



Multimodal Level of Service NCHRP 3-70

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What is Level of Service?

- Level of Service is “a performance indicator of a traveler’s satisfaction with the trip.”
 - Chapter 5, Highway Capacity Manual



LOS in the HCM

- Urban Streets (Chapter 15)
 - LOS = auto speed
- Transit (Chapter 27)
 - LOS = frequency
- Bicycles (Chapter 18)
 - LOS = bike speed
- Pedestrians (Chapter 19)
 - LOS = pedestrian speed

So what's wrong?





Project Objective

- To provide tools to better integrate the consideration of auto, transit, bike, and pedestrian level of service in urban street design and analysis.



LOS Integration Issues

1. LOS should represent traveler's perspective.
2. LOS should be comparable across modes.
$$\text{LOS C (bike)} = \text{LOS C (auto)} = \text{LOS C (transit)}$$
3. LOS prediction methods should take into account modal interactions.
4. Framework should integrate easily with HCM and TCQSM

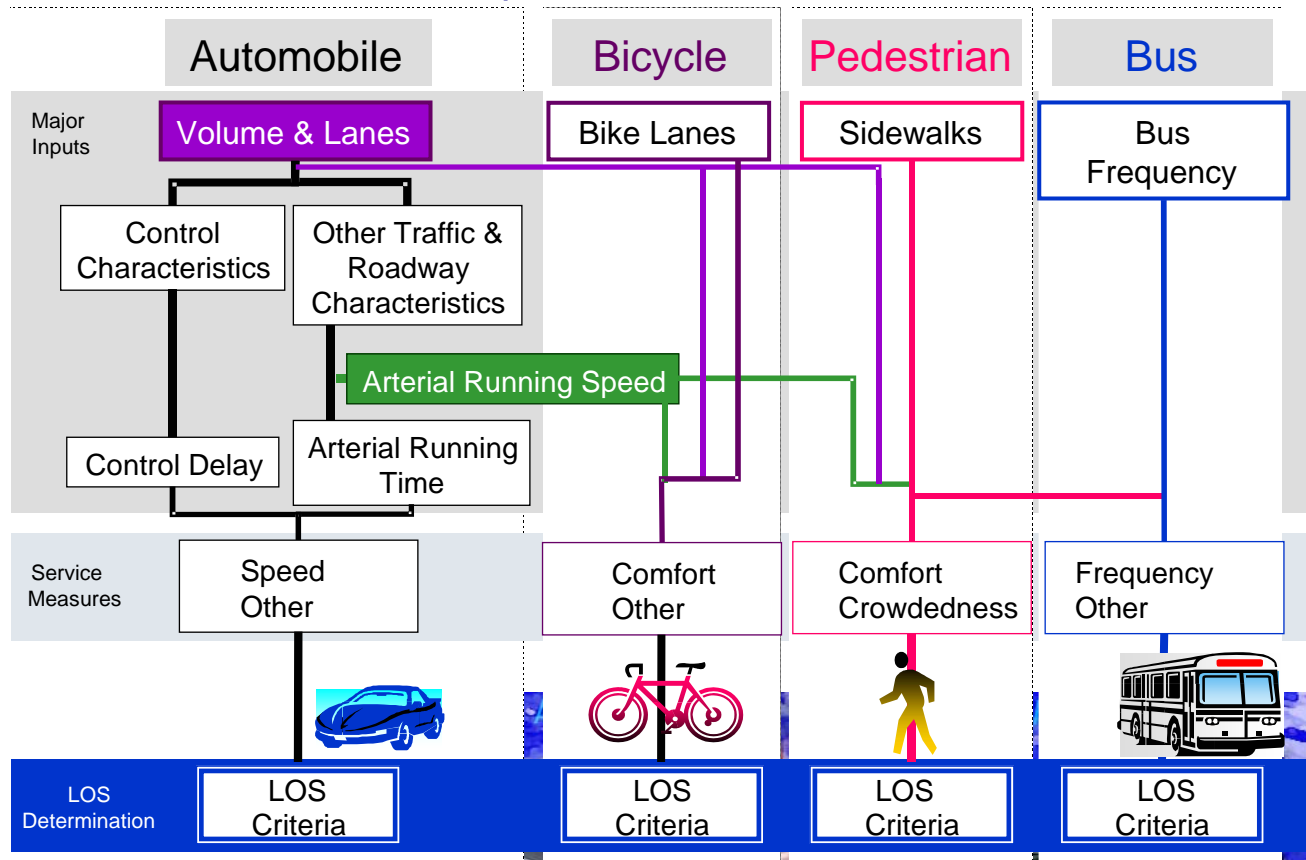


Approach

- Establish a uniform benchmark for measuring LOS across modes.
- Conduct surveys of traveler perceptions of LOS
- Build models of LOS, one for each mode
- Re-Draft Urban Streets Chapter of HCM.

Multimodal LOS

Possible Simplified Multimodal Arterial Flow Chart





Schedule

- Interim Report: Sept. 2003
- First Round Surveys: Sept. 2004
- Draft HCM Chapter: Dec. 2005
- Final Report: July 2006



The Grand Scheme

- NCHRP 3-70 and others are part of a grand scheme to improve the Highway Capacity Manual (HCM) for 2015.
 - 3-60 – Interchange Ramp Terminals
 - 3-64 – HCM Applications Guide
 - 3-75 – Freeway Weave and Ramps
 - 3-79 – Street Operations Analysis



HCM Strategic Plan

- Survey Users
- Identify Gaps
- Develop Research to Fill Gaps



User Survey Results

- Nine forums held,
 - 64 invited participants
- Identified 21 needed fixes.



Ten Themes for Next HCM

- *1. The next HCM should deal more comprehensively with assessment of the quality of service.*
 - Improve facility analysis capabilities



Ten Themes for Next HCM (2)

- *2. The next HCM should take a broader multimodal perspective and should have expanded capabilities to assess the quality of service provided to different types of travelers (auto, bike, pedestrian transit) using the same facility.*



Ten Themes for Next HCM (3)

- *3. The next HCM should deal more quantitatively with the assessment of quality of service for oversaturated conditions.*



Ten Themes for Next HCM (4)

- *4. The next HCM should provide better assurance to HCM users that its quality of service measures are consistent with traveler perceptions of quality of service.*



Ten Themes for Next HCM (5)

- *5. The next HCM should provide users with information on the accuracy/precision of the results.*



Ten Themes for Next HCM (6)

- *6. The next HCM should include methodologies for assessment of the quality of service for situations that are not currently addressed in the HCM.*
 - *Fill gaps*



Ten Themes for Next HCM (7)

- *7. Applications guides should be prepared for a broad range of HCM applications.*



Ten Themes for Next HCM (8)

- *8. The next HCM should provide more guidance on the application of traffic simulation models in conjunction with HCM procedures.*



Ten Themes for Next HCM (9)

- *9. The next HCM should provide procedures to quantify travel time variability due to recurring and nonrecurring congestion*
 - *Help highway agencies communicate those results to travelers.*



Ten Themes for HCM (10)

- *10. The next HCM should focus on providing measures that assist highway agencies in project prioritization and decision making.*



Strategic Research Plan

- Strategic Research Plan for the Next Highway Capacity Manual
 - Plan Due: January 2005
 - Target: Next major HCM 2015