

HSM Applications to Multilane Rural Highways and Urban Suburban Streets

Exercise II – Prediction of Safety Performance for Urban/Suburban Multilane Highway and Comparison to Substantive Safety Performance

- Session #7



Exercise II – IL 64 North Avenue from Bloomingdale Road to Main Street-Glen Ellyn

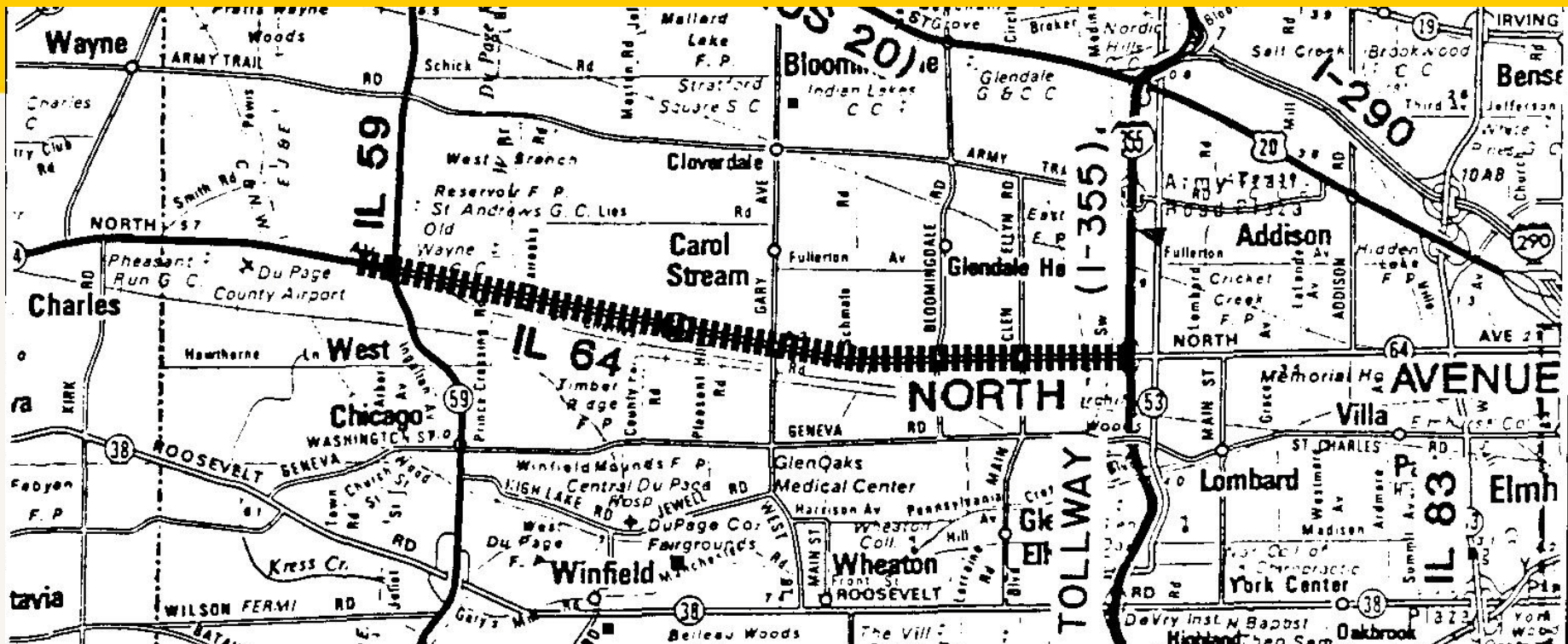
Learning Outcomes:

- ▶ **Apply Urban/Suburban Multilane Crash Prediction model**
- ▶ **Compare predicted safety performance to actual safety performance**

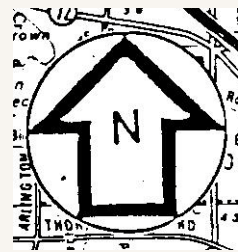
Exercise II – IL 64 North Ave from Bloomingdale Rd to Main St – Glen Ellyn

IL 64, DuPage County, Illinois:

IL Route 64, an east-west state highway initiates at Lake Michigan in the City of Chicago and terminates at the Mississippi River at the west border of Illinois. In DuPage County, 1987 population of 780,000, IL Route 64 is known as North Avenue traversing the cities of Elmhurst and Villa Park and through rural unincorporated areas west to St. Charles Illinois in Kane County. IL Route 64 was improved to 4 lanes in the 1960's throughout this length with intersection improvements at major crossroads such as other state routes and county routes consisting of left turn lanes and traffic signal control during the 1960's and 1970's.



ILLINOIS ROUTE 64 NORTH AVENUE
 ILLINOIS ROUTE 59 TO
 INTERSTATE ROUTE 355
LOCATION MAP
 EXHIBIT A-1



Exercise II – IL 64 North Ave from Bloomingdale Rd to Main St – Glen Ellyn

Geometric Information:

Cross-Section:

- Four 12-foot wide lanes with double yellow centerline dividing the opposing directions of travel (Undivided)
 - 8 foot wide aggregate shoulders
 - 12 foot wide left turn lanes at all major intersections
- No left turn lanes at minor street intersections nor at commercial driveways
- Parking prohibited
- No highway illumination other than some minor intersection lighting by local municipalities and the County Highway Department

Exercise II – IL 64 North Ave from Bloomingdale Rd to Main St – Glen Ellyn

Study Section:

Length of Section = 0.97 miles

ADT = 37,000 AADT

No Horizontal Curves; 2.8% vertical curve west of Shopping Center for 0.35 mi

Driveways:

Minor Residential driveways	7
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Minor commercial driveways (< 50 parking spaces)	7
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Major commercial driveways (> 50 parking spaces)	11
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Total # of Driveways	25
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Exercise II – IL 64 North Ave from Bloomingdale Rd to Main St – Glen Ellyn

Study Section:

Number of Unsignalized Intersections with left turn lanes 0
Number of Unsignalized Intersections without turn lanes 9

Trees and Power poles 18.0 feet from edge of pavement with spacing of 160 foot apart, one side

Signalized Intersections:

Bloomingdale Road	16,100 AADT
Shopping Center (north and south)	2,400 AADT
Main Street-Glen Ellyn	16,700 AADT

Exercise II – IL 64 North Ave from Bloomingdale Rd to Main St – Glen Ellyn

Unsignalized Intersections:

Mildred	700 AADT
Virginia	700 AADT
Bernice	700 AADT
Western	700 AADT
Pearl	1,500 AADT
Diane	700 AADT
Evergreen	700 AADT
Amy	700 AADT
Newton	700 AADT

Signalized Intersections:

Bloomingdale Road	16,100 AADT
Shopping Center (north and south)	2,400 AADT
Main Street-Glen Ellyn	16,700 AADT

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Study Section:

Crash data for 1986, 1987, 1988 – 3 years

	Total Crashes	Injury Crashes	Day	Night
Rdwy Segment	84	26	57	27
SubTotal:	84	26	57	27

Crash data for 1986, 1987, 1988 – 3 years

Intersections:	Total	Injury	Day	Night
Mildred	9	2	6	3
Virginia	12	3	9	3
Bernice	16	3	11	5
Western	11	4	7	4
Pearl	22	6	16	6
Diane	16	5	11	5
Evergreen	11	4	7	4
Amy	7	4	4	3
Newton	12	5	8	4
Bloomingdale Rd	170	68	122	48
Shopping Center	18	5	13	5
Main St-Glen Ellyn	146	45	100	46
Totals:	450	154	314	136

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Study Section:

Crash data for 1986, 1987, 1988 – 3 years

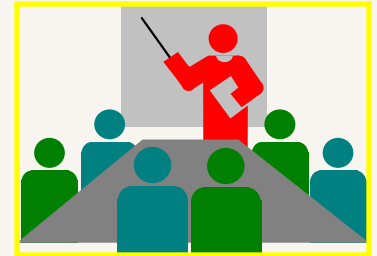
	Total Crashes	Injury Crashes	Day	Night
Rdwy Segment	84	26	57	27
12 Intersections	450	154	314	136
Totals:	534	180	371	163

Exercise II – IL 64 North Ave from Bloomingdale Rd to Main St – Glen Ellyn

1. Predict the Crash Frequency Performance for the segment using the Suburban Multilane Undivided model (4U) for the following:
 - a. **Base Model Multiple Vehicle Non-Driveway**
 - b. **Base Model Single Vehicle Non-Driveway**
 - c. **Driveway Related Crashes**
 - d. **CMF's for Parking, Roadside Objects, and Lighting**
 - e. **Predicted Crashes with CMF's Applied**
 - f. **Pedestrian Crashes**
 - g. **Bicycle Crashes**
 - h. **Total Predicted Crashes for Segment**

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From the Crash Frequency Prediction analysis, perform the following:



2. Is the actual Crash Frequency Performance for the geometrics for IL 64 less than the Predicted Crash Frequency Performance?

Substantive Safety Performance = ?

Predicted Safety Performance = ?

Safer than Predicted YES/NO?

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Learning Outcomes:

- ▶ **Applied Rural Multilane Crash Prediction model**
- ▶ **Compared predicted safety performance to actual safety performance**

Questions and Discussion

