgement of equity issues - or be driven strictly by financial constraints.

Finally, DN pointed to a type of institutional lock-in that produces ethical dilemmas: Congestion \(\rightarrow\) public demands for “doing something”, but mostly these demands came from choice riders \(\rightarrow\) investments in expensive transit that meets the interests of special interests, but not necessarily of transit dependents, whose needs may not be met by the investment \(\rightarrow\) inefficient use of scarce resources \(\rightarrow\) increased difficulty in addressing distributional inequities and environmental injustices.

**Distributional Equity**

RC’s proposal that we not focus on distributive effects in the first instance, but on efficient pricing, also produced a few responses. SB asked why it was logical to believe that focusing on efficiency first would in fact lead to equity, even with subsequent income transfers, given non-zero transaction costs, other institutional barriers, and the fact that “utility” is incommensurable across different domains (for instance, the costs of lengthy transfers and wait-times for the poor may be location and context dependent). Furthermore, he wondered whether a deregulated industry would produce sufficient suppliers in markets where demand is non-zero but weak.

LW was concerned that highly differentiated pricing, while capable of increasing efficiency, could in fact exacerbate social differences and social exclusion, not to mention the overall complexity of the transit system, which could raise additional information barriers. RC responded by saying that differentiated pricing is the hallmark of any market-targeted services to level the playing field, that within the realm of "new paradigm" thinking, stored value smart cards in the US would eventually support much more sophisticated and differentiated pricing. [Note that MD has responded to RC’s similar pricing policy suggestions in Session 1 – See, for instance Message 158, February 11, 2002]
AP criticized the widespread view that subsidies for high-income riders are necessary in order to garner generalized support for programmes that would provide transit subsidies to the poor. He suggested that we ought to focus on subsidizing just the poor and see what happens.

CR cited 2 examples where conflicts among ethical paradigms could arise: 1) determining the limits of making special arrangements for disadvantaged riders – transit dependents; 2) resolving environmental justice issues relating to the siting of bus depots. DN suggested that meeting the needs of transit dependents is not controversial, but that what ought to be debated is their efficiency and cost-effectiveness. Demand response can be very expensive on a per ride basis (more than $20 per unlinked trip), which raises important questions about the efficacy of deregulation of these markets and its broader potential impact on non-conventional transit technologies.

Environmental and social justice

LS pointed to an on-going battle in Los Angeles between light rail riders and bus riders over which mode is more or less fairly treated. DN said that the issue indicated that environmental justice has been elevated to a much more prominent position in the hierarchy of transportation decision making.

CR suggested that we pay attention to Robert Bullard’s statement, in the context of Atlanta and similar urban regions in the US, that “sprawl concentrates poverty.”

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JS = Jerry Schneider
LS = Lee Schipper
LW = Lloyd Wright
MD = Mark DeLucchi
RC = Robert Cervero
RL = Robert Lejano
SB = Steve Bernow
TN = Tish Nettleship
TL = Todd Litman
Appendix C

Emergent Research Topics

The following are some research topics/questions that emerged from the 3 sessions of the TCRP New Paradigms dialogue.

1. **Automobility**

   1.1. Given the inexorable demand for flexibility, what are the different “packages” of transit and para-transit auto-alternatives that could meet the widest possible range of mobility needs? What would be the potential consequences (in terms of overall efficiency, cost-effectiveness, equity, environmental impact, etc.) of just-in-time transit provision? Are there specific thresholds of densities, land-use mixes, urban design attributes and service demand features that would support different combinations of paratransit and transit? Can we identify the particular travel markets and niche segments where transit can strive to be as time and service-quality competitive with the car as possible; where can it outperform the car (e.g., busy line-haul corridors); and where it will never match up. (Is there a need to update Pushkarev and Zupan, 1982, with explicit density and land-use thresholds for suburban regions as well as CBDs? How about international comparisons, especially US vs. Canada? How can the studies be directed towards refining "New Starts" criteria to better define land-use factors that most strongly influence transit ridership? And how can they include disaggregated variables of land-use, including density and topography, and their influence on corridor-level ridership?

   1.2. As a corollary to 1.1, and building on USDOT/UMTA's Service and Methods Demonstration (SMD) programs of the early 1970's, what pilot-demonstrations are needed to help us better measure elasticities, transit service and price elasticities and cross-elasticities? Could these be designed to include DOTs and TODs? Also, can we design studies to examine how elasticities vary with density and land-use configurations? What new ideas can be incorporated into such programs, making use of internet and GPS technologies?

   1.3. Examining the analytics of the drivers of urban form and transit demand. A modeling exercise to consider urban growth dynamics, energy prices, economic growth and industrial mode, congestion, environmental impacts, changing values, and feedbacks across different temporal and spatial scales.

   1.4. **Mode choice surveys in existing (non CBD) TODs** that measure trip purpose and mode for all trips into, out of, and within the TOD by residents, commuters to, and other (nonresident) users of the TOD. These should be directed to develop a better understanding of the dynamics between housing choice, residential self-selection, and transit ridership. They would involve disaggregating any major venue (sports and other regional public events) traffic from the daily travel patterns. The objective should be to develop and use survey techniques that deliver reasonably accurate results, and replicate

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13 For instance, building on *Making Transit Work: Insight from Western Europe and Canada*, TRB Special Report 257, to examine institutional requirements.
the measurements at other TODs (say, Stockholm, and other European examples) and metros to provide data for statistical correlation studies.

1.5. Reopening the box on social benefit-cost evaluations that compare pricing and transit-service strategies versus regulation and technology in reducing transportation-sector fuel consumption and air pollution. Creating “level playing field” scenarios for transportation choices and their supportive land use forms, and modal choice. Many of the government policies and practices that are seen to encourage automobility at the expense of transit use also (or primarily) support other societal goals (e.g., public health, homeownership, national defense, etc.). How can these other societal goals be pursued/supported without the “pro-auto” component of existing policy? What would mode-neutral policies look like?

2. Path Dependence

2.1. Develop analytical tools and methods to map the decision processes of commercial market planners and developers especially with regard to their implications for transit. Complementarily, use the results to examine how transit can be made attractive to developers so they seek it out, much as they seek water and sewer (and road) provision. Research that examines tax policies as well as planning, past and present, with regard to the barriers and opportunities they pose on transit. Research that also examines the profit-making possibilities of TOD.

2.2. What political forces/decision making structures have been responsible for innovative land-use/transportation strategies within U.S. communities? That is to say, in cases where it has occurred, how did planners and elected officials manage to break with existing auto-centered forces? Has it always been planners and elected officials? How about imaginative and brave architects and developers? Who else has engineered the change? How significant are democratic movements in these changes (examples include: referenda on attempts to limit sprawl, guarantee open space, and fund alternatives to the single occupant vehicle that have occurred in several states and cities, the direct election of metropolitan planning organizations, e.g., the Portland Regional Council, and direct action of advocates for more sustainable and equitable transportation that halted urban expressways in San Francisco, Boston, Toronto, and New York)? New research is needed on the politics of trade-offs, brokering, consensus-building, conflict resolution, etc., in the context of TODs, for instance, but also in land-use/transportation strategies.

2.3. Incentivizing private and public sector transit providers to deliver higher-quality and auto-competitive service, in terms of speed, directness, reducing transfers and transfer time, and ease of payment. Researching the role of diverse business models, including employee ownership, and social marketing to help attract riders to a (quality) transit system. What can behavioral science add to addressing quality of service issues? What about notions of “disruptive innovation” (a la Christensen, 1997)? What institutional innovations are needed to preserve managerial unity along with privatization of delivery services, where needed?

2.4. Increasing transit’s share of trips is cited as at least part of the answer to several social and environmental problems. What is the range of social goals transit is intended to further and how suited is it to helping each? How should transit’s effectiveness in
meeting social goals be measured? Are there new decision-making tools for the public that would help increase awareness of transit’s role in meeting these goals? The social goal of serving the aging baby boomers who will soon find it difficult to drive should be a project of great interest.

2.5. Defining transit broadly to cover a range of conventional transit and paratransit choices that include nearly all non-SOV car trips, competition within the group is likely. Would this be healthy or counterproductive competition? How might the different interests of these different transits be better aligned so that, as a whole, greater advances can be made relative to the SOV auto trip? In other words, what organizational and institutional arrangements are needed to build ‘transit coalitions’ that are mutually supportive?

2.6. The time lags between plan (transportation and land use) and implementation, and between implementation and effect (of transportation on land use and vice versa) mean that there is little incentive for politicians to support those policies that only have benefits in the long run. What incentive structures might be adopted to change this? Alternatives: de-politicized funding mechanism(s)? Engineering of short-term benefits that are not out of line with long-term project goals? What sort of on-going feedback loop could be devised to ensure that 1) the project will meet the needs of a population / circumstances that change through its implementation; 2) politicians / the communities continue to ‘own’ the project?

3. Ethics

3.1. Comparative studies of the political economy of major transit decisions in select urban areas to determine the role of interest-group politics and other non-“rational” parameters in influencing outcomes. Also investigate the constitution of federal grant making and what incentives are needed to consider low capital cost and more efficient alternatives to expensive projects.

3.2. Produce a guidebook for incorporating comprehensive analysis of ethics and environmental justice in transportation decision-making, including transit planning, acknowledging multiple perspectives and ethical paradigms. The guidebook would not be didactical, but introduce transit operators, planners and other decision makers to the notions of diverse ethical paradigms and the need for responsible governance. For instance, it would try to illustrate the open-ended quality of such questions as:

3.2.1. Should policy / planning be used to influence where people live? Is it ethical to leave policies and practices unchanged once it is realized / revealed that they influence choices of where to live?

3.2.2. Should the cost of transportation provision be borne by society as a whole or by those who use the respective transportation provided?

3.2.3. Is it appropriate or inappropriate to operate a transportation system in which the benefits and costs are distributed disproportionately?

3.2.4. How can transit (and transportation) decision-making be restructured to meet the needs of the transit dependent before/along with the demands of the special interests (the “squeaky wheels”)?
3.2.5. Should environmental degradation be sufficient impetus to change a paradigm of transportation provision?

3.2.6. How can transit (and transportation) decision-making be restructured to eliminate political and self-interested decisions?

3.2.7. Can greater efficiency lead to greater equity? What would be the ethical consequences of transit deregulation?

3.2.8. Can pursuit of the many ‘equities’ (horizontal, vertical, income, need, etc.) be reconciled?

3.2.9. How can the need to increase transit share, under the assumption that it would produce greater environmental and social goods for existing and future generations, be reconciled with conventional and alternative notions of personal autonomy?

3.3. Case studies leading to integrated analytical research to examine the distributional impacts of various transit initiatives directed towards equity (e.g., transit vouchers, differential pricing, Job Access/Reverse Commute Program).

3.4. Analysis of one or more urban regions in the U.S. (e.g., Atlanta, Los Angeles) where sprawl generates special inconveniences for racial minorities and the poor and exploration of remedial measures through innovative transit design.

3.5. Analysis of the relative social/environmental costs and benefits of Bus Rapid Transit, including the effects of efficient routings, passenger capacity, technologies/fuels, mode shares, and longer term land-use changes.
Appendix D

Selected New Paradigms Research Topics

Based on a review of Appendix C and a closer look at the text (and contexts) of the messages that inform the appendix, we have identified the following three draft research statements that, in our judgment, could qualify as New Paradigms Research topics

I. Social Learning Survey(s) to Analyze Preferences in Settlement Patterns and Travel Behavior in the United States.

The drivers of land-use patterns and travel behavior in the United States are multiple and complex. Economic growth, individual lifestyle choices, industrial location and form, and institutional arrangements and structures can all be cited as having had some influence on land-use density and urban growth. The purpose of this research is to understand how individuals perceive the relevance of their personal choices in different contexts than their own.

If people were to get a better understanding of their own urban structures, associated transit choices, land-use, social and environmental impacts, will they end up re-ordering their preferences? If so, what types of choices would they be likely to make? Are individual preferences likely to be different if social values and impacts are better understood?

It is expected that the research will involve extensive discussions with focus groups in different cities in North America to elicit the reasons for their current travel and location preferences. The focus groups will then go through a period of “education” concerning the different “packages” of transit and para-transit auto-alternatives that could meet the widest possible range of mobility needs. This could include detailed discussions on case studies of existing or model cities around the world that have innovative transit solutions and multimodalism (e.g., Adelaide, Curitiba, Portland, Stockholm, Singapore, Zurich) and considerations of how their institutional and land-use patterns differ from their own cities, and whether new options would be conceivable, and what behavioral changes these may entail on their behalf.

II. Understanding Institutional Path Dependence in Transit Decision Making

Both personal travel choices as well as community decisions concerning transit and land-use planning are frequently constrained by past decisions. Some of these earlier decisions may have taken place in areas that may seem quite remote to the transportation sector. Consider, for instance, that the quality of public schooling in a community may be the primary criterion driving personal location decisions. Or, that Proposition 13 in California, a property tax initiative passed in 1978, may be indirectly responsible for sprawl in some California communities today because local governments encouraged land development to raise revenues.

This research anticipates a case study approach to identify decision-making structures and institutions that have been responsible for transit-friendly as well as transit-unfriendly land-use/transportation strategies. It is also expected that the research will identify where institutional and technological “lock-in” has been transgressed to favor transit. That is to say, in cases where it has occurred, how did planners and elected officials manage to break with existing incentives and institutions favoring sprawl? How significant is the role of civil society in these changes (examples include: referenda on attempts to limit sprawl, guarantee open space, and fund
alternatives to the single occupant vehicle that have occurred in several states and cities, the direct
election of metropolitan planning organizations, e.g., the Portland Regional Council, and direct
action of advocates for more sustainable and equitable transportation that halted urban
expressways in San Francisco, Boston, Toronto, and New York)? The research will also
examine the politics of trade-offs, brokering, consensus-building, conflict resolution, etc., in the
context of TODs, for instance, but also in land-use/transit strategies.

The case studies should be used to draw broad theoretical lessons for breaking out of “lock-in.”
Both U.S. and international cases may be used to develop the lessons.

III. Ethical Issues in Transportation and Land-Use Planning: A Workbook for
Communities and Planners

During the past several months, ethical issues seem to have come to the forefront of Americans’
everyday imagination in a way never before encountered. Recent scandals concerning personal
and corporate behavior in highly respected institutions and businesses have shaken some of the
very foundations of personal belief. There are also other types of crises in legitimacy emerging
around the social and environmental impacts of individuals’ choices. For instance, there is
growing personal concern about the ecological “footprints” of lifestyle choices, and the fact that
greater disconnectedness may be the cause of future social disharmony. And finally, there
continue to be troubling questions raised relating to equity in the impacts of decision-making, the
formation of social values, and the rights and responsibilities of individuals.

Undoubtedly, these are all big issues, but ones that many communities and planners confront
implicitly when they engage in making land-use and transportation decisions. Corporate ethics
plays a big role in deciding the structure of transit and regulatory organizations and
considerations of conflicts of interest. Questions about community goals that may conflict with
individual values frequently emerge in land-use planning. Is it proper to form policies that could
seem to dictate dwelling location? Is it even acceptable if they merely influence location through
market-based incentives? Who should pay the costs of environmental and social damage related
to transportation? And so on.

This research project expects that an inter-disciplinary team of transit and land-use professionals,
social scientists and philosophers will develop a workbook for confronting ethical issues as they
relate to transportation and land-use planning, with special emphasis on transit-related concerns.
The idea is not to prepare a manual with answers to ethical dilemmas, but to help individuals and
communities confront them as problems with no clear solutions, but whose philosophical strands
can be clearly identified. The workbook is expected to help readers develop their own
appropriate frameworks for understanding and solution building, with suitable guideposts for
where the most complex difficulties are likely to arise.

The guidebook could include case studies from different regions and contexts to explain how, and
under what circumstances, communities addressed ethical dilemmas, and to what extent those
solutions have acquired social legitimacy.
Appendix E

PROPOSED TCRP PROBLEM STATEMENT

I. PROBLEM TITLE

Social Learning Survey(s) to Analyze Settlement Pattern and Travel Behavior Preferences

II. RESEARCH PROBLEM STATEMENT

We can explore new terrain in urban land-use, mode choice and travel patterns, that goes beyond existing practices and preferences, by examining exemplary and innovative cases and constructing visions of how we may wish to live and travel in and around cities. If individuals could envision and design their own urban structures, how would that re-order their preferences? What types of choices would they be likely to make? Are individual choices likely to be different if social values and impacts are better understood? What new practices and preferences could emerge under different conditions? How could planners and policy makers use this ‘individual visioning process’ to help develop different packages of transit services, infrastructure, and technologies that are suited to different contexts? How might collaborative envisioning by groups of individuals affect the outcome of such a process?

The drivers of land-use patterns, mode choice and travel behavior in the United States are multiple and complex. Economic growth, industrial location and form, institutional arrangements, infrastructures, and individual lifestyle choices can all be cited as having had some influence on land-use density and urban growth, with associated social and environmental impacts. People have preferences based on what they know, but might have different responses if they were able to place themselves in a different situation and imagine alternative contexts, practices and scenarios. The purpose of this research is to help planners and policy makers better understand individual and collective perceptions and preferences under different conditions, both existing and envisioned.

III. OBJECTIVE

Insight into individual and social perceptions and preferences regarding land-use, mode choice and travel behavior under different conditions would be reported in a final document that presents the research methodology used, the results of the social learning survey(s), and an analysis of how those results could help inform planners and policy makers.

IV. RESEARCH PROPOSED

It is expected that the research will involve extensive discussions with focus groups in different cities in North America. These groups would first examine participants’ current travel and location preferences and practices. The focus groups will then explore the different “packages” of land-use, transit and para-transit auto-alternatives that could meet a wide range of mobility and access needs. Case studies of existing or model cities around the world that have created innovative integrated land-use and transit solutions, and multimodalism (e.g., Adelaide, Bogota, Curitiba, Portland, Stockholm, Singapore, Zurich) could be presented to focus groups. These would need to be designed to facilitate consideration of what specific institutional and spatial features distinguish these cities.
from those of the focus group participants, and what realistic options, if any, are available to change existing urban configurations towards their "nearest neighbor" model cities. Innovative institutional, infrastructural, land-use and related technological options would be examined. The use of modeling, scenario building, narratives, and domestic and foreign examples should stimulate rich discussion comparing and contrasting the cases to participants’ own experience and realities and possibilities in the United States.

V. ESTIMATE OF THE PROBLEM FUNDING AND RESEARCH PERIOD

Recommended Funding:

Between $450,000 and $500,000 will be required to fund the development of case studies, conduct of focus groups, and subsequent analysis.

Research Period:

Between 18 and 22 months will be needed.

VI. URGENCY AND PAYOFF POTENTIAL

With increasingly constrained budgets, transit investment prioritization takes on greater importance than ever before. This research would provide for more efficient and cost effective allocations by giving decision makers insight into the different needs and opportunities in different contexts, and ways to motivate individuals and local polities to consider modern sophisticated transit as a viable option within an integrated inter-modal urban system. Implementation of the research findings, when they suggest unconventional decisions and allocations, would be difficult by virtue of their challenge of the status quo. At the same time, such innovation could be welcome in the context of increasingly vexing and apparently intractable urban transport problems.

VII. RELATIONSHIP TO FTA VISION STRATEGIES and TCRP STRATEGIC PRIORITIES

VIII. RELATED RESEARCH

Completed and ongoing research and pilot projects in countries including Australia and the United Kingdom are designed to structure individual exploration of various transportation options in different situations through the use of “Personalized Journey Planning,” with the goal of a modal shift. Current individual travel behavior is analyzed so that alternatives can be suggested.14 The research proposed here goes beyond analysis of existing preferences and practice to examination of practice and preference that could emerge under different conditions.

IX. PERSON(S) DEVELOPING THE PROBLEM

Participants in the 2002 TCRP Email Dialogue on New Paradigms in Transit, via Tellus Institute (Steven Bernow, Ph.D., Vice President, Director of the Energy Group; Sudhir Chella Rajan, Ph.D., Senior Scientist; and Amy Cotter, Research Associate).

14 A recent study commissioned by the UK Department for Transport, Local Government and the Regions provides an overview: A Review of the Effectiveness of Personalised Journey Planning Techniques (DTLR 2002) is available online at <http://www.local-transport.dtlr.gov.uk/travelplans/pjourney/index.htm> (June 10, 2002)
X. PROCESS USED TO DEVELOP PROBLEM STATEMENT

Developed by participants in the 2002 TCRP Email Dialogue on New Paradigms in Transit and synthesized by Tellus Institute into the statement submitted here.

XI. DATE AND SUBMITTED BY

Submitted on: June 10, 2002

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I. PROBLEM TITLE

*Breaking Institutional, Infrastructural and Technological Lock-in: How Decision Making Structures can Impede or Support Modern Transit*

II. RESEARCH PROBLEM STATEMENT

The built environment in the United States has been fundamentally transformed by transport systems, first by rail and transit development, and later, more radically, by the whole enterprise of automobility. To a large degree, therefore, land-use patterns and the types of fixed stock, fuels, and other machinery we use have been locked in, leaving very few choices for alternative options and systems. What about institutions (that is, rules, legislation, practices, habits, etc.) and organizations? As it turns out, path dependence can be observed here as well. For example, political and cultural constraints have affected decision-makers’ disposition towards the automobile versus transit; and transit organizations’ internal activities have themselves been constrained by particular forms of organizational learning.

In other words, history is responsible for the way our rules have been framed and for the ways in which organizations behave, which in turn locked in much of the shape of transportation policy. For the most part, that shape has been one that has privileged the automobile and its infrastructure and institutional requirements, while severely circumscribing the role of transit and related land-use and inter-modal linkages. Indeed, both personal travel choices and community decisions concerning transit and land-use planning are frequently constrained by past decisions, sometimes in areas entirely outside the transportation sector (e.g., school funding, property taxes, farm policy).

There are, however, instances in which such “lock-in” has been broken in favor of innovative decisions that provide the rich range of transportation options needed in the given context. What can learn from these past experiences? How might increased understanding prepare us to take advantage of current and future opportunities to break lock-in and advance modern transit? Broad theoretical and practical lessons for breaking out of lock-in should emerge.

III. OBJECTIVE

A final report will summarize and link lessons for breaking out of lock-in that emerge from existing literature, case studies, and interviews conducted in the course of this research.

IV. RESEARCH PROPOSED

Specific experiences from the past 50 years would be analyzed, both those in which opportunities for innovation in advancing transit were seized and those in which such opportunities were foregone. It is anticipated that this research will employ literature review, case studies (domestic and international), and interviews to identify decision-making structures, institutions and decisions that have either enabled/amplified or foreclosed/diminished transit-friendly or transit-unfriendly, transportation/land-use strategies and practices. The research should identify where institutional, infrastructural and technological lock-in has been transgressed to favor transit, and examine how planners and elected officials managed to break with existing incentives and barriers.
The research should also examine the politics of trade-offs, brokering, consensus-building, conflict resolution, etc, and the role of civil society in these changes to the status quo (examples include: referenda on attempts to limit sprawl, guarantee open space, and fund alternatives to the single occupant vehicle that have occurred in several states and cities, the direct election of metropolitan planning organizations such as the Portland Regional Council, and direct action of advocates for more sustainable and equitable transportation that halted urban expressways in San Francisco, Boston, Toronto, and New York).

The researcher should keep in mind that some past constraints on decisions may have taken place in areas that may seem quite remote to the transportation sector. Consider, for instance, that the quality of public schooling in a community may be the primary criterion driving personal location decisions. Or, that Proposition 13 in California, a property tax initiative passed in 1978, may be indirectly responsible for sprawl in some California communities today because local governments encouraged land development to raise revenues.

V. ESTIMATE OF THE PROBLEM FUNDING AND RESEARCH PERIOD

Recommended Funding:

$300,000 to $400,000 would be needed to fund review of the literature, interviews, case study development, and analysis.

Research Period:

Approximately 18 months.

VI. URGENCY AND PAYOFF POTENTIAL

It is increasingly apparent that institutional, infrastructural and technological lock-in has contributed, and continues to contribute, to the ‘crisis’ in which transit arguably finds itself. Removal of the constraints to transit presented by such past decision making depends upon the ability to recognize the opportunity and appropriate means for doing something different and breaking such lock-in by establishing processes that can explore, embrace, articulate and implement new visions of transportation and urban form. The research proposed here would yield tools for this purpose.

VII. RELATIONSHIP TO FTA VISION STRATEGIES and TCRP STRATEGIC PRIORITIES

VIII. RELATED RESEARCH

IX. PERSON(S) DEVELOPING THE PROBLEM

Provide the specifics (i.e., name, title, address, telephone, and fax numbers) for the person(s) who developed the problem.
Participants in the 2002 TCRP Email Dialogue on New Paradigms in Transit, via Tellus Institute (Steven Bernow, Ph.D., Vice President, Director of the Energy Group; Sudhir Chella Rajan, Ph.D., Senior Scientist; and Amy Cotter, Research Associate).

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I. PROBLEM TITLE

Ethical Dilemmas: Shaping our Communities and our Mobility

II. RESEARCH PROBLEM STATEMENT

In transportation, as in many other types of socially relevant actions, our individual and collective preferences and choices embody a number of ethical dilemmas. Quite often, they transcend questions relating to the proper allocation of costs and benefits, and reflect deeper crises in legitimacy relating, for instance, to corporate and organizational behavior, the social and environmental impacts of personal choices, and the formation of social values, and the rights and responsibilities of individuals. How should we evaluate the impacts of our actions on others? Who wins, who loses, and who chooses? Are there optimum ways to determine how to lead balanced personal lives, ensure equity (within and across communities), and maintain the health of the planet for future generations and non-human life forms? What if there are conflicting views on what counts as "optimum", how then should social policy be conducted?

Ethical dilemmas frequently emerge in transportation and land-use planning. Is it proper to form policies that could seem to dictate dwelling location? Is it even acceptable if they merely influence location through market-based incentives? Who should pay the costs of environmental and social damage related to transportation? These are just a few of the big issues communities and planners confront implicitly when they engage in making land-use and transportation decisions.

Such ethical conflicts are not only between the individual and society/community, between different social groups, between citizens and decision makers, between human and environmental well being -- all important to this research area -- but also within each of us and within our collective discourse. In other words, ethical conflicts exist vertically (surface to depth) as well as horizontally (between agents, entities and proximate values). Do the deepest values that are more or less universally shared conflict with our more proximate values and the choices they inform? Are we (individually and as a polity/culture) in conflict with ourselves in this sense? Such conflicts rarely enter public discourse and may remain buried for long within the routine mechanics of decision-making. Sometimes conflicting values remain in conflict and choices are made with eyes wide open. But, occasionally, often during periods of fundamental historical change, they are superceded if brought face to face with deeper shared values..

III. OBJECTIVE

The product of this research would be a workbook for confronting ethical issues as they relate to transportation and land-use planning, with special emphasis on transit-related concerns. Existing literature, which primarily addresses issues of equity rather than larger ethical dilemmas such as ‘who decides?’, would be synthesized. Case studies from different regions and contexts would relate how, and under what circumstances, communities addressed ethical dilemmas, and to what extent those solutions have
acquired social legitimacy. The idea is not to prepare a manual with answers to ethical dilemmas. Instead, it would be intended to help individuals and communities explicitly confront inherent ethical choices, and approach them as problems with no clear solutions, but whose philosophical strands can be clearly identified. The workbook is expected to help readers develop their own appropriate frameworks for understanding and solution building, with suitable guideposts for where the most complex difficulties are likely to arise. It would elucidate the conflicts between deeper values and more proximate ones, and help decision makers recognize that every decision confronts ethical issues, whether explicitly or not. Readers should then be positioned to develop their own appropriate frameworks for understanding and solution building.

IV. RESEARCH PROPOSED

This research project expects that an inter-disciplinary team of transit and land-use professionals, social scientists and political philosophers will develop a workbook for confronting ethical issues as they relate to transportation and land-use planning, with special emphasis on transit-related concerns.

V. ESTIMATE OF THE PROBLEM FUNDING AND RESEARCH PERIOD

Recommended Funding:

$400,000 to $450,000 would be needed to fund review of the literature, consultation with the inter-disciplinary professionals, case study development, and workbook construction.

Research Period:

Approximately 18 months.

VI. URGENCY AND PAYOFF POTENTIAL

The transit industry traditionally focuses on equity as the sum of all ethical dilemmas it confronts, seeking to be fair in its allocation of resources and service across society. With this methodology, a pattern of transit service has been created that often seems to miss its mark and serve few adequately, perhaps through a focus that largely ignores the larger ethical issues inherent in all decision making. This research would begin to shift the industry toward explicit recognition of the broader choices and tradeoffs that it must confront in order to create transit that serves society well.

VII. RELATIONSHIP TO FTA VISION STRATEGIES and TCRP STRATEGIC PRIORITIES

VIII. RELATED RESEARCH

There is an existing literature, which is largely academic, that primarily addresses issues of equity rather than larger ethical dilemmas such as ‘who decides?’ Relevant previous research would be incorporated into the research proposed here.

IX. PERSON(S) DEVELOPING THE PROBLEM
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