

VARIATIONS IN AMERICANS' DAY-TO-DAY TRAVEL PATTERNS

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ABSTRACT

Travel patterns (vehicle-miles traveled [VMT], trip length, vehicle occupancy, and congestion etc.) vary by day of week, month of year and location or region, due to holidays, region-specific events, weather, and various other factors. Quantifying travel-pattern variations is important in deciding transportation system expansion and modification, investments and policies, whether for highways, transit, non-motorized modes, air travel, or other options. Typically, such variations are ignored, with models run and decisions made for a single *average workday's* demand, which contributes to underperformance of our transportation systems (though it should be noted that some traffic studies base design considerations using a year's 30th highest hour). This study analyses variations in daily VMT, trip lengths, and occupancy of light-duty vehicles (LDVs) using the 2009 National Household Travel Survey (NHTS) data. Survey data were analyzed from May 1, 2008 to April 30, 2009, with an average of 1913 respondents per day (and varying from 142 to 3454 respondents across all 365 days). While publicly available NHTS data do not carry survey dates, such details can be made available by the FHWA's Office of Policy (upon special request).

The study's key conclusions of analysis are as follows: while overall averages (across all NHTS vehicle-trips) of daily VMT, vehicle-trip lengths, and vehicle occupancy levels (per LDV used) are 37.30 miles per vehicle, 9.14 miles, and 1.51 persons, respectively, day-to-day and month-to-month departures from the average can be dramatic. For example, July 5, 2008 (a Saturday) and March 1, 2009 (a Sunday) had the biggest departures from the average: with 37.3% higher VMT and 25.2% lower VMT, respectively. More generally, the average Friday in April and Sunday in January exhibited the highest and lowest VMT per LDV, with 17.8% higher and 11.9% lower daily values than the overall average. Vehicle-trip lengths and occupancies were highest on Sundays in April (22.6% higher) and May (21.1% higher), and lowest on Tuesdays in May (12.3% lower) and Mondays in November (11.18% lower). Among all days of the week, Sundays offer the highest vehicle occupancies, on average (17.8% higher), and trip lengths (9.2% higher), but the lowest (2.7% lower) daily VMT (per vehicle). Among seasons, winter carries the lowest daily VMT (just 2.9% lower than the average) and trip length (3.2% lower). The U.S.'s 13 top holidays were evaluated separately, and exhibit 2.3%, 15.3%, and 11.3% higher daily VMT, vehicle-trip lengths, and occupancies (on average) as compared to non-holidays. These statistics may enlighten the policy-makers' vision and they may find a way to account for travel-pattern-uncertainties in future planning decisions.