

onsite tests. The pictures or frames in the Zapruder film were marked by the agents, with the number "1" given to the first frame where the motorcycles leading the motorcade came into view on Houston Street.²⁷² The numbers continue in sequence as Zapruder filmed the Presidential limousine as it came around the corner and proceeded down Elm. The President was in clear view of the assassin as he rode up Houston Street and for 100 feet as he proceeded down Elm Street, until he came to a point denoted as frame 166 on the Zapruder film.²⁷⁴ These facts were determined in the test by placing the car and men on Elm Street in the exact spot where they were when each frame of the Zapruder film was photographed. To pinpoint their locations, a man stood at Zapruder's position and directed the automobile and both models to the positions shown on each frame, after which a Bureau photographer crouched at the sixth-floor window and looked through a camera whose lens recorded the view through the telescopic sight of the C2766 Mannlicher-Carcano rifle.²⁷⁵ (See Commission Exhibit No. 887, p. 99.) Each position was measured to determine how far President Kennedy had gone down Elm from a point, which was designated as station C, on a line drawn along the west curblineline of Houston Street.²⁷⁶

Based on these calculations, the agents concluded that at frame 166 of the Zapruder film the President passed beneath the foliage of the large oak tree and the point of impact on the President's back disappeared from the gunman's view as seen through the telescopic lens.²⁷⁷ (See Commission Exhibit No. 889, p. 100.) For a fleeting instant, the President came back into view in the telescopic lens at frame 186 as he appeared in an opening among the leaves.²⁷⁸ (See Commission Exhibit No. 891, p. 101.) The test revealed that the next point at which the rifleman had a clear view through the telescopic sight of the point where the bullet entered the President's back was when the car emerged from behind the tree at frame 210.²⁷⁹ (See Commission Exhibit No. 893, p. 102.) According to FBI Agent Lyndal L. Shaneyfelt, "There is no obstruction from the sixth floor window from the time they leave the tree until they disappear down toward the triple overpass."²⁸⁰

As the President rode along Elm Street for a distance of about 140 feet, he was waving to the crowd.²⁸¹ Shaneyfelt testified that the waving is seen on the Zapruder movie until around frame 205, when a road sign blocked out most of the President's body from Zapruder's view through the lens of his camera. However, the assassin continued to have a clear view of the President as he proceeded down Elm.²⁸² When President Kennedy again came fully into view in the Zapruder film at frame 225, he seemed to be reacting to his neck wound by raising his hands to his throat.²⁸³ (See Commission Exhibit No. 895, p. 103.) According to Shaneyfelt the reaction was "clearly apparent in 226 and barely apparent in 225."²⁸⁴ It is probable that the President was not shot before frame 210, since it is unlikely that the assassin would deliberately have shot at him with a view obstructed by the oak tree when he was about to have a clear opportunity. It is