

PERSPECTIVES ON THE INTEGRATION OF TRANSPORTATION AND LAND USE PLANNING IN THE UNITED STATES

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ABSTRACT

Transportation planning and land use planning have a rich history in the United States (U.S.) The transportation planning process in the U.S. is primarily influenced by stakeholders at the federal, state and regional levels and has been evolving since the early part of the twentieth century when federal funds were first made available to states for roadway construction. Land use planning is much different and is controlled by local governments and citizen groups. Land use planning is embodied by local comprehensive plans and zoning ordinances which are developed through a local process whereby stakeholders from the community create a future vision of their neighborhoods in terms of housing mix, business locations, density, etc. Using case study examples from Washington State and the Commonwealth of Virginia, this paper first discusses the evolution of transportation and land use planning in the U.S. Second, the paper identifies some of the challenges that state transportation agencies must address that have little to no authority over land use decisions and individual life choices that people make. Finally, the paper concludes with a summary of what U.S. transportation agencies are doing to move forward with better integrating transportation and land use planning.

1. INTRODUCTION

Transportation planning and land use planning have a rich history in the United States (U.S.) The transportation planning process in the U.S. is primarily influenced by stakeholders at the federal, state and regional levels and has been evolving since the early part of the twentieth century when federal funds were first made available to states for roadway construction. Land use planning is much different and is controlled by local governments and citizen groups. Land use planning is embodied by local comprehensive plans and zoning ordinances which are developed through a local process whereby stakeholders from the community create a future vision of their neighborhoods in terms of housing mix, business locations, density, etc.

The U.S. is an amalgam of states with different government structures, transportation functions, and development patterns which leads to very different processes for both the planning of transportation systems and land use systems. For example, the

Commonwealth of Virginia owns and maintains more than 95 percent of the roads within the state. In Michigan, the state owns and maintains less than 25 percent. In the District of Columbia, all roadways are considered urban while Alabama and West Virginia have some of the highest percent of rural roadways. Clearly there is significant diversity in the U.S. with no two states exactly the same and with a federal government that exerts little, if any, control over local decision-making. Thus, integrating transportation and land use planning in the U.S. can be complicated and difficult process.

This paper provides a brief discussion on how state DOTs are making headway into the important aspect of transportation and land use integration. Planning professionals throughout the U.S. understand the symbiotic nature of transportation and land use systems. However, government and funding structures in the U.S. do not always make it easy to effectively integrate transportation and land use planning. This has not stopped this integration to occur. Using case study examples from the federal, state, and local level, this paper provides a snapshot of the good work occurring in the U.S. related to transportation and land use planning integration.

2. PLANNING IN THE UNITED STATES*

The transportation and land use planning process has evolved significantly over the past century because of the involvement of decision makers and stakeholders in developing transportation and land use policies; federal requirements and funding availability; and advances in computing technologies and modelling theories. The transportation and land use planning processes were developed independently of each other through much of the twentieth century. The following provides a brief overview of the two separate processes and how the two are being integrated with each other.

2.1. Transportation Planning

Throughout much of the twentieth century, the planning, design and construction of transportation systems was a function of state and local governments. In 1916, the U.S. Congress established the Federal Aid Highway Program which allocated funding for the construction of highways to state authorities. In 1956, Congress passed legislation establishing the Highway Trust Fund which launched the planning, design, and construction of the present-day Interstate highway system. The 1956 legislation established a motor fuel tax to fund 90 percent of the cost to construct designated sections of the interstate highway system. State and local governments continued to plan, fund and operate state and local roadways. Transit, rail networks, airports, ports and ferry systems also continued to be funded primarily by non-federal sources (state, local, and private).

Highway construction endured through the 1960s. Beginning in the 1970s opposition to highway construction began to take hold in many cities throughout the U.S. with opponents demanding increased community involvement and serious consideration to non-highway modes (Gifford 2003, chap. 4). In 1969, the National Environmental Policy Act (NEPA) required new levels of environmental planning associated with transportation projects receiving federal funds and was further strengthened by the 1970 Clean Air Act (CAA) and 1990 CAAA (Johnston 2004). Finally, the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) ushered in a new era of federally-funded transportation planning establishing regional planning organizations as "...sources of

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objective, comprehensive analysis and planning.” Such that multi-modal transportation planning is conducted at a regional level in an objective manner (Gifford 2003, 119).

Transportation planning has evolved into a complex, multi-jurisdictional, multimodal, institutionalized process embodied by many different products such as a transportation improvement program plan or a long-range transportation plan. They are developed based upon the involvement of various stakeholders from all levels of government and numerous stakeholder groups, though dominated by regulations and requirements established by the federal government.

2.2. Land Use Planning

Land use planning, in similar fashion to transportation planning, is also a complex process involving numerous actors and stakeholders. However, in contrast to transportation planning, land use planning occurs primarily at the local level (county or city) and is embodied by a local comprehensive plan and set of zoning ordinances (Kelly and Becker 1999, chap. 2). Developing the comprehensive plan is a local process whereby stakeholders from the community create a future vision of their neighborhoods in terms of housing mix, business locations, density, etc. Unlike the transportation planning process, the land use planning process does not place a heavy emphasis on the use of modeling tools to support the development of a comprehensive plan.

Historically, transportation has been taken as exogenous to the land use planning process but has now evolved to include a close coupling with land use planning (E. Miller, Kriger, and Hunt 1998). For example, development of a comprehensive plan now includes a transportation component. Also, many localities are tying major redevelopments to transportation infrastructure improvements. One of the first communities to accomplish this was Arlington County, Virginia and the planning for the redevelopment of the Rosslyn-Ballston Corridor that began in the 1960s. The county was proactive in having transportation planners to reexamine the role of MetroRail within the corridor as well as the impact that Interstate 66 would have on residents (Gifford 2003, 3; Schrag 2006). Today, the foresight of the local planners as well as intense community involvement that ensued has created one of the most widely cited examples of integrated transportation-land use planning (Schrag 2006).

3. CASE STUDY EXAMPLES

The evolution of integrating transportation and land use planning in the U.S. is best illustrated through case study examples. For this paper, three case studies are provided that give a perspective from the federal, state and local levels. The first case study is the U.S. DOT Livability Principles. These six principles, developed in 2009, articulate desirable outcomes from federal investments in transportation systems. The second case study is the Washington State DOT and its evolving role from purely the design, construction and operation of roadways to a sustainable transportation partner. The third case study concerns the extension of MetroRail to Dulles International Airport in the Northern Virginia region and the decision of local businesses to tax themselves in order to fund, in part, a transportation project that will significantly affect land use patterns.

3.1. CASE STUDY 1: U.S. DOT Livability Principles

In 2009, the Partnership for Sustainable Communities was formed among the U.S. Department of Housing and Urban Development, U.S. Department of Transportation, and

the U.S. Environmental Protection Agency. The agreement called for the: a) coordination of federal housing, transportation and environmental investments; b) protection of public health and the environment; c) promotion of equitable development; and d) help address the challenges of climate change. The three agencies work together to coordinate federal policies, programs, and resources to help urban, suburban, and rural areas and regions build more sustainable communities and make those communities the leading style of development in the United States.

The U.S. DOT has adopted six livability principles that work towards the goals of the sustainable communities partnership. These include:

1. Provide more transportation choices to decrease household transportation costs, reduce our dependence on oil, improve air quality and promote public health.
2. Expand location- and energy-efficient housing choices for people of all ages, incomes, races and ethnicities to increase mobility and lower the combined cost of housing and transportation.
3. Improve economic competitiveness of neighborhoods by giving people reliable access to employment centers, educational opportunities, services and other basic needs.
4. Target federal funding toward existing communities – through transit-oriented and land recycling – to revitalize communities, reduce public works costs, and safeguard rural landscapes.
5. Align federal policies and funding to remove barriers to collaboration, leverage funding and increase the effectiveness of programs to plan for future growth.
6. Enhance the unique characteristics of all communities by investing in healthy, safe and walkable neighborhoods, whether rural, urban or suburban.

Most of the livability principles identify outcomes (land use and economic) that are desirable from a federal perspective as a result of transportation policies. In order to encourage these outcomes, the U.S. DOT has implemented a number of federal-level discretionary transportation funding programs whereby state DOTs, regional governments, and local governments can apply for transportation funding of projects that will address six livability principles. For example, the U.S. DOT implemented the Transportation Investment Generating Economic Recovery (TIGER) Grants in 2010 which provided \$1.5 billion in transportation projects ranging in size from under \$4 million to over \$100 million in both rural and urban communities.

3.2. CASE STUDY 2: Washington State DOT

In Washington, the Washington State Department of Transportation (WSDOT), local governments, and regional governments all play a role in providing an integrated transportation system that is reliable, responsible, and sustainable. WSDOT transportation policy has evolved significantly since WSDOT was first created in 1905. As shown in Figure 1, from 1905 to 1960, state transportation policy was primarily focused on building more, better, and safer roads. That changed in the 1960s as community and environmental activists advocated for the state to address the impacts of road building on people and places. The 1970s oil crisis reinforced a growing public sentiment that building roads alone would not meet the state's transportation needs. Since then, state transportation policies have gradually branched out to address a much broader range of issues—from transit and biking to wetlands and habitat connectivity. In 2008, WSDOT started bringing together various state transportation policy objectives under the *Moving Washington* framework—giving the agency a more cohesive way to describe its approach

to maintaining, preserving, and getting the most out of the state's transportation system. In 2011, *Moving Washington* evolved to reflect the agency's commitment to an ethic of sustainability. WSDOT defines a sustainable transportation system as a system that preserves the environment, is durable, and takes into account how the agency builds and the materials it uses. Sustainable transportation uses management and operation strategies and policies that meet society's present needs without compromising the ability of future generations to meet their own needs. Sustainable transportation is what WSDOT does and *Moving Washington* communicates how it does it.

Evolution of Washington State Transportation Policy

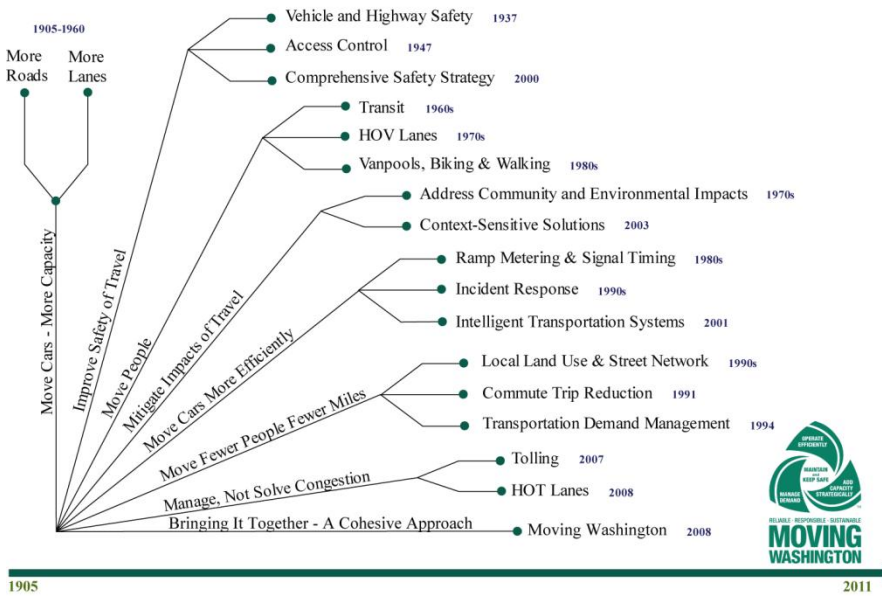


Figure 1 - Evolution of Washington State Transportation Policy



Figure 2 - Moving Washington Framework

Integrating land use and transportation planning and decision-making is part of all three spokes of the *Moving Washington* “wheel”—it helps WSDOT manage demand, operate efficiently, and add capacity strategically. WSDOT’s formal involvement in local land use decisions began in 1971 with the adoption of the State Environmental Policy Act (SEPA). This legislation defined a process for the consideration of the environmental and community impacts of public decisions. The SEPA process required public agencies to notify and accept comments from other agencies potentially impacted by their decisions. For the first time, WSDOT had a legislatively defined opportunity to review and respond to local planning, regulatory, and permitting decisions by identifying their traffic impacts and suggesting appropriate mitigation. At the same time, the National Environmental Policy Act meant that WSDOT was also disclosing the impacts of transportation projects on communities—providing an opportunity to identify community concerns and develop potential strategies to address adverse impacts.

In 1990, the Washington State Growth Management Act (GMA) reinforced the link between local land use and state transportation policy. The GMA is a state policy framework for local comprehensive planning and land use regulation. The GMA identifies 14 statewide planning goals and prescribes a process and certain minimum requirements for the adoption and update of comprehensive plans and development regulations by local governments. The GMA’s transportation planning goal encourages the establishment of multimodal transportation systems based on regional priorities and coordinated with county and city comprehensive plans. The GMA also requires counties and cities within

them to designate 20-year urban growth boundaries, within which urban growth is to be encouraged and outside of which growth should occur only if it is not urban.

The GMA emphasizes local discretion over state control. Local land use plans and regulations do not require state approval, with the exception of shoreline master programs. The GMA does require local governments to submit proposed land use plans and regulations to state agencies for review. State agencies can provide technical assistance, written comment, and oral testimony to cities and counties, but local governments are not required to take action based on state agency comments. State agencies, or other parties with standing, can appeal a locally adopted plan or regulation to the growth management hearings board.

An important element of the GMA is a transportation concurrency requirement where local governments must set level of service (LOS) standards for transportation facilities and services. Once the LOS standard is established, the local government must adopt an ordinance to deny proposed developments if they cause the LOS on a locally-owned transportation facility to decline below the adopted standard, unless transportation improvements or strategies to accommodate the impacts of development are made concurrent with development. Because transportation concurrency is generally only required for locally-owned transportation facilities, the GMA provides a number of other opportunities for coordination between state and local transportation planning such as:

- Inventory of the state-owned transportation facilities within their boundaries,
- Estimate of the traffic impacts to state-owned transportation facilities resulting from their land use assumptions,
- List of the state transportation system improvements needed to meet demand, and
- Adopted LOS service standards for state-owned highways.

The GMA was important in other aspects as well. It authorized the establishment and provided state funding for regional transportation planning organizations to connect state and local planning. And, it provides the opportunity for state agencies to review and comment on local plans and development regulations. WSDOT participates in the local land use process to encourage local governments to disclose and consider the nature and extent of the effects of their transportation and land use decisions on the safety and performance of the state transportation.

While Washington relies heavily on SEPA and the GMA to help make connections between land use and transportation planning, WSDOT also has pioneered a number of other programs that help integrate transportation and land use. The following three case studies provide highlights of these programs and partnerships.

3.2.1 PSRC Transportation 2040 Plan

The Puget Sound Regional Council (PSRC) is the regional planning organization for the Puget Sound region of Washington State, which encompasses 4 counties and 82 cities. PSRC plans for regional transportation, land use, and economic development, under authority embodied in both state and federal laws. PSRC is designated under federal law as a Metropolitan Planning Organization. PSRC also supports the work of the region's federally designated Economic Development District. PSRC maintains a common vision for the region's future, expressed through three connected major activities: VISION 2040 (the region's growth strategy), Transportation 2040 (the region's long-range transportation plan), and the Prosperity Partnership (which develops and advances the region's economic strategy).

Transportation 2040 is an action plan for transportation in the Central Puget Sound region for the next 30 years. WSDOT was an integral partner in developing this regional plan. By the year 2040, the region is expected to grow by roughly 1.5 million people and support more than 1.2 million new jobs. All of these new people and new jobs are expected to boost demand for travel within and through the region by about 40 percent. In order to address this significant growth, Transportation 2040:

- Directs support of the region's growth strategy, VISION 2040, focusing job and housing growth in centers.
- Prioritizes transportation projects based on their service to regional centers.
- Incorporates technology to improve mobility and reduce congestion in 12 smart corridors (consistent with WSDOT's active traffic management efforts).
- Identifies a four-part strategy to reduce greenhouse gas emissions and vehicle miles travelled.
- Develops a new funding structure to replace the gas tax based on progressively introduced user fees, starting with High Occupancy Toll (HOT) lanes, and by 2030 evolving to full highway system tolls.

3.2.2 The Aurora Corridor Project

The Aurora Corridor project exemplifies local planning for a multimodal state highway corridor and core retail center that supports Washington State's transportation vision. Aurora Avenue in the City of Shoreline, a northern suburb of Seattle, was one of the state's most hazardous stretches of urban highway. The percentage of pedestrian and vehicle incidents that were fatal or disabling was twice the statewide average for similar roadways. The City of Shoreline collaborated with WSDOT and other partners to:

- Increase pedestrian safety by adding a pedestrian overpass, sidewalks, wheelchair ramps, and improving visual and audible crossing signals.
- Improve transit service and reliability by adding transit lanes and improving transit stop areas.
- Improve traffic safety and flow by adding business access and turn lanes and eliminating two-way center turn lanes.
- Enhance community design by adding street trees and landscaped medians.



Aurora Avenue (State Route 99) in Shoreline before and after completion of the city project.

New pedestrian bridge over Aurora Avenue.

New business access and transit lane on Aurora Avenue.

Figure 3 - Aurora Corridor Project: Before and After

3.2.3 US 2 in Monroe

US 2 in the city of Monroe is an important economic corridor of the region which has quadrupled in population from 4,200 in 1990 to 17,000 today. US 2 in Monroe is statutorily exempt from the GMA concurrency requirement. In 2005, Monroe completed its seven-year comprehensive plan update expanding its urban growth boundary to add 285 acres of residential development. Unfortunately, Monroe did not address the effect of this land use decision on US 2. Likewise, WSDOT, the Department of Commerce, or the PSRC commented on the impact of expanding the urban growth boundary on US 2. The result has been significant transportation problems along the corridor including traffic congestion and unsafe travel conditions.

Since recognizing the problems that have arisen from this lack of coordinated transportation and land use planning decision, Monroe has worked collaboratively with WSDOT to mitigate the impact of developments on US 2. Since 2000, WSDOT has collected \$239 per average daily trip in transportation development fees from developments that have exceeded certain threshold requirements.

Moving forward, WSDOT has identified a number of policy concepts that will be considered for future projects such that these mistakes are not repeated. These include:

- WSDOT expert advice and analysis could have provided better information about the impact of an urban growth boundary expansion on US 2. Even if this did not result in a different outcome, at least the information would have been included in the record increasing public awareness and local accountability.
- Better analytical methods for assessing development impacts and the ability to directly collect mitigation or impact fees might have resulted in better funding for incremental safety and mobility improvements to US 2.
- Because Monroe was seeking funding for a US 2 bypass, funding or grant incentives would likely have been a strong motivator for adhering to best practice planning, mitigation, and access control standards. The expansion of concurrency

to apply to US 2 might have slowed growth or spread development further out along the highway to avoid congested intersections.

3.3. CASE STUDY 3: Northern Virginia Metro Rail Extension

In Northern Virginia, one of the most widely anticipated transportation projects to be completed in the next two years is the extension of MetroRail to Dulles International Airport. While an important transportation project, one of the primary reasons for constructing the extension is to transform Tysons Corner from an auto-centric to pedestrian-oriented development. Tysons Corner is already one of the major economic growth centers in the region and with the increased land use density likely to occur in the next 30 years, its importance will only grow. To this end, Fairfax County developed a land use plan that includes concentrating development around the four proposed station areas in Tysons Corner: Tysons East, Tysons Central 123, Tysons Central 7 and Tysons West. Envisioned for these four station areas is a wholesale change in the land use surrounding them as was seen in the Rosslyn-Ballston corridor and enabled by the MetroRail service.

While construction is well underway and estimated to be completed by the end of 2013, the project was not always a certainty. On 24 January 2008 James Simpson, then Federal Transit Administration (FTA) Administrator, indicated the economic viability of the extension of the Washington region MetroRail system to Dulles Airport was in question. As a result, there was public and government outcry as to the proper course of action. Proponents of extending MetroRail to Dulles Airport said the federal government was derailing a process that had been planned since 1958 and ruining the only opportunity to remake Tysons Corner from an auto-centric to pedestrian-oriented development. Opponents of the extension were happy to see someone finally put their foot down over another government-funded “boondoggle.”

As part of the FTA New Starts project funding process (where localities compete for capital funding for fixed-guideway transit projects), the Commonwealth of Virginia sought \$900 million of the \$2.55 billion cost to construct Phase I (East Falls Church station to Wiehle Avenue station). Under the New Starts criteria, the project received a value of “low” for the cost effectiveness measure and a value of “medium” for land use. These two measures created a “medium-low” rating thus receiving a “not recommend” for funding under the New Starts program.

The debate that took place regarding the viability of the extension raised an interesting question: if local leaders and businesses believe the MetroRail extension to Dulles to be important, why not find other methods to finance the project and forgo the \$900 million federal support? Already, land owners in the Tysons Corner region see the potential benefit of MetroRail by routinely citing the Rosslyn-Ballston Corridor as an example of what Tysons Corner could become. To this end, in January 2004 local businesses asked Fairfax County to institute the Tysons Corner Transportation Improvement District (TCTID) whereby commercial and retail properties in the district would pay a higher real estate tax rate to fund up to \$400 million towards the local share of Phase I.

4. THE EVOLVING ROLE OF STATE DOTs IN TRANSPORTATION AND LAND USE PLANNING

The transportation planning process involves stakeholders at all levels of government: federal, state and local. The role of state DOTs and metropolitan planning organizations includes primarily long-range planning, the prioritization and development of specific statewide and regional transportation projects, the maintenance of state and regional transportation facilities, compliance with federal regulations, and coordination with local and private transportation stakeholders. The evolution of the transportation planning process has been occurring since the early part of the twentieth century when federal funds were first made available to states for roadway construction. For example, WSDOT started as an agency devoted to adding transportation capacity but is now concerned with how transportation fits within a larger sustainability context from an environmental, equitable, and economic context. It was the availability of significant federal funds (upwards of 90 percent of total project cost) that had a tremendous impact on the evolution of the transportation planning process which has required local governments to rethink their role in funding transportation as seen by the Northern Virginia region.

In contrast to the heavy emphasis upon federal, state and regional participants within the transportation planning process the land use planning process is primarily composed of local participants. However, the influence of federal regulations is noticeable on land use planning in that these regulations required regional and state authorities to account for land use as part of the transportation planning process in order to gain access to federal funding for transportation infrastructure (Kain 1990; Pickrell 1992). This is most evident with the Northern Virginia case study where local businesses in Fairfax County voted to implement a larger commercial business tax in order to secure federal transportation funding. This is indicative of funding for transit projects where local planners were required to demonstrate positive effects to both the transportation system (in terms of increased ridership and reduced congestion) and the land use system (in the form of economic development for depressed neighborhoods). Interestingly, the federal government, through Partnership for Sustainable Communities, is trying to influence land use decisions as well by tying some discretionary funding to future outcomes (land use densities and economic development) of transportation investments.

As the case study examples show, the integration of transportation and land use planning continues to evolve. While primarily considered two autonomous processes, stakeholders from federal, state, and local governments are developing and instituting policies that better integrate the two processes. For example, the enactment of environmental protection laws in the 1970s (both NEPA and the Washington State Environmental Protection Act) required states and localities to better integrate the transportation and land use planning processes. And, with the implementation TIGER grants, the U.S. DOT is taking a more active role in addressing land use as it relates to transportation investments.

5. CONCLUSION

Today's challenge to state DOTs is to achieve an integrated, reliable, responsible, and sustainable transportation system. And, an important aspect to addressing these challenges is through the integration of transportation and land use planning. State transportation agencies have become more collaborative and creative by working with regional, local, and private partners by stretching outside traditional state transportation

agency roles to make sure the most effective investments in the transportation network are made and that communities have realistic, workable transportation choices. While WSDOT is but one example in the U.S. of better integrating transportation and land use planning, numerous other state transportation agencies have implemented similar programs.

No longer can transportation agencies (be it at the federal, state, or local level) focus purely on the outputs of the transportation system itself such as travel times and congestion levels in planning and programming scarce transportation funding resources. Transportation agencies are now including broader goals that support a range of outcomes from economic growth to improved quality of life. And, these broad goals must be achieved within the context of declining funding for transportation at both the federal and state level. And, as these case studies demonstrate, transportation agencies have become better stakeholders in the broader planning process.