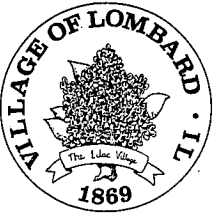


070056



To: Chairperson and Transportation and Safety Committee
Through: Wes Anderson, Director of Public Works *Wes Anderson*
From: Nikki N. Graham, Civil Engineer *NG*
Date: January 29, 2007
Subject: Illinois Route 53 at Madison Street, Final Technical Memorandum

Please see the attached memorandum from Christopher B. Burke Engineering, Ltd., which addresses the cost and feasibility of the Village of Lombard improving the intersection of Illinois Route 53 at Madison Street with additional turn lanes, profile adjustments, turning radius modifications and a proposed traffic signal. The existing intersection forms a tee-intersection that is unsignalized with southbound left turn movements prohibited by roadway signing.

NG

attachments

TECHNICAL MEMORANDUM

**ILLINOIS ROUTE 53 AT MADISON STREET
INTERSECTION IMPROVEMENT
AND TRAFFIC SIGNAL INSTALLATION**

PREPARED FOR:

**VILLAGE OF LOMBARD
DUPAGE COUNTY, ILLINOIS**

PREPARED BY:

**Christopher B. Burke Engineering, Ltd.
9575 West Higgins Road Suite 600
Rosemont, IL 60018
(847) 823-0500**

OCTOBER 20, 2006



CHRISTOPHER B. BURKE ENGINEERING, LTD.

I. Project Description

The existing intersection of Madison Street and Illinois Route 53 in the Village of Lombard forms a tee-intersection that is unsignalized with southbound left turn movements prohibited by roadway signing (Refer to Exhibit 1 – Location Map).

The Illinois Department of Transportation (IDOT) is currently preparing a Phase I Study for Illinois Route 53 which includes this intersection location. The proposed IDOT improvement at this intersection includes two through lanes in each direction and left turn lanes along Illinois Route 53, one through lane in each direction and a left turn lane along Madison Street, and new traffic signals. The vertical geometry proposed by IDOT at this intersection includes raising the profile of Illinois Route 53 approximately 5.5 feet to improve the approach grade of Madison Street (Refer to Tab 2 – IDOT Ultimate Intersection Design Study).

Design engineering, land acquisition, and construction of Illinois Route 53 south of St. Charles Road is not currently funded by IDOT as part of its Fiscal Year 2007 to 2012 Proposed Highway Improvement Program. IDOT's commitment to the Village's of Lombard and Glen Ellyn per correspondence from December 2002, is that if the Department proposes to add the section of Illinois Route 53 south of St. Charles Road to Roosevelt Road into a future Department Program, that a re-evaluation of the Phase I study would be prepared. Based on these factors and commitments, it is unlikely that any work along the section of Illinois Route 53 south of St. Charles Road, other than surface maintenance, will occur in the next 10 years. As a result, the Village of Lombard is considering a separate stand alone intersection improvement at the Illinois Route 53/Madison Street intersection to provide one through lane in each direction and a southbound left turn lane on Illinois Route 53, and a westbound left turn lane on Madison Street, and new traffic signals if warranted. The need for a northbound right turn lane will be evaluated based on capacity analysis. The stand alone intersection improvement project would include reconstruction of Illinois Route 53 and Madison Street based on the vertical geometry considerations per the IDOT Phase I Study. In addition, Madison Street would be reconstructed eastward to Finley Road to provide the standard Village Street pavement section, and Village sewer and water services would be provided to the area along this section of Madison Street, which is not currently annexed to the Village of Lombard.

The primary objective of this Technical Memorandum is to develop an estimate of probable cost for the Village of Lombard's use in determining whether to pursue this stand alone intersection improvement as the lead agency, based on prior discussions of this possibility with IDOT. In this regard, the project cost estimate will

identify the separate cost components for the reconstruction of Madison Street eastward to Finley Road, and associated sewer and water service extensions west of Finley Road.

II. Existing Conditions

Madison Street is an east-west local residential street located approximately 1.0 miles north of Illinois Route 38 (Roosevelt Road) and 0.9 miles south of St. Charles Road. The section of Madison Street between Illinois Route 53 and Finley Road is located in unincorporated DuPage County and is under York Township jurisdiction, whereas the section east of Finley Road is under Village of Lombard jurisdiction. Madison Street consists of one lane in each direction between Illinois Route 53 and Finley Road and is stop controlled at both intersections. The adjacent land use is comprised of single family residences (Refer to Exhibit 2-Project Aerial Mosaic). The speed limit on local un-posted residential streets in the Village of Lombard is 25 mph.

Illinois Route 53 is a north-south arterial street located approximately 0.2 miles west of Finley Road and just east of Interstate 355 at the intersection of Madison Street. Illinois Route 53 is under the jurisdiction of the Illinois Department of Transportation. Illinois Route 53 consists of one lane in each direction between Harrison Road and Charles Lane. Signs are posted for no southbound Illinois Route 53 left turning movements at the intersections at Charles Lane, Madison Street, and Harding Road. The posted speed limit on Illinois Route 53 is 40 mph. In addition, southbound left turns are prohibited at Harrison Road via right-in, right-out only channelizing island.

The existing pavement on Madison Street and Illinois Route 53 is typically a 24 ft. wide two-lane bituminous concrete pavement. Aggregate shoulders are adjacent to the edges of pavement along Madison Street. Paved shoulders are adjacent to the edges of pavement along Illinois Route 53 with curb and gutter adjacent to the paved shoulder along the east side of Illinois Route 53 north of Madison Street and ending at the Charles Lane intersection.

Based on available topographic information from IDOT and the Village of Lombard, the right-of-way is 100 feet wide on Madison Street between Illinois Route 53 and Finley Road. The right-of-way on Illinois Route 53 varies 100 feet wide south of Madison Street to 148' wide north of Madison Street and at the Charles Lane intersection.

III. Proposed Improvement

This memorandum addresses the feasibility of improving the intersection of Illinois Route 53 at Madison Street with additional turn lanes, profile adjustments, turning radius modifications, and a proposed traffic signal.

a. Intersection Improvement

The intersection improvement being investigated will maintain one 12-foot through lane in each direction on Illinois Route 53. The median will be widened to provide a 12-foot flush painted left turn lane for the southbound to eastbound movement. Madison Street will be widened to provide three 12-foot lanes at the intersection; one eastbound through lane, one westbound right turn lane, and one westbound left turn lane. A flush painted median will be developed on Madison Street to a 12-foot width fully "shadowing" the right turn lane through the right turn lane taper length.

The Illinois Route 53 proposed profile from the IDOT Phase 1 study is also being proposed with this improvement. This profile raises Illinois Route 53 approximately 5.5 feet at the intersection with a 0.80% approach grade, a -0.89% departure grade, and a 180-foot crest vertical curve, tying back into the existing profile approximately 500 feet north and south of the intersection.

The existing profile of Madison Street approaching Illinois Route 53 is steep with grade of approximately -8%. The proposed profile for Madison Street will be raised, having a sag vertical curve draining away from the state route as required by State criteria. This curve has a -2.00% back-grade, a +5.56% ahead-grade, and a curve length of 150-foot providing a relatively flat area in the turn-lane storage adjacent to Illinois Route 53. Due to the grade at the east end of the storage lanes being greater than 3%, a grade adjustment factor must be applied to the calculated storage lengths for the right turn lane.

To accommodate the WB-50 design vehicle, the northeast and southeast radii are proposed to be two-centered curves with a 50-foot entrance radius, a 300' exit radius, and a 12-foot offset.

Eight-foot wide shoulders are proposed along Illinois Route 53 and Type B-6.12 combination curb and gutter is proposed along Madison Street. The shoulder along the east side of Illinois Route 53 will be full width paved to facilitate construction staging (Refer to Section h).

Sight distance at the driveways and side streets along Illinois Route 53 within the project limits was reviewed due to the profile raise. Sight distance met IDOT criteria

along Illinois Route 53 within the profile raise. Driveway sight distance was also reviewed to determine if the length of vertical curve could be shortened from the IDOT IDS by increasing the grades. Reducing the length of vertical curve would result in inadequate sight distance for the driveway located south of the Madison Street intersection on the west side of Illinois Route 53 at approximately Station 964+18. On this basis, it appears that the limits of Illinois Route 53 reconstruction are appropriate.

b. Project Traffic Analysis

The Illinois Department of Transportation (IDOT) is currently preparing a Phase I Study for a reconstruction/add-lanes project along Illinois Route 53 from Illinois Route 64 (North Avenue) to Illinois Route 56 (Butterfield Road). The IDOT Phase I Study includes reconstruction of Illinois Route 53 at Madison Street intersection to provide two lanes of traffic in each direction along Illinois Route 53, a southbound left turn lane, and a new traffic signal. While IDOT is preparing the Phase I Study within these north/south limits, the project is not funded for construction south of St. Charles Road.

As part of the IDOT Phase I Study, traffic counts were taken at the Madison Street and Harrison Road intersections in the year 2000 as indicated in Table 1 below.

Table 1
2000 Peak Hour Traffic Volumes
Vehicles Per Hour (vph)

<u>Movement</u>	<u>Harrison Street</u>	<u>Madison Street</u>
AM - SB LT	231	55
AM - SB TH	479	734
AM - NB TH	849	1060
AM - NB RT	33	62
AM - WB LT	17	9
AM - WB RT	285	77
PM - SB LT	206	64
PM - SB TH	826	986
PM - NB TH	678	849
PM - NB RT	68	101
PM - WB LT	9	18
PM - WB RT	319	76

Subsequent to IDOT initiating the Illinois Route 53 Phase I Study, the Village of Lombard has prohibited southbound left turn movements at the Charles Lane, Madison Street, Harding Road, and Harrison Road intersections. The Illinois Route 53 and Harrison Road intersection has been reconstructed to provide a physical

right-in/right-out channelizing island, whereas southbound left turns are prohibited at the other three locations via signing.

In order to predict the traffic volumes that would utilize the reconstructed and newly signalized intersection of Illinois Route 53 and Madison Street, the year 2000 southbound and westbound left turn volumes at Harrison Road were reassigned to Madison Street, which also reduces the southbound through volume at Madison Street. It is also anticipated that vehicles making the southbound left turn maneuver at Charles Lane and Harding Road in 2000 had predominantly local destinations and they would also reroute to a new signalized Madison Street intersection.

Since year 2000 traffic volume information is not available for Charles Lane and Harding Road, an additional 10% is was added to the southbound and westbound left turn volume at Madison Street to predict the total reassigned traffic volumes at the Madison Street intersection based on full access at Madison Street and right-in, right-out configurations at Charles Lane, Harrison Road, and Harding Road.

This is an appropriate assumption since Charles Lane “tees” into Finley Road and Harding Lane “tees” into Hammerschmidt Avenue four blocks east of Finley Road. On this basis, Table 2 represents the baseline year 2000 traffic volumes at Madison Street, with the other three locations remaining right-in, right-out.

Table 2
Illinois Route 53 at Madison Street
Baseline Year 2000 Peak Hour Traffic Volumes
Vehicles Per Hour (vph)

Intersection	2000 AM Peak Hour	2000 PM Peak Hour
SB LT / +10%	286 / 315	270 / 297
SB TH	503	780
NB TH	1060	849
NB RT	62	101
WB LT / + 10%	26 / 29	27 / 30
WB RT	77	76

Traffic projections for the year 2020 were developed for the Illinois Route 53 at Madison Street intersection for the IDOT Phase I Study based on the proposed “add-lanes” (or “Build”) condition and are reflected in the IDOT Intersection Design Study (IDS) for the Phase I Study (refer to Appendix A). However, given that a stand alone intersection improvement and traffic signal installation project would not include an additional travel lane in each direction along Illinois Route 53, the appropriate year 2020 traffic projection would be the “No-Build” (no add-lanes) condition. Year 2020 Average Daily Traffic (ADT) projections for Illinois Route 53 near Madison Street

Table 3
Illinois Route 53 at Madison Street
Projected Peak Hour Turning Movements
Vehicles Per Hour (vph)

<u>Year</u>	<u>ADT</u>	<u>AM Peak Hour</u>	<u>PM Peak Hour</u>
2000 SB LT	16,900	315	297
2000 SB TH		503 *	780 *
2000 NB TH		1060	849
2000 NB RT		62	101
2000 WB LT		29	30
2000 WB RT		77	76
2006 SB LT		315	308
2006 SB TH		503	797
2006 NB TH		1116	893
2006 NB RT		63	105
2006 WB LT		53	55
2006 WB RT		87	87
2012 SB LT		315	319
2012 SB TH		503	814
2012 NB TH		1172	937
2012 NB RT		64	108
2012 WB LT		77	80
2012 WB RT		96	98
2020 SB LT – No Build	29,000**	315	334
2020 SB TH – No Build		503	838
2020 NB TH – No Build		1247	996
2020 NB RT – No Build		65	113
2020 WB LT – No Build		109	113
2020 WB RT – No Build		109	113
2020 SB LT – Build	36,000**	360	415
2020 SB TH – Build		604 *	1034 *
2020 NB TH – Build		1540	1230
2020 NB RT – Build		80	140
2020 WB LT – Build		135	140
2020 WB RT – Build		135	140
2030 SB LT – No Build	31,000**	337	341
2030 SB TH – No Build		538	870
2030 NB TH – No Build		1253	1002
2030 NB RT – No Build		68	115
2030 WB LT – No Build		82	86
2030 WB RT – No Build		103	105

* Adjusted from IDOT IDS numbers to reflect reassignment of southbound left turns from Harrison to Madison and thus a reduction in the southbound through volume at Madison.

** Source-CATS via IDOT

c. Traffic Signal Warrant Analysis

Illinois Route 53 experiences a total peak hour volume of 2054 in the AM and 2178 in the PM. The posted speed limits are 40 mph and 25 mph on Illinois Route 53 and Madison Street, respectively. With such high traffic volumes on Illinois Route 53 and the posted speed limit it would be unlikely that many vehicles could make a right turn on red in the westbound to northbound movement. According to MUTCD criteria, the right turn peak hourly volume in the westbound to northbound movement was reduced by 10 vehicles. Based on our analysis of the projected peak hourly volumes, the MUTCD traffic signal warrant criteria, warrant 3B (peak Hour Volume), is satisfied. The table below shows the respective data and criteria. By satisfying this warrant criterion, the intersection meets the MUTCD criteria for the installation of a traffic signal.

Table 4
Illinois Route 53 at Madison Street
Year 2012 Signal Warrant Analysis

Figure III b.-1, Peak Hour				
	Madison St.		IL Rt. 53	Signal Passes Warranted
	Min.	Projected	Projected	
AM	150	163*	2054	Yes
PM	150	168*	2178	Yes

Used 2 or more lanes & 1 lane criteria

*reduced by
10vph

Based on our initial review, warrants 1, 2 and 3A could also possibly be met but additional traffic data will be required to make this determination.

d. Capacity Analysis

A capacity analysis utilizing Highway Capacity Software (HCS) was performed using the 2030 "No-Build" projected peak hour turning volumes. The intersection will operate at an overall level-of-service (LOS) D in the AM and LOS C in the PM, with an individual movement LOS F and LOS E for the westbound left turn and southbound left turn respectively. The overall intersection LOS D complies with IDOT'S 3R Guidelines for Urban Arterial Highways and Streets for minimum LOS criteria (D). Table 5 provides the LOS for each movement in both the AM and PM peak hour. According to HCS, the minimum storage length for the southbound left turn lane and the westbound left turn lane is 330 feet and 160 feet respectively. The left turn storage length provided in the intersection improvement is 360 feet for the

southbound left turn lane and 160 feet for the westbound left turn lane. Refer to 2030 HCS printout in Tab 2 for additional information.

Table 5
Illinois Route 53 at Madison Street
2030 LOS for turning movements in the AM and PM peak hour

Movement	LOS (AM)	LOS (PM)
Westbound Left	F	D
Westbound Right	D	C
Northbound Through/Right	D	D
Southbound Left	E	C
Southbound Through	A	A

The 2030 "No Build" projected peak hour turning volumes developed in this technical memorandum were based on available information from IDOT for preliminary traffic signal warrant analysis and intersection capacity analysis. If a Phase I Study is initiated, a more detailed approach to predicting traffic volumes at the Illinois Route 53 at Madison Street intersection should be pursued, including subregional travel demand modeling, motorist questionnaires, and/or area traffic origin/destination studies. Although the capacity analysis does not identify a "requirement" to include an exclusive northbound right turn lane, an exclusive northbound right turn lane may improve operations of the intersection and should be further investigated during Phase I.

e. Madison Street Reconstruction

Madison Street is proposed to be reconstructed from Illinois Route 53 to the intersection of Finley Road. Beyond the tapers for the intersection channelization, Madison Street will be constructed to Village standard, a bituminous pavement on an improved subgrade bound by Type B-6.12 combination curb and gutter measuring 28 feet back to back. A 5-foot wide 5 inches Portland cement concrete sidewalk will also be constructed with a sod parkway between it and the curb.

The portion of the Madison Street reconstruction beyond the limits of the tapers for the intersection channelization will be considered non-participating in terms of Federal funding. Also included in the non-participating items would be the water main, sanitary sewer, and sidewalk construction. Other forms of funding would have to be used for these items.

f. Sewer and Water Service Extensions

In compliance with the Village's practice of replacing and/or refurbishing water mains and sanitary sewer when a Village road is reconstructed, we are proposing to install an 8-inch water main and a sanitary sewer along Madison Street.

With services required on both sides of the road, the sanitary sewer is proposed to be located in the center of the road. Based on similar type of projects, it is anticipated that the sanitary sewer will be 8" in diameter laid a minimum slope of 0.5% to provide scour velocity during peak usage. To service the western-most residents, the sanitary sewer will need to start at Station 82+00 with an invert elevation of 694.5. The proposed sanitary sewer will connect into the existing 30" sanitary sewer flowing east on the east side of the intersection of Finley Road, a distance of about 900 feet, at an invert elevation of approximately 690.

The proposed 8" water main is proposed to be located on the south side of Madison Street to provide IEPA stipulated clearances from the proposed storm sewer to be located on the north side based on existing drainage patterns. The proposed south sidewalk can be located away from the existing south right-of-way to prevent the need for trench backfill along the entire length of water main, reducing the cost of the water main significantly.

g. Drainage

Illinois Route 53 currently has open ditch drainage with the exception of the east side of the road north of Madison Street. At that location, there is a gutter at the back of shoulder. This shoulder is drained through an existing storm sewer with an outfall on the west side of Illinois Route 53 at Station 968+00, ultimately flowing to the I-355 right-of-way. There is a high point in the east ditch approximately at Station 966+00. To the north, the ditch flow is picked up into the above mentioned storm sewer at the southeast radius return of Madison Street. To the south, the ditch flow is picked up by a culvert flowing under Illinois Route 53 to the west at Harding Road. The existing drainage patterns along Illinois Route 53 will be maintained with this improvement by regrading ditches, and by constructing new driveway culverts and a proposed storm sewer.

With the intersection improvements and reconstruction, Madison Street is proposed to be changed from open ditch drainage to closed drainage with curb and gutter and storm sewer. The Madison Street storm sewer is proposed to be located in the parkway on the north side of the road and will drain west to the proposed storm sewer along Illinois Route 53, picking up flow from the high point of Madison Street

located approximately at Station 87+00. Another storm sewer will be required picking up the flow east of the high point and will connect to the existing storm sewer system located at Finley Road.

h. Traffic Maintenance Analysis

Maintenance of traffic during construction will follow all applicable IDOT and Village of Lombard maintenance of traffic guidelines as appropriate.

Exhibit 5-1 through Exhibit 5-2 show the recommended traffic staging schematics and typical cross sections.

Staging of Traffic:

Pre-Stage

Illinois Route 53

- Construct temporary pavement along the west (SB) side of Illinois Route 53 at existing grade.

Stage I

Illinois Route 53

- Shift traffic to west (SB) side of Illinois Route 53 – Partially on temporary pavement at existing grade.
- Reconstruct east (NB) side of Illinois Route 53.

Madison Street

- Full closure to through traffic from Illinois Route 53 to Finley Road to allow reconstruction of Madison Street.
- Posted detour on Madison Street, Illinois Route 53, Finley Road, Harding Road, and Charles Lane.
- Local traffic allowed access on Madison Street between Illinois Route 53 and Finley Road.
- Reconstruct Madison Street from Illinois Route 53 to Finley Road.

Stage II

Illinois Route 53

- Shift traffic to east (NB) side of Illinois Route 53.
- Reconstruct west (SB) side of Illinois Route 53.

Madison Street

- Madison Street opened to traffic on newly constructed roadway.

i. Right-of-Way

Based on available information from IDOT and the Village of Lombard, the existing ROW along Illinois Route 53 is 100 feet wide and varies and 100 feet wide along Madison Street. Approximately 2870 square feet (0.07 acres) of temporary construction easement from three parcels located on the west side of Illinois Route

53 south of Madison Street would be required for construction of temporary pavement and grading. Approximately 753 square feet (0.02 acres) of fee simple acquisition (permanent acquisition) from one parcel located on the west side of Illinois Route 53 south of Madison Street would be required for reestablishing a driveway. Approximately 5823 square feet (0.13 acres) of temporary construction easement from three parcels located on both sides of Madison Street would be required for grading and reestablishing driveways. Right-of-way requirements would be investigated in more detail during Phase I engineering including various possible avoidance measures.

j. Utilities

Based on available information from IDOT and the Village of Lombard, known utilities in the vicinity of the Illinois Route 53 and Madison Street intersection which may be impacted by the intersection improvement include Village owned sanitary sewer located along the west side of Illinois Route 53, storm sewers along the east side of Illinois Route 53 crossing Madison Street and crossing Illinois Route 53 north of Madison Street, two power poles on the east side Illinois Route 53 south of the Charles Lane intersection, and one light pole located on the west side of Illinois Route 53 south of Madison Street. Presence and potential impacts to utilities would be investigated in more detail during Phase I engineering.

IV. Coordination

Initial coordination with IDOT resulted in receiving electronic files for existing conditions, contours, and existing profiles for Illinois Route 53 and Madison Street. Further coordination resulted in receiving 2030 "No Build" ADT data in the area of Madison Street. This data was used to formulate the additional data needed for the warrant analyses.

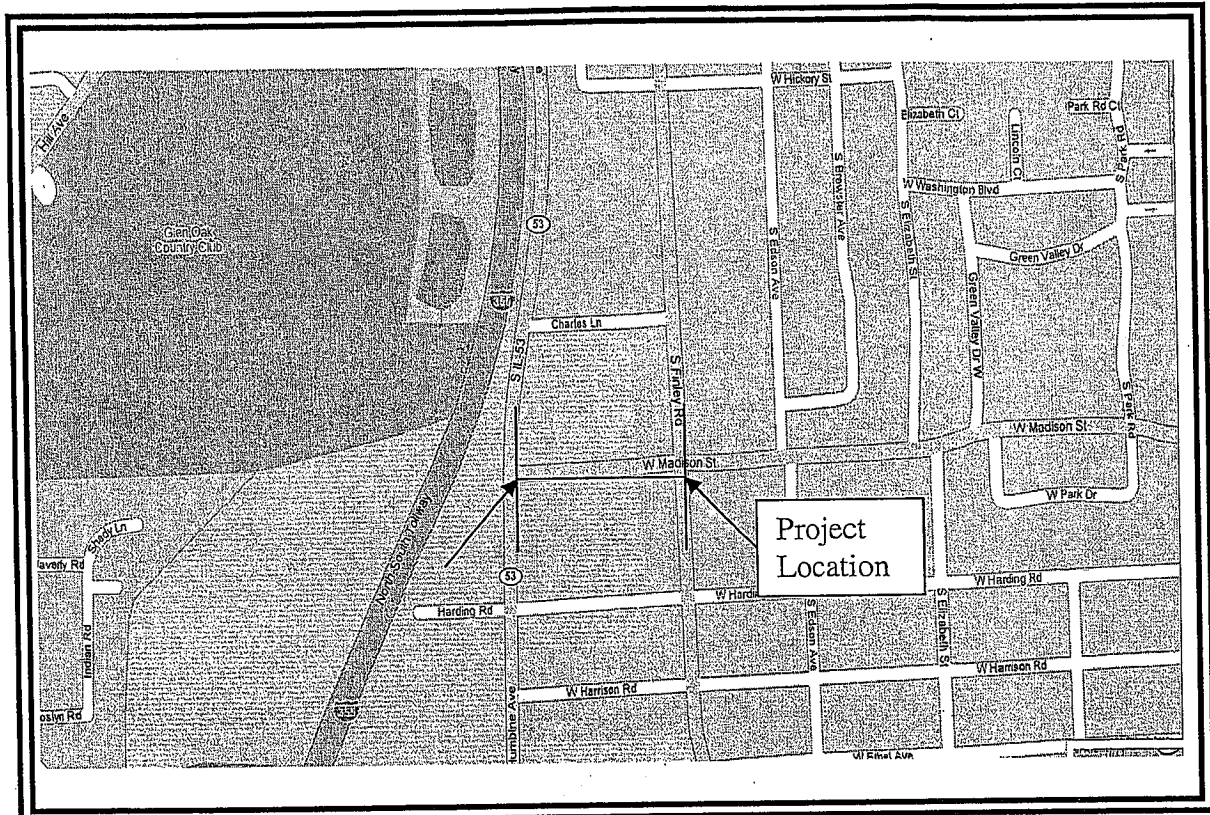
V. Preliminary Cost Estimate

The engineer's estimate of probable cost (Table 5) includes a breakdown for cost of the intersection improvement and village improvements. The projected construction cost for the intersection improvement is \$2,000,000 and the cost pertaining to the Village improvements is \$630,000 bringing the total construction cost to \$2,630,000. The projected cost including utility relocation, proposed right-of-way acquisition, temporary construction easements, and engineering costs bring the total for the intersection to approximately \$3,000,000 for the intersection improvements and \$870,000 for the Village improvements. The total projected cost of the project is \$3,900,000. The engineer's estimate of probable cost reflects an order of magnitude cost based on proposed probable work. This cost is considerably higher than the previous IDOT cost due to the added scope of work with additional Madison Street work, sewer and water, and current unit prices per 2006 (IDOT cost estimate conducted in 2002). The cost will be refined with the final technical memo based on coordination with IDOT on final geometry and intersection approval/refinements based on capacity analysis.

Engineer's Estimate of Probable Costs
Illinois Route 53 @ Madison Street Improvement Feasibility Study

	Unit	Unit Cost	Intersection Improvement		Village Improvements			
			Quantity	Cost	Quantity	Cost		
Earthwork Items								
Earth Excavation	CY	\$15	6600	\$99,000	2400	\$36,000		
Furnish and Place Embankment	CY	\$15	12400	\$186,000	0	\$0		
Topsoil 4"	SY	\$4	11300	\$45,200	3000	\$12,000		
Sodding	SY	\$5	11300	\$56,500	3000	\$15,000		
Maintenance of Traffic Items								
Temporary Pavement	SY	\$25	3000	\$75,000	0	\$0		
Furnish Excavation (for temp. pavement)	CY	\$15	3200	\$48,000	0	\$0		
Earth Excavation (for temp pavement)	CY	\$15	3200	\$48,000	0	\$0		
Temporary Pavement Removal	SY	\$5	3000	\$15,000	0	\$0		
Temporary Pavement Markings	L SUM	\$7,500	1	\$7,500	0	\$0		
Removal Items								
Pavement Removal	SY	\$6	5400	\$32,400	1200	\$7,200		
CC&G Removal	FT	\$5	750	\$3,750	0	\$0		
Driveway Pavement Removal	SY	\$10	750	\$7,500	450	\$4,500		
Storm Sewer Removal	FT	\$16	600	\$9,600	0	\$0		
Drainage Structure Removal	EACH	\$500	6	\$3,000	0	\$0		
Pipe Culvert Removal	FT	\$5	200	\$1,000	0	\$0		
Roadway Items								
Pavement	SY	\$55	7587	\$417,297	1209	\$66,489		
Type B-6, 12 CC&G	FT	\$16	1760	\$28,160	880	\$14,080		
5" PPC Sidewalk	SF	\$5	0	\$0	9230	\$46,150		
Bit. Shoulders	SY	\$22	2000	\$44,000	0	\$0		
Agg. Shoulders	SY	\$10	667	\$6,670	0	\$0		
Driveway Pavement	SY	\$30	750	\$22,500	450	\$13,500		
Traffic Signal Items								
Traffic Signal	EACH	\$225,000	1	\$225,000	0	\$0		
Drainage Items								
Storm Sewer (mainline)	FT	\$65	670	\$43,550	175	\$11,375		
Storm Sewer (laterals)	FT	\$40	600	\$24,000	62	\$2,480		
Catch Basins	EACH	\$2,000	19	\$38,000	4	\$8,000		
Manholes	EACH	\$1,800	5	\$9,000	2	\$3,600		
Trench Backfill	CY	\$25	600	\$15,000	125	\$3,125		
Driveway Culverts	FT	\$40	225	\$9,000	0	\$0		
Sanitary Sewer Items								
Manhole	EACH	\$2,500	0	\$0	3	\$7,500		
8" Sanitary Sewer	FT	\$50	0	\$0	875	\$43,750		
Service Connection w/ cleanouts	EACH	\$4,000	0	\$0	12	\$48,000		
Trench Backfill	CY	\$25	0	\$0	1700	\$42,500		
Water Main Items								
8" Water Main	FT	\$50	0	\$0	950	\$47,500		
Valve Vault	EACH	\$1,800	0	\$0	1	\$1,800		
8" Valve	EACH	\$1,200	0	\$0	1	\$1,200		
Fittings	LBS	\$5	0	\$0	500	\$2,500		
Service Connection	EACH	\$2,000	0	\$0	12	\$24,000		
Fire Hydrant	EACH	\$3,000	0	\$0	4	\$12,000		
Trench Backfill	CY	\$25	0	\$0	50	\$1,250		
				Sub-Total:	\$1,519,627	\$475,499		
Erosion Control (2% of Sub-Total)					\$30,393	\$9,510		
Traffic Control and Protection (4% of Sub-Total)					\$60,785	\$19,020		
Construction Layout (1.5% of Sub-Total)					\$22,794	\$7,132		
Miscellaneous Items (25% of Sub-Total)					\$379,907	\$118,875		
				Construction Totals:	\$2,013,506	\$630,036		
					\$250,000	\$75,000		
Utility Relocation (Estimated)				L. SUM				
Proposed Right-of-Way Acquisition/ Temporary Construction Easements (Estimated)				SQ. FT	\$27	9400	\$250,000	\$37,802
Phase 1 Engineering (6% of Construction Total)							\$120,810	\$63,004
Phase 2 Engineering (10% of Construction Total)							\$201,351	\$63,004
Phase 3 Engineering (10% of Construction Total)							\$201,351	\$63,004
Project Totals:					\$3,037,018		\$868,845	
Total:						\$3,905,863		

EXHIBIT 1 PROJECT LOCATION MAP



Route: Madison Street
Limits: Illinois Route 53 to Finley Road
County: DuPage

