Analysis of Level of Service F in the Highway Capacity Manual and Beyond

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Outline

- Introduction
- Operations Versus Planning Applications
- 2010 HCM: Operations
- 2010 HCM: Planning
- Evaluation of the State of the Art
- Beyond the 2010 HCM
- Conclusion
Introduction

▷ What is Level of Service (LOS) F?

▷ The Old Way: If it’s at LOS F, how do we fix it?

▷ The New Way: If it’s at LOS F, how bad is it?

▷ What’s Changed
  - Funding Limitations
  - Right-of-Way
  - Environmental Impacts
  - Local Opposition
  - Emphasis on Alternative Modes, Complete Streets, etc.
Applications of More Detailed LOS F Analysis

- *If all alternatives are at LOS F, which is the “best” LOS F?*

- *If the base case is LOS F and my project makes it worse, is it significantly worse?*

- *If we are expecting LOS F, can we live with it?*

- *If we are expecting LOS F, is there an alternative transportation mode available?*
Operations Versus Planning Applications

- **Operations**: Emphasis on queuing, delay, multiple-period analysis

- **Planning**: Emphasis on level of severity, alternate routes, alternate travel behavior
2010 HCM Operations Analysis

- Conduct peak hour analysis
- Determine whether multi-period analysis is appropriate
- Analyze for multiple periods
- Sum measures of effectiveness for each period analyzed
2010 HCM Planning Analysis

- Use default values, where appropriate
- Use of volume to capacity ratio or similar measures of effectiveness is supported
Evaluation of the state of the art: How Do We Report LOS F Conditions?

- Volume to Capacity Ratio
- Average Delay
- Maximum Queue Length
- Additional Letters (LOS G, LOS H, etc.)
- Lack of Consistency
Beyond the 2010 HCM

- NCHRP 7-22: Planning and Preliminary Applications Guide to the HCM
- Traffic Simulation / Dynamic Traffic Assignment
- Integrated Corridor Management
Reporting of congested conditions (LOS F) is an important topic in today’s environment

Research and new applications are ongoing

For now there is much interest, but not much consistency in the profession