NATIONAL TRANSPORTATION SAFETY BOARD
Office of Research and Engineering
Vehicle Recorder Division
Washington, D.C. 20594

SPECIALIST'S FACTUAL REPORT

HWY17MH015

WARNING

The reader of this report is cautioned that the summary of a video recording is not a precise science but is the best product possible from a National Transportation Safety Board investigative effort. The summary or parts thereof, if taken out of context, could be misleading. The summary should be viewed as an accident investigation tool to be used in conjunction with other evidence gathered during the investigation. Conclusions or interpretations should not be made using the summary as the sole source of information.

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February 15, 2019

Digital Video Recorder Summary

Specialist's Factual Report
By Ben Hsu

1. EVENT

Location:	Northern Blvd, Queens, New York
Date:	Monday, September 18, 2017
Vehicle 1:	2015 MCI J4500 Motorcoach #1573
Operator:	Dahlia Group, Inc.
VIN:	[REDACTED]067024
Vehicle 2:	2015 New Flyer, XD40 Transit Bus #7430
Operator:	New York Metropolitan Transportation Authority (MTA)
VIN:	[REDACTED]447489
NTSB Accident Number:	HWY17MH015

2. SUMMARY

For a summary of the accident, refer to the *Crash Summary Report*, available in the docket for this investigation

3. DIGITAL VIDEO RECORDER GROUP

A digital video recorder (DVR) group was not convened.

4. DETAILS OF DEVICE INVESTIGATION

The National Transportation Safety Board's (NTSB) Vehicle Recorder Division received data from the following sources:

Recorder 1 Source:	MCI J4500 Motorcoach
Recorder 1 Description:	Dash-mounted camera data file
Recorder 2 Source:	Dahlia Group, Inc. building security cameras
Recorder 2 Description:	Security camera data files
Recorder 3 Source:	Transit Bus 7430
Recorder 3 Description:	Interior and exterior-facing camera data files
Recorder 4 Source:	Transit Bus 6003 (Witness vehicle)
Recorder 4 Description:	Interior and exterior-facing camera data files

The data files were provided to the NTSB on digital media and transferred to NTSB laboratory computers for analysis.

5. Recorder 1 Description

The data file received was recorded by a Garmin dēzlCam GPS navigation device with built-in dash-mounted camera.

5.1. Recorder 1 Time Correlation

The Garmin device uses a GPS-synchronized clock and overlays the date, time, latitude, longitude, and vehicle speed (rounded to nearest MPH) along the bottom of the video recording.

5.2. Recorder 1 Data File Summary

Table 1 summarizes the events recorded by the Garmin device in the data file provided to the NTSB. All recorded events were on September 18, 2017.

Table 1. Summary of Events in Recorder 1 Data File

Time (EDT)	Speed (MPH)	Latitude, Longitude (Decimal Degrees)	Description of Events
06:15:27	26	40.76239, -73.84130	[Start of recording] Vehicle traveling in the right-hand lane of 3-lane roadway (Lane 3[1]) eastbound on Northern Boulevard.
06:15:34	30	40.76245, -73.84029	Vehicle passes under an overpass. Roadway begins to slope upward as Northern Boulevard passes over Flushing Creek.
06:15:37	30	40.76247, -73.83983	[Sound similar to metal clanging]
06:15:40	30	40.76249, -73.83934	Vehicle continues to travel uphill in Lane 3. Driver states: "Oh #.[2]"
06:15:47	36	40.76252, -73.83802	Vehicle begins to overtake a school bus (lead) and passenger vehicle (following) merging onto the roadway from a right-side onramp. Vehicle shifts one lane to the left to Lane 2. Merging roadway becomes Lane 4 of a now 4-lane roadway.
06:15:48	37	40.76253, -73.83781	[Sound similar to metal clanging]
06:15:52	40	40.76262, -73.83704	Vehicle reaches the approximate crest of the sloped roadway. Vehicle shifts one lane to the right to Lane 3.
06:15:57	45	40.76269, -73.83591	Vehicle reaches 45 MPH in Lane 3. Roadway is sloped downward. Red traffic signal is visible ahead at Prince Street.
06:16:00	50	40.76271, -73.83520	Vehicle reaches 50 MPH in Lane 3. Roadway begins to level off. Traffic signal is red at Prince Street. One vehicle turns left from Lane 1 while two vehicles are stopped in Lane 2. Lane 4 is empty.
06:16:01	51	40.76270, -73.83494	Driver states: "Oh #."
06:16:04	57	40.76268, -73.83408	Vehicle reaches 57 MPH in Lane 3. Traffic signal is red. Vehicle enters intersection with Prince Street. No other vehicles are visible in the intersection. Traffic signal turns green while vehicle is in the intersection. Red traffic signal is visible ahead at Main Street. Lanes 2 and 3 contain stopped vehicles at the next intersection. Lanes 1 and 4 are empty.
06:16:05	58	40.76268, -73.83376	Traffic signal is red at Main Street. MTA Transit Bus 7430 is visible just entering the intersection northbound on Main Street. Vehicle shifts one lane to the right to Lane 4.
06:16:06	59	40.76267, -73.83344	Vehicle continues in Lane 4. Traffic signal is red at Main Street. MTA Transit Bus 7430 has entered the intersection. Driver states: "Oh #."
06:16:08	60	40.76272, -73.83281	Vehicle continues in Lane 4, just entering the intersection. MTA Transit Bus 7430 is visible just beginning to make a right turn onto Northern Boulevard from Main Street. An unintelligible voice is audible. [End of recording]

6. Recorder 2 Description

The data file received was recorded by Dahlia Group's security cameras at their parking facility in Queens, New York. The videos were from two different cameras: one showing the parking area, labelled "Camera 01"; a second showing the roadway just outside the parking area, labelled "Camera 04".

[1] Lanes are identified with numbers starting from the far-left lane.
[2] The '#' symbol denotes an expletive.

6.1. Recorder 2 Time Correlation

The security camera system has an internal clock and overlays the date, time, and camera label on each video recording. Using data from the Dahlia motorcoach's onboard GPS (See *Vehicle Data Recorder Specialist's Factual Report* in the accident docket), an offset of 3 hours, 55 minutes, and 0 seconds was calculated. Both the displayed and corrected time are included in the summary.

6.2. Recorder 2 Data File Summary

Table 2 summarizes the events recorded by the security cameras in the data file provided to the NTSB. All recorded events were on September 18, 2017.

Table 2. Summary of Events in Recorder 2 Data File

Recorded Time	Corrected Time (EDT)	Description of Events
09:55:28	06:00:28	Camera 01: A Dahlia motorcoach, different from the vehicle involved in this accident, is visible in the foreground.
10:02:09	06:07:09	Camera 04: The driver of the motorcoach involved in this accident ("the driver") walks towards the parking area.
10:02:22	06:07:22	Camera 01: The driver walks across the frame, towards the rear of the visible motorcoach.
10:02:33	06:07:33	Camera 01: The driver exits the frame of the video.
10:06:31	06:11:31	Camera 01 & Camera 04: Headlights from a second motorcoach parked next to the visible motorcoach are switched on.
10:07:09	06:12:09	Camera 04: The second motorcoach begins pulling out of the parking area and turns right onto the roadway.
10:07:30	06:12:30	Camera 01: The second motorcoach becomes visible as it continues pulling out of the parking area and turning right onto the roadway.
10:07:42	06:12:42	Camera 01 & Camera 04: The second motorcoach stops.
10:07:48	06:12:48	Camera 04: The door to the second motorcoach opens, the driver steps out, and jogs back towards the parking area.
10:07:55	06:12:55	Camera 01: The driver jogs back towards the parking area.
10:08:01	06:13:01	Camera 01: After the second motorcoach exits, the roll-up door for the parking area closes.
10:08:29	06:13:29	Camera 01: The driver walks back towards the second motorcoach, stopping to close a second roll-up door.
10:08:36	06:13:36	Camera 04: The driver walks back towards the second motorcoach. He boards the motorcoach, closes the door, and drives away.
10:09:00	06:14:00	Camera 04: The second motorcoach exits the frame.

7. Recorder 3 Description

The data file received was recorded by interior and exterior-facing cameras on board MTA Transit Bus 7430. The onboard video recording system was comprised of six interior-facing cameras and one exterior-facing camera labeled "MTA7430 Forward View."

7.1. Recorder 3 Time Correlation

The system uses a GPS-synchronized clock and overlays the date, time, and camera label on the video. The system's clock did not automatically adjust for daylight savings, so a one-hour offset was applied to the recorded time. Both the displayed and corrected times are shown in the summary.

7.2. Recorder 3 Summary

Table 3 summarizes the events in the data file provided to the NTSB. All recorded events were recorded on September 18, 2017.

Table 3. Summary of Events in Recorder 3 Data File

Recorded Time	Corrected Time (EDT)	Description of Events
04:30:00	05:30:00	[Start of recording] The driver is visible inside the bus.
04:37:17	05:37:17	The first passenger boards the bus.
05:13:53	06:13:53	The bus, traveling northbound on Main Street, makes its penultimate stop prior to the accident at the southeast corner of 37th Avenue and Main Street.
05:15:45	06:15:45	The bus, continuing northbound on Main Street, makes its final stop prior to the accident at the southeast corner of Northern Boulevard and Main Street.
05:16:01	06:16:01	The bus maneuvers around a parked NYPD vehicle and begins to make a right-hand turn onto Northern Boulevard. The traffic signal is green as it begins to travel around the NYPD vehicle.
05:16:03	06:16:03	The traffic signal turns yellow as the bus approaches the stop line at the intersection with Northern Boulevard.
05:16:06	06:16:06	The traffic signal turns red as the bus approaches the intersection with Northern Boulevard.
05:16:08	06:16:08	The traffic signal turns green as the bus begins the right-hand turn onto Northern Boulevard.
05:16:11	06:16:11	The bus continues making the right-hand turn onto Northern Boulevard and begins to enter the crosswalk across Northern Boulevard. [End of recording]

8. Recorder 4 Description

The data file received was recorded by interior and exterior-facing cameras on board MTA Transit Bus 6003. This vehicle was not directly involved in this accident. The onboard video recording system was comprised of seven interior-facing cameras and one exterior-facing camera labeled “Forward Facing.”

8.1. Recorder 4 Time Correlation

The system uses a GPS-synchronized clock and overlays the date, time, and camera label on the video.

8.2. Recorder 4 Summary

The “Forward Facing” camera on MTA Transit Bus 6003 recorded video of the Dahlia motorcoach just prior to the accident. MTA Transit Bus 6003 is traveling westbound on Northern Boulevard and stops in Lane 1 at a red signal at Main Street, waiting to make a left-hand turn onto Main Street. The Dahlia motorcoach is visible travelling the opposite direction starting at approximately 06:16:05 as it crosses Prince Street and approaches Main Street. The motorcoach is visible at the intersection with Main Street at 06:16:19, and then exits the frame of the video. The passengers inside Transit Bus 6003 look out the left side as the bus makes the left-hand turn onto Main Street.