

A Planning Template for Nonwork Travel and Transit-Oriented Development

**Task 5 Report: Template Review Forum
&
Task 6 Report: Final Template Design**

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submitted to
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PROJECT OVERVIEW

This project seeks to improve the planning methodology for Transit-Oriented Development (TOD) by bringing into sharp focus the dynamics of the retail marketplace and nonwork travel demand. Specifically, it will:

- Analyze the current state of understanding of nonwork travel demand in the context of retail market dynamics on a national level.
- Review the state of the art in transportation planning with respect to nonwork travel.
- Create a planning template for transportation and land use planners who are pursuing TOD.

The central Puget Sound region (Seattle-Tacoma-Bellevue-Everett metropolitan area) will be used as a case study for the development of the template. The nonwork travel environment of the region will be mapped and analyzed, and the findings generalized to other large metro regions. Of particular interest are “retail” activities that have flexible locations and that together generate more than half of all person trips: shopping for goods and services, eating out, entertainment, recreation, and other leisure pursuits.

The planning template will specify the major nonwork venues that should be mapped and spatially analyzed, the forces shaping urban retail form that need to be monitored, and the factors that will determine TOD regional (not just station-area) success.

EXECUTIVE SUMMARY

This document contains the results of the final two progress reports for this project. Task 5 involved the submission of the TOD planning template, that was earlier proposed in our Task 2 and Task 4 reports, to a group of planning professionals. The review was conducted on-line and elicited comments from ten planners in both the academic and consultative communities. Task 6 involved a final revision of the draft planning template based on feedback from the peer review. The final template is now in a form for dissemination and testing.

CHAPTER ONE

RESULTS OF PEER REVIEW FORUM

INTRODUCTION

The purpose of Task 5 was to carry out a professional forum (either a face-to-face assembly, or on-line) to identify any outstanding planning issues and to subject the proposed TOD planning template for professional review and criticism. This chapter reports on how we carried out the forum and the results.

Because of time and financial constraints, and after consultation with our faculty team member Aharon Hibshoosh, we decided to conduct the review process on-line. We understand that on-line review processes using electronic document exchange and electronic mail is now well accepted in the transportation research field, and the results of our process bear this out.

CONDUCT OF PEER REVIEW

During April and May, 2000, we asked 18 researchers and practitioners who have studied and written published literature on transportation planning, land use, and TOD to review the results of our research and provide comment. All of them are personally known to us, and in many cases we have met them face to face. In response to initial e-mails and in some cases follow up e-mail messages, we obtained responses from 10 people whose names and titles are listed in Table 1. Five additional colleagues of the 18 solicited indicated that they would submit reviews, time permitting, but have not as of late May.

In the remainder of this document we obscure the identity of individual reviewers and refer to them in Table 2 as numbers 1 through 10, not in the order listed in Table 1. All reviewers will be referred to as "him" with no disrespect intended to the one female respondent.

Reviewer 1 through 3 were asked to respond to the Task 4 Report. Based on those responses, we decided to write a project summary document for the remaining reviewers that covered some of the earlier stages of the project and de-emphasized some of the details of the implementation of the planning template (Appendix 1). We e-mailed the complete document in some cases, and in other cases used e-mail to point to its location on a private, unlinked page on the World Wide Web of the Internet that also had links to all of our project research products to date. The URL of that page is <http://www.globaltelematics.com/mineta/>. A copy of this page is Appendix 2. This page also provided a project overview, summary of key findings and conclusions, review questions that we wished to have answered, our biographies, and other background information.

In eight of ten cases the responses from reviewers were delivered to us via electronic message, with a length of one to two pages of text. In the remaining two cases, we engaged in a face-to-face discussion with a reviewer and took our own notes.

Table 1 Professional Colleagues Who Responded to Request for Review and Comment

Kenneth Dueker, Professor, Urban Studies and Planning, and Director, Transportation Studies Center, Portland State University, Portland, Oregon

Susan Handy, Professor, Community and Regional Planning Program, School of Architecture, University of Texas, Austin, Texas; Chairman, Telecommunications and Travel Behavior Committee, Transportation Research Board

Gary Lawrence, Principal, Sustainable Strategies & Solutions, Inc., Seattle, Washington; Former Director of Planning, City of Seattle

Douglas Lee, US Department of Transportation, Volpe National Transportation Systems Center, Cambridge, Massachusetts

Edward Mierzejewski, Deputy Director, Center for Urban Transportation Research, University of South Florida, Tampa

Richard Morrill, Professor Emeritus, Geography, University of Washington, Seattle.

Douglas Porter, President, The Growth Management Institute, Chevy Chase, Maryland

Ed Risse, Principal, Synergy/Planning Inc., Fairfax, Virginia

Scott Rutherford, Professor, Civil and Environmental Engineering, University of Washington, Seattle

Jerry Schneider, Professor Emeritus, Civil and Environmental Engineering, University of Washington, Seattle; Webmaster, Transit-Focused Development Web

RESULTS OF THE REVIEW PROCESS

There was both criticism and support for the general direction we are taking in this research. In general, all negative positions taken by reviewers on things we said were counterbalanced with positives from other reviewers.

We asked some specific review questions, but not all reviewers responded to them directly (Table 2). In some cases, responses to these questions could be inferred. Following are the questions and summaries of the responses we received:

Question: How can we better document the importance of understanding non-commuting travel in planning for urban transportation?

Response: There was majority concurrence that non-commuting travel could be better understood. Two reviewers thought that much of the argument for improving planning could apply equally well to commuting trips. One reviewer said that he understood nonwork travel to be distributed in time throughout the travel day, and thus unimportant for planning. Another reviewer had a wholly independent answer to the problem that TOD planning attempts to address

-- properly pricing surface transportation -- that to him to regard the distinction between commuting and nonwork travel as unimportant.

Question: How could we improve the justification for a new (and complementary) metropolitan planning process?

Response: One reviewer responded by noting, “The urban transportation planning process purports to increase modal options for residents by denying or discouraging use of SOV and investing in non-auto modes and encouraging TODs. Actually, this process restricts consumer choice rather than increases it.” Another reviewer was not sure what justification we were offering: “Is the purpose of the new method or process to generate alternatives that otherwise would be missed, or to evaluate alternatives, or to develop a political consensus for a package of actions, or something else?” (Actually, all of these justifications are valid.) Another reviewer wrote, “Most people involved with transit believe that the retail destination is the one least attractive to transit users -- that is, fewer people will use transit to shop than to go to work or to an entertainment or recreational destination. You might reflect on this...” (Which, in fact, is what the whole project is about, so we need to communicate better in the final report.) There was an indication from two reviewers that improving transportation planning did not need to be linked exclusively to nonwork travel, but rather our arguments would be valid for journey-to-work as well.

Question: Are there additional arguments to show that the increasing complexity of both nonwork and work activity patterns and hence uncertainty in predicting the land use-transportation relationship requires a more flexible approach to regional planning, policies, and strategies?

Response: Three reviewers suggested additional detail points to reinforce our argument that complexity and uncertainty must be further incorporated into transportation planning. We are including those in the final report where appropriate. One reviewer dealt with complexity and uncertainty by focusing on the finding that surface transportation is underpriced.

Question: How can we improve our characterization of research on the region-wide impacts of transit-oriented development?

Response: Two of the reviewers suggested modifications in our characterization of their work, and we will make changes in the final versions of Table 1-2 and Appendix 2 of Report 4 where their work is referenced. One reviewer was positive about our overall characterization of his work..

Question: What other important empirical studies and planning methodology research papers should be documented and referenced in our background reports?

Response: Three reviewers suggested works they themselves had written that should be cited and added to the bibliography. Two further reviewers suggested entire disciplines of academic research (microeconomics and spatial choice) that they thought we had insufficiently covered.

Question: Is there additional evidence to substantiate our claim that current metropolitan transportation planning processes are dominated by a focus on the TOD paradigm?

Response: Five reviewers either accepted our claim of TOD dominance or implied that they did in other comments, while four other reviewers explicitly denied that our claim was true, saying that the major focus of transportation planning continues to be road building. Beyond these nine, a tenth reviewer did not comprehend that we were making the claim.

Question: What other data and analysis would add to the professional understanding of nonwork travel?

Response: One reviewer suggested more time-of-day data on nonwork travel. There were several suggestions for data-intensive research that would be beyond the scope of our project, but that we will add to recommendations for further work.

Question: What do you think about our emphasis on the qualitative evaluation of data by an expert panel as a complement to the quantitative modeling emphasis in MPO transportation planning methodology?

Response: Opinions ranged across the map from simple praise for the concept to outright rejection with a lot skepticism about making it work. Several reviewers were positive about putting four-step modeling into more of a supporting role. Some wanted additional detail about what kind of experts should be on the Expert Advisory Group. (We have made some changes in the composition of the recommended EAG in the Task 6 Report.)

Table 2 provides additional summary information on the reviewers and what they told us.

Table 1-2 Additional Information About Reviewers Comments

Reviewer number	1	2	3	4	5	6	7	8	9	10
Reviewed Task 4 Report (T) or special summary (S).	T	T	T	S	S	S	S	S	S	S
Knew about us previously as researchers	Y	Y	Y	Y	Y	N	N	N	Y	Y
Cited in the research review.	N	N	N	Y	N	Y	N	N	Y	N
Answered all review questions directly	N	N	N	Y	Y	N	Y	N	N	Y
Supportive (S) or critical (C) of TOD at the outset.	S	S	S	C	C	S	C	?	S	S
Concur (C) with our overall take or have alternative (A) take	A	C	A	C	C	A	A	C	A	A
Agreed (A) or disagreed (D) that TOD is dominant planning paradigm	A	A	A	A	A	D	?	D	D	D
Requested more implementation detail.	Y	N	Y	N	N	Y	N	Y	N	N
Positive (P) about our overall research direction/ Negative (N)/ Ambiguous (A)	N	P	A	P	P	P	N	P	P	A

FURTHER REACTION TO THE REVIEWER COMMENTS

Overall the comments pull us in two directions. One direction is in providing more back end detail on the process steps for the implementation. The other direction is toward more front end justification of why it is important that the urban transportation planning process be revised to include more consideration of nonwork travel and of alternative paradigms for responding to it.

Because of our perception that the material we are providing did not change the basic thinking of those who would be initially critical of our approach, we have decided to concentrate on the latter task in the final report. Some of the request for more detail on implementation would be satisfied if the reviewers would retrieve earlier task reports provided on the web for their access. In the final report, we will make their availability more clear, and provide summarization that hints at the detail provided.

The review process worked largely as planned, and we found the input very stimulating and helpful in making decisions about what to include in the Final Report.

CHAPTER TWO

FINAL TEMPLATE DESIGN

INTRODUCTION

This chapter presents a revised description of the Nonwork Travel Improvement Planning Process (NWTIPP) that was earlier proposed in our Task 2 and Task 4 reports. The revision reflects new insights gained from the outside peer review process described in the Task 5 report (Chapter 1 of this document).

The NWTIPP is a planning “template,” that is, a set of guidelines and elements that indicate how to augment and modify an MPO-created Metropolitan Transportation Plan (MTP) to reflect more accurately and comprehensively the existence and characteristics of nonwork trips, comprising the majority of all urban trips, and frequently chained with commuting trips. The heart of the proposed process is interaction between a small core Planning Team and a diverse Expert Advisory Group that will carry out a focused environmental assessment and a public policy backcast using a structured Delphi Backcasting technique of opinion-gathering and feedback. As this planning exercise proceeds, it is quite likely that the participants will modify it to fit the circumstances of the metropolitan region. Thus the template is described with a minimum of detail.

BACKGROUND

Front edge US urban transportation planning -- as practiced by officially-designated Metropolitan Planning Organizations (MPOs) in urban areas such as Portland, Seattle, Denver, Minneapolis, and Austin -- has responded in the past few years to growing traffic volume through justification and advocacy of Transit Oriented Development (TOD). TOD means dense, multiple-use commercial and residential development within a half-mile radius surrounding mass transit stations.

One intent of TOD is to improve accessibility to a range of retail and consumer services, in order to eliminate car trips associated with these destinations. Overall, however, nonwork trips are not as deeply considered as work trips (commuting) in the existing planning processes of MPOs. The work trip emphasis is illustrated by the consistent focus on peak period transportation capacity and congestion at the start and end of the business work day, and by the lumping of all nonwork trips into a “shopping” category. Earlier reports in this project have shown that there is merit in a supplementary planning process that more comprehensively understands the diversity of nonwork travel. We describe such a process in this document. We call it the Nonwork Travel Improvement Planning Process (NWTIPP).

The most important reason for focusing on the nonwork trip is the growing volume of such trips relative to commuting and work-related trips. According to the 1995 Nationwide Personal

Transportation Survey (NPTS), the number of trips that have what can be termed a retail consumer destination outnumbered trips having a workplace destination by over 3 to 1. Trips to stores, consumer services, restaurants, and recreation venues are of course far more varied and complex than journeys to work.

Work trips, including the commuting journey from home to work as well as work-related trips originating at the main place of work, constitute a significant minority share of travel, and that share is declining over time. Analysis of the NPTS shows that commuting and work-related trip purposes constituted 27% of all vehicle trips in 1995, down from 31% in 1969. At the same time, a large percentage of trips that begin or end at the workplace are linked to other trips that have retail or other nonwork purposes. Time-pressured people are making more stops on the way home from work, thus increasing nonwork travel in the peak travel periods. The 1995 NPTS found that more than 60 percent of women and 46 percent of men made at least one stop on work-to-home tours.

Spurred on by Smart Growth advocates, the urban transportation planning process in many US urban areas is recommending TOD as a central strategy for the future. But the failure of planning professionals to understand that TOD on its present path is simply incapable of serving more than a slim fraction of nonwork travel destinations, is our main indicator that there is a serious problem in urban planning methodology. We therefore decided to try to improve urban transportation planning overall by directly seeking planning improvements for nonwork travel, and by creating a planning process capable of finding more effective strategies than TOD to respond to the requirements of nonwork travel.

KEY ELEMENTS OF A NEW NONWORK TRAVEL PLANNING PROCESS

The Nonwork Travel Improvement Planning Process that we have designed comprehends, embraces, critiques, and supplements, but does not supplant, the existing planning process as carried out by MPOs. The NWTIPP involves several key characteristics in order to add value to MPO planning practices: better response to change, complexity, and uncertainty; repositioning of the four-step forecast model from a central to a supporting role; added capability to challenge traditional premises and paradigms that stand behind recommended policy and strategy; and employment of an especially broad range of expertise in a structured consensus-seeking, qualitative analysis process.

Responding to Change, Complexity, and Uncertainty

A comprehensive review of the forces shaping urban areas produces the list of planning considerations seen in Table 2-1.

Table 2-1 Key Factors to be Accounted for in Transportation and Land Use Planning

Demographics/Socioeconomics

- Net population change, including migration
- Household size trends
- Age profile, life span, and lifestyle
- Income levels and distribution

Residential Dynamics

- Residential mobility
- Preference for residential size, style, and environment
- Regional distribution of housing costs
- Effects of aging population
- Preference for home ownership
- Self-selection by transit riders
- Reaction to congestion

Employment/Education Dynamics

- Industrial structure
- Spatial distribution of workplaces
- Change in work day and week
- Part-time and temporary work
- Multiple job holders
- Self employment/work at home
- Telecommuting/telelearning
- Reaction to congestion
- Work-based travel for work-related and other purposes

Population Distribution

- Growth beyond central cities and counties
- Intra-regional shifts
- Inter-regional shifts
- Older central city resurgence

Land Use Dynamics

- Land use policies and regulations
- Redevelopment and infill development
- Open space preservation
- Public reaction to density and mixed-use

Nonwork Activity

- Variety and spatial distribution of “retail”
 - Impact of local government need/competition for tax revenues on location
 - Trends in going out vs. staying home
 - E-commerce
 - Impact of broader distribution of wealth
-
-

Table 2-1 continued

Freight and Goods Movement

- Just-in-time delivery to industry
- Home delivery of e-commerce goods
- Courier services

Costs, Benefits, and Other Fiscal Factors

- System capital and operating costs, including those for feeder service
- System utilization rate--new transit riders
- Externalities, including delay time and wasted fuel
- Direct private vehicle costs, including demand pricing
- Net benefit (cost) of alternatives
- Opportunity costs
- Available government and private resources
- Employer subsidization of alternative modes

Personal and Public Transportation Technology

- Alternative fuels
- Advanced vehicle propulsion technology
- Advanced fixed-guideway systems
- Safety improvements
- ITS applications

Other Technology Advances Affecting Travel to Work and Nonwork

- Teleconferencing
- Electronic service delivery
- Ubiquitous Internet
- Virtual reality

Environmental Policy

- Air quality standards
 - Greenhouse gases
-
-

The individual dynamics of all the factors in Table 2-1 combined with the interaction between many of the factors makes the transportation and land use milieu of an urban metropolitan area a very complex system. Complexity manifests in the dynamics of daily vehicle traffic, of consumer response to opportunity provided by new nonwork venues, of the labor market as firms start up, expand, contract, and shut down, and of industry responses to business opportunity, whether the industry is commercial real estate, entertainment, or retail.

Focus of Current Regional Planning

As we observe the plans that result from MPO planning processes, we see very little recognition of the current complexity of these patterns and the uncertainty in predicting future patterns. It is rare that a Metropolitan Transportation Plan (MTP) discusses and describes the risks and areas of uncertainty. The recommended outcomes of many front-edge MTPs, namely, an emphasis on guiding development toward areas of geographic concentration and then connecting the areas

together with mass transit, seems overly prescriptive and potentially unable to have the flexibility to respond to risks, uncertainties, and future requirements

By embracing knowledge and experience from many diverse fields, the NWTIPP is designed to reinforce the perception of a probability of unpredictable and even unknowable future developments that will influence government efforts to cause change.

Changes That Have Complicated Planning Efforts

Examples of largely unanticipated developments in the present or recent past that have influenced activity patterns, housing and commercial locations, and thus transportation make a staggeringly long list, including:

- women and teenagers in the work force
- smaller household size
- multiple earners in each household
- rising flexible employment: multiple jobs, temporary jobs, teleworking, flexible hours
- a ten-year economic boom with price stability and low interest rates
- a long-term drop in the cost of operating an automobile
- the popularity of light trucks and sport utility vehicles
- big box and other mass retail store formats
- growing variety and specialization in retail and consumer services
- consumer adoption of computers and the Internet, and
- explosive growth in use of portable, wireless telephones.

At the same time, there has been and continues to be great durability and continuity in other aspects of society that affect mobility and location:

- the continuing popularity of cars, free parking, and suburban living
- stability in tenures of employment
- constancy in the average length of the daily commute

- the adaptation and prosperity or at least survival of many central business districts despite the rise of the suburbs
- the evolution and adaptation of many shopping malls, and
- the continuity in the location of traditional institutions, like universities, libraries, and government centers.

Planning Horizons

That land use changes can take a long time to happen has been given as a reason for transportation planning to have a long time horizon. But because the uncertainties in what will change and what will stay the same loom larger as we look further into the future, we stress the importance of flexibility in the outcomes of planning processes, and urge very thoughtful attention to the issue of the length of the planning horizon.

We note the legal requirement of MPOs to plan 20 years into the future, but we leave open the question of how far ahead the NWTIPP should set its planning horizon. The reason that a more time-constrained planning horizon may be preferable goes beyond the uncertainty about the future that is inherent in a complex system. The accelerating rate of change in some aspects of society -- in Internet adoption, for example -- also adds to the uncertainty the longer the time horizon is set.

Trying to plan for nonwork travel beyond a decade in the future seems problematic to us. Long planning horizons tend to proscribe some policies and strategies, just as surely as short time horizons eliminate a different set of solutions. With a long planning horizon, solutions that are more easily implemented, more flexible, and possibly more cost-effective may be ignored in comparison to solutions that appear to be more durable and long-lasting.

Trends Likely to Impact Future Land Use and Transportation Patterns

All of this said, we can identify several technological and demographic trends apparent today that are likely to play out over the next few decades, including:

- dramatic increases in the power of computers and the Internet
- more electronic commerce
- continuing growth in the variety of all goods and services available for purchase
- continuing growth of telecommuting
- continuing improvements in the quality and price-performance of automobiles
- growing aging of the population

- uncertain lifestyle choices of the post World-War II Baby Boomers as they become senior citizens
- continuing immigration into the USA from other lands, with a melding of foreign cultures into the evolving multi-ethnic culture
- continuing voter resistance to levels of government revenue that are both sufficient to maintain existing transportation infrastructure and services, and simultaneously to implement new transportation services and infrastructure.

Needed: A Planning Process that Accounts for Complexity and Uncertainty

The array of issues in the lists above -- covering land development, human activity at various locations, and travel to get to those locations -- establishes the dimensions of the complex, dynamic urban system that is the focus of land use and transportation planning. The complexity encompasses the interaction of known, multiple forces and the continuing introduction of new forces as a result of the dynamics of technological innovation, entrepreneurship, and competition.

How planning should react to these uncertainties is a key question, one that we address in the NWTIPP by explicitly bringing into the process a number of types of experts and specialists who are not commonly involved in transportation planning.

ROLE OF MODELING

The main response to complexity seen in the typical MPO planning processes (standardized in Federal laws such as ISTEA and TEA-21) is a rather simple model of travel analysis zones (TAZs) made up of three kinds of subzones where people to varying degrees sleep, work, and engage in buying goods and services. The model is a series of equations calibrated to the latest available data on traffic flows and transit patronage. The model defines a structure of how land use is related to the movement of cars and buses. The basic structure of the model is then applied 20 or more years in the future against the same zones with new input assumptions of who and what is in the zones, based on assumptions for future residential population, employment, and kind of development. The mode and path by which people will travel in the future -- car, train, or bus -- is then estimated.

We find that the modeling process carried out as described has a number of significant limitations, summarized in Table 2-2.

The NWTIPP recognizes and responds to the complexity of the nonwork travel issue by moving away from the problematic application of travel forecast models. Urban transportation planning as now practiced by MPOs emphasizes efforts to change the forecast outcome of the model through interventions such as mass transit investments and encouragement of transit-oriented

development. These models are used to make long range estimates of the performance of transportation investments and land use strategies. We agree with those who think models can be used to promote infrastructure systems including both roads and mass transit that have been chosen on the basis of political criteria.

Table 2-2 Limitations of Urban Modeling Applied to Nonwork Travel

Difficulty encompassing all forces shaping form & activity
Simplistic aggregate characterization of nonwork travel
Crudely measures non-distance influences on spatial choice
Lack of nonwork activity data for calibration
Lack of transparency
Functional relationships not constant over time
Human response to congestion & time costs unpredictable
Not transferable between geographic areas

The NWTIPP relegates the four-step modeling of MPOs to a supporting role in planning, rather than being a central element. This positioning is intended to focus planning on a more robust, qualitative understanding of consumer and industry dynamics and the travel patterns thereby generated.

RECONSIDERING THE CURRENT MAJOR PREMISE OF PLANNING

Definitions

These are the definitions of terms we use in the NWTIPP:

- Premise -- the assumptions about how the world operates that stand behind paradigms, scenarios, and policies. A common main premise in MPO transportation planning is that government can influence land use to change enough to cause changes in travel behavior.
- Paradigm -- a vision of how society could work if certain premises about individual and organizational behavior hold true and if certain policies are implemented. TOD is a paradigm that follows from the main premise in MPO transportation planning.
- Scenario -- summary description of patterns of events in the future, as influenced by uncontrollable external forces and by public policies and spending. Scenarios are alternate implementation paths for paradigms. Developers of retail space changing their focus from customers arriving by automobile to customers arriving by transit is a scenario.

- Policy or strategy -- broad principles that guide action by government and the private sectors, often in pursuit of a paradigm, as in the case of transportation planning. Investment in rail mass transit to influence future land use is an example of a public policy strategy.
- Program or tactic -- specific action that conforms to and implements policy or strategy. The detail of zoning and design requirements around a transit station is an example.

Objectives of a New Process

One objective in the design of the NWTIPP is to create a planning process that is capable of identifying strengths and weaknesses in the main premise behind the TOD paradigm. The major premise behind this paradigm is that low-density, single-use urban form can be reshaped by government action -- rail (mass) transit investments and land use policies/strategies -- resulting in compact, mixed-use urban form that in turn supports and justifies the rail investment by producing new transit riders.

We think a better planning process than now seen would consider alternative premises, for example, that the forces at large in the marketplace may be too numerous and strong for government actions to reshape regional form and travel to any meaningful degree. Following from revised premises, the NWTIPP would be able to identify alternative paradigms, scenarios, and policies/strategies.

The overarching paradigm and set of policies governing all the assumptions in front-edge MPO planning today amounts to a government plan for changing transportation and land use in the future -- typically, new roads, expanded public transportation systems, and more density near the places to be served by public transportation.

Our view is that the probability of generating innovative, market-driven public policies for improving travel in a metropolitan area would be improved if there were a new, additional process of structured examination of the assumptions and results of the MPOs planning work. A new process would ensure that the complexity in metropolitan markets and the resulting uncertainty about the future would be inserted into the results of the MPO planning process, and add value to it. The new planning process could generate a range of possible future scenarios as a response to growing complexity and the uncertain impact of policies designed to achieve goals.

Choice of Paradigms

The NWTIPP emphasizes consideration of basic choices between public policy paradigms. Table 2-3 illustrates how the recognition of a broad premise -- that government action can make a difference -- leads to the opportunity to choose among a variety of paradigms and strategies that may reduce automobility and its impacts. Note that we take account of cost in classifying the strategies for a particular paradigm. The pursuit of one strategy may consume so many public dollars that the opportunity to pursue other strategies is lost because of insufficient resources. In short, every strategy carries with it an *opportunity cost*.

Table 2-3 Policy Paradigm Choices and Strategies in Government Action that Address Growing Urban Automobile Usage

Paradigms	Strategy Examples Classified by Relative Cost			
	Higher cost	Moderate cost	Lower cost	Incremental
Improve or promote transit to increase its market share in the competition with cars	Rail construction	Bus rapid transit; park and ride lots	Increase frequency and quality of existing transit service	Subsidies and incentives for bus pass distribution, carpools, and vanpools
Change land use to stimulate more walking and transit use and constrain car use	TOD at new transit stations	TOD at existing transit centers	Limit parking spaces at new developments if served by transit	Prohibit zoning that limits apartment development in areas served by transit
Accommodate cars and other vehicles by increasing road capacity	Build new roads	Intelligent Transportation Systems (ITS) applications	Widening, intersection improvement and better signalization	Maintain existing roads to quality standards; build more only in proportion to population growth
Reduce pollution from cars to make their use less damaging	Buy back old, polluting vehicles	Promote the use of zero-emission vehicles	Annual emissions inspections	Spot detection and citation of polluting vehicles
Constrain automobility to reduce use of cars	Congestion pricing on existing highways	Tolls to finance new highways	Traffic calming	Raise taxes and fees on gasoline or cars
Preserve open space and sensitive lands	Extensive government land purchase	Moderate land purchase	Purchase of development rights	Require cluster development and dedicated open space
Promote bicycle use to reduce auto use	Build an extensive network of dedicated, covered bike lanes	Build bike lanes where feasible	Bicycle lockers at transit stations; bike racks on buses	Encourage employers to provide storage, showers for bike commuters

Notes:

Shaded two cells together constitute the Rail-TOD paradigm

Paradigms and strategy elements are illustrative. They can be mixed and matched in various combinations. The main point is to illustrate the wide range of choices available.

Although the paradigms and strategies listed in Table 2-3 appear to encompass a broad range of possibilities, the listings in the table are intended to serve only as examples. The NWTIPP may, in fact, identify other paradigms that are amenable to government actions. Indeed, the planning process may begin with a wholly different premise regarding the efficacy of government action vis-a-vis the power of the market in shaping land use and transportation patterns.

Given the complexity of urban development and of the market economy that drives development, we expect that premises may need to be modified with the passage of time as a result of new understanding about the way the metropolitan area is functioning, and about the impact of public policies. Governments need to be able to react flexibly to unforeseen future developments of either kind.

Structured Use of Diverse Expertise

The NWTIPP's main tool for analysis of important subjective and qualitative dimensions is a process of reaching a consensus conclusion -- or where appropriate, an explicit divergence of opinion -- by a panel of specialist experts who work to describe what is and what will likely be the future of consumerism and the market economy. We call this panel the Expert Advisory Group, and we suggest that a structured, efficient method of using their expertise be incorporated into the NWTIPP.

A group process that we recommend to meet these requirements is the Delphi expert panel, a technique originally developed at the Rand Corporation in the early 1950s. A Delphi panel is a structured interaction among the members of a group with different kinds of expertise that allows a consensus to be reached or very explicit points of divergence on judgments about a complex topic to be identified. Table 2-4 summarizes Delphi and Backcasting, the combination of which is a distinct feature of the proposed planning template. Note that "backcasting" is *not* used in the sense of transportation planners calibrating their traffic forecast models by adjusting parameters to make the models conform to already available input and output data describing the baseline year and the forecast year.

Table 2-4: The Components of Delphi Backcasting

Delphi:

Diverse expert opinion collected from a group and iteratively presented as feedback to the group to modify opinions and converge on a consensus.

Backcasting:

Working backward from a particular desirable future endpoint to determine the feasibility of that future and what policy measures would be required to reach it.

Traditionally, Delphi has been used in making forecasts of the future. Backcasting makes judgments about the steps needed to reach a desired future state of affairs. In the NWTIPP we are less interested in forecasting and more interested in backcasting. In the context of the NWTIPP, backcasting means bringing goals, resources available to effect change, the reality of activity and movement, the feasibility of changes, and public policy recommendations into alignment. A Delphi Backcasting panel works backwards from the problem and desired outcome -- reduced traffic congestion, for example -- to determine if it is feasible, and then assesses necessary policies and other inputs that will produce the outcome or a feasible alternative outcome. When consensus cannot be reached on proposed solutions, alternative solutions are brought forward, or else some aspect of the goal is changed based on new knowledge.

In the NWTIPP, we envision engaging a multidisciplinary panel with expertise to understand the many areas of substantive knowledge and experience necessary to comprehend the topics listed in Table 2-1. Within many of the areas of expertise that bear on understanding this table, there are divergent opinions among experts. The results of the Delphi process will be dependent on the specific point of view of the individual representative experts selected. This introduces some uncertainty into the outcome of the planning process, which we do not regard as a bad event.

Other Characteristics Designed Into the NWTIPP:

- **May be carried out by Metropolitan Planning Organizations (MPOs), but more likely to be carried out initially by civic interests not officially-sanctioned by the MPO.**

It is our view that a uniform, nationwide mechanistic planning model imposed by the Federal Government on complex metropolitan transportation development may not yield sufficient learning to successfully address the complex problems at hand.

MPOs are generally deeply invested in a limited set of options. The opportunity for designing new alternatives is most likely to come from a new set of actors. If not carried out by an MPO, the end result of the planning process will have influence on official decision making to the degree that the analysis carries the quality and authority of expert knowledge clearly explained with persuasive reasoning.

- **Will not necessarily follow federal planning guidelines, programs, and other requirements for transportation planning by MPOs.**

The NWTIPP focuses on and reworks portions of the typical urban transportation planning process, and takes other portions as an input. Overall, a diverse panel deliberates the meaning of a wide range of data, including the existing MTP and model runs that stand behind it, and evaluates alternative transportation investment and the problems that the investments are intended to address. Table 2-5 makes a comparison between the NWTIPP and the typical MTP.

Table 2-5 Comparison Between the Nonwork Travel Improvement Planning Process (NWTIPP), and Current Metropolitan Transportation Planning Process (MTP)

MTP	NWTIPP
Carried out by MPO under legal mandates	Possibly carried out by MPO, but more likely to be carried out initially by other civic interests
Legal basis for regional transportation investments	Potential influence on investments based on quality of planning results
Based on Federal regulatory requirements	Not constrained by Federal regulations
Seeks to optimize the morning peak period	Can be focused on other problems and issues
20+ year time horizon mandatory	Shorter time horizons possible and preferred
Typically begins with a paradigm such as rail-TOD or new road projects and seeks to justify that paradigm	Seeks to find better paradigms to address a problems of public policy importance
Centered on the 4-step urban transportation model	4-step model results are just one input to Expert Panel

- **An emphasis on continuous learning by participants in the planning process.**

The NWTIPP focuses on knowledge creation and dissemination. A formal, structured, indexed, web-enabled Knowledge Base of documents should be built up and actively used throughout the planning process. Building awareness of how the market works -- now sorely lacking among planners -- is as important as generating action recommendations. Knowledge of the market can put realistic limits on the kinds of recommendations put forward by planners.

- **Metro-region-wide process.**

Many retailers now think in terms of total metropolitan areas, so we recommend that thinking about nonwork travel improvement be focused on this scale as well, instead of at the corridor level or subarea level like the Major Investment Studies (MIS) carried out under ISTEA and now merged into Environmental Impact Statements (EIS) as a result of TEA-21.

- **Explicit recognition that not making an additional transportation investment, or doing less than initially contemplated, may be the most desirable alternative.**

There are two reasons for this recognition -- (1) people can adapt to reduced transportation services by using alternative locations and behaviors, and (2) there are productive, non-transportation purposes (opportunity costs) for spending the money that is diverted from transportation-related spending, with some of these purposes serving the same needs that

transportation spending would fulfill. To give a general example, it may make more sense to build a new shopping center close by to a place that lacks adequate roads to a distant shopping center, rather than expanding the road capacity. By limiting transportation spending, the planning process remains open to the larger array of issues in which transportation planning is embedded.

- **Acknowledges and manages all technical transportation system alternatives -- immediately feasible or not.**

Individual members of the public and the media are very interested in the prospect of advanced transportation systems. Businesses around the world have new options on the drawing board. A higher level of public involvement will result if a fairly open process of considering all technical transportation options is maintained. These can be handled fairly through a consideration of their performance and cost parameters. We observe that transportation planning in practice focuses very quickly and conservatively on a rather narrow range of technical alternatives -- highways, light rail, commuter rail, and standard buses.

- **Comes to grips with the emergence of the Internet economy, widely-deployed microcomputers, ubiquitous personal communications, and other likely technology expansions over the next five years.**

The rise of the network economy is already a distinctive feature of the present era. The ubiquitous presence and use of computers and telecommunications is not yet mentioned in very many Metropolitan Transportation Plans, yet already is producing impacts on transportation. The routine use of cellular phones in cars is increasing the value of time alone in a moving automobile, for example. The continuing growth in small package delivery services in urban areas is another example, along with the announcement of billions of dollars in warehouse construction by firms selling goods on the Internet. The growing impacts from online selling on particular categories of retail businesses -- bookstores, automobile dealers, and travel agencies -- is a third illustration.

- **Accounts for the range of costs and benefits of the various scenarios that will arise from each examined alternative paradigm and its associated policies.**

This accounting will also provide a budget for each paradigm and policy package that describes the public costs and potential revenue sources to implement the policies.

COMPONENTS, PHASES, AND TASKS OF THE NWTIPP

The key components of the NWTIPP are listed in Table 2-6. The NWTIPP consists of fourteen steps, organized into five distinct phases as listed in Table 2-7. A diagram of the entire NWTIPP is provided in Figure 2-1.

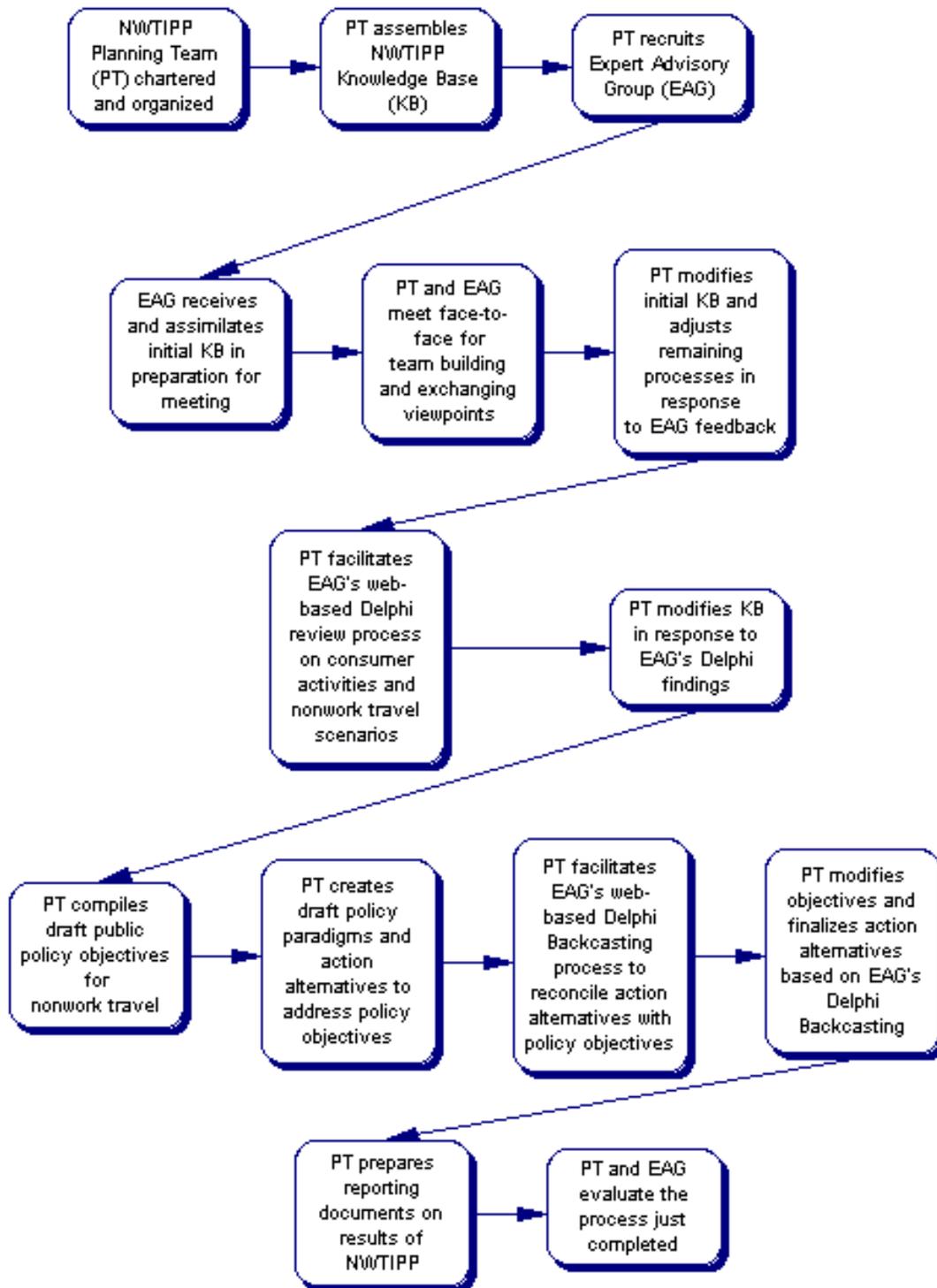
Table 2-6 Components of the Nonwork Travel Improvement Planning Process

Charter that establishes the sponsorship and mission of the NWTIPP.
Expert Advisory Group that brings diverse knowledge to the improvement of transportation planning for urban nonwork travel
Compensated Professional Planning Team to carry out a knowledge acquisition and dissemination process and to facilitate the knowledge generation activities of the Expert Advisory Group
Knowledge Management Process that initiates, refines, expands, and disseminates a Knowledge Base
Initial Knowledge Base that includes the findings from this project, plus a region-specific database like the prototype presented in the third report of this project, and that will expand throughout the project.
Delphi process for eliciting structured opinions and justifications from the Expert Advisory Group; backcasting orientation brings goals, policies, and market conditions into alignment.

Table 2-7 Phases of the NWTIPP

Process Initiation
Orientation of Expert Advisory Group
Consideration of consumer activities and nonwork travel scenarios
Development of public policy objectives and action alternatives
Process completion - evaluation and dissemination of results

Figure 2-1 Flow Chart of Nonwork Travel Improvement Planning Process



DETAIL ON THE TASKS OF THE NWTIPP

Phase 1: Process Initiation

Task 1-1: NWTIPP Planning Team Chartered and Organized

A first step is to establish legitimacy for carrying out the NWTIPP in a particular urban region. Every US metropolitan area in which the suggested NWTIPP would be relevant already has a Metropolitan Planning Organization (MPO) and an established process of transportation planning. The NWTIPP is not a replacement of the existing MPO metropolitan transportation planning process, and the NWTIPP does not attempt to meet all of the Federal requirements set in the ISTEA and TEA21 legislation.

The basic requirement for proceeding with an NWTIPP is its chartering and the commitment of resources to compensate and otherwise support the professional Planning Team. The source of resources could be a government agency or legislative body, foundation, corporation, or individual.

Although not necessarily carried out by a government agency, we do recommend that the NWTIPP be carried out by or in association with an organization with standing in the community -- a community-minded civic leadership association such as an economic development council, a chamber of commerce, or a local chapter of the American Planning Association comes to mind. Still another option would be a faculty-student project within a university urban planning graduate school program.

We envision that the Planning Team (PT) would consist of at least one full-time project management professional as Team Leader and enough other personnel to equal one and one half additional Full Time Equivalent persons. We recommend that the Planning Team organize around the following full and part-time roles: research coordinator, student intern supervisor, liaison with MPO, public involvement coordinator, web master, and Expert Advisory Group coordinator. At least a few members of the Planning Team should have transportation planning experience.

Early on, the Planning Team needs to establish its budget, mission statement, and ground rules. A minimum reasonable resource level for the Project Team's effort would be approximately 6,000 person hours over a year long elapsed time. Some of these hours may be from volunteers, but this total does not include the preparation of review comments by the general public or other readers of project documents who emerge from the community. The total does include about 500 hours that would need to come from the Expert Advisory Group. Whether these hours will be volunteered or will need to be compensated must be determined at the onset. From past experience, compensation will help guarantee that EAG members will remain with the project through completion.

Because NWTIPP challenges established transportation planning processes, confidence and mutual trust must be high on the Planning Team. We recommend that time be taken for team-building exercises that establish productive interpersonal group dynamics.

Task 1-2: Planning Team Assembles Knowledge Base

The Planning Team should carry out its work in a framework of knowledge management. The PT will be continually augmenting a Knowledge Base that is made available to the Expert Advisory Group and other interested parties. The conclusions of the EAG will be part of the KB also. We recommend presenting this KB as a well indexed, well summarized, cross-linked series of documents on the World Wide Web.

The KB would begin with an updated *review of academic research focused* on land use, transportation, and the TOD paradigm, as was begun by Nelson and Niles for the present project, shown in Report 4 of this project.

Another important part of the KB is a review of the *forces shaping the future of retail*. In this step, the Planning Team identifies market, technological, demographic, business, and social trends that are shaping development, activities, and movement in the present and in the foreseeable future. Areas of uncertainty should be compiled as part of this research.

The Planning Team should also include a general assessment of *present and future consumer activities*. These will be considered by the EAG in the Delphi process to come in Phase 3, intended to generate an elaborated view of the retail and consumer services industry in the region. The PT needs to compile information for the EAG that helps them to understand the activities and locations where consumers go to shop, eat out, recreate, and partake of culture, all of which constitute the cluster of activity we term "retail."

Understanding the present status of the region would be aided by having descriptive data on *present land use and land use trends underway*, including where residential, office, and retail/service facility growth is occurring.

The Planning Team should provide the EAG with a draft list of the *exogenous forces likely to be shaping the retail land use and activity in the region over the next five to ten years*. The items on the list should have weights assigned to indicate the relative importance of these trends, and also the degree to which local public policy can influence each trend in a constructive way.

As further preparation for the Delphi exercise, the Planning Team needs to compile available *information on how and why people travel now*: purposes, origin and destination pairs, modes, routes, and volumes; present public transportation services, including usage and capacity; the locations, time-duration, and causes of traffic congestion and related environmental impacts.

The current Metropolitan Transportation Plan developed by the MPO is a key input document for the NWTIPP. The Planning Team should understand and assess the MPO's transportation forecasts across their planning horizon, in particular, the MTP forecast for nonwork trips. There

may be major capital investments in new road capacity or mass transit systems already programmed, and these need to be assessed by examining the claims made for their impacts by the MPO. For example, what is the nonwork mode share mix between private vehicle use and public transit?

Another useful input to the Planning Team is a "present commitments" land use map of the region in the MPO's planning horizon year prepared with input from the judgment of the MPO planners and of the planning departments in the local government jurisdictions of the region. The map would show projected zoning and built area within that zoning, and also the projected network of highways and arterial roads, transit centers, park-and-ride lots, intra-urban rail lines, train stations, and other transportation infrastructure.

Significant transportation-related actions to be taken by governments, large employers, and significant trip-attraction sites need to be assessed. For example, in Seattle, the Regional Transit Authority is introducing all-day express bus service between the major urban centers over the next few years. The imminent opening of a regional shopping mall would also be significant.

Finally, the Planning Team must prepare an overview of the available financial resources to pay for government implementation of transportation capital construction and services. Fortunately, such a financial overview is often readily available from the MPO with supporting documents from the pertinent units of local and state government.

All of the information described above should finally be rolled up by the Planning Team into a series of alternative, descriptive draft scenarios on the future of nonwork travel in the region.

We estimate that compiling an initial Knowledge Base with the elements described here is a task that would consume 5 to 10 person-months of effort. Every effort should be taken to use data already available through the MPO and other research and planning organizations in the region under study.

Task 1-3: Planning Team Recruits Expert Advisory Group

As a central feature of the NWTIPP, the Planning Team interacts with a specially-recruited, panel of experts we call the Expert Advisory Group (EAG). The EAG will carry out an initial review of the Knowledge Base at the beginning of their work, plus two Delphi exercises that assess and expand upon critical additions to the KB made by the PT.

We recommend that the EAG consist of at least fifteen persons with a range of diverse expertise that bears on an assessment of consumer activities and nonwork travel in the present and the future. Areas of useful expertise for this group are shown in Table 2-8.

Important qualifications of the EAG include commitment to public service either as individuals or as employees of an organization that is committed; available time and personal interest in participating in the NWTIPP; and access and skill for receiving and sending information through the Internet. As part of maintaining a useful relationship with the general public that is affected

by transportation planning, the PT should publish a list of the names and biographies of the members of the EAG.

Table 2-8 Areas of Expertise for the Expert Advisory Group

• Regional economics
• Population demographics
• Retail business strategy and store location planning
• Consumer behavior regarding spatial choice in shopping, residential preference
• Leisure and recreation
• Behavioral characteristics of key segments: by age range, ethnicity, income group
• Public opinion analysis
• Electronic commerce: telework and teleshopping
• Commercial real estate development, leasing, appraisal
• Residential real estate development, marketing, appraisal
• Public transit planning
• Highway planning
• Intelligent Transportation Systems (ITS)
• Personal travel behavior
• Freight logistics
• Rideshare/vanpool promotion and coordination
• Local government lawmaking and regulation
• Urban land use planning
• Architecture
• Urban geography
• Environmental quality
• Cost-benefit analysis
• Dynamics of citizens' land use objections

Phase 2: Orientation of Expert Advisory Group

Task 2-1: Expert Advisory Group receives and assimilates initial Knowledge Base in preparation for meeting

The EAG will be provided immediately with Internet web access to the structured Knowledge Base, with their attention initially invited toward the mission of the NWTIPP, an overview of the process that is planned to be followed, and a baseline set of findings and conclusions from

previous literature on consumer activities and nonwork travel. Over a period of a month or so, each member of the EAG would need to have a working familiarity with the full range of material in the initial KB as described in Task 2-1 earlier.

Task 2-2: Planning Team and Expert Advisory Group meet face-to-face for team building and exchanging viewpoints

In general, because of the use of a web-enabled Delphi process, the PT and the EAG do not need to do their work in a face-to-face fashion. However, we do recommend one early face-to-face meeting of the EAG and the Planning Team to gain a common understanding of the NWTIPP to motivate a high level of participation and to build mutual understanding and trust.

This meeting would be an important opportunity for the EAG members to learn about the Delphi process to be used, and to provide feedback on the initial Knowledge Base and on the planned Delphi activities over the coming months of activity. The face-to-face meeting should result in a common understanding by the EAG and Planning Team on problem definition, and the range and scope of the premises, paradigms, and strategies that the NWTIPP will encompass.

Task 2-3: Planning Team modifies initial Knowledge Base and adjusts remaining processes in response to Expert Advisory Group feedback

In response to information received during the face-to-face meeting between the EAG and the PT, the PT would in this step take steps to augment the KB with additional information requested by the EAG. The PT would also make adjustments in the planned Delphi processes to take into account suggestions made by the EAG members about those processes.

Phase 3: Consideration of Consumer Activities and Nonwork Travel Scenarios

Task 3-1: Planning Team facilitates Expert Advisory Group's web-based Delphi review process on consumer activities and nonwork travel scenarios

In this step, the Planning Team facilitates the Expert Advisory Group's Delphi review process on consumer activities and future nonwork travel scenarios. This facilitation requires providing the EAG with structured information on a series of options for these activities and scenarios that the members can validate, refine, qualify, extend, or endorse.

We envision that the PT can provide all necessary information for the Delphi process via computer-based documents delivered to EAG members via electronic mail or web access to the Internet. Feedback from the EAG to the PT can also be collected through the Internet.

The EAG members would be encouraged to ask for additional information as they see fit from the Planning Team or anyone else. Information requested by one EAG member would be made available to all members. We would expect that the specialists on the EAG would come up with descriptions of many areas of risk and uncertainty that should be incorporated into the Knowledge Base.

Developing conclusions on important trends defining consumer activities over the next five to ten years in the region is the first desired result from the Delphi process to be exercised with the EAG. Under the guidance of the PT, over one to three iterations, the EAG would review, comment on, add to, and vote on a structured list of potential trends provided by the PT.

Simultaneously and in coordination with this review of trends, as a second component of the Delphi exercise, the EAG would review, comment on, add to, and vote on a number of scenarios on future regional nonwork trip-making for consumer activities, as prepared by the PT.

The scenarios prepared by the PT should reflect a comprehension and dissection of the MPOs existing central paradigm for transportation and land use. In many regions this is the rail-TOD paradigm, described earlier. The EAG should be encouraged to accept, revise, or extend the nonwork trip forecast in the Metropolitan Transportation Plan, which will reflect the chosen paradigm of the MPO.

Task 3-2: Planning Team modifies the Knowledge Base in response to the Expert Advisory Group's Delphi findings

After the EAG has reached its conclusions on consumer activities and nonwork travel scenarios, the PT will incorporate the results of the Delphi process into the KB.

Phase 4: Development of Public Policy Objectives and Action Alternatives

Task 4-1: Planning Team compiles draft public policy objectives for nonwork travel

In this step, the Planning Team establishes draft public policy objectives for nonwork travel. This means defining the problem or problems that the government is capable of addressing in its transportation and land use policy, and how one would know the extent to which the problems are solved. Reduce the congestion caused by the growth of nonwork travel? Reduce air and water pollution from vehicular travel? Preserve and protect environmental values? Increase the quality of urban life, including opportunities for home ownership with desired amenities? The objectives may go beyond those in the MTP. To the degree possible, the PT should work with regional decision makers to understand and incorporate their views into the draft objectives.

The objective for nonwork travel may be the same as the objective for *all* travel in the region. It may be that the public policy objective for nonwork travel is related to land-use; freezing the number of major decentralized shopping destinations, for example. The objective should reflect what people as residents and as representatives of businesses and other organizations say they want in transportation performance and environmental quality, and what they show they are willing to act on and pay for: neighborhood traffic calming, access to transit services, one-way streets, bus-priority lanes, or free parking, for example.

The statement of the objectives that the NWTIPP can reasonably address also needs to specify how to measure these problems in a base year and in a defined out year, and how success in the

resolution of these problems will be judged in the out year. As stated before, it is also important that financial budget limitations be recognized in the statement of objectives.

Task 4-2: Planning Team creates draft action alternatives to meet nonwork travel policy objectives

In this step, the Planning Team would formulate one or more paradigms and the associated policy packages that would potentially cause the region to achieve the draft objectives defined in the previous step. The output of this step is a draft list from the Planning Team of three to five effective and efficient policy packages intended to impact transportation performance in the out year for submission to the EAG. These alternatives should reflect an understanding of the existing institutional framework for planning and implementing changes in transportation and land use -- the institutional actors, plans, policies, strategies, and investments already in place. Each alternative must also include an estimate of the government and private sector resources necessary to implement.

Planners carrying out this NWTIPP template may want to include TOD as one of the alternative paradigms, but they should be free to design and choose whatever alternatives fit the circumstances of the region that is the focus.

Task 4-3: Planning Team facilitates Expert Advisory Group's web-based Delphi Backcasting process on objectives and action alternatives

In this critical portion of the NWTIPP, the focus for the Expert Advisory Group would be on judging the effectiveness and cost-effectiveness of different policy packages developed by the PT. By cost-effectiveness we mean consideration of what transportation performance or what amount of problem resolution is delivered for each dollar of cost. Cost-effectiveness may well have to be estimated, and different policy packages may offer different kinds of performance, so comparing packages may well be subjective.

However subjective, the EAG would be asked to rank the potential of each option for addressing the problems and issues defined, with cost as a consideration as well -- including opportunity cost of foregone options because of limited resources. An important aspect of the ranking will be a judgment on the flexibility inherent in each option to respond to changes in environmental conditions of the magnitude that are possible over the planning time horizon. The Delphi process should be aimed at reaching consensus on the policy package that will most likely be able to achieve success in meeting the intended cost-performance goal over the time frame of the NWTIPP. The EAG would be encouraged to suggest changes to the packages, especially if consensus were not forthcoming. Under the Delphi protocol, suggested changes would be compiled by the PT and used as the basis of a revised set of packages to be ranked by the panelists.

The recommended policy package may end up being one suggested by the Planning Team, or it may be an alternative policy design. Under the backcasting protocol that is part of this step, the PT must be ready to accommodate an adjustment of the problem definition or at least of the

public policy objectives associated with the definition, if the EAG is unable to find a set of policies and associated actions that is likely to solve the defined problem within a cost that is reasonable given available resources.

Even more fundamental than the serious possibility of revising policies and performance objectives, the EAG interaction on the research and forecasts developed by the Planning Team may lead to the generation of new scenarios that take into account previously unconsidered forces. This may lead to the revision or overthrow of a premise that is fundamental to a paradigm and all that follows from that paradigm in the way of policies and programs.

Realization that premises and the resulting paradigms are invalid naturally leads to creation of new paradigms, and correspondingly to a different set of policies and strategies. For example, in certain metropolitan areas the EAG may argue convincingly that governments are not sufficiently able to control patterns of development and travel to make a rail-TOD paradigm viable. In this case, new paradigms may include the acceptance of dispersed and decentralized growth supported by public policies and strategies that reduce travel impacts and increase environmental quality and urban livability.

Task 4-4: Planning Team modifies objectives and finalizes action alternatives based on Expert Advisory Group's Delphi Backcasting outcome

After two to three iterative rounds of Delphi consideration by the EAG that reaches consensus or at least a stable point of non-consensus, the PT would end the EAG process and add what was learned from their deliberations to the KB.

Phase 5: Process Completion

Task 5-1: Planning Team prepares reporting documents on results of NWTIPP

If this template works as designed, a refined, winnowed package of policy initiatives will be the result. This work of the Planning Team and Expert Advisory Group should be packaged for presentation to the media, the MPO, government administrators, elected decision makers, the general public, and the civic leadership of the region.

The Team may also recommend further planning steps. Under the influence of what the EAG reports, the Planning Team may face the prospect of having to repeat and rework earlier steps to account for considerations brought to light by the interaction of the diverse experts. There may be a need for further iterations of the objectives-paradigms-policies development. Alternatively or additionally, recommendations for action by the MPO may result.

Task 5-2: Planning Team and Expert Advisory Group evaluate the NWTIPP just completed

A final step in the NWTIPP is a reflective end-of-project evaluation of how the entire process functioned, with an emphasis on documenting and disseminating recommendations for the

improvement of future planning rounds. A fundamental characteristic of the NWTIPP will be the probable need to revisit the process regularly as new knowledge is developed.

Final Considerations

The core of the research project that designed the NWTIPP lies not in the details of the phases and tasks of how the process is carried out, but rather in the specification of four ideas for action to improve transportation planning:

- emphasizing nonwork trips in urban transportation planning
- assembling data to describe these trips and the activities and destinations that cause them
- assessing the meaning of nonwork trip phenomena
- adjusting the direction of public policy in response to the revealed data and what they mean

Even if the specifics in this Planning Template do not resonate within a particular community as a good way to implement the four ideas listed, we recommend trying an alternative implementation that fits the community.

The intent of the described NWTIPP planning template is to produce a supplemental transportation plan in the form of a report, web site, or other document that can educate and influence established planning authorities, decision makers both elected and appointed, the business community, various special interests, other stakeholders, the media, and the public generally.

We have not specified in any detail how the NWTIPP should or could manage its relationships with all of these parties along the way during the elapsed time when the planning process described above is carried out. These ongoing relationships are important, and they will need to be managed by the Professional Planning Team and those responsible for oversight of the NWTIPP.

In this description of the NWTIPP we have maintained a sharp focus on a particular area of substance (consumer behavior, retail industry dynamics, and resulting nonwork travel behavior) that is too slightly considered in today's MPO-led transportation planning. We will leave specifying the important tasks of external relations to the pioneering community leaders that first implement the NWTIPP.

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