B

TORNADO PROJECT SUMMARY SHEET

F = 1 ONT

1. DATE AND TIME JULY 15, 1977 1330 EST.

2. LOCATION OR PATH (attach map) NORTH OF RIVER BRINK PARK TO SHARON

0697708

3. PATH LENGTH ☐ NOT KNOWN ☐ <1mi; ☐ 1-4mi; ☐ 5-10mi; ☐ 11-50mi; ☐ LENGTH IF>50mi

4. PATH WIDTH ☐ 5. TORNADO PART OF SQUALL LINE? ☐ YES; ☐ NO; ☐ UNKNOWN:

6. ANY UNUSUAL COLORATION? ☐ YES; ☐ NO; ☐ UNKNOWN

7. ANY UNUSUAL SOUND? ☑ YES; ☐ NO; ☐ UNKNOWN

8. IF ANSWER TO 6 OR 7 YES, ELABORATE; "STORM HIT LIKE A TRAIN

9. LIST ANY ASSOCIATED PHENOMENA (Such as hail, vivid lightning heavy rain, no rain, etc.) Mod ball sized hail in Sharon

10. TOTAL DAMAGE ESTIMATE $ U 11. TOTAL DEATHS NONE

12. TOTAL INJURED NONE 13. TOTAL HOMELESS NONE

14. LIST ALL REFERENCES

See 0697707

15. SUMMARIZE REMARKS PERTAINING TO (a) FUNNEL; (b) INTERESTING OR CAPRICIOUS EVENTS.

(a) no remarks

(b) Alberts Marina badly damaged with flying debris damaging a number of boats. Many trees uprooted

NOTE: Other damage was reported at Woodland Trails Boy Scout Camp, Alliston, at approximately 1230 EST., (but no other information available as of Dec 16, 1977).

(comes up as in Whitchurch-Stouffville, not Alliston)

WORKSHEET

IDTO 0697708

① ORIGIN x 17617700
y 4889000

⑤ Standard Error S_x 500 C

② LIFT-OFF x_1 17625000
y_1 4883700

⑥ Standard Error S_y 500 C

③ $(x_1 - x)$ = 7300

④ $(y - y_1)$ = 5300

⑦ DAMAGE LENGTH

$$L = [(x_1 - x)^2 + (y - y_1)^2]^{1/2}$$

③+④ [→r,θ] = 9021 m

⑧ $\alpha = \tan^{-1} \dfrac{|y - y_1|}{|x - x_1|}$

[x↔y] = 36°

⑨ Standard Error $S_L = (S_x^2 + S_y^2)^{1/2}$

⑤+⑥ [→r,θ] = 707 m C

⑩ $\beta = \dfrac{\tan^{-1} S_L}{L}$

⑦+⑨ [→r,θ]
[x↔y] = 4°

NE Quad $\phi = 90 - \alpha$
NW Quad $\phi = 270 + \alpha$
SW quad $\phi = 270 - \alpha$

SE quad $\phi = 90 + \alpha$

⑪ ϕ = 306°

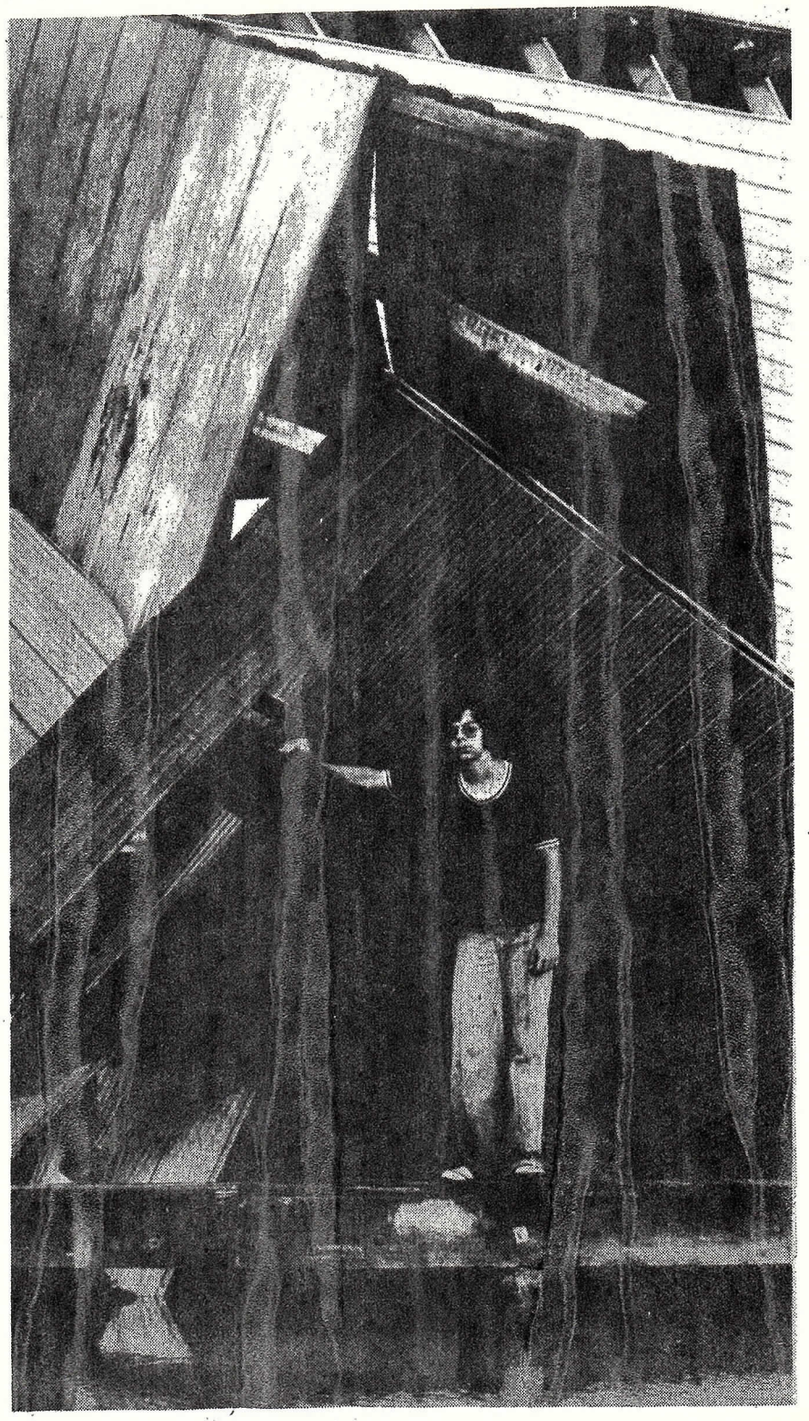
THE ERA, NEWMARKET, WED JULY 20 77

...vestigations during the | KY7.5I

k havoc in nor

"It's going to be fairly costly to us in terms of manpower and labor," Ontario Hydro Newmarket area manager Al Avey told The Era Monday.

Mr. Avey, who described the damage as the worst he had seen in 25 years with hydro, toured the area by plane



THE ERA, NEWMARKET, WED JULY 20 '77

thern York

Friday afternoon.

The path of the storm, he said "was very evident. The pilot said he could set a course by it. It was a straight line."

Monday a second, less severe storm struck River Drive Park, uprooting several trees left undamaged by the earlier storm.



Friday's tornados were felt in different ways around northern York. Left to right, Howard Cronsberry and Kirk Welch of Ontario Hydro examine downed power lines on Sharon Sideroad that disrupted power to 15,000 customers. Kevin Westerlaken is dwarfed by damage at a River Drive Park marina while Mr. and Mrs. Gary Andrew of Queensville inspect damage to their rented home on Woodbine Ave.

Since 1852

THE ERA

Newmarket, Aurora, Keswick, Ont., Wed., July 20, 1977

Storm socks northern York

NEWMARKET — While our neighbors to the north were battling the most severe thunderstorms of the season Friday, the Newmarket Fire Department didn't even get out of the hall.

In fact the biggest problem the firefighters faced was a lightning trickle knocking out their remote control radio.

The unit has since been sent away for repairs.

"That's the closest we got to any trouble, thank heaven," a spokesman said.

York Regional Police had radio problems as well.

A spokesman told The Era Monday that communications between 19 Division in Newmarket and cruisers was knocked out between 3:30 and 5 p.m.

Apparently lightning striking the communications tower was the cause of the interruption.

Aurora Fire Department didn't see much more action than their Newmarket counterparts.

An Aurora fire official told The Era Monday everything was calm outside of a few downed trees and hydro surges.

Aurora Hydro reported just two short cut outs of power, but there was no loss of electricity for any length of time.

Newmarket Hydro restart crews had the busiest job, as power failed on a few streets south of Davis Dr. one at a time.

"By the time we'd get one cleared up another one would go out", a spokesman said.

• For a look at the situation to the north see page B-1.

IT WAS A TORNADO

MALTON — There's no doubt about it.

The severe storm that ripped through northern York Region Friday was a tornado.

In fact, according to Malton weather official Mike Newark, the storm was two tornados.

"According to eyewitnesses," said Mr. Newark, "the actual twister had two funnels and created a path about 150-200 ft. wide."

"There's no doubt about it", said the head meteorologist of the Malton weather office. "I would estimate the winds were about 100 mile an hour force."

THE ERA, NEWMARKET WED JULY 20/77

Tornados wreal

QUEENSVILLE — Two tornados ripped through northern York late Friday afternoon, causing power failures, uprooting trees and creating widespread damage.

Gary Andrew of R.R. 1, Queensville, was returning home along Woodbine Ave. when the storm struck.

"It was just a black funnel, it went right through," he told The Era after the storm struck.

His 16-year-old son Rick was in the car and recalled the horror of seeing their own home damaged by the storm.

"We saw a piece of house flying around and when we came up over the hill it was ours," he said.

The tornados, which struck from the north west, ripped a hole in the south side of the Woodbine Ave. farmhouse rented by the family.

Furniture was sucked out of the living room, while Mrs. Andrews huddled with her children in a doorway.

A large willow tree in front of the house was ripped up by its roots.

"Everything turned black as night," said a driver passing the scene when the storm struck, "then I saw this twister, a black cone just like you see in the movies, tearing up everything in its path."

To the west, Albert's Marina in River Drive Park suffered severe damage.

Mrs. George Leaman, whose home is at the corner of Oak and Pine in River Drive Park said the storm "hit like a train."

If her house hadn't acted like a shield "the man with the little house next door wouldn't have had any home to come home to," she said.

Mike Newark, head meteorologist at the Malton weather office, said two tornados — one with a twin spout — ripped through the area at about 100 miles per hour.

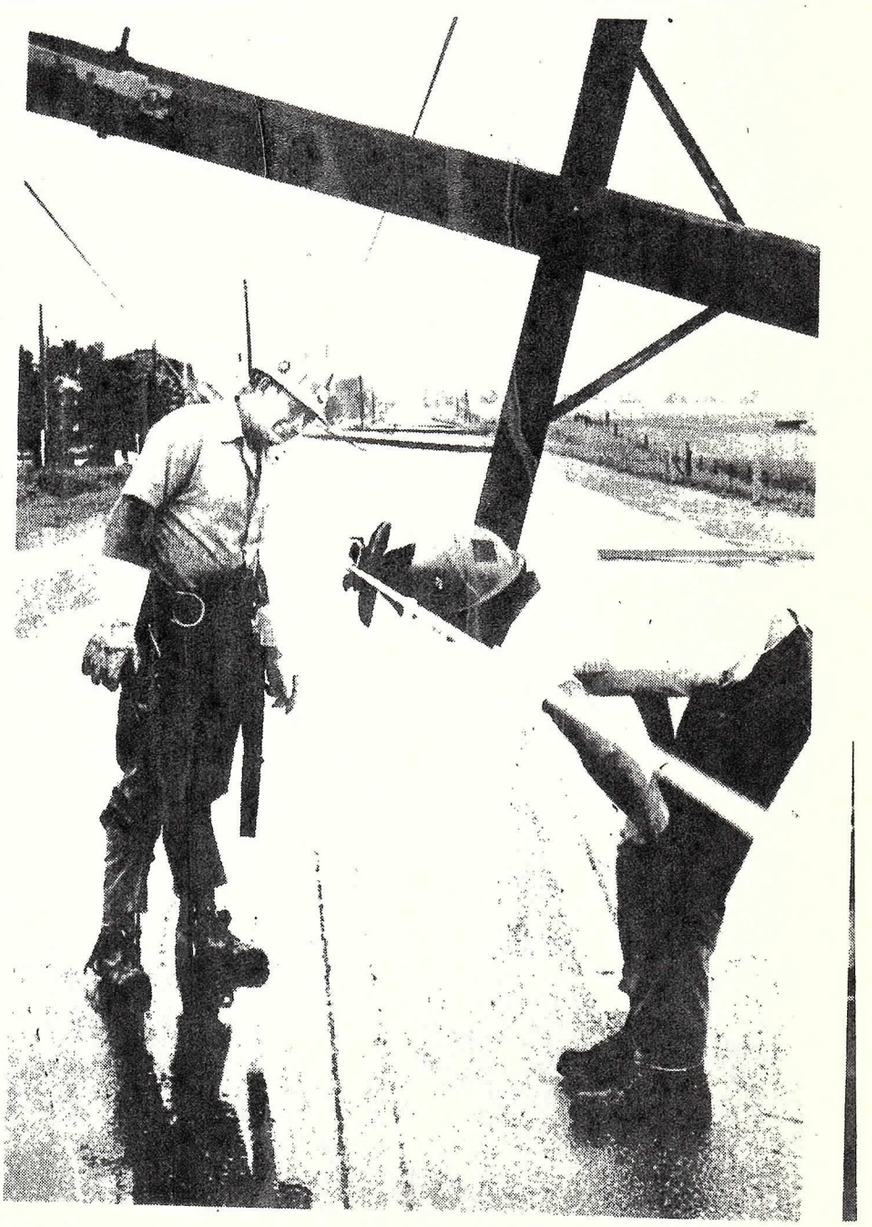
Along the Sutton Rd. north of Sharon, the centre of a 25-acre bush was ripped out.

"There's dozens of big maples gone," an eyewitness told The Era. "They must be 50 ft. tall."

Through it all Ontario Hydro worked to keep up with the damage.

Five poles were knocked down on the Mount Albert Sideroad east of Sharon, blocking traffic and disrupting power to 15,000 customers.

Area crews worked for 24 hours before being relieved by emergency Hydro crews dispatched from Woodbridge, Bowmanville, Markham, Alliston and Barrie.



QUEENSVILLE TORNADO OBSERVATIONS by P Elms.

A VISIT TO THE AREA SAT JULY 16TH 1977, ONE DAY AFTER THE STORM.

We drove north of NEWMARKET via SHARON to QUEENSVILLE a distance of five miles, on a road the alignment of which, is about 10 degrees west of north. The south end of COOK BAY, LAKE SIMCOE, (with the mouth of the HOLLAND RIVER one mile to the N.W. of this point,) is located 4 miles N.N.W. of QUEENSVILLE.

Quote from — THE PHYSIOGRAPHY OF SOUTHERN ONTARIO

BY L.J.CHAPMAN and D.F.PUTNAM.

"From the southern end of LAKE SIMCOE, known as COOK BAY, a broad valley extends southwestward for 15 miles between high morainic hills. Once a shallow extension of the lake, the floor of this valley is now a marsh of 20,000 acres through which the HOLLAND RIVER meanders sluggishly to LAKE SIMCOE. The central portion of the marsh supported a vegetation of sedges, cat-tails, and other reeds while the margins had swamp forest consisting mainly of white cedars."

QUEENSVILLE is situated on a drumlinized till plain 960feet above sea level, being 242 feet above the level of LAKE SIMCOE. A lobe of the OAK RIDGES MORAINE lies 6 miles to the south east and is about the same altitude as QUEENSVILLE. (990 feet a.s.l. at VIVIAN.)

Many trees were blown down between NEWMARKET and QUEENSVILLE all to the south, being parallel with the road. Some trees measured 2 to 3 feet diameter at the base. People had already sawn up fallen trees and limbs, but small limbs and leaves still littered the highway giving evidence of the fury of the storm.

The buzz of chain saws was in the air at QUEENSVILLE as groups of men cleaned up the debris. We enquired of one of these groups about the storm and was told that the place to go was the general store, BURKHOLDERS.

This we did, and it proved a mine of information, in fact a Mrs. LUNDY who came into the store said the tornado track had passed through part of her farm. We followed her east from the store about 1¼ miles, crossing the DON MILLS road, and stopping at the tornado track. It was about 200 feet wide, and, on walking into the corn field we noted the corn flattened down in a cyclonic turn, with even a rail fence that had been between the road and field, carried back into the field by the cyclonic turn from the southeast. On the south side of the road the rail fence was lifted, along with uprooted 15 foot cedar trees, which were part of a dense swampy growth. The tornado track then then went up a gentle slope to a new house on a hill which took the full force of the whirling storm.

We then went to Lundys farm which was to the east and adjacent to the track. We climbed the outside ladder to the top of the 80 foot metal silo From here, with the aid of binoculars, provided by Mr. Lundy, a view of the tornado track could be seen. About 2 miles distance on DON MILLS road, could be seen Mr. Andrews house which had the south wall blown outwards.

We next went to the house on the hill, previously mentioned, and owned by Mr. Fleiner. It was badly damaged, about half the roof being ripped off and deposited to the south in scattered pieces for an eighth of a mile. Whole 2x6 rafters, splintered pieces of same, insulation, aluminum ventilation stacks, rails and T.V. ~~xxxii~~ aerial were scattered for the same distance. A piece of roofing plywood 4 feet square, with shingles still attached, was lodged firmly in a tree some ten feet above the ground.

A 4 foot piece of 2x6 was thrust into the ground 1 foot at an angle of about 30 degrees, some 400 feet from the house, its alignment and direction to the south east.

Another piece of 2x6 had penetrated the hard field surface at 90 degrees, with the broken end just below the surface. It could not be moved.

Assorted debris was littered down the driveway area. The television aerial head, rails, and about 20 feet of snow fence wrapped around a hydro pole.

We were told of the family dog, who escaped harm because her collar had broken when the tornado had struck. The chain leash had been attached to her kennel. The kennel could not be found and the chain leash was found wrapped around a branch of a tree. The dog had pups the same day. Who would'nt?.

The brick veneered east wall fell outwards to join the huge cedar tree uprooted beside the house.

A storage TANK for oil, of about 200 gallons capacity was crumpled upside down against a tree, the position of which indicated a force from the north east.

At the back of the house, being the approach side of the tornado, chickens escaped its fury, but a small trailer weighing several hundred pounds was lifted up and carried some one hundred feet to the back porch of the house and wedged firmly on the steps outside the door. At the point of impact it tore up and broke 24 inch square concrete patio stones.

Doors in the house were wrenched out of alignment by the sudden pressure differential, and rain poured through the open roof and soaked the interior.

A piece of plastic trim was found on the west side of the roof thrust up under the shingles, the indicated force being from the west.

The snow fence , mentioned earlier , that became wrapped around a pole, originated from the chicken house area.

A wrought iron lamp at the edge of the drive was broken off and hung flaccidly by its electrical wires.

A house about a ¼ mile to the S.S.E. received a 2x4 through awindow.

There was a 4 poled open structure, about 10 feet square with a roof of straw situated about 150 feet from the house to the S.S.E. and in the path of the whirling storm. The straw showed a cyclonic curve around and up the slope to the south.

The funnel apparently lifted within a mile after leaving Fleiners house. A Mr. George Evans whose house is on a hill about 1½ miles south of Fleiners place, said he saw the funnel lift up into the cloud base.

We next went about 2 miles north to Mr. Andrews place on DON MILLS road and at the northern end of the tornado track. The house was very old possibly 125 years, being of beamed construction, mud/straw blocks, about 8"x8"x6", and the exterior covered with boards. The south end with window was blown out, and the west facing front porch shook up and buckled. A garage on the north side was entirely demolished.

A large healthy willow tree of about 3 feet diameter was uprooted and lay parallel with the road, on the front lawn.

The house opposite , to the west, had trees snapped off in the same direction, and the adjacent crop of oats was flattened. In the distance to the N.N.W. could be seen the remains of a garage , demolished and the debris carried south across the field.

Next door to Andrews , the house 50 feet to the north , was untouched although a light metal tool shed was tipped over the indicated force being from the east.

Two heavy horse trailers were moved by the storm. The first parked about 100 feet to the east of the house was moved south some 50 feet.

The second a very heavy all-metal horse trailer of about ½ ton weight was parked about 75 feet to the east of the house. It was moved west some 50 feet towards the rear of the house indicating a east force.

An engine of a lawnmower was torn out of its chassis it having been in the garage along with bicycles which were also destroyed.

A cornfield to the south showed cyclonic curvature im the flattened stalks.

Two fences about 50 feet apart to the south of the house, and aligned east west were flattened to the south.

One of Andrews sons about 10 years old, said he was in the barn

and looking out to the north west, when he saw a large dark funnel approaching with a smaller one to the east side. An older brother said the funnel was executing a sinuous path. The small funnel, he said, was rising and lowering from the cloud base, and finally lifted up leaving the main dark, dust ladened funnel to take over.

Travelling west from Queensville, 3 miles, we crossed the East branch of the Holland river. Many trees were uprooted, or broken, in about a one mile width in this vicinity, All were lying or leaning to the south suggesting a straight downdraft plow wind. Most of these trees were Poplar or Cedar, the latter situated in swampy areas and all uprooted. These trees measured up to a foot in diameter. We did not see any Spruce or Pine trees damaged.

Uprooted trees of greater diameters, estimated at up to 3 feet, such as Oak and Manitoba Maple, were mostly in open lawn areas of houses in the River View Park community.

We next visited Alberts Marina situated about 1 mile N.N.W. of the East Branch Holland river bridge. Here about 300 feet of boat shed was totally destroyed, being a small part of the total structures and buildings in the marina. The boat sheds were aligned east –west with open walls on all sides making them vunerable to a northerly wind. Most of the structure collapsed to the ground where it had stood. But one large section sailed some 100 feet and landed in the water to the south, severely damaging a boat and a car in its travel.

Another section of building adjacent to the boat shed collapsed and crushed several cars beneath.

Another building was unroofed, the roof landing in the water about 70 feet away.

With all the debris on the move it is miraculous that nobody was hurt.

The overall picture seems to be a ~~plow~~ plow wind about 1 mile wide blowing north to south from Cook Bay. On its left flank tornado vortices were generated and swept for about 2 miles, their track being a separation from the plow wind of about 10 degrees to the east. After about 1½ miles right angle separation the remaining funnel lifted up into the cloud base, according to a witness George Evans. He was not interviewed however, the information coming to us second hand.

Mxxx Mr. Lundy and another farmer stated that tornadoes have occurred three times around their farms in the past decade. In particular Mr. Lundy mentioned a tornado that levelled mature Maple trees about ½ mile north east of his house in 1964, the spot being about 1 mile east of the current tornado track.