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DOWNTOWN TRANSPORTATION STUDY

November 13, 2018

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**Sam
Schwartz**

Study Area

-  Traffic Count Intersection
-  Maple Street Lofts Site
-  Metra Station



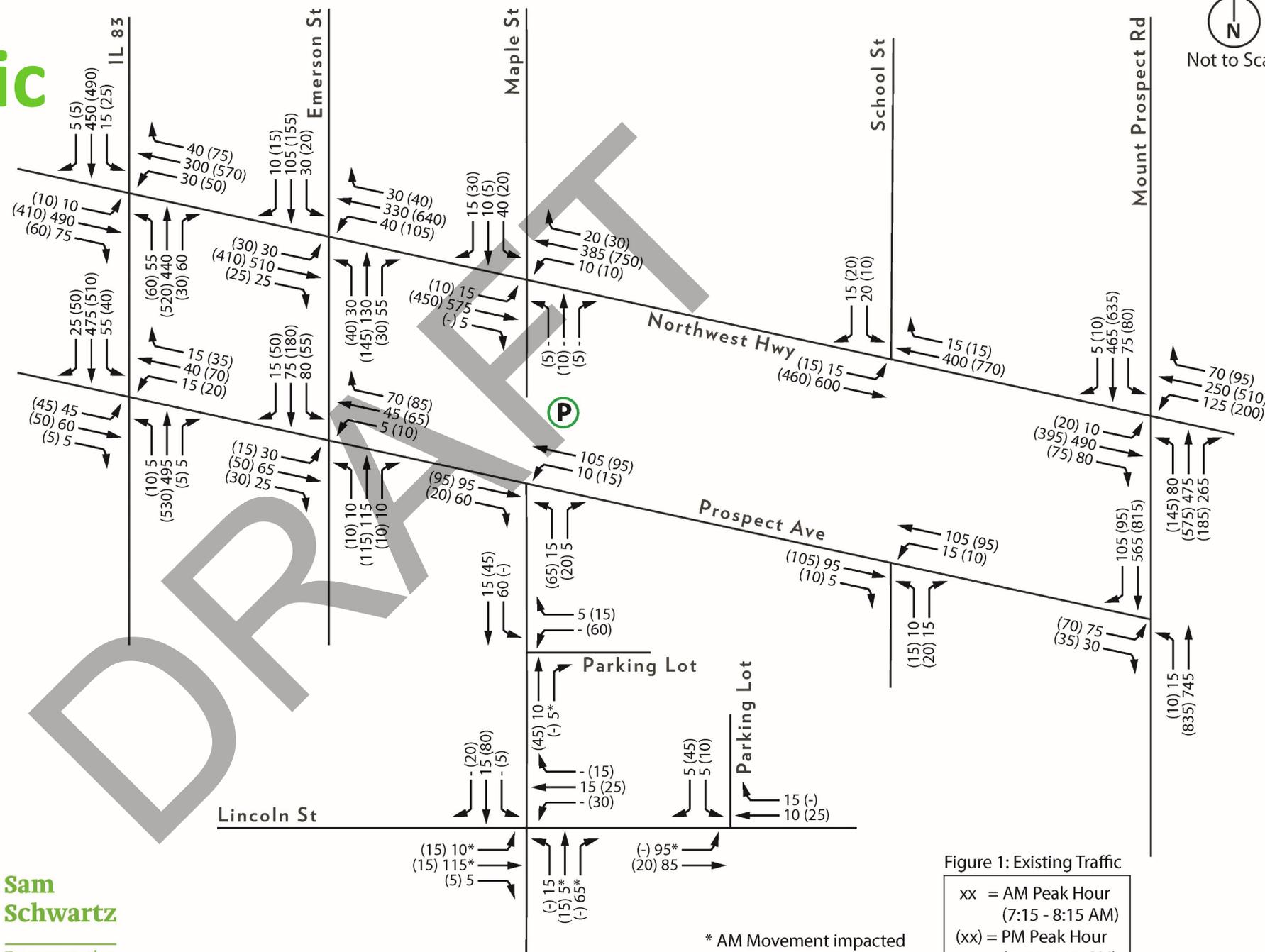
Previous Study

Year	Study
2010	IL 83 Signal Timing Study (IDOT Work Order)
2010-2015	Incremental signal timing implementation
2016	Signal Timing Re-study (IDOT Work Order) <ul style="list-style-type: none">• New traffic counts• Timing implementation
2016	Signal Timing Study (Village-funded) <ul style="list-style-type: none">• New train station• Signal equipment comparison• Closure/geometry of Prospect Avenue• Traffic Management Center
2017	Downtown Transportation Study (Village-funded) <ul style="list-style-type: none">• Expanded study area• Grade-separated/at-grade crossing feasibility• Platform & relocation alternatives• Pedestrian posts & pushbuttons
2018	Addendum to include Maple Street Lofts

Existing Traffic



Peak Hours
7:15-8:15 AM
5:00-6:00 PM



Sam Schwartz
 Transportation Consultants

Figure 1: Existing Traffic
 xx = AM Peak Hour (7:15 - 8:15 AM)
 (xx) = PM Peak Hour (5:00 - 6:00 PM)

* AM Movement impacted by Maple Street closure

Existing Traffic

Capacity Analysis Results

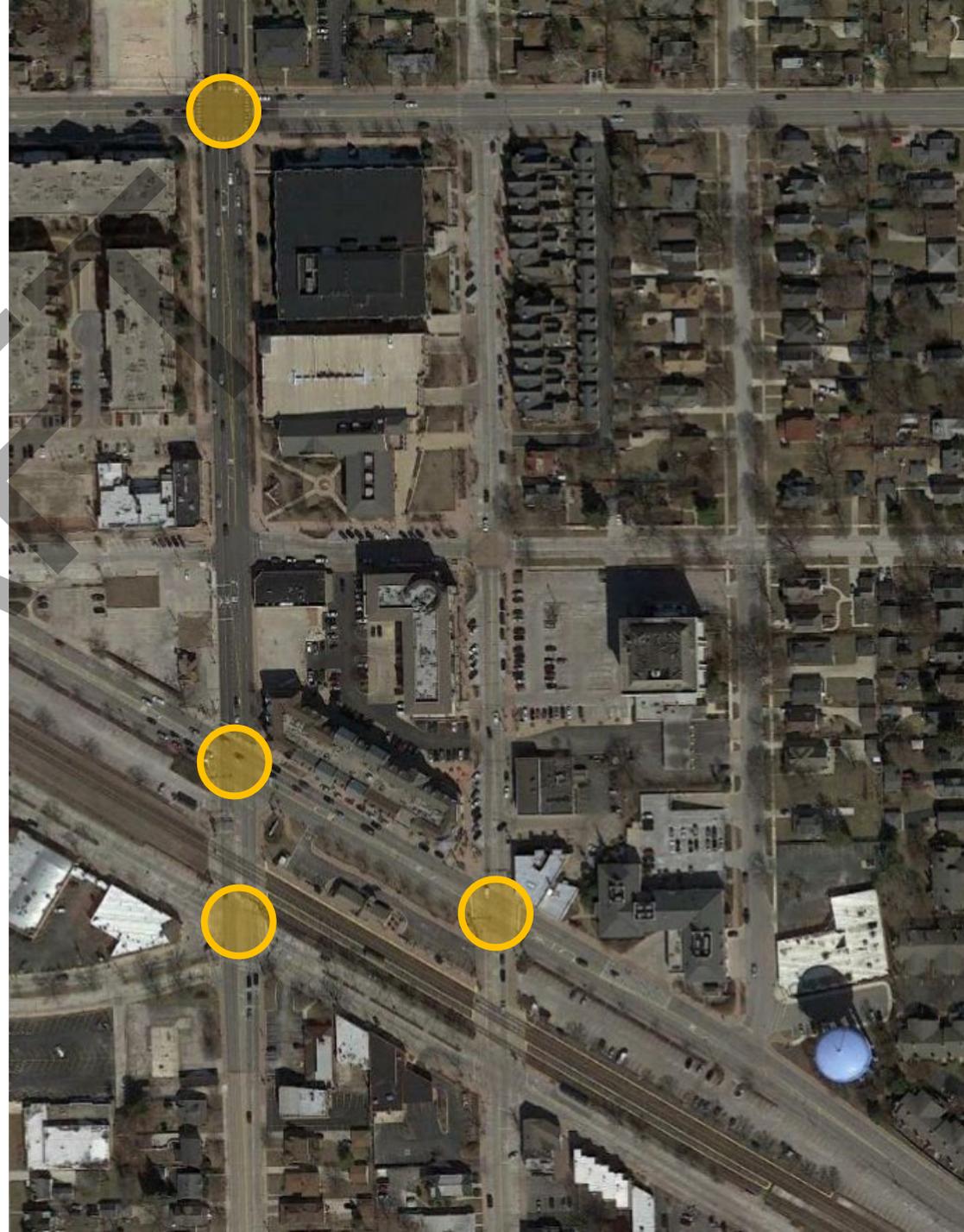
Intersection	Existing	
	AM Peak	PM Peak
Main St/IL 83 @ Northwest Hwy	C	C
Main St/IL 83 @ Prospect Ave	D	D
Emerson St @ Northwest Hwy	B	B
Emerson St @ Prospect Ave	C	C
Maple St @ Northwest Hwy	C	C
Maple St @ Prospect Ave	B	B
Maple St @ Lincoln St	A	A
School St @ Northwest Hwy	B	C
School St @ Prospect Ave	A	A
Mount Prospect Rd @ Northwest Hwy	D	D
Mount Prospect Rd @ Prospect Ave	D	D

Existing Operations

Traffic Signal System

- Critical intersection cluster
- 160-170 second cycle length (Emerson half-cycle)
- Trains and EV causes system to be offline or “in transition” half of 90-minute peak period
- Emerson cut-through

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Future Traffic

Existing Traffic

+

Background Growth

+

Site-Generated Trips



Future Traffic Projections

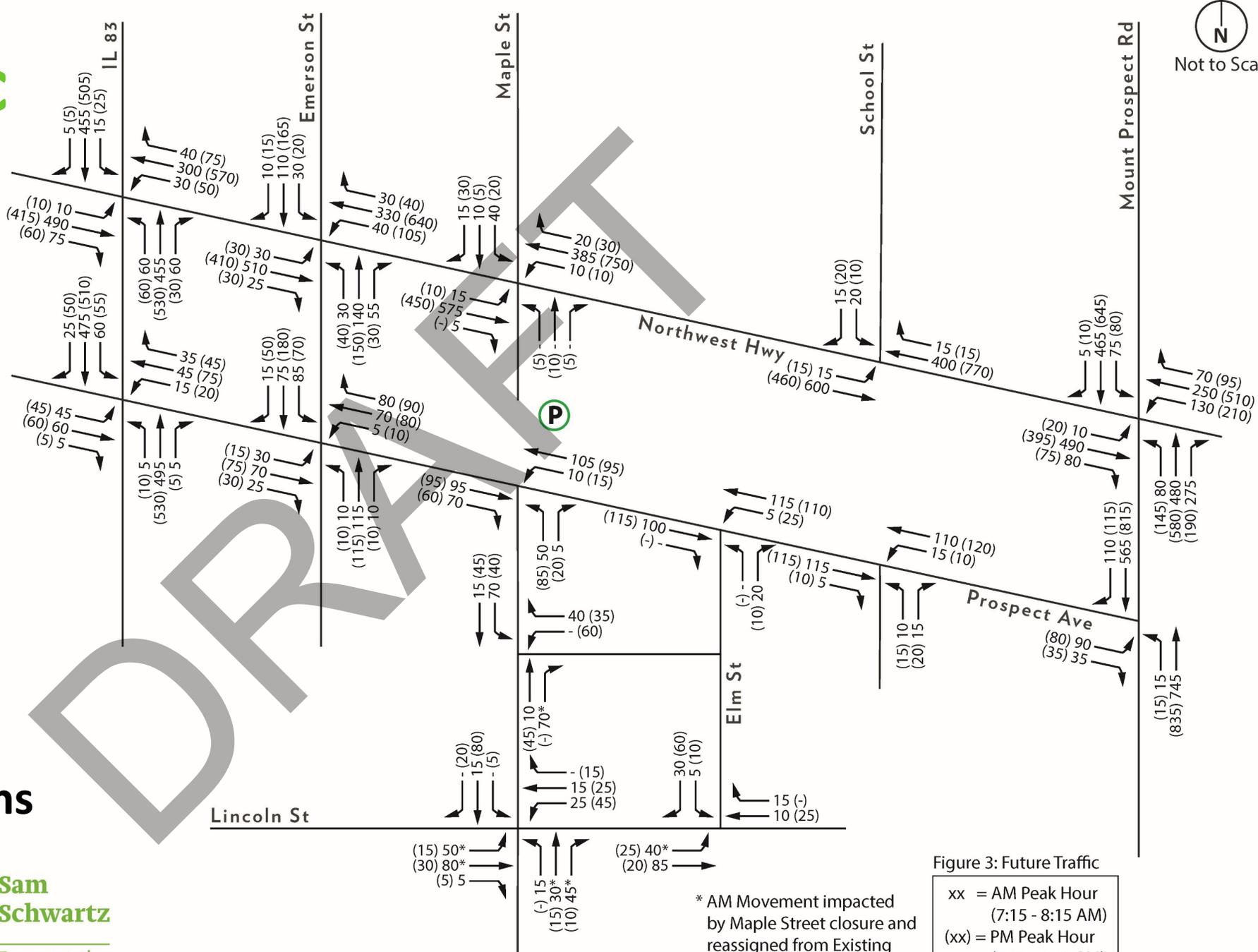


Figure 3: Future Traffic
xx = AM Peak Hour (7:15 - 8:15 AM)
(xx) = PM Peak Hour (5:00 - 6:00 PM)

* AM Movement impacted by Maple Street closure and reassigned from Existing Condition

Future Traffic

Maple Street Lofts Traffic

- Trip generation projections using Institute of Transportation Engineers (ITE) data
- 25 in/80 out in AM Peak
- 90 in/45 out in PM Peak
- Assigned to study intersections based on estimated routing

Land Use / Size	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
Maple Street Lofts						
Mid-Rise Residential with Ground-floor Retail – 257 units + 10,000 SF	20	55	75	65	30	95
Low-Rise Multifamily Housing (Townhouse) – 66 DU (LUC 221)	<u>5</u>	<u>25</u>	<u>30</u>	<u>25</u>	<u>15</u>	<u>40</u>
New Residential/Retail Trips	25	80	105	90	45	135

Future Traffic

Capacity Analysis Results

Intersection	Existing		Future	
	AM Peak	PM Peak	AM Peak	PM Peak
Main St/IL 83 @ Northwest Hwy	C	C	C	C
Main St/IL 83 @ Prospect Ave	D	D	D	D
Emerson St @ Northwest Hwy	B	B	B	B
Emerson St @ Prospect Ave	C	C	C	C
Maple St @ Northwest Hwy	C	C	C	C
Maple St @ Prospect Ave	B	B	B	B
Maple St @ Lincoln St	A	A	A	A
Elm St @ Prospect Ave	n/a	n/a	A	A
Elm St @ Lincoln St	n/a	n/a	A	A
School St @ Northwest Hwy	B	C	B	C
School St @ Prospect Ave	A	A	A	A
Mount Prospect Rd @ Northwest Hwy	D	D	D	D
Mount Prospect Rd @ Prospect Ave	D	D	D	D

Review of Improvements

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Improvement

Relocation of Permit Parking

- Can offset 30% of new peak hour residential/retail trips
- To benefit railroad crossing traffic, permit holders must reside north of tracks

Land Use / Size	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
Maple Street Lofts						
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Low-Rise Multifamily Housing (Townhouse) – 66 DU (LUC 221)	<u>5</u>	<u>25</u>	<u>30</u>	<u>25</u>	<u>15</u>	<u>40</u>
New Residential/Retail Trips	25	80	105	90	45	135
Commuter Parking						
Existing 280 spaces	170	15	185	0	130	130
Relocation of 100 permits	-40	0	-40	0	-45	-45
Commuter Parking Trips	130	15	145	0	85	85

Improvement

Pedestrian Posts & Pushbuttons



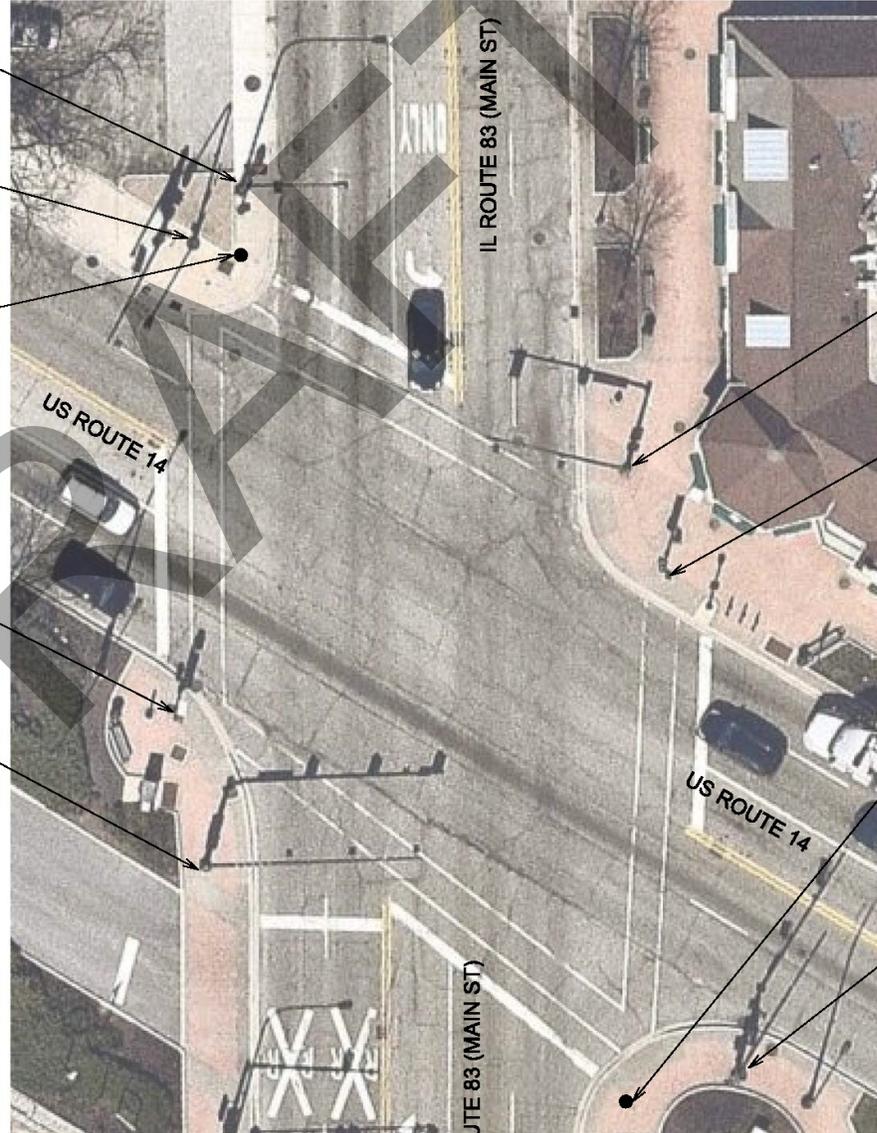
EXISTING SIGNAL POST

EXISTING MAST ARM POST WITH EXISTING PEDESTRIAN PUSH BUTTON

PROPOSED PEDESTRIAN PUSH BUTTON AND POST

EXISTING SIGNAL POST WITH EXISTING PEDESTRIAN PUSH BUTTON PROPOSED PEDESTRIAN PUSH BUTTON

EXISTING MAST ARM POST



EXISTING MAST ARM POST WITH PROPOSED PEDESTRIAN PUSH BUTTON

EXISTING SIGNAL POST WITH EXISTING PEDESTRIAN PUSH BUTTON

PROPOSED PEDESTRIAN PUSH BUTTON AND POST

EXISTING MAST ARM POST WITH EXISTING PEDESTRIAN PUSH BUTTON

Improves 5-6 cycles during peak 90-minute periods

Improvement

Pedestrian Posts & Pushbuttons

- Main St/IL 83 with Northwest Highway
- Main St/IL 83 with Prospect Avenue
- Emerson Street with Northwest Highway

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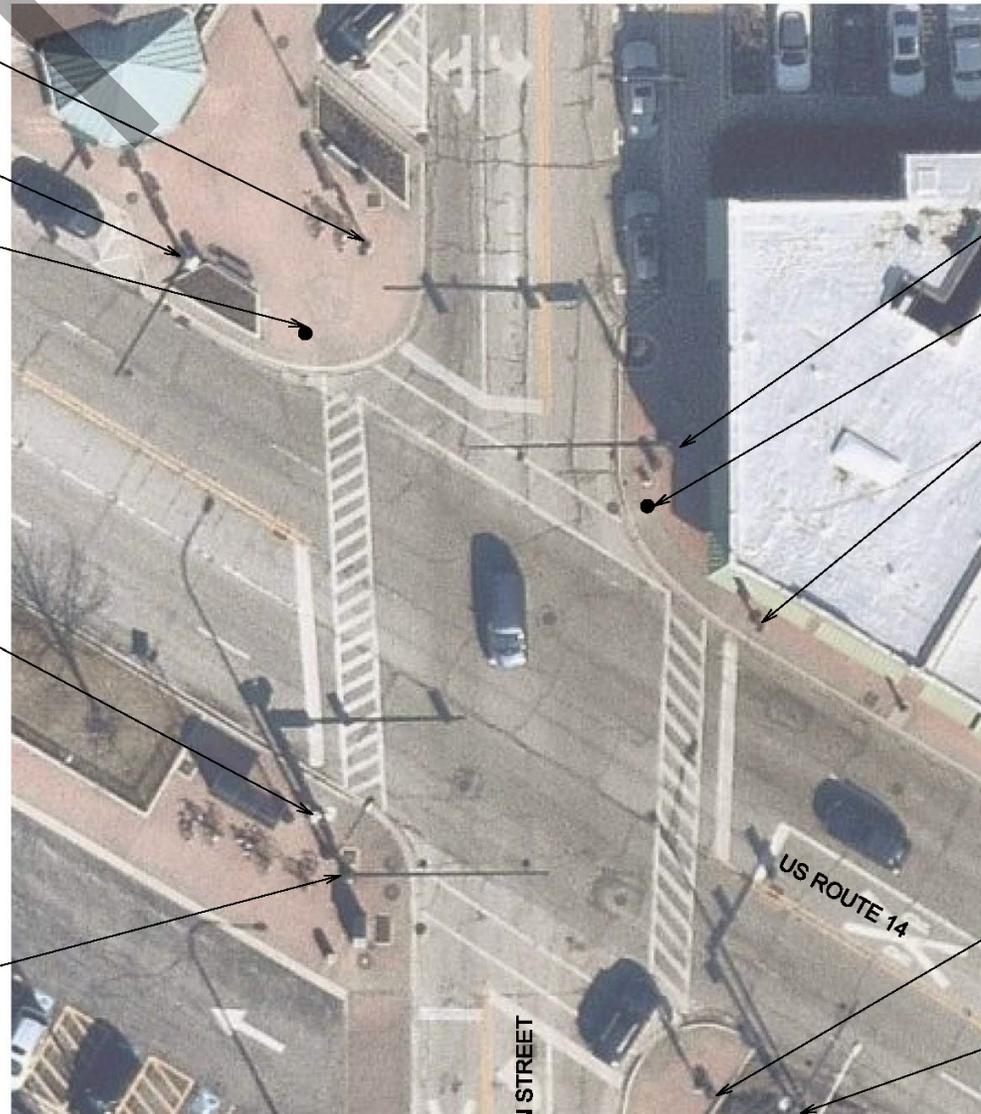
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Improvement

Emergency Vehicle Interruptions

- 2,000 signal system interruptions per year
- Average 1 per 90-minute peak period
- Impacts system for up to 10 minutes
- Relocation of the station can cut system interruption time by up to 25%

	Morning (7:00-8:30)				Evening (4:30-6:00)			
	Train		Emergency Vehicle		Train		Emergency Vehicle	
	No. of Interruptions	Gates in Down Position (min)	No. of Interruptions	Estimated Transition Period (min)	No. of Interruptions	Gates in Down Position (min)	No. of Interruptions	Estimated Transition Period (min)
Existing Condition	17	34	1	10	14	32	1	10
<u>Improvements</u>								
Relocation of Fire Station			-1	-10			-1	-10
Move inbound trains		-11				-4		
Total (Projected Condition)	17	23	0	0	14	26	0	0

Improvement Platform Extension

- 2,000 signal system interruptions per year
- Average 1 per 90-minute peak period

**Yellow = 580 ft. extension
Inbound & outbound
trains clear Main St**

**Blue = 250 ft. extension
Inbound trains clear
Main St**



Improvement Site Plan Coordination

- Traffic control recommendations
- Continued site plan coordination
 - Maple/Prospect pedestrian crossing
 - On-street parking
 - Parking garage access drive

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Other Findings

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Other Findings

Mount Prospect Road

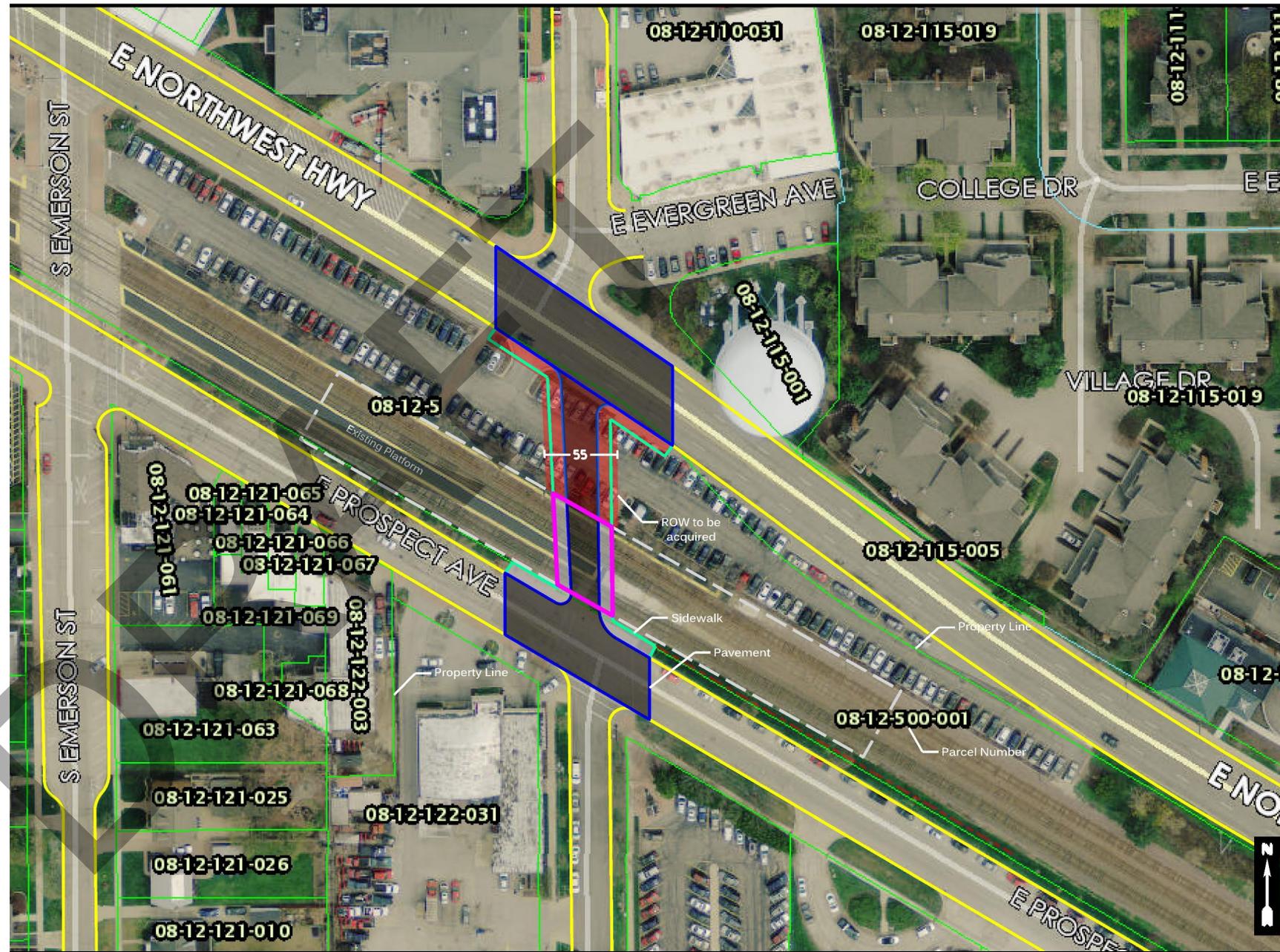
- Capacity improvements identified to reduce queues on Prospect Ave
- Requires widening of Mount Prospect Rd across tracks
- UP/ICC coordination



Other Findings

Feasibility of at-grade crossing

- UP policy requires 3 other at-grade closures for 1 new
- Recommend continued coordination on policy flexibility
- \$5 million

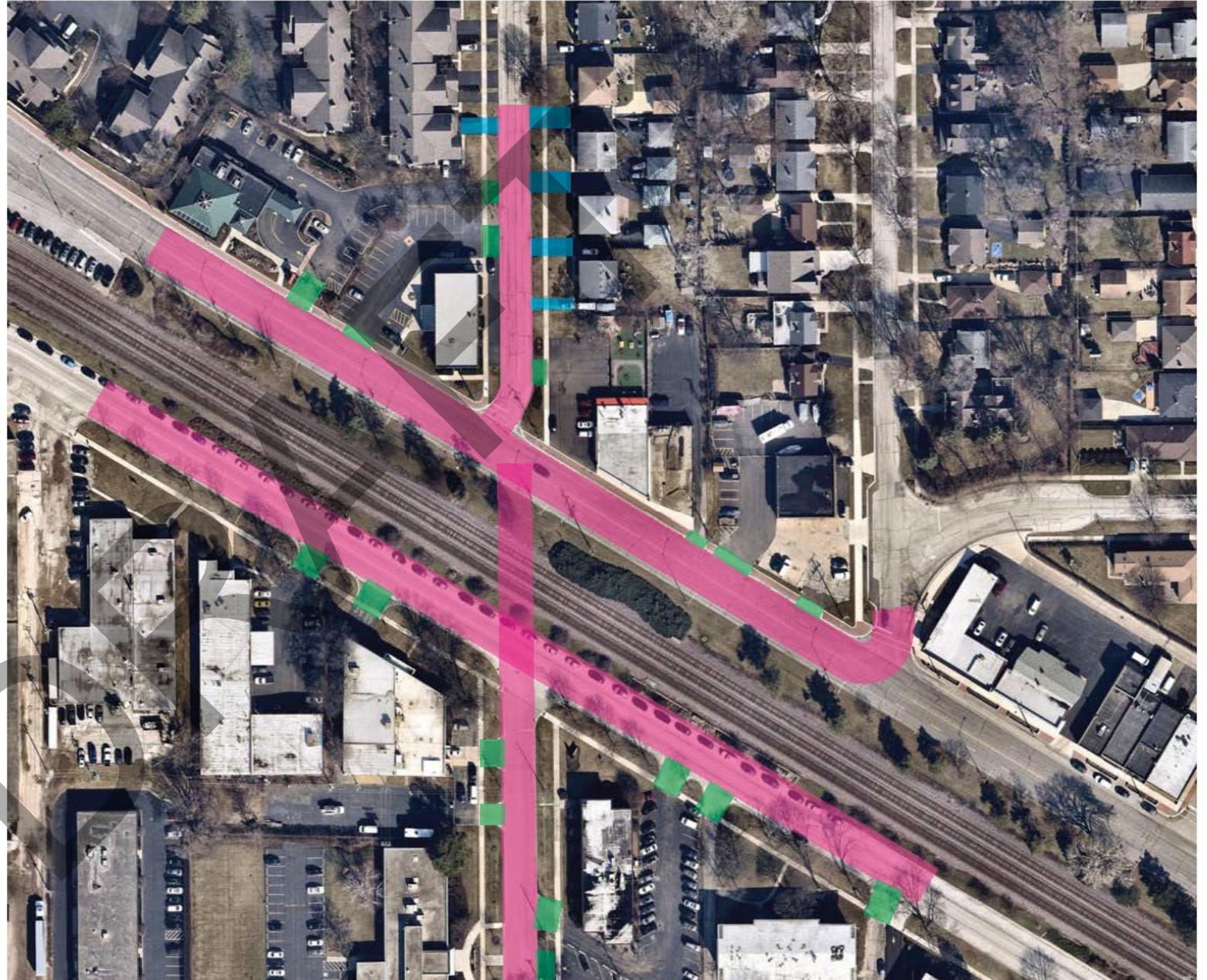


Other Findings

Feasibility of underpass

- Significant impact area
- UP policy requires 1 at-grade closure for 1 new
- \$20 million

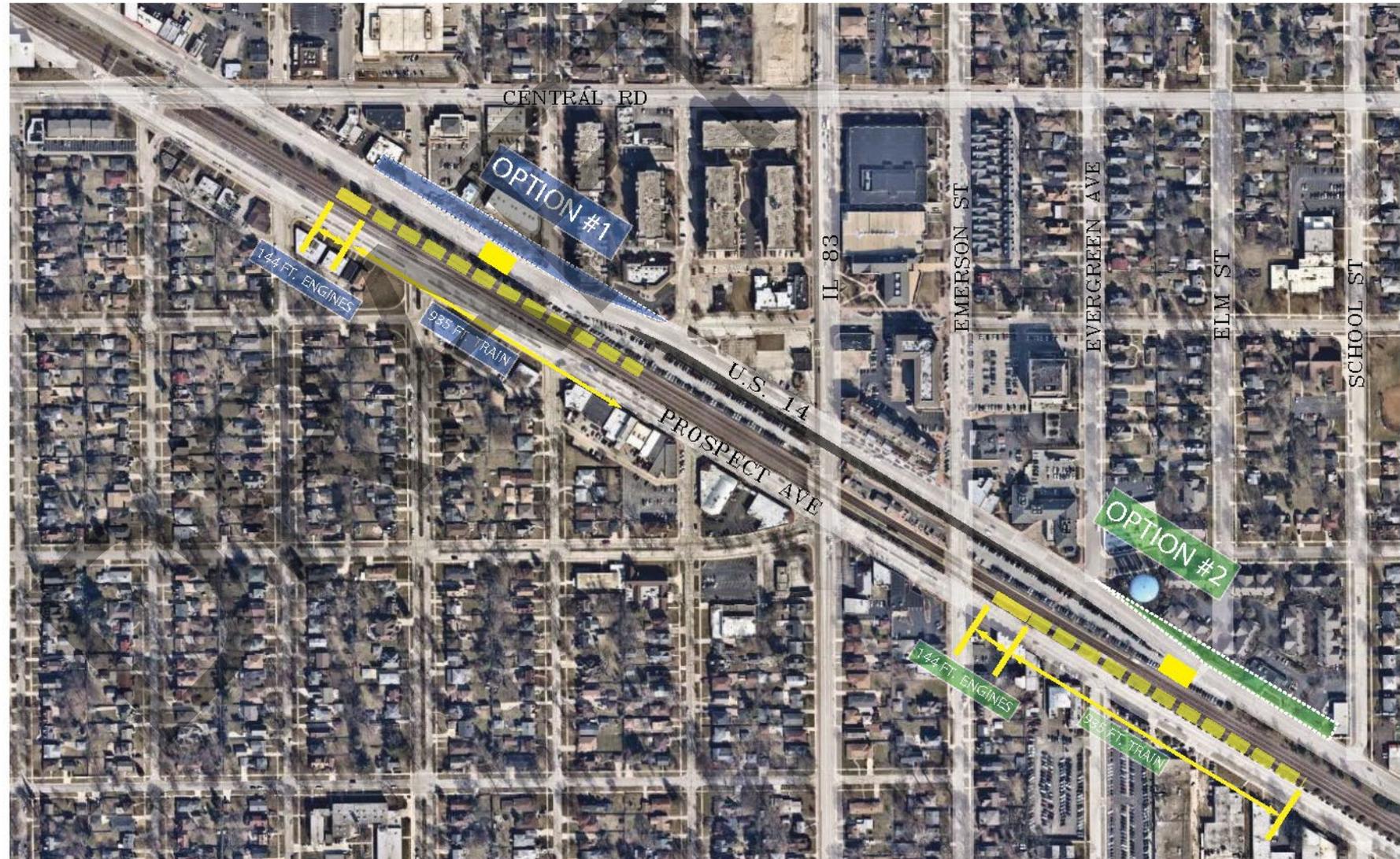
Areas for Reconstruction:	
	= Roadway
	= Commercial Driveway
	= Residential Driveway



Other Findings

Platform Relocation

- Moves train station out of downtown area
- \$12-14 million



Inbound & outbound trains clear Main St & Emerson St

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.

