UPDATED

Confirmed Tornado
Windsor, Ontario
April 3, 1974

Date- Local: Wednesday, April 3rd, 1974
UTC: Thursday, April 4th, 1974
Time- Local: 2100
UTC: 0100
Location: Windsor
Region: Windsor – Essex – Chatham - Kent
Classification: Confirmed Tornado
Category: -999
Casualties: 9
Track Length: 22630 m
Width: None available
Motion: 215 degrees
Damage Estimate: $1.8 million
F-Scale Rating: F1
Code: OB
Damage Survey: Yes
Spotter Reports: Yes
Other Documents:
Damage survey report as well as numerous other investigation reports
Technical Memoranda by E.H. Roete outlining the event including synoptic analysis
Documentation showing warning that was issued
Detroit weather office tornado report
Newspaper articles
Map of damage track
Images of the curling rink

Tornado F-Scale Re-Assessment

Brad L. Rousseau
Tornado Data Production Assistant, Environment Canada
January 25th, 2003

Classification: Confirmed Tornado
Date: Wednesday, April 3rd, 1974
Location: Windsor, Windsor – Essex – Chatham – Kent Region

Original Assessment: F3
Re-Assessment: F1
F-Code: OB

Explanation of Assessment: F3 assessment according to Mike Newark was based off of media reports as well as damage observed. Media reported in Cherokee Park that houses were lifted from foundations and destroyed. After additional research, it was found that Cherokee Park is located in Kentucky and was part of the damage path of the F4 that past E of Louisville. Dave Sills looked into the EF-Scale and the curling rink, which was poorly constructed with un-reinforced cinder block walls, falls into the lower end of EF - Scale wind values for school gymnasium. Also note that no other structures or trees surrounding the curling rink were damaged. Therefore the rating was reduced to F1.

SJS

A

TORNADO PROJECT SUMMARY SHEET

F=3 ONT

1. DATE AND TIME 3·4·1974 2010 EST (clock stopped)

2. LOCATION OR PATH (attach map) TOUCHED DOWN AT THE EAST END OF WINDSOR AT THE WINDSOR CURLING CLUB 0697401

3. PATH LENGTH ☐ NOT KNOWN ☐ <1 mi; ☐ 1-4mi; ☐ 5-10mi; ☑ 11-50mi; ☐ LENGTH IF>50mi
FLAT MICH - WINDSOR - ERIN DETROIT

4. PATH WIDTH <500 ft. 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; A NOISE LIKE 10,000 FREIGHT TRAINS

9. LIST ANY ASSOCIATED PHENOMENA (Such as hail, vivid lightning heavy rain, no rain, etc.) WINDSOR WEATHER OFFICE REPORTED HEAVY THUNDER AND LIGHTNING WITH GUSTS TO 70 MPH. HAIL

10. TOTAL DAMAGE ESTIMATE $300,000 11. TOTAL DEATHS 9

12. TOTAL INJURED 75 13. TOTAL HOMELESS NONE

14. LIST ALL REFERENCES SEVERE STORM INVESTIGATION AT WINDSOR, ARL WAYMANN & MINARDS
STAR, WINDSOR, 4·4·1974
STAR, TORONTO, 4·4·1974, 5·4·1974
STAR, TORONTO (CP) 20·1·1975
LONDON FREE PRESS, LONDON 4·4·1974, 5·4·1974
GLOBE AND MAIL, TORONTO 4·4·1974
BEACON HERALD, STRATFORD 4·4·1974
SPARROW, D. 1974: WINDSOR TORNADO - APRIL 3 1974. UNPUBLISHED REPORT BY ONTARIO HYDRO COMMISSION
ROETE, EH 1975: THE SEVERE STORM OF APRIL 3 1974 AT WINDSOR ONTARIO D.O.E. TECHNICAL MEMORANDA TEC 821

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

(a) "A black funnel, that's what I saw," Tim Noble of Windsor said.
Patrick Ryall said: "It seemed to skip down, hit the roof and take off again".

(b). Tornado part of a line that swept across Illinois Indiana, Southern Michigan, Ohio, Kentucky, Tennessee, Alabama, Georgia and North Carolina, causing 318 deaths in the U.S.
Windsor touchdown was at a curling rink occupied by about 48 curlers and 125 spectators. Roof and wall collapsed causing panic and crushing victims in the debris of steel girders and concrete blocks. 18 ambulances summoned to the scene.

WORKSHEET

IDTC 0697401

C 500

(1) ORIGIN x 1732560.0

y 4671000.0

(5) Standard Error S_x

C 500

(2) LIFT-OFF x_1 1733980.0

y_1 4689900.0

(6) Standard Error S_y

(3) $(x_1 - x)$ = 14200.0

(4) $(y - y_1)$ = 18900.0

(7) DAMAGE LENGTH

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

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

(3)+(4) $\boxed{\rightarrow r,\theta}$ = 23640 m

$\boxed{x \leftrightarrow y}$ = 53°

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

(5)+(6) $\boxed{\rightarrow r,\theta}$ = 707 m

(10) $$\beta = \frac{\tan^{-1} S_L}{L}$$

(7)+(9) $\boxed{\rightarrow r,\theta}$

$\boxed{x \leftrightarrow y}$ = 2°

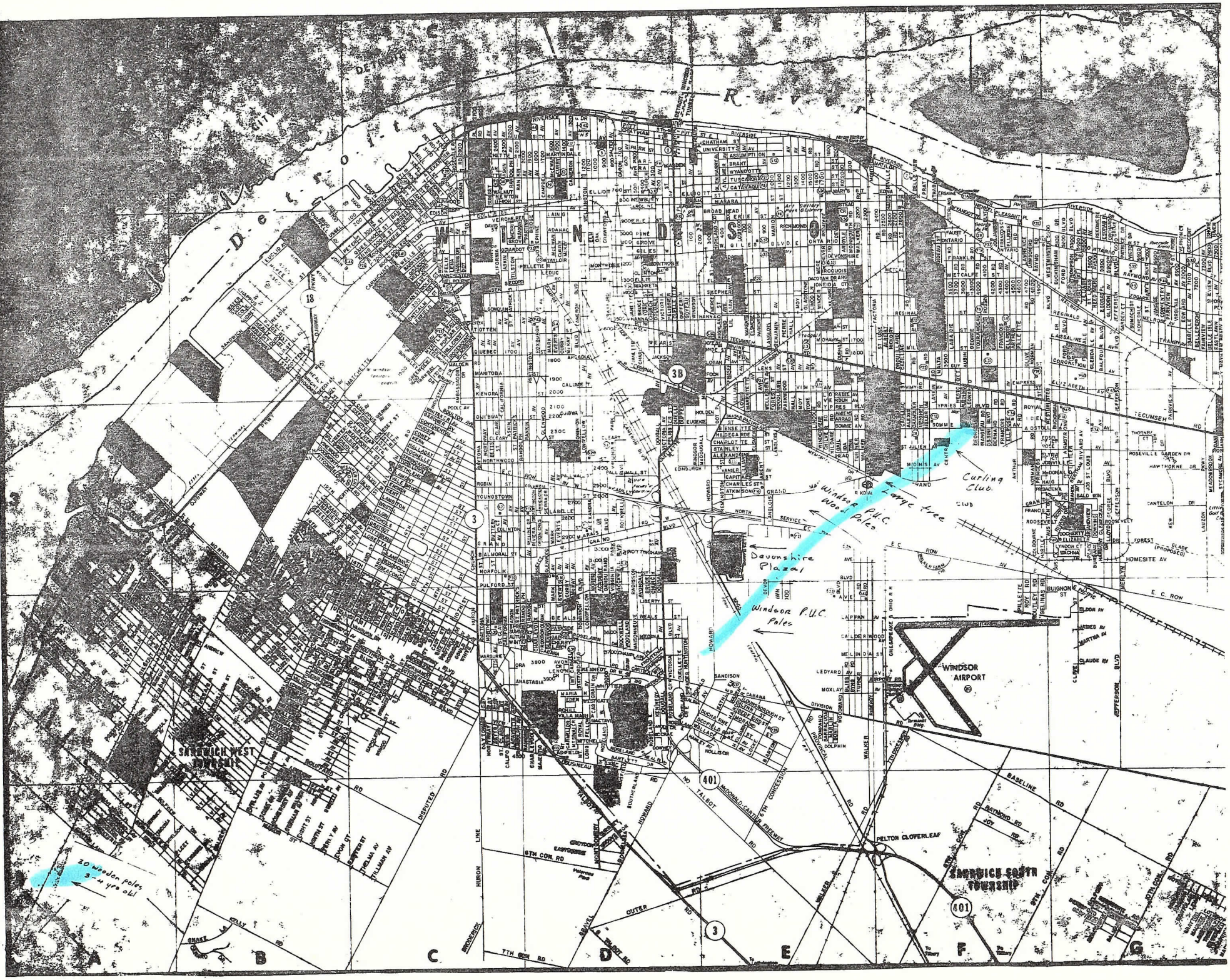
NE quad $\phi = 90 - \alpha$

NW quad $\phi = 270 + \alpha$

SW quad $\phi = 270 - \alpha$

SE quad $\phi = 90 + \alpha$

(11) ϕ = 217°


Detroit River
WINDSOR
Curling Club
Windsor P.U.C. Poles
Large Tree
Devonshire Plaza
Windsor P.U.C. Poles
WINDSOR AIRPORT
SANDWICH WEST TOWNSHIP
20 wooden poles 3 - 4 yrs old
TALBOT
McDONALD-CARTIER FREEWAY
401
PELTON CLOVERLEAF
MALDEN
ESSEX
HURON LINE
6TH CON. RD
7TH CON. RD
BASELINE
RAYMOND RD
JOY RD
TECUMSEH RD
HOMESITE AV
E.C. ROW
JEFFERSON BLVD
A
B
C
D
E
F
G

SUMMARY OF WEATHER CONDITIONS OBSERVED AT

WINDSOR AIRPORT, ONTARIO, 3 APRIL 1974

General

The day began warm, with light winds and increasing cloudiness. By noon, the sky was overcast, and the first indication of thunderstorm activity was reported by the pilot of an aircraft, in flight 15 statute miles south-southeast of Windsor Airport. Brief rainshowers followed, until thunderstorms with rainshowers began near 5.00 p.m., and continued unabated through the evening, ending shortly before midnight. A virtually continuous progression of rapidly moving storms covered the area.

Period 7.00 p.m. to 9.50 p.m. E.S.T.

7.00 p.m. - A thunderstorm with light rainshower and fog in progress, the main body of the storm overhead and moving towards the east, with lightning occurring from cloud to cloud and cloud to ground in all quadrants of the area visible from the Airport. Visibility 4 statute miles, temperature 57°F, humidity 93%, surface wind blowing from the southeast at 20 miles per hour with gusts to 28.

8.00 p.m. - A thunderstorm with light rainshower and fog in progress, positioned overhead and moving east, with frequent lightning of all types in all quadrants. Visibility 5 statute miles, temperature 57°F, humidity 91%, surface wind from the north-northwest at 18mph with gusts to 24.

8.07 p.m. - A thunderstorm with heavy rainshower and fog in progress, overhead and moving east, with frequent lightning in all quadrants. Visibility reduced to one-quarter mile, surface wind from the west at 35 mph with gusts to 50.

8.18 p.m. - A thunderstorm with moderate rainshower and fog in progress, overhead and moving northeast, with frequent lightning all quadrants. Visibility reduced to three statute miles, surface wind from the south at 22 mph with gusts to 32.

8.34 p.m. - A thunderstorm with light rainshower and fog in progress. Visibility 5 statute miles, surface wind from the south at 20 mph with gusts to 30. A member of the general public reports by telephone that a funnel cloud touched down in East Windsor and damaged several buildings. (No name, or precise time or location, were given.)

9.00 p.m. - A thunderstorm with very light rainshower in progress, centred north and moving northeast. Occasional lightning west to northeast. Visibility 8 miles. Temperature 60°F, humidity 81%, surface wind from the south at 16 mph with gusts to 24.

9.16 p.m. - A thunderstorm with moderate rainshower and fog in progress, overhead and moving northeast, with frequent lightning all quadrants. Moderate rainshowers occasionally heavy. Visibility reduced to 2 statute miles, surface wind from the south-southwest at 22 mph with gusts to 30.

9.48 p.m. - A thunderstorm with light rainshower and fog in progress, centred northeast and moving east, with lightning west to northeast. Visibility 5 statute miles, surface wind from the south at 15 mph with gusts to 24.

IT IS HEREBY CERTIFIED THAT THE ABOVE INFORMATION HAS BEEN DRAWN FROM THE OFFICEAL RECORDS OF THE DEPARTMENT OF THE ENVIRONMENT, GOVERNMENT OF CANADA, ATMOSPHERIC ENVIRONMENT SERVICE WEATHER OFFICE, AT WINDSOR AIRPORT, ONTARIO.

Dated at Windsor, Ontario, this fourth day of April, 1974.

John F. Mornan
Officer-in-Charge

SEVERE STORM INVESTIGATION AT WINDSOR

A. R. Waymann and M. Harris

Following reports of a tornado strike at Windsor on the evening of April 3, 1974, which took the lives of eight people, the following Atmospheric Environment Service personnel drove to Windsor on April 8 to investigate this storm: E. Roete, Toronto Weather Office (forecaster), M. Harris (ACCB) and A. R. Waymann (ACCI).

John Morran, O.I.C. Windsor Weather Office, accompanied us to the two sites which had suffered the major damage, that is, the Devonshire Mall and the Windsor Curling Club, the latter being the site of all fatalities. A summary of damage with locations follows:

1. St. Clair College, Rankin Avenue, northeast of Highway 401.

An outdoor stage located in the depression of an amphitheater was moved, and an aluminum light standard on an adjacent roadway was inclined about 15 degrees from normal. In addition it was noted that several T. V. antenae on houses located on the east side of the campus had been bent.

2. Minor residential damage (roofing shingles) was reported from the Roselawn St. area.

3. Near the Howard Avenue-Division Road intersection two light standards had been inclined at about 20 degrees from normal. The Union Gas Company near this same location suffered serious roof damage.

In an undeveloped field just west of Cameron Blvd., at the railway intersection with Howard Avenue, several limbs of the order of 3-4 inches diameter were torn from trees and a dead tree which had a trunk diameter of about 30 inches was broken off some three feet above ground and moved 30 feet to the northeast.

4. Devonshire Mall, between Howard Avenue and Marentette Street.

Severe damage was done to an addition to the mall, still under construction. Structural steel I-beams, anchor bolted to a concrete foundation were toppled and bent by the force of the wind. An adjoining reinforced concrete structure, in a more advanced state of construction suffered no apparent damage, nor was there any significant damage to that part of the Mall which is in use. A young man who was in a trailer near the construction site (on the opposite side of the building from the new addition) had reported that at the time of the damage, he found breathing difficult and the noise unbearable. A house trailer was overturned within 50 yards and a car reportedly had its windows shattered, though the glass was pushed inside the car.

On the construction site, a 30 ton crane, with legs extended, was moved six feet by the storm.

5. In the Marentette-Sidney Avenue area a number of industrial buildings suffered roof damage and bent radio masts (similar to wind towers) and on the west side of the building of Beaver Engineering a trailer (less tractor) had been overturned. Roof damage to the following firms in this area was noted: Simpsons (warehouse), Falcon Tool & Dye, Canadian Cold Forging and Coin Company, Multi Elmac and Border Steel Ltd.

6. Parkwood Street, several houses south of E. C. Row Avenue E.

A metal garden shed was lifted over a 4-foot fence and hedge and deposited in the adjoining yard. A garage roof, nearly across the road was claimed to have been lifted off the walls and shifted horizontally about eight inches. Some minor roof shingle (asphalt) damage to one house was still visible, and several T. V. aerials had been bent.

7. 3016 Walker Road, near Digby. An overhead crane (on rails) of Wac Roofing and Construction, supporting approximately a 6-ton bundle of reinforcing steel, was shifted about 30 feet along the rails, driving the bundle of steel through a chain link fence. A little further north on Walker Road, between Parkdale Place and Grand Marais Road, a large deciduous tree had been blown over. The trunk diameter appeared to be of the order of two feet.

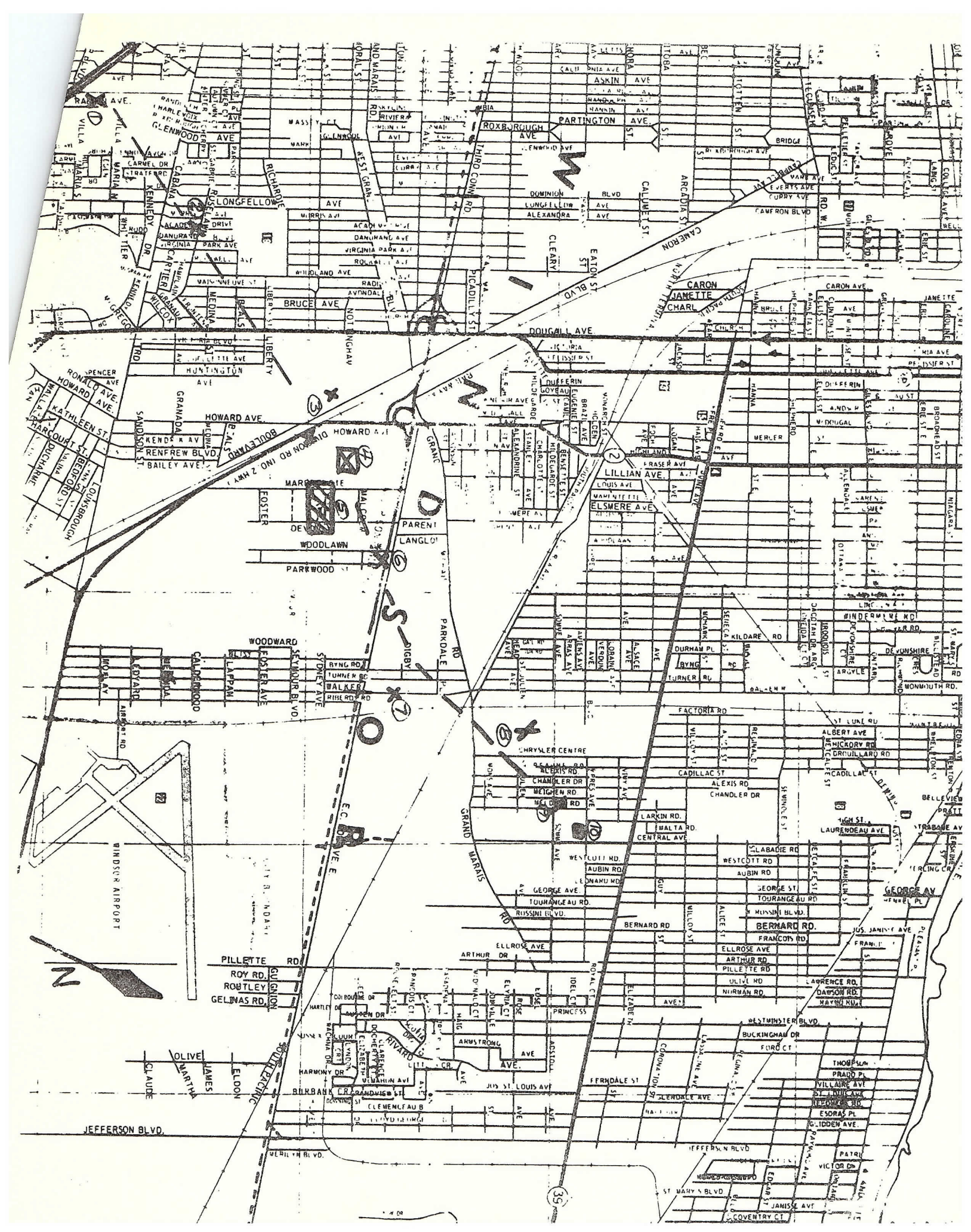
8. Roof damage was reported at the Chrysler plant west of Chrysler Centre.

9. Meldrum Road and Somme Avenue. Damage to shingles, siding and garden sheds was reported from this area - approximately 200 years south-southwest of the Windsor Curling Club.

10. Windsor Curling Club. Here about 60 percent of the roof was completely removed followed by the inward collapse of the end wall facing west-southwest.

All of the foregoing damage lies on a remarkably straight line, oriented from south-southwest to north-northeast. Relatively minor effects were seen to the southeast of this line near Melinda and Turner Road where a garden shed and an aluminum awning over a doorway had been damaged.

The overall path of the storm is described in a report by C. R. Snider, Meteorologist in Charge of the Weather Service Forecast Office at Metropolitan Airport, Detroit. The contention that the storm was a funnel cloud, mainly aloft, is borne out by the fact that damage was spotty and only severe in two areas. No conclusive evidence of rotational motion was found on the ground.


GLENWOOD AVE
LONGFELLOW AVE
BRUCE AVE
DOUGALL AVE
HOWARD AVE
RENFREW BLVD
BAILEY AVE
WOODLAWN AVE
PARKWOOD ST
WOODWARD AVE
LILLIAN AVE
ELSMERE AVE
ASKIN AVE
PARTINGTON AVE
ROXBOROUGH AVE
CAMERON BLVD
CARON AVE
JANETTE
CHARL
DUFFERIN
MERLER
FRASER AVE
LOUIS AVE
MARIENETTE
PARENT
LANGLOIS
PARKDALE RD
DIGBY
GRANDMARAIS RD
WALKER RD
RHINE RD
RYNG RD
TURNER RD
DURHAM PL
KILDARE RD
MONMOUTH RD
FACTORIA RD
ST LUKE RD
ALBERT AVE
HICKORY RD
CROUILLARD RD
CADILLAC ST
ALEXIS RD
CHANDLER DR
CHRYSLER CENTRE
LARKIN RD
MALTA RD
CENTRAL AVE
LAURENDEAU AVE
WESTCOTT RD
AUBIN RD
GEORGE ST
TOURANGEAU RD
ROSSINI BLVD
BERNARD RD
FRANCOIS RD
ELLROSE AVE
ARTHUR RD
PILLETTE RD
OLIVE RD
NORMAN RD
LAWRENCE RD
DAWSON RD
HAYNES RD
WESTMINSTER BLVD
BUCKINGHAM DR
FURO CT
THOMSON
PRADO PL
VILLAIRE AVE
ESORAS PL
GLADDEN AVE
PATRICIA
VICTOR CR
EDGAR ST
JANISSE AVE
COVENTRY CT
ST MARYS BLVD
JEFFERSON BLVD
PILLETTE RD
ROY RD.
ROUTLEY
GUIGNION
GELINAS RD.
OLIVE
JAMES
MARTHA
ELDON
ST CLAUDE
SOUTH CAMINO
WINDSOR AIRPORT
E.C. ROW EXPY
HOWARD
KENDRICK
SANDISON ST
SPENCER
RONALDO AVE
HOWARD AVE.
KATHLEEN ST.
MARCOURT ST.
DUCHARME
BEDFORD ST
LOUISBOROUGH
HUNTINGTON AVE
LIBERTY
GRANADA
MEDINA
CARTIER
MACDONALD
WILCOX
GRANEAU
BRANTFORD
KENNEDY DR
CABANA
CARMEL DR
TRAFALGAR
MARIA S.
MARIA M.
VILLA
RAMBLER
RAMBLER AVE
RICHARDIE
LONGFELLOW
ACADIA DRIVE
DANUMAND AVE
VIRGINIA PARK AVE
WILDLAND AVE
RADIAL AVENDALE BLVD
MAISONNEUVE ST
PICADILLY ST
NOTTINGHAM
CLEARY
EATON ST
CAMERON
CALUMET ST
ARCADIA ST
DOMINION
BLVD
LONGFELLOW
ALEXANDRA
BRIDGE
CURRY AVE
EVERETT AVE
ELLIS ST
CLINTON ST
BROADHEAD ST
ERIE ST
MONTROSE ST
GLADSTONE
CAROLINE
JACKSON ST
VICTORIA
ELISSER ST
QUEBEC
QUEEN
GOYEAU
EUGENIE ST
BRAZEAU
HOLDEN AVE
STANLEY
ALEXANDRINE ST
CHARLOTTE ST
DELAROE ST
BENSETTE ST
LOGAN
HALL AVE
FERRIER
ELMHURST
HANNA
MCDOUGAL
ALLENDALE
NIAGARA
OTTAWA
LINCOLN
WINDERMERE RD
DEVONSHIRE RD
ONTARIO
ARGYLE
IROQUOIS
SENECA
MOHAWK
SOMME AVE
AVENUE
ARRAS AVE
VERDUN
LORAINE
CAMBRAI AVE
CAL RD
HEAD ST
JULIEN
ALEXIS RD
CHANDLER DR
MEIGHEN RD
MELCOR
VIMY AVE
MONS AVE
YPRES AVE
ST JULIEN
WESTCOTT RD
AUBIN RD
LEONARD RD
GEORGE AVE
TOURANGEAU RD
ROSSINI BLVD
BERNARD RD
WILLOW ST
ALICE ST
FRANCOIS RD
ELLROSE AVE
ARTHUR DR
ROYAL CT
ELIZABETH AVE
PRINCESS
ELVIRA CT
ROSE
LOIS
JOHNVILLE
WINDSOR
MAIG
ARMSTRONG
AVE.
ASSINIBOINE
RIVARD
LOUIS
CR.
COLBOURNE DR
HARTLEY DR
ANSDEN DR
MACHIA DR
LYNDON CRT
HARMONY DR
ELIZABETH
MARION AVE
BURBANK CR
GRANDVIEW ST
CLEMENCEAU B
JOS ST LOUIS AVE
FERNDALE ST
GLENDALE AVE
CORONATION
LASSALINE
LUNA
FRANK
JOS. JANISSE AVE
FRANKLIN
GEORGE AV
BELLEVIEW PRAIRIE
TRABAUE AV
TERLING CR
DEWAN
ST
RIVERIA
MASSEY CT
GLENWOOD
MARK
ROSEMONT
WEST GRAND
THIRD CONN RD
ROXBOROUGH
PARTINGTON
ASKIN
NORA
LITOBA
BEC
TOTTEN
TECUMSEH
PELLETIER
LABELLE
LANG
COLLEGE
EDUC
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RD. W.
CARON
JANETTE
CHARL
SOUTH PACIFIC
HANNA
BRUCE
CLINTON ST
ELLIS ST
ELISSER ST
VICTORIA
JACKSON ST
CAROLINE
MONTROSE ST
ERIE ST
GLADSTONE
CURRY AVE
EVERETT AVE
CAMERON BLVD
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RD. W.

TIMES ARE E.S.T. /D.SNR

Weather Service Forecast Office
Building 348, Metropolitan Aprt
Detroit, Michigan 48242

April 5, 1974

Director, NSSFC

C. R. Snider
Meteorologist in Charge

Severe local storms - April 3, 1974

Two tornadoes have been confirmed in our county area and one more further west.

A long track tornado from Indiana entered Michigan near the town of Ray at the southeast corner of Branch County at 8.35 p.m. This storm had been identified as a Line Echo Wave Pattern on our radar almost an hour earlier and, upon interception of a warning by Fort Wayne, we called both Grand Rapids, and Lansing to recommend a warning. The Grand Rapids Tornado Warning for St. Joseph and Branch Counties was issued at 8.20 p.m. Lansing issued a Tornado Warning for Hillsdale County at 8.30 p.m. and a Severe Thunderstorm Warning for Jackson County at 8.35 p.m.

A continuous path of damage extended from southwest to northeast across the southeastern extremity of Branch County. One mobile home and one barn were destroyed and there was minor damage to several houses. There were no casualties. The storm struck Montgomery in Hillsdale County at 8.40 p.m. An intermittent path of damage, apparently from straight line winds, extended through Camden and Reading to just west of Hillsdale. At this point the path became continuous, and debris was spread in a rotary pattern. The continuous damage path reached 18 miles northeastward to just southwest of Clark's Lake in Jackson County. Rotary motion was apparent as far as Lake LeAnn at the northern extremity of Hillsdale county. Two deaths, about 50 injuries, and major damage occurred when the tornado moved through a mobile home court one

mile north of Hillsdale about 9 p.m.. The third death previously attributed to this storm has been reclassified as an automobile accident. A relief worker rushing to the scene was killed when his car collided with a fallen tree.

The other storm in Hillsdale County, previously considered a tornado, has been reclassified a severe thunderstorm. Two persons were injured when three mobile homes were overturned just west of Hudson at 10 p.m. No evidence of tornadic motion could be found in this area, nor could the injury reported at Waldron to the southwest be confirmed.

The funnel associated with the Windsor tornado crossed the international boundary twice. This funnel was aloft most of the time, and its classification of tornado must be considered marginal. A warning for Wayne and Macomb counties, prompted by the report of a trained spotter at Flat Rock, was released at 8.40 p.m. The funnel aloft was observed by several spotters in the Trenton-Grosse Ile network and, from the north end of Grosse Ile, it was seen to cross the river into Ontario. The first touchdown occurred at the Devonshire Mall, on Howard street at the south edge of Windsor. A large commercial building under construction was severely damaged. The funnel then lifted as it moved across a built-up urban area. It surfaced again at the Windsor Curling Club on Central Avenue., at 9:10 p.m. This building consisted of a single large room containing two side-by-side ice rinks. Of the 48 people in the building, 8 were killed and 23 seriously injured. Most of the roof was carried away to the east, where it crashed onto and destroyed or damaged several automobiles and other property. Collapse of the concrete block west wall was responsible for most of the casualties. The funnel then lifted and swerved to move due northward. It was sighted by many persons on the east side of Windsor. Minutes later minor damage was reported along Harding and St. Clair Streets on the east side of Detroit. Damage was confined to removal of roof shingles and TV antennas, and breaking of windows. There was an area of several blocks where the

ground had been showered with debris consisting of twigs and other vegetative matter, and wood splinters, and other bits of building material. A subsequent heavy rain shower had washed much of this material into low spots. Extremely heavy rain fell on Detroit during this period. Freeways and some other streets were closed due to flooding for an hour or two. Water stood 3 to 4 feet deep in some places. 1 1/4 inch hail fell on Southgate, Michigan, apparently only in a very localized area.

This storm exhibited some of the characteristics we had noted before in local convective cells over urban areas. The thunderstorm intensified and slowed as its leading edge moved over Detroit's principal zone of heavy industry. The funnel cloud dipped from the right rear corner during the period of most rapid intensification. It moved in a cyclonically curved path around the periphery of the storm, much faster than the parent thunderstorm was moving, and lifted finally just after making a sharp left turn to a position directly ahead of the heavy shower. Each of the two touchdowns was in a relatively open area within the urban complex, and in each case it lifted immediately after damaging one building. It probably never quite reached the ground. All the death and destruction was caused by its action on thetops of buildings.

A tornado touched down at 9.56 p.m. at 10949 Strasburg Road, Erie Township; Monroe County. A Severe Thunderstorm Warning was in effect at the time. As near as we can tell this was an isolated funnel, and its short track cannot be connected with any other known damage. Three persons were injured, at least one of them critically. One house was destroyed and another heavily damaged. The track was 0.4 mile long, 80 feet wide, from 250 degrees.

An unknown person attempted to disseminate a false tornado warning during the height of the storm. He called WJBK-TV and demanded an immediate broadcast of a tornado report at 13 Mile Road and Rochester Road in Royal Oak. He gave

his name as Hayes, and said he was employed by FAA at Detroit City Airport. Jerry Hodak, the station's weathercaster smelled a rat and called us for verification. We were unable to contact FSS (the usual busy telephone problem), so we called the Royal Oak police. They reported that they had received identical information, and that a patrol car on the spot reported no evidence of a storm. A subsequent check with FAA revealed they have no employee by that name.

f,P,p classification of these storms awaits the receipt of additional technical data.

Summary of Michigan casualties

	deaths	injuries
In mobile homes	2	52
In other environments	0	3

cc: Dr. Fujita
WFO8x4
WSO, GRR
WSO, LAN
WSFO, IND
AES, YQG
AES, YYZ

5916

APR 10 1974

Times are EST.

Weather Service Forecast Office
Building 348, Metropolitan Aprt
Detroit, Michigan 48242

April 5, 1974

WINDSOR
APRIL 3 1974

Director, NSSFC

C. R. Snider
Meteorologist in Charge

Severe local storms - April 3, 1974

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mile north of Hillsdale about 9 p.m.. The third death previously attributed to this storm has been reclassified as an automobile accident. A relief worker rushing to the scene was killed when his car collided with a fallen tree.

The other storm in Hillsdale County, previously considered a tornado, has been reclassified a severe thunderstorm. Two persons were injured when three mobile homes were overturned just west of Hudson at 10 p.m. No evidence of tornadic motion could be found in this area, nor could the injury reported at Waldron to the southwest be confirmed.

The funnel associated with the Windsor tornado crossed the international boundary twice. This funnel was aloft most of the time, and its classification of tornado must be considered marginal. A warning for Wayne and Macomb counties, prompted by the report of a trained spotter at Flat Rock, was released at 8.40 p.m. The funnel aloft was observed by several spotters in the Trenton-Grosse Ile network and, from the north end of Grosse Ile, it was seen to cross the river into Ontario. The first touchdown occurred at the Devonshire Mall, on Howard street at the south edge of Windsor. A large commercial building under construction was severely damaged. The funnel then lifted as it moved across a built-up urban area. It surfaced again at the Windsor Curling Club on Central Avenue, at 9:10 p.m. This building consisted of a single large room containing two side-by-side ice rinks. Of the 48 people in the building, 8 were killed and 23 seriously injured. Most of the roof was carried away to the east, where it crashed onto and destroyed or damaged several automobiles and other property. Collapse of the concrete block west wall was responsible for most of the casualties. The funnel then lifted and swerved to move due northward. It was sighted by many persons on the east side of Windsor. Minutes later minor damage was reported along Harding and St. Clair Streets on the east side of Detroit. Damage was confined to removal of roof shingles and TV antennas, and breaking of windows. There was an area of several blocks where the

ground had been showered with debris consisting of twigs and other vegetative matter, and wood splinters and other bits of building material. A subsequent heavy rain shower had washed much of this material into low spots. Extremely heavy rain fell on Detroit during this period. Freeways and some other streets were closed due to flooding for an hour or two. Water stood 3 to 4 feet deep in some places. 1 1/4 inch hail fell on Southgate, Michigan, apparently only in a very localized area.

This storm exhibited some of the characteristics we had noted before in local convective cells over urban areas. The thunderstorm intensified and slowed as its leading edge moved over Detroit's principal zone of heavy industry. The funnel cloud dipped from the right rear corner during the period of most rapid intensification. It moved in a cyclonically curved path around the periphery of the storm, much faster than the parent thunderstorm was moving, and lifted finally just after making a sharp left turn to a position directly ahead of the heavy shower. Each of the two touchdowns was in a relatively open area within the urban complex, and in each case it lifted immediately after damaging one building. It probably never quite reached the ground. All the death and destruction was caused by its action on thetops of buildings.

A tornado touched down at 9.56 p.m. at 10949 Strasburg Road, Erie Township, Monroe County. A Severe Thunderstorm Warning was in effect at the time. As near as we can tell this was an isolated funnel, and its short track cannot be connected with any other known damage. Three persons were injured, at least one of them critically. One house was destroyed and another heavily damaged. The track was 0.4 mile long, 80 feet wide, from 250 degrees.

An unknown person attempted to disseminate a false tornado warning during the height of the storm. He called WJBK-TV and demanded an immediate broadcast of a tornado report at 13 Mile Road and Rochester Road in Royal Oak. He gave

his name as Hayes, and said he was employed by FAA at Detroit City Airport. Jerry Hodak, the station's weathercaster smelled a rat and called us for verification. We were unable to contact FSS (the usual busy telephone problem), so we called the Royal Oak police. They reported that they had received identical information, and that a patrol car on the spot reported no evidence of a storm. A subsequent check with FAA revealed they have no employee by that name.

f,p,p classification of these storms awaits the receipt of additional technical data.

Summary of Michigan casualties

	deaths	injuries
In mobile homes	2	52
In other environments	0	3

cc: Dr. Fujita
WFO8x4
WSO, GRR
WSO, LAN
WSFO, IND
AES, YQG
AES, YYZ

Wind pressure

The velocity pressure "P" in lbs / sq. foot is given by the equation $P = CG^2$

"G" is wind gust as measured by a Dines pressure tube anemometer (M.P.H.)

"C" is a constant dependent on temperature & atmospheric pressure & a value of 0.0027 is usually assigned which is the average for most of Canada in the windy part of the year.

Assume a wind gust speed of 100 M.P.H.

$\therefore P = .0027 \times 100^2 =$ 27 P.S.F. (pounds per sq. foot).

Assume a wind gust speed of 50 M.P.H.

$\therefore P = .0027 \times 50^2 =$ 6.75 P.S.F.

as you can see P varies directly as the square of the Gust Velocity

The National Building code (Climatic Information) Supplement # 1, 1965 provides a table of design data which lists Windsor as having an average high or design gust speed of 74 M.P.H. & a corresponding pressure of 15 P.S.F.

This table may be used for building under 40'-0" high.

Typical Loading on a wall 30 ft. high with Gusts to 74 M.P.H.
= 15 P.S.F. x 30 = 450 pounds / lineal ft. of wall

for a wall 100 ft. long by 30 ft high
Loading = 450 x 100 = 45,000 pounds.

To prevent a wall from tilting or moving at the base each one foot section (mortar joint) must withstand or react to a bending moment of 6,750 ft. pounds. This of course envisions a wall unrestrained at the top.

Government of Canada / Gouvernement du Canada

MEMORANDUM **NOTE DE SERVICE**

TO / À: ARDG
ACDG
AFSD

ACAD

FROM / DE: AFDG

SECURITY CLASSIFICATION - DE SÉCURITÉ:

OUR FILE - NOTRE RÉFÉRENCE: 8955-27 (AFDH)

YOUR FILE - V. RÉFÉRENCE:

DATE: June 12, 1974

SUBJECT / OBJET: SEVERE WIND - WINDSOR, APRIL 3, 1974

1. As you are no doubt aware, a severe wind storm caused building damage and loss of life in Windsor, Ontario, on the evening of April 3, 1974.

2. These high winds were associated with a thunderstorm which, it is alleged, was accompanied by either a funnel cloud or tornado. However, no official observation exists to substantiate this.

3. OAED has indicated that there may be a requirement for expert testimony regarding the cause of the high winds which resulted in the loss at Windsor.

4. In this regard, we would appreciate your providing AFDH with the names of those meteorologists in your organization considered to be expert in tornado meteorology.

5. Your attention in this matter is appreciated.

F. W. Benum,
Director General,
Field Services Directorate,
Atmospheric Environment Service.