

COMMENTARY

REVISITING TRANSPORTATION PLANNING

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Transportation planning in most states and cities is failing to plan for multi modal transportation systems and is often politically driven. Planners are continuing to do project planning. This essay proposes a new direction for transportation planning based on transportation trip purpose(s) and market sheds/corridors. The five trip purposes: journey to work, goods movement, tourism, economic generators and community travel. Understanding travel purposes in the market sheds will allow transportation planners to integrate these purposes into transportation systems, irrespective of mode, to meet the market needs. Our transportation infrastructure is a costly investment. We need to make smarter transportation investment decisions. We can no longer remain intolerant to our customer's purpose(s) for transportation. We need to understand the market and its relationship to economic and social goals to better plan our transportation system.

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Transportation is the connecting thread for people, business, and communities. Transportation is as critical to the mobility and economic and employment health of a nation, state, region, or community as the circulatory system is to the mobility and health of the human body. Maximizing the benefits of our transportation system requires robust and active planning to assure effective flows within and between our major urban, suburban, and rural areas. However, when we examine existing transportation planning models and decision-making tools, they appear too limited and too divided in scope to achieve the goals of a transportation system.

Transportation planning has lost its purpose. For too many, planning is simply done because it is required to obtain funding and not because it is useful or needed. Planning is a process—be it community, regional, national, or global—from which to make transportation mobility and access decisions. Properly carried out, the planning process provides a context for understanding the relationship of mobility to economic development and land use. In the real world, however, the transportation planning process operates within the framework of a public financing and business model wedded to modal funding sources and modal politics and projects. As a result, planning reality is far different than planning theory and its intentions. Even the recent federal surface transportation laws that were intended to foster better transportation planning are internally in conflict.¹

This project-planning orientation is occurring amid important changes that imply changes in the transportation systems that require transportation planning to be done in a broader context. Key changes affecting transportation planning are

- Globalization of our national and regional economies, which has fundamentally altered not only the movement of goods to new or different trade corridors, but also the nature of business travel in the country;
- Transportation systems that were planned and designed for a different era and that now face land-use patterns that make most changes costly, if not impossible;
- Travel that is more regional and outside of the traditional political definitions—requiring transportation system plans that encompass a larger social canvas, even as efforts are narrowed by decision makers representing only their parochial interests;
- Congestion resolution as a critical political transportation issue, with a desire to “build one’s way out of congestion;”
- Shedding or downsizing department of transportation (DOT) planning offices to balance budgets or to privatize the public business of government by having consultants do most of the public planning, often resulting in the DOTs providing the oversight and management not of the public transportation system but of consultants;
- Legalistic or regulatory approaches to planning in order to check off the process forms, thereby reducing the threat of environmental or community court or political challenges; and
- Technology that is allowing one to query data in ways that were not easily available before.

Too often, the emphasis in our strategic transportation plans is on strategic project investments that are localized within political boundaries and driven by modal funding silos.² At this time, there is little political incentive or gain to think beyond these boundaries.³ Thus, a certain pointlessness has emerged in our transportation planning.

Transportation planners operating in this environment have forgotten that markets drive most transportation decisions. The basic transportation truth is that trip purpose defines the market. It tells us why and how people make trip decisions. Too often, transportation planning is concerned with the physical aspects of the problem, overlooking the reasons why customers are making a trip and how the trip interfaces with the rest of the transportation system. It is the market, defined by trip purposes, that can provide a link from the theory to the reality of transportation planning and investments. The market provides not only the reason but also the political support for mobility and access within and between communities.

New Direction

This article proposes a new direction for transportation planning, particularly at the public level, that is more strategic and customer oriented, and above all more robust and interconnected. Such a new focus will improve the efficiencies of our transportation system and make the mobility of people and goods more effective, less aggravating, and more cost-efficient.

The basic premise of this new direction is that more effective transportation planning begins with an understanding of the transportation market with its multipurposes for trips and the relation these purposes have to trip making within transportation corridors, often multimodal corridors, that constitute major market sheds. Market sheds and corridors can service multiple travel purposes. Market sheds may or may not conform to state or country borders, and for some purposes, such as goods movement or tourism, market sheds may require regions that include many states and/or nations, for example, the NAFTA corridor. Furthermore, this planning approach can generate real performance measures to determine veracity and system accomplishments. To achieve this direction requires a change in how we approach transportation planning in the public sector and how we manage transportation in the public sector.

OVERVIEW OF TRADITIONAL TRANSPORTATION PLANNING

Public transportation planning in the United States is too often project oriented and modal.⁴ Efforts to broaden thinking to examine corridors are often restricted to modes and specific infrastructure; for example, we look at Interstate Route 81 in Virginia as a highway with trucks, and not as swath with rail freight potential. Furthermore, when we do look at trip purpose almost all public transportation planning is commuter oriented. Thus, it is not surprising that where goods movement shifts occur that threaten highway capacity or a neighborhood, we only realize this situation because it is affecting commuter highway capacity.

Private sector transportation goods movement planning, which is product driven and production-to-market oriented point-to-point distribution, offers valuable lessons for public planning. The private sector seeks to meet end-user demand in the most cost- and service-efficient way. They recognize that a product loses value when it cannot be efficiently transported through the logistic chain. The “logistics focus” is from identified key production and distribution flows within the manufacture and sale of a product and recognizes that there are several key transfer points along the way. The focus is concerned only with moving persons or goods from point A to point B, irrespective of mode, in the shortest time, at the least cost, and with no harm. Point-to-point travel is often multimodal and regional in nature, and often most effective using multimodes.

The average transportation consumer also uses a logistical and multimodal approach, even though the public sector has not adequately planned for the customer. Most urban and suburban travelers view transportation as a single trip from point A to point B that happens to use several modes. The single trip may have various components and stops. Unfortunately, travelers are often frustrated by inconvenience from the lack of interconnections that are necessary to make their trip seamless and continuous, but they make do.

Transportation planning often fails to grasp the confluence of multimodal choices that are available. Our public policies often fail to realize that the lack of efficient modal connections is a hidden tax on the productivity of our transportation system and our national economy.

In fact, the federal laws and regulations militate against intermodal and efficient transportation planning. Major capital investments for transit and highways are not treated the same. Transit projects require more time doing both the major investment study (MIS) and environmental impact statement (EIS) process, have more hoops with the Federal Transportation Administration (FTA), require 30% more local match, and have no funding certainty—because the dollars are subject to annual appropriations—than does a comparable major highway project. Unless absolutely needed, why would politicians support a transit project when it takes, on average, 5 years in planning, has no assurance that the funding will be there when the planning process is finished, and requires more local money? In contrast, the highway project requires only an EIS, the funds are guaranteed, and the match is 80% rather than 50%.

A logistics-based, customer-sensitive approach to transportation planning, with a level playing field, contains the seeds to dramatically improve both public and private sector transportation planning. The common elements are purpose of the trip, corridors, and viewing the multiple modes as part of one trip.

MULTIPURPOSE TRIP APPROACH

Looking at transportation in terms of trip purpose within market sheds or corridors through and within the state or region provides such a model.⁵

There are many ways to look at market sheds and corridors. The most common is geographical, with existing transportation infrastructure being the spinal column. A different perspective is proposed here. Market sheds and corridors are geographical swaths defined by market and multipurpose travel patterns. Understanding these travel purposes will allow transportation planners and decision makers to integrate these purposes or choose among them in developing a transportation system, irrespective of mode, to meet the market needs.

These travel patterns not only affect transportation investments but land-use decisions. Economic and/or social influences also shape why people and businesses locate where they do, such as affordable housing, schools, crime, business tax credits, location of suppliers, where the chairman lives, closeness to the train, and so on. These decisions can result in new and emerging travel patterns and possibly new corridors from the existing infrastructure. Consequently, we need to view transportation planning in terms of market sheds and corridors, with customers that have multipurposes for trips.

For discussion purposes, the article has narrowed down trip purposes to five types. The goal here is to understand the multinaure of travel purposes and the market sheds. The purpose is not to fracture transportation into purpose as opposed to modes. Once we understand the multipurposes of travel we can serve the market sheds with a transportation system. The five key travel purposes are

- (a) journey to work (often suburban and urban, but increasingly within suburban communities),
- (b) goods movement and trade (local, intrastate and interstate, often regional, as well as global),
- (c) tourism, entertainment, and recreation,
- (d) economic generators,
- (e) community travel (small trips, often local responsibilities; captures elderly, urban poor, kids, and pedestrians trips that are often overlooked in the larger corridors).

The northern New Jersey–Manhattan or the southern New Jersey–Philadelphia market shed/corridor serves the journey-to-work purpose but also serve goods movement, community travel, and tourist travel purposes. During the peak periods, they serve the different purposes simultaneously, with commuters often not making up more than 50% of travelers.⁶ Thus, understanding the overlap in purposes in the market shed with existing transportation infrastructure is important because the needs of the customers are different. In the case of customer information, the types of transportation information commuters relate to are travel performance and time. The commuter knows where he or she is going. In contrast, tourists often do not know where they are going. They are concerned about getting lost. Time is important, but not as important as it is to commuters. Tourists are more concerned about time lost in getting lost. They want directional information—trail blazers to assure them that they are not lost. Unfortunately, too often we sign our roadways for travelers who already know where they are going.

Thus, the same infrastructure can serve different travel purposes with different informational needs. Understanding the differences will allow us to better manage those needs and provide a better system and improved customer satisfaction.

Trip purposes also allow us to view investment decisions in a totality. For example, this concept can help prevent decisions to fix an intersection only to move the problem up a mile to the next intersection, or to concentrate on other modal options to resolve the problem. It provides a context to understand local land-use decisions on personal mobility for the locality, its neighbors, and the state. It allows us to understand safety data better.

A brief description of each of the purposes follows:

- (a) Journey to work: This purpose focuses on commutation, particularly during peak period. This is a dominant purpose for most DOTs. Addressing this purpose focuses the DOTs on origin and destination data about trips, how people are commuting within the existing infrastructure, what the impacts are to the existing system, what are the choke points; Are there solutions, are there ways to alter travel behavior by time or mode, safety data, and the like?

Journey to work is often focused on economic centers, whether Boston, Chicago, Atlanta, Los Angeles, or New York. In the Northeast, a significant amount of the commuter travel crosses

state boundaries. This requires a regional understanding and cooperative model. These economic centers also generate new corridors. In New Jersey, the Jersey City waterfront has created new economic end points for which transportation access needed to be provided. The transportation community often chooses to ignore other factors, such as affordable housing, that affect commutation. For example, Manhattan is a major economic center attracting millions of workers. Affordable housing is a major problem, and the lack of affordable housing is forcing more and more workers to live 60 to 100 miles away. This creates significant impacts on the existing transportation infrastructure, as roads designed for less demand are filling up, and the density may make traditional transit decisions impractical and/or cost prohibitive.

- (b) Goods movement: Goods movement corridors are very different from the other corridors and are more susceptible to modal competition, congestion, costs, new opportunities, infrastructure conditions, weather, and public policies. Just-in-time⁷ delivery standards make the efficiencies in these corridors even more important. Much of the DOT's interest is centered on the effects of trucks on highways and the desire for the trucks to "go away" and for goods to go on freight trains. By not focusing on the economics of goods movement or the long-term cost and social benefits that could be derived from developing alternative modes or modal connections, it often becomes wishful thinking on the part of DOTs for trucks to go away. It is ironic that a nation whose major cities developed and prospered because of their water access has all but abandoned the waterways in favor of highways for goods movement.

Overlaying these goods movement routes—air, water, and land—on a Geographic Information System (GIS) corridor map allows one to understand the logistical issues facing industry and the transportation needs for interconnectivity, safety, road, and bridge conditions and new and diversion routes, irrespective of modes. Applying layers of safety, land use, and so forth also allows managers to understand the dynamics between goods movement and these concerns. Recognizing the different corridor purposes in the same geography will help all of us better manage transportation dynamics.

New Jersey is one of the premier goods distributions centers in the United States. Load center ports in Newark and Elizabeth and a regional port in Camden, and the air cargo activities at Newark International and Philadelphia International airports, make New Jersey a point of origin and a destination for goods in the region, in the country, and in the world. Truck, rail freight, air passenger and air cargo planes, vans, barges and ships ply the roadways, waterways, tracks, and skies of New Jersey. Unfortunately, the design of the goods-movement infrastructure was laissez-faire because goods were not a public responsibility. Competition among freight carriers and the inability to use federal transportation funds kept investments in interconnections to a minimum. The result is few realistic alternatives to trucking and weakening connections that facilitate transfers between the modes.⁸

- (c) Tourism, entertainment, and recreation: Tourism is one of the largest industries in many states. Tourism is often seasonal, in areas with limited modal choices and restricted highways. The corridor demands are often greatest on Friday and Sunday nights. Tourism and vacation choices are strongly influenced by the economy and trends. Major tourism traffic generators have witnessed significant fluctuations in demand during the past 20 years that have changed mobility patterns during that time period. At the same time, year-round growth in many tourist areas, driven by the economic base needed to sustain the tourism market and in part by a graying population, is affecting tourism and the transportation infrastructure. This growth exacerbates the impacts of the tourism peaks as they commingle. Newer tourism market trends, such as "nature tourism" and "bed and breakfast," are creating new demands on existing infrastructure.

Gaming is more localized and less affected by the economy. It, too, has seasons and weekend demand during the off seasons and may include entertainment extravaganzas as a draw. It also

draws heavily on the tourism market, particularly in the summer. There is often a mix of transit and roadways in these corridors.

Entertainment is a large component of many urban economies, representing 10s of millions of dollars annually. Sports attractions generate large, concentrated hits on the infrastructure. Similarly, plays, concerts, and other nonsports events produce similar impacts. Although many of these events are weekends or evenings, the location of the events does affect transportation, for example, night baseball game and commuters. Good event planning and information systems are necessary to manage these different travel purposes.

- (d) Economic generators: These investments are usually in new or restored journey-to-work corridors and are the result of significant public and/or private economic decisions to invest in an area to spur growth. For example, the public invested billions in the Washington, D.C., metro. It is a success. The success has restored the economic vitality to many communities and created new economic generators within its system.

Unfortunately, economic investments often occur without understanding either the long-term or broad transportation impacts. They are driven by many other factors, including communities pursuing economic growth to lower property taxes, despite the negative impacts on the transportation infrastructure. The result in too many cases is strip development that destroys the capacity of the roadway investments.

- (e) Community travel: The corridors described above focus on large market sheds. This trip purpose—corridor's focus is on smaller distances that are localized, often in one community or its neighbor, for example, opportunities to access parks without an auto, to allow children safe routes to schools, or to provide older citizens access within the community or access to shopping or medical services.

As demands for more affordable living and workspace expand into the rural area, certain untainted routes are threatened with development. There is a need for transportation officials to work with Smart Growth proponents to preserve limited roadway capacity. Purchasing the development or access rights along the roadway can do this and thereby limit the growth of strip development that destroys roadway capacity.

These and other needs often compete with larger commuter, tourism, or goods-movement activities and needs. Community travel is often an afterthought. Community travel is scattered throughout a state and is often a local decision. The needs for safe walking and biking are increasing. The demographic changes of the graying of America and the soon-to-be-actualized need for alternatives to the auto for older customers are being ignored. As we look at the other corridors, we must understand these needs as well and anticipate basically conflicts and resolve them. However, if our transportation planning does not even recognize them, then it is very difficult and more costly to resolve them.

NEW PLANNING PROCESS

The article's thesis is that once we understand the travel patterns and market sheds and restructure the transportation business models, one can put the technologies of GIS and global positioning systems (GPS) to best use. These technologies can significantly enhance our ability to integrate the travel purposes within geographical locations, policy objectives, and develop models to test the various transportation system investments against a common set of performance measures. The models and the GIS data would also provide information about mobility, efficiency, and finance, as well as the impact on the environment, land use, economic development, market forces, and social factors such as schools and housing.

The system management on pavement and bridge conditions or safety or transit equipment or other management information gets integrated into the market sheds. They become part of the investment

analysis to achieve the multiple trip purposes in the market shed. There is no loss in data collected by the DOTs. The data become information about how the system is performing to achieve multiple trip purposes and not simply data about what is happening about this bridge.

The overall transportation plan becomes the strategic investment and operational plan. It provides the reason or reasons for system investments, the type or types of systems, the data and support for the system investments, the political and social justification for the investments because the investments are tied to the customer purpose in the market shed, and the performance basis expected. The financial allocation of resources then is made against investments that are less politically driven and more performance driven. From this investment plan, one then creates the capital program of projects.

To successfully do this, we also need to remove the financial shackles of federal funding silos to allow for funding transportation systems. We need to level the playing field in federal regulations between transit and highways so that the needs, as opposed to the process, drive the transportation decisions. We need to encourage a federal process that considers the best transportation investments, irrespective of mode.

Conclusion

Transportation planning as it is being practiced today is not making the grade. The narrow project and modal focus have resulted in significant financial and social costs. The inability to understand trip purposes has resulted in unnecessary inefficiencies and disruptions. Even when corridor analysis is undertaken, the analysis focuses on projects in the corridor and single-mode activity. Most corridor analyses do not consider the broad range of purposes for trips.

Our transportation infrastructure is one of the more costly investments the public and private sectors can make. The dollar investments for the existing transportation system needs and the growth demands far outpace our current modal financial capacity. We need to be smarter and better in our transportation investment decisions. To accomplish that, we must rethink transportation planning. We cannot afford the luxury of modal competition, the lack of modal connections, the insensitivity to communities, and the lack of transportation management. But most of all, we can no longer remain intolerant of our customers' purposes for transportation. We need to understand the dynamics of the market and its relationship to fundamental economic and social goals and the opportunities that technology can provide to better plan our transportation system.

By focusing transportation on the purpose of trips and by using market sheds and corridors, the transportation community receives an extra bonus of understanding the economic, social, and environmental issues in the corridor early on and engaging the various communities early on. This will allow project planning to better address the potential issues and costs early and better justify their project or recognize that there might be better solutions.

Unfortunately, most DOTs and transit properties are embarked on downsizing their planning departments to reduce operating costs. They compensate for this by contracting out the planning. The most available funding is tied to projects; it is not unusual for the majority of planning efforts to be project focused and modal. Thus, we perpetuate the problem.

We need to reinvigorate our planning with a new direction and develop a new paradigm where transportation is planned and designed to meet market purposes within market sheds and a transportation system. We need a process that is accountable, with understandable measures. We need to rethink transportation planning in terms of the purposes for mobility, transportation's role within a larger societal framework, and transportation as a system and not as specific modes with their own funding sources.

We also need to level the federal playing field between the modes. Transit investments versus highway investments will fare poorly as long as major transit investments require more federal hoops, more local match, and have more uncertainty in funding than highways.

Notes

1. Provisions of ISTEA (Intermodal Surface Transportation Efficiency Act) and TEA-21 (Transportation Equity Act for the 21st Century) call for management systems, long-range and 2-year transportation plans and programs that are financially constrained and engage the community through metropolitan planning organizations (MPOs). At the same time, Congress front loads the act with modal “earmarkings” for specific projects—and the earmarkings are growing as a percentage of overall funding. Many MPOs use the long-range transportation plan as a vehicle to provide an almost endless stream of specific modal projects for the political members on their boards. Plans that are supposed to be financially constrained are brokered to allow all or almost all projects to appear by artificially reducing project costs. The justification is that each member of the MPO boards must “bring home the bacon” just as the members of Congress are expected to do. Many multistate MPOs divide the dollars up between the different communities, such as the District of Columbia, Maryland, and Virginia, and then simply combine the projects into a so-called regional plan, irrespective of regional needs. Furthermore, unless specifically authorized by law, the use of federal funds from one state in another state to advance a regional project is not allowed, and MPOs jealously guard their funds for investments only in their areas. Thus, it is very difficult to finance regional projects. These realities and other changes make the achievement of the theory next to impossible.

2. There have been and continue to be roadblocks—political and legal—to strategies and investments that cross state or local boundaries.

3. The Northeast is composed of 13 states and major cities such as Boston, New York, and Philadelphia, with 13 different governors, legislatures, departments of transportation (DOTs), and so forth. Each state and city is accountable to its citizens. They seek to maximize the transportation investments for themselves and see no political value in investing in another state or city to solve regional transportation problems. Yet, the distances between the states are so small that one can easily travel and do business within the various states in a day.

4. Project planning is critical to the success of the project. However, the concentration on project planning has resulted in DOTs solving a congested intersection at one location only to move the congestion problem to the next intersection. There are some efforts at looking at the roadway as a corridor and determining what needs to be done on the roadway as a whole to counter the incrementalism of past practices. Unfortunately, much of the planning is still focused on the project. Modal planning is a consequence of the financing and institutional structures we have developed (see Ankner, “Financing Intermodal Transportation,” www.reconnectingamerica.org, section 1).

5. Pennsylvania DOT and the federal DOT have been approaching planning from the perspective of point-to-point corridors for a while with good results. The corridor approach has been found useful to them.

6. Pennsylvania-New York-New Jersey trans Hudson organization and development studies in the mid-1980s.

7. The idea of just-in-time delivery appears to be phasing out because of the logistical difficulties and costs. However, the need for reliable and predictable delivery schedules for freight is real, and a new approach called time-certain delivery is gaining momentum. This concept and standards are designed to make the freight corridors more efficient.

8. Complex policy and historical modal competitive relationships have created policy and funding processes that strongly favor highway solutions over improved connectivity and the development on nontruck freight modes in corridors shorter than 500 miles (from an unpublished policy paper by Robert James, “Intermodal Freight System Improvement Program”).