



# MAJOR ACCIDENT INVESTIGATION TEAM

## CASE SUMMARY

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**CASE NUMBER:** 13-007187  
**LOCATION:** Southbound I-5 @ Skagit River Bridge, Milepost 228.47, Skagit County  
**DATE:** May 23, 2013 @ 7:05 p.m.

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Detective Sergeant Gerald R. Cooper	Washington State Patrol – Supervisor/Reconstructionist
Detective Curtis A. Ladines	Washington State Patrol – Reconstructionist (Retired)
Detective Edward D. Collins	Washington State Patrol – Reconstructionist
Detective Benjamin J. McBride	Washington State Patrol – Reconstructionist
Detective Daniel P. Connick	Washington State Patrol – Reconstructionist
Vehicle Systems Analyst	W.S.D.O.T. – (Position Vacant)
Transportation Engineer	W.S.D.O.T. (As Needed)



### SYNOPSIS

On Thursday, May 23, 2013, at 7:05 p.m., William D. W. Scott of Alberta was driving a 2010 Kenworth tractor in combination with a step bed trailer southbound in the right lane of I-5 approaching the Skagit River Bridge. Loaded on the oversized load trailer was a metal casing. Ahead of Scott was his pilot vehicle, a 1997 Dodge Ram pickup driven by Tammy J. Detray of Shelton, WA. Affixed to the right front of the pickup was a 16'2" height clearance pole. Detray entered and crossed the bridge; witness Dale Ogden reported the pole struck several sway braces. As Scott entered the bridge, a 2000 Kenworth tractor/refrigerated box trailer was passing him in the left lane. This truck was driven by Amandeep S. Sidhu of British Columbia.

As Scott drove under the bridge sway braces, the top right leading corner of the casing struck the lower right curvature portion of 11 sway braces. This caused the north through truss bridge section to collapse into the river. As contact was made with the braces, the trailer bed and casing rotated counter-clockwise and the upper left side of the casing struck the right side top at the rear of Sidhu's trailer. Detray stopped her pilot vehicle on the right shoulder south of the bridge. The bridge collapsed behind Scott and Sidhu; Scott coasted to a stop behind Detray, approximately 1000 feet south of the collapse. Sidhu stated he was unaware of the collapse and continued south. He was contacted by State Patrol detectives in July after review of Bow Hill Scale photos identified his truck.

David P. Ruiz of Oak Harbor was driving his 1995 BMW sedan in the left lane behind Sidhu and narrowly escaped

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**SUPERVISOR:** \_\_\_\_\_

(DETECTIVE SERGEANT JERRY COOPER)

**DATE:** \_\_\_\_\_

11/12/2014

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the falling bridge behind him. His vehicle was damaged when it struck bridge debris. Neither David nor his wife/passenger, Mary Ruiz, was injured. Daniel Sligh of Oak Harbor was driving his 2010 Dodge Ram pickup towing a 2009 Jayco travel trailer behind Scott. Riding with him was his wife Sallettee Sligh. They entered the north bridge deck as it collapsed and crashed into the river. Both suffered non-life threatening injuries and were treated at Skagit Valley Hospital after being rescued from the river.

Traveling in the right northbound lane in a 2013 Subaru Crosstrek was Bryce C. Kenning of Mount Vernon. Kenning entered the collapsing bridge deck as it went down into the river. He too was rescued by the Snohomish County Sheriff's Marine Unit; he was transported by aid to United General Hospital for treatment of minor injuries.

Investigation was conducted by the by the State Patrol's Major Accident Investigation Team (MAIT) and the National Transportation Safety Board (NTSB). The MAIT determined the proximate cause of this collision sequence was directly attributable to William's Scott's negligence. It was Scott's responsibility to know that the height of his load would clear structures such as the Skagit River Bridge along his permitted route. His 15'11" load height was two inches more than his permit allowed. Additionally, Scott needed to know well in advance what position he would need on the bridge to ensure he utilized the clearance, which was 17'3" at its maximum. Scott was unable to move left on the bridge as the Sidhu truck was passing him. Evidence shows that Tammy Detray was only 4.12 seconds and 332 ~ 363 feet ahead of the wide load. Even if Detray had alerted him to a clearance issue, Scott was too close to change the course of his path.

The following case summary will address the Human, Vehicle, Environmental (HVE) model. Occupant and vehicle profiles will be followed by the roadway environment section. The summary will also include the investigation results to include reconstruction of the event and cause analysis.

HUMAN FACTOR/VEHICLE PROFILES

William D. W. Scott is an adult white male residing in Spruce Grove, Alberta. His date of birth is **Code 1** 1972 and his physical description is as follows:

Height: 6'3" (191cm)  
Eyes: Blue

Weight: **Code 1**  
Hair: Brown

**Code 18**

Scott's Alberta Government Operator's Licence records indicate he has a valid Class 1 operator's license (151662020) which is set to expire on his birthday in 2017. This license allows him to drive all vehicle combinations except motorcycles. Washington Department of Licensing (DOL) records show Scott has a no license record (SCOTTWD **Code 1**) with a clear status. His driving record shows no previous collisions or violations<sup>1</sup>; a criminal check revealed no history. Scott is currently employed as a commercial vehicle operator by Mullen Trucking of Aldersyde, Alberta. He has approximately 22 years of experience, having received his first commercial license at age 19.

In a written statement given to Sergeant Betts of the State Patrol, Scott said he was driving south on I-5 with a load that was 15'9" high. He stated that he was behind "Tammi" in the pilot car with a pole height of 16'2". Scott advised that Tammi (Tammy) did not tell him anything about moving to the middle of the bridge and as they approached it. He said there was another semi-truck to his left and he heard a loud bang about four times. He brought the truck to a controlled stop on the shoulder south of the bridge behind Detray. Scott said it was after he stopped that he learned the bridge had collapsed. He was not injured; at 11:21 p.m., Scott provided a voluntary blood sample to Trooper Maurice Kon at Skagit Valley Hospital. Toxicology analysis returned no alcohol or drugs of abuse in his system.

<sup>1</sup> NTSB Human Performance Group Chairman Factual Report, section 1.3.3., page 11

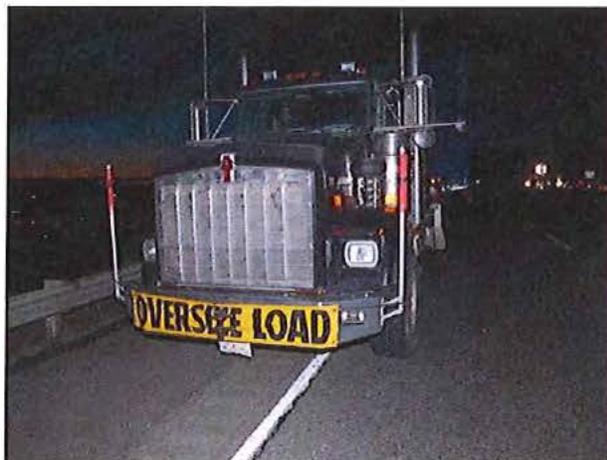
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**Black 2010 Kenworth Tractor/Red 1997 Aspen Flatbed**

Both the Kenworth trailer, Alberta license H54041, and Aspen trailer, Alberta 4ER573, were registered to Mullen Trucking. The three-axle tractor was equipped with a Caterpillar C15 diesel engine, 18 speed Fuller Eaton manual transmission, and a pneumatic Anti-lock Brake System (ABS). The steer axle was equipped with Bridgestone tires in size 385/65/R22.5; axles two and three were equipped with dual wheel, Michelin tires in size 11R/24.5. The tractor was licensed for 92,000 pounds as an interstate transporter (USDOT number 158799). The driver's seat is equipped with a lap and shoulder harness safety belt which driver Scott was wearing. There is no airbag supplemental restraint system. Affixed to the front bumper was a black lettered/yellow background "OVERSIZE LOAD" banner.



According to the National Highway Traffic Safety Administration (NHTSA), there were eight recalls and 50 service bulletins for this vehicle. None of the recalls contributed to this collision. According to the NTSB Vehicle Group Chairman Factual Report (page 14), the tractor and trailer were maintained properly and had passed current safety inspections. The Aspen three-axle step bed semi-trailer connected to the tractor with its kingpin to the fifth wheel receiver. All three axles are equipped with air brakes. The trailer was hauling a blue metal open sided casing shed. Including the load, the total trailer length measured as 70'5", width of 11' 6", and overall height<sup>2</sup> of 15'11". The oversize load permit allowed a trailer length of 70'4", width of 11'6", and a height of 15'9". Attached under the bumper was a similar "OVER SIZE LOAD" banner.

The tractor, trailer and load remained in place for three days following the collision. For follow-up investigation, Scott drove the truck to Mount Vernon Towing where it remained in the custody of the NTSB until release.

Tammy J. Detray of Olympia, Washington is an adult white female born **Code 1** 1958 with a physical description as follows:

Height: 5' 5"  
Eyes: Hazel

Weight: **Code 1**  
Hair: Brown

**Code 18**

Washington DOL records indicate Detray was last issued a driver's license (number DETRATJ **Code 1**) on August 16, 2011 and it is scheduled to expire on her birthday in 2014. Her current status is clear with no endorsements or restrictions. Detray's driving record shows one speed infraction on October 12, 2010 in Thurston County; a criminal history check **Code 12** **Code 12**

<sup>2</sup> While on scene, Trooper Troy Giddings measured the pole height at 16'1"; follow-up inspection/measurements at the impound yard reported a peak height of 15'11 1/16".

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Detray is a Washington State Pilot Escort Vehicle Operator with a certification expiration of January 31, 2015 and over 20 years of experience. She was the front escort for Scott's oversize load. In a written statement, Detray stated she was escorting Scott's oversize load with her height pole set at 16'2" and it did not strike the bridge. She also said there was another semi-truck beside the load and other traffic crowding it.

**Green 1997 Dodge Ram 2500 club cab pickup**

The pickup, Washington license B53185R, is registered to Tammy and Gregory Detray. The 4-wheel drive pickup is equipped with a 5.9L L6 24V turbo diesel engine, four speed automatic transmission, hydraulic ABS with front disc and rear drum brakes, and power steering. The Dodge had an amber overhead light bar, a black lettered/yellow background "OVERSIZE LOAD" banner affixed to the top, and height pole mounted to the right corner of the front bumper set at 16'2"<sup>3</sup>. The interior had a Citizen Band (CB) radio installed for communication to other vehicles during load escorts. NHTSA reported one recall, one investigation, one service bulletin and 205 complaints against this vehicle. The pickup was not involved in the collision. The mechanical systems were not inspected.



**Amandeep S. Sidhu** is an adult East Indian male from Surrey, British Columbia (BC), born **Code 1** 1977. His physical description is:

Height: 5' 10" (178cm)  
Eyes: Brown

Weight: **Code 1**  
Hair: Brown

**Code 18**

Sidhu has a valid British Columbia enhanced, Class 1 operator's license (number 7729994) which is set to expire on his birthday in 2016. This license allows him to drive all vehicle combinations with the exception of motorcycles. A criminal check on Sidhu revealed no history.

At the time of the crash, Sidhu was operating a tractor-trailer in the left lane of the Skagit River Bridge and was in the process of passing Scott's truck combination. When Scott struck the bridge, the trailer bed and load rotated about its longitudinal axis and the left front corner of the load struck the right rear top of Sidhu's trailer. Sidhu stated he was unaware that his truck had been struck and told detectives he did not know of the bridge collapse until later. He continued south on I-5; State Patrol detectives identified his truck from Bow Hill Scalehouse photos taken shortly before the collision.

**Green 2000 Kenworth Tractor/White 1996 Refrigerated Utility Trailer**

The tractor had BC license 14885P; the trailer BC license 03331C. Both were registered to Motorways Transport Ltd. of Surrey, BC. The three-axle tractor was equipped with a 12.7L L6 60 series Detroit Diesel engine, 13 speed Eaton-Fuller manual transmission, and pneumatic ABS brake system. The tractor is licensed for 80,000 pounds in Washington as an interstate transporter under Motorways Transport Ltd.'s issued USDOT number of 1378651. The 48 foot two-axle refrigerated trailer is equipped with a pneumatic brake system. At the time of the collision, it was loaded with bottled water.

According to NHTSA, there were seven recalls and two service bulletins reported for the tractor and one recall and eight complaints in effect for the trailer. None of the items addressed were a factor in this collision.

<sup>3</sup> Trooper Giddings measured the pole on scene at 16 feet (slope); NTSB later measured the height at 16'2" on level ground

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Daniel A. Sligh of Oak Harbor, Washington, is an adult white male born **Code 1** 1965 and a physical description as follows:

Height: 5' 8"      Weight: **Code 1**  
Eyes: Brown      Hair: None

**Code 18**

Washington DOL records indicate Sligh was last issued a driver's license (number SLIGHD **Code 1**) on August 13, 2010 and it is scheduled to expire on his birthday in 2015. Sligh's current status is clear and he has no endorsements or restrictions. His driving abstract shows no violations in the last five years. A criminal check revealed no history.

Sligh was driving his pickup and towing a Jayco travel trailer. He told investigators he and his wife were enroute the Granite Falls area to camp for the Memorial Day weekend. Sligh said they had just entered southbound I-5 from SR 20 and were in the right lane behind the oversized load at a speed of 50 ~ 55 mph. As they entered the bridge, Sligh said another tractor-trailer was passing on the left. Sligh saw the load ahead strike the bridge. He braked but was unable to stop before falling with the bridge into the river. Sligh stated he was restrained by the equipped three-point (lap/shoulder) belt. He sustained a dislocated right shoulder and various contusions and abrasions. He and his wife were assisted from the river and transported to Skagit Valley Hospital for treatment.

Sallettee R. Sligh is an adult Asian female born **Code 1** 1957. She lives with her husband Daniel in Oak Harbor. At the time of the crash, Sallettee Sligh was properly restrained in the right front seat of the pickup. Her physical description is:

Height: 4' 8"      Weight: **Code 1**  
Eyes: Brown      Hair: Brown

**Code 18**

As the pickup fell with the bridge, Sligh struck her head. She suffered internal **Code 1** bleeding; as well as back, neck, and hip pain. Sallettee Sligh was discharged from the Skagit Valley Hospital on May 24, 2013.

**Brown 2010 Dodge Ram 1500 Quad Cab pickup / 2009 Jayco Jay Flight 19BH travel trailer**

The 4-wheel drive Dodge pickup, Washington license B04679N, was registered to the Slighs. It was equipped with a 5.7L V8 OHV 16V engine, five-speed automatic transmission, four-wheel disk brakes with ABS, and power steering. Mounted on all four wheels were Goodyear Wrangler HP tires, size P275/60R20. The vehicle had 3-point lap and shoulder belts, and head restraints in all positions with the exception of the front middle, which had a lap belt only. The front outer seats were protected by both front and side curtain air bags, none of which deployed in the collision. Imaging of the airbag control module (ACM) was conducted by MAIT detectives on May 29, 2013 –

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there were no recorded events. The pickup was towing a Jayco Jay Flight RV two axle trailer, temporary Washington license N453559. It was connected to the pickup with a weight distribution hitch.



According to NHTSA, there were two recalls, one investigation, four service bulletins, and 185 complaints on the pickup. Both recalls and the investigation affected the rear axle pinion nut which was not an issue in this collision. The trailer had one complaint filed to NHTSA regarding the rear step hinge rod. This was also not a factor in the collision. The Jayco trailer was demolished in the collision; the cargo floated down the river. Both vehicles were recovered from the river on May 27<sup>th</sup> and stored at Mt. Vernon Towing until released by the NTSB.

Bryce C. Kenning of Mt. Vernon is an adult white male born on **Code 1** 1992 and a physical description as follows:

Height: 6' 0"  
Eyes: Hazel

Weight: **Code 1**  
Hair: Red

**Code 18**

Washington DOL records indicate Kenning was last issued a driver's license (number KENNIB**Code 1**) on September 2, 2008, and is scheduled to expire on his birthday in 2013. His current status is clear with no endorsements or restrictions. Kenning's driving record shows involvement in one prior collision which occurred January 18, 2009. A criminal check revealed no history.

Kenning was driving his parents' Subaru Crosstrek in the right northbound lane at a stated speed of less than 60 mph when he saw the last (northernmost) section of the bridge collapse. Kenning said he braked to a speed of about 45 mph and plunged to the river below. Kenning was wearing his seat belt and sustained bruising to his head and chest; he also experienced neck soreness. He was removed from the river by the Snohomish County Sheriff's boat and was transported by ambulance to United General Hospital in Sedro Woolley where he was treated and released.

**Orange 2013 Subaru Crosstrek XV utility**

The Subaru, Washington with license AKG0841, was registered to Barrie and Sheila Kenning of Mount Vernon. It was equipped with a 2.0L L4 16V DOHC engine, five speed manual transmission with all-wheel drive, 4-wheel disk brakes with ABS and stability control, and power steering. All four wheels had mounted Yokohama Geolandar G95 radial tires in size P225/55R17. All five seat positions - with the exception of the middle rear seat - were equipped with three point lap and shoulder belts; the middle rear was a lap belt only. All seats were equipped with outboard head restraints. The Subaru was equipped with driver and passenger side front airbags as well as side curtain air bags for all outer seating positions. The driver's side airbag deployed in the wreck; the passenger side curtain airbag was hanging from the roof, but was rolled up at the front seat location.

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According to NHTSA, there was one recall, three complaints, and six service bulletins on this vehicle. The recall involved the remote start feature equipped on some models. None of the issues presented in the complaints or service bulletins were a factor in this collision.

David P. Ruiz is an adult white male from Oak Harbor, born **Code 1** 1938. His physical description is:

Height: 5' 7"  
Eyes: Brown

Weight: **Code 1**  
Hair: Brown

**Code 18**

Washington DOL records indicate Ruiz was last issued driver's license number RUIZ\*DI **Code 1** on July 9, 2010 and is scheduled to expire on his birthday in 2015. His current status is clear with no endorsements or restrictions. Ruiz had two events on his driving record; disobeying a road sign or signal in March 2013 and this collision. A criminal check revealed no history.

Ruiz was driving his BMW south on I-5 in the left lane behind the Sidhu truck. He and his wife were going to Seattle to babysit their grandchildren. Ruiz saw the oversize load strike the bridge and he narrowly missed falling in the river. As he accelerated ahead, the BMW ran over debris from the truck and bridge, causing damage to the undercarriage. Both David and his wife Mary were properly restrained and were not injured.

Mary I. Ruiz is an adult white female residing with her husband in Oak Harbor. Ruiz was born on **Code 1** 1940 and was riding in the right front seat of the BMW. Her physical description is:

Height: 5' 3"  
Eyes: Brown

Weight: **Code 1**  
Hair: Grey

**Code 18**

Mary Ruiz said she was asleep at the time of the collision and woke up when her husband slowed quickly and she saw debris falling in the road in front of them. Ruiz reported feeling a large bump and thought they had struck debris but when she looked back, she saw the truck behind them fall into the river.

**Dark Green 1995 BMW 525i 4-door sedan**

The BMW, Washington license 921WMU, is registered to David Ruiz. It was equipped with a 2.5L L6 12V SOHC engine, 4-speed automatic overdrive transmission with rear wheel drive, 4-wheel disk brakes with ABS, and power steering. Michelin size 205/65R15 radial tires were mounted on all four wheels. The front and outer rear seats are

equipped with three point lap/shoulder belts; the middle rear is lap only. The front seats are equipped with airbags and outboard head restraints.



According to NHTSA, there were 15 complaints and one service bulletin for this vehicle. None would have an effect on this collision.

## ENVIRONMENT

### SCENE LOCATION AND DESCRIPTION

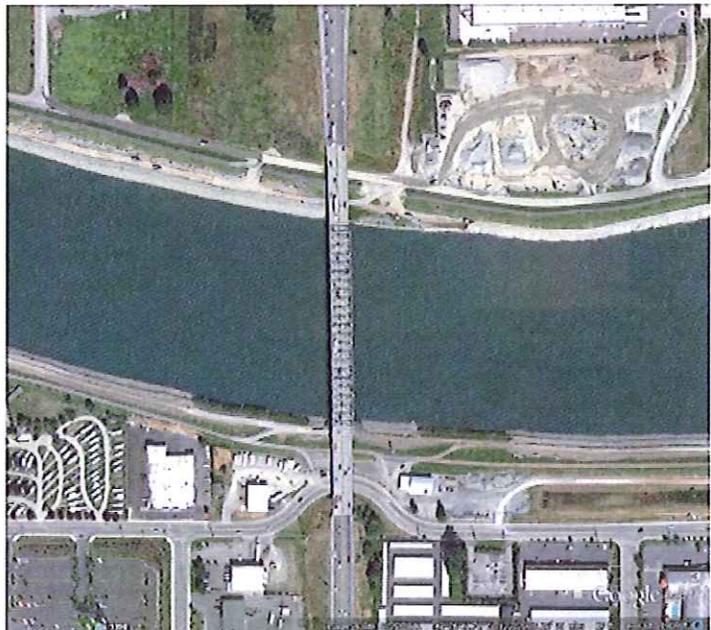
This collision took place southbound I-5 on the Skagit River Bridge, milepost 228.47, in Burlington. I-5 is maintained by the Washington State Department of Transportation (WSDOT) and has a posted speed limit of 60 mph in both directions.

### ROADWAY DESCRIPTION

#### A. Roadway Geometrics

I-5 is a south ~ north interstate highway which runs in Washington State between the borders of Oregon and British Columbia. In the area of the collision, there are two lanes of travel in each direction. The roadway is straight for approximately two miles north of and about one mile south of the bridge.

The Skagit River Bridge was constructed in 1955. Inspections have shown<sup>4</sup> that the bridge was functionally obsolete as early as 1983, but has been rated fair to satisfactory in all categories (deck, superstructure, and substructure conditions) since 2005. A bridge rated as functionally obsolete means that the bridge was constructed to outdated standards, not that it is classified as unsafe. The construction of the Thru Truss Structure of the bridge limits overhead clearance in the right lanes due to the oblong shape of the lower sway brace. The braces are lower over the right lanes near the edge than it is in



<sup>4</sup> As found in the NTSB Highway Factors Group Chairman's Factual Report, page 23, table 8

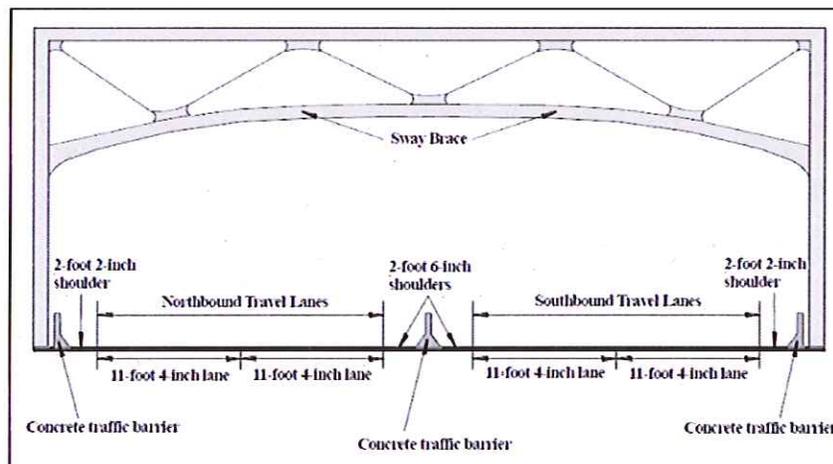
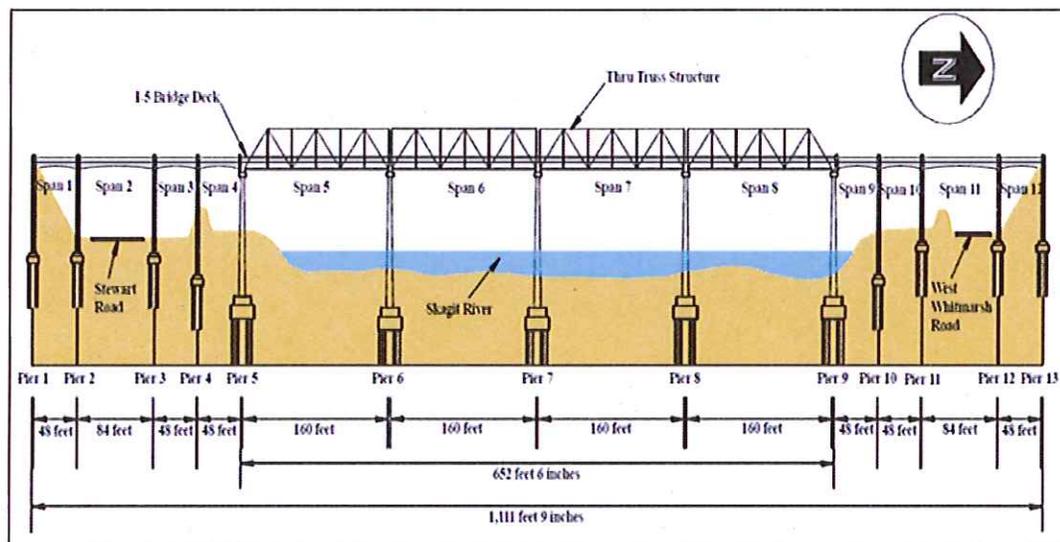
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the left lane near the center. The overhead clearance<sup>5</sup> reported by the WSDOT is 14'5" ~ 17'3" for southbound traffic and 14'3" ~ 17'3" for northbound traffic.

The Skagit River Bridge is classified as a Fracture Critical Bridge, meaning there is one or more steel members in tension arranged such that if one fails, a portion or all of the bridge could collapse. This bridge had 22 pieces in each Thru Truss Span which were identified as fracture critical members.<sup>6</sup> None of the vertical fracture critical members of the dropped span had noted defects. The diagonal fracture critical members could not be inspected near the bottom due to dirt and vegetation obscuring the lower joint. The report also noted that the west side bottom chords all had some form of rust or pitting. The collision occurred with the Thru Truss Structure on span eight of 12 as shown in the following diagram<sup>7</sup>:



The above diagram<sup>8</sup> depicts a cross section of the bridge showing roadway layout. There are two 11'4" wide lanes in each direction as measured from the center of the painted edgelines to the center of the lane dividers. North and southbound I-5 are divided by a center concrete traffic barrier. There are 2'6" paved inside shoulders and paved 2'2" outside shoulders to the concrete traffic barrier.

<sup>5</sup> <http://www.wsdot.wa.gov/publications/manuals/fulltext/M23-09/I-5.pdf>, page 100

<sup>6</sup> Last inspection occurred August 25, 2012, summarized in Table 10 (pages 28 ~ 30) of the NTSB Highway Factors Group Chairman's Factual Report

<sup>7</sup> As found in the NTSB Highway Factors Group Chairman's Factual Report, page 12

<sup>8</sup> As found in the NTSB Highway Factors Group Chairman's Factual Report, page 13

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The high elevation point of the bridge deck center is above pier seven. The bridge deck slopes downward from this point at -0.6% to both sides until the Thru Truss Structure is complete. For southbound traffic north of the bridge, the roadway grade is +2.1% for at least 481 feet; south of the bridge from the completion of the Thru Truss Structure, the southbound roadway grade is an average of -2.1% for at least 545 feet.

### Pavement Condition and Markings

The road surface leading to the bridge is constructed of asphalt and was in good repair. The bridge deck was traffic polished concrete and it was also in good repair. From the start of the concrete sections in both directions is approximately 1100 feet. Expansion joints are present approximately every 160 feet to allow expansion and contraction with minimal cracking. Around some of the joints was tar filling and patches showing repair work. The entire roadway was dry and free of debris at the time of the collision.

Both directions of travel had 4" painted white edgelines to the right, painted 4" yellow lines bordering the left and dashed lane lines. The lane lines were four inch white lines with raised pavement markers. As was previously mentioned, the concrete traffic barrier divided the travel directions. All of the lines were plainly visible and in good repair.

### A. Roadway Lighting and Signing

On May 23<sup>rd</sup>, sunrise<sup>9</sup> was at 5:20 a.m.; sunset occurred at 8:53 p.m. The collision occurred during daylight hours at 7:05 p.m. with the sun in the sky west of the bridge. It was clear, dry, and approximately 53° Fahrenheit<sup>10</sup>.

The following southbound I-5 permanent signs and features were in place on the mainline and on the exit ramps leading up to and through the collision scene:

Object <sup>11</sup>	Location	Milepost <sup>12</sup>
Speed Limit 60 mph	Right shoulder	230.48
Gas / Food / Lodging exit 230	Right shoulder	230.41
Street light	Right shoulder	230.24
Exit lane begins	Right	230.21
Street light	Right shoulder	230.21
Street light, State Route 20 and B.N.R.R.	Right shoulder	230.17
Begin overpass State Route 20	--	230.17
End overpass	--	230.13
Exit 230 – State Route 20, Burlington, Anacortes	Right shoulder	230.13
Street light	Right shoulder	230.12
Exit 230 gore point starts	Right	230.11
Street light	Right shoulder	230.09
Street light	Right shoulder	230.05
Street light	Right shoulder	230.01
Exit 230	Right gore	230.01
Mile marker 230	NB shoulder	229.99
No Parking, Tow Away Zone	Right shoulder	229.95
Warning – Lane merges right	Right shoulder	229.89

<sup>9</sup> As computed for Burlington, Washington at the following web address: <http://www.mindspring.com/~cavu/sunset.html>

<sup>10</sup> Nearby Burlington Airport using the Weather Underground website [www.wunderground.com](http://www.wunderground.com)

<sup>11</sup> Objects in bold were not present at the time of the collision.

<sup>12</sup> Information obtained from 8-11-2013 pictures of Washington State Department of Transportation SRweb tool

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On ramp merge start	Right	229.77
Park and Ride Next Right	Right shoulder	229.75
Street light	Right shoulder	229.70
Street light	Right shoulder	229.66
Street light	Right shoulder	229.62
Street light	Right shoulder	229.58
Exit 229 – George Hopper Road ½ Mile	Right shoulder	229.57
Gas / Food / Lodging	Right shoulder	229.57
Street light	Right shoulder	229.54
Street light	Right shoulder	229.50
Merge ends	Right	229.49
Street light	Right shoulder	229.46
<b>All Over Legal Trucks Must Use Next Exit</b>	<b>Right shoulder</b>	<b>229.42</b>
Gages Slough	Right shoulder	229.35
Bridge begin	--	229.34
Bridge end	--	229.32
<b>Speed Limit 40 mph Ahead</b>	<b>Right shoulder</b>	<b>229.31</b>
Skagit County Fairgrounds Use Exit 225	Right shoulder	229.24
Bicycles Must Exit	Right shoulder	229.11
Exit 229 – George Hopper Road	Right shoulder	229.11
<b>Detour</b>	<b>Right shoulder</b>	<b>229.09</b>
Start exit ramp	Right	229.09
Street light	Right shoulder	229.06
Gore Point start	Right	229.05
Street light	Right shoulder	229.02
Mile marker 229	Right shoulder	229.01
Exit 229	Right shoulder	228.97
No Parking, Tow Away Zone	Right shoulder	228.90
<b>Speed Limit 40 mph</b>	<b>Left shoulder</b>	<b>228.89</b>
Underpass George Hopper Road start	Overhead	228.86
Underpass George Hopper Road end	Overhead	228.85
<b>Speed Limit 40 mph</b>	<b>Right shoulder</b>	<b>228.84</b>
Mount Vernon Next 2 Exits	Right shoulder	228.82
Warning – Lane Merges Right	Right shoulder	228.76
No Parking, Tow Away Zone	Right shoulder	228.73
<b>Narrow Bridge</b>	<b>Right shoulder</b>	<b>228.69</b>
Concrete barrier begin	Left shoulder	228.69
On ramp merge start	Right	228.63
Street light	Right shoulder	228.59
Exit 227 – State Route 538 East, College Way ½ mile	Right shoulder	228.59
Gas / Food / Lodging	Right shoulder	228.59
Street light	Right shoulder	228.54
<b>Speed Limit 40<sup>13</sup> mph, Pedestrians Bicycles Prohibited</b>	Right shoulder	228.52
Guard rail start	Right shoulder	228.52
Skagit River	Right shoulder	228.47
Concrete barrier start	Right shoulder	228.46
Skagit River Bridge start	--	228.46
Broken bridge section start	--	228.42
Broken bridge section end	--	228.39

<sup>13</sup> At the time of the collision, this speed limit sign said 60 mph.

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Thru Truss Bridge sections end	--	228.30
Skagit River Bridge end	--	228.26
Concrete barrier end	Right shoulder	228.26
Skagit Valley College Next Right	Right shoulder	228.22

**B. Traffic and Collision History<sup>14</sup>**

According to the NTSB, from January 1, 2007 to December 31, 2012, there were a total of 74 collisions which occurred on the I-5 Skagit River Bridge; 33 involved personal injuries and the rest were property damage. Five involved commercial vehicles - one struck an object, two were sideswipes and two were rear end. A breakdown of the collisions can be seen in the table<sup>15</sup> to the right.

The collision involving an object occurred on December 4, 2009 when a loose tire bounced over the Jersey barrier into northbound I-5 where it struck a Ford Econoline van - listed as a commercial vehicle.

Traffic Accident Summary by Year							
	2007	2008	2009	2010	2011	2012	
Injuries	8	9	4	8	1	3	33
Property Damage	10	3	5	8	8	7	41
<b>Grand Total</b>							<b>74</b>
Traffic Accident Summary by Vehicle							
	2007	2008	2009	2010	2011	2012	
Passenger Cars and Pickup Trucks	18	9	8	16	8	10	69
Truck Tractor and Semi-Trailers	0	3	1	0	1	0	5
<b>Grand Total</b>							<b>74</b>
Traffic Accident Summary by Manner of Collision							
<b>Passenger Cars and Pickup Trucks</b>							
Fixed Object (Concrete Barrier/Bridge Rail)							10
Other Object							1
Miscellaneous							1
Rear End							46
Same Direction							2
Sideswipe							9
<b>Truck Tractor and Semi-Trailers</b>							
Other Object							1
Rear End							2
Sideswipe							2
<b>Grand Total</b>							<b>74</b>

From May 1, 2008 to May 31, 2013, the WSDOT reports 88 collisions on mainline I-5 from milepost 228.0 ~ 228.5. None involved serious injury or fatalities; eight were evident injury, 23 possible injury, and 57 property damage collisions. There were a total of 12 collisions involving a commercial vehicle with seven of them striking either a bridge rail or the underside of the Skagit River Bridge (one is this collision under investigation). There were no other collisions similar to this one reported during this time frame.

On November 29, 2012, the Skagit River Bridge was inspected following a high load bridge strike. A high load was traveling north on I-5 and struck the upper portal and the following two sway braces at a distance of six feet from the inside vertical face of the east side of the bridge. This strike did not cause the bridge span to fail. There was no reported collision located associated with this bridge strike.

YEAR	TOTAL COLS	PROP DMAG COLS	POSS INJ COLS	EVID INJ COLS	SER INJ COLS	FATAL COLS	# OF INJS	# OF FTLS	# OF VEHS	ALC REL COLS	FXD OBJ COLS	REAR END COLS	OPP DIR COLS	ENTER AT ANGLE	OVER TURN COLS	PEDL CYC COLS	PEDES COLS
2008	12	5	6	1	0	0	9	0	27	0	1	6	0	0	0	0	0
2009	12	7	4	1	0	0	7	0	26	0	1	7	0	0	0	0	0
2010	22	13	7	2	0	0	20	0	53	0	3	14	0	0	1	0	0
2011	19	16	2	1	0	0	4	0	49	0	3	13	1	0	0	0	0
2012	20	15	3	2	0	0	6	0	45	0	1	16	0	0	0	0	0
2013	3	1	1	1	0	0	5	0	8	1	3	0	0	0	0	0	0
	<b>88</b>	<b>57</b>	<b>23</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>51</b>	<b>0</b>	<b>208</b>	<b>1</b>	<b>12</b>	<b>56</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>

WSDOT Collision History I-5, Milepost 228 ~ 228.5

<sup>14</sup> Under 23 United State Code – Section 409, this data cannot be used in discovery or as evidence at trial in any action for damages against the WSDOT or the State of Washington.

<sup>15</sup> As found in the NTSB Highway Factors Group Chairman’s Factual Report, page 18

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The WSDOT Annual Traffic Report contains Annual Average Daily Traffic (AADT) volumes for the years 2009 through 2012. The tables below depict the average daily traffic volumes for the mainline of I-5 after State Route 538, one exit south, and at George Hopper Road, one exit north of the Skagit River Bridge.

Location	2009 Units	2010 Units	2011 Units	2012 Units
MP 228.17 after SR 538	69,000	71,000	70,000	71,000
MP 228.87 George Hopper Rd	56,000	57,000	57,000	58,000

AADT for I-5 before and after the Skagit River Bridge

**DETAILS**

At about 9:00 a.m. on Thursday, May 23, 2013, William Scott<sup>16</sup> left Valemout, B.C. with the oversize load combination. Scott was to deliver the load, a steel open-sided casing shed, to Vancouver, WA the following day. Scott stopped in Kamloops, B.C. at about noon to obtain load permits and fuel for his truck before continuing on to the Sumas, WA border crossing. The distance from Valemout to Sumas is 606 kilometers, or 375 miles. At a brake check point near Merritt, B.C., truck driver Bruce Baldwin observed two oversize vehicles traveling together. Baldwin told investigators that he spoke to one of the drivers who told him they were headed south and the height of his load was 15 feet. Once across in the U.S. at about 4:30 p.m., Scott met up with two pilot car drivers that would escort his combination on the secondary highways. According to his permits, Scott's load was to be no larger than 15'9" high, 11'6" wide, and 70'4" long for the trailer and load. Post collision inspection by the NTSB showed the height of the load on level ground was approximately 15'11" in the front and 15'6.8" in the rear.

Tammy Detray<sup>17</sup> woke at approximately 5:30 a.m. at her residence in Olympia and later in the morning learned she would be escorting an oversize load from Sumas to Vancouver, WA. Detray drove her Dodge pickup to the border crossing to meet with the oversize load and other pilot vehicles and arrived at about 4 p.m. Detray told NTSB investigators she was the first pilot vehicle to arrive and two more showed up later. She purchased fuel in Sumas and then sometime between 5:00 and 5:30 p.m., the load she was to escort pulled out of the x-ray shed. Detray said she contacted the driver, William Scott, and he showed her the oversize load permit allowing a height of 15'10", but did not provide her a copy. Scott told her the load height was 15'9" high so she set her clearance pole at 16'2". Detray said she was the lead escort vehicle as the load moved from Sumas to I-5 and once on the freeway, she tried to maintain a lead which was not too far in front.

Scott told NTSB investigators<sup>18</sup> he was transporting one of two drill rigs from Canada to Vancouver, Washington. The second load was behind him at the Sumas border crossing. Behind the wide loads was another truck, driven by James Castleberry of Mount Vernon. Castleberry told detectives that the (front) oversize load struck both the top of the inspection station and then the doorway as it went through. He was sure that one of these trucks was the one that hit the bridge.

Once on the US side, four pilot vehicles were needed to escort the two trucks on the secondary highways to I-5, but both Detray and Scott said there were only three present. Scott left with two of the pilot vehicles – one driven by a person he knew only as "Doc"; the other by Detray. The group followed the path outlined on the permit - south on SR 9 from Sumas to SR 542 east of Bellingham; and then west on 542 to I-5. 7.4 miles south of the border are the intersections of SR 9 and S. Pass Road (SR 544) in Nooksack. SR 9 north of S. Pass Road is also named the Nooksack Road. It intersects S. Pass in a 'T', travels approximately 300 feet to the east and then turns south.

<sup>16</sup> History information for Scott obtained from NTSB Human Performance Group Chairman Factual Report, pg. 5 ~ 6

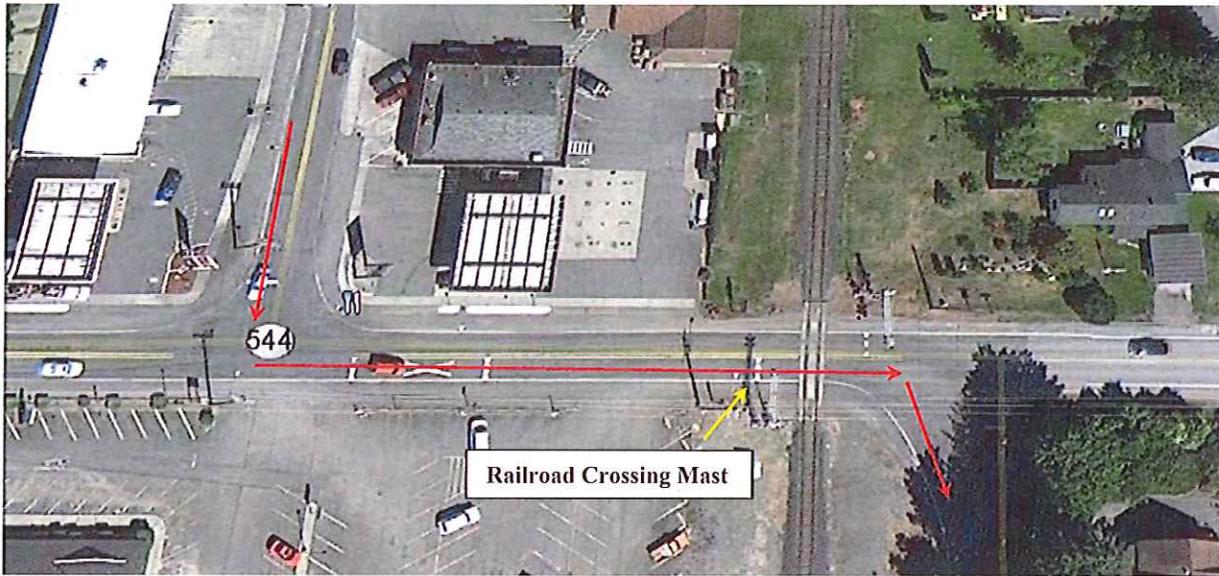
<sup>17</sup> History information for Detray obtained from NTSB Human Performance Group Chairman Factual Report, pg. 14 ~ 15

<sup>18</sup> See NTSB Human Performance Group Chairman Factual Report, pages 11 ~ 13

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Witness Janine Sande was near this intersection at about 5:50 p.m. when she saw the wide load turning right onto (southbound) SR 9 from S. Pass Road. In her statement to Detective Greg Wilcoxson, Sande said she saw the wide load passing under the overhead railroad warning lights and the driver appeared unsure about his clearance height. Sande felt the pilot car driver (male) and the wide load driver were unprofessional so she took a photo (right) of the situation with her cell phone.



Approximately 30 ~ 40 minutes after leaving Sumas, the group arrived at I-5 and as only the lead pilot vehicle was required on the interstate, "Doc" returned to the border while Detray stayed with Scott. They were able to communicate via CB radio, but Scott told investigators that he told Detray to avoid using the radio because too much radio chatter would reduce the effectiveness of alerting him to a problem. Detray and Scott traveled south<sup>19</sup> 19 miles and exited to the Bow Hill Port of Entry scalehouse. Prior to exiting, at 6:53:02 p.m., Scott traveled through the weigh in motion lane at 51 mph with an overall weight of 83,300 pounds. 29 seconds later, at 6:53:31 p.m., Amandeep Sidhu went through the weigh in motion at 60 mph and with a truck weight of 75,300 pounds.

At 7:00 p.m., Trooper Brandon Tobol was exiting northbound I-5 to Chuckanut Drive (SR 11) when the Coban video in his patrol car recorded the Detray pilot vehicle and Scott truck traveling south. The left photo below shows the close proximity of the pilot vehicle and truck, both were traveling in the right lane. The right photo shows Sidhu's truck in the right lane moments later.

<sup>19</sup> I-5 mileposts at SR 542 is 254.71; Bow Hill scale is 235.70

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At about 7:05 p.m., Tammy Detray and William Scott entered the Skagit River Bridge in the right lane. Detray estimated her lead at 4 ~ 5 seconds and stated her height pole did not strike the bridge (sway braces). She noticed a semi-truck next to the load as it entered the bridge behind her. Detray was on her cellular phone, hands free, talking to her husband. While watching through her mirrors, Detray saw dust and the bridge collapse so she stopped on the right shoulder south of the bridge and contacted Scott.

Scott said he was going approximately 56 ~ 58 mph as he entered the bridge. He told investigators that the pilot vehicle was approximately half way across the bridge in the right lane (550 feet); or about a half a mile ahead with plenty of distance for him to stop if the pilot driver alerted him. Scott stated that a white tractor combination was passing him, moving fast and “squeezing” him. This truck was in fact Amandeep Sidhu. The photo below taken from Foothills Toyota surveillance video shows both trucks on the bridge right before the collision.



Scott said that Detray did not say anything about a height issue and he did not know anything was wrong until he heard a loud noise and felt his truck shake. He said the other truck was at his door when this occurred. After impact, Scott said he slowed and coasted off the bridge until he stopped on the right shoulder.

Sidhu was interviewed by MAIT detectives Ed Collins and Ben McBride on July 26, 2013 after being advised of his Constitutional Rights, which he waived. He told the detectives that he had passed the oversize load on the Skagit River Bridge just before the bridge collapsed. Sidhu stated that his tractor was even with the pilot vehicle when he heard a loud noise which he thought was the load bouncing on the flatbed trailer. He checked his mirrors

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but did not see the bridge collapse, claiming no knowledge of it until he stopped for fuel at exit 208. Sidhu stated neither his tractor nor trailer was struck by the oversize load or the bridge. He also advised that he noted no damage during pre and post trip inspections. Sidhu told the detectives he did not realize the pilot car or oversize load stopped on the right shoulder.

David Ruiz stated he was just off the left rear of the oversize load when he heard a loud bang followed by the rear tires of the wide load trailer jump in the air and move towards him. As he continued forward, the BMW struck debris from the oversize load causing damage to the rear axle. Ruiz stopped on the right shoulder south of the bridge and contacted Scott, telling him that he saw the load hit the bridge. Mary Ruiz was contacted by Detray who said the company would kill her, and she should have told Scott to move to the center of the bridge.

After entering southbound I-5 at SR 20, Daniel and Sallettee Sligh were in the right lane 8 ~ 12 car lengths behind Scott. The Slighs had left Oak Harbor for a weekend camping trip to the Granite Falls area. Daniel Sligh stated his speed was about 50 ~ 55 mph and he could not see the pilot vehicle in front of the truck. As they were near exit 229 (George Hopper Road), Sligh stated that a semi-truck behind them started passing on the left and as they approached the bridge, it was next to the oversize load. He said he let off the gas because he felt nervous about the two trucks entering the bridge at the same time. The Slighs heard a loud boom and saw a large cloud of dust, followed by feeling the truck fall off the bridge. They entered the bridge deck as it collapsed and were forced into the river between the bridge deck and upper sway braces. Daniel felt the roof slam onto his head and shoulder; Sallettee Sligh did not remember anything.

Bryce Kenning entered the bridge deck as it was falling. He told investigators he was able to apply his brakes but was still traveling about 45 mph when the Crosstrek fell and was forced into the river by the upper sway braces. Kenning said he was driving a familiar route and noted the roads were dry and traffic was light. He didn't recall anything about southbound vehicles but felt he was likely in the right lane and going approximately 60 miles per hour.

State troopers began their investigation shortly after the crash and the M.A.I.T. assumed investigative responsibility. The following day the NTSB arrived and completed a parallel investigation. Water rescue personnel from both the Skagit and Snohomish County Sheriff's Offices searched the area for additional vehicles and people but found none. Detectives from the MAIT and District 7 Criminal Investigation Unit (CIU) measured the standing structure of the bridge using Sokkia total stations. The WSDOT utilized a 3-D scanner to map the entire scene on May 24<sup>th</sup>. The drawings were shared amongst the three agencies for later use in the investigation. The scene was photographed by WSP detectives and WSDOT personnel. Commercial Vehicle Enforcement Bureau (CVEB) personnel teamed with the NTSB to conduct inspection of the Scott driven truck as well as the pilot vehicle. NTSB investigators used a scanner to profile the semi-truck combination.

The scene was preserved until NTSB representatives could arrive the day after the collision and inspect it as it was left. MAIT detectives collected several pieces of evidence from the southbound lanes on the south section of the bridge to include a tie down strap, bolts, and pieces of the sway braces. This evidence was placed into the WSP evidence system and later examined by the NTSB investigators. WSP detectives contacted local businesses and obtained video footage of the bridge collapse. The combination was inspected on scene by officers from the WSP CVEB with a follow up inspection by NTSB. The pickup and Subaru were recovered from the river under the guidance of the NTSB and later examined by both MAIT detectives and NTSB investigators. David Ruiz's BMW was inspected and documented by District 7 detectives. It was determined that no mechanical defects caused this crash. Witnesses and drivers were interviewed by WSP detectives primarily by telephone. The NTSB interviewed Scott and Detray.

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WITNESSES

Many witnesses observed the collapse of the Skagit River Bridge but did not see what caused it. Several saw both vehicles travel off the opening and into the river as the bridge collapsed. Many described light traffic volumes and some had reported seeing the oversize load at various locations prior to the collision.<sup>20</sup>

Dale Ogden reported being near the pilot car when they entered the bridge and saw the height pole strike the bridge. Shortly after this, he saw the oversize load strike the bridge leading to its collapse. Ogden could not recall seeing any other semi-trucks around the oversize load at the time of the collision.

CAUSE ANALYSIS

The M.A.I.T. investigation directly attributes the cause of this collision to William Scott for failure to ensure his load height was proper and not knowing the clearance heights on the bridge. Scott traveled south on I-5 with an oversize load 11' 6" wide, and 15' 11" tall, two inches above his permit allowance. When applying for an oversize load permit, the WSDOT does not guarantee listed height clearances on their bridge list, which listed the southbound clearance on the Skagit River Bridge as 14'5" ~ 17'3". This responsibility belongs to the hauler.

Tammy Detray was Scott's pilot vehicle and her vehicle height rod was set at 16'2". Analysis<sup>21</sup> shows that Detray was only 4.12 seconds ahead of Scott; close to her own estimate of 4 ~ 5 seconds. At 4.12 seconds and a speed of 55 ~ 60 mph, the two vehicles would be separated by only 332 ~ 363 feet. Detray never alerted Scott of a low clearance on the bridge. The 16'2" height rod would not have contacted the sway braces unless the right side of her vehicle was less than three inches inside the right fog line. Even if Detray alerted Scott to a clearance issue, this time and distance would not have been sufficient to mitigate speed and avoid striking the structure.

With the right side of the wide load being positioned on the fog line, the corner struck 11 arced sway braces, causing the north span of the through truss bridge section to collapse. In order to ensure this would not happen, the right side of the load would have to be at least 1'4" *inside* the fog line. This lane position would cause the left side of the load to extend into the left lane by 1'6"; however this space was occupied by the passing Sidhu truck. Scott's change of position to the left needed to be done well in advance of the bridge.

Scott's negligence caused personal injury to Daniel Sligh, Sallettee Sligh and Bryce Kenning. With the Skagit River Bridge was out of commission, traffic on I-5 was severely impacted and several detour routes had to be utilized until a temporary bridge was installed on June 18, 2013. A permanent bridge structure opened for traffic on September 15, 2013. The remaining through truss structure was repaired and the arced sway braces were replaced with straight sections to increase bridge clearance.

The State Patrol issued William Scott an infraction into the Skagit County District Court for:

**R.C.W. 46.61.525** – Negligent Driving 2<sup>nd</sup> Degree;

“(1)(a) A person is guilty of negligent driving in the second degree if, under circumstances not constituting negligent driving in the first degree, he or she operates a motor vehicle in a manner that is both negligent and endangers or is likely to endanger any person or property.”

<sup>20</sup> See Witness List

<sup>21</sup> See Reconstruction Report

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## Case Summary and Reconstruction

Redaction Code	Exemption	Comments
<b>1</b>	<b>Dates of Birth, Driver's License Numbers, private personal details</b> - RCW 42.56.240(1) & RCW 42.56.050	Specific intelligence information and specific investigative records compiled by investigative, law enforcement, and penology agencies, and state agencies vested with the responsibility to discipline members of any profession, the nonproduction of which is essential for the protection of any person's right to privacy.
<b>12</b>	<b>Criminal History</b> – Non-conviction Data – Criminal History Record Information – RCW 10.97.050 & .030; RCW 42.56.070(1); RCW 43.43.834(5); RCW 43.43.710; 28 CFR 513.20(b)	Information contained in the files and records of the section relative to the commission of any crime by any person shall be considered privileged and shall not be made public or disclosed. Non-conviction information may not be produced to the public Any law enforcement agency that receives information under this rule may not disseminate such information outside of such agency. For conviction information, please contact <a href="http://www.wsp.wa.gov/crime/chrequests.htm">http://www.wsp.wa.gov/crime/chrequests.htm</a>
<b>18</b>	<b>DOL photographs, - Driver's Privacy Protection Act</b> – 18 USC sec 123 § 2721, 18 USC sec 123 § 2725 (3), & RCW 42.56.230(7)	Highly restricted personal information about any individual obtained by the department in connection with a driver/motor vehicle record, without the express consent of the person to whom such information applies shall not be disclosed ... "highly restricted personal information" means an individual's photograph or image, social security number, driver identification number, name, address (excluding zip code), phone number, medical/disability information ...