DOWNTOWN TRANSPORTATION STUDY
Mount Prospect, IL

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March 2018

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1.0 INTRODUCTION

The Village of Mount Prospect realizes peak period traffic congestion through its downtown as large traffic volumes crossing the Union Pacific (UP) railroad tracks at-grade are interrupted by a high number of commuter trains during the same peak period times. The only two railroad crossings in the downtown area are IL 83 and Emerson Street. The traffic delays are compounded by the condition that the IL 83 and Emerson Street railroad gates remain down while Metra passengers board and alight the train, increasing the time traffic is stopped and significantly decreasing the efficiency of the three interconnected traffic signals along IL 83 and at Emerson Street and Northwest Highway. The downtown roadway, railroad and traffic signal network is shown in **Figure 1**, along with study locations for the detailed traffic analysis.

It is a similar situation to many suburban communities along commuter rail lines. In fact, as part of a previous study, *Sam Schwartz* cataloged similar conditions in Arlington Heights, Des Plaines and La Grange of traffic signals interconnected to railroad crossings near Metra stations and along high Average Daily Traffic (ADT) arterials. That previous study determined the key differences in traffic signal operations of the Mount Prospect railroad crossings are the number of phases, and the significantly longer cycle length required to ensure safe clearance of vehicles from the tracks.

The purpose of this Downtown Transportation Study is to improve multimodal transportation conditions in the downtown through an alternatives evaluation of moving the Metra station and loading platform to reduce the time that Metra trains block the IL 83 crossing, as well as investigating the feasibility of an additional at-grade crossing to accommodate existing and new traffic generated by development. This study also includes a preliminary cost estimate and feasibility study of adding/modifying pedestrian push buttons and changing the traffic signal controller at the intersection of IL 83 and Prospect Avenue.

1.1 Study Area and Study Locations

The study area generally includes the downtown Mount Prospect intersections on either side of the railroad tracks from IL 83 to School Street, both signalized and unsignalized locations. This area includes the key intersections within the downtown that would be most impacted by changes to train boarding location and gate timings.

The study locations selected for detailed traffic analyses are as follows:

1. IL 83 (Main Street) with Northwest Highway (US 14)
2. IL 83 with Prospect Avenue
3. Emerson Street with Northwest Highway
4. Emerson Street with Prospect Avenue
5. Maple Street with Northwest Highway
6. Maple Street with Prospect Avenue
7. School Street with Northwest Highway
8. School Street with Prospect Avenue
9. Mount Prospect Road with Northwest Highway
10. Mount Prospect Road with Prospect Avenue

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Figure 1 : Study Area

= Traffic Signal

= Study Intersections

1.2 Existing Roadway System Characteristics

Brief physical and operational characteristics of the roadways in the study area are described as follows:

IL 83 / Main Street is a five-lane arterial roadway that carries approximately 12,500 vehicles per day (in 2015) across the Union Pacific railroad tracks at-grade. IL 83 provides separate left-turn lanes at its signalized intersections with Northwest Highway and Prospect Avenue. IL 83 is under the jurisdiction of the Illinois Department of Transportation (IDOT).

Emerson Street is a two to three-lane local collector roadway with parking (parallel and diagonal) on both sides of the street. It carries approximately 4,700 vehicles per day (in 2015) across the railroad tracks at-grade. Emerson Street is signalized at its intersection with Northwest Highway and under stop-sign (3-way) control at its intersection with Prospect Avenue. It is under the jurisdiction of the Village.

Northwest Highway / US 14 is a four to five-lane arterial roadway that runs along the north side of the UP tracks. It carries approximately 11,500 vehicles per day according to counts conducted by IDOT in 2015. IDOT has jurisdiction of Northwest Highway.

Prospect Avenue is a two-lane local roadway that runs along the south side of the railroad tracks and parking is generally allowed on both sides of the street. It carries approximately 3,300 vehicles per day according to counts conducted by the Village in 2008. It is under the jurisdiction of the Village.

Maple Street is a two-lane local roadway that does not provide a railroad crossing. The south segment of road terminates at Prospect Avenue where it is under stop-sign control. Access to a large commuter parking lot is located on Maple just south of Prospect Avenue. The north segment of road terminates at Northwest Highway where it is also under stop-sign control. Maple Street is under the jurisdiction of the Village and carries approximately 1,000 vehicles per day south of Prospect Avenue.

School Street is a two-lane local roadway that also does not provide a railroad crossing. School Street is under stop-sign control at its three-legged intersections with Prospect Avenue and Northwest Highway. It carries approximately 500 vehicles per day south of Prospect Avenue and is under the jurisdiction of the Village.

Mount Prospect Road is five-lane major collector that carries approximately 13,200 vehicles per day across the Union Pacific railroad tracks at-grade and is under the jurisdiction of Cook County.

1.3 Pedestrian Facilities

Sidewalks are provided along all study roadways on both sides of the street, except for portions of Northwest Highway and Prospect Avenue on the track side. Crosswalk markings are provided at each signalized intersection.

2.0 TRAFFIC VOLUMES

This section describes the methodology for developing existing and future traffic volume networks and establishes the peak hour volume networks used in the following capacity analysis chapter. Traffic volumes were developed for the Existing Traffic condition and then projected to the future Total Traffic condition with the potential projects included in the Downtown Implementation Plan.

2.1 Existing Traffic Volumes

Intersection turning movement counts were performed in May 2017 during the following peak periods at each of the study intersections:

- Weekday morning (AM): 7:00 AM to 9:00 AM
- Weekday evening (PM): 4:00 PM to 6:00 PM

All raw traffic data is included in Appendix A. In addition, daily traffic volumes provided by the Village from 2008 were referenced for several roadway segments in the study area

The Existing Traffic and Pedestrian volume diagrams for the weekday AM and PM peak hours are shown in **Figures 2 and 3**.

2.2 Feasibility of Additional Railroad Crossing

The Village is considering the feasibility of an additional railroad crossing in the downtown area to provide an alternative local travel route to IL 83 or Emerson Street, as well as help to accommodate new traffic projected to be generated by development.

A grade separated crossing was considered for School Street underneath the UP tracks. According to the IDOT BDE manual Figure 33-5. A, the clearance needed under the tracks is a minimum of 14'-9" and the clearance over the tracks is a minimum of 23'-0". Since the clearance under the tracks is smaller, a viaduct under the railroad was investigated, rather than a bridge over. The maximum slope for a local road like School Street is 9%. If a slope of 6% was used, School Street would have to be vertically realigned 300' north and south of the intersections of School with Northwest Highway and Prospect Avenue. There are six driveways that would be impacted by the realignment to the north of the viaduct, and four driveways south of the viaduct. If the intersection with Northwest Highway and Prospect Avenue were to intersect with School on either side of the viaduct, 400' of realignment would be necessary to bring the roadways back to existing grade. This would affect several properties on both streets and ten driveways in all. **Figure 4** shows the impacted areas of a grade-separate crossing at School Street. And generally, a similar situation where the area of impact spans several properties would be the case with any potential new at-grade crossing in the downtown area. Furthermore, Union Pacific officials indicated that construction of a new grade-separated crossing requires that one at-grade crossing in the community is closed.

Since so much land use would be impacted by a grade-separated crossing and given UPRR's one-for-one policy, an at-grade crossing is preferred. Union Pacific officials, however, have indicated it is UPRR's policy that for a new at-grade crossing to be constructed, three existing at-grade crossings must be closed.

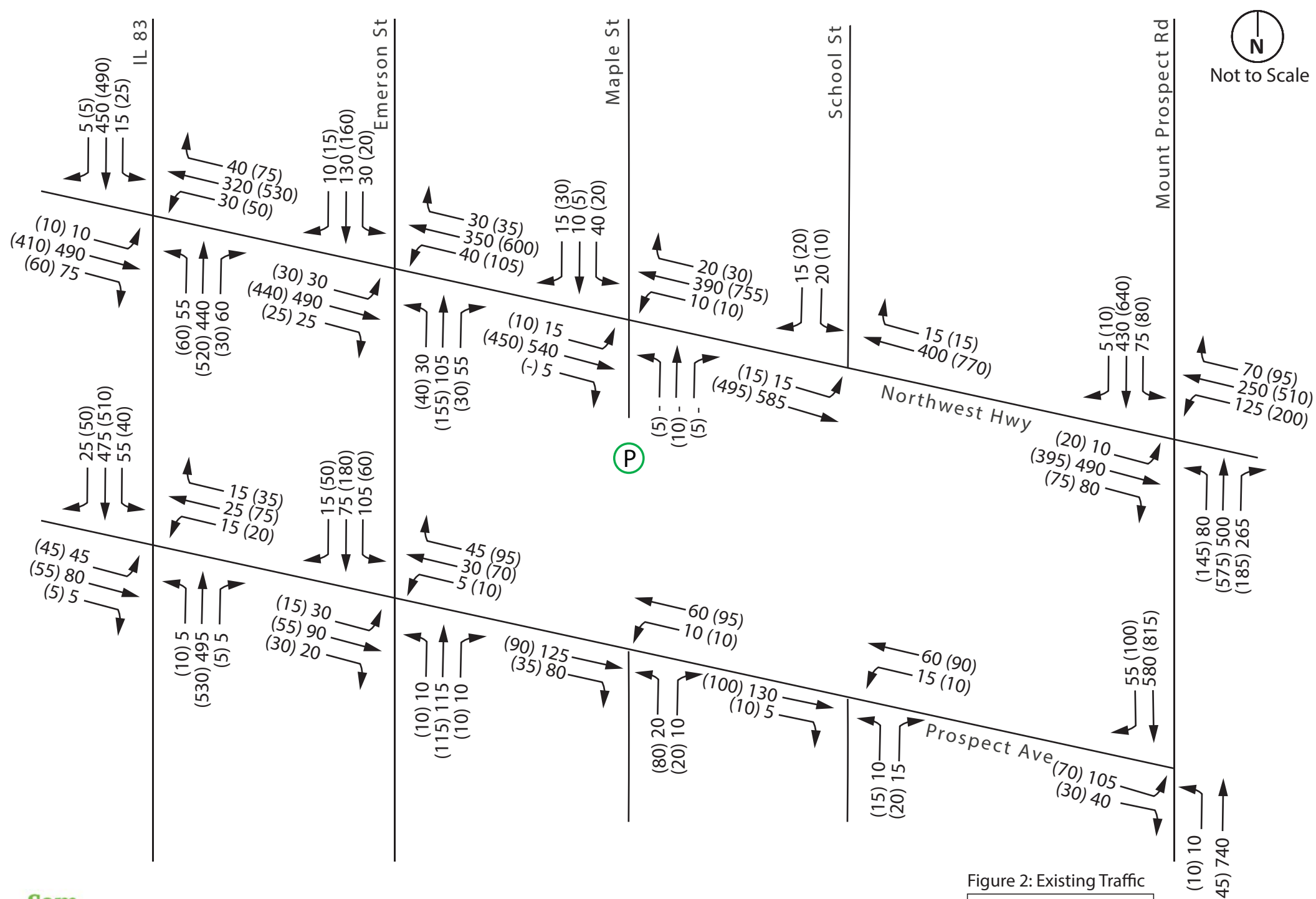

Figure 2: Existing Traffic

xx = AM Peak Hour (7:15 - 8:15 AM)
(xx) = PM Peak Hour (5:00 - 6:00 PM)

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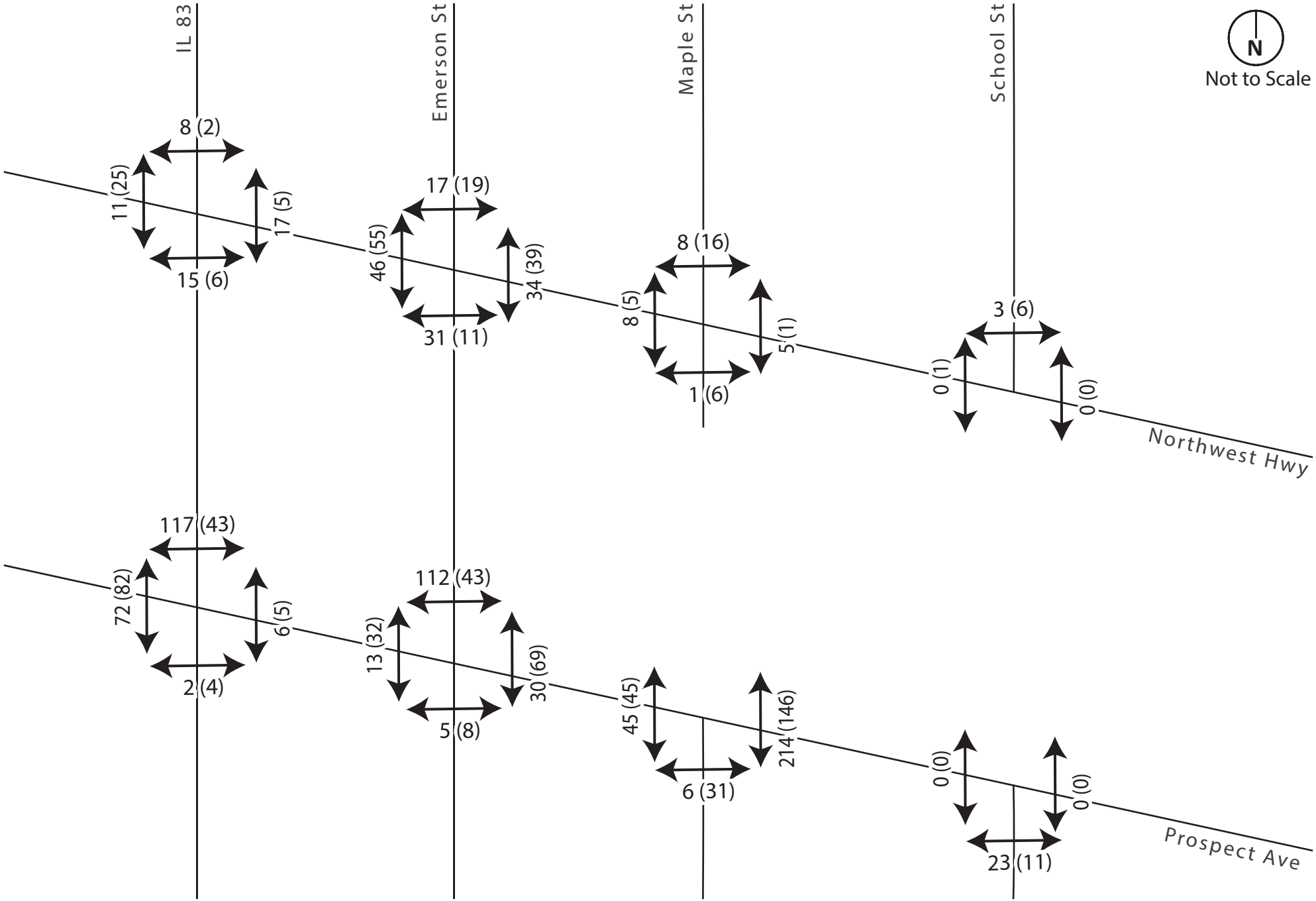

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Figure 3: Existing Pedestrian Volumes

xx = AM Peak Hour (7:15 - 8:15 AM)
(xx) = PM Peak Hour (5:00 - 6:00 PM)

N

Not to Scale

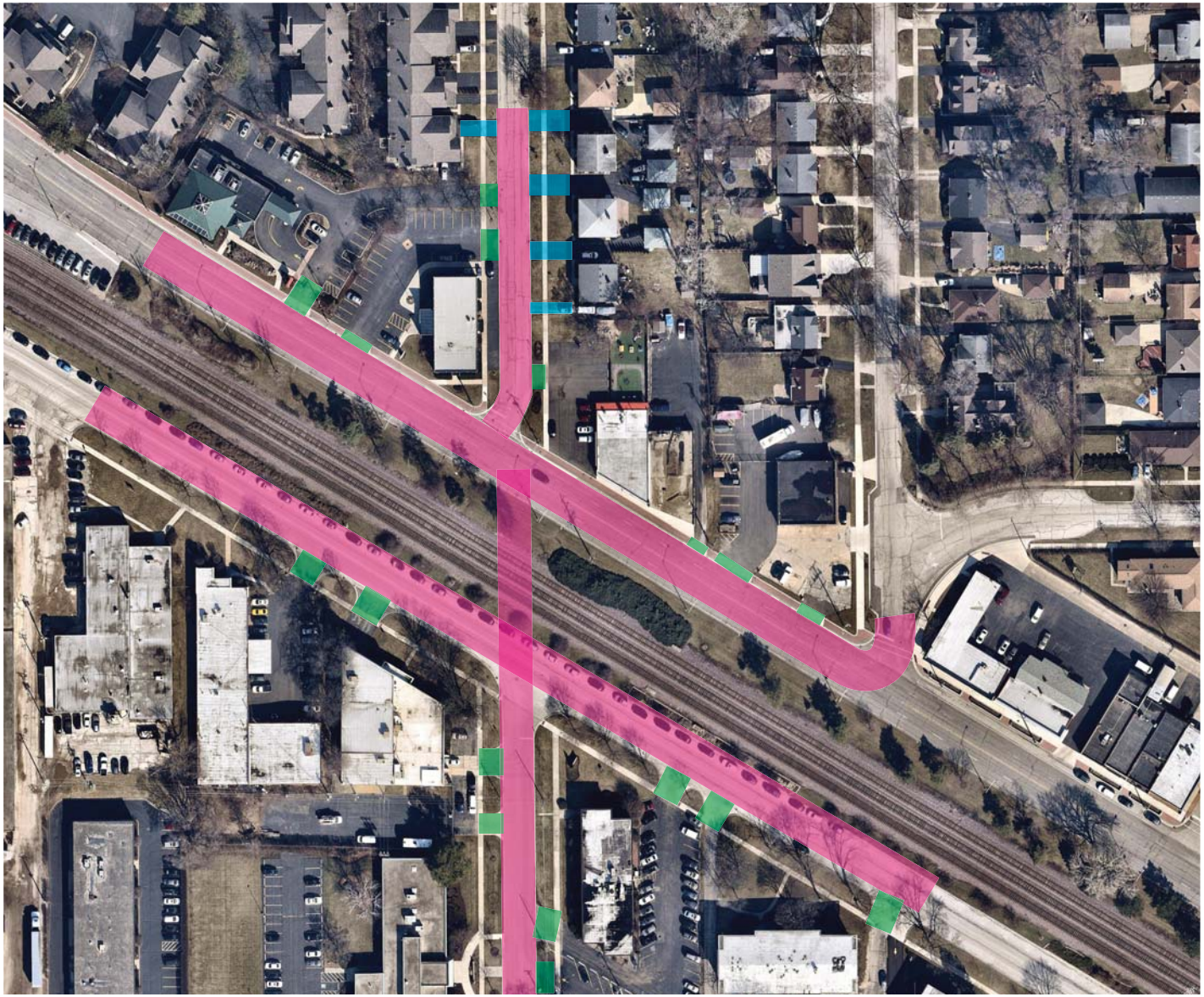

Figure 4: Grade Separated Crossing

Areas for Reconstruction:

= Roadway

= Commercial Driveway

= Residential Driveway

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As seen in **Figure 5** Patrick Engineering completed feasibility analysis of a third at-grade crossing at Maple St. The analysis included, right of way acquisition, roadway and sidewalk realignment, and effect on the existing Metra parking lot. The detailed cost analysis is included in Appendix F and was estimated at $4,937,219.00.

2.2.1 Permitting Process for Additional Railroad Crossing at Maple St. or Improved Crossing at Emerson St.

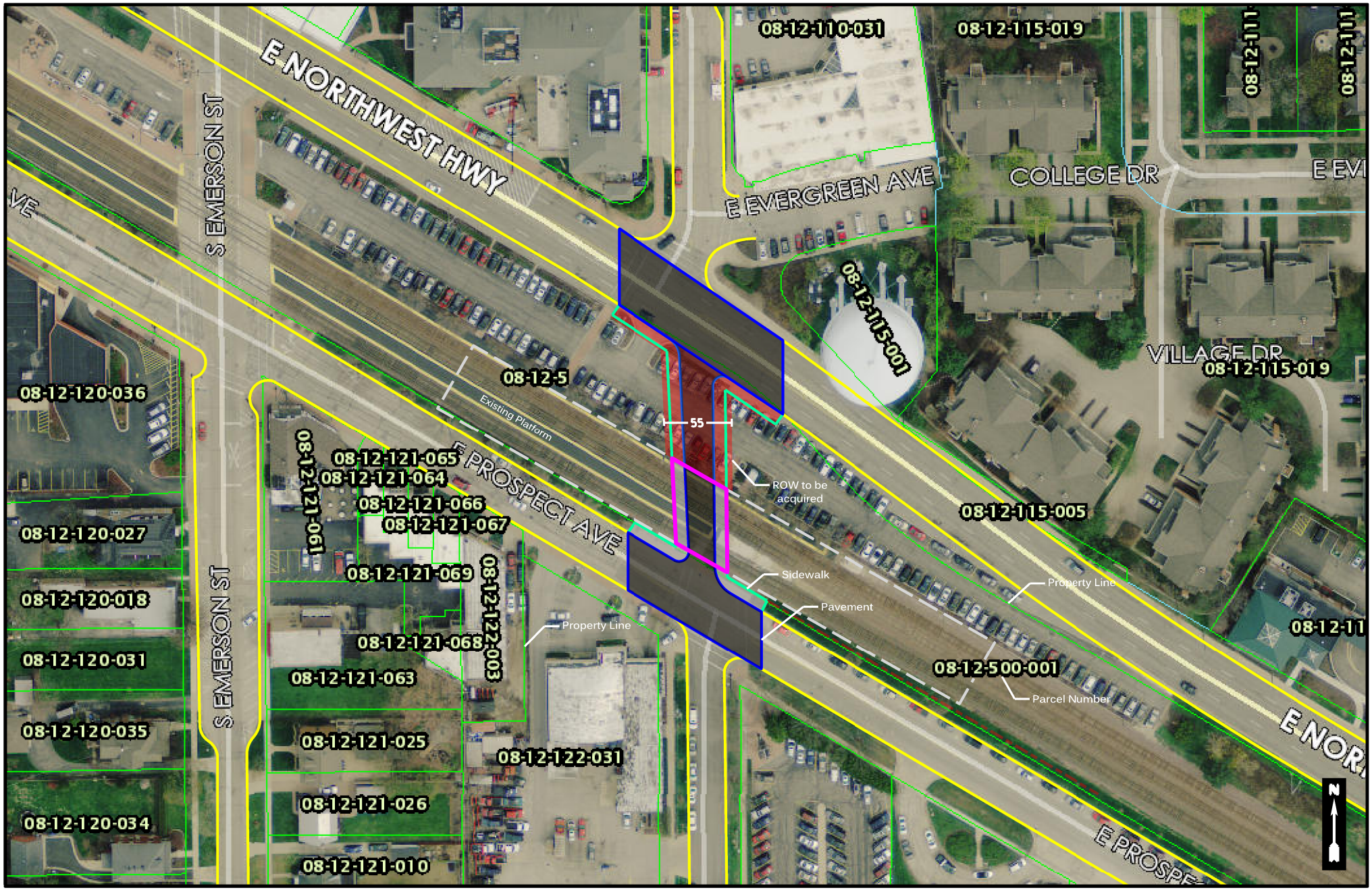
Any new or improved public or private crossing of a railroad in Illinois requires authorization from the Illinois Commerce Commission (ICC). The process starts with a petition for the desired crossing improvement being submitted to the ICC. The petition can only be submitted by the public agency that owns and maintains the roadway (IDOT, County DOT, or local municipality) or the railroad. The petition should include a narrative with the necessity or reason and justification for the crossing improvements.

The ICC will generally schedule a Site Diagnostic Meeting with all parties to become familiar with the physical features of the site. Any issues such as sight lines, obstructions, distance to road intersections, traffic signals at adjacent intersections, distance to next highway/railroad crossing, above ground utilities, etc., that could affect the proposed crossing improvements will be identified and discussed. These issues must be addressed in the design of the proposed crossing improvements.

A hearing will then be scheduled by the ICC. Any issues or concerns regarding the proposed crossing should be worked out with the stakeholders and affected parties before the hearing, as any objections to the proposed crossing that are presented at the hearing will generally result in the petition not being approved. Since the UPRR has indicated that they would like to see crossing closures with any new crossing, it is highly unlikely that any new crossing in urban areas like Mount Prospect would be approved without several associated crossing closures. All railroads, including the UPRR, are generally opposed to any new at-grade crossings due to safety and maintenance issues (in this case, UPRR has stated that for a new at-grade crossing, they would like to see three existing crossings closed, and one crossing closed for a new grade separated crossing). The ICC also would prefer to close crossings rather than open new crossings and even has a Crossing Closure Incentive Program to provide incentives for communities to close at-grade crossings.

The ICC will then issue an order authorizing the construction of the proposed crossing. The order will include the level of warning devices that will be required (Cross Bucks, Flashers, and Gates, etc.) for the proposed crossing. While the railroad forces must install and maintain the crossing panels in the track and the signal equipment associated with the crossing, the costs associated with these items may be allocated to other parties depending on the type of project and the parties sponsoring the project.

In the past both IDOT and ICC have authorized geometric capacity improvements for existing railroad crossings such as Emerson St. in Mount Prospect. A proposed crossing improvement would need to proceed through a similar ICC and IDOT approval process as a new railroad crossing.



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Mount Prospect Traffic Study

Maple Street Alternative:
One-Way At-Grade Crossing
& Intersection Improvement

Existing Roadway
At-Grade Crossing
Right-of-Way Acquisition
Sidewalk
Pavement
Property Line

IDOT Permit Process

Any work within State ROW, such as along US 14 (Northwest Highway), is subject to securing a permit from IDOT District One. This will include providing contract plans for the improvement (including roadway and drainage plans), which will be reviewed by IDOT, completion of the necessary permit forms, and posting of a bond commensurate with the extent of the improvements on State property.

Metra Coordination

It is anticipated that the proposed crossing would impact 20 parking spots in the Metra Parking lot, so extensive coordination with Metra would be required. Although not a permit, Metra approval would be required for the use of their land or a land acquisition transaction would be needed.

2.3 Future Traffic Volumes

Traffic volumes in Downtown Mount Prospect are expected to increase to some extent as redevelopment occurs and density increases, though interaction between existing and new land uses and transit-oriented residential housing will limit new traffic. The future traffic volume projections account for the assignment of new traffic due to this increased density.

2.3.1 Downtown Development Plans

Current development plans in process within the Village were used as a basis for estimating future AM and PM peak hour traffic volumes in this study. The site referred to as Lion's Park has the most direct impact on our study area. The mixed-use redevelopment site named "20 West" was also included in this analysis as it is expected to incrementally increase traffic Downtown, particularly on IL 83 and Northwest Highway.

2.3.2 Street Network Alternatives

Several future traffic volume alternatives were developed to model the following street network options:

- Condition A: The existing roadway framework is shown to remain as-is.
- Condition B: This alternative assumes an additional at-grade crossing is deemed feasible at Maple Avenue. When determining future traffic volumes, Emerson Street becomes one-way southbound between Busse Avenue and Milburn Avenue and Maple Street becomes one-way northbound between Busse Avenue and Lincoln Avenue.
- Condition C: This alternative also assumes an additional at-grade crossing is deemed feasible at Maple Avenue. When determining future traffic volumes, this condition shows Emerson Street as one-way southbound between Northwest Highway and Milburn Avenue and Maple Street as one-way northbound between Busse Avenue and Prospect Avenue.

2.3.3 Development-Generated Trips

The estimates of traffic to be generated in the future condition are based upon proposed land use type and size. The Institute of Transportation Engineer's (ITE) *Trip Generation,* 10th Edition was used to identify traffic generated by the redevelopment concepts. ***Table 1*** summarizes the peak hour trip generation estimates, as well as the applicable Land Use Code reference.

Table 1: Trip Generation

Land Use / Size	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
Lion's Park Redevelopment						
Retail – 25,000 SF (LUC 820)	15	10	25	45	50	95
Residential – 230 DU (LUC 221) [1]	15	55	70	50	35	85
Park-N-Ride – 238 spaces (LUC 090)	80	20	100	30	90	120
Subtotal	110	85	195	125	175	300
Other Redevelopment						
Mixed-Use TOD – 73 DU & 5,000 SF (LUC 231)	10	15	25	20	10	30
Total	120	100	220	145	185	330

[1]Includes an 18% reduction on trips estimated from ITE *Trip Generation* to account for TOD

2.3.4 Site Traffic Assignment

The Lion's Park site-generated traffic was assigned to the roadway network based on a directional distribution according to the various street network alternatives and according to proposed site access. Other development traffic was assigned to IL 83, Northwest Highway and Prospect Avenue as background through traffic. The development-generated traffic was added to the Existing Traffic volumes to develop near-term Future Traffic conditions. The resulting Future Traffic volumes are shown as follows:

- ***Figure 6***: Future Traffic (Near-Term) – Condition A
- ***Figure 7***: Future Traffic (Near-Term) – Condition B
- ***Figure 8***: Future Traffic (Near-Term) – Condition C

2.3.5 Long-Term Downtown Traffic

The Village completed a Downtown Implementation Plan in 2013 which lays out the community's vision of downtown for a 10 to 20-year horizon. In addition to the near-term future traffic scenario outlined above, which contemplates current development plans, a long-term traffic scenario was also tested based on key redevelopment sites and concept plans included in the Plan. The figures depicting Future Traffic (Long-Term) for each of the three conditions, as well as the analysis results are included in Appendix G. The long-term scenario included approximately 170 more residential units and 11,000 additional square feet of commercial than the near-term scenario.

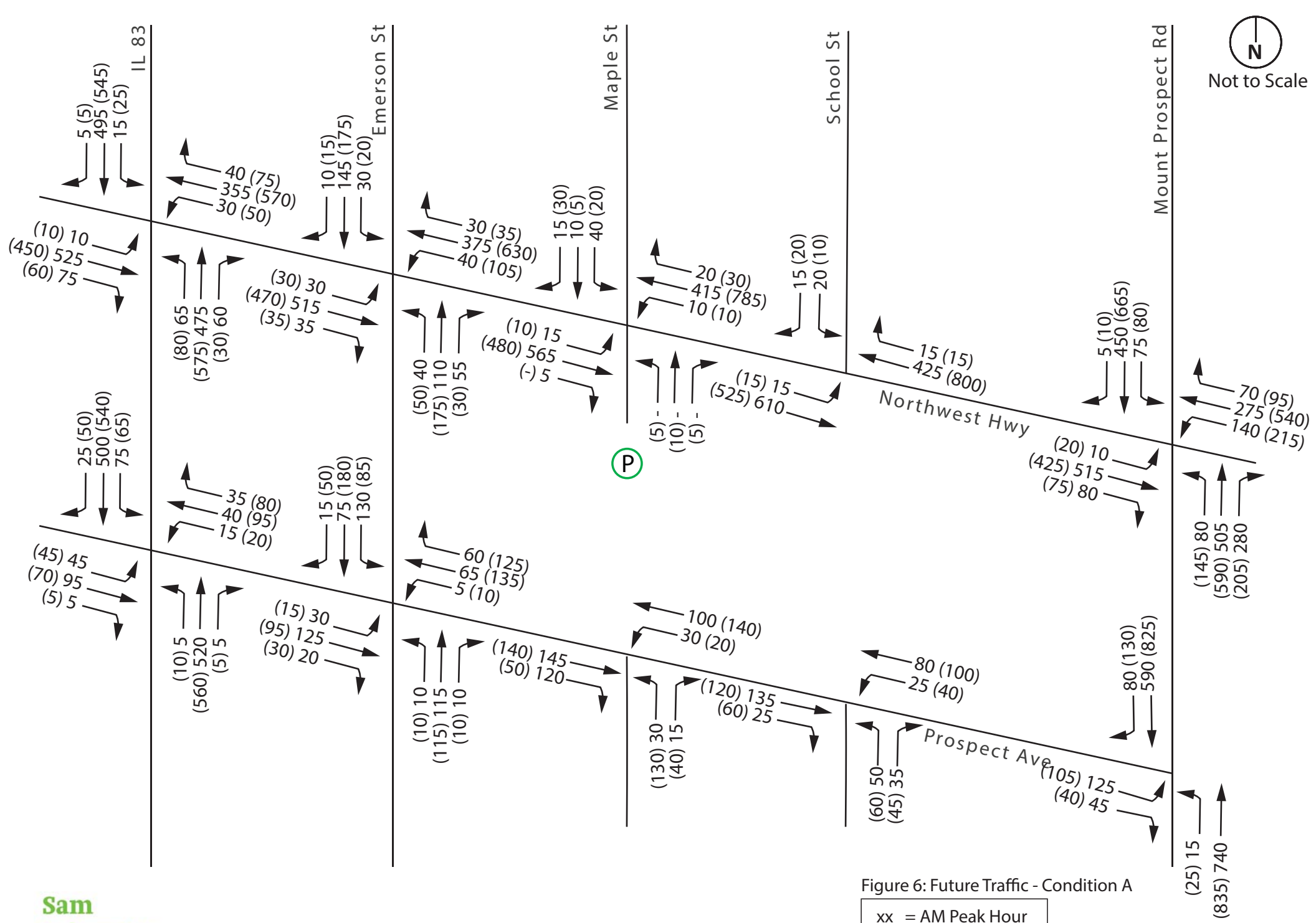

Figure 6: Future Traffic - Condition A

xx = AM Peak Hour (7:15 - 8:15 AM)
(xx) = PM Peak Hour (5:00 - 6:00 PM)

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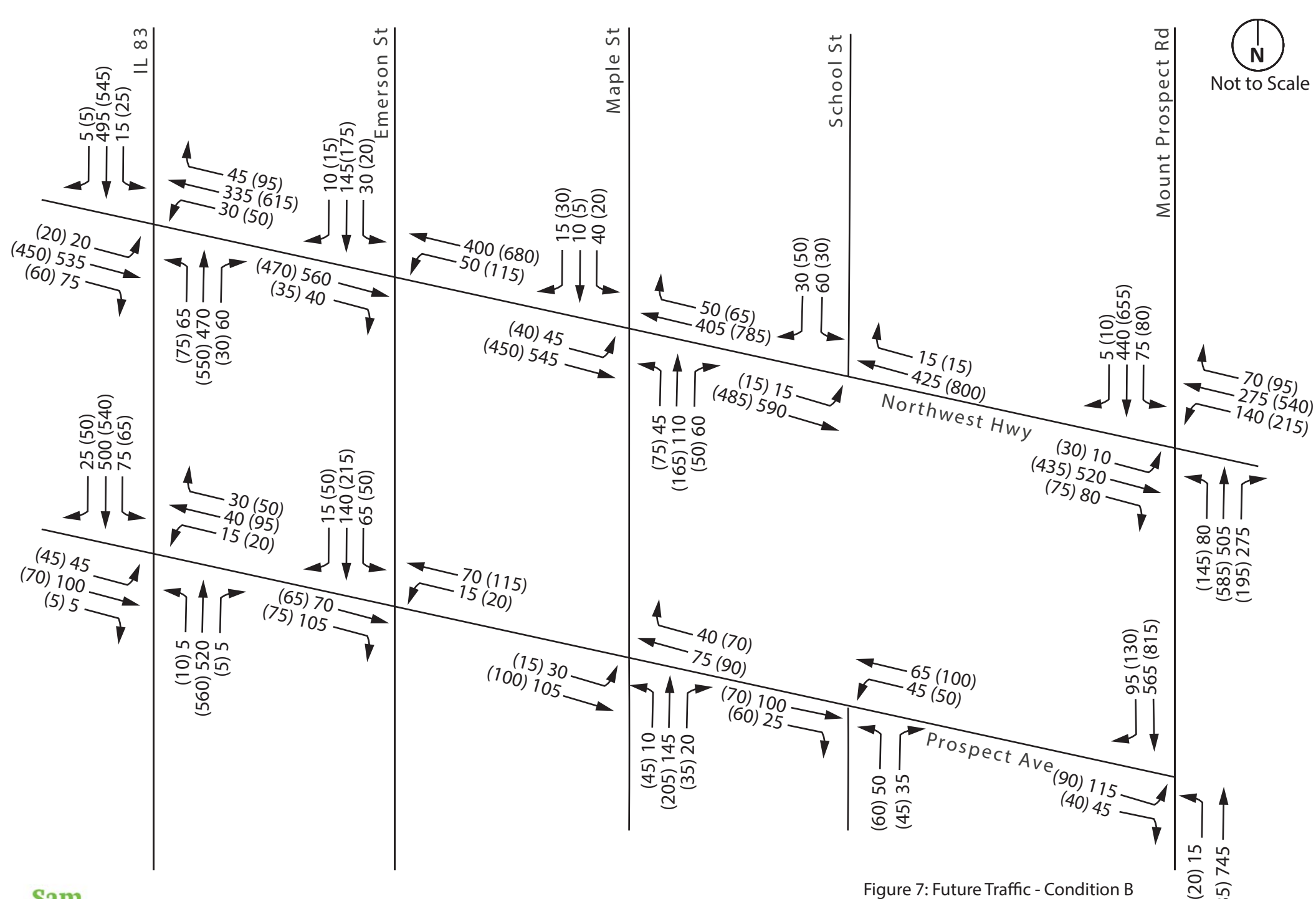

Figure 7: Future Traffic - Condition B

xx = AM Peak Hour (7:15 - 8:15 AM)
(xx) = PM Peak Hour (5:00 - 6:00 PM)

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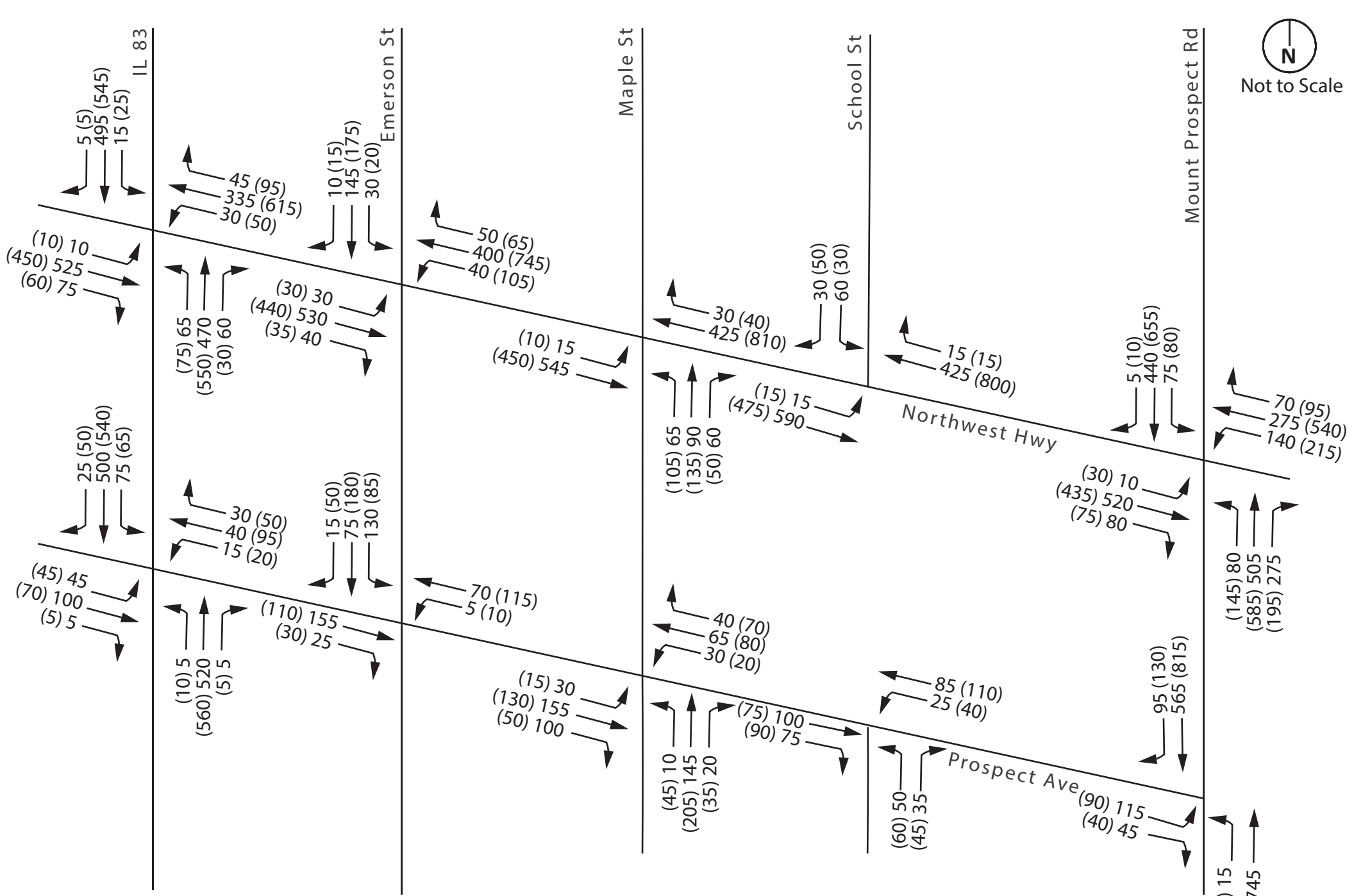

Figure 8: Future Traffic - Condition C

xx = AM Peak Hour (7:15 - 8:15 AM)
(xx) = PM Peak Hour (5:00 - 6:00 PM)

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3.0 TRAFFIC ANALYSIS

A traffic capacity analysis was performed to identify possible traffic impacts associated with the development potential of Downtown Mount Prospect. Traffic analyses were performed for the weekday AM and PM peak hours, and capacity analysis results were developed for the following conditions:

- Existing Traffic, which establishes baseline conditions for the current year.
- Future Traffic (Near-Term), which establishes conditions 3-5 years in the future and considers currently planned development in the downtown.
- Future Traffic (Long-Term), which establishes conditions 10 to 20 years in the future and considers increased density in the downtown as envisioned in the Downtown Implementation Plan. *This analysis is included in Appendix G.*

Level-of-Service Summary Maps were created and provided in Appendix H for each traffic volume condition above and under each street network condition listed in the previous section.

3.1 Capacity Analysis Methodology

The Synchro (version 9) traffic analysis software was used to analyze traffic operations for the Existing Traffic conditions as well as for future Total Traffic conditions. The capacity analysis results from Synchro provide average vehicle delays and levels of service (LOS) for each study intersection. SimTraffic, the traffic simulation module of the Synchro software package, was also used to develop traffic simulations for the existing and future scenarios to further inform traffic operations and to assist in determining the effectiveness of the existing roadway system. Traffic signal timings for the signalized intersections were obtained from IDOT (see Appendix C) and verified in the field.

The Level of Service (LOS) of a signalized intersection is defined in terms of control delay per vehicle (seconds per vehicle). Control delay is the portion of total delay experienced by a motorist that is attributed to the traffic signal. For signalized intersections, LOS A describes operations with minimal delays (up to 10 seconds per vehicle), while LOS F describes operations with delays in excess of 80 seconds per vehicle. In general, delays experienced at LOS D or better are generally considered “acceptable” operating conditions, while LOS E and F are generally considered “unacceptable” operating conditions. The LOS criteria for signalized intersections, as defined in the 2010 Highway Capacity Manual (HCM 2010), are provided in **Table 2**.

Table 2: LOS Criteria for Signalized Intersections

Level of Service (LOS)	Average Delay
A	≤ 10.0 seconds
B	> 10.0 and ≤ 20.0 seconds
C	> 20.0 and ≤ 35.0 seconds
D	> 35.0 and ≤ 55.0 seconds
E	> 55.0 and ≤ 80.0 seconds
F	> 80.0 seconds

Transportation Research Board. *Highway Capacity Manual*, 2010.

For unsignalized intersections, the total delay is defined as the total elapsed time from which a vehicle stops at the back of the queue until the vehicle departs from the stop line. This includes the time required for the vehicle to travel from the last-in-queue to the first-in-queue position. The LOS thresholds for unsignalized intersections are different from those for signalized intersections and are summarized in **Table 3**.

Table 3: LOS Criteria for Unsignalized Intersections

Level of Service (LOS)	Average Delay
A	≤ 10.0 seconds
B	> 10.0 and ≤ 15.0 seconds
C	> 15.0 and ≤ 25.0 seconds
D	> 25.0 and ≤ 35.0 seconds
E	> 35.0 and ≤ 50.0 seconds
F	> 50.0 seconds

Transportation Research Board. *Highway Capacity Manual*, 2010.

3.2 Existing Conditions

Table 4 summarizes the train and railroad crossing information during the peak 90-minute periods in both the morning and evening "rushes" at the intersection of IL 83 with Northwest Highway and Prospect Avenue.

Table 4: Mount Prospect Railroad Crossing Summary

Location	Average Daily Traffic		# of Signal Phases	Cycle Length		No. of Train Interruptions		Min Gate Down	
	N/S Route	E/W Route		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
IL 83 @ Northwest Hwy & Prospect Ave	12,500	11,400	10	160	170	17	14	34	32

As the table shows, the crossing gates are down 32 to 34 of the peak 90-minute traffic periods. Because of the high number of train preemption calls that occur during those peak periods and the fact that Synchro and SimTraffic modeling have limited capabilities when it comes to modeling train interruptions, the intent of the Level of Service analysis is to compare existing and future traffic loads with respect to each other and roadway intersection capacity. Train interruptions further reduce Levels of Service, so the Synchro results may appear to show better operations than in the field.

The intersection capacity analysis results for the Existing Traffic condition for signalized and unsignalized intersections are shown in **Table 5**. The Synchro files for Existing and Future (Near-Term) conditions A,B,C, for both peak hours are provided in Appendix D.

Table 5: EXISTING LEVEL-OF-SERVICE

Intersection/Lane	AM Peak Hour LOS	PM Peak Hour LOS
IL 83 at Northwest Hwy (s)		
Eastbound L	B	B
Eastbound TR	C	C
Westbound L	C	D
Westbound TR	D	D
Northbound L	A	A
Northbound TR	A	A
Southbound L	E	E
Southbound TR	D	D
Overall Intersection	**C**	**C**
IL 83 at Prospect Ave (s)		
Eastbound L	F	F
Eastbound TR	D	D
Westbound L	E	E
Westbound T	E	E
Westbound R	E	E
Northbound L	E	E
Northbound TR	E	E
Southbound L	C	C
Southbound TR	A	A
Overall Intersection	**D**	**D**
Emerson St at Northwest Hwy (s)		
Eastbound LT	A	A
Eastbound R	A	A
Westbound L	A	A
Westbound TR	A	A
Northbound L	C	C
Northbound TR	C	C
Southbound L	C	C
Southbound TR	C	C
Overall Intersection	**B**	**B**
Emerson St at Prospect Avenue		
Eastbound LT	C	D
Eastbound R	A	A
Westbound LT	B	C
Westbound R	B	C
Northbound	A	D
Southbound	A	A
Minor Approach	**C**	**C**
Maple St at Northwest Hwy		
Eastbound L	A	A
Westbound L	A	A
Northbound LTR	B	D
Southbound Approach	**C**	**C**
Maple St at Prospect Ave		
Westbound L	A	A
Northbound Approach	**B**	**B**
School St at Northwest Hwy		
Eastbound L	A	A
Southbound Approach	**B**	**C**
School St at Prospect Ave		
Westbound L	A	A
Northbound Approach	**A**	**A**

Table 5: EXISTING LEVEL-OF-SERVICE (con't.)

Intersection/Lane	AM Peak Hour LOS	PM Peak Hour LOS
Mount Prospect Rd at Northwest Hwy (s)		
Eastbound L	D	D
Eastbound TR	F	F
Westbound L	E	F
Westbound TR	E	E
Northbound L	A	B
Northbound TR	A	A
Southbound L	E	E
Southbound TR	E	E
Overall Intersection	**D**	**E**
Mount Prospect Rd at Prospect Ave (s)		
Eastbound L	F	F
Eastbound R	C	C
Northbound TR	E	E
Southbound T	A	A
Overall Intersection	**D**	**D**

(s) Signalized intersection.

All unsignalized intersections operate at LOS D or better. There are several movements and lane groups under traffic signal control that currently operate below LOS D during the peak hours. Signalized traffic movements or lane groups that currently operate at LOS E or LOS F include the following:

IL 83 and Northwest Highway

- The southbound left-turn movement operates at LOS E during the AM and PM peak hour as it is under protected-only phasing.

IL 83 and Prospect Avenue

- The eastbound left-turn movement operates at LOS F during the AM and PM peak hour.
- All westbound movements operate at LOS E during the AM and PM peak hour.
- All northbound movements operate at LOS E during the AM and PM peak hour.

Mount Prospect Road and Northwest Highway

- The eastbound through movements operates at LOS F during the AM and PM peak hour.
- The westbound left-turn movements operate at LOS E during the AM peak hour and LOS F during the PM peak hour.
- The westbound through movements operate at LOS E during the AM and PM peak hours.
- All southbound movements operate at LOS E during the AM and PM peak hour.

Mount Prospect Road and Prospect Avenue

- The eastbound left-turn movement operates at LOS F during the AM and PM peak hour.
- The northbound movements operate at LOS E during the AM and PM peak hours.
- Long queues were noted on eastbound Prospect Avenue at Mount Prospect Road. Synchro Analysis shows the 95th percentile for the eastbound left queue to be 274 feet during the AM Peak.

3.3 Near-Term Future Conditions

Table 6 compares the future conditions traffic analysis results for each near-term traffic volume condition and each section describes the traffic benefits or impacts of each alternative condition.

Table 6: FUTURE (NEAR-TERM) LEVEL-OF-SERVICE

Intersection/Lane	Condition A		Condition B		Condition C	
	AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
IL 83 at Northwest Hwy (s)						
Eastbound L	D	D	D	D	D	D
Eastbound TR	E	E	E	E	E	E
Westbound L	D	D	D	D	C	D
Westbound TR	D	E	D	E	D	E
Northbound L	A	A	A	A	A	A
Northbound TR	A	A	A	A	A	A
Southbound L	F	F	F	F	F	F
Southbound TR	D	E	D	E	D	D
Overall Intersection	**D**	**D**	**D**	**D**	**D**	**D**
IL 83 at Prospect Ave (s)						
Eastbound L	F	F	F	F	F	F
Eastbound TR	D	D	D	D	D	D
Westbound L	E	E	E	E	E	E
Westbound T	E	E	E	E	E	E
Westbound R	E	E	E	E	E	E
Northbound L	E	E	E	E	E	E
Northbound TR	E	E	E	E	E	E
Southbound L	C	C	C	C	C	C
Southbound TR	A	A	A	A	A	A
Overall Intersection	**D**	**D**	**D**	**D**	**D**	**D**
Emerson St at Northwest Hwy (s)						
Eastbound L	A	A	-	-	A	A
Eastbound TR	A	A	A	A	A	A
Westbound L	A	A	A	A	A	A
Westbound T/R	A	B	A	A	A	A
Northbound L	C	C	-	-	-	-
Northbound TR	C	C	-	-	-	-
Southbound L	C	C	C	C	C	C
Southbound TR	C	C	C	C	C	C
Overall Intersection	**B**	**B**	**A**	**A**	**A**	**A**
Emerson St at Prospect Avenue			(TWSC)	(TWSC)	(TWSC)	(TWSC)
Eastbound L/T	D	D	B	B	C	B
Eastbound R	A	A	B	B	C	B
Westbound LT	B	C	B	B	C	B
Westbound R	B	C	B	B	B	C
Northbound	A	D	-	-	-	-
Southbound	A	A	A	A	A	A
Minor Approach	**D**	**D**	**B**	**B**	**C**	**C**
Maple St at Northwest Hwy			(s)	(s)	(s)	(s)
Eastbound	A	A	A	A	A	A
Westbound	A	A	A	A	A	B
Northbound LTR	C	D	B	A	C	C
Southbound LTR	C	C	C	D	-	-
Southbound Approach/Overall	**C**	**C**	**B**	**B**	**A**	**B**
Maple St at Prospect Ave						
Westbound	A	A	(AWSC)	(AWSC)	(AWSC)	(AWSC)
Northbound Approach	**B**	**B**	**A**	**A**	**A**	**B**

Table 6: FUTURE (NEAR-TERM) LEVEL-OF-SERVICE (con't.)

Intersection/Lane	Condition A		Condition B		Condition C	
	AM Peak Hour LOS	**PM Peak Hour LOS**	**AM Peak Hour LOS**	**PM Peak Hour LOS**	**AM Peak Hour LOS**	**PM Peak Hour LOS**
School St at Northwest Hwy						
Eastbound L	A	A	A	A	A	A
Southbound Approach	**B**	**C**	**C**	**C**	**C**	**C**
School St at Prospect Ave						
Westbound L	A	A	A	A	A	A
Northbound Approach	**B**	**B**	**B**	**B**	**B**	**B**
Mount Prospect Rd at Northwest Hwy (s)						
Eastbound L	D	D	D	E	D	E
Eastbound TR	F	F	F	F	F	F
Westbound L	E	F	E	F	E	F
Westbound TR	E	E	E	E	E	E
Northbound L	A	A	A	A	A	B
Northbound TR	A	A	A	A	A	A
Southbound L	E	E	E	E	E	E
Southbound TR	E	E	E	E	E	E
Overall Intersection	**D**	**E**	**D**	**E**	**D**	**E**
Mount Prospect Rd at Prospect Ave (s)						
Eastbound L	F	F	F	F	F	F
Eastbound R	C	C	C	C	C	C
Northbound TR	E	E	E	E	E	E
Southbound T	A	A	A	A	A	A
Overall Intersection	**D**	**D**	**D**	**D**	**D**	**D**

(s) Signalized intersection. (AWSC) All-way Stop Control intersection. (TWSC) Two-way Stop Control intersection.

3.3.1 Condition A

For Condition A, where no roadway changes are assumed, the majority of the approaches/lane groups would operate at the same LOS as in the existing conditions.

The increase in traffic volumes due to traffic growth between the existing and future conditions would result in a change in LOS beyond LOS D at the following locations:

<u>IL 83 and Northwest Highway</u>

- The eastbound through/right-turn lane group would degrade from LOS C to LOS E during the AM and PM peak hours.
- The southbound left-turn lane would degrade from LOS E to LOS F during the AM and PM peak hours.
- The southbound through/right-turn lane group would degrade from a LOS D to LOS E during the PM peak hour.
- The westbound through/right-turn lane group would degrade from LOS D to LOS E during the PM peak hour.

Mount Prospect Road and Prospect Avenue

Field observations noted long queues eastbound on Prospect Avenue at Mount Prospect Road. The traffic volume distribution estimates approximately 10-15 vehicles per hour will be added to the eastbound movements at that intersection in the AM and PM peak hours under future conditions. Synchro Analysis estimates this could lengthen the queue approximately 40 to 60 feet or 2 to 3 vehicles during the AM peak period for Conditions A, B, or C. This intersection is slated to be improved by IDOT and the signal timing may be adjusted by IDOT or one of their timing consultants after construction in 2018-2019.

3.3.2 Condition B

For Condition B, an additional at-grade crossing is constructed at Maple Street. Emerson Street would become one-way southbound between Busse Avenue and Milburn Avenue while Maple Street would operate as one-way northbound between Busse Avenue and Lincoln Avenue. Under this condition, the majority of the approaches/lane groups would operate at the same LOS as in the existing conditions.

The increase in traffic volumes due to traffic growth between the existing and future conditions would result in a change in LOS beyond LOS D at the following locations:

IL 83 and Northwest Highway

- The eastbound through/right-turn lane group would degrade from LOS D to LOS E during the AM and PM peak hours.
- The southbound left-turn lane would degrade from LOS E to LOS F during the AM and PM peak hours.
- The southbound through/right-turn lane group would degrade from a LOS D to LOS E during the PM peak hour.
- The westbound through/right-turn lane group would degrade from LOS D to LOS E during the PM peak hour.

Emerson Street

Considering Emerson Street as one-way southbound, its intersection with Prospect Avenue will operate at LOS A during the AM peak hour and LOS B as a traditional two-way stop-controlled intersection. Neighborhood circulation is impacted by this alternate with the introduction of a one-way pair from Busse Avenue to Milburn Avenue and Lincoln Street.

Maple Street and Northwest Highway

The addition of an at-grade crossing at Maple Street will require that the intersection of Maple Street with Northwest Highway be placed under traffic signal control. Maple Street will operate one-way northbound as a pair with Emerson Street. The similar traffic volumes allow that these signals be coordinated to minimize impact on Northwest Highway. The intersection will operate on a similar half cycle length as Emerson does, and perform at LOS B for both the AM and PM peak hours.

Maple Street and Prospect Avenue

Given the conversion of Maple Street as one-way northbound, its intersection with Prospect Avenue be controlled by all-way stop. The intersection is expected to operate well at LOS A. With the introduction of the one-way pair, neighborhood circulation is impacted both north and south of Northwest Highway and Prospect Avenue by this alternate.

3.3.3 Condition C

For Condition C, an additional at-grade crossing is constructed at Maple Street. In this alternative, Emerson Street becomes one-way southbound between Northwest Highway and Milburn Avenue while Maple Street becomes one-way northbound between Busse Avenue and Prospect Avenue. Under this condition, the majority of the approaches/lane groups would operate at the same LOS as in the existing conditions. Emerson Street will remain two-way north of Northwest Highway. Maple Street will remain two-way south of Prospect Avenue.

The increase in traffic volumes due to traffic growth between the existing and future conditions would result in a change in LOS beyond LOS D at the following locations:

IL 83 and Northwest Highway

- The eastbound through/right-turn lane group would degrade from LOS D to LOS E during the AM and PM peak hours.
- The southbound left-turn lane would degrade from LOS E to LOS F during the AM and PM peak hours.
- The westbound through/right-turn lane group would degrade from LOS D to LOS E during the PM peak hour.

Emerson Street

Considering Emerson Street as one-way southbound, the operations of its intersection with Prospect Avenue will operate at LOS C as a traditional two-way stop-controlled intersection. Neighborhood circulation is impacted to the south of Northwest Highway by this alternate with the introduction of a one-way street to Milburn Avenue.

Maple Street

The addition of an at-grade crossing at Maple Street will require that its intersection with Northwest Highway be placed under traffic signal control. Maple Street will operate one-way northbound as a pair with Emerson Street. The similar traffic volumes allow that these signals be coordinated to minimize impact on Northwest Highway. The intersection will operate at LOS B under both the AM and PM peak hours. Given the operation of Maple Street as one-way northbound, its intersection with Prospect Avenue will be controlled by all-way stop. The intersection is expected to operate well at LOS A. With the introduction of the one-way street, neighborhood circulation is impacted only to the north of Prospect Avenue by this alternate.

3.4 Long-Term Future Conditions

Table A in Appendix G compares the future conditions traffic analysis results for each long-term traffic volume condition.

The key finding from that analysis was that all intersection will operate similar to the near-term scenario except the intersection of Emerson Street and Prospect Avenue which is projected to have a significant degradation of intersection operations under the Condition A street network, where Emerson Street and Prospect Avenue continue to operate under existing three-way stop control.

Emerson Street and Prospect Avenue

- The eastbound through/left-turn lane group would degrade from LOS D to LOS F during the PM peak hour.

- The westbound through/left-turn lane group would degrade from an LOS C to LOS E during the PM peak hour.
- The westbound right-turn lane would degrade from an LOS C to LOS E during the PM peak hour.
- The northbound lane degrades from an LOS D to an LOS E during the PM peak hour.

As part of the analysis, we modeled the intersection of Emerson Street and Prospect Avenue under traffic signal control to test the operations compared to three-way stop sign control. The advantage of signalization is that the track clearance phasing will guarantee passage for both northbound traffic crossing the tracks through Northwest Highway and southbound traffic crossing the tracks through Prospect Avenue. The disadvantage, however, is that signalization will not significantly improve intersection LOS operations and it will degrade LOS at Emerson Street and Northwest Highway as more time will be required to be dedicated to clearance track phases, thus increasing the cycle lengths from 85 seconds to 170 seconds in the PM period to match IL 83. The Emerson/Northwest Highway cycle length currently runs at half the length of the IL 83 signal cycles which has significantly reduced delays and queuing at the intersection.

Northbound capacity improvements, either a northbound right- or left-turn lane do improve intersection LOS operations one letter grade under this conditions and are possible by removing some of the sidewalk at Prospect Avenue and Emerson Street, but the improvements would have an adverse effect on pedestrian operations at the intersection and would require the demolition of the streetscape project completed approximately 15 years ago. It should be noted that if improvements need to be carried through the railroad crossing, in the past, both IDOT and ICC have authorized geometric capacity improvements for existing railroad crossings similar to Emerson Street. A proposed crossing improvement would need to proceed through a similar ICC and IDOT approval process as a new railroad crossing.

4.0 TRAIN PLATFORM & STATION PLACEMENT

The Metra station in Downtown Mount Prospect is a key component in attracting residents and businesses to the area. However, the current location of the station and loading platform parallel to Northwest Highway between IL 83 and Maple Street causes traffic operational problems. Long traffic signal cycle lengths at two of three signalized intersections along Northwest Highway and IL 83 are required because the current signal sequences require safety clear-out phases. Those long cycles cause all movements to experience lengthier delays than if the cycle length were shorter. Additionally, daily occurrences of trains blocking IL 83 and Emerson Street crossings for over 30 of the 90 minutes in the AM and PM peak periods cause significant inefficiencies in the network. This section summarizes our findings in determining the best location for the commuter station to alleviate these traffic signal operational issues and best serve the multimodal transportation users of the downtown area.

4.1 Existing Conditions

Currently, the Metra Station Platform is 971' and extends from the eastern edge of pavement of Main St. eastward to a point 95' past Maple St. The station depot is located on the southeast quadrant of Northwest Highway and IL 83. In this quadrant, the perpendicular distance between the north track and the curb line of Northwest Highway is approximately 85'. The 85' property width contains the station depot, the north platform, parking spaces, the access driveway from Northwest Highway to the station and adjacent parking lots, sidewalk, and a landscaped parkway. The 85' width of land is maintained 830' east from IL 83 to the parking lot entrance directly across from Maple St., where it begins to taper to a width of 53' at the eastern edge of the parking lot. Although there is no loading platform west of IL 83, a similar 85' width of land is maintained westward approximately 460' from Main St. to the parking lot entrance directly across from Wille St., where it begins to taper to a width of 53' at the western edge of the parking lot.

Because the existing platform is at the eastern edge of pavement of IL 83, the current design of the Union Pacific Railroad (UPRR) track circuits causes the railroad gates at IL 83 to hold in the down position for the entire time the train is parked in station. If the depot and platform remain in the existing location the UPRR has no reason to consider moving these circuits, and the signal operation will continue to be dramatically affected by parked trains at the station.

4.2 Platform Modification Guidance

In discussions with the UPRR, they are open to relocation or extension of the train platform and offered the following recommendations and requirements:

- The edge of the loading platform or the closest to the crossing (depending on location) should be at least 650' away from the edge of pavement of IL 83 to increase the probability that the gates would not be held in the down position. A length of 650' would allow 2 engines (approximately 75' long each) to be parked between the end of platform and the crossing and a 500' clear zone between the front of the engine and the crossing. In disucssions between the Village and UPRR and Metra, Metra was open to instructing eastbound train engineers during AM rush hour to hit a certain pre-determined mark with

the last engine to maintain this 500' clear zone during the AM period to allow the railroad gates at the IL 83 crossing to return to the upright position once the train passes through the IL 83 crossing.

- If the Village proposed to move or extend the platform, a general rule of thumb from both Metra and the UPRR would require a new train depot to be near the midpoint of the relocated platform, with some flexibility. However, a depot could not be located near the end of the platform.

4.3 Extend Existing Platform

Option 1 – Extend Platform

The lowest cost alternative to trains blocking the IL 83 crossing would be to extend the existing loading platform 579' to the east. As seen in **Figure 6**, Option 1 proposes to end the platform between Elm Street and School Street instead of the current location between Maple Street and Elm Street. The total length of proposed extended platform would be approximately 1550'.

In research of other stations in Park Ridge, Des Plaines, Arlington Heights, Palatine, Barrington, and Crystal Lake on this same UPRR line, *Sam Schwartz* found that all stations except Des Plaines have similar length platforms (between 850' and 975'). However, the Des Plaines station has a 1422' long platform with a train depot at the approximate center of the platform. For the proposed platform extension in Mount Prospect, the train depot would have to be moved from its current place at the western edge of the platform to a location in the current parking lot near Northwest Highway and Maple Street as shown by the yellow rectangle in Figure 6. The relocation would not require any realignment of Northwest Highway or land acquisition. A conceptual cost estimate is shown in **Table 7**.

Table 7: Summary of Conceptual Cost Estimate – Option 1

Item	Estimated Cost
Construction	$ 1,844,000
Design Engineering (10% of Construction Cost)	$ 277,000
Construction Engineering (5% of Construction Cost)	$ 90,000
Land Acquisition	$ -
TOTAL	$ 2,211,000

Detailed conceptual cost estimate in Appendix F

Not to Scale

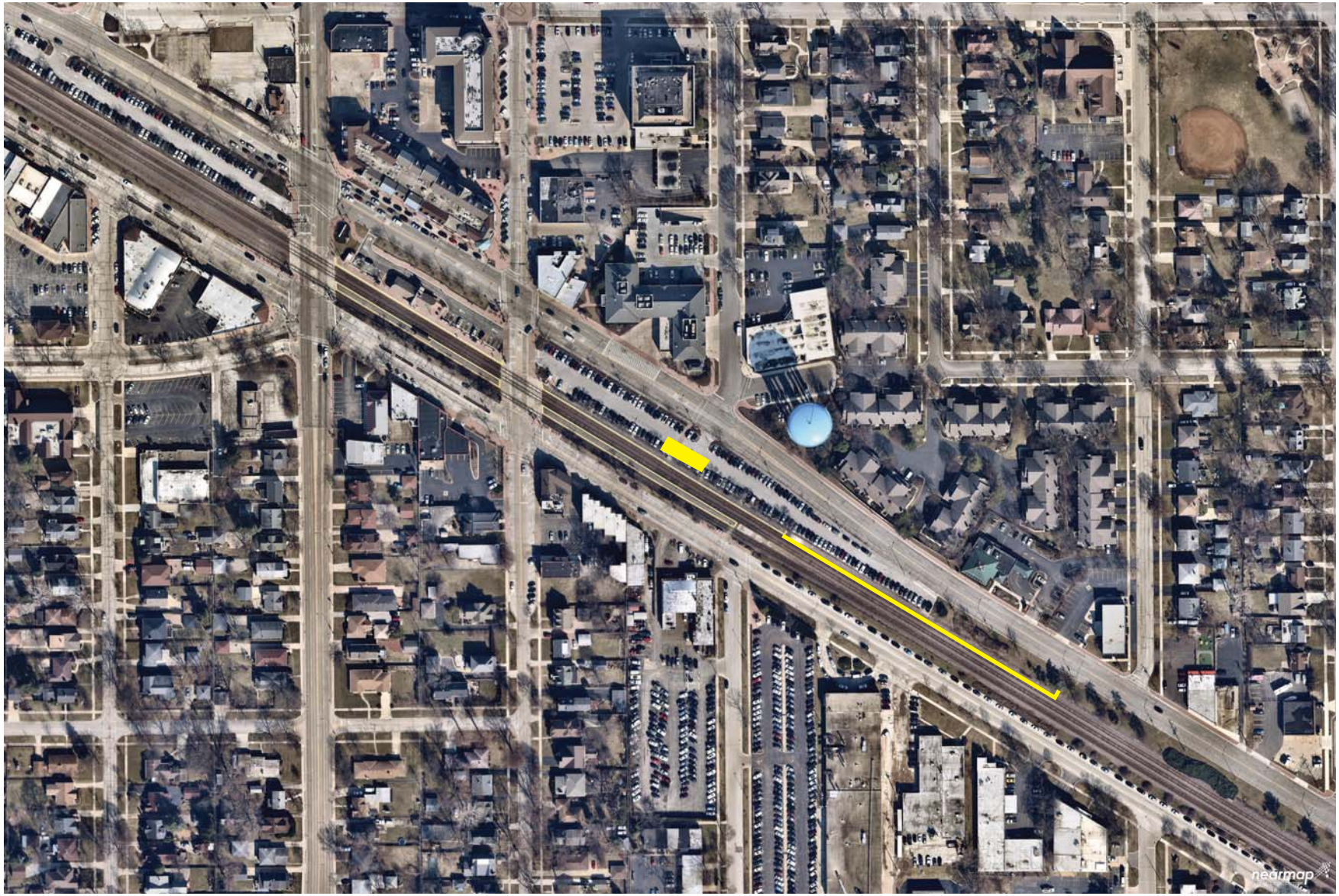

Figure 9: Platform Extension Option 1

Existing Station Platform: 971 ft.
Platform Extension: 579 ft.
Proposed Total Length: 1550 ft.

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4.4 Relocation Alternatives

An alternative solution to platform extension is to maintain the existing platform length of 971' and move the train station and platform either east or west of the current location, as described in Options 2 and 3 below and shown in **Figure 9**. All platform relocations would require some realignment of track, which has been included in the cost estimates.

Option 2 – Westward Relocation Towards Central Road

In this option, *Sam Schwartz* analyzed either an eastbound train where the engines were pushing cars or a westbound train where the engines were pulling cars, in both cases a passenger car would be the closest point to the IL 83 crossing. This train orientation would have a 971' platform from a point 130' west of Elmhurst Avenue to a point at the eastern edge of Wille Street.

An approximate halfway point for the relocated train depot would be 170' west of Pine Street. As seen in Figure 7, the width of land between the north track and the curb line is about 50' at this location on Northwest Highway. The 85' property width at the existing depot for sidewalk, parkway, parking, and access drives could not be provided at this depot location without significant geometric realignment of Northwest Highway. In Option 2, westbound trains would still be 512' away from the crossing at Central Road, which would most likely fall out of the clear zone for that crossing and not force the gates at Central Road into a down position while the train is parked. Gates at IL 83 would remain in the upright position for trains parked in either direction.

As seen in the blue shaded area of Figure 7, relocation option 2 would require a 50' wide parcel of land acquisition of private property on the northside of Northwest Highway for realignment. The estimated total acreage would be 1.3 acre. Additionally, that realignment would be impossible without the removal of the 5-story condominium building on the northeast corner of Northwest Highway and Pine Street. Six commercial driveways would be affected by this realignment, while no residential driveways would be affected as their access is on various side streets. A conceptual cost estimate is shown in **Table 8**.

Table 8: Summary of Conceptual Cost Estimate – Option 2

Item	Estimated Cost
Construction	$ 7,936,000
Design Engineering (10% of Construction Cost)	$ 795,000
Construction Engineering (5% of Construction Cost)	$ 397,000
Land Acquisition	$ 4,245,000
TOTAL	$ 13,373,000

Detailed conceptual cost estimate in Appendix F

Option 3 – Eastward Relocation Towards School Street

In this option, we analyzed either a westbound train where the engines were pulling cars or an eastbound train where the engines were pushing cars, in both cases the parked engines for would the closest point to the IL 83 crossing. This train orientation would have a 971' platform from Evergreen Street to School Street. Parked trains would hold down the gates at Emerson Street but not at IL 83.

An approximate halfway point for the relocated train depot would be just west of Elm Street. As seen in Figure 5, the right of way between the north track and the curb line is about 60' at this location on Northwest Highway. The 85' property width at the existing depot for sidewalk, parkway, parking, and access drives could not be provided at this depot location without significant geometric realignment of Northwest Highway. Several parking spaces on the east end of the existing parking lot would also be lost with this depot location. Relocation option 3 would require a similar land acquisition for the realignment of Northwest Highway as option 2 with an estimated area of 1.0 acre as seen in the green shaded area of Figure 7. Additionally, the realignment would impact the water tower, several townhouses, and the Village Bank & Trust. Two commercial driveways would be affected by this realignment, no residential driveways would be affected as their access is on various side streets. A conceptual cost estimate is shown in **Table 9**.

Table 9: Summary of Conceptual Cost Estimate – Option 3

Item	Estimated Cost
Construction	$ 7,753,000
Design Engineering (10% of Construction Cost)	$ 775,000
Construction Engineering (5% of Construction Cost)	$ 387,000
Land Acquisition	$ 3,390,000
TOTAL	$ 12,305,000

Detailed conceptual cost estimate in Appendix F

Not to Scale

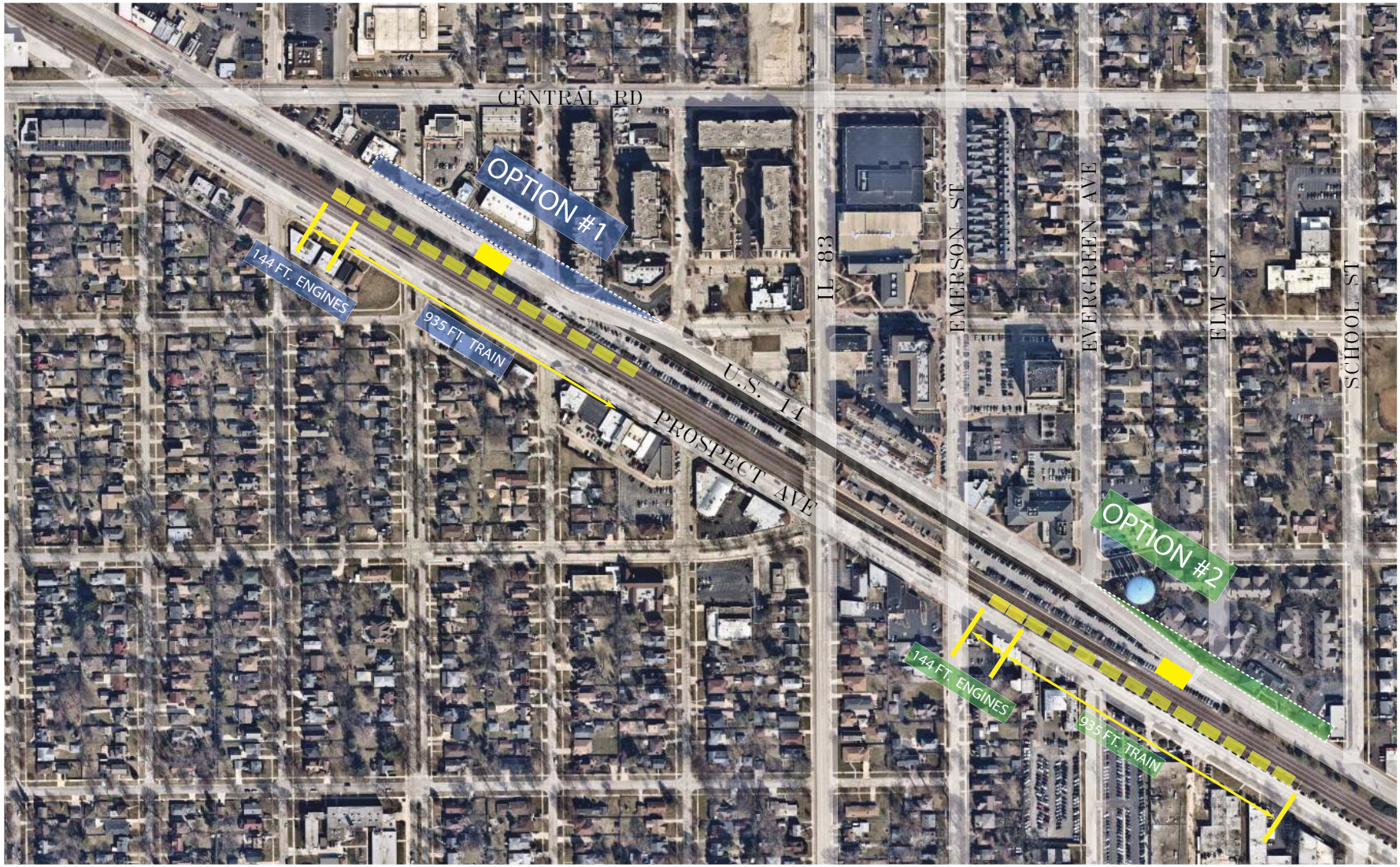

Figure 10: Platform Relocation Alternatives

Existing Station Platform: 971 ft.
Longest Rush Hour Train: 1080 ft.
11 Cars (85 ft. per car) = 935 ft.
2 Engines (72 ft. per engine) = 144 ft.

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Transportation Consultants

5.0 SEPARATED PUSH BUTTONS

Sam Schwartz assessed the pedestrian push buttons at two signal locations in downtown Mount Prospect, IL 83 at Northwest Highway and Emerson Street at Northwest Highway. The current signals have one push button on each corner. When pressed, the button calls for both crossings from the corner to be activated. This causes a false call in the unused direction which can create unnecessary green time for minor approaches and corresponding delays for major approaches. The following lists proposed improvements and a preliminary cost estimate of adding those pedestrian push buttons and modifying the traffic signal controller.

Should the Village decide to proceed with this improvement, the required process would be to submit plans and specifications to IDOT permits for approval. From our 2016 traffic signal study of the Downtown area with IDOT and the Village, IDOT would be open to the improvement. Although the proposed signal phasing would not change, the plans would also have to go to ICC (Illinois Commerce Commission) for approval. IDOT Traffic Operations Department would handle coordination with ICC before IDOT ultimately issues the permit for construction.

5.1 Existing and Proposed Conditions

5.1.1 Northwest Highway at Emerson Street

Existing: One (1) push-button at each corner

- NW corner – Push-button on post used for both crossings, existing post is 20' from N-S crossing
- NE corner – Push-button on post used for both crossings, post is 15' from E-W crossing
- SW corner – Push-button on post used for both crossings, post is 20' from E-W crossing
- SE corner – Push-button on post used for both crossings, post is 8' from curb

Proposed: Addition of four (4) push-buttons and two (2) push-button posts

- NW corner - Add push-button post for N-S crossing, use existing button for E-W crossing
- NE corner - Add push-button post for E-W crossing, use existing button for N-S crossing
- SW corner - Add push-button to mast arm post for E-W crossing, use existing button for N-S crossing
- SE corner – Add push-button to signal post for E-W crossing, use existing button for N-S crossing

5.1.2 IL 83 at Prospect Avenue

Existing condition: One (1) push-button at each corner

NW corner – Push-button on mast arm post used for N-S crossing
NE corner – Push-button on mast arm post used for N-S crossing
SW island – Push-button on post used for N-S crossing
SW corner – Push-button on mast arm post used for both crossings
SE corner – Push-button on mast arm post used for both crossings

Proposed: Addition of two (2) push-buttons

NW corner – No change needed
NE corner – No change needed
SW island – No change needed
SW corner – Add push-button to mast arm post for E-W crossing, use existing button for N-S crossing
SE corner – Add push-button to mast arm post for E-W crossing, use existing button for N-S crossing

5.1.3 IL 83 at Northwest Highway

Existing condition: One (1) push button at each corner

NW corner – Push-button on mast arm post used for both crossings
NE corner – Push-button on post used for both crossings, existing button 16’ from E-W crossing
SW corner – Push-button on post used for both crossings
SE corner – Push-button on mast arm post used for both crossings, post is 15’ from E-W crossing

Proposed: Addition of four (4) push-buttons and two (2) push-button posts

NW corner – Add pedestrian push-button post northeast of handhole for E-W crossing, use existing button for N-S crossing
NE corner – Add pedestrian push-button to mast arm post for E-W crossing, use existing button for N-S crossing
SW corner – Add pedestrian push-button to post for E-W crossing, use existing button on same post for N-S crossing
SE corner – Add pedestrian push-button post for E-W crossing, use existing button for N-S crossing

5.2 Cost Estimate

5.2.1 Northwest Highway at Emerson Street

- 4 push-buttons
- 2 push-button posts
- Cable and conduit
- Maintenance of traffic signal during construction - $2,500
- Construction cost estimate: $11,000

5.2.2 IL 83 at Prospect Avenue

- 2 push-buttons
- Cable
- Maintenance of traffic signal during construction - $2,500
- Construction cost estimate: $6,500

5.2.3 IL 83 at Northwest Highway

- 4 push-buttons
- 2 push-button posts
- Cable and conduit
- Maintenance of traffic signal during construction - $2,500
- Construction cost estimate: $9,000

5.2.4 Total Costs for Potential Push Button Improvements at all 3 locations

- **Contractor** - Construction cost including maintenance - $34,000
- **Consultant** - Design and permitting process cost - $12,500
- **Consultant** - Construction engineering and inspection - $17,500

6.0 CONCLUSION

Sam Schwartz offers the following conclusions to the various analyses completed in this project:

- New development potential in the downtown will increase traffic downtown, including traffic crossing the railroad tracks. Traffic analyses show that the increase will degrade LOS for specific traffic movements at the already congested IL83/Northwest Highway/Prospect Avenue intersection. In the near-term, other intersection operations are expected to continue to generally operate at similar LOS as they do currently.

- In the long-term, if additional development is realized as laid out in the Downtown Implementation Plan, the intersection of Prospect Avenue and Emerson Street may also degrade. Analysis of signalizing this intersection was considered, however installation of a traffic signal at Prospect Avenue and Emerson is not recommended for the following reasons. The signal would operate similarly to the IL83/Northwest Highway/Prospect Avenue intersection requiring a complex sequence, long cycle lengths, and clear-out phases over the railroad tracks in conjunction with the existing signal at Northwest Highway and Emerson St. Synchro analysis shows while a signal may improve operation at Prospect Avenue and Emerson Street, it would decrease LOS at Northwest Highway and Emerson St from C or better (in the proposed PM unsignalized scenario) to D or E for 4 of the 8 movements and would not improve the overall intersection level of service of the combined intersection despite the construction cost which could exceed $200,000. Vehicular capacity improvements are possible by removing some of the sidewalk at Prospect Avenue and Emerson Street, but the improvements would have an adverse effect on pedestrian operations at the intersection and would require the demolition of the streetscape project completed approximately 15 years ago.

- The Illinois Commerce Commission is the final authority for the authorization of any at-grade crossing in the state, there is no federal government involvement. The UPRR will also have significant input with the ICC for any at grade or grade separated crossing on their lines. In our conversations with UPRR staff they stated that their general policy requires that three existing at-grade crossing be eliminated for one new crossing to be considered. Therefore, *Sam Schwartz* concludes the likelihood for an at-grade crossing in Downtown Mount Prospect is minimal.

- Construction of a grade-separated crossing at School Street, and all other potential locations, will substantially impact residents' and businesses' access along Northwest Highway, Prospect Avenue, and School Street. In addition, UPRR policy for adding a grade separated crossing is to attempt to eliminate one at-grade crossing.

- The construction of a new at-grade crossing at Maple Street is estimated at nearly $5,000,000 and would require approval or permitting from ICC, UPRR, IDOT, and Metra.

- The analysis of one-way operations indicates that traffic operations on Emerson Street can improve with a new crossing at Maple Street, particularly at its intersection with Prospect Avenue. Signalization will be required at the new intersection of Maple Street with Northwest Highway. Neighborhood circulation will be impacted but can be minimized

by limiting one-way operations to a one-block segment on both Emerson Street and Maple Street.

- Extending the existing platform 579' to the east to a total length of 1550' and the corresponding track circuit re-design and construction would allow the railroad gates at IL 83 to remain in the upright position while the train is parked. However, the train depot would have to be relocated to the parking lot near the intersection of Northwest Highway and Maple Street to meet the UPRR and Metra's request that any new station be located near the center of the platform. Des Plaines is the only nearby municipality with a station platform of that length. *Sam Schwartz* estimates that Option 1 would cost approximately $2.2 million.

- Platform relocation either eastward or westward would also require moving the train station depot to a point near the center of the relocated platform. To provide the same 85' property width between the railroad tracks and the curb line of Northwest Highway that exists at the current depot location, significant land acquisition and the realignment of Northwest Highway would be required. *Sam Schwartz* estimates that either Option 2 or 3 would require a minimum land acquisition of 1.0 acre and a cost of $12-13 million.

- Pedestrian posts and pushbuttons would be a low-cost improvement that would improve the operational efficiency of the IL83/ Northwest Highway/ Prospect Ave. and Northwest Highway at Emerson St. intersections by eliminating unused green time caused by false pedestrian calls. *Sam Schwartz* estimates total design and construction costs for this improvement to be $64,000.