





































18165

TOYOTA

VEHICLE CAPACITY WEIGHT: 410kg (902 lbs)

OCCUPANT: TOTAL 5 (FRONT 2, REAR 3)

RECOMMENDED COLD TIRE INFLATION PRESSURE : kPa (psi)

TIRE SIZE	P195/70R14 90S	P205/65R15 92H
UP TO 4 OCCUPANTS	Frt 210 (30), Rr 210 (30)	Frt 200 (29), Rr 200 (29)
VEHICLE CAPACITY WEIGHT	Frt 210 (30), Rr 210 (30)	Frt 220 (32), Rr 220 (32)

SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION

CHARGE MAXIMALE DU VEHICULE: 410kg (902 LIVRES)

PERSONNES: TOTAL 5 (AVANT 2, ARRIERE 3)

PRESSION DE PNEUS: kPa (LB/PO²)

DIMENSION DES PNEUS	P195/70R14 90S	P205/65R15 92H
AVEC 4 PERSONNES A BORD	AVANT 210 (30), ARRIERE 210 (30)	AVANT 200 (29), ARRIERE 200 (29)
A CHARGE MAXIMALE	AVANT 210 (30), ARRIERE 210 (30)	AVANT 220 (32), ARRIERE 220 (32)

POUR DE PLUS AMPLES DETAILS, VOIR LE MANUEL DU PROPRIETAIRE

06410

MANUFACTURING,

[illegible]

C/IR:1CB/FA19
A/TH:-04A/A140E

18165

BA04039243

MISSOURI



GOVERNMENT

This inspection is mandated
by the US Congress.

TOYOTA

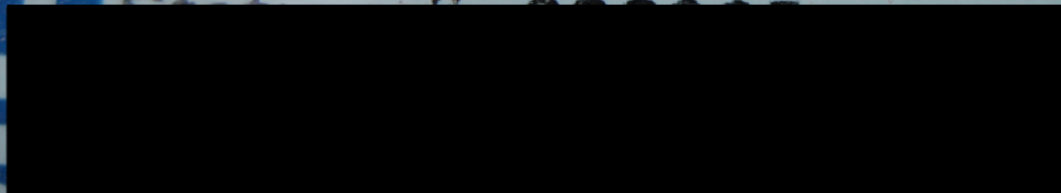
LAMISAFE

Sticker #: SSY010625031114155036

Sticker Type: SAFETY/EMISSIONS TECH.

M334 AS1

DOT-376











REINHOLD ELECTRIC INC.
Residential Commercial Industrial
24 HOUR SERVICE
314-431-1158



REINHOLD ELECTRIC INC.
Residential Commercial Industrial
24 HOUR SERVICE
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EXIT 104A
NO INJURIES
MOVE VEHICLES
OFF ROADWAY
CALL THE LAW





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314-511-1158
Kansas City, MO

SALE OVERHAULS
SALES
SALES



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314.531.1150
FAX 314.531.1151



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ELECTRIC INC.
Residential Commercial Industrial
24 HOUR SERVICE
314-431-1158

ROAD
WORK

CHIPPENDALES
FIND OUT AT CHIPPENDALES.COM

STEER IT - CLEAR IT
NO INJURIES
MOVE VEHICLES
OFF ROADWAY
IT'S THE LAW



**REINHOLD
ELECTRIC INC.**
Residential Commercial Industrial
24 HOUR SERVICE
314-631-1158

CHEVROLET
NEW ARRIVAL





ET-PLUS

Caused

Ejection

I think this was a nuisance hit where the ET-PLUS snagged the right rear door causing the door to first ~~to~~ open, then shear off (indentations w/ ET are visible in the door). There was no sliding sideways before impact.

MISSOURI STATE HIGHWAY PATROL MISSOURI UNIFORM CRASH REPORT TECHNICAL SUPPLEMENT

Page 1 of 5

CRASH DATE [REDACTED]	SUPPLEMENT DATE [REDACTED]	TRP / DIST / PCT Troop C	COUNTY St. Louis	REPORT / CASE / INCIDENT NUMBER [REDACTED]
SUPPLEMENT REPORTING OFFICER Cpl. J. D. Cox		DSN / BADGE 654	SUPPLEMENT REVIEWING OFFICER Cpl. J. M. Potocki	
			DSN / BADGE 677	

On Sunday, March 14, 2010, at 0142 hours, Lieutenant J. M. Enderle contacted me and advised me of a motor vehicle crash involving a silver, 2000 Toyota Camry. The original investigating officer, Trooper Michels #1381, developed probable cause to believe the driver of the Toyota was under the influence of intoxicants. Because the crash involved an impaired driver and serious physical injuries, it met the criteria for a level three, technical crash investigation. I responded to the scene, arriving at 0222 hours.

Upon my arrival, I met with Corporal T. S. Croft, badge 183, and Trooper B. A. Teague, badge 1385. Cpl. Croft and Tpr. Teague were at the crash scene assisting Trooper Michels with his crash investigation and traffic control. Cpl. Croft advised me of the circumstances of the crash as he understood them. I took photographs of the Toyota while at the scene conducting a scene assessment. I took additional photographs of the Toyota at Miner's tow lot during daylight hours a few days after the crash occurred.

Based on the crash investigation conducted by Tpr. Michels, this single vehicle crash occurred as a Toyota Camry traveled off the right side of the roadway. Damage and injury occurred after the right side of the Toyota struck a guardrail end, returned to the roadway rotating and sliding, which completely ejected the rear seat passenger as the right rear passenger's door was torn back from the doorway opening. After the driver slid for a distance of 198 feet 5 inches, she regained control and then steered to the left shoulder coming to controlled stop.

For details of the scene investigation, specific details of the Toyota Camry, or driver or passenger information, please reference the crash report prepared by Trooper Michels. All of the photographs taken are included with this written report on a CD.

Traffic Control / Crash Circumstances

This crash occurred on Interstate 55 which is maintained by the Missouri Department of Transportation. The roadway is straight in the area of this crash. The elevation or grade is slightly downhill and measured with a smart level at 1 degree downhill. The roadway is comprised of both asphalt and concrete travel lanes. Lane #1 is made of concrete. Lane #2, #3, and #4 were made of asphalt. Lane #5, which ends near the point of impact, is made of concrete. The roadway is free of any flaws which could have been a contributing circumstance to this crash. The sight distance to the area of impact is beyond 1/4 of a mile. The roadway markings are all in good condition.

The Toyota was traveling northbound on Interstate 55. There were tire marks showing the area where the Toyota traveled off the right side of the roadway. These marks were impressions of the right side wheels in the dirt surface found off the right edge of the roadway. After striking the guardrail end with the right side of the Toyota, with the first point of impact being near the door handle of the right side front door, the right rear door was torn from the hinges and was pushed rearward. The Toyota began spinning and sliding back onto the roadway, rotating clockwise. As the Toyota was rotating, the rear seat passenger was completely ejected from the right rear door area onto the roadway. The rear seat passenger was not wearing a seatbelt at the time of this crash. I do not believe the rear-seat

passenger was restrained by the use of any of the three seatbelts because of the lack of impact wear on these belts.

Light Conditions / Weather

This crash occurred at 0110 hours, during darkness. The weather information listed below was taken from the weather history section of the internet website www.wunderground.com. The nearest weather reporting station I located to this crash was weather station KMOSTLOU27, South St. Louis County, St. Louis, MO. The nearest time of a weather report was 0105 hours and again at 0115 hours.

The report at 0105 hours listed the temperature at 54.1 degrees, with a dew point of 0.0 degrees, making the humidity 46%. The barometric pressure was 29.26 inches. The wind was 2 mph with gusts up to 4 mph and the direction was North-northeast. There was no rainfall shown near the time of this report.

The report at 0115 hours listed the temperature at 53.2 degrees, with a dew point of 0.0 degrees, making the humidity 47%. The barometric pressure was 29.27 inches. The wind was 3 mph with gusts up to 4 mph and the direction was North-east. There was no rainfall shown near the time of this report.

There was no precipitation shown on [REDACTED] at this weather station. I do not believe the weather was a contributing circumstance to the cause of this crash.

There is no artificial lighting in the area of this crash.

Vehicle/s

The Toyota sustained moderate damage during the crash. The damage started near the right front door handle and extends toward the rear edge of the right rear door. The hinges of the right rear door were torn from the frame at the B-pillar, but the door latch remained connected to the vehicle. The picture shown below depicts the damage that occurred during the impact with the guardrail end. There were no visible alterations or modifications to the Toyota during my examination of this vehicle. The Toyota had an odometer reading of 222,058 at the time of this crash. There was no airbag deployment for the vehicle. This vehicle was equipped with a front driver and passenger airbag system.

The tires on the Toyota appeared to be in good condition. All four tires were size P195/70/R14, a correct size for the vehicle according to the manufacturer door sticker. Both front tires were BFGoodrich Touring T/A tires, manufactured on the 49th week of 2012. Both front tires had tread remaining well above the wear indicators between the tread of the tires. Both rear tires were EpicTour Radial LL700 m&s tires. The right rear tire was manufactured on 42nd week of 2012. The left rear tire was manufactured on the 44th week of 2012. Both rear tires had tread remaining above the wear indicators between the tread of the tires. All tire pressures were taken at the crash scene. The left front tire had a measured tire pressure of 30 psi. The right front tire had a measured tire pressure of 30 psi. The left rear had a measured tire pressure of 30 psi. The left rear had a measured tire pressure of 29 psi. According to the manufacturer wheel / tire information sticker on this vehicle, the recommended cold tire pressure for this vehicle is 30 psi. I do not believe the tires were a contributing circumstance to the cause of this crash.

**Driver/s and Passenger/s Condition**

According to Tpr. Michels' investigation, there was probable cause to believe the driver of the Toyota was under the influence of alcohol and / or drugs at the time of this crash. The driver was identified by Tpr. Michels and that information can be found in the corresponding reports he has prepared. According to Tpr. Michels, neither the driver nor front seat passenger received injuries in this crash. Based on the area of damage to the Toyota and the lack of seatbelt usage by the rear seat passenger, the rear seat passenger was completely ejected through the heavily damaged right rear door opening. The rear seat passenger was transported by the Mehlville Fire Protection District to St. Anthony's Medical Center for the injuries he received during this crash.

The roadway was marked with signs, painted lane markers, and reflective caution markers where applicable. All of the guidance markings were clearly visible. I do not believe any special knowledge of the roadway is needed for the safe negotiation of the roadway in the area of this crash. I believe sufficient sight distance is available for drivers in the area of this crash.

Summary

Based on my assessment of the crash scene, the damage found on the Toyota involved, and the investigation conducted by Tpr. Michels, I believe this crash was the direct result of driver #1 failing to navigate the roadway in a safe and prudent manner. According to Tpr. Michels' reports, the driver of the Toyota was believed to be impaired at the time of this crash which is a probable contributing circumstance to the Toyota running off the roadway striking the guardrail end. Another contributing circumstance to the injury of the rear seat passenger was the failure to use one of the three available rear-seat seatbelts. All of these safety restraints appeared to be functioning upon my examination of the Toyota.

Mathematical Calculation/s

I was able to determine a minimum speed for the Toyota by using the post-impact tire marks found on the roadway after the Toyota struck the guardrail end. These tire marks show the Toyota rotating in a clockwise direction after striking the guardrail end for a measured distance of 198 feet 5 inches. The Toyota was intentionally steered to the left shoulder of the roadway prior to emergency service vehicles arriving at the crash scene, presumably to clear the travel lanes. I adjusted the coefficient of roadway friction to account of the elevation change of the roadway which was slightly downhill at 1 degree. I used an additional rotation coefficient of friction adjustment to account for the rotation of the post-impact tire marks, which show a potential braking application was present over the distance of the rotational tire marks found at the scene. My baseline of available roadway coefficients of friction is based on previous studies sourced from ARPro. The studies indicated an average available coefficient of roadway friction for a traveled section of asphalt constructed roadway, above 30 miles per hour, to be 55-70%. The rotational tire mark adjustment is 70%. These calculations indicated a minimum speed for the Toyota between **46 to 53 miles per hour** after impact with the guardrail end.

1. Available roadway coefficients of roadway friction from previous studies- .55 - .70 (or 55 - 70%)
2. Rotation adjustment for the coefficient of roadway friction- .70 (or 70%)
3. Adjustment for the downhill roadway grade originally measured at 1 degree (or .0174 / 1.74%)
4. Final roadway coefficient of .3676 to .4726 (or 36.75 - 42.54%)
 - A. (.55 x .70) - .0174 = .3676 (low average)
 - B. (.70 x .70) - .0174 = .4726 (high average)

Minimum Speed Formula				
Constant	Distance	Drag		Speed
30				46.77754

(low average - adjusted)

$$S = \sqrt{30 \times D \times f}$$

Minimum Speed Formula				
Constant	Distance	Drag		Speed
30				53.03914

(high average - adjusted)

x

$$S = \sqrt{30 \times D \times f}$$

Attachments / Photographs

1. Weather History for March 16, 2014
2. Average roadway coefficients of friction from AR Pro data

Weather History for KMOSTLOU27

South St. Louis County, St. Louis, MO — Current Conditions

The PWS Dashboard has been updated!

[View this Station](#)

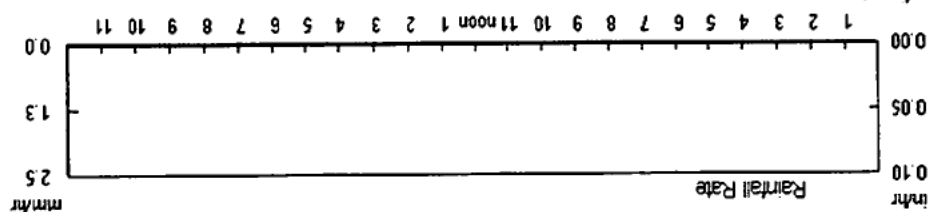
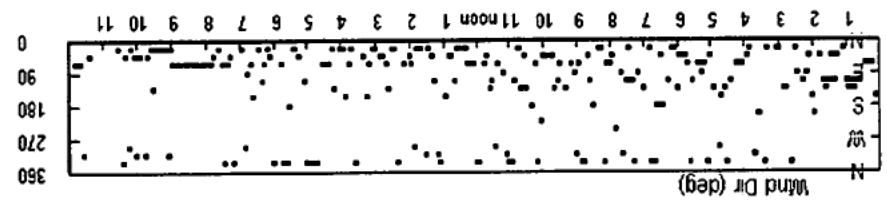
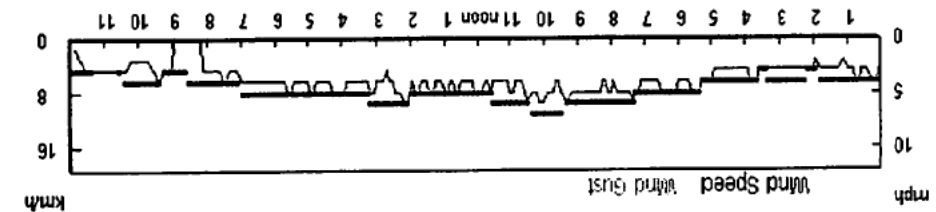
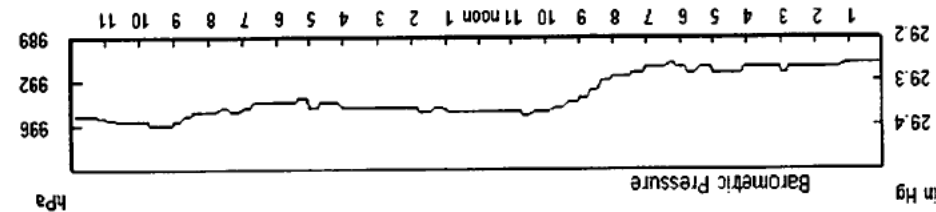
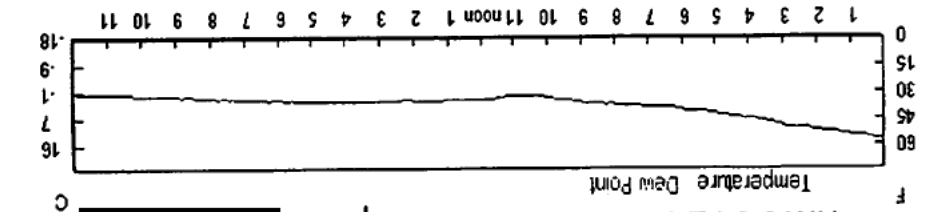
Daily Weekly Monthly Yearly Custom

	Current:	High:	Low:	Average:
Temperature:	84.9 °F	57.7 °F	31.1 °F	38.2 °F
Dew Point:	0.0 °F	0.0 °F	0.0 °F	0.0 °F
Humidity:	61%	66%	39%	50%
Wind Speed:	4.0mph	6.0mph	-	3.8mph
Wind Gust:	5.0mph	7.0mph	-	-
Wind:	WSW	-	-	NE
Pressure:	29.27in	29.40in	29.26in	-
Precipitation:	0.00in			

Weather History for the Rest of This Month

	High:	Low:	Average:
Temperature:	77.4 °F	-94.0 °F	45.6 °F
Dew Point:	0.0 °F	0.0 °F	0.0 °F
Humidity:	81.0%	1.0%	49.2%
Wind Speed:	11.0mph from the WNW	-	2.7mph
Wind Gust:	12.0mph from the SW	-	-
Wind:	-	-	SW
Pressure:	29.78in	28.77in	-
Precipitation:	0.69in		

KMOSTLOU27 Weather Graph for



Certify This Weather History Report

Tabular Weather History

Time	Temp.	Windchill	Dew Point	Pressure	Wind	Wind Speed	Wind Gust	Humidity	Rainfall Rate (Hourly)
00:00	57.7 °F	-	0.0 °F	29.26in	ESE	3.0mph	3.0mph	39%	0.00in / 0.00in total
00:05	57.2 °F	-	0.0 °F	29.26in	WSW	3.0mph	3.0mph	40%	0.00in / 0.00in total
00:10	56.7 °F	-	0.0 °F	29.26in	SSE	4.0mph	4.0mph	40%	0.00in / 0.00in total
00:15	56.5 °F	-	0.0 °F	29.26in	ENE	4.0mph	4.0mph	41%	0.00in / 0.00in total
00:25	55.9 °F	-	0.0 °F	29.26in	ENE	3.0mph	4.0mph	42%	0.00in / 0.00in total

Comma Delimited File

Time	Temp.	Windchill	Dew Point	Pressure	Wind	Wind Speed	Wind Gust	Humidity	Rainfall Rate (Hourly)
00:35	55.2 °F	-	0.0 °F	29.26in	ESE	3.0mph	4.0mph	44%	0.00in / 0.00in total
00:40	55.0 °F	-	0.0 °F	29.26in	ESE	4.0mph	4.0mph	44%	0.00in / 0.00in total
00:45	54.9 °F	-	0.0 °F	29.26in	SE	4.0mph	4.0mph	44%	0.00in / 0.00in total
00:50	54.9 °F	-	0.0 °F	29.26in	ESE	3.0mph	4.0mph	45%	0.00in / 0.00in total
00:55	54.3 °F	-	0.0 °F	29.26in	SE	3.0mph	4.0mph	45%	0.00in / 0.00in total
01:00	54.3 °F	-	0.0 °F	29.26in	ESE	3.0mph	4.0mph	46%	0.00in / 0.00in total
01:05	54.1 °F	-	0.0 °F	29.26in	NNE	2.0mph	4.0mph	46%	0.00in / 0.00in total
01:15	53.2 °F	-	0.0 °F	29.27in	NE	3.0mph	4.0mph	47%	0.00in / 0.00in total
01:20	53.2 °F	-	0.0 °F	29.27in	ESE	3.0mph	4.0mph	47%	0.00in / 0.00in total
01:25	52.9 °F	-	0.0 °F	29.27in	NE	3.0mph	4.0mph	48%	0.00in / 0.00in total
01:30	52.7 °F	-	0.0 °F	29.27in	ESE	3.0mph	4.0mph	48%	0.00in / 0.00in total
01:35	52.7 °F	-	0.0 °F	29.27in	SE	3.0mph	4.0mph	48%	0.00in / 0.00in total
01:40	52.3 °F	-	0.0 °F	29.27in	ESE	3.0mph	4.0mph	48%	0.00in / 0.00in total
01:45	52.2 °F	-	0.0 °F	29.27in	NE	3.0mph	4.0mph	48%	0.00in / 0.00in total
01:55	52.0 °F	-	0.0 °F	29.27in	SSW	2.0mph	3.0mph	48%	0.00in / 0.00in total
02:00	51.6 °F	-	0.0 °F	29.27in	SSE	3.0mph	3.0mph	48%	0.00in / 0.00in total
02:05	51.4 °F	-	0.0 °F	29.27in	NE	3.0mph	3.0mph	48%	0.00in / 0.00in total
02:10	51.3 °F	-	0.0 °F	29.27in	East	3.0mph	3.0mph	48%	0.00in / 0.00in total
02:16	50.9 °F	-	0.0 °F	29.27in	ESE	3.0mph	4.0mph	48%	0.00in / 0.00in total
02:25	50.7 °F	-	0.0 °F	29.27in	East	3.0mph	4.0mph	48%	0.00in / 0.00in total
02:30	50.9 °F	-	0.0 °F	29.27in	NNE	3.0mph	4.0mph	48%	0.00in / 0.00in total
02:35	50.5 °F	-	0.0 °F	29.27in	NNW	3.0mph	4.0mph	49%	0.00in / 0.00in total
02:45	50.0 °F	-	0.0 °F	29.27in	SE	3.0mph	4.0mph	49%	0.00in / 0.00in total
02:50	50.0 °F	-	0.0 °F	29.28in	SE	3.0mph	4.0mph	49%	0.00in / 0.00in total
03:00	49.1 °F	-	0.0 °F	29.28in	NNE	3.0mph	4.0mph	51%	0.00in / 0.00in total
03:05	48.6 °F	-	0.0 °F	29.27in	NNE	3.0mph	4.0mph	51%	0.00in / 0.00in total
03:15	47.8 °F	-	0.0 °F	29.27in	North	3.0mph	4.0mph	52%	0.00in / 0.00in total
03:20	47.1 °F	-	0.0 °F	29.27in	NNE	3.0mph	4.0mph	52%	0.00in / 0.00in total
03:25	47.3 °F	-	0.0 °F	29.27in	NNW	3.0mph	3.0mph	53%	0.00in / 0.00in total
03:35	46.6 °F	-	0.0 °F	29.27in	SSW	3.0mph	3.0mph	53%	0.00in / 0.00in total
03:40	46.0 °F	44.3 °F	0.0 °F	29.27in	NW	4.0mph	4.0mph	54%	0.00in / 0.00in total
03:50	45.5 °F	43.7 °F	0.0 °F	29.27in	NNE	4.0mph	4.0mph	55%	0.00in / 0.00in total
03:55	45.5 °F	-	0.0 °F	29.27in	NE	3.0mph	4.0mph	55%	0.00in / 0.00in total
04:05	45.0 °F	-	0.0 °F	29.27in	ENE	3.0mph	4.0mph	55%	0.00in / 0.00in total

Comma Delimited File

Time	Temp.	Windchill	Dew Point	Pressure	Wind	Wind Speed	Wind Gust	Humidity	Rainfall Rate (Hourly)
04:10	44.8 °F	-	0.0 °F	29.28in	ENE	3.0mph	4.0mph	55%	0.00in / 0.00in total
04:15	44.4 °F	-	0.0 °F	29.28in	ENE	3.0mph	4.0mph	56%	0.00in / 0.00in total
04:25	44.1 °F	-	0.0 °F	29.28in	ESE	3.0mph	4.0mph	56%	0.00in / 0.00in total
04:30	43.7 °F	-	0.0 °F	29.28in	NNW	3.0mph	4.0mph	57%	0.00in / 0.00in total
04:35	43.7 °F	-	0.0 °F	29.28in	SE	3.0mph	4.0mph	57%	0.00in / 0.00in total
04:40	43.3 °F	-	0.0 °F	29.28in	SSE	3.0mph	4.0mph	57%	0.00in / 0.00in total
04:45	42.8 °F	-	0.0 °F	29.28in	WNW	3.0mph	4.0mph	57%	0.00in / 0.00in total
04:55	42.6 °F	-	0.0 °F	29.28in	SE	3.0mph	4.0mph	57%	0.00in / 0.00in total
05:00	42.3 °F	40.0 °F	0.0 °F	29.28in	NE	4.0mph	4.0mph	57%	0.00in / 0.00in total
05:05	41.9 °F	39.5 °F	0.0 °F	29.27in	NNW	4.0mph	4.0mph	57%	0.00in / 0.00in total
05:10	41.7 °F	39.3 °F	0.0 °F	29.27in	ENE	4.0mph	4.0mph	56%	0.00in / 0.00in total
05:15	41.4 °F	38.9 °F	0.0 °F	29.27in	East	4.0mph	4.0mph	56%	0.00in / 0.00in total
05:20	41.0 °F	37.7 °F	0.0 °F	29.27in	ENE	5.0mph	5.0mph	56%	0.00in / 0.00in total
05:30	40.6 °F	37.2 °F	0.0 °F	29.28in	ESE	5.0mph	5.0mph	55%	0.00in / 0.00in total
05:35	40.5 °F	37.1 °F	0.0 °F	29.28in	NNW	5.0mph	5.0mph	55%	0.00in / 0.00in total
05:40	40.5 °F	37.9 °F	0.0 °F	29.28in	ENE	4.0mph	5.0mph	54%	0.00in / 0.00in total
05:45	40.5 °F	37.9 °F	0.0 °F	29.28in	NE	4.0mph	5.0mph	54%	0.00in / 0.00in total
05:50	40.5 °F	37.9 °F	0.0 °F	29.27in	NE	4.0mph	5.0mph	54%	0.00in / 0.00in total
05:55	40.5 °F	37.9 °F	0.0 °F	29.27in	NE	4.0mph	5.0mph	52%	0.00in / 0.00in total
06:00	39.9 °F	37.2 °F	0.0 °F	29.27in	SE	4.0mph	5.0mph	52%	0.00in / 0.00in total
06:05	39.7 °F	36.1 °F	0.0 °F	29.27in	NNE	5.0mph	5.0mph	53%	0.00in / 0.00in total
06:10	39.4 °F	35.8 °F	0.0 °F	29.26in	NNE	5.0mph	5.0mph	53%	0.00in / 0.00in total
06:15	39.2 °F	35.5 °F	0.0 °F	29.26in	ESE	5.0mph	5.0mph	53%	0.00in / 0.00in total
06:25	39.0 °F	35.3 °F	0.0 °F	29.27in	South	5.0mph	5.0mph	53%	0.00in / 0.00in total
06:30	39.0 °F	35.3 °F	0.0 °F	29.27in	NE	5.0mph	5.0mph	54%	0.00in / 0.00in total
06:35	39.0 °F	36.2 °F	0.0 °F	29.27in	South	4.0mph	5.0mph	54%	0.00in / 0.00in total
06:40	38.8 °F	35.9 °F	0.0 °F	29.27in	NNW	4.0mph	5.0mph	53%	0.00in / 0.00in total
06:45	39.0 °F	36.2 °F	0.0 °F	29.27in	NNW	4.0mph	5.0mph	53%	0.00in / 0.00in total
06:50	38.7 °F	35.8 °F	0.0 °F	29.27in	NNE	4.0mph	5.0mph	53%	0.00in / 0.00in total
07:00	38.7 °F	35.8 °F	0.0 °F	29.27in	SE	4.0mph	5.0mph	53%	0.00in / 0.00in total
07:05	38.7 °F	35.8 °F	0.0 °F	29.28in	North	4.0mph	5.0mph	52%	0.00in / 0.00in total
07:10	38.3 °F	34.5 °F	0.0 °F	29.28in	East	5.0mph	5.0mph	52%	0.00in / 0.00in total
07:15	37.9 °F	34.0 °F	0.0 °F	29.28in	NNW	5.0mph	5.0mph	52%	0.00in / 0.00in total
07:20	37.8 °F	33.2 °F	0.0 °F	29.28in	ESE	6.0mph	6.0mph	52%	0.00in / 0.00in total

Comma Delimited File

Time	Temp.	Windchill	Dew Point	Pressure	Wind	Wind Speed	Wind Gust	Humidity	Rainfall Rate (Hourly)
07:25	37.8 °F	33.9 °F	0.0 °F	29.28in	NNE	5.0mph	6.0mph	52%	0.00in / 0.00in total
07:30	37.8 °F	33.9 °F	0.0 °F	29.29in	ESE	5.0mph	6.0mph	52%	0.00in / 0.00in total
07:35	37.6 °F	33.7 °F	0.0 °F	29.29in	NW	5.0mph	6.0mph	51%	0.00in / 0.00in total
07:40	37.6 °F	33.7 °F	0.0 °F	29.29in	East	5.0mph	6.0mph	51%	0.00in / 0.00in total
07:50	37.2 °F	33.2 °F	0.0 °F	29.29in	WSW	5.0mph	6.0mph	51%	0.00in / 0.00in total
07:55	37.2 °F	34.1 °F	0.0 °F	29.29in	NE	4.0mph	6.0mph	51%	0.00in / 0.00in total
08:00	37.2 °F	33.2 °F	0.0 °F	29.29in	ENE	5.0mph	6.0mph	50%	0.00in / 0.00in total
08:05	37.0 °F	33.0 °F	0.0 °F	29.30in	ENE	5.0mph	6.0mph	50%	0.00in / 0.00in total
08:10	37.0 °F	33.9 °F	0.0 °F	29.30in	NNW	4.0mph	6.0mph	49%	0.00in / 0.00in total
08:15	37.2 °F	34.1 °F	0.0 °F	29.30in	NNE	4.0mph	6.0mph	48%	0.00in / 0.00in total
08:20	36.7 °F	32.6 °F	0.0 °F	29.30in	NNE	5.0mph	6.0mph	48%	0.00in / 0.00in total
08:30	36.9 °F	32.8 °F	0.0 °F	29.32in	South	5.0mph	6.0mph	47%	0.00in / 0.00in total
08:35	36.5 °F	32.4 °F	0.0 °F	29.32in	ESE	5.0mph	6.0mph	46%	0.00in / 0.00in total
08:40	36.3 °F	32.1 °F	0.0 °F	29.32in	NE	5.0mph	6.0mph	46%	0.00in / 0.00in total
08:45	36.3 °F	32.1 °F	0.0 °F	29.34in	NNW	5.0mph	6.0mph	48%	0.00in / 0.00in total
08:50	36.3 °F	32.1 °F	0.0 °F	29.34in	NNW	5.0mph	6.0mph	48%	0.00in / 0.00in total
08:55	36.1 °F	31.9 °F	0.0 °F	29.34in	ENE	5.0mph	6.0mph	49%	0.00in / 0.00in total
09:00	35.8 °F	31.6 °F	0.0 °F	29.34in	NW	5.0mph	6.0mph	51%	0.00in / 0.00in total
09:05	35.6 °F	31.3 °F	0.0 °F	29.35in	East	5.0mph	6.0mph	52%	0.00in / 0.00in total
09:10	35.4 °F	31.1 °F	0.0 °F	29.35in	ENE	5.0mph	6.0mph	53%	0.00in / 0.00in total
09:20	34.9 °F	29.7 °F	0.0 °F	29.35in	SE	6.0mph	6.0mph	55%	0.00in / 0.00in total
09:30	34.9 °F	30.5 °F	0.0 °F	29.36in	ENE	5.0mph	7.0mph	57%	0.00in / 0.00in total
09:35	34.7 °F	31.2 °F	0.0 °F	29.36in	ESE	4.0mph	7.0mph	57%	0.00in / 0.00in total
09:40	34.5 °F	31.0 °F	0.0 °F	29.36in	SE	4.0mph	7.0mph	58%	0.00in / 0.00in total
09:45	34.2 °F	29.7 °F	0.0 °F	29.36in	NE	5.0mph	7.0mph	58%	0.00in / 0.00in total
09:55	33.8 °F	29.2 °F	0.0 °F	29.37in	NE	5.0mph	7.0mph	60%	0.00in / 0.00in total
10:00	33.4 °F	27.9 °F	0.0 °F	29.37in	NE	6.0mph	7.0mph	61%	0.00in / 0.00in total
10:05	33.3 °F	27.8 °F	0.0 °F	29.37in	SW	6.0mph	7.0mph	63%	0.00in / 0.00in total
10:10	32.9 °F	27.3 °F	0.0 °F	29.37in	NNW	6.0mph	7.0mph	63%	0.00in / 0.00in total
10:15	32.9 °F	28.1 °F	0.0 °F	29.37in	ENE	5.0mph	7.0mph	63%	0.00in / 0.00in total
10:20	32.9 °F	28.1 °F	0.0 °F	29.37in	South	5.0mph	7.0mph	63%	0.00in / 0.00in total
10:30	32.5 °F	26.8 °F	0.0 °F	29.38in	SE	6.0mph	6.0mph	65%	0.00in / 0.00in total
10:35	32.5 °F	27.7 °F	0.0 °F	29.38in	NE	5.0mph	6.0mph	66%	0.00in / 0.00in total
10:40	32.5 °F	28.7 °F	0.0 °F	29.38in	SE	4.0mph	6.0mph	66%	0.00in / 0.00in total

Comma Delimited File

Time	Temp.	Windchill	Dew Point	Pressure	Wind	Wind Speed	Wind Gust	Humidity	Rainfall Rate (Hourly)
10:45	32.5 °F	28.7 °F	0.0 °F	29.37in	NNE	4.0mph	6.0mph	65%	0.00in / 0.00in total
10:50	32.7 °F	28.9 °F	0.0 °F	29.37in	ESE	4.0mph	6.0mph	65%	0.00in / 0.00in total
10:55	32.5 °F	27.7 °F	0.0 °F	29.37in	NNW	5.0mph	6.0mph	65%	0.00in / 0.00in total
11:00	32.7 °F	27.9 °F	0.0 °F	29.37in	NNW	5.0mph	6.0mph	65%	0.00in / 0.00in total
11:05	32.9 °F	29.1 °F	0.0 °F	29.37in	NW	4.0mph	6.0mph	63%	0.00in / 0.00in total
11:10	32.7 °F	28.9 °F	0.0 °F	29.37in	East	4.0mph	6.0mph	62%	0.00in / 0.00in total
11:20	33.3 °F	29.6 °F	0.0 °F	29.37in	ENE	4.0mph	6.0mph	59%	0.00in / 0.00in total
11:25	33.4 °F	29.7 °F	0.0 °F	29.37in	WNW	4.0mph	6.0mph	58%	0.00in / 0.00in total
11:30	33.6 °F	29.9 °F	0.0 °F	29.37in	ESE	4.0mph	6.0mph	56%	0.00in / 0.00in total
11:35	34.0 °F	29.4 °F	0.0 °F	29.37in	SE	5.0mph	5.0mph	56%	0.00in / 0.00in total
11:40	34.3 °F	30.7 °F	0.0 °F	29.37in	NE	4.0mph	5.0mph	56%	0.00in / 0.00in total
11:45	34.5 °F	31.0 °F	0.0 °F	29.37in	ENE	4.0mph	5.0mph	53%	0.00in / 0.00in total
11:55	34.5 °F	30.0 °F	0.0 °F	29.37in	NNW	5.0mph	5.0mph	51%	0.00in / 0.00in total
12:00	34.7 °F	30.3 °F	0.0 °F	29.37in	NNW	5.0mph	5.0mph	51%	0.00in / 0.00in total
12:05	34.9 °F	30.5 °F	0.0 °F	29.37in	ENE	5.0mph	5.0mph	51%	0.00in / 0.00in total
12:10	34.9 °F	31.4 °F	0.0 °F	29.37in	ENE	4.0mph	5.0mph	50%	0.00in / 0.00in total
12:15	34.9 °F	31.4 °F	0.0 °F	29.37in	ENE	4.0mph	5.0mph	50%	0.00in / 0.00in total
12:20	34.9 °F	31.4 °F	0.0 °F	29.37in	NNE	4.0mph	5.0mph	49%	0.00in / 0.00in total
12:30	34.9 °F	31.4 °F	0.0 °F	29.37in	NNE	4.0mph	5.0mph	48%	0.00in / 0.00in total
12:35	34.9 °F	30.5 °F	0.0 °F	29.37in	NNE	5.0mph	5.0mph	48%	0.00in / 0.00in total
12:40	34.9 °F	30.5 °F	0.0 °F	29.37in	ESE	5.0mph	5.0mph	48%	0.00in / 0.00in total
12:45	34.9 °F	31.4 °F	0.0 °F	29.37in	NE	4.0mph	5.0mph	49%	0.00in / 0.00in total
12:50	34.9 °F	31.4 °F	0.0 °F	29.37in	NE	4.0mph	5.0mph	48%	0.00in / 0.00in total
12:55	34.9 °F	30.5 °F	0.0 °F	29.37in	SSE	5.0mph	5.0mph	47%	0.00in / 0.00in total
13:05	34.9 °F	31.4 °F	0.0 °F	29.36in	NNW	4.0mph	5.0mph	48%	0.00in / 0.00in total
13:10	35.4 °F	32.0 °F	0.0 °F	29.36in	NW	4.0mph	5.0mph	48%	0.00in / 0.00in total
13:15	35.2 °F	31.8 °F	0.0 °F	29.36in	ESE	4.0mph	5.0mph	49%	0.00in / 0.00in total
13:20	35.4 °F	31.1 °F	0.0 °F	29.36in	NE	5.0mph	5.0mph	48%	0.00in / 0.00in total
13:25	35.4 °F	31.1 °F	0.0 °F	29.37in	NNE	5.0mph	5.0mph	48%	0.00in / 0.00in total
13:30	35.4 °F	32.0 °F	0.0 °F	29.37in	NW	4.0mph	5.0mph	49%	0.00in / 0.00in total
13:40	35.6 °F	32.2 °F	0.0 °F	29.37in	NNE	4.0mph	5.0mph	50%	0.00in / 0.00in total
13:45	35.4 °F	31.1 °F	0.0 °F	29.37in	NNE	5.0mph	5.0mph	49%	0.00in / 0.00in total
13:50	35.4 °F	31.1 °F	0.0 °F	29.36in	WNW	5.0mph	5.0mph	49%	0.00in / 0.00in total
13:55	35.4 °F	32.0 °F	0.0 °F	29.36in	ENE	4.0mph	5.0mph	49%	0.00in / 0.00in total

Comma Delimited File

Time	Temp.	Windchill	Dew Point	Pressure	Wind	Wind Speed	Wind Gust	Humidity	Rainfall Rate (Hourly)
14:00	35.2 °F	30.8 °F	0.0 °F	29.36in	NE	5.0mph	5.0mph	49%	0.00in / 0.00in total
14:05	34.9 °F	29.7 °F	0.0 °F	29.36in	North	6.0mph	6.0mph	49%	0.00in / 0.00in total
14:10	34.9 °F	29.7 °F	0.0 °F	29.36in	ENE	6.0mph	6.0mph	50%	0.00in / 0.00in total
14:20	34.9 °F	30.5 °F	0.0 °F	29.36in	NNW	5.0mph	6.0mph	51%	0.00in / 0.00in total
14:25	35.1 °F	30.7 °F	0.0 °F	29.36in	NNE	5.0mph	6.0mph	51%	0.00in / 0.00in total
14:30	35.1 °F	31.7 °F	0.0 °F	29.36in	NNE	4.0mph	6.0mph	51%	0.00in / 0.00in total
14:35	35.4 °F	32.0 °F	0.0 °F	29.36in	SE	4.0mph	6.0mph	51%	0.00in / 0.00in total
14:40	35.4 °F	-	0.0 °F	29.36in	ENE	3.0mph	6.0mph	52%	0.00in / 0.00in total
14:45	35.6 °F	32.2 °F	0.0 °F	29.36in	NE	4.0mph	6.0mph	51%	0.00in / 0.00in total
14:50	35.6 °F	32.2 °F	0.0 °F	29.36in	NE	4.0mph	6.0mph	51%	0.00in / 0.00in total
15:00	35.8 °F	32.5 °F	0.0 °F	29.36in	NNE	4.0mph	6.0mph	50%	0.00in / 0.00in total
15:05	35.4 °F	31.1 °F	0.0 °F	29.36in	NNE	5.0mph	6.0mph	49%	0.00in / 0.00in total
15:10	35.4 °F	31.1 °F	0.0 °F	29.36in	ENE	5.0mph	6.0mph	49%	0.00in / 0.00in total
15:15	35.2 °F	31.8 °F	0.0 °F	29.36in	SSE	4.0mph	5.0mph	49%	0.00in / 0.00in total
15:20	35.6 °F	32.2 °F	0.0 °F	29.36in	NE	4.0mph	5.0mph	49%	0.00in / 0.00in total
15:30	35.8 °F	32.5 °F	0.0 °F	29.36in	North	4.0mph	5.0mph	47%	0.00in / 0.00in total
15:35	35.6 °F	32.2 °F	0.0 °F	29.36in	NNW	4.0mph	5.0mph	47%	0.00in / 0.00in total
15:40	35.8 °F	32.5 °F	0.0 °F	29.36in	NNE	4.0mph	5.0mph	47%	0.00in / 0.00in total
15:45	35.8 °F	32.5 °F	0.0 °F	29.36in	ENE	4.0mph	5.0mph	47%	0.00in / 0.00in total
15:50	35.6 °F	32.2 °F	0.0 °F	29.36in	SSE	4.0mph	5.0mph	46%	0.00in / 0.00in total
15:55	35.6 °F	31.3 °F	0.0 °F	29.36in	NNE	5.0mph	5.0mph	45%	0.00in / 0.00in total
16:00	35.8 °F	31.6 °F	0.0 °F	29.36in	NNE	5.0mph	5.0mph	46%	0.00in / 0.00in total
16:10	35.8 °F	31.6 °F	0.0 °F	29.35in	SE	5.0mph	5.0mph	45%	0.00in / 0.00in total
16:15	35.8 °F	31.6 °F	0.0 °F	29.35in	NNE	5.0mph	5.0mph	45%	0.00in / 0.00in total
16:20	35.6 °F	32.2 °F	0.0 °F	29.35in	ENE	4.0mph	5.0mph	45%	0.00in / 0.00in total
16:25	35.6 °F	32.2 °F	0.0 °F	29.35in	ENE	4.0mph	5.0mph	44%	0.00in / 0.00in total
16:30	35.6 °F	32.2 °F	0.0 °F	29.35in	ENE	4.0mph	5.0mph	44%	0.00in / 0.00in total
16:40	35.6 °F	32.2 °F	0.0 °F	29.35in	NNW	4.0mph	5.0mph	43%	0.00in / 0.00in total
16:45	35.6 °F	32.2 °F	0.0 °F	29.36in	NNW	4.0mph	5.0mph	43%	0.00in / 0.00in total
16:50	35.6 °F	31.3 °F	0.0 °F	29.36in	NNW	5.0mph	5.0mph	43%	0.00in / 0.00in total
16:55	35.4 °F	31.1 °F	0.0 °F	29.36in	NNW	5.0mph	5.0mph	43%	0.00in / 0.00in total
17:00	35.2 °F	31.8 °F	0.0 °F	29.36in	NNW	4.0mph	5.0mph	43%	0.00in / 0.00in total
17:05	35.4 °F	32.0 °F	0.0 °F	29.34in	ESE	4.0mph	5.0mph	43%	0.00in / 0.00in total
17:15	35.4 °F	32.0 °F	0.0 °F	29.34in	NE	4.0mph	5.0mph	42%	0.00in / 0.00in total

Comma Delimited File

Time	Temp.	Windchill	Dew Point	Pressure	Wind	Wind Speed	Wind Gust	Humidity	Rainfall Rate (Hourly)
17:20	35.4 °F	32.0 °F	0.0 °F	29.34in	NNE	4.0mph	5.0mph	43%	0.00in / 0.00in total
17:25	35.4 °F	32.0 °F	0.0 °F	29.35in	NNE	4.0mph	5.0mph	43%	0.00in / 0.00in total
17:30	35.4 °F	31.1 °F	0.0 °F	29.35in	South	5.0mph	5.0mph	42%	0.00in / 0.00in total
17:35	34.9 °F	30.5 °F	0.0 °F	29.35in	NNW	5.0mph	5.0mph	43%	0.00in / 0.00in total
17:40	35.1 °F	31.7 °F	0.0 °F	29.35in	NNW	4.0mph	5.0mph	43%	0.00in / 0.00in total
17:45	35.1 °F	31.7 °F	0.0 °F	29.35in	ENE	4.0mph	5.0mph	42%	0.00in / 0.00in total
17:55	34.9 °F	31.4 °F	0.0 °F	29.35in	North	4.0mph	5.0mph	42%	0.00in / 0.00in total
18:00	34.9 °F	31.4 °F	0.0 °F	29.35in	NNW	4.0mph	5.0mph	42%	0.00in / 0.00in total
18:05	34.9 °F	31.4 °F	0.0 °F	29.35in	NE	4.0mph	5.0mph	42%	0.00in / 0.00in total
18:10	34.9 °F	31.4 °F	0.0 °F	29.35in	NNE	4.0mph	5.0mph	42%	0.00in / 0.00in total
18:15	35.1 °F	31.7 °F	0.0 °F	29.35in	ENE	4.0mph	5.0mph	43%	0.00in / 0.00in total
18:20	34.9 °F	31.4 °F	0.0 °F	29.35in	ESE	4.0mph	5.0mph	42%	0.00in / 0.00in total
18:25	34.9 °F	31.4 °F	0.0 °F	29.35in	NNE	4.0mph	5.0mph	42%	0.00in / 0.00in total
18:35	34.9 °F	31.4 °F	0.0 °F	29.35in	SSE	4.0mph	5.0mph	42%	0.00in / 0.00in total
18:40	34.9 °F	31.4 °F	0.0 °F	29.35in	ENE	4.0mph	5.0mph	43%	0.00in / 0.00in total
18:45	34.9 °F	31.4 °F	0.0 °F	29.36in	East	4.0mph	5.0mph	43%	0.00in / 0.00in total
18:50	34.7 °F	31.2 °F	0.0 °F	29.36in	WNW	4.0mph	5.0mph	43%	0.00in / 0.00in total
18:55	34.3 °F	30.7 °F	0.0 °F	29.36in	NNE	4.0mph	5.0mph	43%	0.00in / 0.00in total
19:05	34.3 °F	-	0.0 °F	29.37in	North	3.0mph	4.0mph	44%	0.00in / 0.00in total
19:10	34.2 °F	-	0.0 °F	29.37in	NNW	3.0mph	4.0mph	44%	0.00in / 0.00in total
19:15	34.0 °F	-	0.0 °F	29.37in	NE	3.0mph	4.0mph	44%	0.00in / 0.00in total
19:20	33.8 °F	-	0.0 °F	29.37in	ENE	3.0mph	4.0mph	44%	0.00in / 0.00in total
19:25	34.0 °F	30.4 °F	0.0 °F	29.36in	NNW	4.0mph	4.0mph	44%	0.00in / 0.00in total
19:30	33.6 °F	29.9 °F	0.0 °F	29.36in	ENE	4.0mph	4.0mph	44%	0.00in / 0.00in total
19:35	33.6 °F	-	0.0 °F	29.36in	NNE	3.0mph	4.0mph	45%	0.00in / 0.00in total
19:45	34.0 °F	-	0.0 °F	29.37in	NE	3.0mph	4.0mph	45%	0.00in / 0.00in total
19:50	33.4 °F	-	0.0 °F	29.37in	ENE	3.0mph	4.0mph	45%	0.00in / 0.00in total
19:55	33.6 °F	-	0.0 °F	29.37in	ENE	3.0mph	4.0mph	45%	0.00in / 0.00in total
20:00	33.4 °F	-	0.0 °F	29.37in	ENE	3.0mph	4.0mph	45%	0.00in / 0.00in total
20:05	33.3 °F	-	0.0 °F	29.37in	ENE	3.0mph	4.0mph	45%	0.00in / 0.00in total
20:10	33.3 °F	-	0.0 °F	29.37in	Calm		4.0mph	45%	0.00in / 0.00in total
20:20	33.3 °F	-	0.0 °F	29.37in	Calm		4.0mph	45%	0.00in / 0.00in total
20:25	33.3 °F	-	0.0 °F	29.37in	Calm		4.0mph	44%	0.00in / 0.00in total
20:30	32.9 °F	-	0.0 °F	29.38in	Calm		4.0mph	45%	0.00in / 0.00in total

Comma Delimited File

Time	Temp.	Windchill	Dew Point	Pressure	Wind	Wind Speed	Wind Gust	Humidity	Rainfall Rate (Hourly)
20:35	32.9 °F	-	0.0 °F	29.38in	Calm		3.0mph	45%	0.00in / 0.00in total
20:40	32.9 °F	-	0.0 °F	29.38in	Calm		3.0mph	45%	0.00in / 0.00in total
20:50	33.3 °F	-	0.0 °F	29.39in	Calm		3.0mph	45%	0.00in / 0.00in total
20:55	32.7 °F	-	0.0 °F	29.39in	Calm		3.0mph	45%	0.00in / 0.00in total
21:00	32.7 °F	-	0.0 °F	29.39in	NNE	3.0mph	3.0mph	46%	0.00in / 0.00in total
21:05	32.5 °F	-	0.0 °F	29.40in	NW	3.0mph	3.0mph	46%	0.00in / 0.00in total
21:10	32.5 °F	-	0.0 °F	29.40in	NNE	3.0mph	3.0mph	46%	0.00in / 0.00in total
21:15	32.4 °F	-	0.0 °F	29.40in	NNE	3.0mph	3.0mph	47%	0.00in / 0.00in total
21:25	32.2 °F	28.3 °F	0.0 °F	29.40in	NNE	4.0mph	4.0mph	47%	0.00in / 0.00in total
21:30	32.0 °F	-	0.0 °F	29.40in	SE	3.0mph	4.0mph	46%	0.00in / 0.00in total
21:35	32.0 °F	-	0.0 °F	29.40in	NNE	3.0mph	4.0mph	46%	0.00in / 0.00in total
21:40	32.0 °F	-	0.0 °F	29.40in	NE	2.0mph	4.0mph	47%	0.00in / 0.00in total
21:45	32.2 °F	-	0.0 °F	29.39in	NW	2.0mph	4.0mph	47%	0.00in / 0.00in total
21:55	32.2 °F	-	0.0 °F	29.39in	NE	2.0mph	4.0mph	48%	0.00in / 0.00in total
22:00	32.0 °F	-	0.0 °F	29.39in	NW	2.0mph	4.0mph	48%	0.00in / 0.00in total
22:05	32.0 °F	-	0.0 °F	29.39in	NE	2.0mph	4.0mph	48%	0.00in / 0.00in total
22:10	32.0 °F	-	0.0 °F	29.39in	NNE	2.0mph	4.0mph	48%	0.00in / 0.00in total
22:15	32.0 °F	-	0.0 °F	29.39in	WNW	2.0mph	4.0mph	48%	0.00in / 0.00in total
22:20	31.6 °F	-	0.0 °F	29.39in	NE	3.0mph	4.0mph	48%	0.00in / 0.00in total
22:25	31.5 °F	-	0.0 °F	29.39in	NNW	3.0mph	4.0mph	48%	0.00in / 0.00in total
22:35	31.8 °F	-	0.0 °F	29.39in	NNE	3.0mph	3.0mph	48%	0.00in / 0.00in total
23:25	31.1 °F	-	0.0 °F	29.38in	NE	3.0mph	3.0mph	48%	0.00in / 0.00in total
23:35	31.1 °F	-	0.0 °F	29.38in	NW	3.0mph	3.0mph	48%	0.00in / 0.00in total
23:40	31.1 °F	-	0.0 °F	29.38in	ENE	2.0mph	3.0mph	48%	0.00in / 0.00in total
23:45	31.1 °F	-	0.0 °F	29.38in	ENE	2.0mph	3.0mph	48%	0.00in / 0.00in total
23:50	31.3 °F	-	0.0 °F	29.38in	ENE	1.0mph	3.0mph	48%	0.00in / 0.00in total
23:55	31.5 °F	-	0.0 °F	29.38in	North	1.0mph	3.0mph	48%	0.00in / 0.00in total

Comma Delimited File

Source: AR Pro[®]

DESCRIPTION

OF < 48 kph > 48 kph < 48 kph > 48 kph

ROAD SURFACE

DRY
< 30 mph
DRY
> 30 mph
WET < 30 mph
WET > 30 mph

PORTLAND CEMENT

New, Sharp	0.80	1.20	0.70	1.00	0.50	0.80	0.40	0.75	
Traveled	0.60	0.80	0.60	0.75	0.45	0.70	0.45	0.65	
Traffic Polished	0.55	0.75		0.50	0.65	0.45	0.65	0.45	0.60

ASPHALT or TAR

New, Sharp	0.80	1.20	0.65	1.00	0.50	0.80	0.45	0.75	
Traveled	0.60	0.80	0.55	0.70	0.45	0.70	0.40	0.65	
Traffic Polished	0.55	0.75		0.45	0.65	0.45	0.65	0.40	0.60
Excess Tar	0.50	0.60	0.35	0.60	0.30	0.60	0.25	0.55	

GRAVEL

Packed, Oiled	0.55	0.85	0.50	0.80	0.40	0.80	0.40	0.60	
Loose	0.40	0.70	0.40	0.70	0.45	0.75	0.45	0.75	

CINDERS

Packed	0.50	0.70	0.50	0.70	0.65	0.75	0.65	0.75	
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ROCK

Crushed	0.55	0.75	0.55	0.75	0.55	0.75	0.55	0.75	
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ICE

Smooth	0.10	0.25	0.07	0.20	0.05	0.10	0.05	0.10	
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SNOW

Packed	0.30	0.55	0.35	0.55	0.30	0.60	0.30	0.60	
Loose	0.10	0.25	0.10	0.20	0.30	0.60	0.30	0.60	

OPEN METAL GRID	0.70	0.90	0.55	0.75	0.25	0.45	0.20	0.35	
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SLIDING ON ROOF OR SIDE

Concrete	0.30								
Asphalt	0.30 - 0.40								
Gravel	0.50 - 0.70								
Dry Grass	0.50								
Dirt	0.20								

ROLLING RESIST.

Drive Axle	0.10 - 0.20								
Non Drive Axle									
Norm Inflation	0.01								
Partial Inflation	0.013								
Flat Tire	0.017								

ENGINE BRAKING

Low Gear	0.20 - 0.40								
High Gear	0.20								

BRAKING

Light Braking	0.10 - 0.20
Normal Braking	0.20 - 0.40
LATERAL ACCEL.	0.20 - 0.30
ROTATIONAL ACCELERATION	
Long Post Travel	0.20 - 0.30
Short Post Travel	0.35 - 0.50
ROLLOVER	0.38 - 0.53
PEDESTRIAN (Sliding)	
Grass	0.45 - 0.70
Asphalt	0.45 - 0.60
Concrete	0.40 - 0.65
MOTORCYCLE	
REAR WHEEL	
Clean, Dry Surface	0.35 - 0.40
Sand	0.90 - 1.20
Dirt	0.70
FRONT WHEEL	
Max w/ Rear Brake	0.90 - 0.95
Free Rolling	0.01 - 0.02
MC ON SIDE	
Asphalt	0.50 - 0.80
Portland Cement	0.40 - 0.75
Concrete	0.45 - 0.65
Gravel	0.65 - 1.05
Sand	1.50 - 1.60
Hard Soil	0.70
Light Scratching	0.30 - 0.40
Heavy Scratching	0.45 - 0.55
Lube by Fluids	0.20

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See back of
1st page