B.3 Proposed Change to Level-of-Service Standards

Introduction

The City's Comprehensive Plan proposes a change in the way that transportation level of service (LOS) is measured. The City will measure LOS based on single occupant vehicle (SOV) mode share, as it focuses on increasing people-moving capacity by reducing travel that is occurring via the least space-efficient mode during the most congested period of the day. By shifting travel from SOVs to more efficient modes operating on less-congested transportation networks, Seattle will allow more people to travel in the same amount of space. Because buses are the primary form of transit ridership in the city and buses must mix with private vehicles on the arterial system, SOV mode share is a reasonable measure of the level of service for arterials and transit.

The Comprehensive Plan EIS evaluated all of the land use alternatives with the existing LOS metric, based on the volume/capacity (v/c) ratio along the City's adopted screenlines, as well as with the new SOV mode standard. Results of the citywide modeling are expressed in Figure B.3–1 on the next page. Existing mode share levels by sector of the city are shown next to the recommended target SOV rate for 2035. The new standard, its policy basis, the process used to develop the standard, and the City's commitment to implementing this new standard is described in this section.

Comparison to Existing LOS Standard

The existing screenline v/c ratio is a commonly applied LOS measure, but using it to measure system performance does not help achieve the Comprehensive Plan's goal "…to safely and efficiently connect and move people and goods to their destinations".[1] It is also inconsistent with the reality that Seattle has limited ability to increase the capacity of the street system, and it effectively means there are few practical remedies for a situation where the ratio is exceeded except through significant capital investment or changing the standard. Establishing a target SOV mode share for every project comes with a definable remedy since the City can actually reduce the volume of traffic entering the roadway system for each new unit of development. Mode share also leverages the available and future capacity of the transit, bicycle, and pedestrian systems (which the City has the ability to expand and, in the case of bike and pedestrian networks, leverages substantial underutilized capacity).

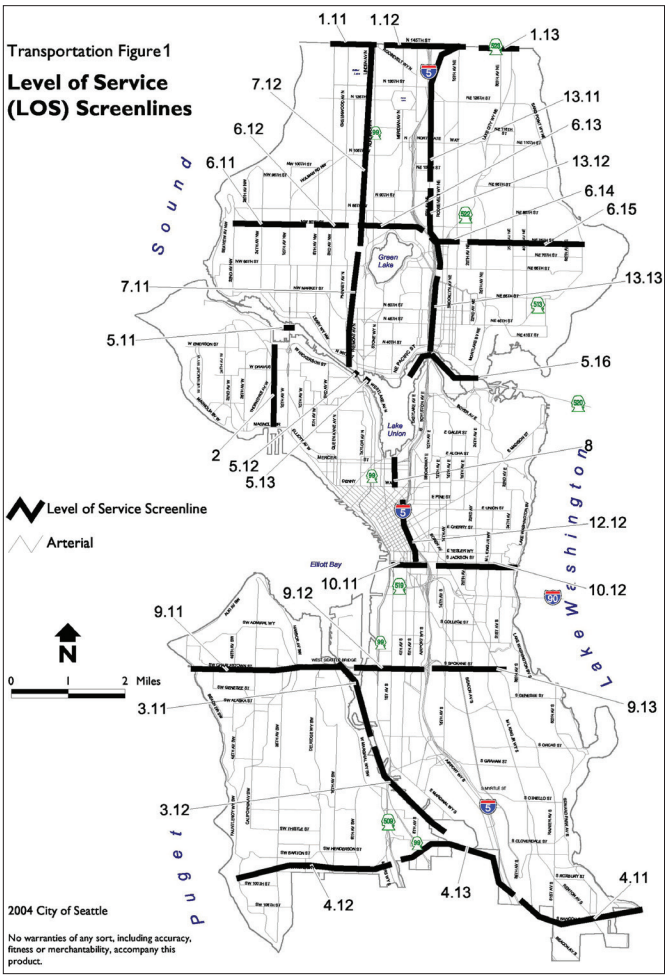
1 The capacity of the v/c ratio is measured using the number of vehicle lanes. It does not consider the additional capacity available from transit, bicycle, or pedestrian modes. Mode share explicitly captures this additional capacity.

The existing standard deals directly with arterials (combined at screenlines) and because bus transit operates on arterials, those routes are captured in the v/c measurement. The proposed mode share approach pre-identifies SOVs as the primary current and future source of congestion on arterials and major bus transit routes during the most congested time of the day, and measures performance of the system by the amount SOV travel is reduced. Reducing SOV use on major arterial corridors will also enhance the delivery of freight.

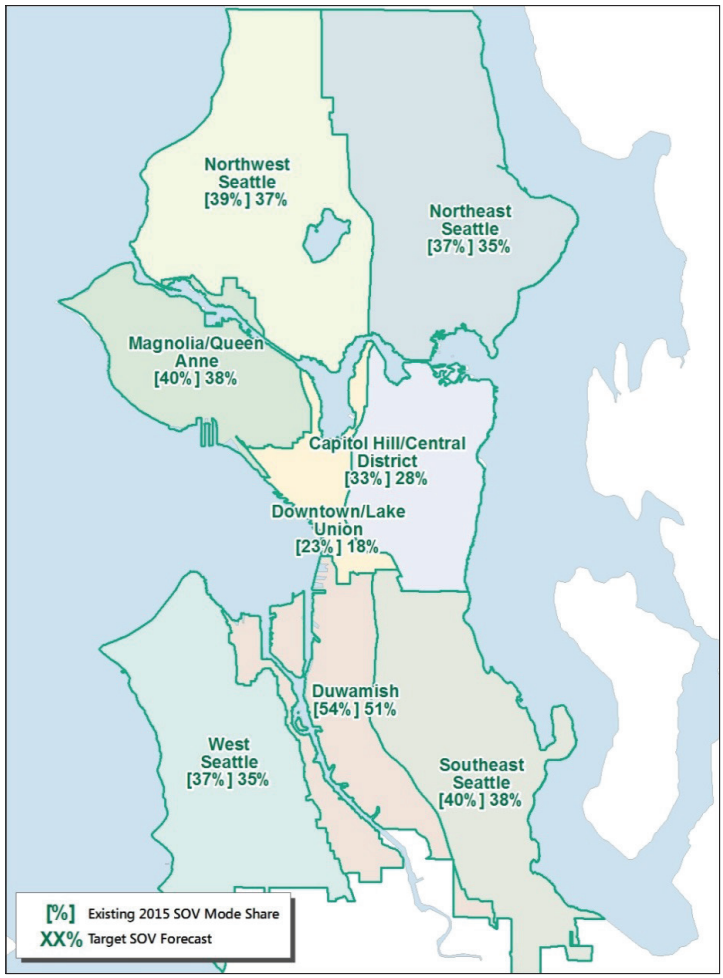
While the measurement is different, the basic foundation of the new system is similar to what exists today. Figure B.3–1 below illustrates the current LOS system based on v/c ratios at screenlines and the proposed mode share system at the Comprehensive Plan sector level. Both systems define different performance standards for different parts of the city in recognition of the diverse land use patterns and transportation contexts that exist.

Figure B.3–1 Current versus proposed LOS system

CURRENT
v/c Ratios at Screenlines



PROPOSED
Mode Share at Comprehensive Plan Sector Level



Policy Rationale

The City's Comprehensive Plan recognizes that Seattle will continue to grow between now and 2035. To accommodate this growth and the increased demands on the transportation system, the Plan emphasizes that strategies other than adding new vehicle lanes and general purpose vehicle capacity should be applied, particularly since adding new lanes to existing arterials in a built-out urban area such as Seattle would in many cases lead to significant financial costs, and/or environmental impacts and community disruption. Strategies that would enable development projects to meet the mode share goal include concentrating development in transit-served urban villages, completing the City's networks for transit, bicycles, pedestrians, and freight, and making it easier for tenants of those buildings to use other means of travel, such as by providing bus passes or on-site bicycle facilities. Since widening arterials can often not be a practical or feasible way of accommodating growth in a mature, developed urban environment and is not consistent with the overall goals of the Comprehensive Plan, using the current street right-of-way as efficiently as possible by encouraging forms of travel other than SOV, particularly in the peak hour, is a major emphasis of this proposal.

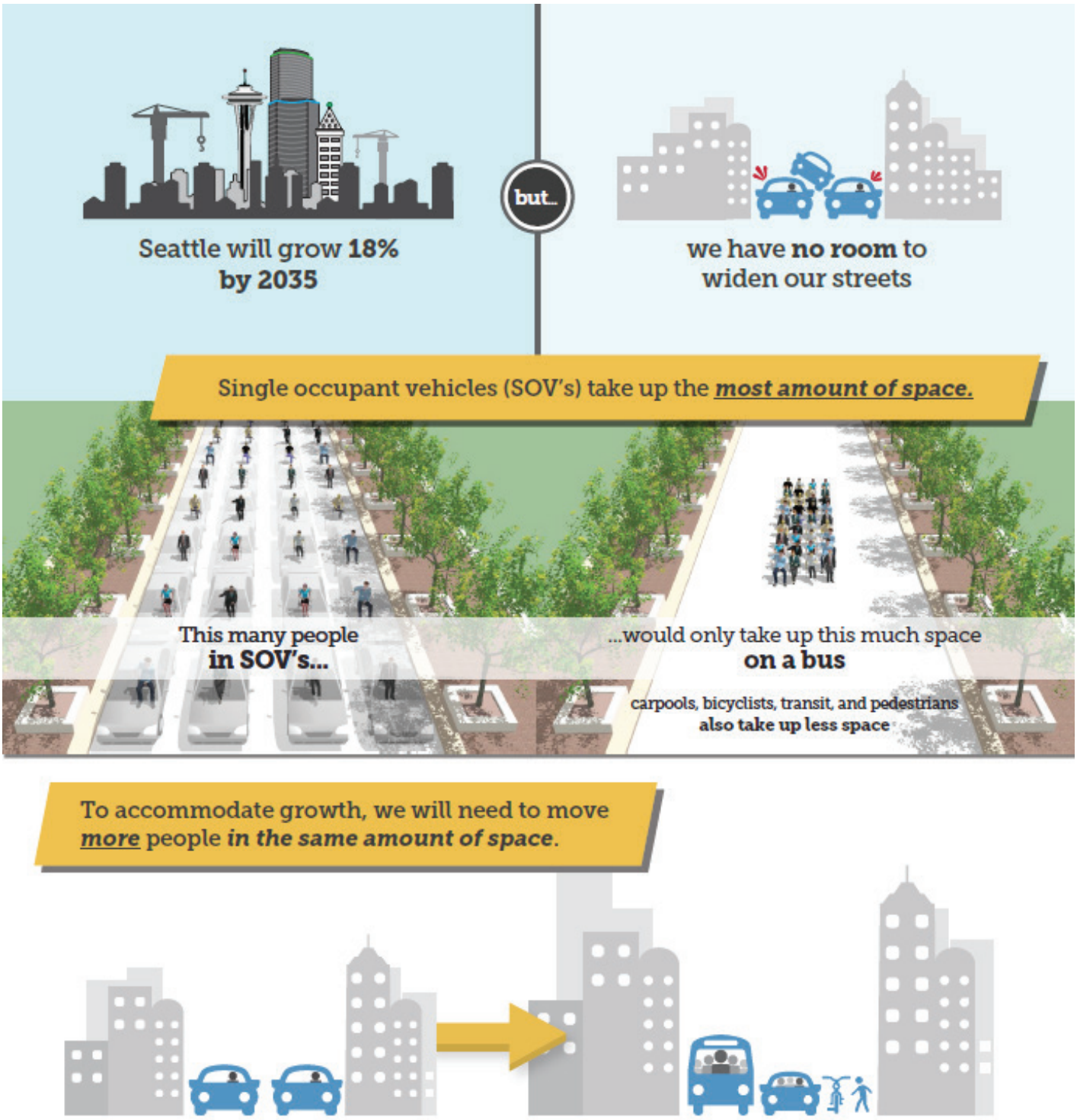
The recommended Comprehensive Plan's proposal to use mode share as a new way of measuring LOS directly ties to this policy goal, as it focuses on reducing travel that is occurring via the least space-efficient mode, SOV. By shifting travel from SOVs to more efficient modes operating on less-congested transportation networks, Seattle would allow more people to travel in the same amount of space. Figure B.3–2 on the following page articulates this approach.

Compliance with State Requirements

The Growth Management Act requires that LOS evaluate the performance of "locally owned arterials and transit routes." The mode share standard addresses this requirement since the majority of vehicle travel occurs on city arterial streets. Thus, by shifting travel away from SOVs, capacity on these streets is increased. The Frequent Transit Network (FTN) also operates on arterial streets, thus transit route performance would also improve with fewer SOV trips.

The overall argument made by setting future mode share targets is that Seattle has a relatively finite practical capacity to accommodate growth in SOV travel. This is due to the limitations on abilities to expand many arterials, given physical dimensions and the nature of other adjoining buildings, land uses and sidewalks. In some cases, substantive road expansions would not be physically feasible, and in some cases expansions would be technically feasible but would too greatly compromise other qualities of their environment (such as overly narrowing sidewalk widths or creating needs for excessive building demolition). The City's system can accommodate the number of SOV trips occurring today, but this recommended change in standard argues that future growth in SOV travel must be limited to help maintain reasonable citywide mobility.

Figure B.3–2 Mode share LOS approach



The proposed Seattle 2035 policy would establish a standard for allowable SOV trips in the City by setting SOV mode share targets by Comprehensive Plan sector. These mode share target-based SOV trip caps would serve as a quantitative basis to measure whether the city is meeting its LOS standard, much as the v/c thresholds do currently.

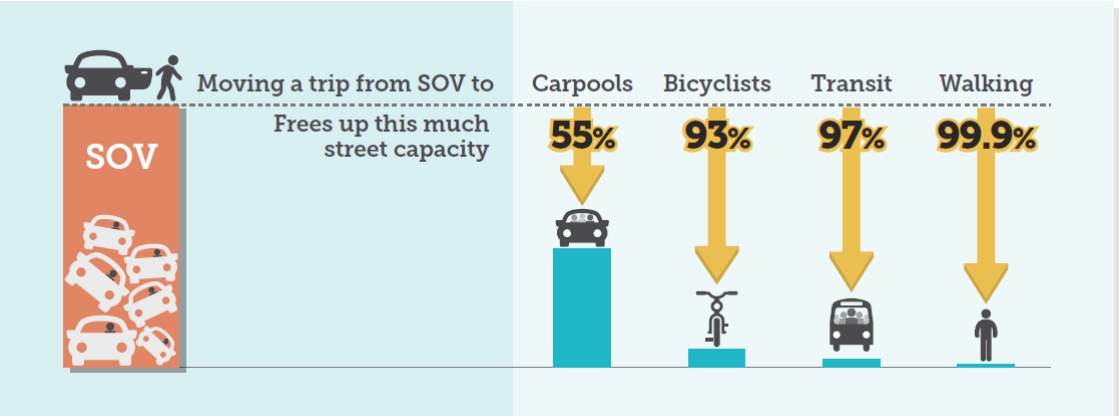
Washington Administrative Code 365-196-210 (19) defines LOS as "an established minimum capacity of public facilities or services that must be provided per unit of demand or other appropriate measure of need." Recognizing the underlying proposed policy guidance in Seattle 2035, the new LOS measure suggests providing additional capacity to meet future demand without solely relying on physical capacity expansions of the street network. Shifting travel from SOVs to more space-efficient modes would recover a degree of capacity in the current road system to help maintain its functioning for current and future needs. To quantify this capacity increase, each of the following modes were compared to an SOV in terms of how much less space would be required:

- ***Carpools***—Using PSRC's estimate that the average carpool carries 2.2 people, it was estimated that carpools take up 55% less space than an SOV per person trip.
- ***Bicyclists***—Using a very conservative assumption that bicycles are roughly ¼ the size of a car and only ¼ of cyclists are using arterial travel lanes (the remaining cyclists are using existing exclusive facilities, including trails, cycle tracks, and bike lanes or quiet residential streets and greenways), a bicyclist uses an estimated 93% less space per person trip.
- ***Transit***—Based on an estimate that an SOV requires approximately 180 square feet per person, and each bus requires 5 square feet of space per passenger,[2] it was estimated that transit requires roughly 97% less space per person trip than an SOV.
- ***Walking***—Since most pedestrian travel occurs outside of arterial travel lanes in existing sidewalks, it is assumed that pedestrian travel takes 99.9% less space per person trip. (It is acknowledged that additional pedestrian travel may result in lower capacity for turning vehicles or slightly narrower travel lanes where sidewalks are widened—spread across the entire City, most additional pedestrian travel would have no discernable reduction in street capacity).

The figure on the following page summarizes the assumptions and illustrates how lowering the SOV mode share provides "an established minimum capacity of public facilities or services that must be provided per unit of demand or other appropriate measure of need."

2 The Transit Capacity and Quality of Service Manual identifies a range of 4.5-5.3 sq. ft / passenger as "comfortable".

Figure B.3–3 Mode share LOS approach



Process to Arrive at New Standard

In mid-2013, the City kicked off its process to develop Seattle 2035. This process included identification of major policy priorities, which included identification of the Urban Village strategy, implementation of the modal plans, and the reduction of travel by SOVs. Central to the implementation of these priorities was updating the way the City measures LOS for transportation.

In mid-2014, the City hired a consultant, Fehr & Peers, to assist in the evaluation of alternative LOS frameworks. City staff and Fehr & Peers conducted a literature review of LOS approaches by other cities and reported these findings in a series of staff workshops that spanned early 2015. Staff also considered the policy direction in the regional Vision 2040 plan to establish a multi-modal LOS measure. These workshops included representatives from SDOT, OPCD, and the Mayor's Office and evaluated approaches ranging from maintaining the City's existing screenline-based LOS metric to approaches measuring mode share, vehicle miles traveled (VMT) per capita and system completeness. Upon evaluation of these approaches, staff expressed support for SOV mode share as the best metric for Seattle, given its alignment with the City's transportation priorities.

During the public comment period for the Comprehensive Plan DEIS, several comment letters questioned the appropriateness of the current screenline LOS measures, and expressed support for a more multi-modal LOS standard. Comments on the public review draft of the Seattle 2035 Plan in the summer/fall of 2015 also expressed support for a more multi-modal LOS standard. In particular, some reviewers noted that changing from a vehicle-based LOS to one that is based on mode share would be better for the city because it would focus on moving people and goods. In addition, SDOT staff briefed the City's advisory boards for pedestrians, bicycles, transit and freight, and the Planning Commission and received supportive feedback for a mode share-based approach. In the second half of 2015 and early 2016, the consultant has reported on technical data showing how the new standard would perform and could be applied to development review.

Commitment to Meeting the New Standard

As a part of implementing Seattle 2035, the City is committed to shifting the way it measures LOS to a mode share based system. A proposed update of the City's concurrency code and related City processes are being aligned to measure the SOV mode share of individual development applications and ensure that mitigations are put in place, when necessary, to ensure that future development meets the standards stated in the Plan.

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