# THE ASSASSINATION OF PRESIDENT JOHN F. KENNEDY

NOVEMBER 22, 1963 AND THE

### KILLING OF LEE H. OSWALD

**NOVEMBER 24, 1963** 



VISUAL AIDS

FEDERAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICE
John Edgar Hoover, Director

62-109060 - 2313 X

#### PREFACE

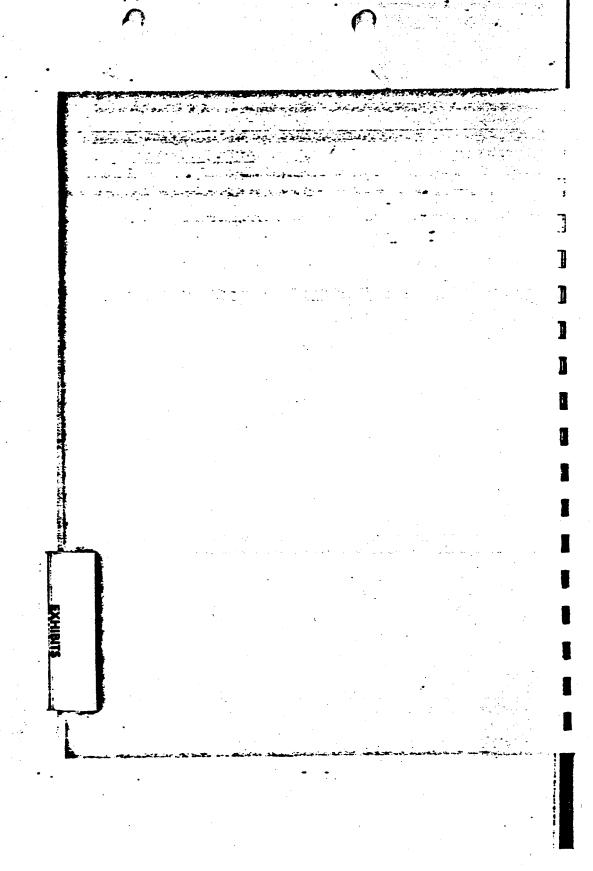
This technical brochure deals with visual aids which graphically describe the sites where President Kennedy was assassinated and where Lee Harvey Oswald was shot.

Extensive technical data relating to the physical makeup of each site was gathered at the scene. Structural blueprints of buildings, plans of streets, park layouts and aerial views of downtown Dallas were also made available by city officials, news media, armed services and officials of the Texas School Book Depository Building.

Scale models were developed showing in minute detail pertinent physical features of each site, including miniature reproductions of vehicles. These three-dimensional exhibits will assist eyewitnesses in clearly demonstrating their recollections of the events occurring at the time of the shootings, thus making it possible for those who have not visited these sites to gain a full and clear understanding of the happenings surrounding each event.

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## LARGE VISUAL AIDS AVAILABLE FOR CONFERENCE ROOM USE

#### A. Motorcade Route:

- 1. Map of the City of Dallas.
- Map of route from Assassination area to Parkland Memorial Hospital and Love Field.
- 3. 8 mm. home movie of motorcade turning into Parkway in front of Texas School Book Depository Building:
  Robert J. E. Hughes (17 seconds).

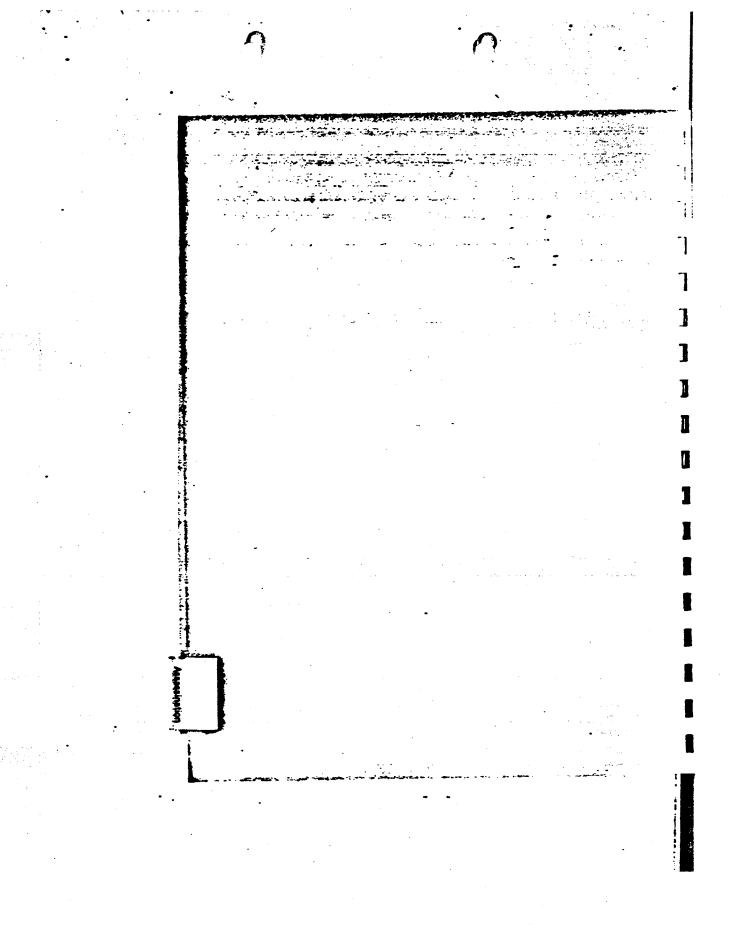
#### B. Assassination Site:

- 4. Scale model 1/4 inch equals 1 foot.
- 5. Aerial view of downtown Dallas.
- 6. Aerial close-up of Assassination site (Dealey Plaza).
- Aerial close-up of area where Oswald entered bus,
   left bus and entered cab.
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- 9. Aerial close-up of Oswald's Rooming House.
- 10. Aerial close-up of area where Officer Tippit was killed.
- 11. Aerial close-up of area where Oswald was arrested.
- 12. View of Assassination site from ground level (Elm Street entrance to Freeways).

- 13. View of Triple Underpass.
- 14. Low camera view of motorcade moments after first shot was fired.
- 15. 8 mm. home movie of shooting sequence:
  - (a) Abraham Zapruder film (33 seconds)
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- 16. Scale model 1/2 inch equals 1 foot.
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- View looking toward Jail Office from garage parking area.
- Position of Ruby at time Oswald emerged from Jail Office.
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- 22. Armored van showing side doors.
- 23. Armored van showing rear door.
- 24. Floor plan, portion of third floor, Dallas Police Department, Dallas, Texas.
- 25. Diagram of Dallas Police Department garage.
- 26. 16 mm. black and white film copy of closed circuit video tape prepared by KRLD-TV and News Department, Dallas, Texas, showing shooting of Oswald.



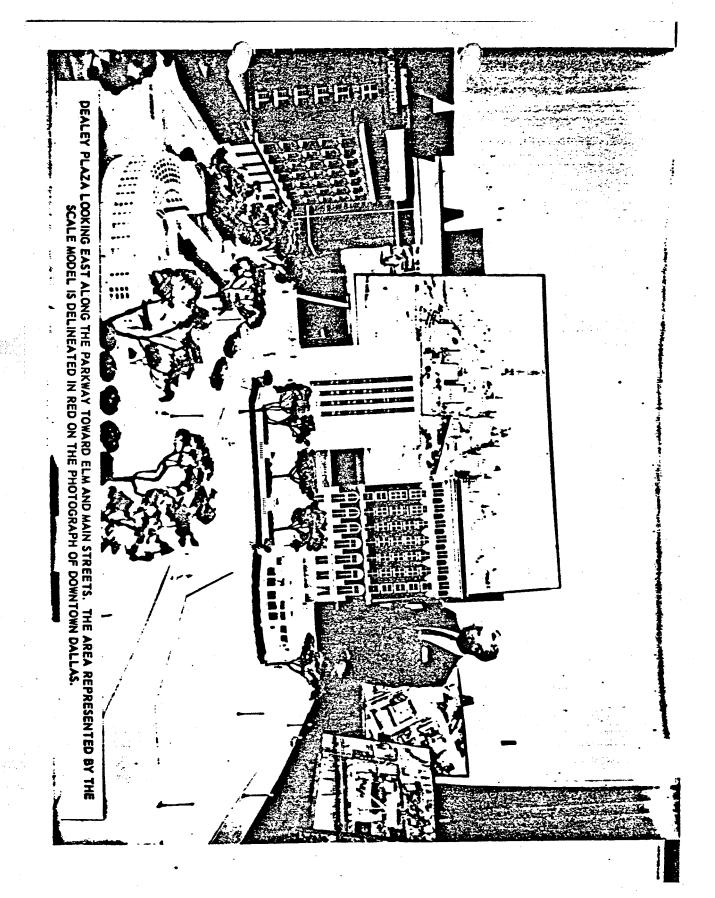
# THE ASSASSINATION OF PRESIDENT JOHN F. KENNEDY

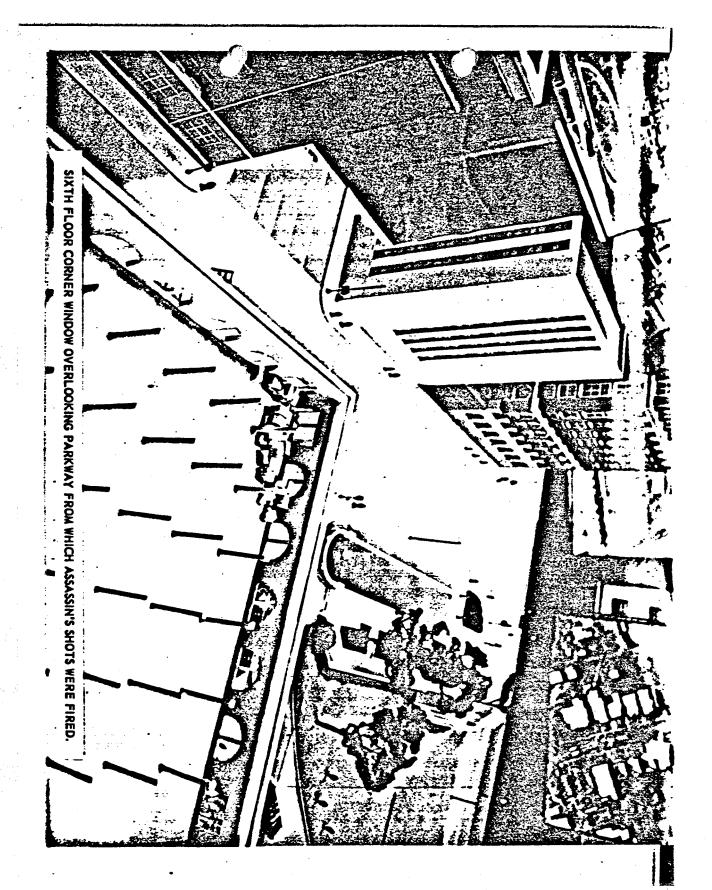
NOVEMBER 22, 1963

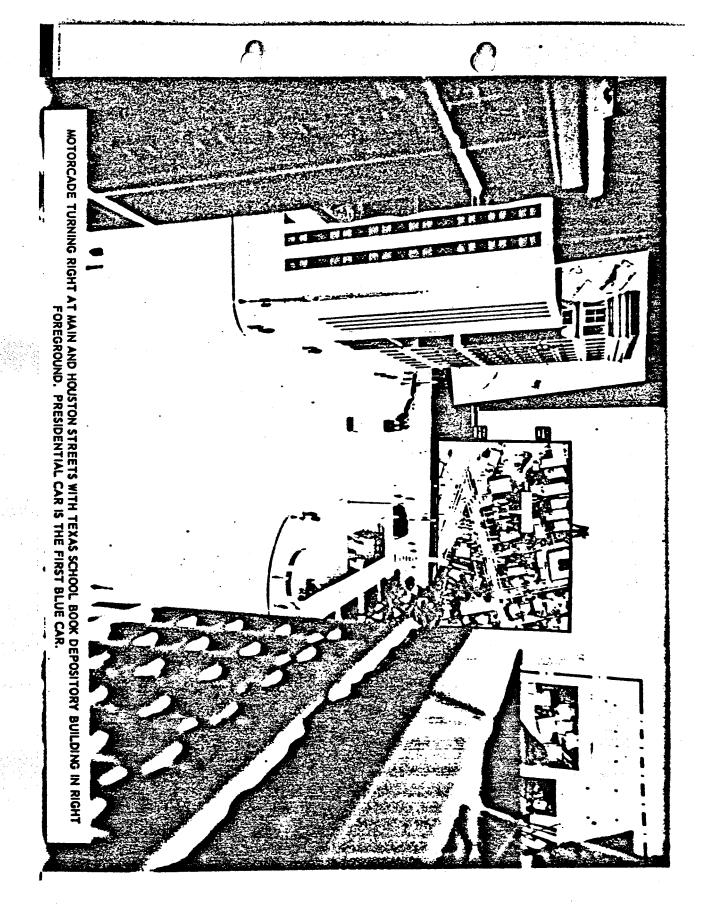
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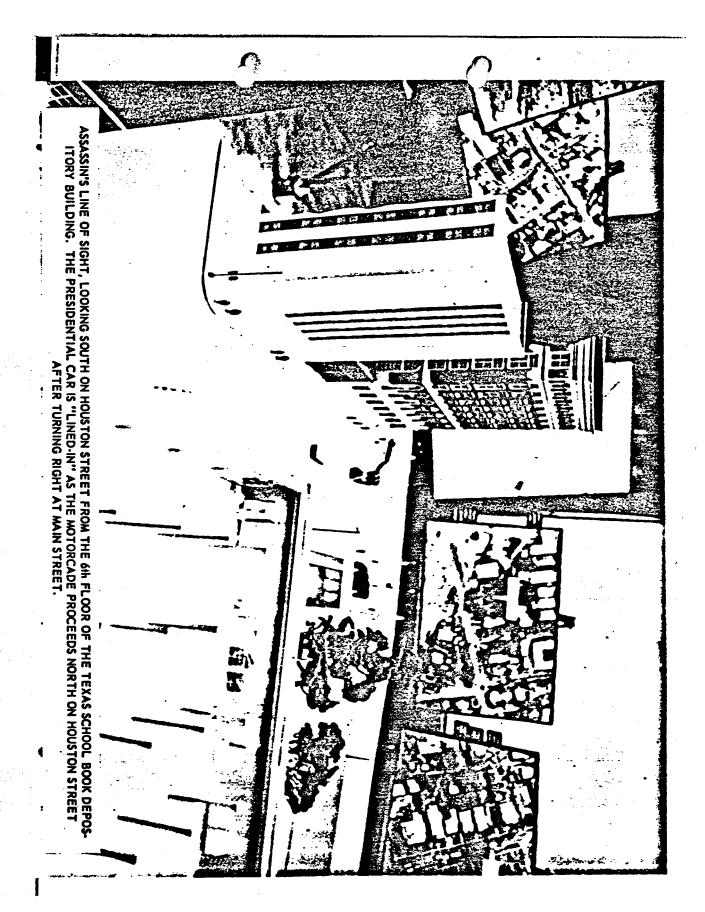
The following photographic re-enactments of the assassination were made using three-dimensional scale models.

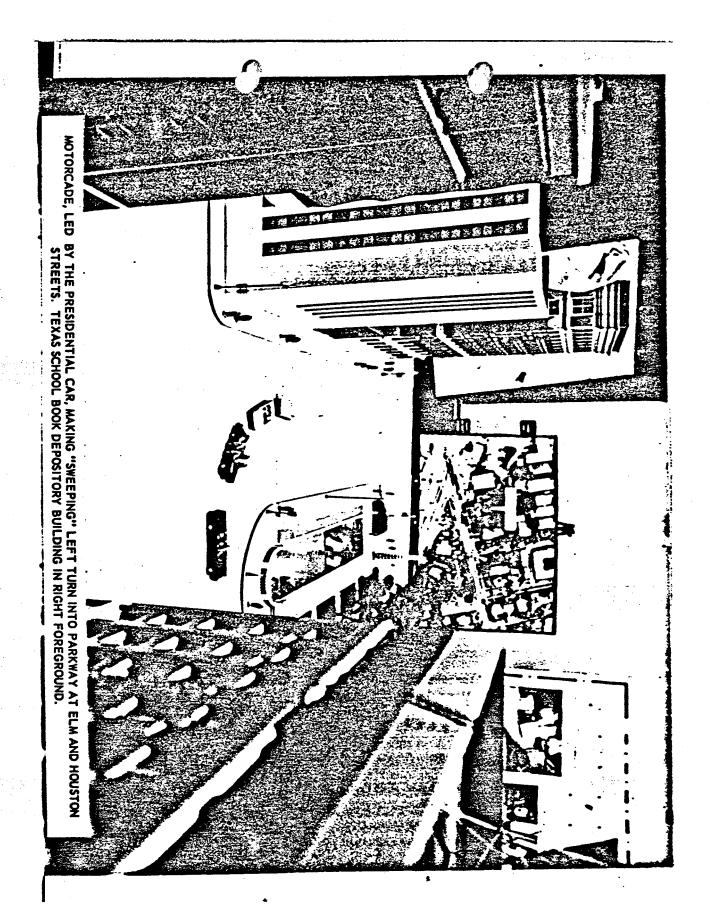
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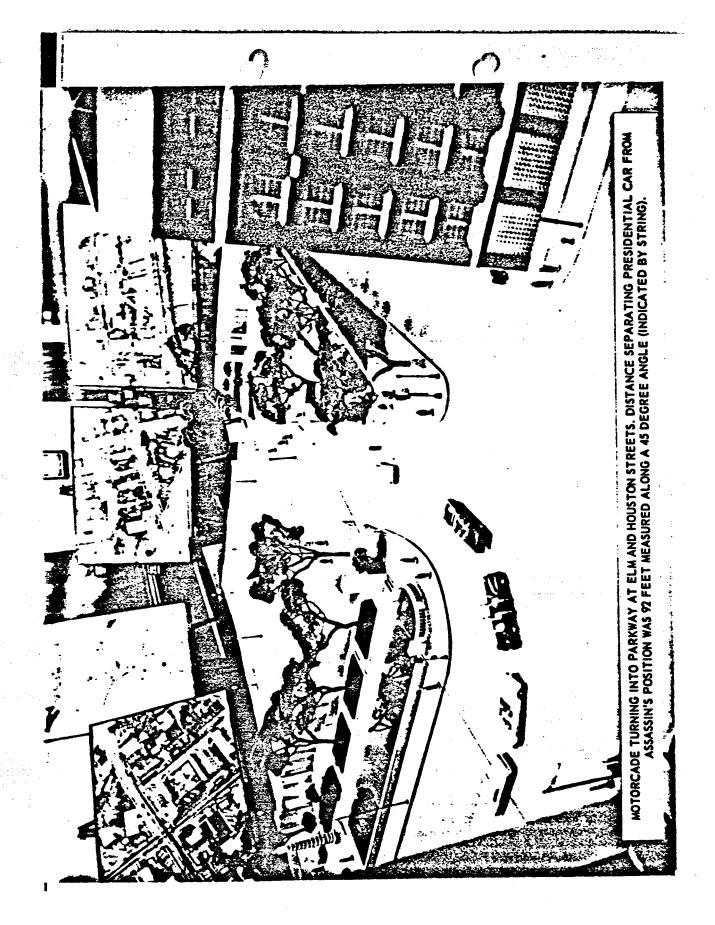


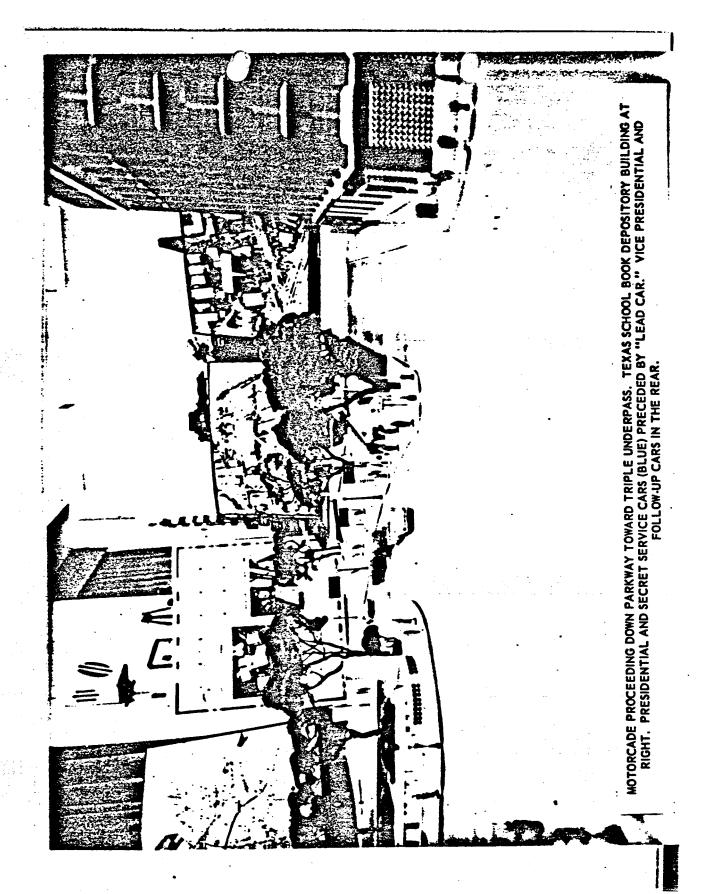


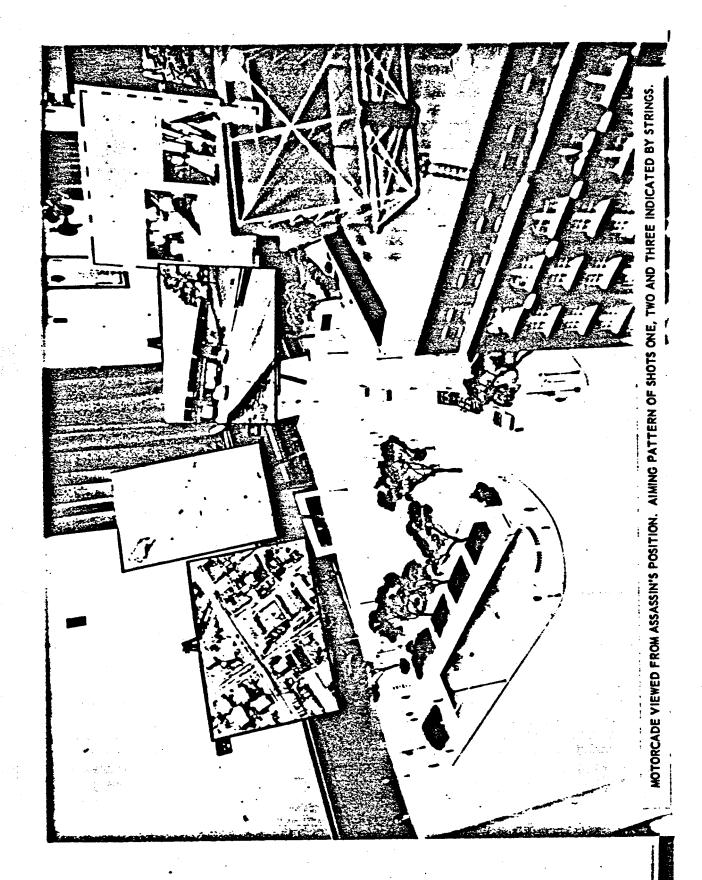


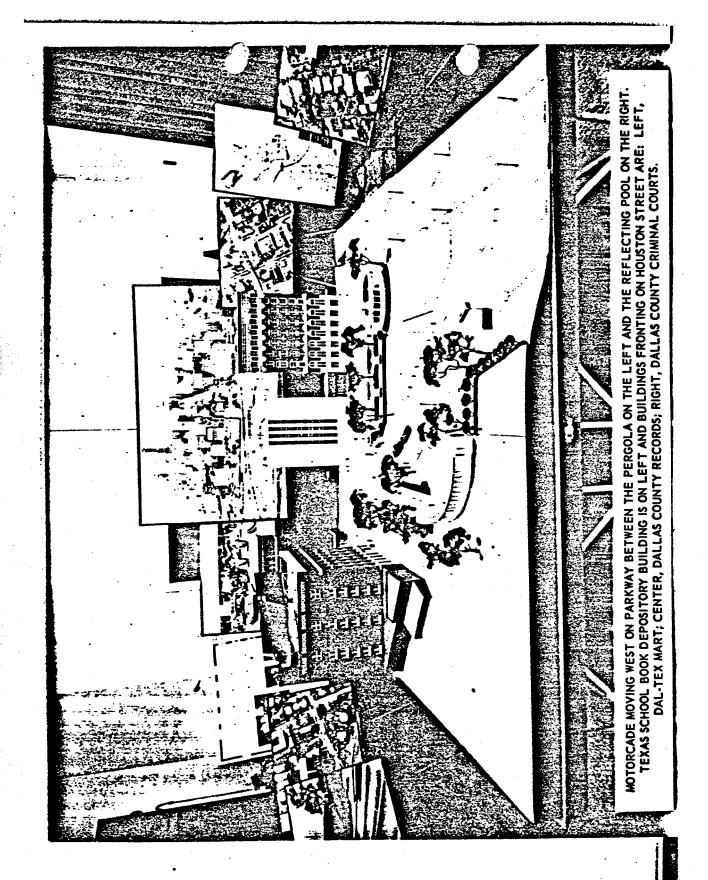


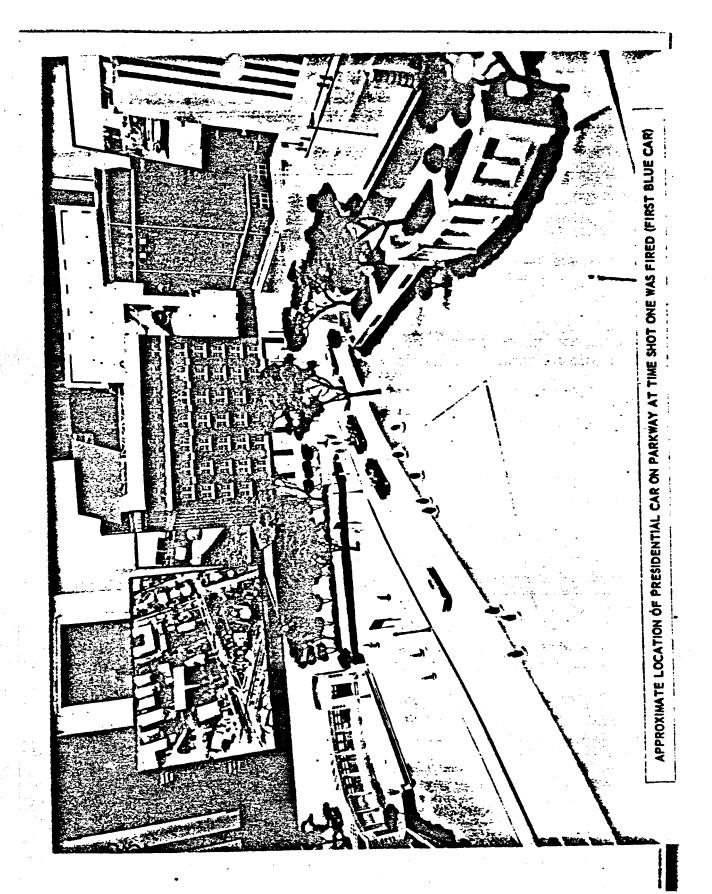


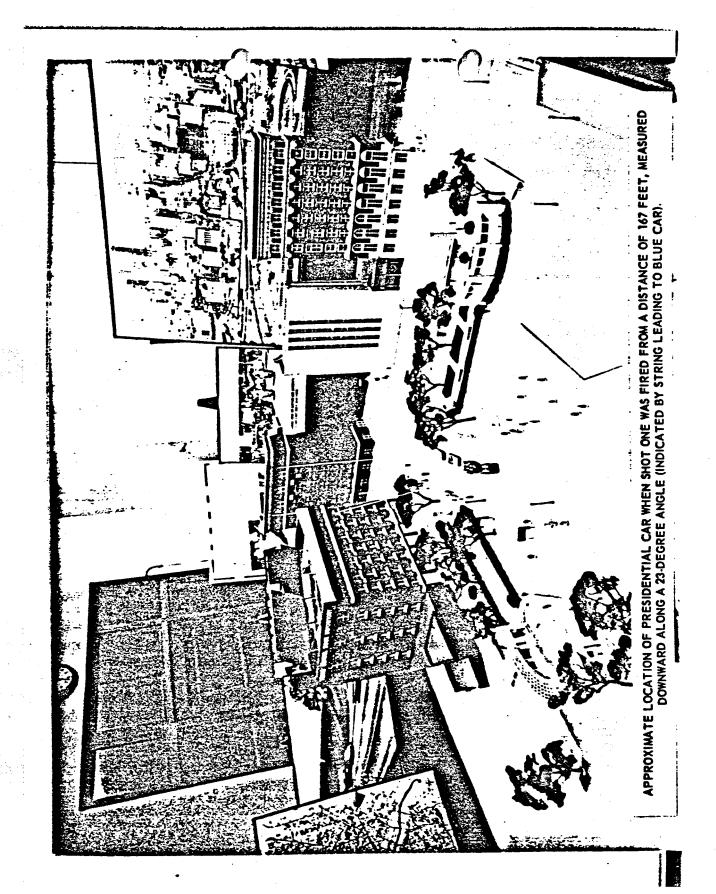


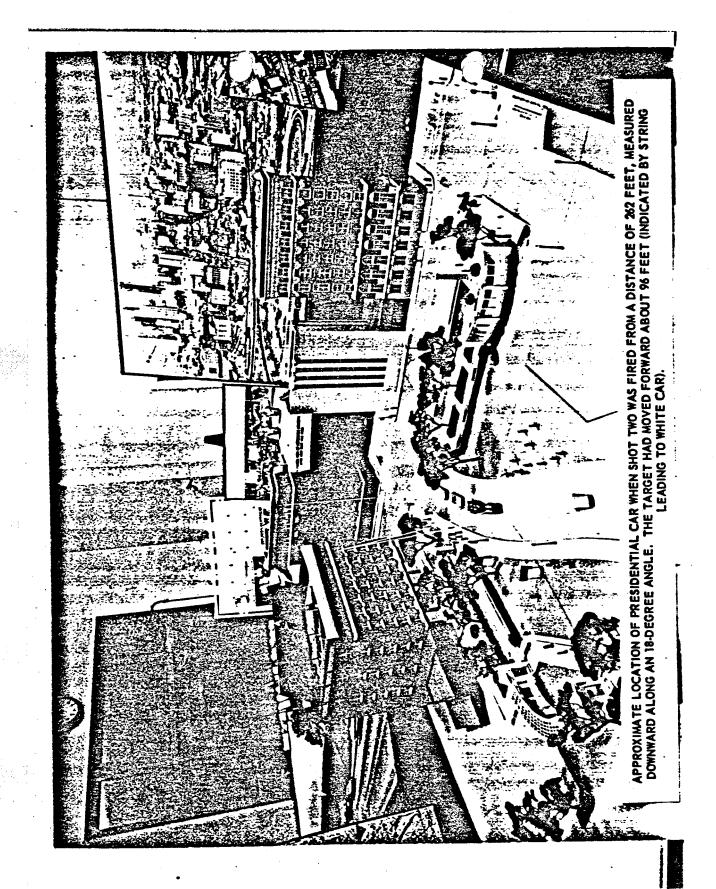


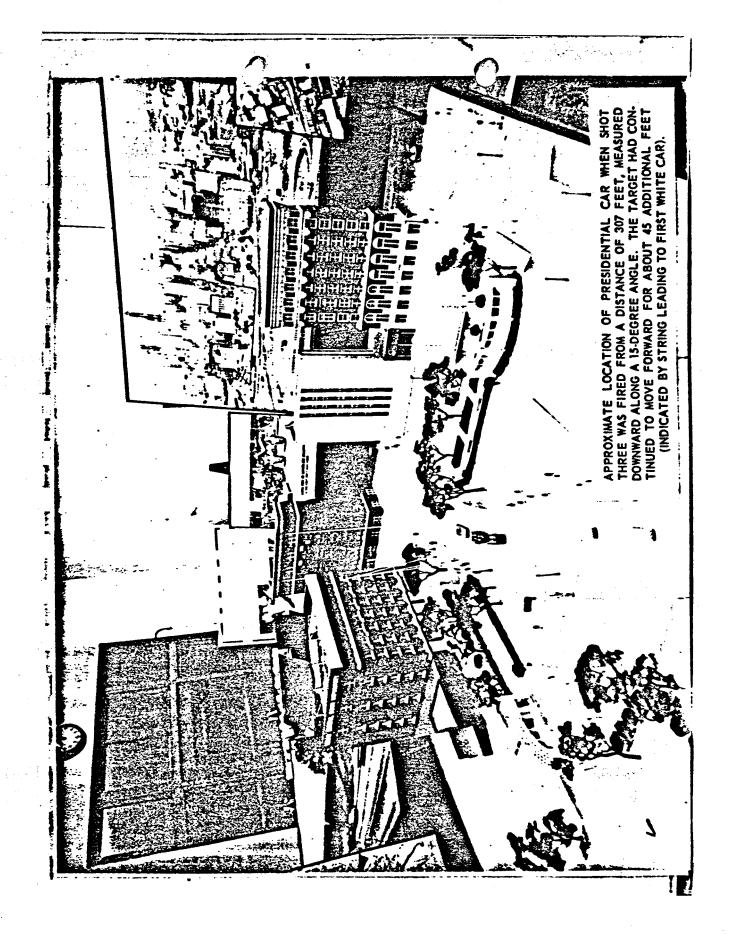


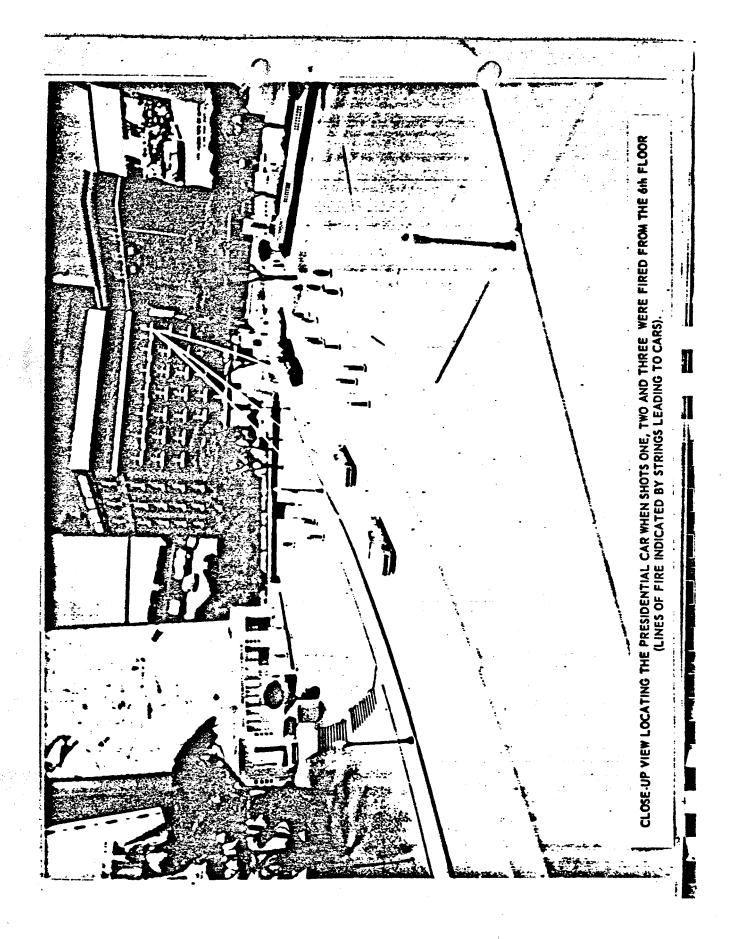


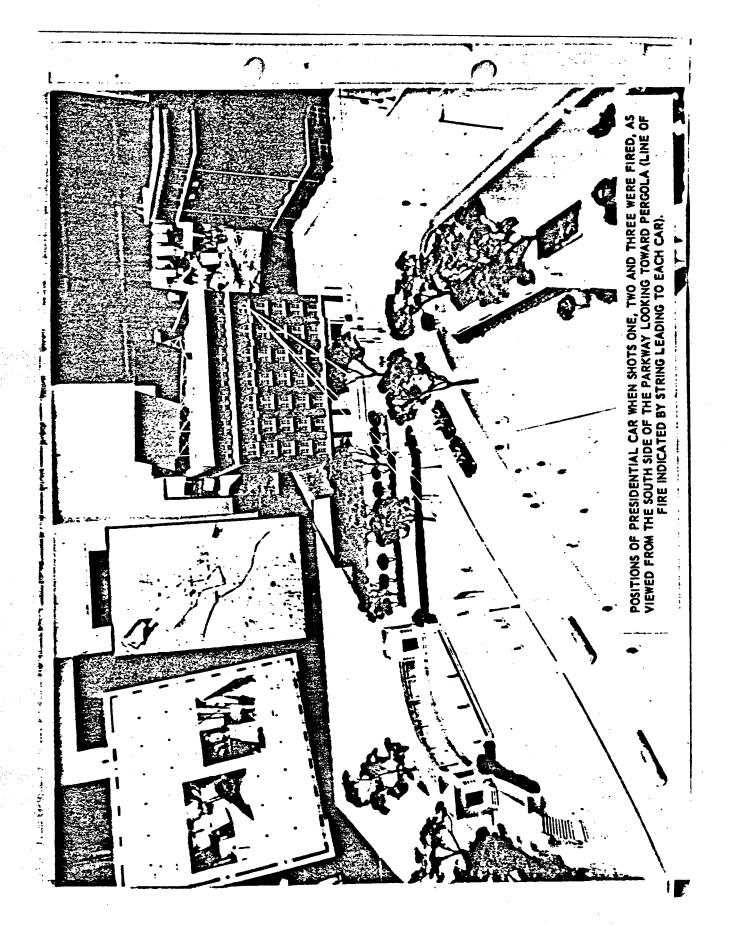


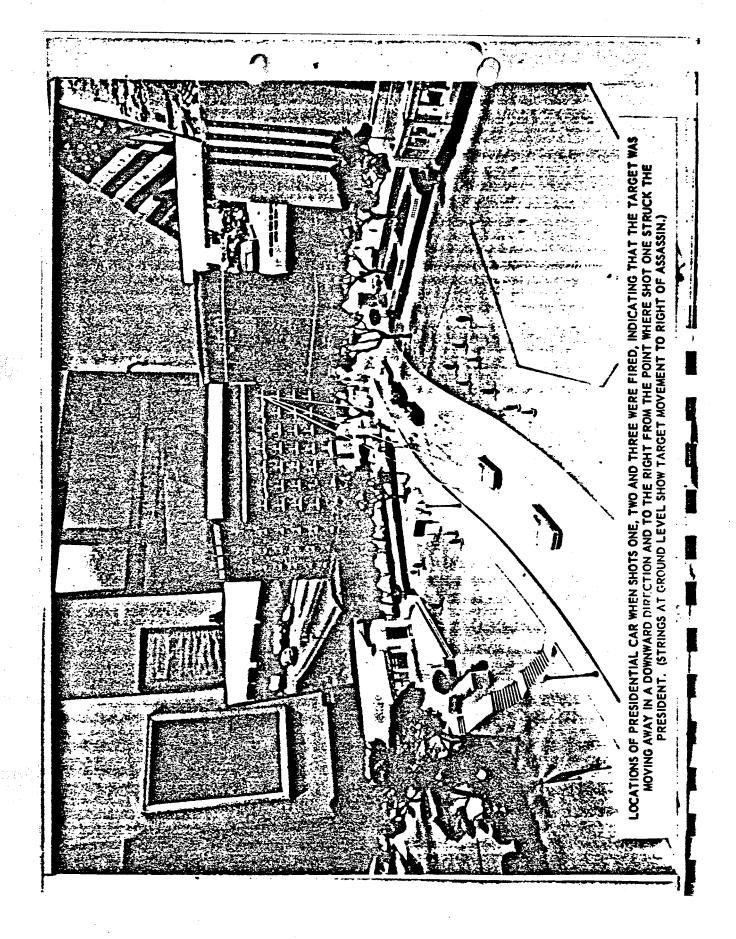


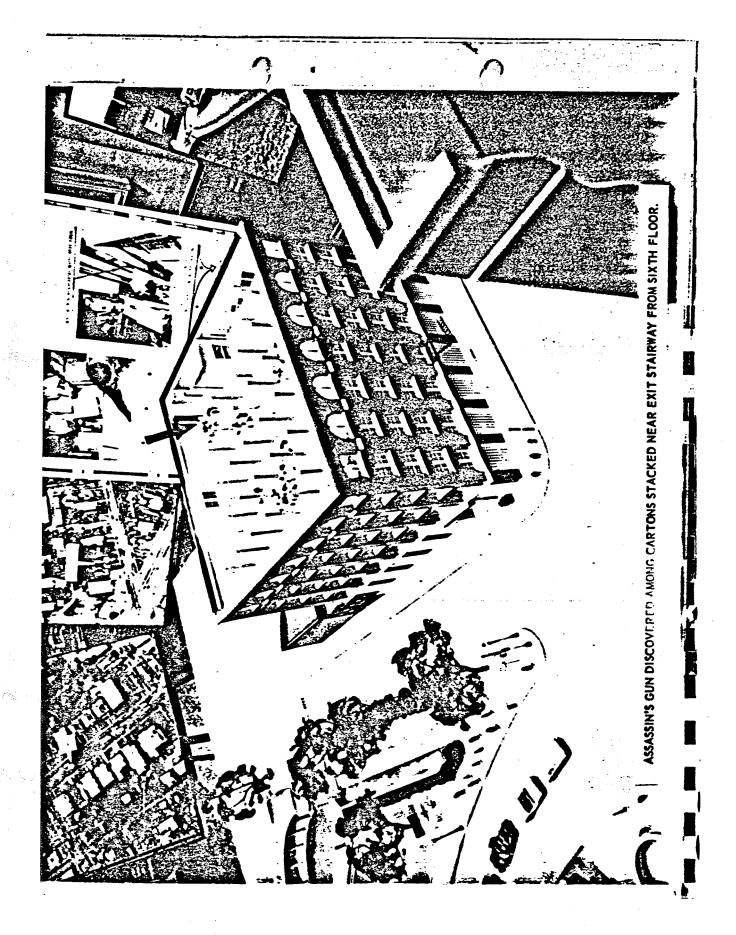


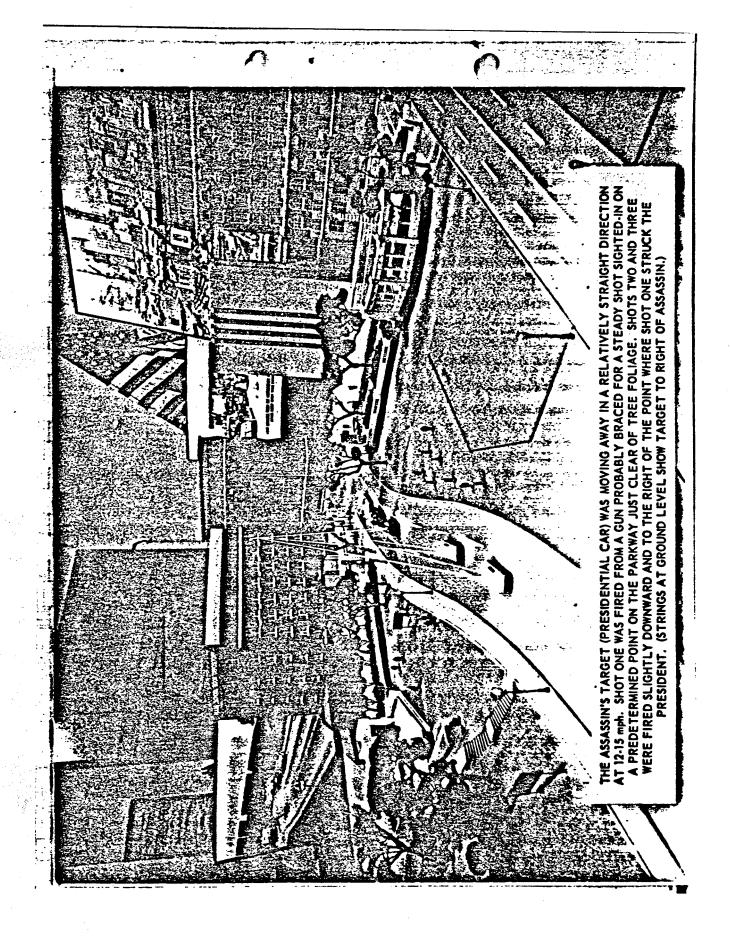


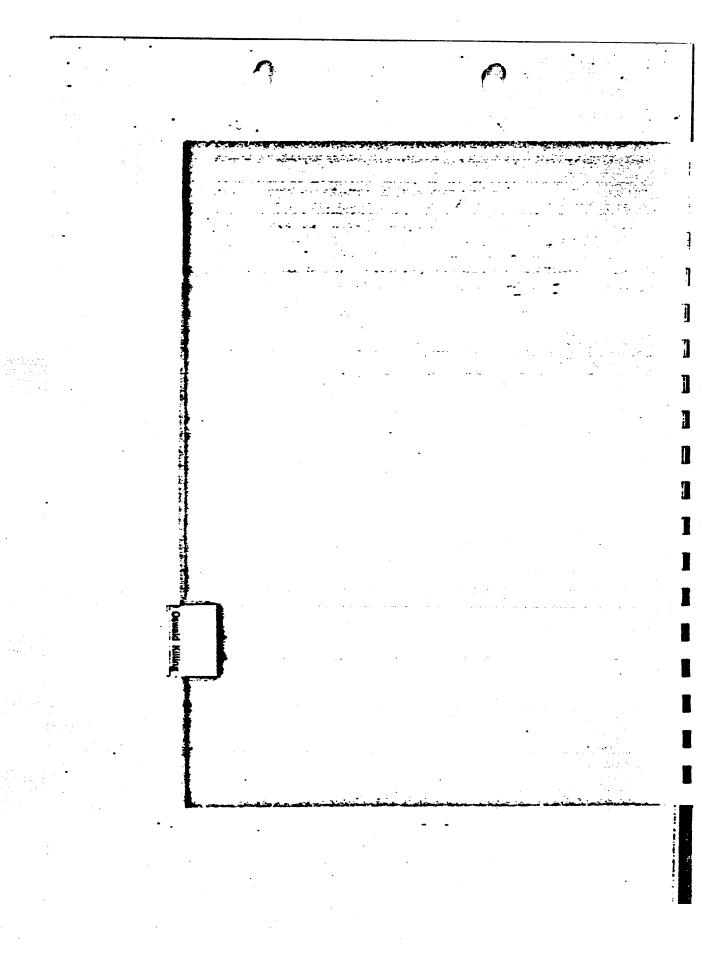












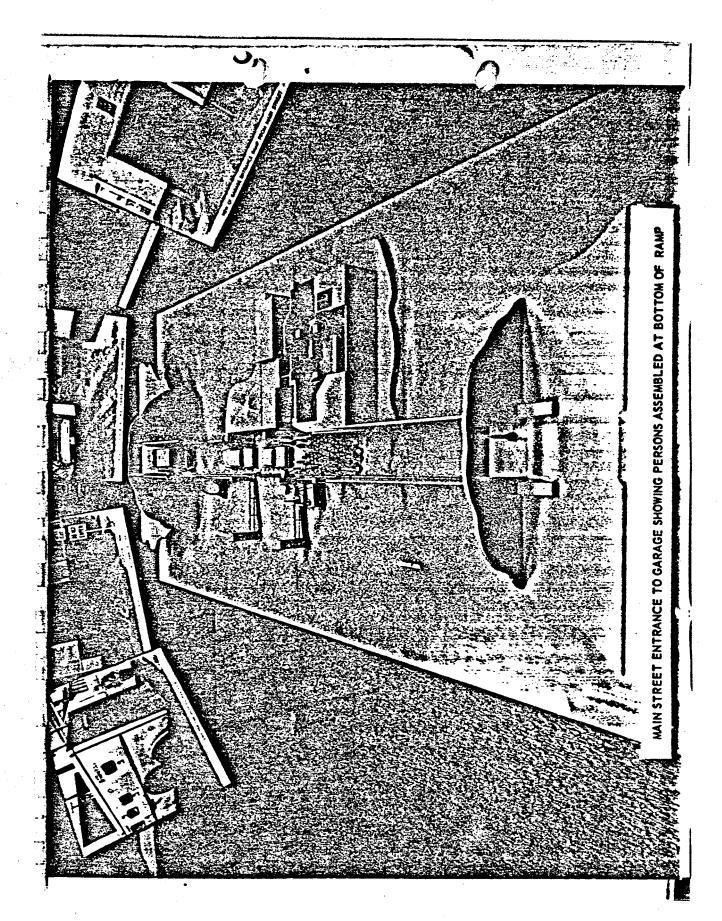
## KILLING OF LEE H. OSWALD

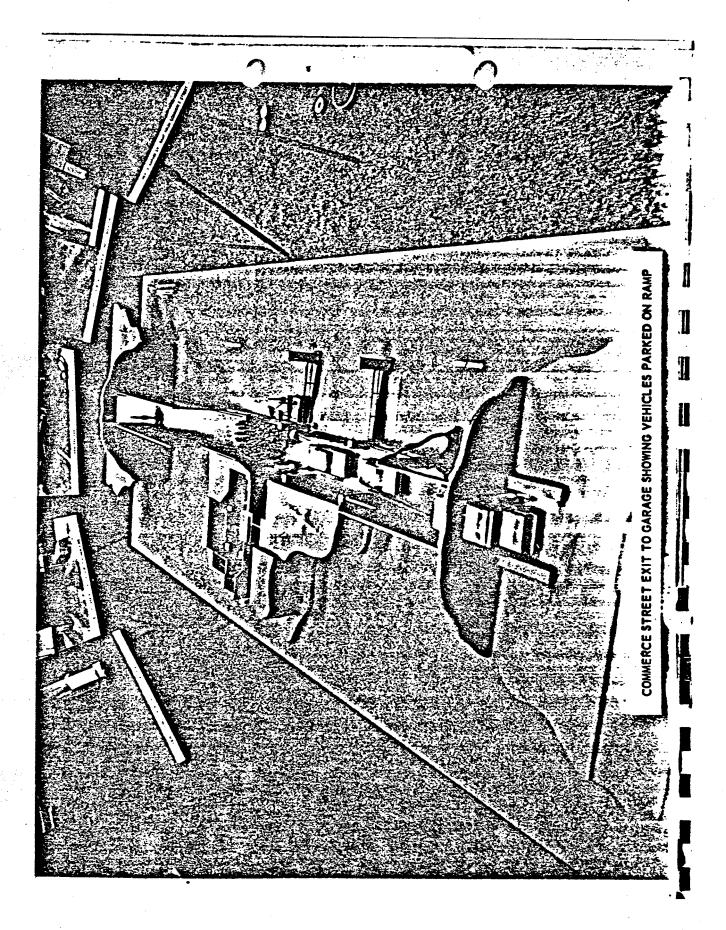
NOVEMBER 24, 1963

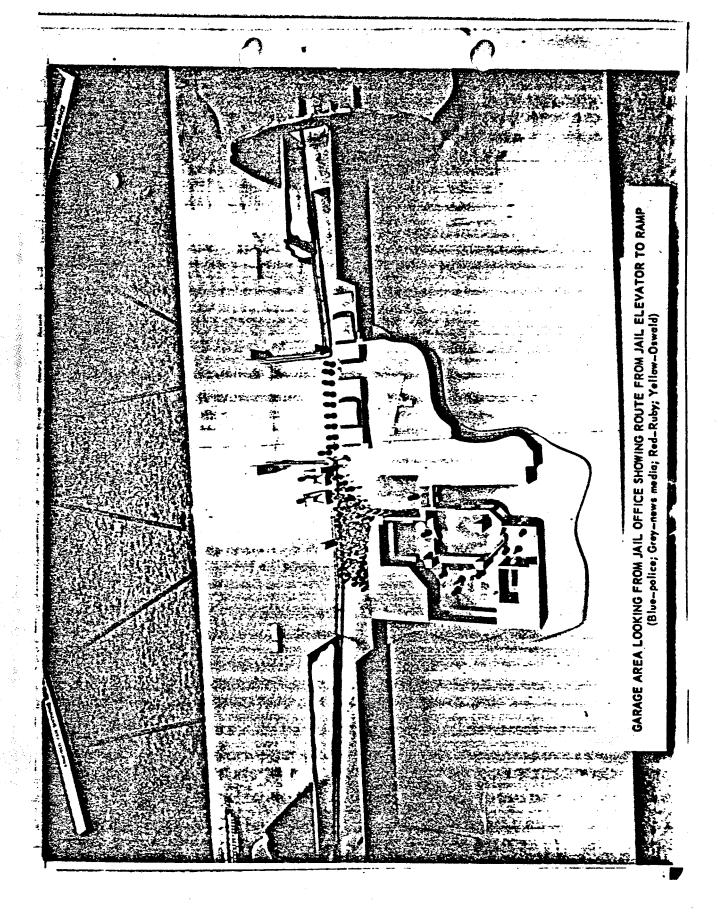
**EXHIBITS** 

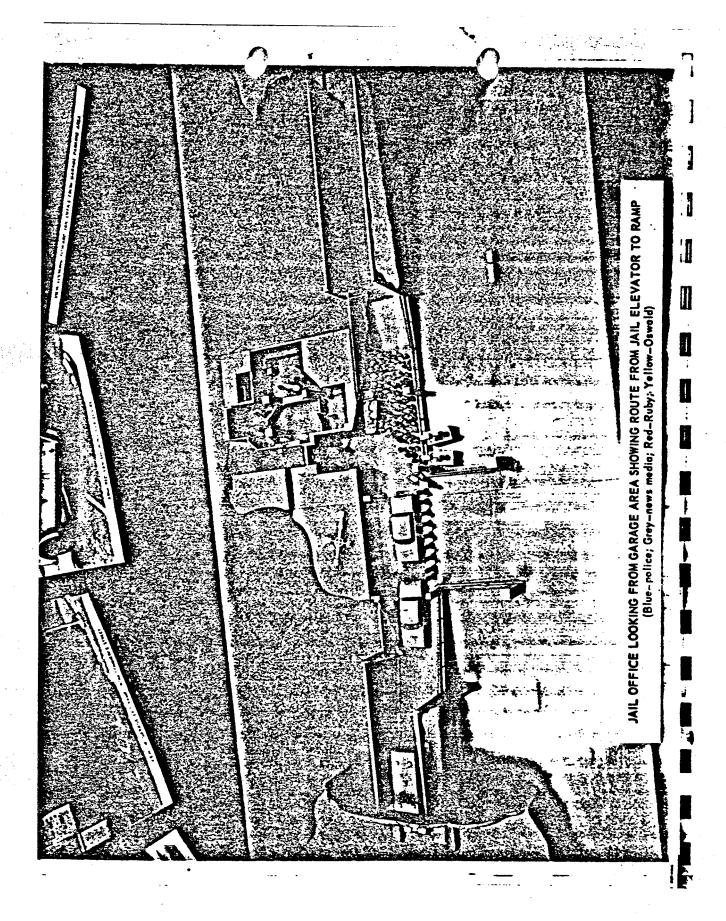
The following photographic re-enactments of the Oswald killing were made using three-dimensional scale models.

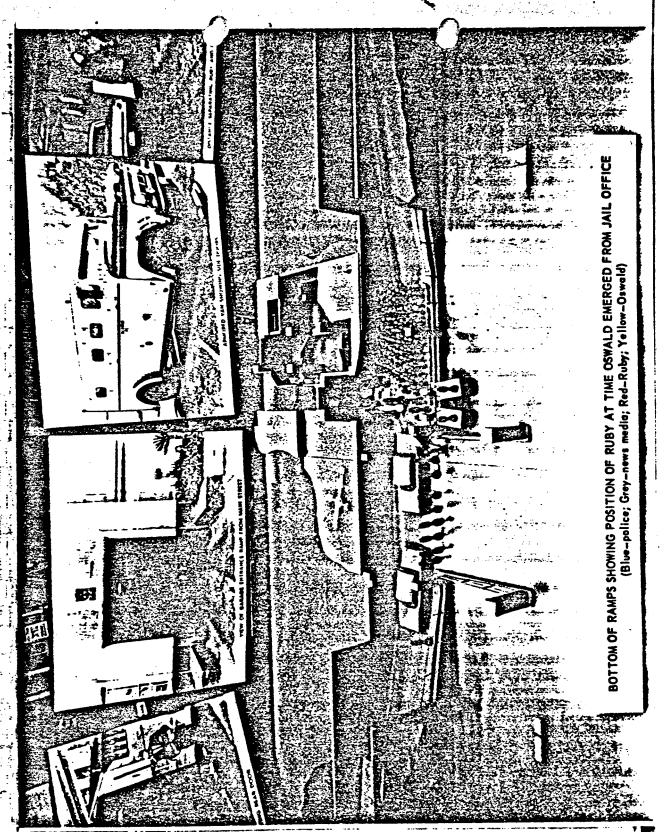
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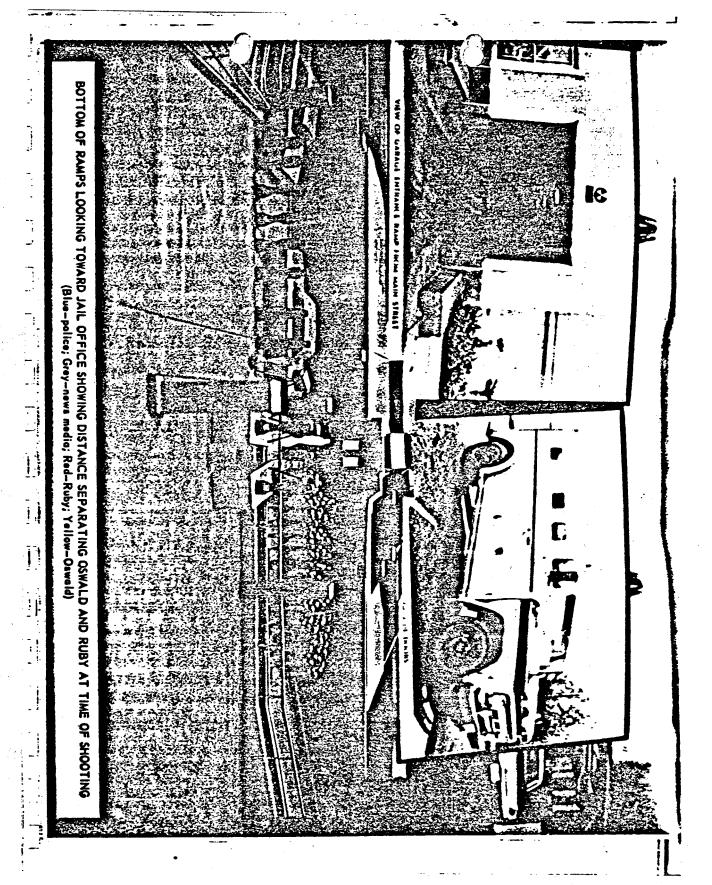


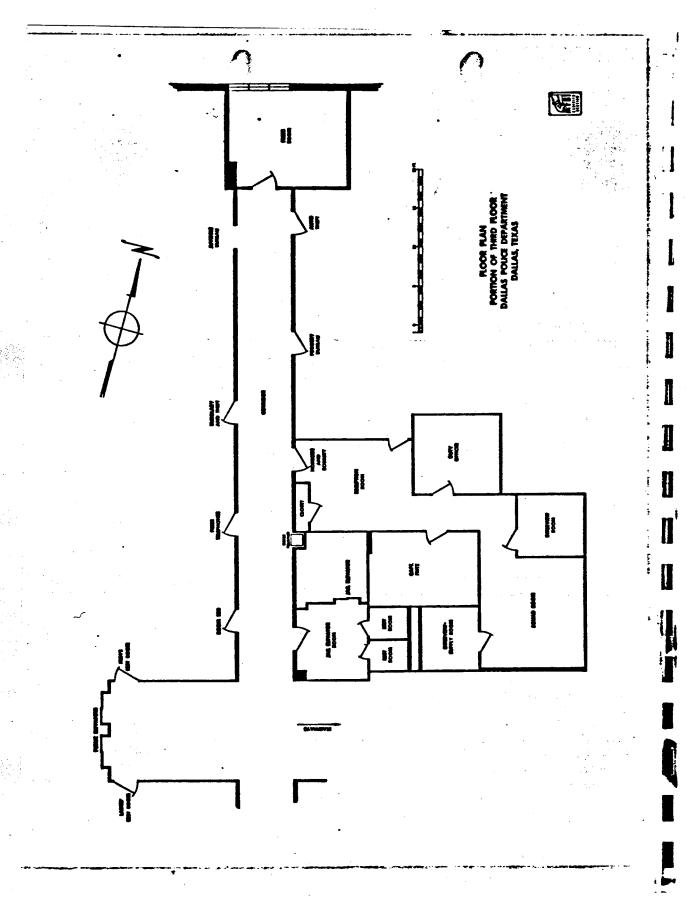




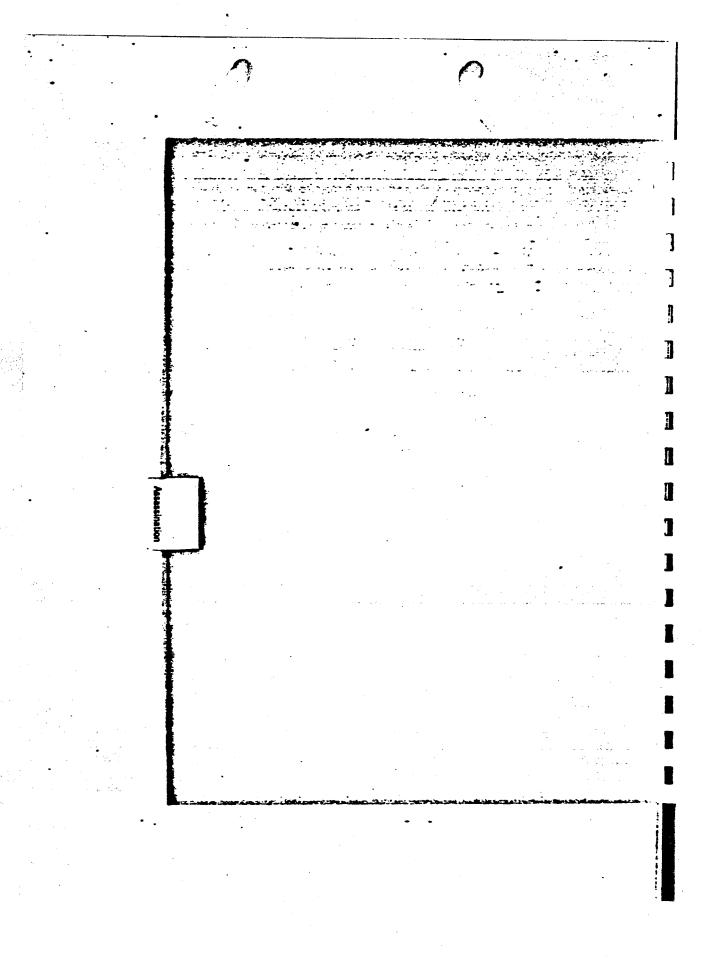








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# THE ASSASSINATION OF PRESIDENT JOHN F. KENNEDY

NOVEMBER 22, 1963

NARRATIVE

### ORDER OF EVENTS PRIOR AND SUBSEQUENT TO THE ASSASSINATION OF PRESIDENT JOHN F. KENNEDY ON NOVEMBER 22, 1963, IN DALLAS, TEXAS

(Refer to scale model, aerial photos, maps and charts.)

WEATHER: Sunny with temperatures in the 70's

#### PRIOR EVENTS:

11:35 AM CST - Vice-President and Mrs. Johnson accompanied by other members of the party arrived at Love Field aboard Air Force #2. (see exhibits)

11:40 AM CST - The President, Mrs. Kennedy, Governor and

Mrs. Connally accompanied by other members of
the party arrived at Love Field aboard Air Force \$1.

(see exhibits)

The President and Mrs. Kennedy, the Vice-President and Mrs. Johnson walked along the airport fence shaking hands and greeting the crowd for a period of about fifteen (15) minutes.

11:55 AM CST - The Presidential Motorcade departed airport (see exhibits) proceeding on the entrance road, left on Mockingbird Lane moving along at between 15 and

30 mph through thinly populated areas on Lemmon
Avenue, Turtle Creek Boulevard, Cedar Springs
Road and Harwood to Main Street where the
motorcade speed was reduced to 12-15 mph
traveling 0.8 mile through the principal downtown
section among tall buildings and noonday crowds
to the end of Main Street, turning right on Houston
for one block (279 feet), making a sweeping left
turn at Elm Street among a scattering of greeters
into Dealey Plaza, proceeding down a slight grade
toward a triple underpass leading to the Fort Worth,
R. L. Thornton and Stemmons Freeways (see
exhibits).

12:29 PM CST - The Presidential car was exposed to gunfire for a distance of approximately 141 feet during which time three shots were fired (6.4 seconds at 15 mph or 8.0 seconds at 12 mph). The initial exposure occurred directly in front of the North Pergola in Dealey Plaza 145 feet southwest from the front entrance of the Texas School Book

Depository Building and continued while the

Presidential car moved forward approximately
141 feet. (see exhibits)

#### SUBSEQUENT EVENTS:

Immediately after the shooting:

Motorcade rapidly accelerated speed bearing right after leaving the triple underpass, to Stemmons Freeway on Industrial Boulevard, at Wycliff exit left on Harry Hines Boulevard (see exhibits).

12:33 PM CST - Approximately four minutes after shots were fired the Presidential car arrived at the Emergency

Entrance of the Parkland Memorial and Dallas

County Hospital (see exhibits).

1:00 PM CST - President John F. Kennedy pronounced dead.

2:00 PM CST - Ambulance departed hospital for Love Field
traveling on Harry Hines Boulevard right on
Mockingbird Lane, left on entrance road to Air
Force #1.

2:40 PM CST - Oath of Office administered to Vice-President

Johnson aboard Air Force #1.

2:47 PM CST - President and Mrs. Johnson, Mrs. Kennedy,
the body of President Kennedy and Presidential
staff members airborne aboard Air Force \$1.

6:00 PM EST - Air Force #1 arrived at Andrews Air Force Base,
Washington, D. C.

### MOTORCADE - COMPLEMENT AND ORDER OF FOLLOW AS REPORTED BY UNITED STATES SECRET SERVICE

#### 1. Motorcycles

Four to six motorcycles preceded the lead car

Four motorcycles, two on each side, flanked the rear of the

Presidential car

- 2. Lead Car (Ford 4-door sedan Police Department Squad car)
  Chief of Police Jesse E. Curry driving
  SS/SA Winston G. Lawson right front seat
  SS/SAIC Forrest V. Sorrels rear right seat
  Sheriff, Dallas County, Bill Decker rear left seat
- 3. Presidential Car (1961 Lincoln Continental Bubble-top)

  SS/SA William R. Greer driving

  SS/ASAIC Roy H. Kellerman right front seat

  Governor Connally right jumper seat

  Mrs. Connally left jumper seat

  President Kennedy right rear seat

  Mrs. Kennedy left rear seat

Secret Service Follow-up Car (1956 Cadillac touring sedan)

SS/SA Samuel A. Kinney - driving

SS/ATSAIC Emory P. Roberts - right front seat

SS/SA Clinton J. Hill - left front running board

SS/SA William T. McIntyre - left rear running board

SS/SA John D. Ready - right front running board

SS/SA Paul E. Landis - right rear running board

SS/SA Glen A. Bennett - right rear seat

SS/SA George W. Hickey - left rear seat

Mr. David Powers - right jumper seat

Mr. Kenneth O'Donnell - left jumper seat

5. Vice-Presidential Car (Lincoln Convertible - 4 door)
Texas D. P. S. Officer Hurchel Jacks - driving
SS/SA Rufus W. Youngblood - right front seat
Vice-President Johnson - right rear seat
Mrs. Johnson - center rear seat
Senator Yarborough - left rear seat

6. Vice-Presidential Follow-up Car (Mercury Sedan 4 door)

Texas D. P. S. Officer Joe Henry Rich - driving

SS/SA Jerry D. Kivett - right front seat

SS/ASAIC Thomas L. Johns - right rear seat

SS/SA Warren W. Taylor - left rear seat

Mr. Cliff Carter - member of Vice President's Staff 
center front seat

- 7. Wire Service Car
- 8. Press Photo Car
- 9. Press Photo Car
- 10. Press Photo Car
- 11. Congressional Car #1 (1963 Mercury Comet Convertible)
  Texas Highway Officer Milton T. Wright driving
  Mayor Earle Cabell
  Mrs. Cabell
  Congressman Ray Roberts

- 12. Congressional Car #2 (Mercury Convertible)

  Congressmen Rogers, Thomas, Thornberry and Mahon
- 13. Congressional Car #3 (Mercury Convertible)

  Congressmen Beckworth, Teague, Brooks and Wright
- 14. Congressional Car #4 (Lincoln Sedan)
  Congressmen Purcell, Gonzalez, Young and Patman
- 15. White House Staff Car
- 16. Press Bus
- 17. Press Bus
- 18. Staff and Dignitary Bus
- 19. Extra Cars
- 20. Rear Police Vehicles

DATA RELATING TO DISTANCES AND PHYSICAL
MAKEUP OF THE SHOOTING SITE AND THE
WHEREABOUTS OF OSWALD AFTER THE
ASSASSINATION OF PRESIDENT KENNEDY

(Refer to scale models, aerial photos, maps and charts.)

- 1. What are the approximate distances separating the

  Texas School Book Depository Building from each
  location where witnesses saw Oswald after the shooting
  of the President?
  - a. Boarded bus 0.4 mile
  - b. Departed bus 0.3 mile
  - c. Entered cab 0.35 mile
  - d. Left cab 2.5 miles
  - e. Entered rooming house 2.05 miles
  - f. Tippit shooting 2.85 miles
  - g. Texas Theatre 3.1 miles
- 2. What are the approximate distances separating each location where witnesses saw Oswald?
  - a. Assassination site to bus 0.4 mile
  - b. Traveled on bus 0.1 mile
  - c. Distance from bus stop to cab 0.2 mile
  - d. Traveled in cab 2.55 miles
  - e. Distance from cab stop to residence 0.45 mile

- f. Distance from residence to site or Tippit killing 0.85 mile
- g. Distance from site of Tippit killing to

  Texas Theatre 0.65 mile
- h. Distance traveled from assassination site
   to apprehension point 5.2 miles
- 3. What are the approximate distances traveled by the motorcade?
  - a. In outlying areas between airport and MainStreet 5.8 miles
  - b. Down Main Street to Houston Street (business area) 0.8 mile
  - c. Airport to assassination site 6.6 miles
  - d. Assassination site to hospital 3.1 miles
  - e. Hospital to airport 2.3 miles
- 4. Where was Abraham Zapruder standing when he photographed the Presidential car?

On top of a concrete abutment in front of the North Pergola situated in Dealey Plaza 260 feet west of the Elm and Houston intersection.

. Shot I was photographed from 123 feet away,
10.5 feet below eye level. •

- b. Shot 2 was photographed from 77 feet away,18.0 feet below eye level.
- Shot 3 was photographed from 85 feet away,20.0 feet below eye level.
- 5. Where was Orville O. Nix standing when he photographed the Presidential car?

On the Plaza grass across the Parkway, approximately 125 feet from the abutment upon which

Zapruder was standing at the time of shooting.

Nix was approximately 95 feet from the Presidential

car when he photographed the President being hit

by shot 3 and a man jumping on the rear left foothold

of the car.

6. Where was Robert J. E. Hughes standing when he photographed the Presidential car?

At the intersection of Main and Houston Streets
photographing the motorcade close-up as it turned
right traveling toward Elm Street and the Texas
School Book Depository Building some 279 feet away.

7. How long was the Presidential car exposed to the assassin's

#### solitary view prior to the shooting?

Presidential car traveled 308 feet from the corner of Main along Houston, left turn at Elm to the live oak tree in front of Texas School Book Depository Building.

- (a) The exposure was 14.0 seconds at 15 mph (22 fps)
- (b) The exposure was 17.5 seconds at 12 mph (17.6 fps)
- 8. What was the shortest distance separating the Presidential car from the assassin?

Ninety-two (92) feet, measured downward along a 45-degree angle, separated the assassin from the Presidential car as it completed its sweeping left turn into the Parkway immediately in front of the entrance to the Texas School Book Depository Building.

9. Did the assassin have a protective cover for his operations on the sixth floor?

The sixth floor window located in the southeast corner of the building provided the assassin with a nine-square-foot brick area hidden from outside view, while inside the building cartons containing school books formed a barrier against being surprised by fellow employees.

- the Texas School Book Depository Building?

  Double hung 36" x 36" sash windows (up and down).

  Test revealed that the window used by assassin operated freely.
- 11. What buildings are located on Houston Street between Elm and Main Streets?
  - a. Texas School Book Depository, height 94 feet (7 floors), located on the northwest corner of Elm and Houston Streets.
  - b. Dal-Tex Mart, height 106 feet (7 floors),
     located on the northeast corner of Elm and
     Houston Streets,
  - c. Dallas County Records Building, 93 feet
     (8 floors), located on the southeast corner
     of Elm and Houston Streets.
  - d. Dallas County Criminal Courts Building,
     124 feet (8 floors), located on northeast

corner of Main and Houston Streets.

#### 12. What was the aiming pattern of the assassin's target?

The target was moving away in a relatively straight direction. Shot one was fired from a gun probably braced for a steady shot sighted-in on a predetermined point on the parkway just clear of tree foliage. Linear measurements made on the scale model indicate that shots two and three were fired at a target slowly moving away in a direction slightly downward and to the right of the point where shot one struck the President.

- a. SHOT ONE hit the target from a distance of 167 feet, measured downward along a 23-degree angle from the horizontal.
- b. SHOT TWO hit the target from a distance of 262 feet, measured downward along an 18-degree angle from the horizontal. The target moved forward 96 feet in 4.4 seconds at 15 mph

(22 fps) or 5.5 seconds at 12 mph
(17.6 fps). Line of sight change from
shot one: 5 degrees upward, 4 degrees
to the right.

- c. SHOT THREE hit the target from a distance of 307 feet, measured downward along a 15-degree angle from the horizontal. The target moved forward 45 feet in 2.0 seconds at 15 mph (22 fps) or 2.5 seconds at 12 mph (17.6 fps).

  Line of sight change from shot two: 3 degrees upward, 1.5 degrees to the right.
- d. ELAPSED TIME to hit targets two and three after hitting target one: 6.4 seconds at 15 mph (22 fps) or 8.0 seconds at 12 mph (17.6 fps).
- e. CHANGE OF AIMING PATTERN from shot one to shot three: 8 degrees upward, 5.5 degrees to the right.

### MOTION PICTURE RECORD OF GUNFIRE DIRECTED INTO PRESIDENTIAL CAR

(Refer to scale model, aerial photos, maps and charts.)

### A. Colored pictures made by Abraham Zapruder with an 8 mm. home movie camera

Zapruder, standing on a concrete abutment in front of the North Pergola situated in Dealey Plaza 260 feet west of the Elm and Houston intersection (refer to scale model), focused his camera on the Presidential car shortly after it had completed the turn into the Park and photographed the President as he turned right to wave to someone following the President's car. The car momentarily became obscured from Zapruder's line of sight behind a road sign (refer to scale model). As it emerged from behind the sign, the Zapruder film reproduced the action of the occupants in the rear of the Presidential car as follows:

The President is slumped forward in his seat with his right hand partly lowered from the previous waving position; he appears to be leaning toward his left nearer to Mrs. Kennedy; Governor Connally is seen turning his

head to the right and rear, falling towards Mrs. Connally, as a circle of light resembling an explosive blast encircles the President's head. The Zapruder film runs for 33 seconds. Part of the action shown in this film was photographed simultaneously by Orville O. Nix.

### B. Colored pictures made by Orville O. Nix with an 8 mm. home movie camera

Nix, standing on the Plaza grass across the road from the Pergola (where Zapruder viewed the motorcade), photographed the motorcade as it approached the triple underpass (refer to scale model). Nix photographed the left side of the Presidential car with Mrs. Kennedy in the foreground waving when the President's head suddenly snaps to the left and the car picks up speed as a man jumps on the left foothold. The Nix film runs about 8 seconds.

### C. Colored pictures made by Robert J. E. Hughes with an 8 mm. home movie camera

Hughes, standing at the intersection of Main and Houston
Streets (refer to scale model), focused his camera up

Main Street in an easterly direction photographing the

approaching motorcade as it turned right on Houston

Street. Hughes obtained a close-up view of the

Presidential car turning north and traveling on Houston
for a distance of 279 feet. There the Presidential

car moved out of view after turning left into the Parkway
in front of the Texas School Book Depository Building.

The Hughes film runs about 17 seconds.

### KILLING OF LEE H. OSWALD

NOVEMBER 24, 1963

**NARRATIVE** 

# ORDER OF EVENTS PRIOR AND SUBSEQUENT TO THE KILLING OF LEE HARVEY OSWALD NOVEMBER 22 - 24, 1963 DALLAS, TEXAS

November 22, 1963

approximately 2:00 p.m. CST

OSWALD arrested by Dallas Police in the Texas Theatre, 231 West Jefferson
Boulevard, Dallas, Texas. Held in custody by the Dallas Police Department, charged with the assassination of President JOHN F. KENNEDY, the attempted murder of Governor JOHN CONNALLY and the murder of J. D. TIPPIT, Dallas Police Officer, all of which occurred on November 22, 1963. The prisoner was detained at the Dallas Police Department in a cell on the fifth floor and in the Homicide and Robbery Bureau on the third floor.

November 24, 1963

approximately
11:00 a.m. CST - Two armored trucks arrived at the Commerce

street ramp of the Police Department. One, a two and one half ton 1961 Chevrolet, truck, was backed onto the ramp by Mr. Bert Hall, Manager, Armored Service Company. The truck was too high for ceiling clearances at the bottom of the ramp. The driver, believing that the vehicle might stall if placed on the incline, parked the vehicle at the top of the Commerce Street ramp with the rear wheels on the incline and the front wheels near the sidewalk.

Two unmarked police cars were placed on the ramp near the Jail Office entrance about 30 feet behind the armored truck. Police officials decided to use the armored truck as a "decoy vehicle." The prisoner was to be transported to the Dallas County Jail about one mile away in one of the unmarked cars.

approximately 11:20 a.m. CST

OSWALD emerged from the Jail Office moving in the direction of an unmarked car that was backing up to be in position to receive the prisoner. An individual, standing about 10 to

12 feet from where OSWALD momentarily halted in front of TV camera lights while waiting to enter the police car, lunged toward OSWALD with a revolver extended and fired one shot into OSWALD's left side at a distance of about fifteen inches.

approximately 11:23 a.m. CST - Assailant removed to a fifth floor jail cell.

approximately
11:26 a.m. CST - OSWALD removed by ambulance to Parkland
Hospital approximately four miles away.

approximately
11:32 a.m. CST - OSWALD admitted to emergency operating room.

1:07 p.m. CST - OSWALD pronounced dead by a member of the medical staff of Parkland Hospital.

DATA RELATING TO DISTANCES AND PHYSICAL MAKEUP OF THE DALLAS POLICE DEPARTMENT BASEMENT RAMPS WHERE LEE HARVEY OSWALD WAS SHOT ON NOVEMBER 24, 1963

(Refer to scale model, photographs and diagrams.)

- 1. How far did Oswald walk after leaving the jail elevator to point where he was shot?
  - a. Thirty-four (34) feet within the Jail Office
  - b. Fifteen (15) feet from Jail Office door to point of shooting
- 2. What were the distances separating Ruby and Oswald after
  Oswald emerged from the Jail Office?

Ruby was standing in the basement at the bottom of the Main Street ramp near the guard rail, directly in line of view of the Jail Office door.

- a. Oswald was twenty-three (23) feet away
  from Ruby after emerging from the Jail
  Office into the basement lobby
- b. Oswald walked fifteen (15) feet into the lobby
   to the point where the shot was fired
- c. Ruby was ten (10) feet away from Oswald
  when he (Ruby) lunged forward

3. What is the distance between the Dallas City Jail and the Dallas County Jail?

Approximately eight-tenths (0.8) mile

- 4. What is the lowest ceiling clearance in the basement directly above the ramps?
  - a. Commerce Street exit ramp eight feet, oneinch (8' 1")
  - b. Main Street entrance ramp seven feet, six inches (7' 6")
- 5. What was the overall height of the armored truck?

  Eight feet, six inches (8' 6")
- 6. What are the measurements of the ramp doors?
  - a. Main Street ten feet (10') wide; nine feet,four inches (9' 4") high
  - b. Commerce Street ten feet (10') wide; twelvefeet (12') high
- 7. What were the year and body style of the unmarked police cars parked on the ramp?

Both were 1963 four-door sedans

## MOTION PICTURE RECORDING THE SHOOTING OF LEE HARVEY OSWALD NOVEMBER 24, 1963

A copy on 16 mm. black and white film of the video tape recorded through KRLD-TV (Dallas) closed circuit channel shows the shooting of LEE HARVEY OSWALD as he was escorted into the basement ramp area from the Jail Office.

Captain FRITZ, Homicide and Robbery Bureau, precedes OSWALD by five or six feet. OSWALD, escorted by detectives holding onto each of his arms, enters the ramp area closely followed by another police officer.

A man wearing a dark hat and coat is observed suddenly moving toward the prisoner with a gun extended in his right hand. The TV announcer immediately screams, "OSWALD has been shot." He repeats this several times.

OSWALD is seen falling among police officers who grab

OSWALD's assailant and force him to the floor.