



THE BIG FIX

# The Transportation Planning Rule Every City Should Reform

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Completing a major transit project is never a quick and easy process, but if any place should be able to move one swiftly through to completion, it's San Francisco. In 1973 the city adopted a "transit first" policy that gave planning priority to modes of transportation other than the automobile. As the policy expressly states, decisions related to streets and sidewalks "shall encourage the use of public rights-of-way by pedestrians, bicyclists, and public transit."

That's strong support for livability on paper, but in recent years the policy has felt much more like "transit worst" in practice. A 2005 lawsuit postponed implementation of the city's master bike plan for years on the grounds that it failed to consider potential harm to the flow of automobile traffic — an

injunction that wasn't lifted until August 2010. The city has considered a bus-rapid transit line along Van Ness Avenue since 2004, but an environmental review on the project wasn't completed [until early last month](#) — delayed, in part, by an intense study of the same traffic consideration — and now service isn't expected to begin until at least 2016 [\[PDF\]](#).

The source of the disconnect between San Francisco's transit-first heart and its car-centric hand is an arcane engineering measure called "level of service," or LOS. In brief, LOS suggests that whenever the city wants to change some element of a street — say by adding a bike lane or even just painting a crosswalk — it should calculate the effect that change will have on car traffic. If the change produces too much congestion, then a great deal of time, money, and additional analysis must go toward the project's consideration.

The weight of this hidden hand doesn't fall on San Francisco alone. "Intersection LOS is one of the most widely-used traffic analysis tools in the U.S. and has a profound impact on how street space is allocated in U.S. cities," writes Jason Henderson, geography professor at San Francisco State University, in the [November issue of the \*Journal of Transport Geography\*](#). As Henderson argues, it's about time cities addressed the problem, and San Francisco is doing just that. It's currently in the process of drafting a new sustainable transportation metric that will replace LOS and promote livability. Still, the fight is far from over.

"Every city I've ever come across has some use of [LOS]," says Henderson, who has conducted an extensive review of LOS and is writing a book on the politics of mobility in San Francisco. "LOS and the privilege of the car is the incumbent. The way the political process is set up is you have to disprove the incumbent."



LOS may be a rather obscure transportation tool, but it's not a terribly complicated one. The chief function of LOS is to measure the delay each car experiences at a particular intersection. A delay of less than 10 seconds means a street has a "good" traffic flow and earns an LOS grade of "A." As the delay increases the grade moves down the alphabet, report-card style, through an "F" grade, given when the average delay exceeds 80 seconds.

In San Francisco and other California cities, LOS influences transportation or development projects through the state's environmental code, the California Environmental Quality Act. CEQA requires public agencies to determine the possible impact of development projects on the environment. It essentially serves as a screening process for a project's influence on things like air pollution, water quality, and of course transportation. One of the points on the CEQA checklist under the transportation section is "[level of service](#)."

Let's say someone wants to build a bike lane in the downtown Bay Area. Under CEQA, the sponsor of this project must consider whether the change to the street will result in a downgrade of LOS. In San Francisco, generally speaking, the threshold for LOS acceptability is a grade of "E" — or a delay between 55 and 80 seconds. If our hypothetical bike lane eliminates a car lane, that could create enough congestion for each car's delay to exceed the 80-second mark. That would bump the street's LOS from an "E" to an "F," and the project would fall outside the acceptable CEQA threshold.

Now that doesn't mean the lane can't get built, but it does make the project more difficult. If LOS falls to "F," for instance, the sponsor of the bike lane project must then perform a costly and time-consuming environmental impact report. If that report confirms the LOS failure, the sponsor may have to mitigate or offset the congestion through some other means. The alternative to all this time and money is to abandon the project entirely — and often that's what happens.

"That takes that \$20,000 or \$40,000 bike lane and suddenly makes it a \$200,000 project, and it takes a project that might have taken a month or two to go from design to implementation and it could make it into a 2- or 3-year project," says Andy Thornley, policy director at the [San Francisco Bicycle Coalition](#). "In many cases it's not so much that we take the bike lane or the crosswalk all the way through the research and reject it, it's that we don't even go into the environmental review because public agencies don't have the resources to spend the time and the money on these pretty cheap projects. So there is a hugely chilling effect to having to go through all of these hoops."



The influence of LOS comes largely from its inclusion in the Highway Capacity Manual produced by the federal Transportation Research Board. When it was first introduced, several decades ago, the metric harmonized with a broader cultural desire for car travel. 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.

"There was an assumption that there's always going to be driving everywhere, and it's always going to increase, and there needs to be a rational decision-making process to decide where limited transportation dollars should go," says Henderson. "It made sense if you're just assuming there always is going to be driving and in the future there's going to be more cars, and another fuel source, and it's superior to everything else."

There are several quirks about LOS that give it what Henderson calls a "veneer of objectivity." For starters, LOS delay is measured at the peak traffic rush. That reflects the belief that a street's design should be based on its most congested hour or so, rather than configured to handle a wide range of travel modes throughout the day. In addition, the letter grade carries more importance than the numerical delay itself; if a two-second delay nudges a project past an "E" grade, for example, it could be punished more than another project that delays traffic much longer but doesn't drop a letter. And in San Francisco, LOS impact must be determined not just in the present but also decades into the future. A failure 20 years ahead means a failure right now.

There's also a great irony underlying the use of LOS as part of CEQA's environmental impact checklist. It seems self-evident that bike projects are favorable to the environment, but the use of LOS to evaluate them can sometimes imply quite the opposite. The person who filed the 2005 lawsuit against the [San Francisco master bike plan](#), for instance, suggested that because bike lanes raise LOS they also raise congestion and car idling, and thereby cause pollution.

That's not the only contradictory aspect of LOS. Case in point: a developer whose building fails an LOS threshold can mitigate the environmental impact by widening the street, which of course would attract more cars and pollution. So instead of encouraging dense development and lower vehicle

mileage — the hallmarks of a transit-first city — San Francisco's use of LOS as part of CEQA actually *discourages* livable design. In a [three-part series on LOS at Streetsblog](#), one transportation consultant called LOS the "single greatest promoter of sprawl and the single greatest obstacle to transit oriented development" in California.

"In the end compliance with CEQA often causes the transportation system to become even more adverse, more dangerous," says Thornley. "It adds more car trips."



The beacon of hope for livability advocates in San Francisco rests in the flexibility of CEQA review. While CEQA recommends that transportation-related projects consider LOS as an environmental measure, it doesn't mandate a particular metric. Any reasonable measurement of transportation sustainability will do.

That realization has led to a counter-movement against the use of LOS under CEQA by some of the city's transit agencies. In 2003 the San Francisco County Transportation Authority [performed a review](#) [PDF] of LOS and concluded that it failed to support the "development of a balanced, multimodal transportation system" — arguing instead that LOS preserved the flow of motor cars at the expense of transit, bicycle, and pedestrian movements. In other words, by upholding LOS, the city was violating its own transit-first policy.

Based on that report, the authority began to investigate alternative transportation impact measures. A 2008 follow-up report recommended replacing LOS with an entirely new measure known as "auto-trips generated," or ATG. Instead of asking how much congestion a project creates, ATG looks at how many new automobile trips it produces. Since bike lanes or bus-rapid transit or the like don't generate any automobile trips, those projects would no longer be subject to a full environmental review. (To be more precise: these projects would be covered by a system-wide environmental review the authority plans to conduct as part of the new metric's implementation.)

In tandem with the ATG measure, the authority also suggested the creation of a new mitigation fee for all projects that generated automobile trips. The fee would go toward a general sustainable transportation fund that would finance transit projects across the city. The upshot would be a faster project approval process, more certainty on the part of project sponsors, and more money for livability efforts. All told, the new idea offers a "[higher-level view](#)" of transportation impact, according to the report:

Each new automobile trip added onto San Francisco's transportation system contributes to environmental impacts, especially in terms of pedestrian safety and greenhouse gas emissions. Under the proposed approach, CEQA transportation impact analysis would measure the net new trips generated or induced by proposed projects, rather than changes in automobile delay at intersections. ...

Instead of seeking to preserve system efficiency by expanding capacity for driving, the ATG measure recognizes that constraining the growth in automobile trips on San Francisco streets is critical for maintaining system efficiency on our network of finite automobile capacity.

The proposal has changed in many respects since 2008, says Tilly Chang, the authority's deputy director for planning. For starters, it has shifted from ATG to MTG — or motorized-trips generated. That way a housing development project would be subject to the mitigation fee whether it created auto trips or just caused additional transit delay. Whatever the acronym ends up being, says Chang, the approach remains the same.

"Our way of looking at it is we have a longstanding citywide transit-first policy," she says. "Rather than planning for and identifying minimization of motorist delays, we would be shifting our focus toward transit impact, and making sure that transit performance is maintained."

Currently the authority is performing what's called a "nexus" study that will determine the precise ATG/MTG mitigation fee. That effort will conclude around the start of the new year, says Chang. Then the city's planning commission will hold a hearing about the new metric. Then a complete environmental review will be conducted. Then the planning commission must prepare an official ordinance for adoption. And then, if all goes well, the new metric will be phased in as LOS is phased out.

That's a lot of "thens" between now and then, and probably a couple years. Henderson fears that the established legal precedent of LOS use could lead some livability opponents to file lawsuits once a new metric is adopted. Still, he believes San Francisco can ultimately make the change and serve as an example for other cities — and finally, at long last, fulfill its transit-first stance. Thornley agrees.

"To the extent that a city moves forward and is the precedent setter, I think San Francisco is going to be doing that," he says. "It's very exciting to be at the threshold of finally coming out from under the distortions that auto LOS has presented."

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