Carlos Delgado was born in the El Prado section of Aguadilla. There, he attended elementary school alongside his three siblings. Both his father, "Don Cao", and his grandfather, Asdrúbal "Pingolo" Delgado, were well-known figures in the town.

Carlos attended Agustín Stahl Middle School and Jose de diego High School, from which he graduated in 1989. Delgado has expressed his strong feelings of pride in being an Aguadillano, noting everything he holds dear is found in the municipality, and his off-season house is located there.

Like his hero, Roberto Clemente, Delgado is a well-known peace activist, and has been open about his political beliefs. As part of the Navy-Vieques protests, Delgado was actively opposed to the use of the island of Vieques, Puerto Rico as a bombing target practice facility by the U.S. Department of Defense, until bombing was halted in 2003. He is also against the occupation of Iraq. In the 2004 season, Delgado protested the war by silently staying in the dugout during the playing of "God Bless America" during the seventh inning stretch. Delgado does not make a public show of his beliefs, and even his teammates were not aware of his views until a story was published in July 2004 in the Toronto Star. Delgado was quoted as saying "It's a very terrible thing that happened on Sept.11. It's (also) a terrible thing that happened in Afghanistan and Iraq, ... I just feel so sad for the families that lost relatives and loved ones in the war. But I think it's the stupidest war ever." The story was the subject of a media frenzy, mostly in New York, where on July 21, 2004, as was anticipated, Delgado was booed by Yankee fans for his passive protest during a game at Yankee Stadium. Delgado had explained that the playing of "God Bless America" had come to be equated with a war in which he didn't believe. In a New York Times interview, Delgado said this is what he believed in, and "It takes a man to stand up for what he believes." After being traded to the Mets, in a conciliatory measure, Delgado opted to stand during the singing of "God Bless America."

Among other charity work, Delgado is well-known for his generous visits to hospitals in his hometown where, on Three Kings Day, he brings toys to hospitalized children. In 2006, he joined Puerto Rico’s Senate President in co-sponsoring a massive Three Kings gift-giving effort in the town of Loíza. Delgado started his own non-profit organization, "Extra Bases" to assist island youth. In 2007, Delgado donated video conference equipment to allow his hometown's Buen Samaritano Hospital to establish a regular link with a hospital in Boston in order to allow for remote diagnoses through telemedicine.

Delgado has also contributed to improving Puerto Rico's public education system. In 2007, he participated in Sapientis Week, an initiative sponsored by the non-profit Spientis which brings distinguished public figures into classrooms in order to raise the public's awareness of the education crisis in Puerto Rico. Delgado taught a class on Athletic Mental Training and Health at the Ramon Power y Giralt School in the Luis Llorens Torres public housing complex.

For his efforts, Delgado was awarded the Roberto Clemente Award in 2006. The award goes to the player in baseball who best exemplifies humanitarianism and sportsmanship, and was named after Hall of Famer Roberto Clemente in 1973.

- 3-time AL Silver Slugger Award (1999, 2000, 2003)
- 2-time AL All-Star (2000, 2003)
- 2000 AL Hank Aaron Award
- 2006 Roberto Clemente Award