Analysis Procedure Manual
2020 Change Sheets

January 2020

APM Version 2

Chapter 12, Subsection 12.3.3

Deleted:

- Vistro version 6 or higher is able to automatically re-sort TWSC movements in order to perform this type of workaround analysis as well.

Technical Tools Webpage

Added:

Unsignalized Intersection Pedestrian Crossing Calculator: This spreadsheet tool implements NCHRP Report 562 Improving Pedestrian Safety at Unsignalized Crossings. It can be used as a guide to select or screen potential pedestrian crossing treatments for plans and projects. These treatments can range from signs and markings to full mid-block traffic signals. For more information see Chapter 14 of APM Version 2.

Updated:

Updated version of Pedestrian and Bicycle Signalized Intersection MMLOS Calculator.

Updated:

Updated version of Planner Traffic Count Request Template under Volume Development Tools.

February 2020

APM Version 1

Chapter 11
Deleted:
Entire chapter

Added:
Note: APM Version 2 Chapter 16 is currently in progress. Contact TPAU if guidance on air and noise traffic data is needed in the interim.

**APM Version 2**

| Chapter 11, Section 11.3.1 Basic Freeway and Multilane Highway Segments |

**From:**
See Appendix 11C for Oregon-specific default values. The FFS can be estimated using the “roadway characteristics” method described as part of the detailed analysis method below, or as the speed limit plus 5 mph. Unlike the detailed method (described next), no FFS adjustment is made for differential truck speed limits or for mountainous terrain.

**To:**
See Appendix 11C for Oregon-specific default values. The FFS can be estimated using the “roadway characteristics” method described as part of the detailed analysis method below, or as the speed limit plus 5 mph. See Appendix 11A for adjusting the FFS for differential truck speed limits or for mountainous terrain.

| Chapter 11, Example 11-2 Freeway Analysis (Screening Method) |

**From:**
Step 2. Adjust Volumes. The peak-15-minute demand flow rate is determined by dividing the peak hour volume by the peak hour factor. The PHF is unknown; therefore, the default value of 0.95 for freeways is used (see Appendix 11C or HCM 6). The resulting demand flow rate is 6,820 / 0.95 = 7,179 veh/h.

The v/c ratio is then 7,179 / 5,799 = 1.24.

**To:**
Step 2. Adjust Volumes. The peak-15-minute demand flow rate is determined by dividing the peak hour volume by the peak hour factor. The PHF is unknown; therefore, the default value of 0.94 for freeways is used (see Appendix 11C or HCM 6). The resulting demand flow rate is 6,820 / 0.94 = 7,255 veh/h.

The \( v/c \) ratio is then \( \frac{7,255}{5,799} = 1.25 \).

Chapter 11, Example 11-15 Freeway Reliability Analysis (Screening Method)

Corrected example using PHF of 0.94 and adjusting FFS for differential in truck and auto posted speeds.

Chapter 16, Appendix 16A

Deleted:
Noise, Air and Energy Traffic Requirements Checklist

Added:
Example Air and Noise Traffic Data Request Forms

March 2020

APM Version 1
APM version 1 deleted after moving remaining chapters to APM version 2

APM Version 2
Incorporated remaining chapters from APM version 1

- v1 Chapter 7 now v2 Chapter 15
- v1 Chapter 11 now v2 Chapter 19

Chapter 13, Section 13.4.4
From:

Critical movements may be identified using either CMA analysis (for protected phasing only) or, if using Synchro, from the Synchro HCM 2000 report.

To:

Critical movements may be identified using either CMA analysis (for protected phasing only) or from the Synchro HCM 2000 report or the SIDRA output. However, in some cases the critical movements identified in the Synchro HCM 2000 report or the SIDRA output are not correct for the purpose of calculating $X_c$, and need to be modified. The critical movements need to be based on the following considerations:

- Identify the critical pair from the possible left-through combinations for each direction
- Split timing is assumed to be equivalent to exclusive phases, so the controlling flow ratio in both directions needs to be accounted for.
- Approaches with exclusive right turn lanes should have a flow ratio calculated for the right turn lane group and compared with the other lane group flow ratios for that approach. It is possible to have the right turn control.
- Use lane group capacities and related volumes instead of movement capacities.
- Use permitted saturation flow rates for permitted movements and protected saturation flow rates for protected movements

If elements of both (NB/SB or EB/WB) non-split-timed critical pairs are flagged as critical movements in the Synchro HCM2000 or SIDRA report, the analyst needs to determine the highest critical pair to use (e.g. EBL + WBT) of the two and only use the highest in the $X_c$ calculation. Otherwise the calculated $X_c$ value will be too high.