



HUMAN PERFORMANCE GROUP CHAIRMAN'S

FACTUAL REPORT

Flushing, NY

HWY17MH015

(13 pages)



**NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF HIGHWAY SAFETY
WASHINGTON, D.C.**

**HUMAN PERFORMANCE FACTORS GROUP CHAIRMAN'S
FACTUAL REPORT**

A. CRASH INFORMATION

Location: Northern Boulevard at Main Street, Flushing, Queens Borough, New York

Vehicle 1: 2015 Motor Coach Industries (MCI) J4500 Motorcoach

Operator 1: Dahlia Group Inc

Vehicle 2: 2015 New Flyer XD40 Transit Bus

Operator 2: New York City Transit

Date: September 18, 2017

Time: Approximately 6:16 a.m. Eastern Daylight Time (EDT)

NTSB #: **HWYMH015**

B. HUMAN PERFORMANCE FACTORS GROUP

Kenneth Bragg, Human Performance Factors Investigator, Group Chairman
NTSB Office of Highway Safety
490 L'Enfant Plaza East, S.W., Washington, DC 20594

Detective Bryan Leonard
New York Police Department
Collision Investigation Squad, Highway District
198-15 Grand Central Parkway
Hollis, NY 11423

C. CRASH SUMMARY

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

D. DETAILS OF THE HUMAN PERFORMANCE FACTORS INVESTIGATION

The focus of this report is a crash in which a 2015 MCI motorcoach struck the left rear corner of a 2015 New Flyer Transit Bus as it completed a right turn. The Human Performance factual investigation focused on the behavioral, medical, operational, and environmental factors associated with the drivers of the motorcoach (henceforth referred to as the motorcoach driver) and transit bus (henceforth referred to as the transit bus driver). Factors that potentially contributed to the crash are documented in the sections below.

1. Motorcoach Driver Behavioral Factors

1.1. Background

The driver of the 2015 MCI motorcoach was a 49-year-old male who resided in College Point, NY. Factors associated with the motorcoach driver are discussed in the sections below.

1.1.1. Licensing

The motorcoach driver held a valid New York Commercial Driver License (CDL).¹ He first obtained a commercial driver license on February 16, 1996. On August 4, 2004 the motorcoach driver obtained a non-student passenger endorsement.² His current license expires on his birthday in 2020. On March 18, 2005 the motorcoach driver obtained a Class A instructional permit; the permit expired on July 21, 2007.³ He never obtained a full, Class A license.

1.1.1.1. License History

A review of the motorcoach driver's New York CDL record indicates that he received a traffic citation on June 10, 2010 for making an improper turn.⁴ Although not currently reflected in his driving record, past employment records from New York City Transit indicate that the motorcoach driver was charged with driving under the influence in Connecticut on April 10, 2015.

1.1.2. Crash History

Information regarding the motorcoach driver's involvement in past crashes was obtained from employment records, an insurance industry data base, and local police records. The information shows that the motorcoach driver had a minor crash while operating a motorcoach in August 2009. Additionally, the motor coach driver has had two crashes while operating passenger cars; April 10, 2015 and June 2, 2016. There was no information available as to culpability in any of the crashes.

¹ A New York Commercial Class B Driver License permits the holder to operate, in commerce, a vehicle with a gross vehicle weight rating (GVWR) of 26,001 pounds or more.

² A non-student passenger endorsement allows the holder to operate passenger vehicles designed to transport more than 15 passengers.

³ A New York Commercial Class A Instructional Permit allows the holder to operate a vehicle with at GVWR of 26,001 pounds or more in combination with a trailer with a GVWR of 10,001 pounds or more under the direct supervision of a Class A CDL holder.

⁴ Human Performance Attachment – Motorcoach Driver License Abstract

1.1.3. Experience

The motorcoach driver first obtained a CDL in February 1996. However, because the carrier in this crash did not have a driver qualification (DQ) file there was no information obtained concerning his past commercial driving experience. The motorcoach driver began working for New York City Transit on August 14, 2012. His employment with New York City Transit was terminated in April 10, 2015 for making a false report, gross misconduct, and failing to make notification that he was arrested and charged with DUI in Connecticut. Following the termination of employment with New York City Transit, the motorcoach driver resumed employment with Dahlia Group. There was no specific information available as to the dates of employment the motorcoach driver worked for Dahlia Group prior to working for New York City Transit.

1.1.4. Training

There was no information obtained in this investigation indicating where the motorcoach driver obtained his initial CDL training. Upon beginning employment with New York City Transit, the motorcoach driver underwent new driver training. Training records from New York City Transit indicate that the motor coach driver successfully completed the training program.⁵ There were no training records from Dahlia Group related to the motorcoach driver.

1.1.5. Route Experience

The intended crash trip was to be a two-day, round trip tour from Flushing, New York to Washington, DC. The crash occurred about 0.8 miles into the trip. The vicinity of the crash was near the motor carrier base of operations and the motorcoach driver's home.

1.2. Activities Prior to the Crash

Because the motorcoach driver died in the crash, information pertaining to his activities in the days leading up to the crash were obtained from the motorcoach driver's wife and employment records. The information indicates that the motorcoach driver did not work on September 14th. On September 15th and 16th the motorcoach driver worked, driving routes from morning hours until late evening hours. For more information regarding hours-of-service compliance, see the *Motor Carrier Group Chairman's On-scene Narrative Report*.

1.3. Medical Factors

Preliminary information on the accident driver's health was obtained from his most recent Commercial Driver Fitness Determination Medical Examination Report. Information obtained in the investigation suggests that the motorcoach driver did not have a primary medical provider; no historical medical records other than a commercial driver medical examination were obtained.

⁵ Human Performance Attachment – Motorcoach Driver MTA Training Records

1.3.1. Medical Examination Report for Commercial Motor Vehicle Driver Fitness Determination (CDL Medical Exam)

Commercial drivers in the United States are required by *Federal Motor Carrier Safety Regulations* (FMCSRs) to be medically certified as being physically qualified to drive a commercial vehicle.⁶ These examinations may result in one of four outcomes with respect to medical qualification:

- The driver is found to meet the standards in 49 *Code of Federal Regulations* (CFR) §391.41 and is given a 2-year certificate;⁷
- The driver is found to meet the standards, but requires periodic evaluation for one or more conditions and is qualified for 3 months, 6 months, or 1 year;
- The driver is temporarily disqualified due to a condition or medication; or;
- The driver is found not to meet the standards.

1.3.1.1. Most Recent CDL Medical Exam

The motorcoach driver's most recent medical Examination for Commercial Driver Fitness Determination was on December 9, 2015. The exam was conducted by a Physician at a family practice clinic in Brooklyn, NY. In the self-reporting health history section on the report, the motorcoach driver indicated "NO" to having an illness or injury in the last 5 years and did not report taking any medications. The motorcoach driver's vital signs, vision, and hearing were reported to be within normal limits. Following the examination, the motorcoach driver was given a two-year medical certificate with no conditions or restrictions.

1.3.2. General Health

According to the motor coach driver's wife, the motorcoach driver did not have health issues. She did not know him to visit a doctor regularly. Additionally, no records pertaining to the driver's health was discovered in the investigation.

⁶ 49 Code of Federal Regulations §391.41.

⁷ For more information on who must be examined and the examination process, please see 49 CFR §391.43 and 49 CFR §391.45.

1.3.3. Post-accident Toxicology

Following the crash, blood urine and tissue samples from the motorcoach driver were submitted to the Federal Aviation Administration (FAA) Bioaeronautical Sciences Research Laboratory for toxicological testing.⁸ The test identified Ketamine (3.946 ug.ml) and Norketamine.⁹ Medical records documenting post-crash treatment indicate that Ketamine was administered during resuscitative efforts.¹⁰ The tests were negative for:

- ethanol
- amphetamines
- opiates
- marihuana
- cocaine
- phencyclidine
- benzodiazepines
- barbiturates
- antidepressants, and
- antihistamines

1.3.4. Psychological Factors

In an interview with NTSB investigators, the motorcoach driver's wife stated that he lived at home with her and his daughter. She described him as happy and knows of no recent stressor or mental health issues.

1.3.5. Sleep Factors

According to the motorcoach driver's wife, he did not experience any abnormalities in his sleep habits. More specifically, he did not have difficulty falling asleep and slept throughout the night. She stated that she was unaware of any sleep health diagnosis or conditions.

1.4. Activities Prior to the Crash

Following the crash, the motorcoach driver's wife was interviewed by NTSB investigators.¹¹ Information from the interview was used to develop a time table of the driver's activities in the days leading up to the crash. The driver's activities are summarized below in **Table 1**. All times are given in Eastern Daylight Time.

⁸ Human Performance Attachment – Motorcoach Driver FAA Toxicology Report

⁹ Ketamine is a narcotic analgesic commonly used for chronic pain and sedation.

¹⁰ Human Performance Attachment – NTSB Medical Officer Memorandum

¹¹ Human Performance Attachment – Motorcoach Driver's Wife Interview Transcript

Table 1. Motorcoach bus driver activities prior to the crash

Thursday, September 14, 2017		
<u>Time</u>	<u>Event</u>	<u>Source</u>
~10:00 a.m.	Driver woke up	Witness Interview
9:00 p.m.	Driver went to bed	Witness Interview
Friday, September 15, 2017		
<u>Time</u>	<u>Event</u>	<u>Source</u>
6:15 a.m.	Driver wakes up	Driver Interview
5:00 p.m.	Driver goes to bed	Driver Interview
Saturday, September 16, 2017		
<u>Time</u>	<u>Event</u>	<u>Source</u>
5:00 a.m.	Driver Left for work	Witness Interview
Sunday, September 17, 2017		
<u>Time</u>	<u>Event</u>	<u>Source</u>
7:00 p.m.	Driver got home from work	Witness Interview
9:00 p.m.	Driver goes to bed	Witness Interview
Monday, September 18, 2017		
<u>Time</u>	<u>Event</u>	<u>Source</u>
5:00 a.m.	Driver wakes up	Witness Interview
6:16 a.m.	Crash Occurs in Flushing, NY	Police Records

2. Commuter Bus Driver

2.1. Commuter Bus Driver

The driver of the 2015 New Flyer transit bus was a 45-year-old male who resides in North Baldwin, NY. Factors associated with the commuter bus driver are discussed in the sections below.

2.1.1. Licensing

At the time of the crash, the commuter bus driver held a valid New York Commercial Driver License (CDL) with a non-student passenger.¹² He first obtained a commercial driver license on September 24, 2007 through employment with New York City Transit. His current license has an expiration date in March of 2020.

2.1.1.1. License History

A review of the transit bus driver's New York CDL record indicates that he most recently received a traffic citation on July 6, 2005 for driving in excess of a reasonable speed. There were no recent citations or violations listed in his license record.¹³

2.1.2. Crash History

Information regarding the motorcoach driver's involvement in past crashes was obtained from employment records and an insurance industry data base. The information shows that the

¹² A New York Commercial Class B Driver License permits the holder to operate, in commerce, a vehicle with a gross vehicle weight rating (GVWR) of 26,001 pounds or more. A non-student passenger endorsement allows the holder to operate passenger vehicles designed to transport more than 15 passengers.

¹³ Human Performance Attachment - Commuter Bus Driver License Abstract

transit bus driver has had several crashes. A summary of crash history is displayed below in **Table 2**. There was no information available on accident cause, severity, or culpability.

Table 2. Commuter Bus Driver Crash History Summary

Crash Date	Vehicle Type	Data Source
May 8, 2008	Commuter Bus	Employment Records
July 3, 2008	Commuter Bus	Employment Records
May 5, 2011	Commuter Bus	Employment Records
December 23, 2011	Passenger Car	Insurance Database
July 20, 2012	Commuter Bus	Employment Records
August 30, 2013	Commuter Bus	Employment Records
July 8, 2015	Commuter Bus	Employment Records
April 21, 2017	Passenger Car	Insurance Database

2.1.3. Experience

The commuter bus driver first obtained a CDL in September 2007 through employment with New York Transit. According to the driver, he has not driven any commercial vehicles outside of his current employment.

2.1.4. Training

The commuter bus driver obtained his CDL through the New York Transit commercial driver training program. In addition, he has undergone annual, recurrent and remedial training as a condition of his employment. For more information on his training, see *The Motor Carrier Group Chairman's Factual Report*.

2.1.5. Route Experience

At the time of the crash, the commuter bus driver was driving a transit route on an overtime shift. Although the crash trip was not his usual route, he had driven the route previously and was familiar with the route.

2.2. Medical Factors

Information on the transit bus driver's health was obtained from an interview with the driver, his most recent Commercial Driver Fitness Determination Medical Examination Report, and pharmacy records.

2.2.1. Medical Examination Report for Commercial Motor Vehicle Driver Fitness Determination (CDL Medical Exam)

Commercial drivers in the United States are required by *Federal Motor Carrier Safety Regulations* (FMCSRs) to be medically certified as being physically qualified to drive a commercial vehicle.¹⁴ These examinations may result in one of four outcomes with respect to medical qualification:

- The driver is found to meet the standards in 49 *Code of Federal Regulations* (CFR) §391.41 and is given a 2-year certificate;¹⁵
- The driver is found to meet the standards, but requires periodic evaluation for one or more conditions and is qualified for 3 months, 6 months, or 1 year;
- The driver is temporarily disqualified due to a condition or medication; or;
- The driver is found not to meet the standards.

2.2.2. Most Recent CDL Medical Exam

The commuter bus driver's most recent medical Examination for Commercial Driver Fitness Determination was on February 26, 2016. The exam was conducted by a Physician at a New York Transit clinic in Brooklyn, NY. In the self-reporting health history section on the report, the transit bus driver indicated "NO" to having an illness or injury in the last 5 years and indicated that he had taken minocycline¹⁶ and prednisone¹⁷. The report does not include any further information on the dose or associated conditions with these medications. The motorcoach driver's vital signs, vision, and hearing were reported to be within normal limits. Following the examination, the motorcoach driver was given a two-year medical certificate with no conditions or restrictions.

2.2.3. General Health

In an interview with NTSB investigators, the commuter bus driver stated that he has good health and does not see a physician for any ongoing conditions. A review of a 2012 CDL Medical

¹⁴ 49 Code of Federal Regulations §391.41.

¹⁵ For more information on who must be examined and the examination process, please see 49 CFR §391.43 and 49 CFR §391.45.

¹⁶ Minocycline is a broad-spectrum antibiotic commonly used to treat skin related medical conditions.

¹⁷ Prednisone is a corticosteroid commonly used as an anti-inflammatory medication.

Examination Report indicates that the commuter bus driver has had a diagnosis of lupus.¹⁸ The condition is not listed elsewhere in the commuter bus driver's CDL Medical Reports

2.2.4. Post-accident Toxicology

Following the crash, the commuter bus driver submitted to a post-crash alcohol and urine drug test at the direction of his employer, New York Transit.¹⁹ The tests results were negative for:

- amphetamines
- MDA-analogues
- Marijuana metabolite
- cannabinoids
- 6-Monoacetylmorphine
- methadone
- opiates
- phencyclidine (PCP)

In addition, a blood sample from the commuter bus driver was sent to the Federal Aviation Administration (FAA) Bioaeronautical Sciences Research Laboratory for toxicological testing.²⁰ The test results were negative for:

- amphetamines
- opiates
- marihauna
- cocaine
- phencyclidine
- benzodiazepines
- barbiturates
- antidepressants; and
- antihistamines

2.2.5. Psychological Factors

The accident driver stated that he is married and lives at home with his wife and children. He had not experienced any recent life stressors which may suggest the crash was the result of an intentional act.

2.2.6. Sleep Health

¹⁸ Lupus is an autoimmune disease in which the body's immune system attacks healthy tissue throughout the body.

¹⁹ Human Performance Attachment – Commuter Bus Post Crash Toxicology Report

²⁰ Human Performance Attachment – Commuter Bus Driver FAA Toxicology Report

The commuter bus driver stated that he generally sleeps well; he does not use sleep aids to go to sleep. He further stated that he has not been diagnosed with any sleep disorders. He typically works an overnight shift. He sleeps during the day and works at night.

2.3. Activities Prior to the Crash

Following the crash, the accident driver was interviewed by NTSB investigators. Information from the interview was used to develop a preliminary time table of the driver's activities in the days leading up to the crash.²¹ The driver's activities are summarized below in **Table 3**. All times are given in Eastern Daylight Time.

Table 3. Commuter bus driver activities prior to the crash

Thursday, September 14, 2017		
<u>Time</u>	<u>Event</u>	<u>Source</u>
6:15 a.m.	Driver wakes up	Driver Interview
5:00 p.m.	Driver goes to bed	Driver Interview
Friday, September 15, 2017		
<u>Time</u>	<u>Event</u>	<u>Source</u>
6:15 a.m.	Driver wakes up	Driver Interview
5:00 p.m.	Driver goes to bed	Driver Interview
Saturday, September 16, 2017		
<u>Time</u>	<u>Event</u>	<u>Source</u>
7:00 a.m.	Driver wakes up	Driver Interview
5:00 p.m.-6:00 p.m.	Driver goes to bed	Driver Interview
Sunday, September 17, 2017		
<u>Time</u>	<u>Event</u>	<u>Source</u>
12:00 a.m.	Driver wakes up	Driver Interview
12:47-9:25 a.m.	Driver works an overtime shift	Driver Interview
8:00 p.m.	Driver goes to bed	Driver Interview
Monday, September 18, 2017		
<u>Time</u>	<u>Event</u>	<u>Source</u>
1:50 a.m.	Driver wakes up	Driver Interview
3:54 a.m.	Driver begins overtime shift	Driver Interview
6:16 a.m.	Crash Occurs in Flushing, NY	Police Records

3. Environmental Factors

Global Positioning System (GPS) coordinates were utilized to determine relevant environmental conditions for the accident location.

Latitude: N 40.762765

²¹ Human Performance Attachment – Commuter Bus Driver Interview Transcript

Longitude: W -73.831803

3.1. Sight Distance

Following the crash, NTSB investigators examined the motorcoach driver's approach to the crash site. On his approach, the motor coach driver entered two intersections while facing red traffic signals at each intersection. In order to determine at what distance the motorcoach driver could have seen the traffic signal, staff measured the distance from the roadway position of an exemplar motorcoach to the intersection. As the motorcoach approached Prince Street from the left travel lane of Northern Avenue, the intersection and traffic light was visible from 908' away. Main Street was visible from 1388' away.

3.2. Weather Information

Historical data for weather station KLGA (LaGuardia Airport) located in Queens, NY approximately 2.41 miles from the location of the crash. Observations for September 18, 2017, near the time of the accident, are shown in **Table 4**.²²

Time (EST)	6:07 a.m.	6:50 a.m.
Temperature	69°	69°
Dew Point	66°	67°
Humidity	90%	93%
Pressure	30.1 in.	30.1 in.
Wind Dir.	NE	NE
Wind Speed	8 mph	13 mph
Wind Gust Speed	0 mph	0 mph
Precipitation	0.0 in.	0.0 in.
Conditions	Cloudy	Cloudy

3.3. Astronomical Data for September 18, 2017

Using the GPS coordinates listed above, astronomical data for the accident location and date was downloaded from the United States Naval Observatory²³ (USNO). Downloaded astronomical data is summarized in **Table 5** below.

Table 5. Sun and Moon Date for Flushing, NY for September, 18, 2017

Event	Time
ACCIDENT	6:16 a.m.
Begin civil twilight ²⁴	6:12 a.m.
Sunrise	6:39 a.m.
Sun Transit	12:49 p.m.

²² Data obtained from https://www.wunderground.com/history/daily/KLGA/date/2017-9-18?req_city=Flushing&req_state=NY&req_statename=New%20York&reqdb.zip=11351&reqdb.magic=1&reqdb.wmo=99999

²³ Data obtained from: <http://aa.usno.navy.mil/rstt/onedaytable?ID=AA&year=2017&month=9&day=18&state=NY&place=Queens>

²⁴ Morning civil twilight begins when the geometric center of the sun is 6° below the horizon and ends at sunrise.

Sunset	6:59 p.m.
End civil twilight	7:26 p.m.
Moonrise	4:44 a.m.
Moon Transit	11:38 a.m.
Moonset	6:23 p.m.

E. DOCKET MATERIAL

The following attachments and photographs are included in the docket for this investigation:

LIST OF ATTACHMENTS

Human Performance Attachment - Motorcoach Driver License Abstract

Human Performance Attachment - Motorcoach Driver MTA Training Records

Human Performance Attachment - NTSB Medical Officer Memorandum

Human Performance Attachment - Motorcoach Driver's Wife Interview Transcript

Human Performance Attachment - Motorcoach Driver FAA Toxicology Report

Human Performance Attachment - Commuter Bus Driver License Abstract

Human Performance Attachment - Commuter Bus Driver Post Crash Toxicology Report

Human Performance Attachment - Commuter Bus Driver FAA Toxicology Report

Human Performance Attachment - Commuter Bus Driver Interview Transcript

END OF REPORT

Kenneth J. Bragg
Senior Human Performance Investigator