Massachusetts State Police
Collision Reconstruction Report

CASE # 2011-CAR-000560

Related Case #

<table>
<thead>
<tr>
<th>Requesting Agency</th>
<th>Cambridge</th>
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<tbody>
<tr>
<td>Date Rec'd:</td>
<td>27 Dec 2011</td>
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<tr>
<td>Time Rec'd:</td>
<td>19:40</td>
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<tr>
<td>Class:</td>
<td>Traffic, Crash - Fatal</td>
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<tr>
<td>Primary Investigating Officer:</td>
<td>Sergeant Paul Timmins</td>
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<tr>
<td>Reconstructionist Assigned:</td>
<td>Trooper Dana R Atkinson, #2296</td>
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<tr>
<td>City/Town</td>
<td>CAMBRIDGE</td>
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<tr>
<td>County</td>
<td>MIDDLESEX</td>
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<tr>
<td>Day</td>
<td>Tuesday</td>
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<td>Date</td>
<td>27 Dec 2011</td>
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<td>Time</td>
<td>19:40</td>
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<td>Agency</td>
<td>Cambridge</td>
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<tr>
<td>Team</td>
<td>Northeast</td>
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Massachusetts State Police
Collision Analysis and Reconstruction Section
485 Maple Street
Danvers, MA 01923
cars.reports@state.ma.us

Status: Approved
Approved by: Sergeant Deborah Ryan ID: 1460
Commonwealth of Massachusetts

Collision Analysis and Reconstruction Section

Collision Reconstruction Report

Collision Analysis and Reconstruction Section 12/27/11 7:40 PM  
Trooper Atkinson, Dana

# Vehicles: 2  # Injured: 1  

Arrival Time: 2011-12-27 20:00:12  
Cleared Time: 2011-12-22 00:01:12  
Crash - Fatal

MASSACHUSETTS AVENUE West & VASSAR STREET North, CAMBRIDGE, MA  
Latitude: 42 21 36.74  
Longitude: 71 05 41.22  

Requesting Agency: Cambridge  

cause Determination:

Light: 4 - Dark - lighted roadway  
Weather: 3 - Rain  
Traffic Ctrl: 3 - Traffic control signal  
Ctrl Function: Yes  
Road Surface: 2 - Wet  
Intersection: 2 - Four-way intersection

Vehicle # 1  
Reg# 37797  
MA SIMN 1992  
Petrbilt  
Tractor  

Insurance Co: National Interstate  
Veh Config: 10 - Tractor-Semitrailer

Hit Run: No  
Moped: No  
Travel Direction: W  
Respond Emerg: No  

Driver Contributing: 1 - No Improper Driving  
Tow Company: Coody's Towing  

Vehicle Information:

Owner/Operator: Veh # 1  

Medical Examiner:  
Body Removed To:  

Citation/Charge(s):

Seat Position: 1 - Front seat - left seat (or  

Safety System:  
Airbag Status: 5 - Not Applicable  
Airbag Switch:  
Eject Code: 0 - Not ejected  
Trap Code: 0 - Not trapped  
Injury Status: 4 - No Injury  
Transported: 1 - Not transported  

MedicalFac: ME Notified and Came To:  
Next of Kin Notified By:

Truck/Bus Info:

Carrier Address:  
US DOT Number:  
US DOT State #:  
Issuing State:  
ICC Number:  
US DOT Int State:  

Cargo Body:  
Gross Weight:  

Material Placed:  
Material #:  
Material Name:  
Material 4-Digit:  

Status: Approved  
Approved by: Sergeant Deborah Ryan ID# 1438

Officer Name: Trooper Atkinson, Dana
Commonwealth of Massachusetts
Collision Analysis and Reconstruction Section
2011-CAR-000560
Collision Reconstruction Report

Vehicle# 1
Reg# SM65387
MA 02379
SMN 1989
Freightliner
Trailer
Towed

Insurance Co: National Interstate
Veh Config: 10 - Tractor/trailer
Hit/Run: No
Maped: No
Travel Direction: W
Respond Emerg: No
Driver Contributing: 1 - Improper Driving
Tow Company: Coody's Towing
CDR: No

Owner: Veh # 1
JP Noonan Transportation Inc
Box 400
West Bridgewater
DOB: MA 02379
Sex: Male
Lic Num:
Lic State:
Restrictions:
CDL END:

Medical Examiner:
Body Removed To:

Seat Position: Front Left
Safely System: Deployed
Airbag Status:
Airbag Switch:
Eject Code:
Trap Code:
Injury Status:
Transported:
MedicalFac:
ME Notified and Came To:
Next of Kin Notified By:

Truck/Bus Info:
Carrier Address:
US DOT Number:
US DOT State #:
Issuing State:
ICC Number:
US DOT InterState:

Cargo Body:
Gross Weight:
Trailer Reg:
Reg Type:
Reg State:
Reg Year:
Length:

Non Motorist
Kyaw, Phyo N
284 Harvard Street #12
Cambridge, MA 02139
DOB
Gender: Male
Type: 2 - Cyclist

Medical Examiner:
Body Removed To:

Action: 2 - Walking, Running or cycling
Location: 4 - In roadway
Condition: 1 - Apparently Normal
Injury Status: 1 - Fatal Injury
Transport: 2 - EMS
MedicalFac: Mass General Hospital
ME Notified and Came To:
Next of Kin Notified By:

Status: Approved
Approved by: Sergeant Gordon Ryan ID# 1480

Officer Name: Trooper Atkinson, Dana
Signature:
ID# 2208
Staion: 03/21/2012
Introduction
01. The following report summarizes an investigation conducted at the request of and in conjunction with the Cambridge Police Department. On the evening of Tuesday December 27, 2011, at approximately 2000 hours, the H-HQ Duty Officer requested that this officer assist the Cambridge Police Department in the investigation of a one vehicle vs. bicycle collision at the intersection of Vassar Street and Massachusetts Avenue in the city of Cambridge that subsequently resulted in fatal injuries to the cyclist. Upon my arrival at approximately 2100 hours, I met with Sergeant Paul Timmins of the Cambridge Police Department. Thereafter, the preliminary facts of the investigation were relayed to this office and a cooperative investigation of this incident was initiated. The scope of this officer’s investigation was strictly limited to a kinematics analysis and the application of physics to determine the cause of the collision, contributing factors, and to assist the Middlesex County District Attorney’s Office in the determination of criminal responsibility. The procurement of witnesses and the collection of statements was the responsibility of the Cambridge Police Department. The conclusions derived by this officer were based on, but not limited to, the following:

SYNOPSIS
02. The following is a general summary of events that occurred on the evening of Tuesday December 27, 2011, in the city of Cambridge. This synopsis should be employed as an overview of the incident rather than a recitation of facts. Its purpose is to facilitate a systematic understanding of the kinematics analysis to follow.

03. On the above date, at approximately 1940 hours, was operating a 1992 Peterbilt tractor bearing Massachusetts apportioned registration 37797 which was towing a 1989 Fruehauf tanker trailer bearing Massachusetts semi-trailer registration 65387, hereinafter referred to as the tractor. was traveling alone in the tractor and was in the process of making a right hand turn from a northwesterly direction on Massachusetts Avenue onto Vassar Street to a northeasterly direction. The intersection was controlled by a functioning traffic light that was illuminated green for the operator of the tractor. The tractor had its right directional activated as it proceeded to turn from Massachusetts Avenue onto Vassar Street.

04. Simultaneously, Phyo N. Kyaw was operating a Denali 700C 21-speed bicycle hereinafter referred to as the bicycle. Phyo Kyaw was proceeding from an unknown direction at or near the intersection with Massachusetts Avenue and Vassar Street. At some point, either Phyo Kyaw, the bicycle or a combination of both contacted the front bumper of the Peterbilt tractor evidence by a black scuff mark and dirt that had been wiped from the bumper’s chrome surface. Thereafter, the tractor proceeded to drive over the bicycle. When the tractor was brought to a stop, it came to rest upon the bicycle with its’ first pair of left drive wheels. In the vicinity of the crash, there were bicycle lanes on both sides of Vassar Street and the final rest of the bicycle indicates that it was not in either of the bicycle lanes at the point of impact (POI).
05. Phy Phyo Kyaw was found lying in the southwesterly travel lanes of Vassar Street along the left side of the trailer portion of the tractor. The tractor came to final rest facing northeasterly on Vassar Street straddling both the northeasterly and southwesterly travel lanes.

06. Cambridge Fire and Rescue transported Phy Phyo Kyaw to the Massachusetts General Hospital by ambulance where he later succumbed to his injuries. was not injured during this crash.

07. The tractor was examined in detail on scene by Trooper Laming Chan of the Massachusetts State Police Commercial Vehicle Enforcement Section. The tractor was later towed by Coady’s Towing to their facility. The bike was removed by and stored at the Cambridge Police Department.
Collision Locus

08. This collision occurred on Vassar Street at the intersection with Massachusetts Avenue in the City of Cambridge. Vassar Street, in the vicinity of the collision, is a two-lane undivided roadway with one lane supported in the northeasterly direction and one lane supported in the southwesterly direction. The two travel lanes are delineated by double-yellow center lines. Approaching the intersection of Massachusetts Avenue, the southwesterly lane of Vassar Street widens to a left turn only lane delineated by solid white lane markings. Additionally, both directions on Vassar Street have designated bicycle lanes along the roadway edge that are delineated by solid white painted lines. The southwesterly travel lane is approximately 25-feet in width and contains a bicycle lane, a combination straight and right hand turn lane and a left turn only lane. The northeasterly travel lane is approximately 12-feet in width and supports a travel lane and a bicycle lane. Both edges of Vassar Street adjacent to the bicycle lanes are lined by pedestrian sidewalks approximately 8-feet in width with granite curbing at their roadway edges.

Massachusetts Avenue is a four-lane undivided roadway with two travel lanes supported in the northwesterly direction and two travel lanes in the southeasterly direction. The northwesterly and southeasterly lanes are delineated by painted double yellow center lines. The northwesterly travel lanes are approximately 11-feet in width and are bordered by a solid white painted lane marking that delineates a bicycle lane that translates to an approximate 8-foot wide parking lane. The southeasterly travel lanes are approximately 11-feet in width and are bordered by solid white lane markings that delineate a bicycle lane.

Exhibit One –“Birds Eye” view of the Collision Locus.
09. Vassar Street and Massachusetts Avenue are public ways as defined by MGL C.90, s.01 and are maintained by the city of Cambridge. Commercial Buildings and the Massachusetts Institute of Technology line the roadway, therefore, as per MGL C 90, s.17 the area is considered a thickly settled area and the un-posted speed limit is 30 MPH. This section of the roadway falls under the primary jurisdiction of the Cambridge Police Department.

10. The roadway surface in the vicinity of the crash is composed of bituminous concrete which appeared to be in relatively good condition with some degree of traffic polish. The weather at the time of this incident was inclement with a moderate to heavy rain falling with an approximate ambient air temperature in the 40 degrees Fahrenheit. The roadway was wet.

12. The intersection of Massachusetts Avenue and Vassar Street at the collision locus was illuminated by two overhead street lights each positioned toward Massachusetts Avenue on the northeast and northwest corners. Five additional, non-traditional street lights illuminated the area of Vassar Street to the northeast of the intersection with Massachusetts Avenue. Three of these lights were positioned adjacent to the northwest road edge and two were positioned adjacent to the northeast road edge. Area lighting was sufficient to allow writing without the aid of a flashlight.

ON SCENE INVESTIGATION

11. On December 27, 2011 at approximately 2000 hours I was dispatched to this incident. Upon arrival at approximately 2100 hours, I met with the primary investigator, Sergeant Paul Timmins of the Cambridge Police Department. He relayed to me the preliminary facts of the case. Subsequently, an on-scene investigation of this collision was initiated. The scene was photographed by Trooper Christopher Donahue of the MSP Crime Scene Services Section in Boston.

12. On-Scene: The first of three consecutive light pole(s), located adjacent to the northwesterly road edge of Vassar Street, was designated as a reference point. Utilizing linear coordination, the physical evidence relevant to this collision was located and documented. See Exhibit 2.
13. The roadway was devoid of pre-impact tire marks affected by the tractor or the bicycle. More specifically, there was no evidence to suggest the operator of the tractor or the bicycle affected emergency braking prior to the crash. The first visible evidence associated with this crash was the bicycle located under the first pair of left side wheels of the tractor. The second visible evidence was the left shoe of the cyclist, the identified final resting point of the cyclist and the final rest location of the tractor trailer unit.

Vehicle Exam

14. The 1992 Peterbilt tractor and its attached trailer, involved in this collision were examined in detail at the scene. The only visible evidence of contact between the tractor and the bicycle and/or its’ cyclist was a black scuff mark on the front bumper of the tractor and an area of wiped off dust and dirt from an area that was observed by the lower edge of the right side of the front bumper that extended to the area near the center of the bumper in the area of the hinged front license plate holder. Additionally, a small scratch was located on the underside of the left fuel saddle tank of the tractor likely caused by the tractor passing over the downed bicycle. Subsequently, Trooper Loming Chan of the Massachusetts State Police Commercial Vehicle
Enforcement Section examined the tractor and trailer in detail at the scene and discovered no violations to either the tractor or the trailer. See attached report. See Exhibit three.

15. The 2009 Denali 700C 21-speed bicycle was examined in detail at the crash scene by Sergeant Paul Timmins (See Attached report) The position of the front derailleur and the chain on the rear cog set indicate a gear combination that would be hard to pedal and likely traveling at a high rate of speed. The tires were Kenda size: 700mmx32mm. See Exhibit four.
Kinematics Analysis

16. The following analysis is based on the available physical evidence, on-site documentation and operator statements. The assumptions employ proven and prudent scientific principles based on the laws of physics and data compiled by the University of North Florida, Institute of Police Technology and Management. These assumptions are presented so as to give reasonable benefit of doubt to the operator of the collision vehicle.

17. It was established via video documentation provided by Sergeant Paul Timmins and the Massachusetts Institute of Technology that the tractor had activated its' right directional signal and was making a right hand turn onto Vassar Street through a green traffic signal. Due to the dynamics of the crash and lack of physical evidence on the roadway a traditional speed analysis and time and distance analysis of the tractor or the bicycle at the time of the crash was not performed.
Conclusion:

18. Not all the facts and circumstances of this collision are known. The facts and conclusions presented in this narrative are based upon this officer's training and experience and should be considered within a reasonable degree of scientific certainty.

19. It is this Officer's opinion that the possible cause of this collision was the encroachment of the bicycle into the path of the turning tractor trailer unit. It should be stressed that all the assumptions in this report are flawed in that they were presented in the "best light" for given the absence of roadway evidence, the absence of eyewitnesses to the crash and the failure of area video monitoring systems to capture the approach of Mr. Kyaw or the point of impact of the collision. Moreover, although a speed analysis was unattainable, it is this Officer's opinion based in part on the video evidence and the dynamics of the intersection that the speed of the tractor was not a factor in this crash. Contributing factors of the collision, was the moderate to heavy rainfall, during the hours of darkness involving a cyclist that wore non-reflective clothing on a bicycle equipped with only a rear facing illuminated light at a presumed relative high rate of speed. At this time, it is this Officer's opinion that it cannot be determined within reasonable scientific certainty that the collision was avoidable and negligence cannot be established.

20. This Officer observed no evident mechanical problems with the tractor or the bicycle involved in this collision.

21. Roadway design and engineering did not precipitate or contribute to this collision.

*The facts and conclusions presented in this narrative are based on the evidence and materials reviewed to date and are subject to revision should further evidence materialize.

Respectfully submitted,

Dana R. Atkinson #2296
Trooper, Massachusetts State Police
Collision Analysis & Reconstruction Section