

Appendix G | Technical details for Field Surveys

G.1 | Approach for Arterials (Tier 1 and 2), Ramps and HOV

Floating car surveys were conducted on arterials (Tier 1), HOV lanes, a portion of arterials (Tier 2), and three ramp segments.

Floating car runs were completed using the industry accepted approach of attempting to represent the average vehicle. Drivers aimed to pass as many vehicles as passed them. Six surveys were conducted in each of the morning (7 a.m. to 9 a.m.) and afternoon (4 p.m. to 6 p.m.) peak periods. Surveys were only undertaken on Tuesdays, Wednesdays, and/or Thursdays. For a particular segment, the surveys were scheduled so they spanned a range of days and times. The aim of this is to ensure that a range of representative traffic conditions are surveyed.

As discussed in **Section 2.1**, floating car surveys were scheduled to avoid certain conditions that could be expected to lead to irregular traffic patterns such as school holidays, incidents and short term construction etc.

Drivers were instructed to comply with all road rules. This includes the speed limit, traffic signal displays and not stopping within intersections. In this respect, it is noted that there may be some minor differences between the results from these professional floating car surveys and normal driving behavior; however these differences are unavoidable.

Once the field data was collected for each route, it was downloaded from the survey device and processed in PC Travel⁴⁰ software. Technicians specified the check points at the beginning/end of each CMP segment and the software extracted the timestamp of when the survey vehicle passed the check point. The timestamps were transferred to spreadsheets (developed previously by Alameda CTC) and the spreadsheets calculated the travel time (in minutes), average speed (mph) and LOS according to the appropriate HCM look up table in **Section 2.3**.

The software also provided the associated length between check points and, as a quality check, these were compared to the reported CMP segment length. Where necessary, the PC Travel processing was refined to ensure the lengths surveyed matched the lengths reported. As a further quality check, the average speed values were reviewed for reasonableness against:

⁴⁰ PC Travel <http://www.pc-travel.com/>

- Data from previous monitoring efforts;
- Adjacent CMP segments; and/or
- Congestion trends in Google Maps.

G.2 | Approach for OD Surveys

OD surveys were conducted in a similar manner to other floating car surveys, except considering the following additional requirements. OD surveys consisted of a simultaneous survey of up to three modes of travel in the following quantities:

- Four floating car surveys for the auto mode;
- Four floating car surveys for the HOV mode;
- Two transit surveys, where the surveyor rode transit as a passenger;
- Two transit surveys, where the surveyor makes a synthesized transit trip using real time transit information from a desktop computer; and
- Two bike surveys using the same bike rider.

Note that the desktop transit survey is considered as a pilot study and is used in 2016 only. As a complement to the in-field surveys which were conducted at the same time, in the desktop survey the bus arrivals, travel times, and departures, as well as walking times were taken from online transit information and navigation websites. This method or other methods are up for further consideration in later study cycles.

The start times of two of the survey runs were coordinated to begin at the same time for each mode. The two additional auto/HOV surveys were undertaken separately.