

Census Data in the Statewide Regional Evacuation Study Program

Hurricane evacuation modeling considers, among other things:

- The number of people who evacuate by some method other than a vehicle on the roads
- The number of people and vehicles evacuating by road
- The roadway network

The number of people and vehicles evacuating by road is derived from

- The total number of people and vehicles in the area modeled
- The number of people and vehicles that actually participate in the evacuation (behavioral dimension)

Today I will discuss the way we determine the total number of people and vehicles that are in the areas that may participate in an evacuation. We typically divide the analysis into three groups:

- Evacuees originating in hotel/motel units (tourists, non-residents)
- Residents in site-built homes
- Residents in mobile homes

Each of these three components is derived by estimating

- The total number of dwelling units (or hotel/motel rooms)
- The number of dwelling units that are occupied
- The number of people in occupied dwelling units
- The number of vehicles present in occupied dwelling units
- The percentage of vehicles that will be used in an evacuation

Where people are located within the county when they initiate an evacuation, and where they decide to go, are important in determining the amount of time it takes them to get to safety. As a result, evacuation modeling typically divides the county into evacuation zones, which are tied to specific entry points onto the roadway network. The Statewide Regional Evacuation Study model for Monroe County is built upon 40 Traffic Evacuation Zones (TEZs). Basic data for the model is collected at the census block group level and then aggregated into the 40 TEZs.

Census data is used to estimate many of the factors listed above, including

- The total number of site-built and mobile homes
- The number of occupied site-built and mobile homes
- The number of people in occupied site-built and mobile homes
- The number of vehicles in occupied site-built and mobile homes

Census data is derived from two distinct, but related, sources:

- The 2010 Census - housing unit and population counts (short form, 100%), published for census blocks
- The 2006-10 American Community Survey (ACS) - characteristics of the housing stock and the population based on a sample (3,147 housing units and 4,619 people over the 5-year period), published for areas as small as census block groups

Monroe County - Derivation of inputs for evacuation modeling for 2010

Variable	Source	Value
(1) Total Housing Units	2010 Census	52,764
(2) Total Occupied Housing Units (OHU)	2010 Census	32,629
(3) % Occupied Housing Units	2010 Census	61.84%
(4) Total People in Occupied Housing Units	2010 Census	73,090
(5) Persons per Household (OHU)	2010 Census	2.24
(6) % of Total Housing Units that are Mobile Homes	2006-10 ACS	15.32%
(7) % of Occupied Housing Units that are Mobile Homes	2006-10 ACS	14.41%
(8) % of Residents that are in Mobile Homes	2006-10 ACS	13.02%
(9) Vehicles per Occupied Housing Unit	2006-10 ACS	1.40
(10) Total Site-Built Homes = (1)-(11)	SRESP	44,631
(11) Total Mobile Homes = (1)*(6)	SRESP	8,133
(12) Occupied Site-Built Homes = (2)-(13)	SRESP	27,996
(13) Occupied Mobile Homes = (2)*(7)	SRESP	4,633
(14) Residents in Occupied Site-Built Homes = (4)-(15)	SRESP	63,538
(15) Residents in Occupied Mobile Homes = (4)*(8)	SRESP	9,552
(16) Vehicles in Occupied Site-Built Homes = (12)*(9)	SRESP	39,476
(17) Vehicles in Occupied Mobile Homes = (13)*(9)	SRESP	6,627

The table shows the data for Monroe County as a whole, derived from the sums of the data calculated for each census block group. This approach ensures that the allocation of evacuees to different segments of the roadways in the Florida Keys will be accurate.