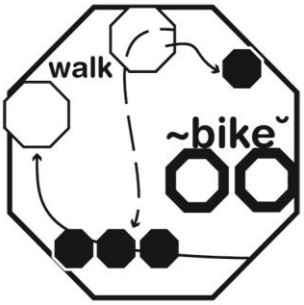
Multimodal Concurrency



Background

Definition

Concurrency describes a planning process that ensures that transportation infrastructure supports new and existing development as it occurs according to local standards for transportation system performance. These local standards are known as level-of-service standards. As development brings new demands on the transportation system, concurrency programs help a community ensure its facilities and services keep pace. Conversely, local jurisdictions can also use transportation facilities and concurrency programs to support and encourage desired patterns of growth. The Growth Management Act defines transportation concurrency to mean that necessary improvements are in place at the time of development, or that funding is in place to complete the necessary improvements within six years (RCW 36.70A.070(6), RCW 36.70A.108). The types of improvements shown in the statute include increased public transportation service, ride sharing programs, demand management, and other transportation systems management strategies; interestingly, automobile trips are not mentioned. Concurrency requirements can also be established for utilities and public services. Concurrency programs often drive infrastructure funding decisions. In effect, "you get what you measure."

Multimodal concurrency refers to a concurrency program that recognizes that the transportation system is multimodal, including motor vehicles, pedestrians, transit, and bicycles. Multimodal concurrency requires either multiple level-of-service standards that are specific to each mode (e.g., one standard for the pedestrian network, one for transit), or one unified level-of-service standard that considers all modes together (e.g., person-trip capacity across all modes compared to demand).

Concurrency mitigation refers to financial or in-kind contributions by developers in situations where the transportation system is unable to accommodate the predicted demand from the proposed development. Multimodal concurrency programs allow developers to mitigate concurrency failures with improvements to pedestrian, transit, and bicycle networks, as well as roadways and intersections.

Health, equity and sustainability considerations

Establishing, improving, and maintaining multimodal LOS standards and concurrency programs promotes physically active transportation by making planning for pedestrian, bicycle and transit travel more visible and transparent to planners, elected officials, and members of the community. Multimodal concurrency programs also make it easier for growth and development to contribute to multimodal transportation facilities. Accessible, safe, and well-designed facilities benefit users of all incomes, ages, physical ability, and language proficiency. One recent study conducted in King County found that a 5% increase in neighborhood walkability is associated with 32.1% more minutes devoted to physically active travel and about one-quarter point lower Body Mass Index or BMI (0.228). Multimodal facilities also promote more environmentally sustainable methods of transportation, and can increase access across income levels when used alongside other sustainable planning methods such as compact, mixed-use

There are over 300 miles of regional trails and bicycle paths in King County.

neighborhoods and transit-oriented development.

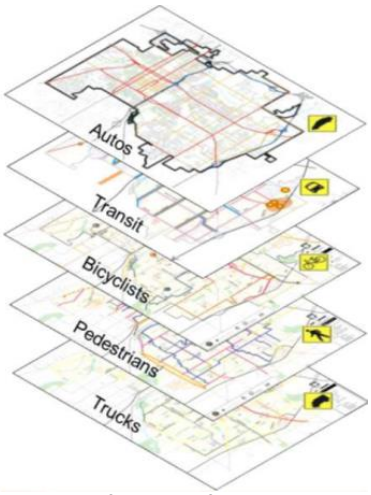
The Growth Management Act requires level-of-service standards for arterials and transit routes, but does not prescribe what these standards should be. In fact local governments have "virtually limitless discretion" when setting LOS standards. The central Puget Sound region's Multicounty Planning Policies similarly require local jurisdictions to "address nonmotorized, pedestrian, and other multimodal types of transportation options in concurrency programs – both in assessment and mitigation", but do not specify standards or measurement methodology.

To make progress towards a more active, safe, and equitable transportation network, local jurisdictions should incorporate multimodal provisions for bicycles, pedestrians, and transit into the concurrency assessment and mitigation components of their transportation planning process. Multimodal level-of-service standards should be set to prioritize the movement of people and goods instead of only the movement of vehicles. Level-of-service standards should encourage development that can be supported by transit and the improvement of conditions for walking, bicycling, and transit use.

Program and Policy Examples

Program examples

There are various approaches for establishing multimodal level of service. There is no "one-size-fits-all" methodology for measuring multimodal level of service. Concurrency should be tailored to local land use goals and infrastructure needs.



Layered Networks

The layered networks approach evaluates and plans for each mode as a separate network while also considering intermodal connections and relationships between the needs of different travel modes. Layered networks may designate modal emphasis by street to create a complete streets network. This approach recognizes that while all traveler types need to be accommodated within a community, no single street can accommodate all transportation users at all times. The layered network concept envisions streets as systems, with each street type designed to create a high quality experience for its intended users. A layered network approach can also use context sensitive land use and mode overlays to enhance additional transportation modes. This also allows preferred features by mode for evaluating level of service per layer. This provides a method for identifying layer specific deficiencies and prioritizing improvements.

In June, 2009, the Puget Sound Regional Council prepared a special report on multimodal concurrency (PSRC and City of Bellevue Multimodal Concurrency Pilot Project) to the Washington State Legislature's Joint Transportation Committee. The report includes a proposed method, or template, and suggested metrics for each mode (see chapter III) as well as background and context on multimodal concurrency.

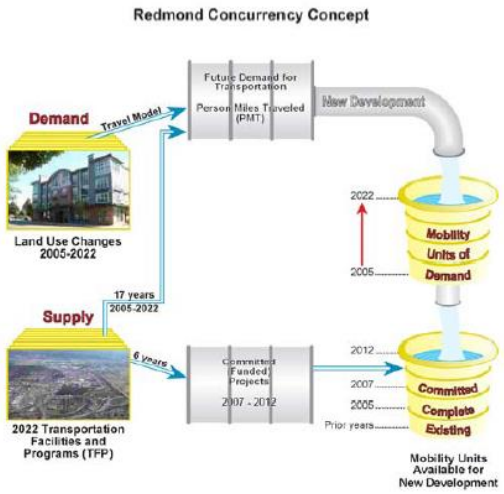
2010 Highway Capacity Manual

The 2010 Highway Capacity Manual (HCM 2010) provides detailed information on how to calculate LOS for bicycles and pedestrians on urban streets and at intersections. The HCM manual includes methodologies that account for travel lanes, bike lanes, parking, landscaping, sidewalks and bus shelters. The LOS standards are based on quality of service and comfort as well as speed of traffic and vehicle volumes. LOS measures are graded A through F for each mode and then the LOS ratings can be layered so that all modes are addressed when prioritizing the needs for the transportation network.

Person Capacity vs. Automobile Capacity

Plan-Based Transportation Concurrency System - City of Redmond

The City of Redmond uses this tool to manage the pace of development while providing transportation improvements for all users, including bicyclists, pedestrians, drivers, and transit riders. The concurrency concept in Redmond is simple – compare system demand to system supply by comparing Transportation Mobility Units (TMU). This approach estimates person demand by mode of travel to the supply (available supply of mobility units) and then uses this comparison to apply the concurrency review process when development occurs.



Person Delay

Another example of multimodal level of service that addresses people as opposed to vehicles is measuring person delay. This measure uses microsimulation to evaluate the delay per person for each mode of travel at an intersection. This allows for all the various transportation modes to be combined and compared equally. In addition, this microsimulation is conducive to evaluating alternatives in project development. Some benefits of using person delay are that all modes are accounted for (including vehicle and transit occupancy) and it provides insight into how different types of improvements can benefit different modes. This example of person delay is from the UC Davis Campus and from the Fehr and Peers MMLOS Toolkit.

Bellingham's Multimodal Transportation Concurrency Program (BMC 13.70) was one of the first in the nation to move beyond traditional auto-oriented level-of-service measurements to assess the adequacy of the citywide transportation network and has been featured in a wide variety of state and national publications.

The City of Bellingham combines multimodal LOS standards and a "plan-based" multimodal transportation concurrency system tailored to achieving local Bellingham Comprehensive Plan goals and priorities for urban infill and multimodal transportation. By separating the city into separate districts, Bellingham can tailor its program to special land use and transportation needs, as well as creating a closer nexus between development and investments. This method is GIS-based and measures pedestrian, bike and trail data on an annual basis in addition to arterial street traffic, transit ridership and transit seated capacity.

Implementation

Minimum Expectations

Multimodal concurrency and LOS programs that meet the requirements of the Growth Management Act and, within central Puget Sound, multicounty planning policies in VISION 2040, will include elements such as the following:

1. *A methodology to evaluate levels of service for transit, bicycles, and pedestrians and autos.*
    a. Single LOS standard: The LOS evaluation methodology can be unified across all modes (e.g., person-trip volume-to-capacity with capacity contributions from transit, sidewalks, and bike lanes in addition to vehicles), or separate methodologies for each mode.
    b. Mode-specific LOS standard: Auto LOS standards generally focus on volume-to-capacity ratios, while bicycle and pedestrian levels of service may more appropriately focus on presence of facilities since congestion of these specific modes is less of a concern. In more urbanized parts of the region, capacity of transit and reducing overcrowding may be the primary concern. In less urbanized parts of the region, presence, frequency, or span of service of transit may be the most important measures.
2. *A level-of-service standard based on the methodology.* These standards should reflect the community's expectations for transportation performance during the comprehensive plan period. LOS standards should balance community goals, available and anticipated funding, and the impacts of planned growth (including availability of developer mitigation). Standards should be tailored to different subareas to align concurrency with growth goals. Standards can be for areas, corridors, screenlines, or a combination.
3. *Identification of existing and future deficiencies.* Developing a program that clearly identifies multimodal deficiencies (i.e., facilities that are currently operating below the adopted LOS standard), as well as those that are projected to operate below the standard in the future, is a key to ensuring mitigation is multimodal.
4. *Strategies for addressing existing and future deficiencies.*
    a. Identify projects, programs, or strategies that will address existing and future deficiencies: Doing this at the planning stage, rather than the individual development stage, provides more certainty that the mitigations will align with jurisdictional goals; funding required from developers can be used to fund these pre-identified projects.
    b. Identify reasonable funding program: This will include traditional funding sources as well as developer mitigations for multimodal improvements. This can be a concurrency-based mitigation program, ad-hoc SEPA mitigation, or impact fees. Developer mitigation is usually only appropriate for addressing deficiencies resulting from the development.

Developing Policy Language

The Washington Department of Commerce Transportation Guidebook (see p. 140) provides guidance for jurisdictions on developing GMA-compliant transportation elements.

Fehr & Peers has also developed an MMLOS Toolkit, which includes 16 methodologies for establishing multimodal level of service with considerations for urban, suburban, and rural communities.

Resources

Transportation Research Board's Highway Capacity Manual (2010)

FDOT's Quality/Level of Service Handbook (2013)

Cascade Bicycle Club's Multimodal Level of Service in King County (2011)

Commerce - PSRC and City of Bellevue's Multimodal Concurrency Pilot Project (2009)

Washington State Transportation Center's Options for Making Concurrency More Multimodal (2006)

Washington State Transportation Center's The Possibilities of Transportation Concurrency: Proposal and Evaluation of Measurement Alternatives (2003)

Victoria Transport Policy Institute's Potential Multimodal LOS Indicators (2014)

Redmond's Multimodal Plan-Based Transportation Concurrency System (2009)

APA's Multi-modal Transportation Planning in Bellingham, WA (2009)

City of Sammamish's Concurrency Program (2013)

PSRC's Adopted Level of Service Standards for Regionally Significant State Highways (2014)

WSDOT Community Planning Portal's Transportation Data for Planning (2014)

VTPI's Multimodal Level-of-Service Indicators Resource List (scroll to bottom) (2014)

Washington State Transportation Center's 2007 Concurrency Study Resources (2007)