

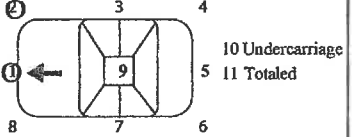
Commonwealth of Massachusetts

Date of Crash 08/25/2020	Time of Crash 21:25 24HR	City/Town RANDOLPH	Motor Vehicle Crash Police Report	Number Vehicles 1	Number Injured 1	Speed Limit 35 Latitude _____ Longitude _____	State Police <input type="checkbox"/> Local Police <input type="checkbox"/> MBTA Police <input type="checkbox"/> Other: _____
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AT INTERSECTION:	LOCATION	NOT AT INTERSECTION:
Route# _____ Direction _____ Name of Roadway/Street _____ At _____ Route# _____ Direction _____ Name of Intersecting Roadway/Street _____ Also at Intersection with _____ Route# _____ Direction _____ Name of Intersecting Roadway/Street _____	NORTH 501 N. MAIN ST. _____ Feet <input type="checkbox"/> N <input type="checkbox"/> S <input type="checkbox"/> E <input type="checkbox"/> W of _____ Mile Marker _____ or Exit Number _____ 50 _____ Feet <input checked="" type="checkbox"/> N <input type="checkbox"/> S <input type="checkbox"/> E <input type="checkbox"/> W of _____ _____ Feet <input type="checkbox"/> N <input type="checkbox"/> S <input type="checkbox"/> E <input type="checkbox"/> W of _____	_____ Route# _____ Direction _____ Name of Roadway/Street _____ _____ Mile Marker _____ or Exit Number _____ _____ Route# _____ Direction _____ Name of Intersecting Roadway/Street _____ _____ Landmark _____

<input checked="" type="checkbox"/> Vehicle 1	<input type="checkbox"/> Hit/Run	<input type="checkbox"/> Moped	Case Number 200000846
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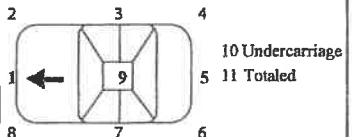
License # _____ St MA DOB/Age _____ Sex M Lic. Class D 18 M 18 Lic. Restrictions 1 19 CDL _____ Operator ELMAN STEVEN M Address 41 SOUTH MAIN STREET City RANDOLPH State MA Zip 02368 Insurance Company ARGONAUT INSURANCE COMPANY	Reg # MP737R Reg Type MVN Reg State MA Veh Year 2017 Veh Make FORD Veh Config. 2 20 Owner RANDOLPH TOWN C Address 41 S MAIN ST City RANDOLPH State MA Zip 02368 Vehicle Action Prior to Crash 1 21 Damaged Area Code: (Circle Up to Three) Event Sequence 3 22 22 22 22 22 Most Harmful Event 3 23 Driver Contributing Code 1 24 24 Underride/Override 25 Towed Y
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Please fill out for operator and all occupants involved												
Name (Last First Middle)	Address	Age/DOB	Sex	26 Seat Pos.	27 Safety System	28 Airbag Status	29 Airbag Switch	30 Eject Code	31 Trap Code	32 Injury Status	33 Transp. Code	Medical Facility
Operator	See Above	-----	---	1	4	99	0	0	10	2		SOUTH SHORE HOSPITAL

Please Select One of the Following: <input type="checkbox"/> Vehicle _____ #Occupants <input checked="" type="checkbox"/> Non-Motorist A Type 1 14 Action 1 15 Location 4 16 Condition 99 17 <input type="checkbox"/> Hit/Run <input type="checkbox"/> Moped
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License # _____ St MA DOB/Age _____ Sex M Lic. Class 18 18 Lic. Restrictions 1 19 CDL _____ Operator DIVENS CHRISTOPHER M Address _____ City RANDOLPH State MA Zip 02368 Insurance Company _____	Reg # _____ Reg Type _____ Reg State _____ Veh Year _____ Veh Make _____ Veh Config. 20 Owner _____ Address _____ City _____ State _____ Zip _____ Vehicle Action Prior to Crash 21 Damaged Area Code: (Circle Up to Three) Event Sequence 22 22 22 22 22 Most Harmful Event 23 Driver Contributing Code 24 24 Underride/Override 25 Towed _____
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Please fill out for operator and all occupants involved												
Name (Last First Middle)	Address	Age/DOB	Sex	26 Seat Pos.	27 Safety System	28 Airbag Status	29 Airbag Switch	30 Eject Code	31 Trap Code	32 Injury Status	33 Transp. Code	Medical Facility
Operator/Non-Motorist	See Above	-----	---	---	---	---	---	---	---	7	97	BOSTON MEDICAL CENTER

→ Direction 1 = Vehicle 1 2 = Vehicle 2 ☹ Pedestrian

ie: → 1 → 2 → ☹

Crash Diagram:

If Crash Did Not Occur on a Public Way:

Off-Street Parking Lot

Garage

Mall/Shopping Center

Other Private Way

Indicate North by Arrow

Crash Narrative:

Operator #1 (Elman) was travelling northbound on N. Main Street (RT. 28) with his lights and siren activated (Code 3) responding to a domestic disturbance 911 call. Operator #1 stated as he approached the intersection with Grove Street he observed a pedestrian (Divens) in the roadway (in his travel lane) and immediately took corrective action in an attempt to avoid hitting the pedestrian. Operator #1 stated he cut his steering wheel to the left in his attempt but struck the pedestrian with the front bumper (passenger side) propelling him onto the hood and windshield. Operator #1 continued to bring his vehicle to a stop in which the pedestrian then separated from the vehicle and rolled to final rest. Operator #1 immediately exited his vehicle and requested medical aid before attending to the pedestrian. The pedestrian was interviewed and refused to give me a statement of what had occurred prior and

(Continued on next page)

Witnesses:

Name (Last, First, Middle)	Address	Phone #	Statement

Property Damage:

Owner (Last, First, Middle)	Address	Phone #	34-Type	Description of Damaged Property

Truck and Bus Information: Registration # _____ (From Vehicle Section)

Carrier Name _____ Carrier Issuing Authority Code

Address _____ City _____ St _____ Zip _____

US DOT #: _____ State Number _____ Issuing State _____ ICC #: _____ Interstate

Cargo Body Type Code Gross Vehicle Weight

Trailer Reg #: _____ Reg Type _____ Reg State _____ Reg Year _____ Trailer Length

Hazmat Information:

Placard Material 1 digit # Material Name _____ Material 4 digit # _____ Release code

STEPHEN DESROCHE 5510 QUINCY POLICE DEPARTM 09/04/2020

Police Officer Name (Please Print) Signature ID/Badge # Department Precinct/Barracks Date

CDPI 11 -24-00

→ Direction 1 Vehicle 1 2 Vehicle 2 Pedestrian
 ie: → 1 → 2 →

Crash Diagram:



If Crash Did Not Occur on a Public Way:

- Off-Street Parking Lot
- Garage
- Mall/Shopping Center
- Other Private Way

Indicate North by Arrow



Crash Narrative:

after this crash. The pedestrian was transported to Boston Medical Center (BMC) for treatment and Operator #1 was transported to South Shore Hospital for observation. Vehicle #1 was towed to the Randolph Police station garage (secure) by C&L Towing. A complete crash reconstruction report will be submitted to the Randolph Police once completed by the Quincy Police crash reconstruction unit.

Witnesses:

Name (Last, First, Middle)	Address	Phone #	Statement

Property Damage:

Owner (Last, First, Middle)	Address	Phone #	34-Type	Description of Damaged Property

Truck and Bus Information:

Registration # _____ (From Vehicle Section)

Carrier Name _____ Carrier Issuing Authority Code 35

Address _____ City _____ St _____ Zip _____

US DOT #: _____ State Number _____ Issuing State _____ ICC #: _____ Interstate 36

Cargo Body Type Code 37 Gross Vehicle Weight 38

Trailer Reg #: _____ Reg Type _____ Reg State _____ Reg Year _____ Trailer Length 39

Hazmat Information:

Placard 40 Material 1 digit # 41 Material Name _____ Material 4 digit # _____ Release code 42

STEPHEN DESROCHE 5510 QUINCY POLICE DEPARTM 09/04/2020
 Police Officer Name (Please Print) Signature ID/Badge # Department Precinct/Barracks Date

Quincy Police Department Crash Reconstruction Report



Reconstructionist Assigned	Sgt. Stephen DesRoche
Case Number	20039482
Date	8/25/2020
Time	21:22
Location	501 N. Main St., Randolph, MA
Type of Crash	Pedestrian

This document may contain sensitive information regulated pursuant to M.G.L. ch.4 S.7 (26). Additionally, information contained in this document and any attachment may or may not be part of an ongoing Quincy Police investigation. Any disclosure, dissemination or copying, of this report by persons not authorized by the Quincy Police Department or the Norfolk County District Attorney's Office is strictly prohibited. Please forward any requests for this report to the following:

Quincy Police Department
Records Department
1 Sea Street
Quincy, MA 02169

- 1.) I, Sgt. Stephen DesRoche, am a trained crash reconstruction analyst (ACTAR #2598) assigned to the patrol division of the Quincy Police Department. I am responsible for the investigation of motor vehicle crashes involving fatalities and serious injuries. On Tuesday August 25, 2020 at approximately 2150 hrs, I was contacted by Sgt. Duggan who advised me that the Randolph Police were requesting assistance with a motor vehicle crash involving one of their marked cruiser's and a pedestrian on N. Main Street (RT. 28) in their town. I advised Sgt. Duggan that I would be responding to the scene, as well as, Officer Downing and Officer Ryan Donnelly who are also trained crash reconstruction analysts. I then advised Lt. M. Tobin as to the circumstances and that we were responding to assist.
- 2.) Upon our arrival at 501 N. Main Street, Randolph, myself and Officer Downing were met by Officer Donnelly who was already on scene doing some preliminary measurements. I observed N. Main Street (RT.28) to be shut down in both the northbound and southbound directions between Grove Street and School Lane by the Randolph Police. I then introduced myself to the supervisors on scene identified as Lt. Chaplin and Sgt. O'Neill. Lt. Chaplin gave me a quick synopsis of what had occurred both prior and after the crash involving a pedestrian, later identified as DIVENS, Christopher, and one of his officers identified as ELMAN, Steven. I was advised by Lt. Chaplin that the pedestrian (DIVENS) was conscious and alert while in the ambulance talking on the phone before he was transported to the Boston Medical Center (BMC) for treatment. Lt. Chaplin also advised me that his officer (ELMAN) was taken to the South Shore Hospital (SSH) in Weymouth for observation.

SCENE

- 3.) At this time, Officer Downing, Officer Donnelly and I began to walk the scene to make our observations. I observed several items, objects and marks that I wanted to document and locate for evidence purposes. The vehicle involved in this crash (Randolph Police cruiser #737 MA Reg MP737R) was stopped with its emergency lights still activated in the breakdown lane of the southbound side of N. Main Street at the intersection of Grove Street. Upon further observation, I could see that the windshield of the cruiser was heavily damaged from the impact of the pedestrian, as well as, some damage to the front push bar (passenger side). I observed a skid mark on the ground leading from the vehicle's RF tire back on to the roadway potentially indicating when the operator (ELMAN) started to take corrective action and applied his brakes. Officer Donnelly and Officer Downing observed marks near the double yellow lines of possibly the location the pedestrian came into contact with the pavement after separating from the vehicle. I then continued to walk the scene and observed some paperwork on the ground belonging to DIVENS, as well as, a large area of broken glass (windshield) indicating to me that the area of impact was further back heading south. As part of any investigation, especially ones involving pedestrians, I look at traffic signal functions and to check if they were operating properly with no defects. This area of N. Main Street (RT.28) had no traffic control devices except for 'Stop' signs for roadways entering N. Main

Street (Grove Street) and pedestrian crosswalks marked clearly at Grove Street, School Lane and on N. Main Street just south of School Lane. (See figure 1)

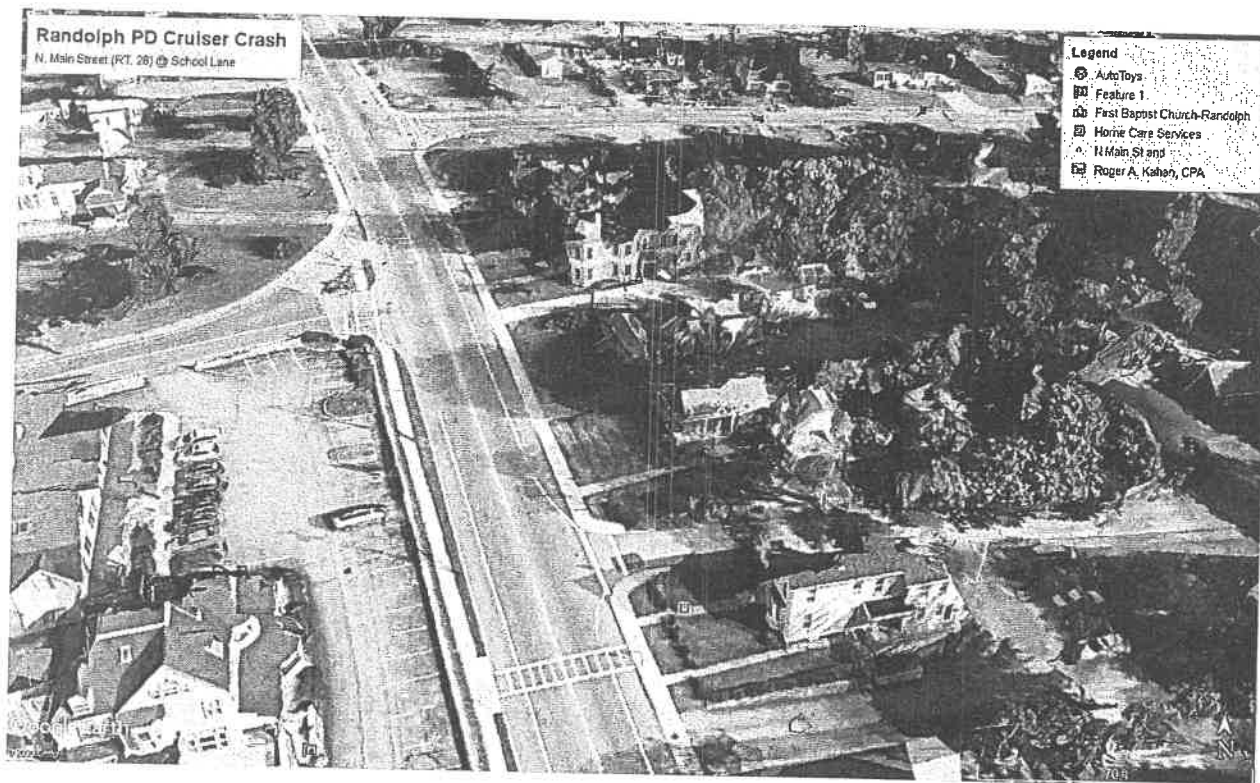


Figure 1

N. Main Street (RT.28) runs roughly north-south and has one (1) marked lane in each direction including a marked breakdown lane. The road is divided by a double yellow line lane marker and is constructed of bituminous asphalt material with raised sidewalks and curbing on both sides. The area of this crash is a heavily travelled state road with vehicular traffic even for this time of the day. The area was lit with street lighting but the ambient source did not seem to illuminate this area very well. (See figure 2) All streets mentioned in this report are public ways and are maintained either by the Town of Randolph or the Commonwealth of Massachusetts (MassDOT).

EVIDENCE COLLECTION

- 4.) The scene was marked with orange spray paint prior to any evidence being moved to aid in any future investigation. Vehicle #1 (Randolph Police cruiser #737 MA Reg MP737R) final rest location was marked, as well as, the final rest location of the pedestrian (DIVENS). Skid marks, blood stains and hair samples were marked out and located as well.

- 5.) Officer Downing documented the scene using a department issued digital camera. Officer Downing took overall shots as well as close ups. The vehicle was photographed in its final rest position (as found upon our arrival) before being moved from the scene.
- 6.) The scene was documented using the X/Y coordinate system and will be further used to generate a scaled diagram of the scene as it was upon our arrival that evening.
- 7.) Documents belonging to DIVENS left at the scene were collected by Officer Donnelly and placed into a brown evidence bag.
- 8.) On September 4, 2020, Officer Downing and I responded to the Randolph Police Station in an attempt to take some more photographs of the cruiser involved in this crash as it was being stored in a locked garage bay at the station. Officer Downing took some more photographs of the cruiser as I attempted to capture a download of the EDR utilizing the ACM (Airbag Control Module) of the vehicle's restraint system. Unfortunately, due to several possible reasons, an event was not captured which is common with pedestrian involved crashes. Below is the readout indicating 'No event captured'.



System Status at Time of Retrieval

ECU Part Number	89170-08140
EDR Generation	13EDR
Complete File Recorded	Yes
Freeze Signal	OFF
Freeze Signal Factor	None
Diagnostic Trouble Codes Exist	No
Ignition Cycle Download (times)	1251
Multi-event, number of events (times)	N/A
Time from event 1 to 2 (s)	N/A
Time from Previous Pre Crash TRG (msec)	0
Latest Pre-Crash Page	0
Contains Unlinked Pre-Crash Data	No

Event Record Summary at Retrieval

Events Recorded	TRG Count	Crash Type	Time (msec)	Pre-Crash & DTC Data Recording Status	Event & Crash Pulse Data Recording Status
None	N/A	N/A	N/A	N/A	N/A

WITNESS STATEMENTS

Randolph Firefighter/Paramedic Kevin McDonnell

- 9.) On August 27, 2020 at approximately 1950 hrs, Officer Donnelly and I went over to the Randolph Fire Station at 952 N. Main Street (RT. 28) to interview the responding FF/Paramedic that provided care for DIVENS on August 25, 2020. Upon my arrival, I introduced myself to FF/Paramedic Kevin McDonnell who stated that he, along with another

colleague (FF Isaiah Miles) provided care to DIVENS after he was struck by a vehicle on N. Main Street. FF McDonnell stated to me that while he was in the back of the ambulance, prior to transporting DIVENS to BMC, he observed DIVENS awake and speaking to 'someone' on his cell phone. FF McDonnell stated that DIVENS was saying to this unidentified person on the phone that "...it was an accident"... "He didn't mean it... it wasn't his fault". FF McDonnell stated that DIVENS was speaking about the officer involved and that he felt DIVENS knew it was an accident. FF McDonnell stated that DIVENS possibly could have been impaired by alcohol/drugs or a combination of both due to his observations and close proximity with DIVENS. I asked FF McDonnell if he could recall the clothing being worn by DIVENS the night of the crash and he stated that he was wearing "...a dark shirt and grayish pants". Assigned to Ambulance 2 that evening, FF McDonnell then transported DIVENS to the BMC for treatment.

Christopher DIVENS (Pedestrian)

- 10.) On September 4, 2020, Officer Downing and I went over to the [REDACTED] Health [REDACTED] to interview Christopher DIVENS. Upon my arrival, I introduced myself and Officer Downing to Mr. DIVENS and explained the reason we were there. Mr. DIVENS refused to speak with me on the advice of his counsel and gave no statement to me. I thanked Mr. DIVENS for his time and provided him with the paperwork retrieved from the scene on the night of the crash belonging to him.

Officer Steven ELMAN

- 11.) On Tuesday September 8, 2020, Officer Downing and Officer Donnelly went over to Hanley Law Offices, LLC to speak with Officer Steven Elman. Officer Downing and Officer Donnelly arrived at approximately 1100 hrs and were met by Officer Steven Elman and his union's attorney Thomas Horgan. Officer Downing explained the reason for the interview and although Officer Elman was not in custody a Miranda rights form was presented and offered to Officer Elman. Officer Elman reviewed it and signed the form. Officer Elman was asked if he could recount the events throughout the day of the crash (August 25) and he stated that had no recollection of "...most of the day" but could start at the call he was on before this crash. Elman stated that he responded to a call of an "unresponsive party" which turned out to be a drug overdose. Elman stated that he administered two doses of Narcan (all that they carry) and the Fire Department administered one more. The party was revived and transported to a hospital. Elman stated that he cleared the scene, and started to return to the station to replenish his supply of Narcan and file the required reports. He was initially dispatched to another overdose call, but switched calls with another unit because he was out of Narcan. Elman stated that he escorted an ambulance to Milton Hospital. Once the patient was secured at the hospital Elman returned to the Randolph Police station to file his report for his previous overdose call. A call for a motor vehicle crash at Daddy's Dairy 549 N. Main St came in and Elman, thinking it was his sector, responded to the crash. Once on scene he determined that there were no injuries and notified dispatch that there would be tows needed. Additional units arrived on scene, and it was determined that the crash was not Elman's responsibility and Elman cleared the scene, and returned to the station to file his overdose report. Elman stated that he was on scene at the crash for approximately 10 minutes while he

was on scene had "no issues" with either party involved in the crash, but that DIVENS seemed "upset over the crash". Elman returned to the station, filed his overdose report and replenished the supply of Narcan for his cruiser. After filing his report, while still at the police station Elman received a call for a domestic disturbance in his area. Elman left the station and proceeded to the call by the most direct route. Elman stated that he had his lights and siren activated while driving to the call. Elman stated that traffic was light as he proceeded to the call. Elman was heading North on N. Main St. approaching the intersection with Grove St., when he saw a pedestrian (later identified as DIVENS) moving across the street from Elman's left to his right. Elman stated that he immediately braked and cut the wheel of his vehicle to the left in an attempt to avoid hitting DIVENS. Elman stated that the cruiser struck DIVENS with the passenger side front, sending DIVENS into the windshield. Elman continued to bring his cruiser to a complete stop and DIVENS separated and came to final rest on the pavement. Elman stated that he informed dispatch of the crash, requested a supervisor and exited his vehicle to render aid to the pedestrian. Elman stated that DIVENS was "immediately conscious" and asked for his phone to talk to his wife. Elman stated that he heard DIVENS tell his wife what had happened. Elman stated that DIVENS was initially unwilling to go to the hospital. Elman remained on scene until he was relieved of duty by his supervisor and brought to the hospital. A timeline of Officer Elman's service calls and actions are listed to show that he was responding from the Randolph Police station at the time of this crash and not from another location:

- 20.00.24 : 911 call for overdose at [REDACTED] Stacey Street
- 20.01.28 : Units dispatched to [REDACTED] Stacey Street
- 20:04:04 : 737 Officer Elman arrives
- 20:04:05 : 749 Officer Vardy Duperval arrives
- 20:19.57 : Elman clears
- 20:20:35 : Second overdose Rockefeller Street
- 20:22:22 : Elman in route to the Milton Hospital
- 20:41:00 : Elman back in Town
- 20:45:48 : 911 Call Crash at Daddy's Dairy
- 20:46:05 : Dispatched to accident. Officer Elman from the station
- 20:47:44 : Elman arrives at the accident scene
- 20:48:08 : Elman request ambulance and wrecker
- 20:49:17 : 749 and 742 at the accident

20:54:47 : Elman clears from the accident
21:16:38 : Dispatch to 731. Domestic Francis Drive
21:17:45 : Elman and Sergeant Michael O'Neill dispatched to domestic at Francis Drive
21:22:58 : Pedestrian accident. Elman requesting Ambulance

SYNOPSIS

12.) On Tuesday August 25, 2020 at approximately 21:22 hrs, a motor vehicle crash occurred involving a Randolph Police cruiser (MA Reg MP737R) and a pedestrian (DIVENS) at 501 N. Main Street (RT.28) Randolph, MA. After a thorough and complete investigation the following facts are known. DIVENS was involved in a motor vehicle crash (Randolph Case #564656) prior to this incident at approximately 20:45 hrs at 549 N. Main Street (Daddy's Dairy) in which his vehicle was towed from the scene by Randolph Police for safety reasons (airbag deployment). Once paperwork was completed and given to DIVENS he was free to leave and began to walk southbound on N. Main Street (RT.28). Through phone recordings that DIVENS had with his wife, it appears and later confirmed by Officer Elman when he was briefly on scene of the Daddy's Dairy crash, that DIVENS was upset/angry at the Randolph Police due to his interaction with them at this crash. At approximately 21:17 hrs, Officer Elman was dispatched to a domestic disturbance (Randolph Case #564658), along with Sgt. O'Neil at █████ Francis Drive █████ which was in Officer Elman's patrol area. Officer Elman proceeded to leave from the station to the disturbance call on Francis Drive. Surveillance camera footage obtained shows Officer Elman with his emergency lights activated (Priority 1) passing the intersection of Warren Street and N. Main Street (RT.28) en route to his service call. Shortly after at approximately 21:22 hrs Officer Elman advises Randolph dispatch that he had struck a pedestrian in the roadway and requests an ambulance and a supervisor. Once on scene, Lt. Chaplin and Sgt. O'Neill secure the scene by shutting down N. Main Street (RT. 28) between Grove Street and School Lane while awaiting the Quincy Police crash reconstruction unit.

ANALYSIS

13.) Through my investigation, evidence collected and from the statements taken, it has been determined that a crash involving a Randolph Police cruiser (MA Reg MP737R) being operated by Officer Steven Elman and a pedestrian (DIVENS) occurred on August 25, 2020 at approximately 21:22 hrs at 501 N. Main Street (RT.28) in Randolph, MA. Measurements taken on scene give me an approximate area where DIVENS was struck but not an exact point due to lack of evidence at the POI (point of impact). DIVENS was attempting to cross N. Main Street (RT.28) from the west sidewalk to the east sidewalk when he was struck by Officer Elman. Roadway marks from braking (skid marks) were photographed and measured at the scene. These markings had a total length of 79'-6". We then measured the coefficient of friction for the roadway where the approximate POI occurred. These measurements were done with a friction sled (40 lbs) and a series of ten (10) pulls averaging out to be 30 lbs of

force. With these measurements, I was able to determine a minimum speed that Officer Elman was travelling at the time of this crash. (see figure 4) This equation has been validated in numerous studies and is still used in the industry today. It is also included in every basic crash reconstruction text. There are many reasons we still use this equation to determine a speed of a vehicle which include: a) No vehicle specific information (vehicle make, model, weight, etc.) is needed since the equation is derived from the basic physics of friction and the interaction of the tires with the roadway, b) Reasonable changes in the data produce insignificant changes in calculated speeds and c) The equation is judicially noticed. Evidence such as roadway markings, witness statements and phone recordings indicate that DIVENS was in an area that was not lit very well (see figure 2), was wearing dark clothing, on his cell phone talking to his wife, not in a marked crosswalk and was in a location that any driver would not expect a pedestrian to be at any hour of the day. These factors I believe contributed to DIVENS' lack of awareness of Officer Elman's approach.

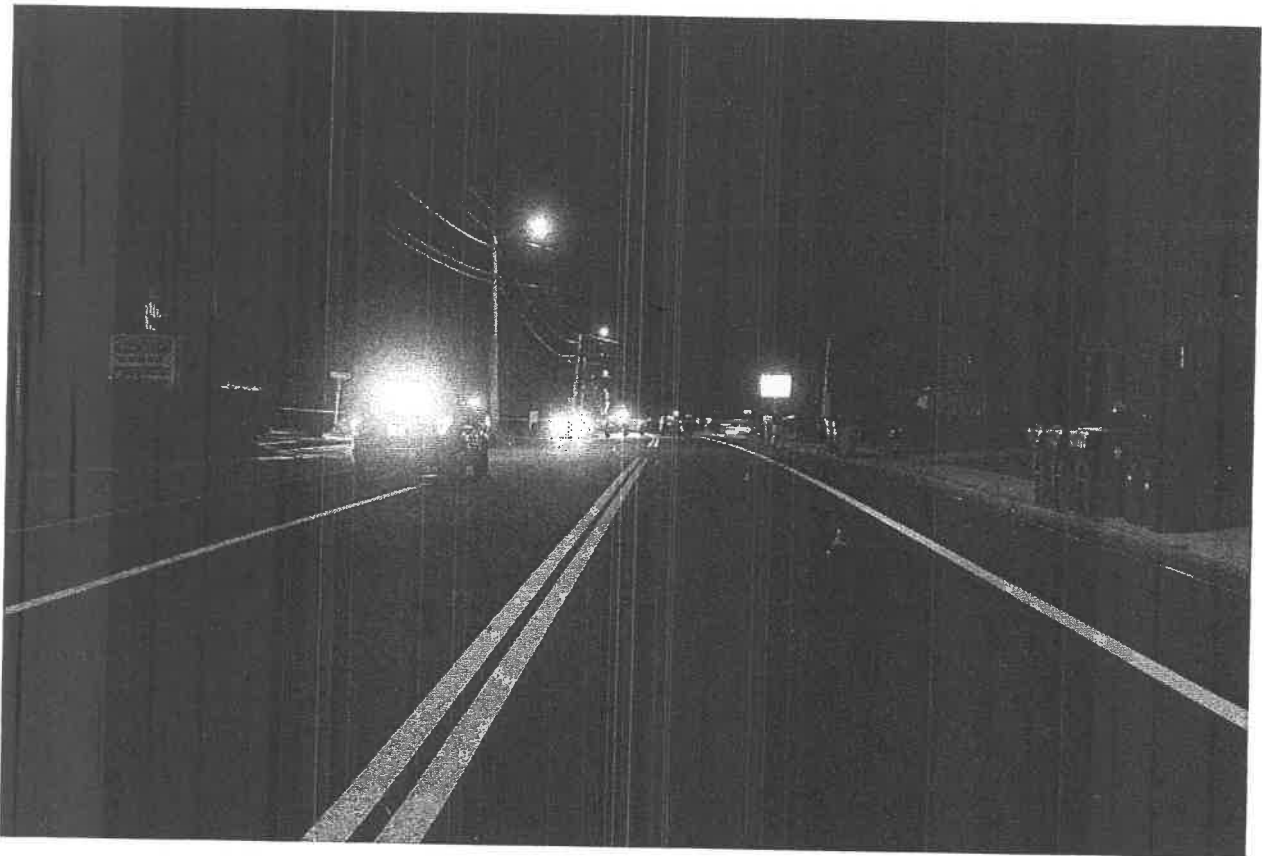


Figure 2

Through this investigation, I looked at the environment and layout of the roadway to ascertain the point of perception for both the pedestrian (DIVENS) and operator (ELMAN). Measurements taken show that DIVENS had a clear and unimpeded view of the northbound traffic flow (direction that Officer Elman was travelling) and that this view was approximately 1034 ft +/- or 2/10 of a mile. Along with this distance of perception, evidence shows that Officer Elman was responding to a 911 call for a domestic disturbance with his emergency lights and siren activated (Priority 1) on his cruiser which should have further made DIVENS

aware of his location and quick approach. Looking at the roadway markings, there was a fully marked out crosswalk at School Lane indicating the location that DIVENS should have crossed N. Main Street (see figure 3).

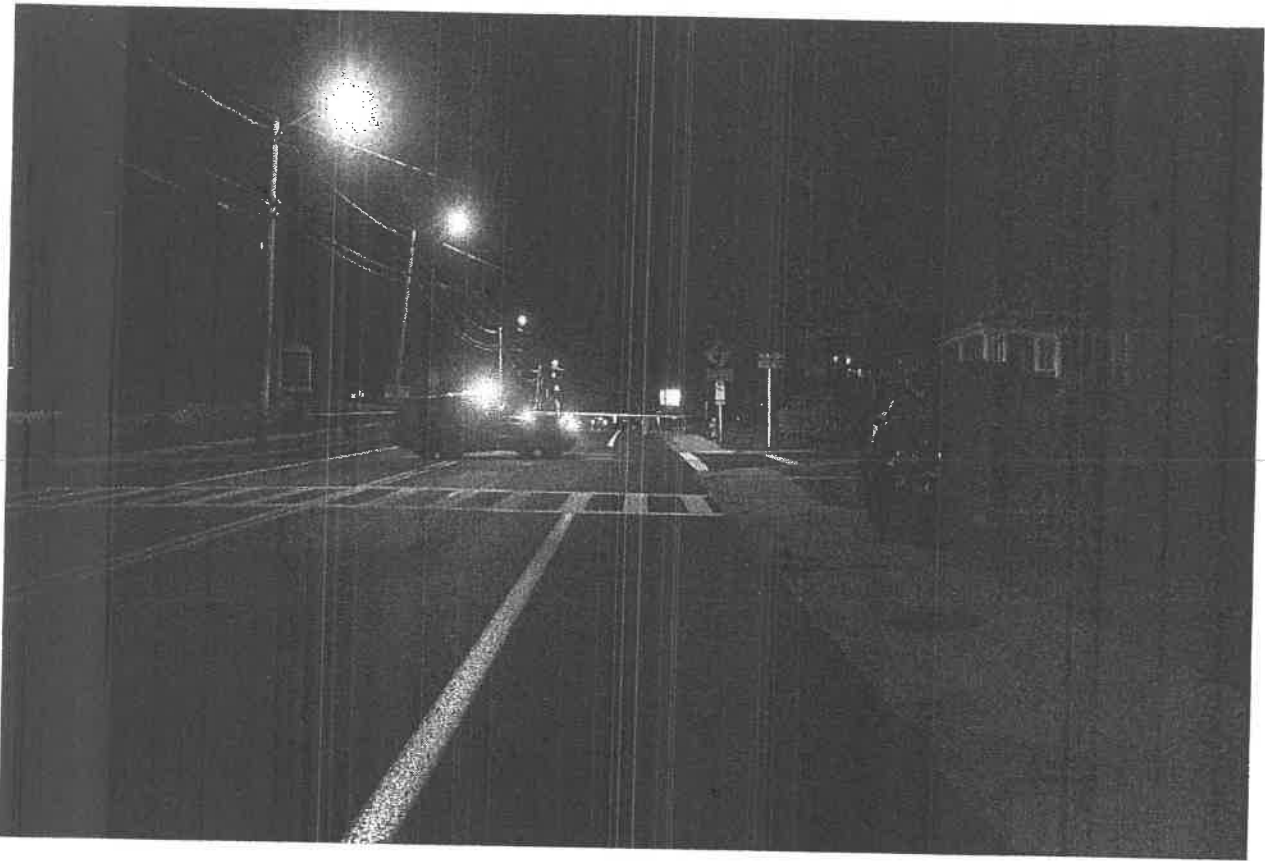


Figure 3

This crosswalk is approximately 135'-11" from the beginning area of the POI and 170'-0" to the end of this POI area. Officer Elman was travelling northbound on N. Main Street (RT.28) when he observed DIVENS in his travelled pathway of the roadway. Officer Elman immediately attempted corrective action by braking (hard due to skid marks) and steering to the left in an attempt to avoid hitting DIVENS. Due to the limited lighting, the glare of his emergency lights and the fact DIVENS presented in the roadway as a unlit object, this crash was unavoidable and further resulted in non-fatal injuries to DIVENS due to the quick and decisive actions made by Officer Elman that evening. In regards to the lighting, night driving is generally accepted to be two to three times more hazardous than daylight driving per mile driven. This leads to a safety and human factors concern, because there are a variety of nighttime driving limitations that reduce the ability to detect and recognize objects when compared to daytime driving. Driving is a task that mainly depends on the driver's visual system. Visual perception problems arise at night for a number of reasons. Major visual functions such as acuity, contrast sensitivity, and depth perception are reduced substantially at lower illumination levels. The glare of opposing headlights can also reduce the visibility of low contrast objects such as pedestrians.

Vision begins with light, but before this light is seen, it must be transformed into electrical energy by the receptors of the eye. Light can be perceived by looking directly at the source that emits these wavelengths, such as the sun, a light bulb or a headlamp of a motor vehicle. As light enters the eye, the process of vision begins. The first step is the focusing of light by the cornea and lens onto the receptors of the retina. The retina is the first neural network through which electrical signals generated in the receptors pass on their way to the brain. The two basic receptors types are rods and cones. In essence, these receptors create a "mosaic" on the retina. Rods (responsible for scotopic vision) and cones (responsible for photopic vision) differ in a number of areas. Only all-cone foveal vision enables the detection of small details, which explains why people driving at night might not be able to identify details from a scene. Scotopic vision tends to allow object detection, until the object is illuminated by the vehicle's headlamps and the identification of more details is possible through photopic vision. Visual acuity, which is typically measured using high-contrast stimuli, indicates the visual system's capacity to resolve fine detail under optimum conditions. When the contrast between an object and its background is low (low quality), the object must be larger (increased quantity) for it to be observed as easily as a smaller object with greater contrast (high quality). The movement of an object or the observer, or both, decreases visual acuity. The ability to visually discriminate under these circumstances (e.g. looking at objects on the side of the road while driving) is called dynamic visual acuity. Research in this field suggests that acuity deteriorates with increased relative motion.

Dependent upon the complexity of the required tasks, the ability to see is degraded when illumination is reduced below certain levels. Night driving is one such task in which the ability to see is often inadequate and frequently exposes road users to high levels of risk. A lot of variables account for reasons operators fail to observe objects at night but clearly the most dramatic difference between day and night driving is the large reduction in visibility due to the decreased levels of illumination, particularly when drivers are dependent solely on headlamps and the increased glare from other illumination sources, including other vehicles. There is general agreement in both the automobile field and law enforcement that automobile headlights provide, at best, marginal visibility for low-contrast objects such as pedestrians. Furthermore, it is well known from my training and numerous pedestrian crashes that I have investigated, that pedestrians tend to overestimate their own nighttime visibility. This combination of poor visibility and overestimation of one's own visibility is especially critical for determining if a pedestrian was observed and if there was sufficient time to either stop a vehicle or avoid the pedestrian altogether.

Minimum Speed Calculation

Data

D (distance) = 79.5

f= 0.75

Drag Factor

W= 40 lbs.

F= 30

$$S = \sqrt{(30)(D)(f)}$$

$$S = \sqrt{1788.75}$$

$$S = \sqrt{(30)(79.5)(.75)}$$

$$S = 42.29 \quad S = 42 \text{ MPH}$$

Figure 4

CONCLUSION

- 14.) Based on the above information and facts, I have made the following conclusions. Officer Elman was operating Randolph Police cruiser #737 (MA Reg MP737R) (vehicle #1) at the time of this crash. Officer Elman was operating his cruiser, with emergency lights and siren activated (Priority 1), in a safe and controlled manner as he was travelling northbound on N. Main Street (RT.28) responding to a 911 domestic disturbance call. Authority is given by the Commonwealth of Massachusetts to sworn police officers to engage in Emergency Vehicle Operation (EVO) which occurs when speed(s) exceed the legal limit, or when officers drive contrary to traffic signs and signals, in order to perform a police function. The 'Priority 1' classification is given to service calls and events that occur and where an immediate response is required due to several reasons including: a threat of death or serious bodily injury, major property damage, a felony or violent misdemeanor that has occurred, a *domestic violence incident* or any other exigent circumstance. Officer Elman was responding to a domestic disturbance call and travelling at a minimum of 42 MPH which was 7 MPH over the posted 35 MPH speed limit and well within acceptable response speeds of this nature. Furthermore, through measurements taken on scene, it has been determined that DIVENS travelled approximately 24'-0" in distance from when he stepped off the curb to when he was struck in the travel lane. Using industry standards of 3-4 MPH (4.4' - 5.8'/ft/sec) for an average human walking speed DIVENS travelled the 24'-0" in approximately 4.14 - 5.45 secs. Using the constant speed of 42 MPH that Officer Elman was minimally travelling and backing him up the 4.14 - 5.45 secs, Officer Elman was approximately 254.89' - 335.55' away from DIVENS when he stepped off the curb in his attempt to cross N. Main Street (RT. 28). This short distance, and the fact that Officer Elman's lights and sirens were activated should have convinced DIVENS to stop and wait for the cruiser to pass or walk a short distance to the marked crosswalk. Massachusetts Department of Highways (MassDOT) 720 CMR Section 9.09 paragraph 1 states: *Pedestrians Crossing Ways or Roadways* - Pedestrians shall obey the directions of police officers directing traffic and whenever there is an officer directing traffic, a traffic control signal or a marked crosswalk within 300 feet of a pedestrian, no such pedestrian shall cross a way or roadway except within the limits of a marked crosswalk and

as hereinafter provided in 720 CMR 9.00, paragraph 4 states: Pedestrian Crossings and Use of Roadways - (a) No pedestrian shall suddenly leave a sidewalk or safety island and walk or run into the path of a vehicle which is so close that it is impossible for the driver to yield the right of way. (b) Pedestrians shall at all times attempt to cross a roadway using the right half of crosswalks. (c) Where sidewalks are provided, it shall be unlawful for any pedestrian to walk along and upon an adjacent roadway whenever the sidewalk is open to pedestrian use. (d) Where sidewalks are not provided, any pedestrian walking along and upon an undivided highway shall, when practicable, walk only on the left side of the roadway on its unfinished shoulder facing traffic which may approach from the opposite direction. On any divided highway pedestrians not in violation of 720 CMR 9.08(2)(c) shall walk only on the right side of the roadway on the unfinished shoulder. (e) Persons alighting from the roadway side of any vehicle parked at the curb or edge of roadway in urban areas within 300 feet of a marked crosswalk shall proceed immediately to the sidewalk or edge of roadway adjacent to vehicle, and shall cross the roadway only as authorized by 720 CMR 9.00. (f) It shall be unlawful for any person to actuate a pedestrian control signal or to enter a marked crosswalk unless a crossing of the roadway is intended, and paragraph 5 states: Crossing at Non-Signalized Locations - Every pedestrian crossing a roadway in an urban area at any point other than within a marked crosswalk shall yield the right of way to all vehicles upon the roadway. DIVENS was required to walk the short distance of approximately 134'-11" - 170'-0" to the crosswalk and cross N. Main Street at that location. Through the events set in motion by the pedestrian (DIVENS), Officer Elman attempted to avoid striking DIVENS by all means available to him at the time. Officer Elman had to account for the time of day (nighttime), dimly lit area with no contrast to objects in the road and the fact that DIVENS was wearing dark clothing when he was struck. Evidence on scene, skid mark measurements and injuries DIVENS encountered support my conclusion that Officer Elman was not speeding or operating his marked cruiser in an unsafe or negligent manner. Based on these facts, I will not be pursuing charges at this time against Officer Elman. This case/crash will be considered closed at this time pending a review and agreed conclusion by the Norfolk County District Attorney's office and ADA Adam Lally.

Respectfully Submitted,



Sgt. Stephen DesRoche
Quincy Police Department
Crash Reconstruction Unit
(ACTAR #2598)