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- Reference
- Store
- Great Public Spaces
- Image Collection

Filter Reference Articles By Type

- Campuses
- Civic Centers
- Downtowns
- Public Markets
- Multi-Use
- Parks
- Placemakers Guides
- Placemaker Profiles
- Placemaking 101
- Squares
- Transportation
- Urban Parks Institute
- Waterfronts

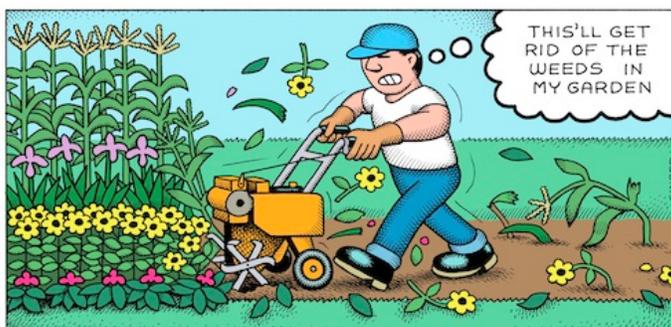
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- Architecture of Place
- Building Community Through Transportation
- Creating Public Multi-use Destinations
- Public Markets & Local Economies

Levels of Service and Travel Projections: The Wrong Tools for Planning Our Streets?

Would you use a rototiller to get rid of weeds in a flowerbed? Of course not. You might solve your immediate goal of uprooting the weeds — but oh, my, the collateral damage that you would do.

Yet when we try to eliminate congestion from our urban areas by using decades-old traffic engineering measures and models, we are essentially using a rototiller in a flowerbed. And it's time to acknowledge that the collateral damage has been too great.



Credit: Andy Singer



Credit: Andy Singer

First, an explanation of what I call the "deadly duo": travel projection models and Levels of Service (LOS) performance metrics. Travel projection models are computer programs that use assumptions about future growth in population, employment, and recreation to estimate how many new cars will be on roads 20 or 30 years into the future.

Models range from quite simplistic to incredibly complex and expensive. Simple models deal primarily with coarse movements of vehicles between cities, while complex models deal with the intricacies of what

happens on the fine grid of urban areas. To be truly accurate, growth projection modeling can be expensive. Therefore, absent compelling reason to do otherwise, most growth projections tend to be done using less expensive techniques, which usually lead to overestimates.

Levels of Service (LOS) is a performance metric which flourished during the interstate- and freeway-building era that went from the 1950s to the 1990s. Using a scale of A to F, LOS attempts to create an objective formula to answer a subjective question: How much congestion are we willing to tolerate? As in grade school, "F" is a failing grade and "A" is perfect.

Engineers decided that LOS "C" was a good balance between overinvestment in perfection and underinvestment leading to congestion. In urban areas, a concession was made to accept LOS D, representing slightly more restricted but still free-flowing traffic. LOS is commonly (actually, almost always) calculated using travel projections for 20 to 30 years into the future.

Using basic traffic models and LOS C/D to plan and design the interstate system was a no-brainer in the 1950s, '60s and '70s. When deciding how many lanes to build on a freeway connecting major cities, a sensitivity of plus or minus 10,000 trips a day could be tolerated, and the incremental difference in cost to plow through undeveloped land was relatively insignificant.

Good approach, wrong setting

I'm not going to look back and quibble with the general philosophy of how the interstates and the associated high-speed freeways were planned and designed. On many levels, the approach made sense.

But it became increasingly less persuasive when applied to the rest of our road network. Unlike interstates and freeways, most roads exist not just to move traffic through the area, but also to serve the homes, businesses, and people along them. Yet in search of high LOS rankings, transportation professionals have widened streets, added lanes, removed on-street parking, limited crosswalks, and deployed other inappropriate strategies. In ridding our communities of the weeds of congestion, we have also pulled out the very plants that made our "gardens" worthwhile in the first place.

It's worth remembering, too, that not all congestion is bad. John Norquist, former Mayor of Milwaukee and current CEO and President of the Congress for New Urbanism, suggests that congestion is like cholesterol: there is [a good kind and a bad kind](#).

What makes the prevailing situation even more troubling is that there are no comprehensive requirements dictating the use of either LOS or travel modeling in transportation planning and project design. The "Green Book" from the Association of American State Highway and Transportation Officials (AASHTO) (more formally known as "A Policy on Geometric Design of Highways and Streets") clearly states that these are guidelines to be applied with judgment — not mandates. So does the Federal Highway Administration's "Highway Capacity Manual."

The idea that we must rid our roads of any and all traffic congestion is, in fact, a self-imposed requirement. As Eric Jaffe wrote in [an article for Atlantic Cities](#) in December, 2011:

Although cities aren't required to abide LOS measures by law, over the years the measure hardened into convention. By the time cities recognized the need for balanced transportation systems, LOS was entrenched in the street engineering canon.

Worse yet, many designers size a road or intersection to be free-flowing for the worst hour of the day. Sized to accommodate cars during the highest peak hour, such streets will be "overdesigned" for the other 23 hours of the day and will always function poorly for the surrounding community.

If that isn't troubling enough, LOS is often calculated using traffic predicted 20 years into the future, even in urban settings. Until the forecasted growth materializes, the roadway will be overdesigned, even during the peak hour. Overdesigned roadways encourage motorists to drive at higher speeds, making them difficult to cross and unpleasant to walk along. This degrades public spaces between the edges of the road and the adjacent buildings, encourages people to drive short distances, and generally unravels a community's social fabric.

Let me repeat: Contrary to what you may hear, there is no national requirement or mandate to apply LOS standards and targets 20 years into the future for urban streets. This thinking is a remnant from 1960s era policy for the interstate system, and has erroneously been passed down from generation to generation.

So what are the right approaches?

Asking the simple question, “Do you want congestion reduced at a particular location?” is a question out of context. It’s like asking you whether you want to never be stung

by a bee again. Of course, the answer will be yes. But what if I told you that in order to never suffer a sting again, every plant within a several mile radius would have to be destroyed — and that you could never leave the area of destruction?

You would have a completely different answer, I’m sure.

The question that needs to be asked in urban settings is not whether you ever want to sit in congestion again. Who does? The question is whether you want to eliminate congestion on your Main Street 24 hours a day, 7 days a week, 365 days a year — knowing that the consequence would be a community with decimated economic and social value, increased reliance on car use, increased crashes, and, ultimately, more congestion.

Recognizing the need for balance, a number of entities are beginning to promote approaches sensitive to the context.

I was the New Jersey Department of Transportation’s project manager for the “[Smart Transportation Guide](#)” (STG), adopted jointly by the state DOTs in Pennsylvania and New Jersey. The STG directs DOT designers to consider the tradeoffs between vehicular LOS and “local service.” It goes on to say that if the street in question is not critical to regional movement, that LOS E or F could be acceptable — and that designers may actually need to design to *slow down cars*.

The Institute of Transportation Engineers, an “international association of transportation professionals responsible for meeting mobility and safety needs” also promoted this concept in its landmark “Context Sensitive Solutions Guidelines for Urban Thoroughfares.” Florida DOT has adopted multimodal LOS standards, and cities like Charlotte, N.C., have elevated pedestrian and bicycle LOS to the level of that for automobiles. We have a long way to go, but the door is opening.

Creating balanced standards for roadway design will benefit transportation as well. In the Netherlands, the “Livable Streets” policy led to a remarkable improvement in safety on their roadways. They started in the 1970s with a crash rate 15 percent higher than in the U.S., [and now have a crash rate 60 percent lower](#).

Design with the community in mind

It’s time for communities and transportation professionals alike to accept that we have been using the wrong tools for the wrong job. LOS and travel modeling may be effective when sizing and locating high-speed freeways, but are totally inappropriate in every other setting. If travel modeling with high rates of growth is used to make street decisions, your community may be doomed to a series of roadway



There is no national requirement or mandate to apply LOS standards and targets 20 years into the future for urban streets. Credit: Andy Singer

widenings or intersection expansions. If vehicular LOS C or D performance measures are adopted as non-negotiable targets, major road construction will be heading your way.

Village, suburban and city streets need to be designed with the community in mind using the PPS principle of [Streets as Places](#) to create a vision for a great community and then plan your streets to support that vision.

Lets not be fooled by the appearance of science behind Levels of Service and Traffic Modeling. As I pointed out [in an interview with Wayne Senville](#) that was published in the November 2010 "Planning Commissioner's Journal," LOS standards are easy to understand — and that's exactly what makes them so dangerous.

All images by [Andy Singer](#).

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Susan Driver • 2 years ago
Unfortunately, while a regulation to design with LOS in mind may not exist, the funding dilemma is what generally drives the decision. Most federal and state funding has traditionally based project need on whether or not the roadway or system is meeting the LOS allowed by the local government. If a City's standards require that all road systems must meet LOS B, then an analysis that shows the roads at LOS D 20 years in the future will be enough to secure funding to "fix" this problem (or to require development to contribute to a fix).

Fortunately, the FHWA livability standards have made some progress in helping local governments to secure funding for projects that address areas other than traffic flow. All of the ARRA funding applications required applicants to look at these six principles. Forward thinking at the Federal level doesn't always happen fast, but we are making progress.

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Gary Toth → Susan Driver • 2 years ago
Hi Susan, you make a good point. But my response is that in those places that base their funding allocation as you describe, they have done so without being forced. They made a CHOICE to assess the value of transportation investments based SOLELY on an automobile need as opposed to based on all of the other purposes of streets or the needs of communities. That is their prerogative of course but shame on those planners and engineers who tell stakeholders that the dictate came down from the top of the mountain. Also, transportation agencies who make such choices should no longer wonder why the public will give them money anymore to build projects that not only don't serve their needs but often work at odds with them.

A former boss of mine used to muse that citizens lean against gas pumps mumbling about paying 4 dollars a gallon for gas while holding a bottle of water that they paid the equivalent of 16 dollars a gallon for and which they could have gotten for free out of the tap. Why? Because the customer sees the value in the bottle of water and increasingly no longer sees value in the product that transportation agencies have been offering them. Think about it...

... see more

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Wells → Gary Toth • 2 years ago
Conservatives are fed BS from their elite inrating conservative

