



U.S. 45 SRA

Appendix B
Millburn Bypass Alternatives

DATE: July 19, 1994
Revised January 5, 1995

SUBJECT: U.S. 45 Millburn Bypass

PROJECT: GLT31495.03.MB

Introduction and Background

On May 13, 1994, the Illinois Department of Transportation (IDOT) authorized CH2M HILL to perform a "short fuse" alignment study to provide a mathematized centerline and reserved right-of-way for a western bypass of Millburn. The objective and scope of work of the alignment study was to establish a defined alignment consistent with the Strategic Regional Arterial (SRA) bypass corridor recommendations, IDOT design guidelines, and the preferences of Lake County, the Lake County Forest Preserve District, and local governmental agencies. This approved, defined alignment will aid state, county, and municipal governmental agencies in their review of developer requests for access to U.S. 45 and Grass Lake Road. It also will result in preservation of right-of-way for a future bypass.

This technical memorandum presents a summary of the prior SRA evaluations of U.S. 45 corridors through Millburn, the methodology used to define the alignment, and the alignment recommendation agreed to by the various agencies. A mathematized recommended alignment and right-of-way reservation is also presented, based on IDOT metric design standards and metric units of measure.

Prior U.S. 45 SRA Corridor Studies

Implementation of SRA recommended roadway design criteria along existing U.S. 45 in Millburn would severely impact the historic district. Bypass corridor alignments were investigated to avoid the negative right-of-way and community impacts and to minimize pedestrian/vehicle conflicts in Millburn's center. Two general alignment corridors were initially considered and identified as "east" and "west" bypasses.

The following is a summary of the evaluation of the "east" and "west" bypasses extracted from the U.S. 45 SRA Report.

East Bypass

The eastern alternative follows a north-south alignment, east of the Millburn center. This alignment extends through and bisects the historic district. It would not displace or require relocation of any buildings within the district.

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Local land development plans are focused on the area west of Millburn. Thus an eastern alignment would not provide improved access to development sites and would not decrease traffic through the Millburn center.

The major environmental impacts associated with this alternative are bisections of the historic district and freshwater wetlands. A Section 4(f) permit would be required for implementation of this alignment and would be approved **only if**:

- There is no feasible and prudent alternative; and
- The project makes all possible efforts to minimize harm.

This route is approximately 0.2 kilometers longer than the western alternative.

West Bypass

This alternative bypasses Millburn to the west, along a north-south alignment. The alignment extends through and segments a portion of the McDonald Woods Forest Preserve.

With land development plans focused on the area west of Millburn, this alignment would provide an opportunity for improved access to development sites and diversion of east-west traffic from the Millburn center.

Environmental impacts associated with this alignment are limited to encroachment of freshwater wetlands in the McDonald Woods Forest Preserve and taking of public parklands. The western bypass would require a Section 4(f) evaluation because of the forest preserve taking. Also a Section 6(f) review would be needed. Section 6(f) requires provision of replacement lands of equal value, location, and usefulness. The western bypass provides the shortest, most economical route.

Evaluation and Selection of a Preferred Bypass

Over the past 18 months the impacts, advantages, and disadvantages of the alignment alternatives have been discussed by local and regional agencies and units of government. There is unanimity with respect to the need to bypass Millburn, thereby preserving the historic district. The following is a summary of current positions held by local governments:

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- The Lake County Board of Trustees favors the western alignment.
- The Lake County Forest Preserve District approved an alignment (western) that would affect the McDonald Woods Forest Preserve.
- The Village of Old Mill Creek, which recently annexed Millburn, favors a western alignment.
- The Village of Lindenhurst favors an eastern alignment.

Although it approves of the western alignment, the Forest Preserve District is concerned with minimizing impacts and mitigation. The Village of Lindenhurst has been concerned with the right-of-way requirements and other impacts that would conflict with residential developments planned for property just west of the Millburn historic district.

A summary of the qualitative comparisons of each alternative is presented in Table B-1. Based on the environmental impacts, transportation and access considerations, and route length and cost considerations, the western bypass corridor was selected as the preferred alternative in the SRA study. This selection reflects a consensus of local units of government and is thus supported by IDOT.

Methodology

Readily available mapping, tax maps, land use plans, developer plans, and environmental information (pertaining to wetlands and hazardous and toxic materials sites) were assembled. A composite base plan was developed which includes land use, property boundaries, existing roadway right-of-way, and topographic data. Sources of planning information are shown in Table B-2.

Alternative graphical alignments were developed on the composite base plan consistent with the SRA recommended western bypass corridor concept and IDOT SRA design guidelines. Each alignment was premised on a four-lane divided roadway section with a 6-meter-wide median, a design speed of 80 kph, and a reserved right-of-way of 40 meters. Development of the alignments was constrained to avoid the historic district, minimize encroachment on other sensitive lands, and minimize residential property impacts.

Two alternative alignments were developed and submitted to IDOT on June 7, 1994, for initial review. These alternatives were then submitted to Lake County on June 13, 1994, for review. In its review Lake County obtained input from the Lake County Forest Preserve, the affected municipalities, and others.

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The following summarize the major aspects of each alternative:

- | | |
|-----------------|--|
| Inner Alignment | This alternative begins on tangent, approximately 940 meters south of the Millburn center. It proceeds north through a curvilinear alignment until a parallel alignment 280 meters west of U.S. 45 is achieved. The alignment meets existing U.S. 45 on tangent, 1,000 meters north of the Millburn center. The length of this alignment is 1.9 km. |
| Outer Alignment | This alternative also begins further south, on tangent approximately 1,220 meters south of the Millburn center. A curvilinear alignment is used to develop a parallel alignment 330 meters west of U.S. 45. The alignment also meets existing U.S. 45 on tangent, 1,000 meters north of the Millburn center. The length of this alignment is 2.1 km. |

The "inner alignment" is closest to the historic district and impacts three existing residential properties. One residential property along the proposed alignment, south of Grass Lake Road on U.S. 45 may be a historic site. The alignment minimizes impact to the McDonald Woods Forest Preserve, crossing along the eastern property border, with an estimated taking of 8,500 square meters (approximately 2 acres). This alignment provides a preferred intersection location on Grass Lake Road, with approximately 200 meters between the U.S. 45/Grass Lake Road intersection and the proposed Grass Lake Road/Heritage Drive intersection. Impacts to the proposed Heritage Trails subdivision are minimal. However, the proposed Forest Trails subdivision is bisected, eliminating approximately five lots.

The "outer alignment" is furthest west of the historic district. It minimizes impact to existing residential properties, affecting one existing house. Impacts to the McDonald Woods Forest Preserve are increased, with a taking of 15,500 square meters (3.8 acres) along the eastern property border. The alignment impacts one commercial/agricultural barn structure and property. This alignment yields a reduced intersection separation along Grass Lake Road, approximately 150 meters between the U.S. 45/Grass Lake Road intersection and the proposed Grass Lake Road/Heritage Drive intersection. At the proposed Heritage Trails subdivision, approximately seven lots are impacted. The proposed Forest Trails subdivision property is bisected, with approximately three lots eliminated.

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After completing their review, IDOT and Lake County recommended that a hybrid of the alternative alignments be developed.

The hybrid alignment starts 1,170 meters south of the Millburn center. The alignment proceeds northwesterly along the "outer alignment" until the route is parallel to the existing U.S. 45. The alignment then follows the "inner alignment." The recommended alignment is 2.1 km long. It impacts approximately 14,630 square meters (3.6 acres) of the McDonald Woods Forest Preserve. The alignment also impacts one existing residential property.

Based on review of Old Mill Creek's Millburn Area Master Plan, the proposed alignment was subsequently slightly revised at its south end. As a result, the proposed alignment starts approximately 1,080 meters south of the Millburn center.

The mathematized hybrid alignment is shown in the attached plan.

Recommendations

The SRA study of U.S. 45 in Lake County will recommend a preferred Millburn bypass alignment. The preferred alignment, selected after review of available information and input from local governments, passes west of the Millburn historic district. The location of the proposed centerline minimizes impacts to the McDonald Woods Forest Preserve, and avoids the historic district. It provides for reasonable access to existing and proposed residential properties west of U.S. 45, which is within established SRA guidelines.

The recommended alignment should serve as a basis for review and approval of future development plans. It is the intent of IDOT to record the preferred centerline of the U.S. 45 bypass. Additional studies, an environmental analysis, and further design refinements will be required before construction of the bypass.

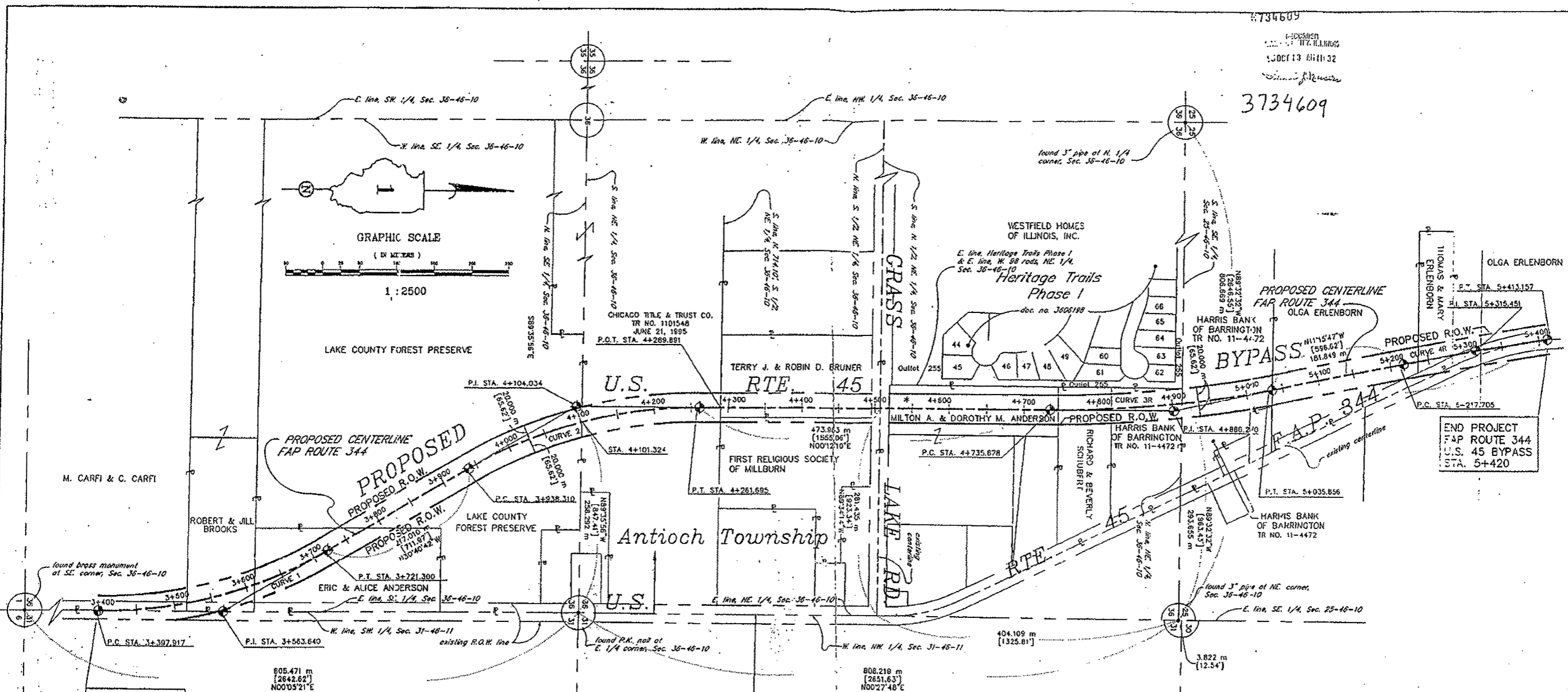
Table B-1
Summary Evaluation of Millburn Bypass Alternatives

	Implement SRA on Existing Alignment	East Bypass	West Bypass
Transportation Impacts			
Length of Alignment		1.6 miles	1.5 miles
Quality of Horizontal Geometry	Direct-Mild Curve (Excellent)	Direct-Mild Curve	Direct-Mild Curve
Compatible with Local Transportation Plans	No	No (Millburn)	No (Lindenhurst)
Effect on Traffic Along Existing Alignment	Traffic Would Continue to Increase	Would Reduce Volume on U.S. 45	Would Reduce Volume on U.S. 45
Operating Speed	30-40 mph	50 mph	50 mph
Land Development Impacts			
Compatible with Local Land Use Plans	No	Bisects Millburn Historical District	May Conflict with Planned Residential Development in Lindenhurst
Effects on Existing Residential Properties	Continuous Impacts and/or Disruptions	Skirts Existing Historical District on East Side of Millburn	Serious Disruptions to Planned Residential Development
Effects on Existing Commercial Properties	Minor Impacts	Minor Impacts	Minor Impacts
Farmland/Agricultural Effects	Minor Impacts	Minor Impacts	Minor Impacts
Environmental Effects			
Conflicts with Known Wetlands	None	Some Minor Impacts Apparent	Some Minor Impacts Apparent
Number of River/Stream Crossings	None	No Known Impacts	No Known Impacts
Impacts on Sensitive Land Uses (Churches, Schools, Hospitals, etc.)	Widening Near Church	Widening Near 1 School	No Known Impacts
Historic/Archaeological Impacts	15 Historical Sites	Bisects Historical District	No Known Impacts
Parkland, Forest Preserve Impacts	Widening Near McDonald Woods Forest Preserve	No Known Impacts	Penetrates McDonald Woods Forest Preserve
Noise Considerations	Continuous Impacts or Disruptions	Possible Impacts on Existing Residences to the West	Possible Impacts on Planned Development
Air Considerations	Impacts through Millburn	Positive Impacts Expected	Positive Impacts Expected
Community Acceptance			
To be completed following public hearing			
Costs of Implementation			
Construction Costs		Slightly Higher Due to Length	Moderate
Right-of-Way Costs		Moderate	Probably Highest

Table B-2
Sources of Planning Information
U.S. 45

Item	Data Source
Land Use	Field Observations Comprehensive Plans: Village of Grayslake Village of Third Lake Village of Lindenhurst Village of Antioch Routes 45/173 Corridors Task Force
Historic District	Historic Millburn Community Association
Wetlands	National Wetlands Inventory Map
Projected Volumes	CATS
Forest Preserve	Area Maps

734609
 3734609



BEGIN PROJECT
 FAP ROUTE 344
 U.S. 45 BYPASS
 STA. 3+400

END PROJECT
 FAP ROUTE 344
 U.S. 45 BYPASS
 STA. 5+420

Curve Table

	CURVE NO. 1	CURVE NO. 2	CURVE NO. 3R	CURVE NO. 4R
Δ	30°52'52"	30°52'52"	11°27'57"	02°47'59"
T	155.723 m	155.724 m	150.592 m	87.744 m
L	323.353 m	323.365 m	300.177 m	195.412 m
R	600.000 m	600.000 m	1500.000 m	4000.000 m
P.C. STA.	3+397.917	3+938.310	4+735.678	5+217.705
P.L. STA.	3+583.640	4+104.034	4+886.270	5+311.451
P.T. STA.	3+721.300	4+261.695	5+035.856	5+411.157

METRIC	COORDINATE	TABLE
STATION	NORTH	EAST
PC 3+397.917	638433.918	327118.226
PI 3+583.640	638599.640	327118.813
PT 3+721.300	638742.169	327034.258
PC 3+938.310	638826.808	326923.536
PI 4+104.034	639071.538	326836.981
PT 4+261.695	639237.061	326839.588
PC 4+735.678	639711.041	326841.245
PI 4+886.270	639861.631	326841.779
PT 5+035.856	640009.523	326812.386
PC 5+217.705	640187.670	326776.848
PI 5+311.451	640283.533	326757.757
PT 5+411.157	640380.214	326743.371

CONTACT PERSON FOR ADDITIONAL INFORMATION:
 ILLINOIS DEPARTMENT OF TRANSPORTATION,
 DISTRICT 1
 DUANE P. CARLSON
 201 WEST CENTER COURT
 SCHAMBOURG, ILLINOIS 60196-1096
 TELEPHONE: 708-705-4319

NOTICE OF APPROVAL

I HEREBY CERTIFY THAT THIS IS A CORRECT CORRIDOR PROTECTION MAP
 OF THE GENERAL LOCATION AND APPROXIMATE WIDTHS OF THE RIGHTS-OF-
 WAY NEEDED FOR THE FUTURE ADDITION TO THE ILLINOIS STATE HIGHWAY
 SYSTEM TO BE KNOWN AS FEDERAL-AID ROUTE 344 AND APPROVED BY THE
 ILLINOIS DEPARTMENT OF TRANSPORTATION IN ACCORDANCE WITH SECTION 4-510,
 OF THE ILLINOIS HIGHWAY CODE (605 ILCS 5/4-510).

ILLINOIS DEPARTMENT OF TRANSPORTATION
 SECRETARY
 September 25, 1995

* LOT 1
 P.W. ANDERSON'S SUBDIVISION
 RECORDED JUNE 1, 1956
 DOC. NO. 910292



STATE OF ILLINOIS }
 COUNTY OF WILL }
 RUETTGGER, TONELLI & ASSOCIATES, INC., AN ILLINOIS PROFESSIONAL
 LAND SURVEYOR CORPORATION, HEREBY CERTIFIES THAT IT HAS SURVEYED
 THE PROPERTY DESCRIBED IN THE ABOVE CAPTION AND AS SHOWN ON THE
 ANNEXED PLAT, WHICH IS A TRUE AND CORRECT REPRESENTATION OF SAID
 SURVEY.
 GIVEN UNDER THE CORPORATE SEAL THIS 14th DAY OF MARCH, 1995.
 BY *[Signature]*
 OFFICER-ILLINOIS PROFESSIONAL LAND SURVEYOR CORPORATION No. 89

- NOTES:
- COORDINATES AND PROPOSED CENTERLINE GEOMETRICS ARE BASED ON THE PROPOSED U.S. ROUTE 45 MILLBURN BYPASS ALIGNMENT PLAN AS REVISED AUGUST 3, 1995.
 - DATA IN BRACKETS REPRESENT ENGLISH EQUIVALENT.
 - SURVEYED IN METRIC, DIMENSIONS SHOWN IN ENGLISH HAVE BEEN CONVERTED (1 METER = 3.28083333 FEET).

GENERAL NOTE:
 THE PROPOSED R.O.W. AND ROADWAY ALIGNMENTS, AS SHOWN ON THIS
 CORRIDOR PROTECTION MAP, ARE BASED ON THE STATE IMPROVEMENT
 REPORT FOR THIS PROJECT AS SUBMITTED TO THE ILLINOIS DEPARTMENT
 OF TRANSPORTATION AND ARE CONSIDERED TO BE APPROXIMATE.

JOB NO. R91-037-95
 REVISED: 9-6-95/ AMENDED PER CLIENT REQUEST
 REVISED: 8-3-95/ AMENDED LOCATION OF CENTERLINE

Illinois Department of Transportation

CORRIDOR PROTECTION MAP
 (MILLBURN BYPASS)
 RELOCATED
 F.A.P. ROUTE 344 (U.S. RTE. 45)
 LAKE COUNTY
 SHEET 1 OF 1 SCALE: 1:2500

RUETTGGER, TONELLI & ASSOCIATES, INC.
 LAND SURVEYORS-ENGINEERS-CONSULTANTS
 201 W. PULASKI ST., SUITE 200, CHICAGO, ILLINOIS 60611
 PH: (312) 731-0000
 FAX: (312) 731-0000
 APPROVED BY: *[Signature]*