

Porter, D.R., *Performance Standards for Growth Management*. PAS Report 461. APA Planning Press: Chicago, IL. ed. 1996.

The first five chapters of this report discuss the various performance measures, including those for transportation, that communities throughout the country have employed. The sixth chapter argues for moving beyond volume- and speed-based measures for transportation, and the last chapter discusses some of the key legal issues in performance standards and zoning.

Chapter 3

Lleiter, R., *The Use of Threshold Standards in Chula Vista's Growth Management Program*, in *Performance Standards for Growth Management*. PAS Report 461, Porter, R.D. ed. APA Planning Press: Chicago, IL. 1996.

Chula Vista is a community of 150,000 in the San Diego metropolitan area of California. In 1987, the city developed performance standards, or "quality of life threshold standards", in response to tremendous growth opportunities, as well as concern for the harmful effects of poorly managed growth on traffic and other quality of life factors. The idea was to establish performance standards reflecting either current or desired LOS, and then measure the effect of growth against those standards each year.

Eleven threshold standards are defined in the city's Threshold Standards Policy. They pertain to Air quality, Fiscal, Police, Fire/ EMS, Schools, Library, Parks and Recreation, Water, Sewer, Drainage, and Traffic. The traffic performance standards are based on average travel speed.

Policy Implementation

The city's Threshold Standards Policy requires annual evaluation of the cumulative impacts of growth, both retrospectively and prospectively. A Growth

Management Oversight Committee (GMOC) was created to provide “an independent annual review of the effectiveness of the General Plan in regard to development and growth-related issues; to make determinations in regard to the impact of development on the ‘quality of life’ in the city, using the threshold criteria; and to publish findings and to make recommendations on the same.” It consists of nine citizens, including a representative from city’s planning commission, as well as representatives from various interest groups and geographic areas of the city. In 1991, the city, adopted a Growth Management Program.

Specific Example of Transportation Facility Financing

From Page 17....”When it was determined in 1990, that a major north/south arterial (a segment of State Route 125) would be needed within the next five to seven years in order to maintain the traffic threshold standard, this information was reported to the GMOC, and a facility financing plan for that arterial was initiated. The plan determined the location, sizing, and cost of the facility (\$28 million), identified the benefiting property owners, and resulted in the establishment of a supplemental transportation development impact fee to provide funding for this facility. The process for developing this major facility financing plan was greatly facilitated by the city’s growth management program, which provided not only a well defined performance standard for traffic, but also up to date development forecasts and transportation modeling capabilities.”

Example of Regional Cooperation

From Page 17.....”A challenge faced by Chula Vista is to coordinate the city’s growth management program with similar programs that have been developed at the regional level. The 18 cities within the San Diego region, along with the county, have adopted a “Regional Growth Management Strategy” through the San Diego Association of Governments, which is based on a similar standards approach.”

Chapter 4

Marriot, R., Loehr, C., and K., Moritz, Managing Growth with Performance Standards in Montgomery County, Maryland, in *Performance Standards for Growth Management*. PAS Report 461, Porter, R.D. ed. APA Planning Press: Chicago, IL.

Montgomery County, Maryland, encompasses about 450 square miles with a 1995 population of 810,000. A large section of the Washington Beltway passes through it. One of the key components of the county's growth management program is the *Annual Growth Policy (AGP)* report, adopted each year by the planning commission and county council. Based upon the requirements for adequate facilities, the AGP report is the major tool that determines the pace at which new developments can occur. In 1973, the county council adopted an adequate public facilities ordinance (AFPO). One section of the amendment required the AGP to set standards and specify analyses that could determine adequacy for transportation in various parts of the county. The administration of the AFPO is a year-round activity, budgeted at \$500,000 to \$750,000 per year. Transportation, public schools, water and sewer facilities, police, fire, and health facilities are tested for adequacy. Transportation has been the principal limiting factor since the inception of the AGP in 1986.

Transportation Adequacy Testing

From Pg 19-21 of Ch 4....

Montgomery County has 3,250 miles of roads, and an extensive transit system that includes two arms of the Metrorail System, a number of Metro bus routes, and a county-owned bus system with 600 operating buses. The county also has invested heavily in a network of sidewalks and trails to serve pedestrians and cyclists.

To address the adequacy of this intricate transportation system, the county evaluates proposed developments using

- a policy area transportation review (PATR) AND
- a local area transportation review (LATR).

Policy Area Transportation Review (PATR)

This has been used by the Planning Department since 1982. A total of 25 policy areas have been defined, each made of one or more traffic zones with similar transportation characteristics. The PATR evaluates the ability of new transportation projects, state or county, to handle more development. As a result, the PATR also identifies where new transportation facilities are needed so the state and county can add them to their programs. Standards for roadway LOS are set for each policy area, and the planning board cannot approve a subdivision where congestion exceeds the LOS standard. Greater roadway congestion can be permitted in areas with higher levels of transit service. To make this trade-off, the county council first assigns each policy area to one of six transit service categories. Among the factors used to assess a policy area's transit service are walking distance to transit stops, frequency of service, and accessibility to transit by car, bike, or foot. Policy areas within the same group must meet the same roadway LOS standard.

The PATR inventories the existing and fully funded transportation facilities for each of the policy areas. "Fully funded" means that 100 percent of the facility's construction expenditures are programmed within the first four years of the county's CIP or the state's Consolidated Transportation Program. The capacity of this roadway network (called "staging ceilings" and expressed in jobs and housing units) is then compared to the existing and approved development. In some policy areas additional development can be approved and the roadway network can still meet its LOS standard. In other areas, the PATR shows that additional transportation facilities need to be programmed before more development can be approved. Accordingly, the planning department also reviews newly programmed transportation improvements and determines the number of jobs or housing units that can be added to a policy area's staging

ceilings. These recommendations are reviewed by the planning board and adopted by the county council. The results are published so that developers can determine whether capacity is available for their proposed development.

Capacity is allocated to developers on a first-come, first-served basis; in some policy areas, a waiting line exists. Within moratorium areas, special provisions have been made for affordable housing, developer financed road improvements, and trip mitigation programs.

Local Area Transportation Review (LATR)

This evaluates intersections and local streets and has been in use since the 1970s. The county is divided into 292 “traffic zones.” These zones are analyzed as origins and destinations of automobile, transit, and pedestrian traffic. The LOS for each mode of travel can vary widely among traffic zones, since the zones range intensely from urban to semi-rural. The planning board conducts a local review for all subdivisions generating more than 50 peak-hour trips. The review determines whether a proposed subdivision will cause unacceptable traffic congestion at nearby critical intersections. The LATR also allows for traffic mitigation programs proposed and paid for by the developer and approved by the planning department.

Critique

The Annual Growth Policy (AGP) has been an effective mechanism for controlling development in areas with inadequate facilities and has accelerated construction of public facilities because the developers can clearly identify the facilities they need to proceed with the development. The AGP has also provided a window for production of low- and moderate-income housing units. On the other hand, the AGP has created moratoria on new housing approvals in some areas for as long as 13 years. Another problem is the sheer complexity of the AGP. The model is very intensive, sophisticated, and expensive, and the development community calls it a “black box.”

Chapter 6

Reid, H.E., **Beyond Speed: The Next Generation of Transportation**

Performance Measures in *Performance Standards for Growth Management*.

PAS Report 461, Porter, R.D. ed. APA Planning Press: Chicago, IL. 1996.

Old Paradigm – SPEED

New Paradigm – MOBILITY

ACCESSIBILITY

LIVABILITY

SUSTAINABILITY

Mobility refers to the ease with which individuals can move about. A mobile population is one that travels freely because the time and cost of travel are moderate, and the travel options are numerous. Vehicle operating speed is a measure of mobility, but mobility also depends upon other factors such as auto ownership, parking availability, transit route density, and sidewalk connectivity.

Accessibility refers to the ease with which the desired activities can be reached from any location. The more activities available within a given travel time, the better the accessibility. Thus, accessibility is a function of both land-use patterns and the transportation system that serves them.

Focusing on transportation, a livable community is one that puts the automobile in its rightful place as one among many options for travel. There are two sides to this. First, automobile traffic must be calmed. Second, other modes must be enhanced, primarily through changes in land use and facility design. Pedestrians and bicycles must be given as much priority within the street environment as are automobiles. The qualities that make a street “livable” are safety from traffic, peace and quiet, attractive appearance, and street life; ease of movement by car is only one quality valued by residents and not the most important.

The concept of sustainability has its origins in the environmental movement. In the transportation sector, the principal threats to sustainability are excessive fossil fuel consumption and the air pollution that results. Both depend upon the vehicle mile traveled (VMT). Both also depend on vehicle trip rates and congestion levels, since “cold starts,” “hot soaks,” and low operating speeds contribute to air pollution and fuel consumption.

Many recent articles and reports review alternative performance measures and, in some cases, provide general guidelines regarding the choice of measures.

These sources agree on the following:

- Different levels of analysis require different performance measures. Some measures are well-suited to individual facilities, others to travel corridors, and still others to regional networks.
- Different purposes/uses require different performance measures. One set of measures may be appropriate for design and traffic operations, another for congestion management, a third for growth management.
- The experience of travelers is what counts, not the condition of the facilities. Thus, for example, average travel speed on a facility is a better performance measure than is the volume/capacity ratio to which average travel relates.
- Mobility must be measured in multi-modal terms, where modal options exist. This may be accompanied with combined highway/transit/pedestrian measures or separate measures for different modes.
- Accessibility must be accounted for at some level of analysis. Accessibility (not mobility) ultimately determines the choice of destination and the time spent in travel.
- The simpler and more understandable performance measures are, the more useful they will be to decision makers.

A Unified Approach to Performance Standards

Defining a System-Wide Goal

Development of a unified performance measurement system starts with a system-wide goal. There are two goals that can clearly and easily be made operational and consistent with new travel paradigms.

One worthy goal is to minimize VMT or VMT/capita within a region or locality. VMT is related to accessibility, sustainability, and somewhat to livability.

Another worthy goal is to minimize vehicle hours traveled (VHT) or VHT/capita within a region or community. VHT has one big advantage over VMT. It accounts for the degree of congestion; all else being equal, the more congested roads are, the more hours of travel will be logged. Mobility, as defined earlier, is embodied in VHT but not in VMT. In addition, VHT may be a better proxy for accessibility and sustainability than VMT. In travel modeling, accessibility is usually measured in terms of travel time rather than travel distance, since travelers' decisions are more affected by time than distance. In air quality modeling, the relationship of vehicular emissions is simpler with VHT than with VMT. The case of the relationship with fuel consumption is similar (another threat to sustainability). Thus we may adopt a system-wide goal of minimizing VHT.

Regions and Localities

For regions and localities, several performance standards follow from the formula for VHT:

$$\text{VHT/ person} = [\text{avg. trip frequency} \times \text{avg. trip length} \times (1 - \text{avg. walk-bike share})] / \text{avg. vehicle occupancy} \times \text{avg. vehicle operating speed}$$

All terms on the right hand side of this equation are performance measures. They satisfy the general guidelines set forth; that is, they are simple and understandable, multi-modal, and so forth. Their biggest shortcoming is in the area of data availability. All could be estimated via household travel surveys,

which are expensive to conduct and are usually conducted only when regional travel models are being updated.

Travel Corridors and Activity Centers

For travel corridors and activity centers, the most relevant terms in the VHT equation are

- average vehicle operating speed
- average vehicle occupancy
- average walk-bike share.

Average vehicle occupancy is particularly relevant to freeway corridors where exclusive HOV lanes and congested conditions make ridesharing attractive. Average bike-walk share is particularly relevant to metropolitan activity centers where high density, mixed uses, and good pedestrian facilities make walking attractive. Average vehicle operating speed is relevant everywhere.

Individual Facilities

For individual roadways, the only relevant term in the VHT equation is average vehicle operating speed or its alias, roadway LOS. There is some interest nationally in switching to delay-based measures of performance for individual roadways.

If average travel speed (i.e., LOS) is to remain the basis for judging individual roadway performance, the standard to which it is compared must be a variable one that permits more congestion in central areas. Otherwise, LOS standards will inadvertently drive development to outlying areas where excess capacity exists. One objective basis for variable service standards is relative accessibility of an area to trip attractions throughout the region. Better accessibility translates to shorter trips and less total time spent in travel. The urban core, dense travel corridors, and compact suburban centers may be more congested than outlying

areas and still provide better accessibility to trip attractions. Any lack of mobility (in terms of lower speed) is more than offset by shorter trips.

Variable service standards could be set in one of two ways. Regional travel models or travel surveys could be used to estimate average trip lengths for sub-areas of a region or locality, and lower LOS standards could be used to establish sub-areas generating shorter trips. Alternatively, regional travel models could be used to estimate 'accessibility indices' for sub-areas, and lower LOS standards could be established for areas with higher accessibility indices. Accessibility indices reflect the distribution of jobs and other trip attractions moving outward from zones in which trips are produced, with nearby attractions weighted more heavily than distant ones.

Performance Measure: Example of Orlando, Florida

Orlando uses an area-wide LOS measure to judge roadway performance in the downtown area. In addition, Orlando designates activity centers and travel corridors within which performance is to be measured in terms of average vehicle occupancy and mode shares, as well as roadway LOS. In order to achieve vehicle occupancy and mode share standards, minimum densities/intensities and land-use mixes have been established for centers and corridors; transit service frequencies are being increased to, through, and within centers; and special taxes are being levied to fund pedestrian facilities and internal shuttle services.