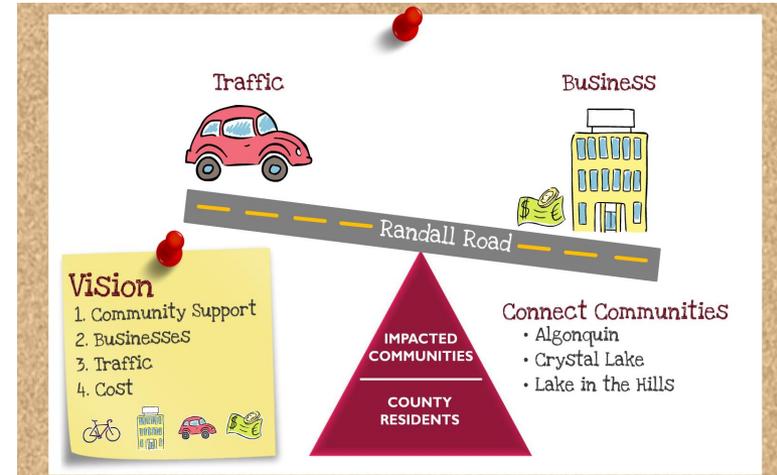
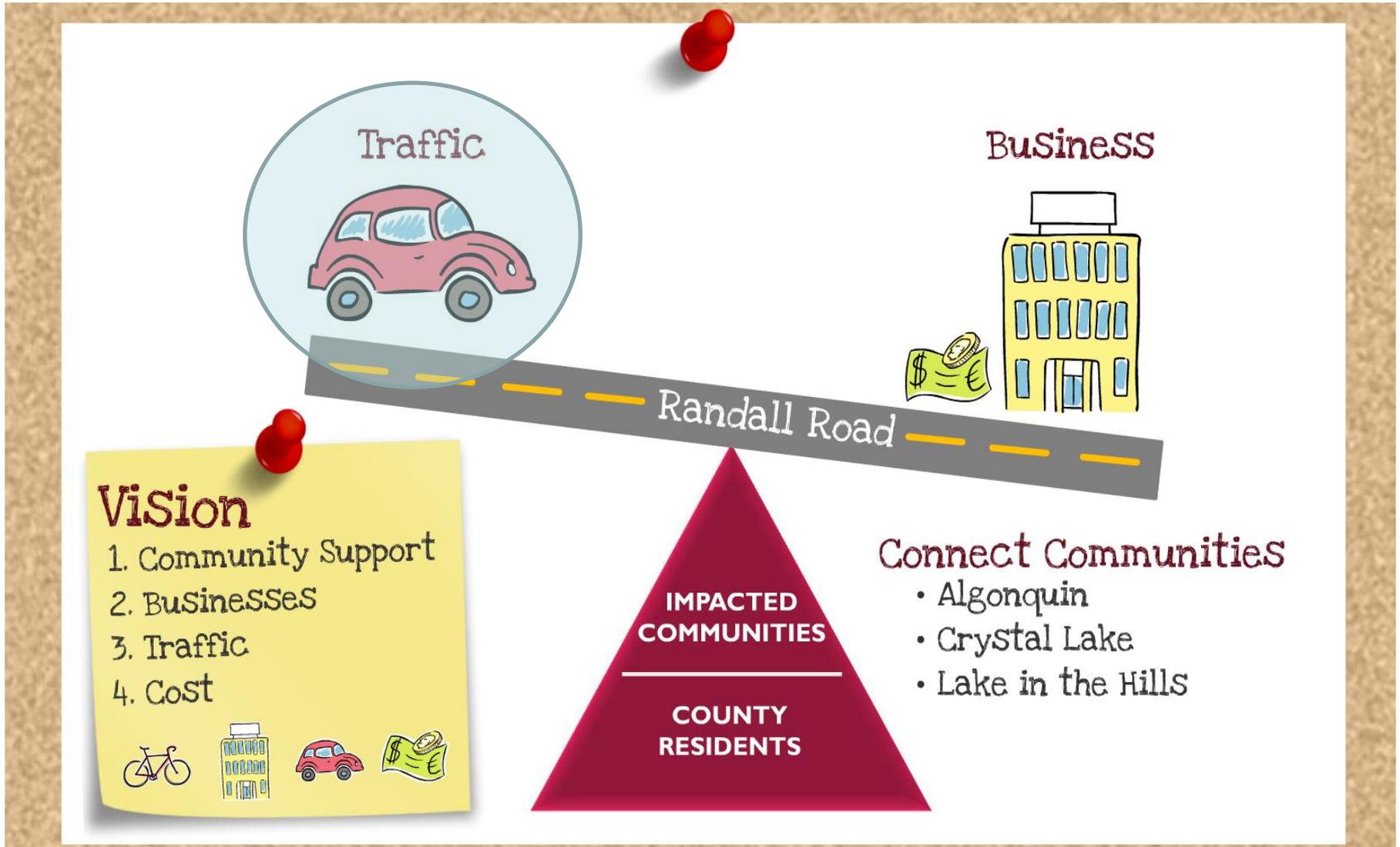


Where did we start? - Project Objectives

- **Safe and efficient travel (Traffic)**
 - Major arterial serving the County
 - Emergency response times
- **Facilitate Commerce (Access)**
 - Major retail corridor
 - Efficient traffic flow supports retail vitality
- **Sound Fiscal Investment**
 - Leverage County funds
 - Improvements need to provide a reasonable service life



Traffic



Existing Conditions – Randall & Algonquin

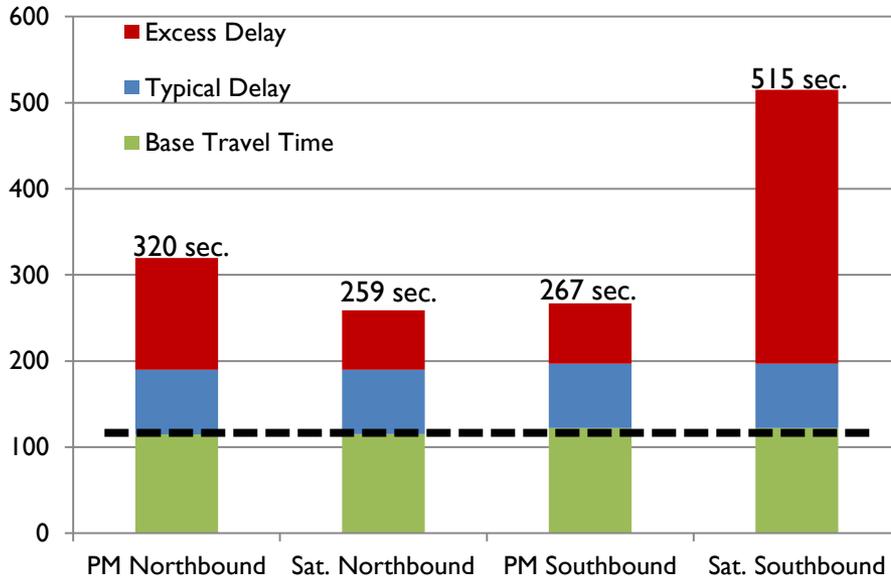
▶ Current Intersection Delay – Level of Service “F”

- Field measured over three days

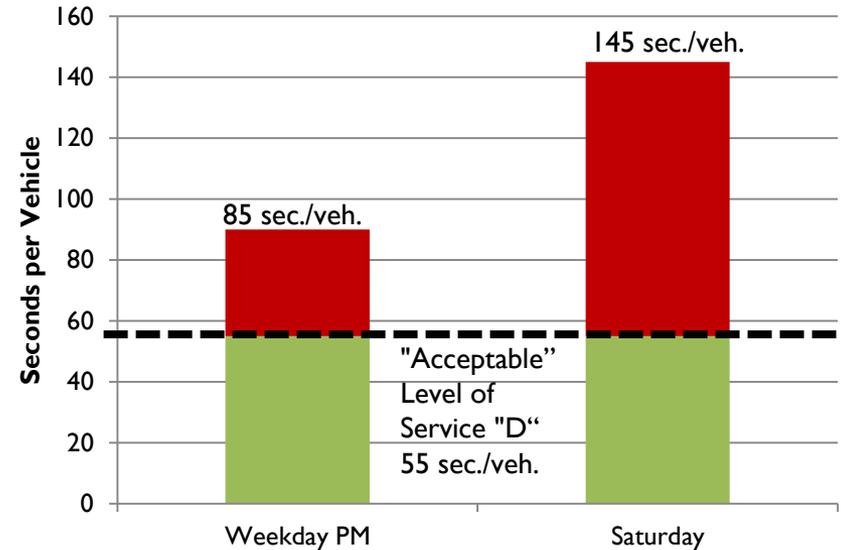
▶ Travel Times

- Northbound: Harnish to Acorn
- Southbound: Miller to Bunker Hill

Randall Road Travel Times



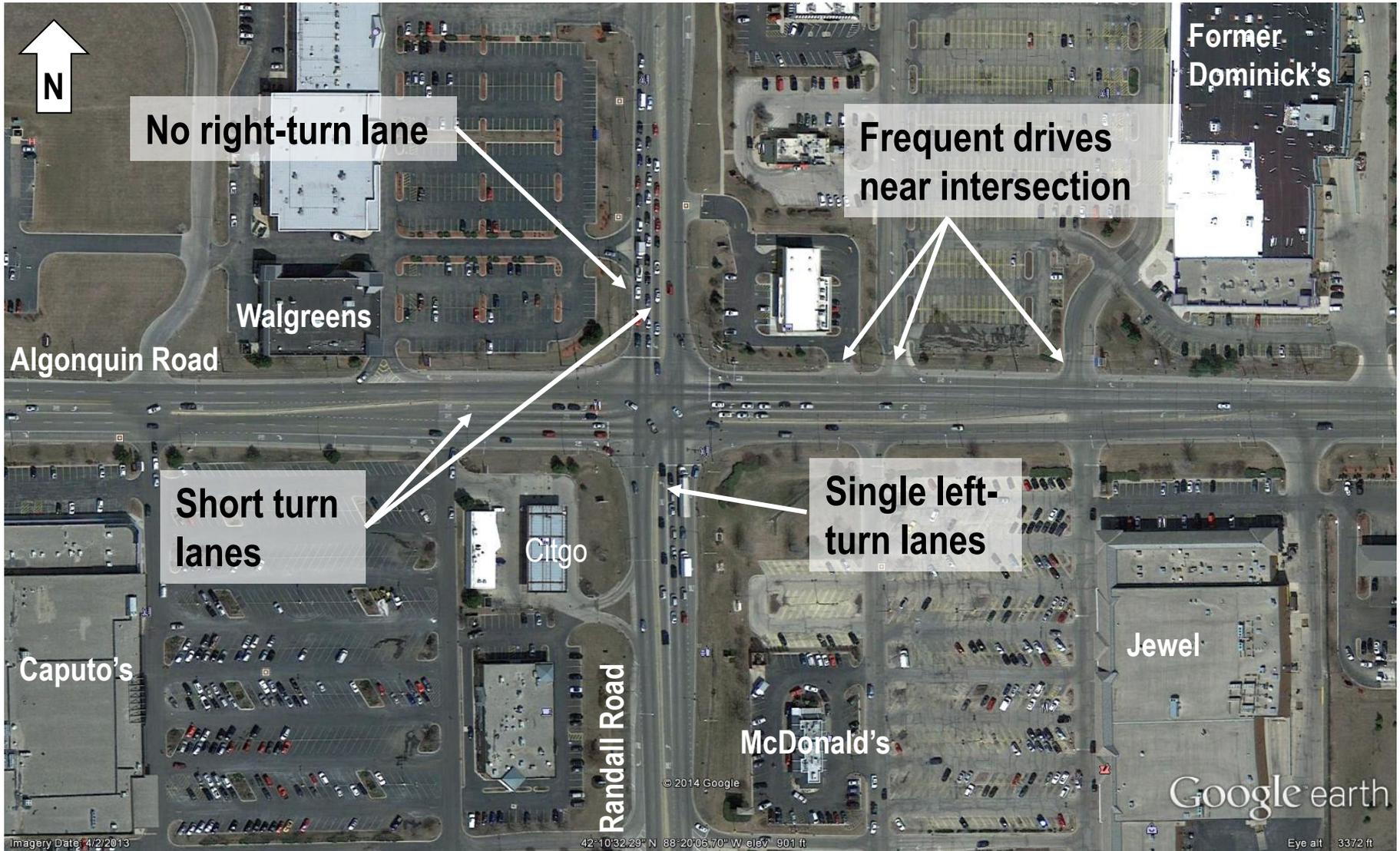
Existing Intersection Delay



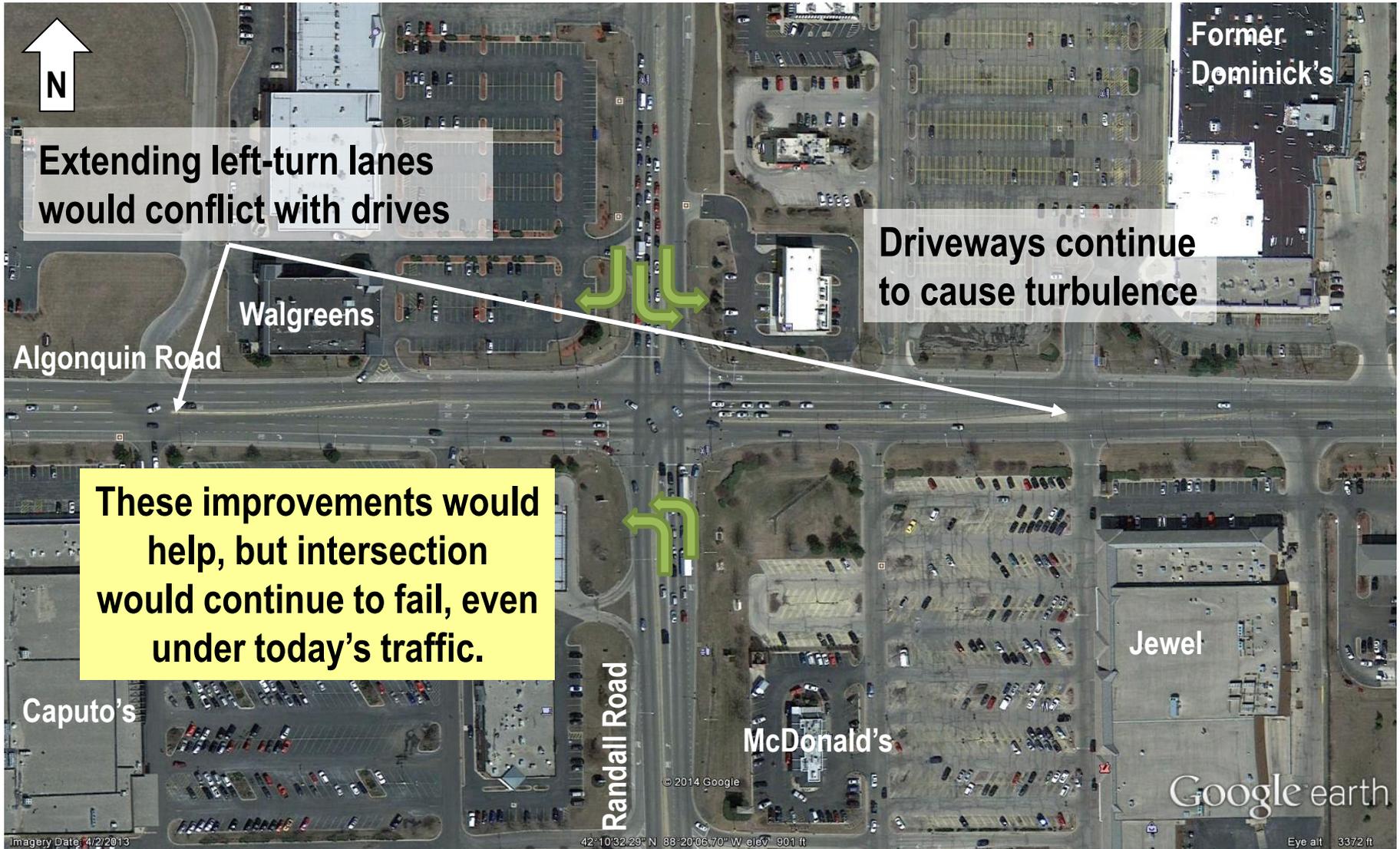
A = < 10 sec
 B = 10-20 sec
 C = 20-35 sec

D = 35-55 sec
 E = 55-80 sec
 F = > 80 sec

Operational Issues



Why not just add turn lanes?



What is needed?

- ▶ To provide acceptable level of service:
 - Additional turn lanes
 - Third through traffic lane in each direction
 - Auxiliary lanes to manage access



Revised Weekday PM Traffic Forecast

- ▶ Previous 2030 Forecast: 61% growth 2014-2030 (3.8%/year)
- ▶ New 2040 Forecast: 47% growth 2014-2040 (1.8%/year)
- ▶ Largest growth to/from west, less on other legs

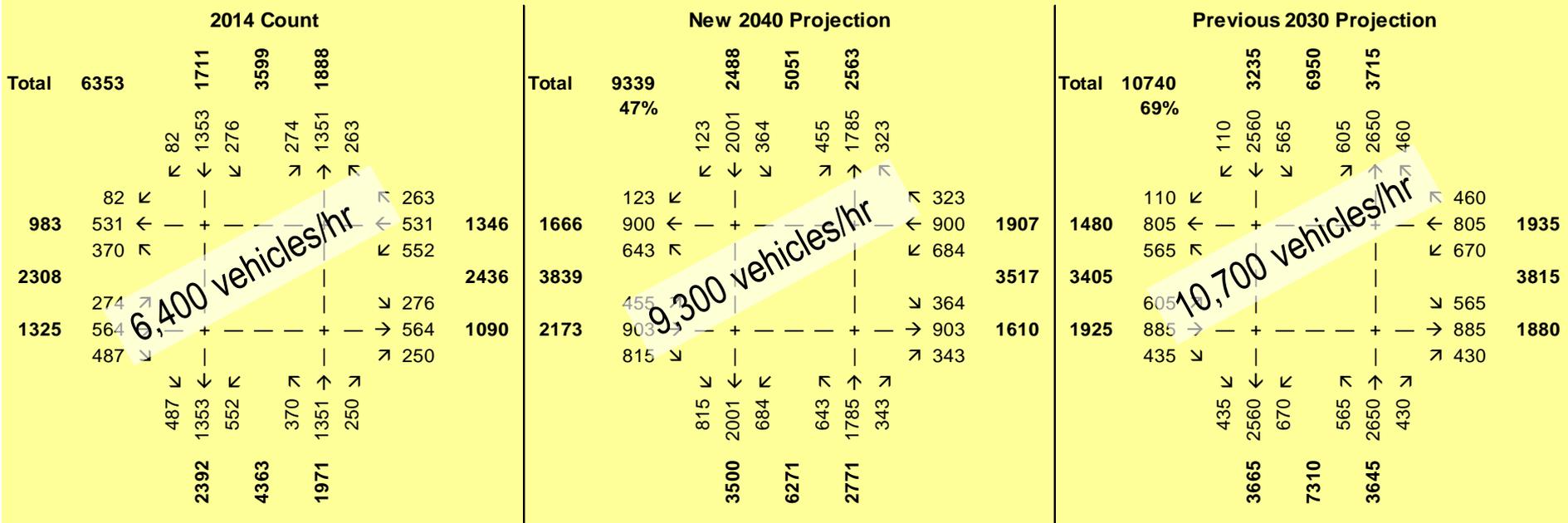
Randall & Algonquin Weekday PM Peak Hour

2014 Count		New 2040 Projection		Previous 2030 Projection	
Total	5949	Total	8740 47%	Total	9565 61%
	1503		1928		2485
	3592		5120		6110
	2090		3192		3625
	149		241		140
	1080		1244		1910
	274		443		435
	316		513		445
	1488		2137		2610
	286		542		570
1166	149	1778	241	1540	140
	657		849		910
	360		688		490
	286		542		570
1234	657	1765	849	2110	910
	291		374		630
2342	291	3439	374	3610	630
	274		443		435
1176	316	1853	513	1510	445
	539		862		705
	190		369		360
	321		478		360
	321		478		360
	1080		1244		1910
	291		374		630
	360		688		490
	1488		2137		2610
	190		369		360
	1692		2096		2900
	3729		5290		6360
	2037		3194		3460

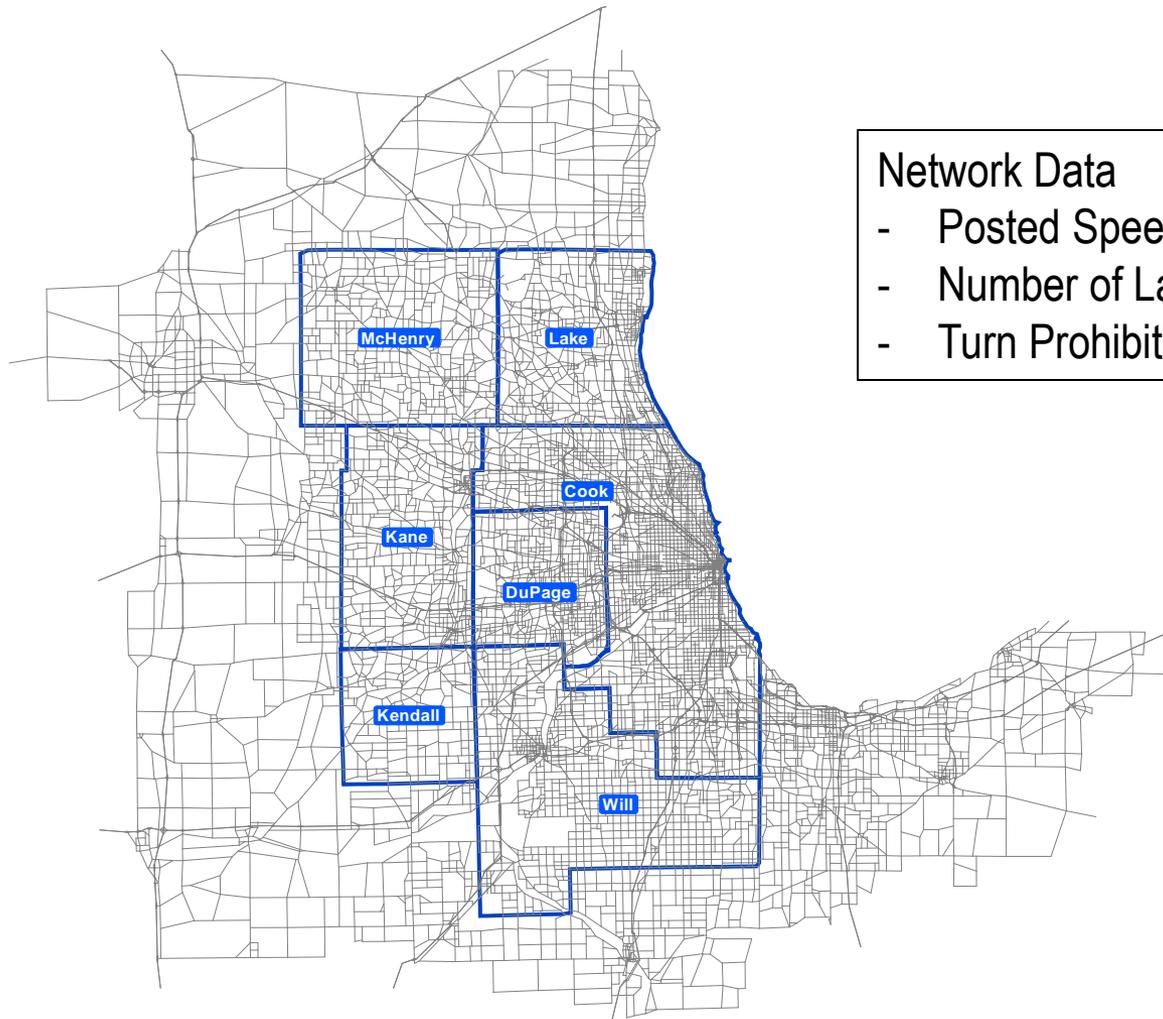
Revised Saturday Traffic Forecast

- ▶ Previous 2030 Forecast: 69% growth 2014-2030 (4.3%/year)
- ▶ New 2040 Forecast: 47% growth 2014-2040 (1.8%/year)
- ▶ Largest growth to/from west, less on other legs

Randall & Algonquin Saturday Noon Peak Hour



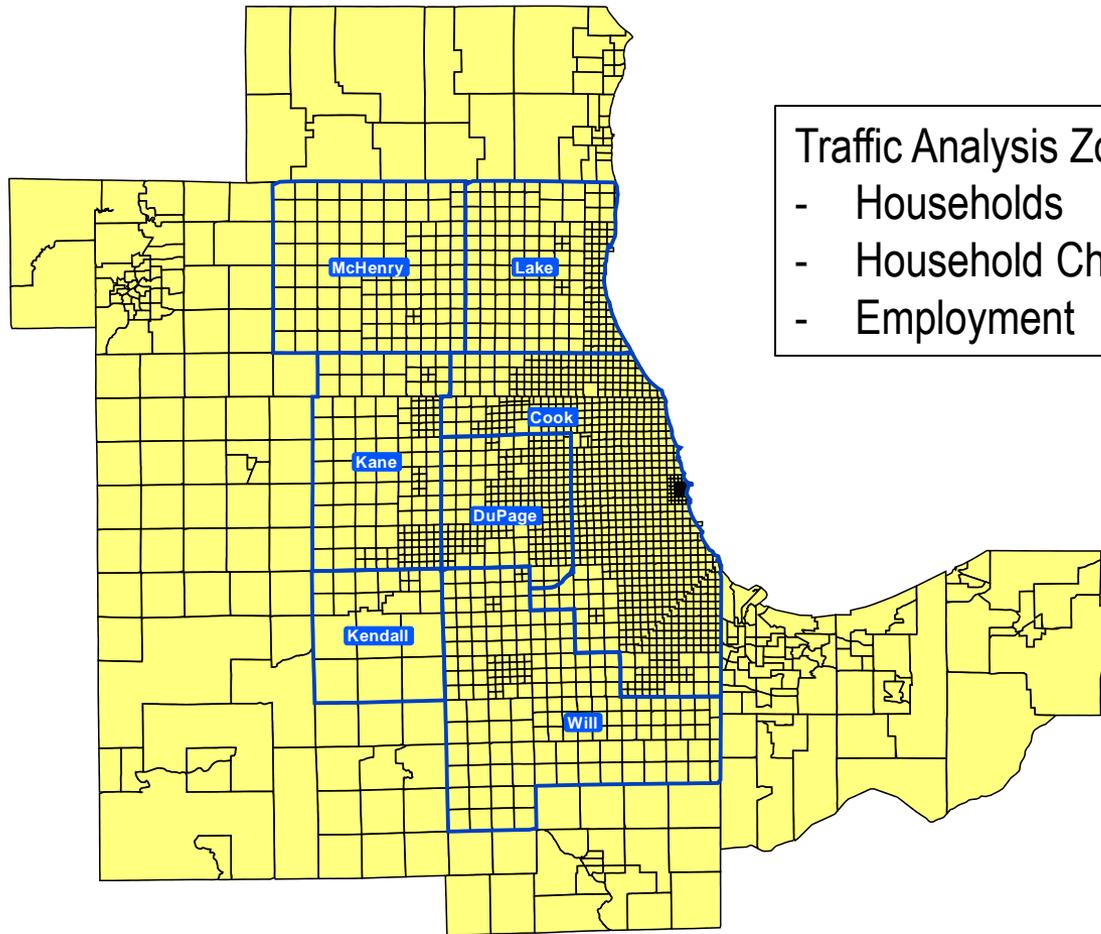
CMAP Process – Regional Network



Network Data

- Posted Speed
- Number of Lanes
- Turn Prohibitions

CMAP Process – TAZ System



- Traffic Analysis Zone Data:
- Households
 - Household Characteristics
 - Employment

McHenry County Population

Year	Population	Source	30-Year Period	Annual Growth
2040	513,517	CMAP	2010 - 2040	1.7%
2010	308,760	Census	1980 - 2010	2.5%
1980	147,897	Census	1950 - 1980	3.6%
1950	50,656	Census		

CMAP Process – TDM 4-Step Process

TRAVEL DEMAND MODELING

▶ Trip Generation

- Objective: Estimate trips produced/attracted by TAZ

▶ Trip Distribution

- Objective: Estimate trip flows between every TAZ

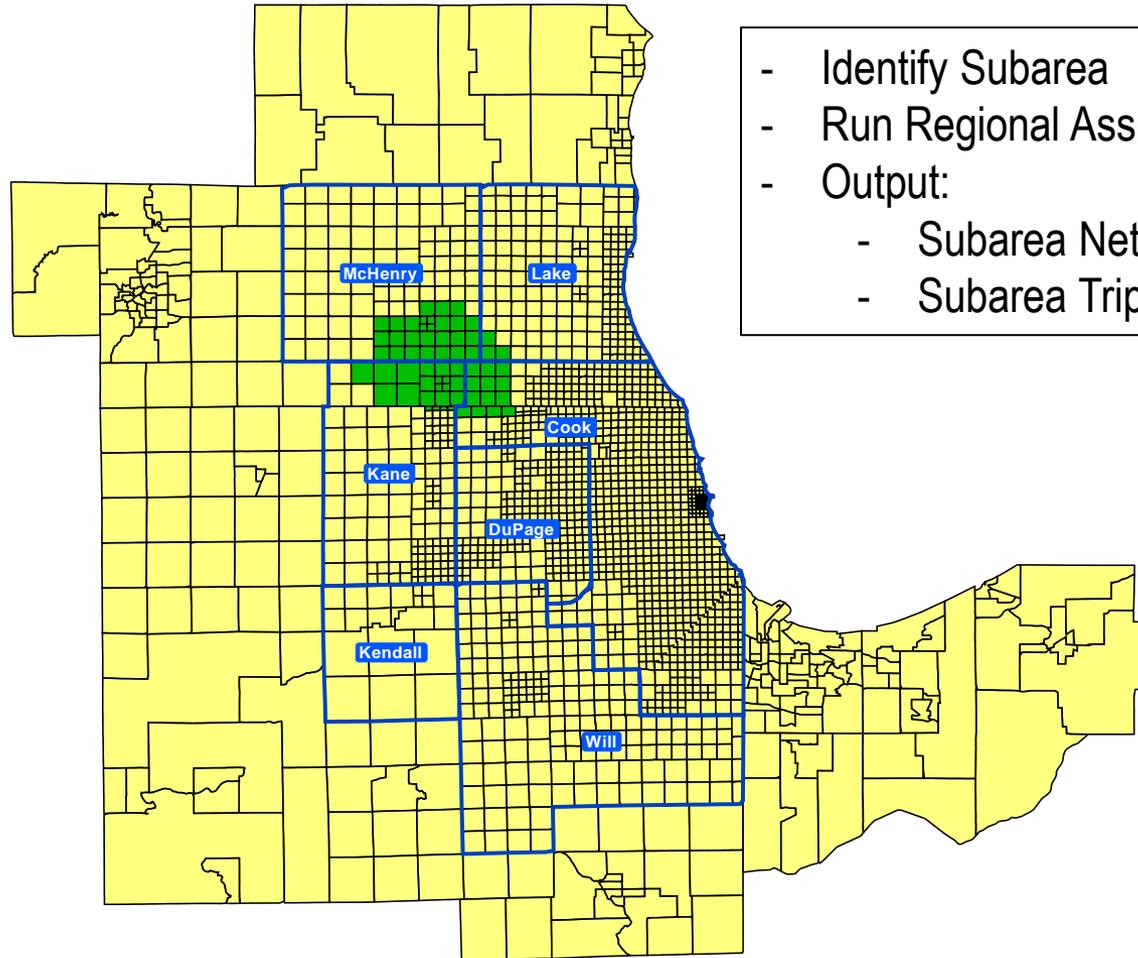
▶ Mode Choice

- Objective: Estimate choice of available modes

▶ Assignment

- Objective: Determine paths from origin to destination

Subarea Process – Subarea Extraction



- Identify Subarea
- Run Regional Assignment
- Output:
 - Subarea Network
 - Subarea Trip Table

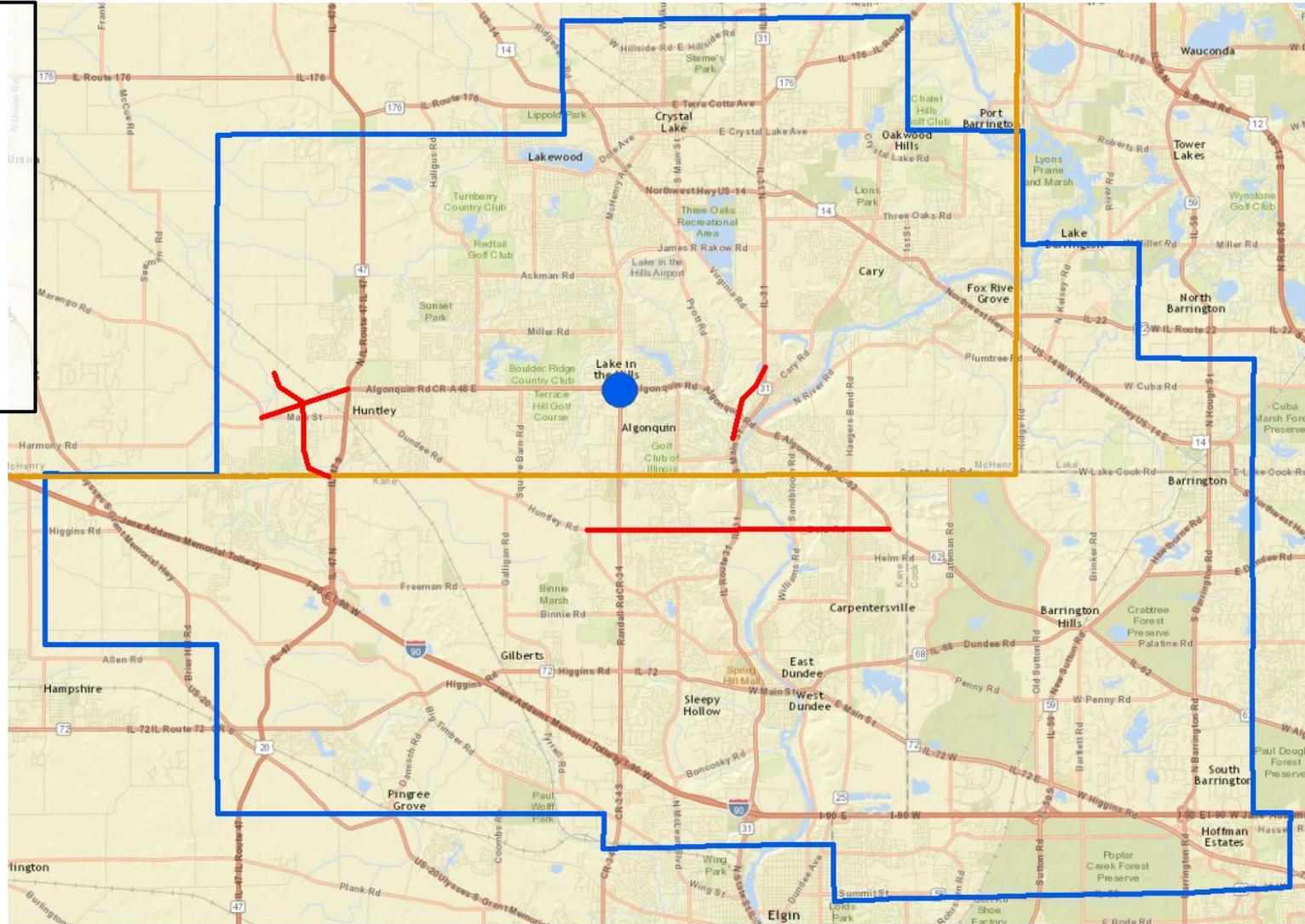
Subarea Process – Final Steps

- ▶ Expand Trip Table
- ▶ Verify Network Characteristics
- ▶ Enhance Trip Generation in Core Area
- ▶ Model Validation
- ▶ 2040 Final Assignment

New Improvements in 2040 Model

Includes...

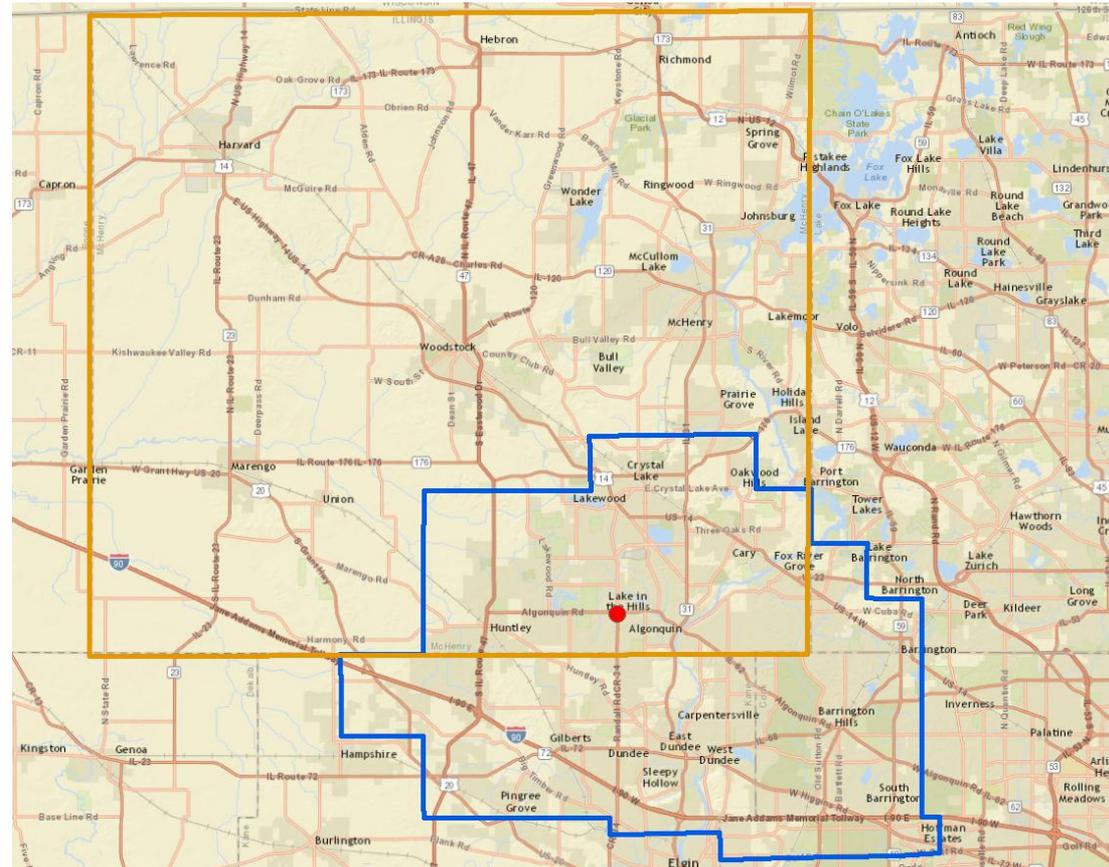
- Algonquin Bypass
- Longmeadow Parkway
- IL Route 47
- Centegra Hospital



Model Sub-area

- ▶ The influence area of the intersection is in a more developed area
- ▶ Our model focused on this area
- ▶ Still accounts for growth in “pass through” traffic

Households		
	McHenry	Subarea
2010	109,199	117,796
2040	179,215	178,099
Growth		
Total	64.1%	51.2%
Annual	1.7%	1.4%



Traffic Analysis - Comparison

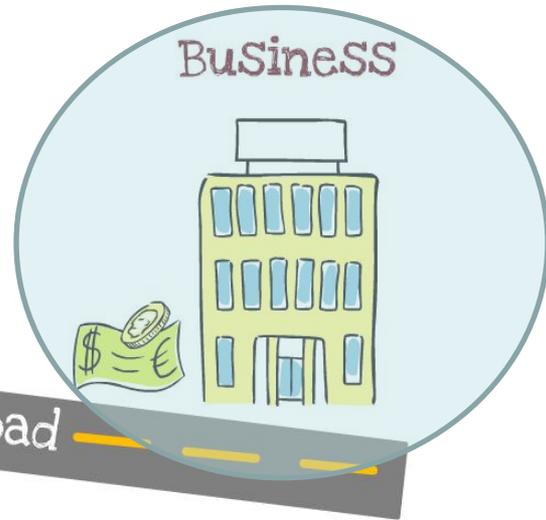
Item	Characteristic	Phase I	Phase II
1	Base Year	2007	2014
2	Plan Horizon Year	2030	2040
3	Census Base	2000	2010
4	Economic Conditions	Pre-recession	Post-recession
5	Study Area	Randall Road Corridor	McHenry County (part) Kane County (part) Lake County (part) Cook County (part)
6	Socioeconomics - Growth Households (Subarea) Employment (Subarea)	2000 – 2030 63.6 % 85.5 %	2010 - 2040 51.2 % 76.0 %
7	Socioeconomics – CAGR Households (Subarea) Employment (Subarea)	2000 - 2030 1.65 % 2.08 %	2010 - 2040 1.39 % 1.90 %
8	Approach	Standard Traffic Impact Study <ul style="list-style-type: none"> • Data Collection • Forecasted Traffic 	Expanded Traffic Impact Study <ul style="list-style-type: none"> • Data Collection • CMAP Regional Travel Demand Model • Study Area Travel Demand Model • Forecasted Traffic • Traffic Microsimulation Modeling
9	Time of Day	PM Peak Weekend	AM Peak Midday PM Peak Saturday
10	Network	Randall Road Corridor	Subregional Network
11	Other Projects Considered	Longmeadow Parkway I-90 / IL 47 Full Interchange West Algonquin ByPass Algonquin Road Extension Kruetzer Road Extension	Longmeadow Parkway I-90 / IL 47 Full Interchange West Algonquin ByPass Algonquin Road Extension Kruetzer Road Extension

Businesses

Traffic



Business



Randall Road

Vision

1. Community Support
2. Businesses
3. Traffic
4. Cost



IMPACTED
COMMUNITIES

COUNTY
RESIDENTS

Connect Communities

- Algonquin
- Crystal Lake
- Lake in the Hills

Communication and Stakeholder Outreach

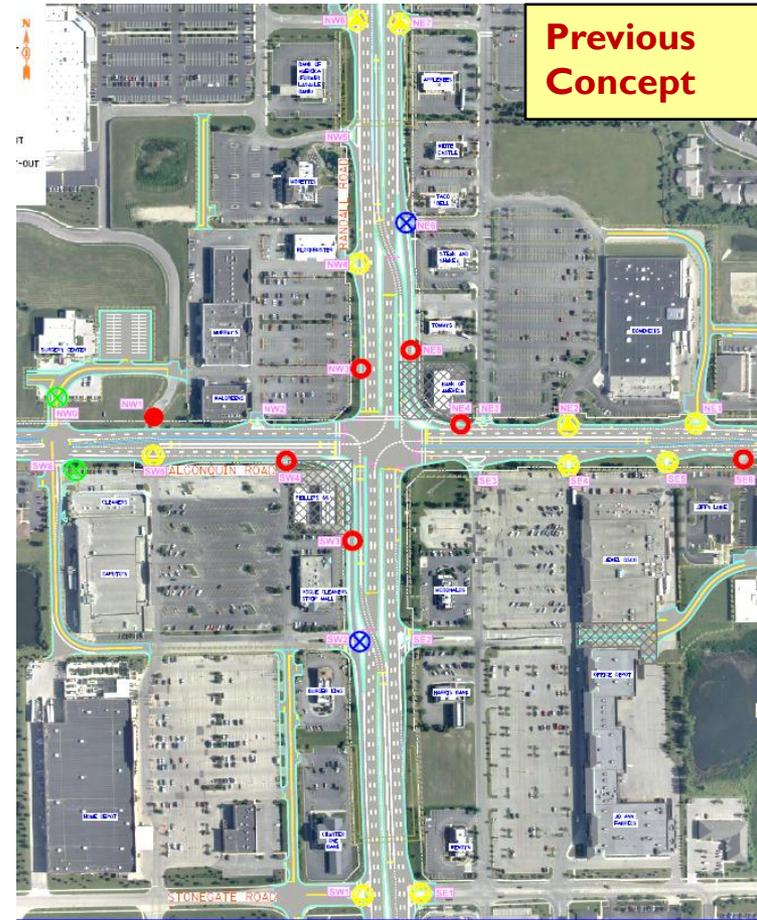
- ▶ Over 100 mailings to property owners
- ▶ Over 300 flyers hand delivered to businesses
- ▶ 20 individual follow up meetings

CORRIDOR OUTREACH



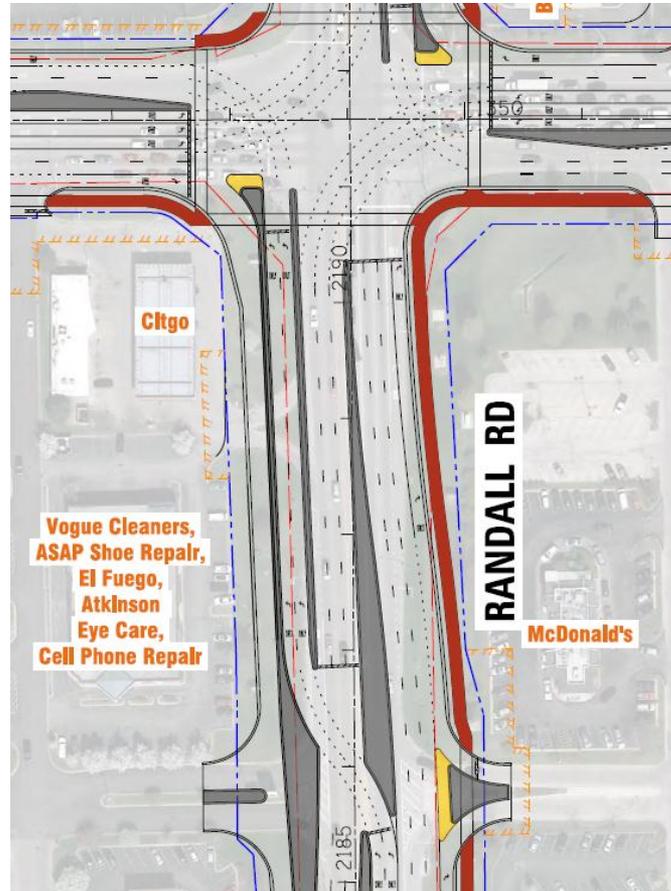
Stakeholder Input

- Relieved to hear about redesign
- Fix the traffic
(congestion and latent demand)
- Maintain access
- Build it right the first time
- Keep them informed
 - Working Meetings

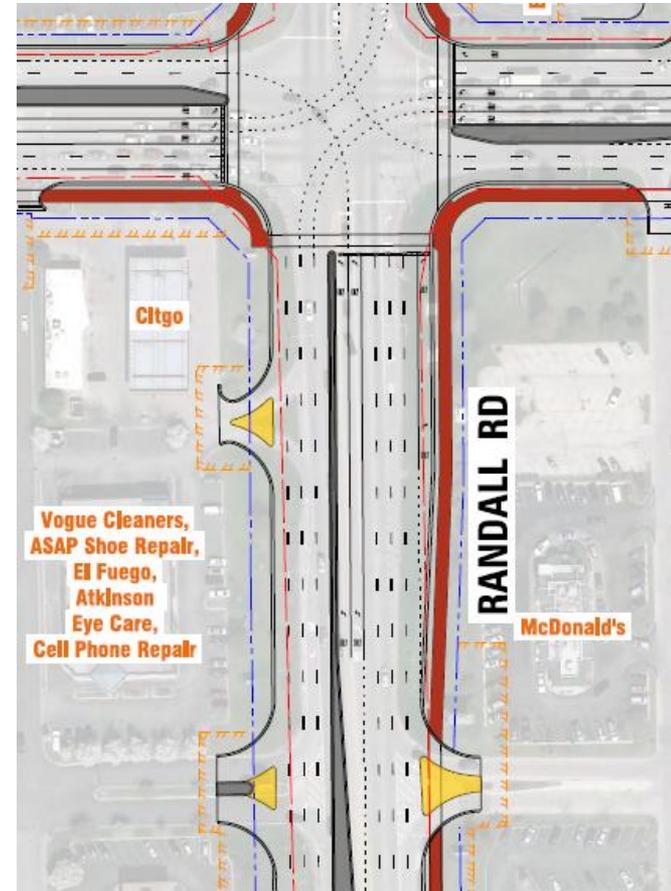


Corridor Improvement Options

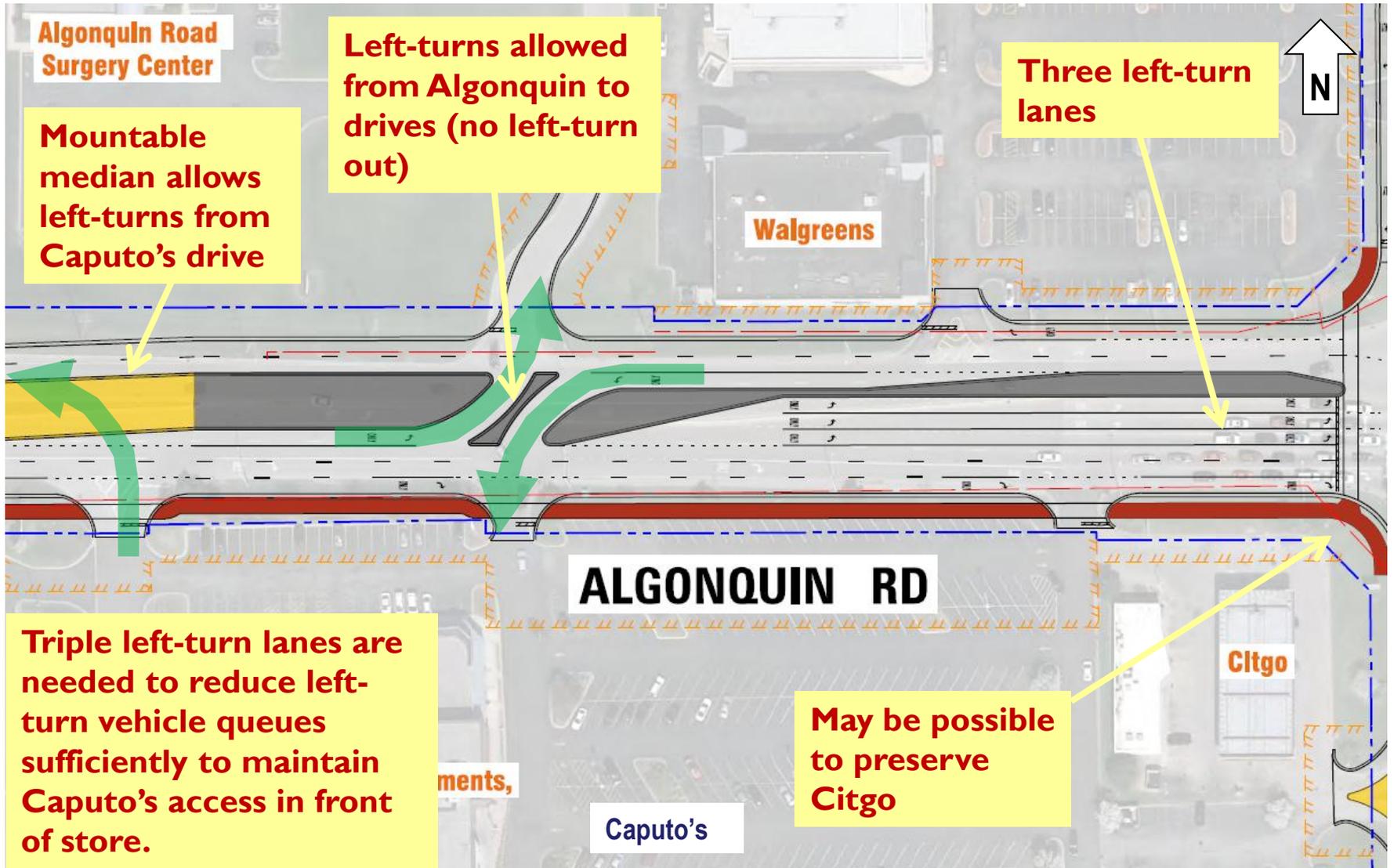
DLT (CFI)



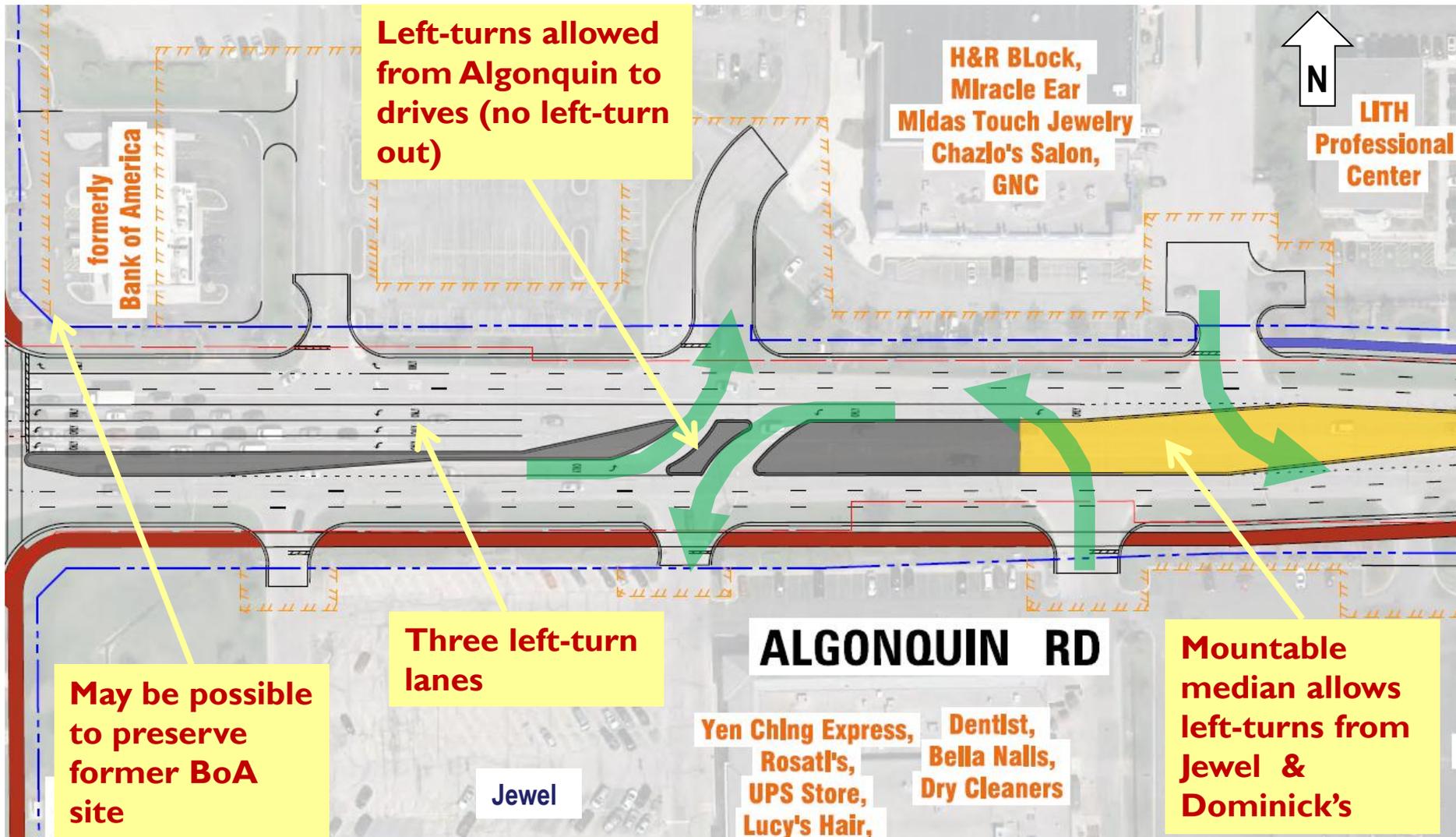
Conventional



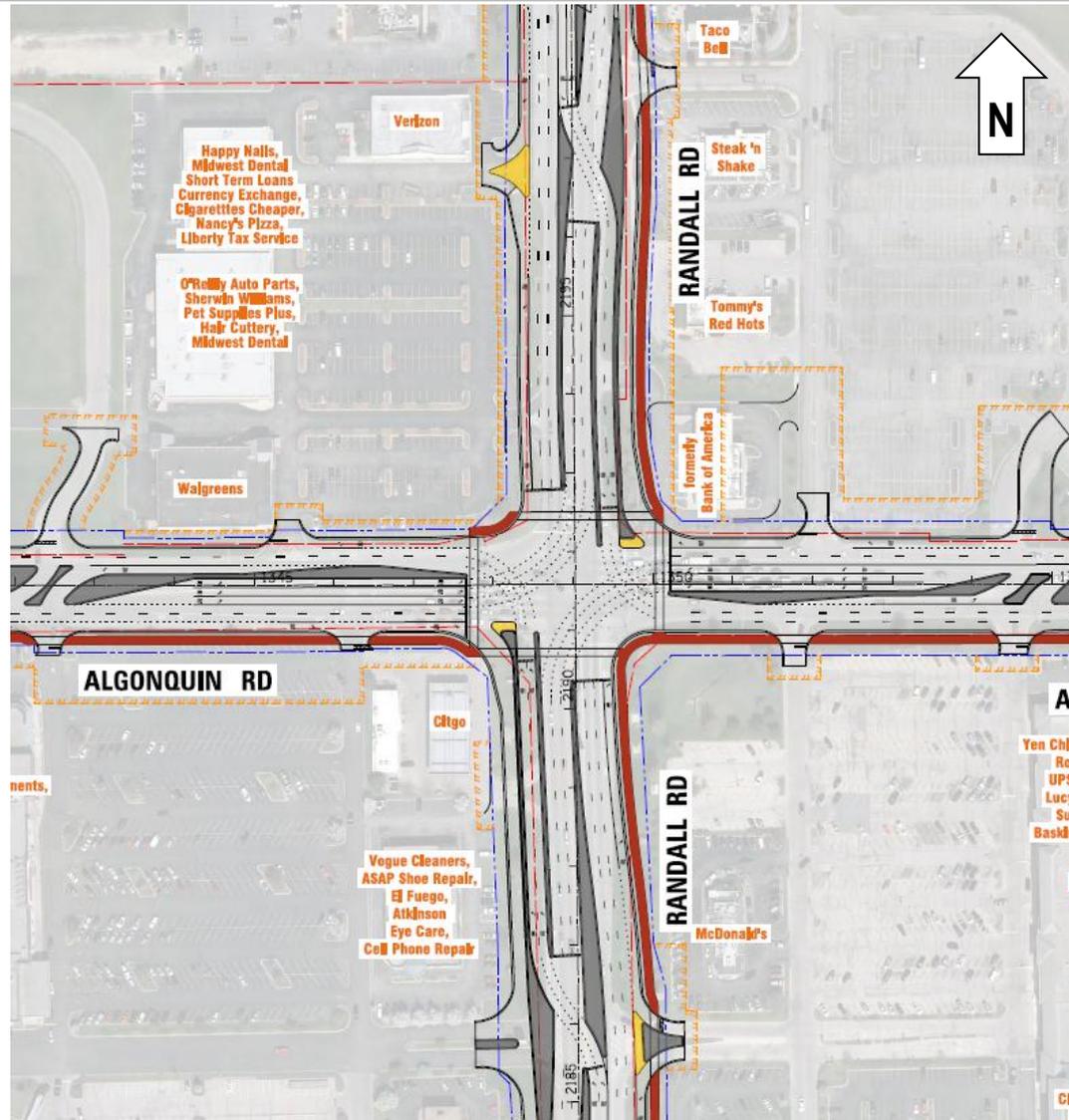
Algonquin West of Randall



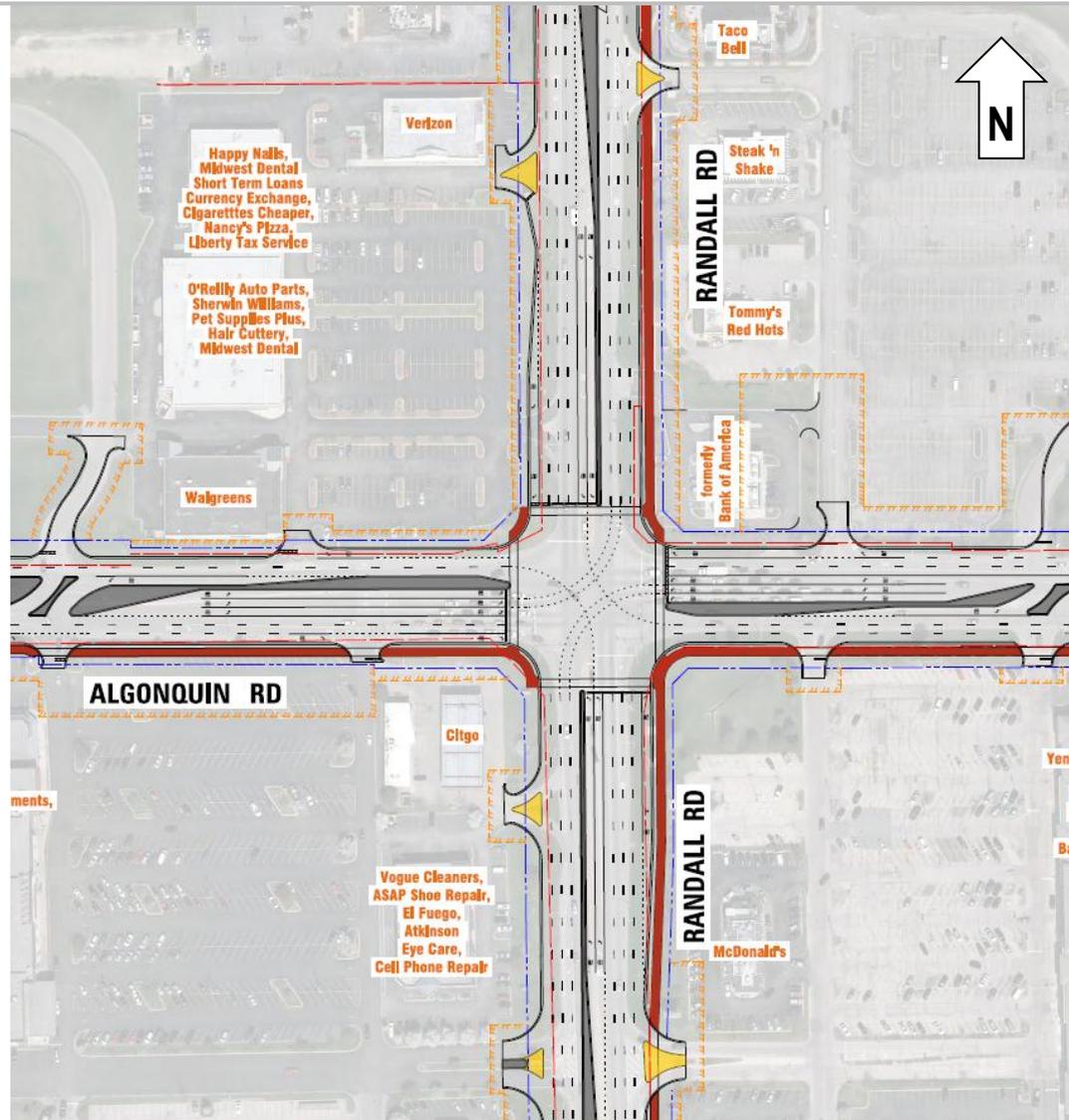
Algonquin East of Randall



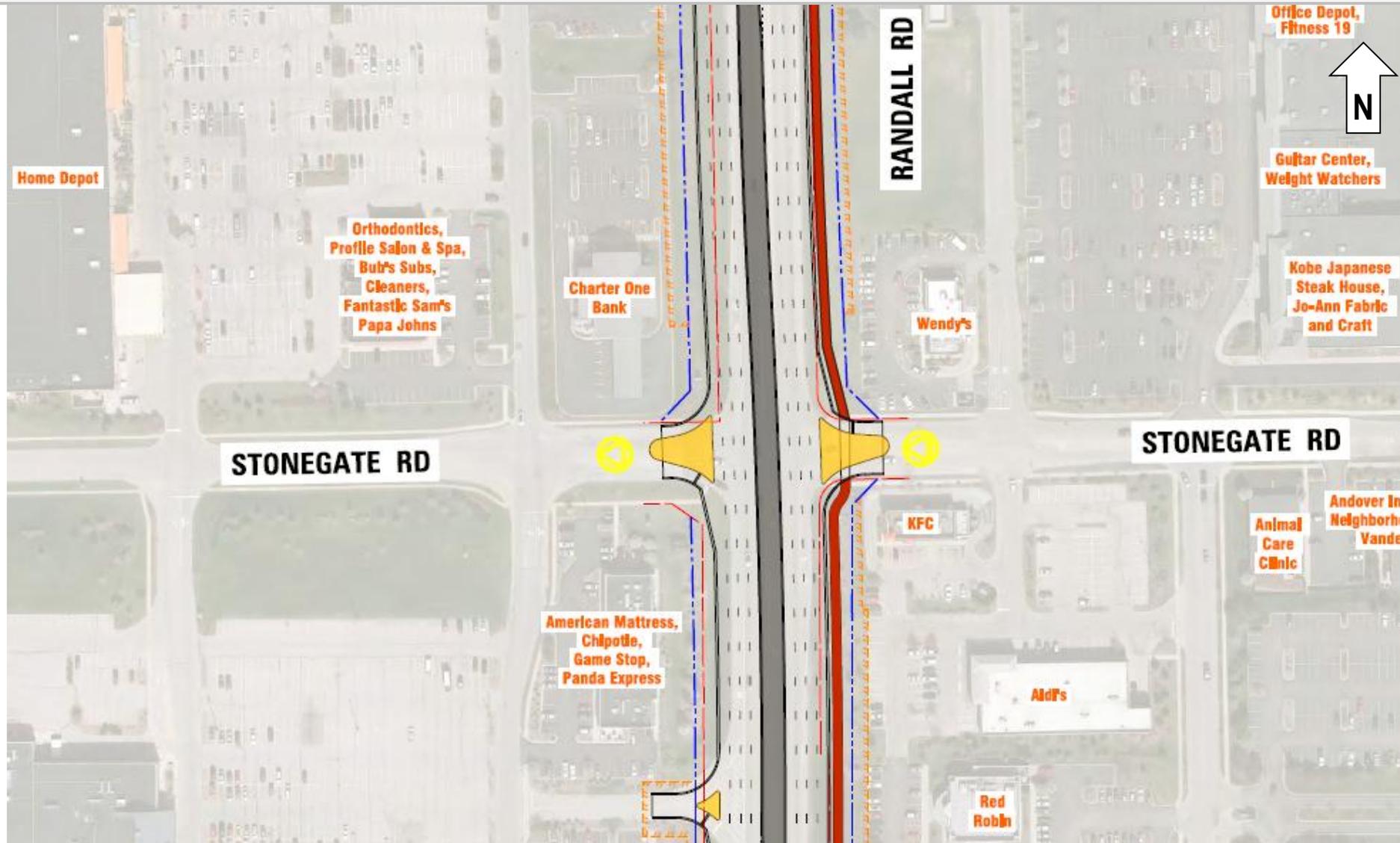
DLT Configuration along Randall Road



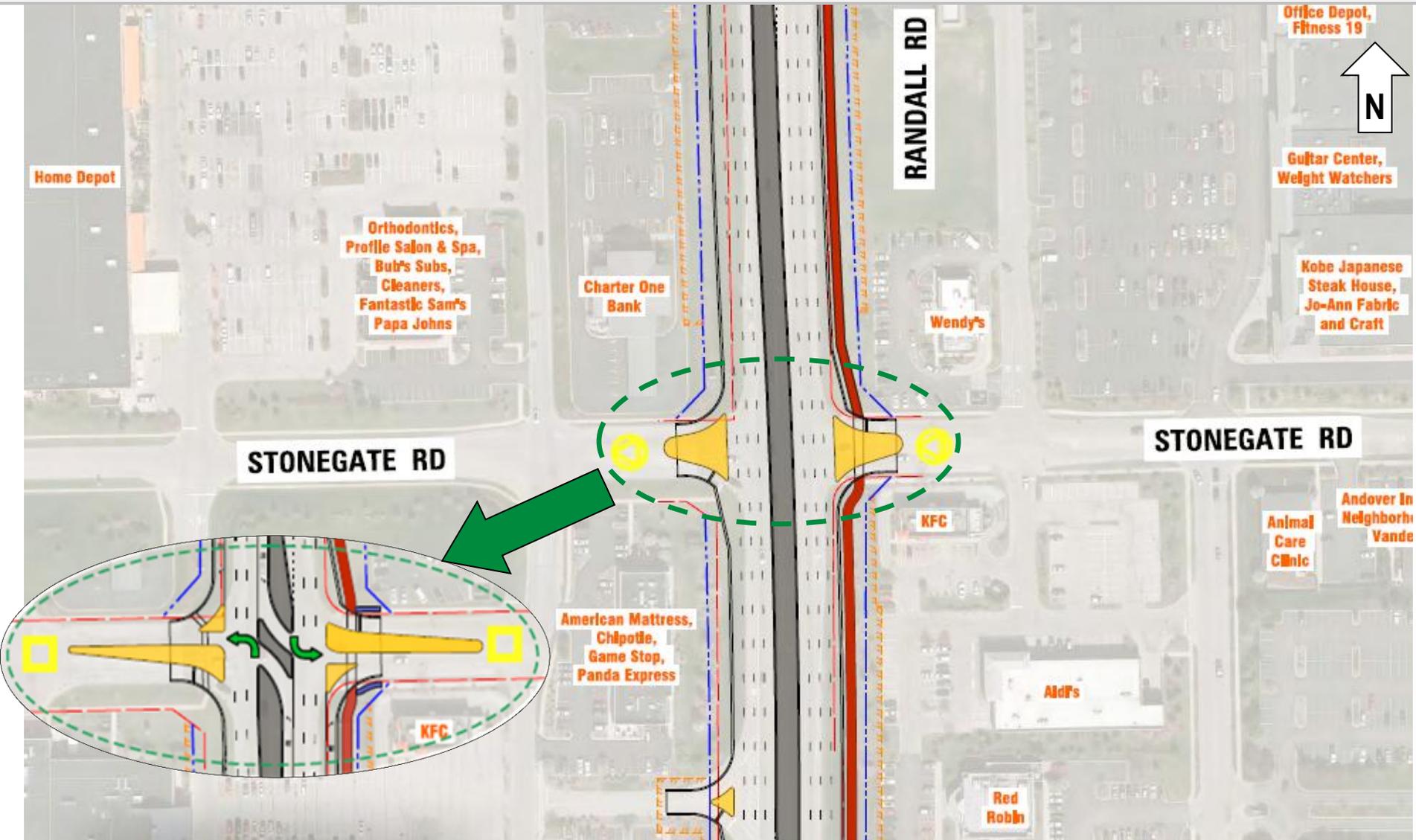
Conventional Configuration along Randall Road



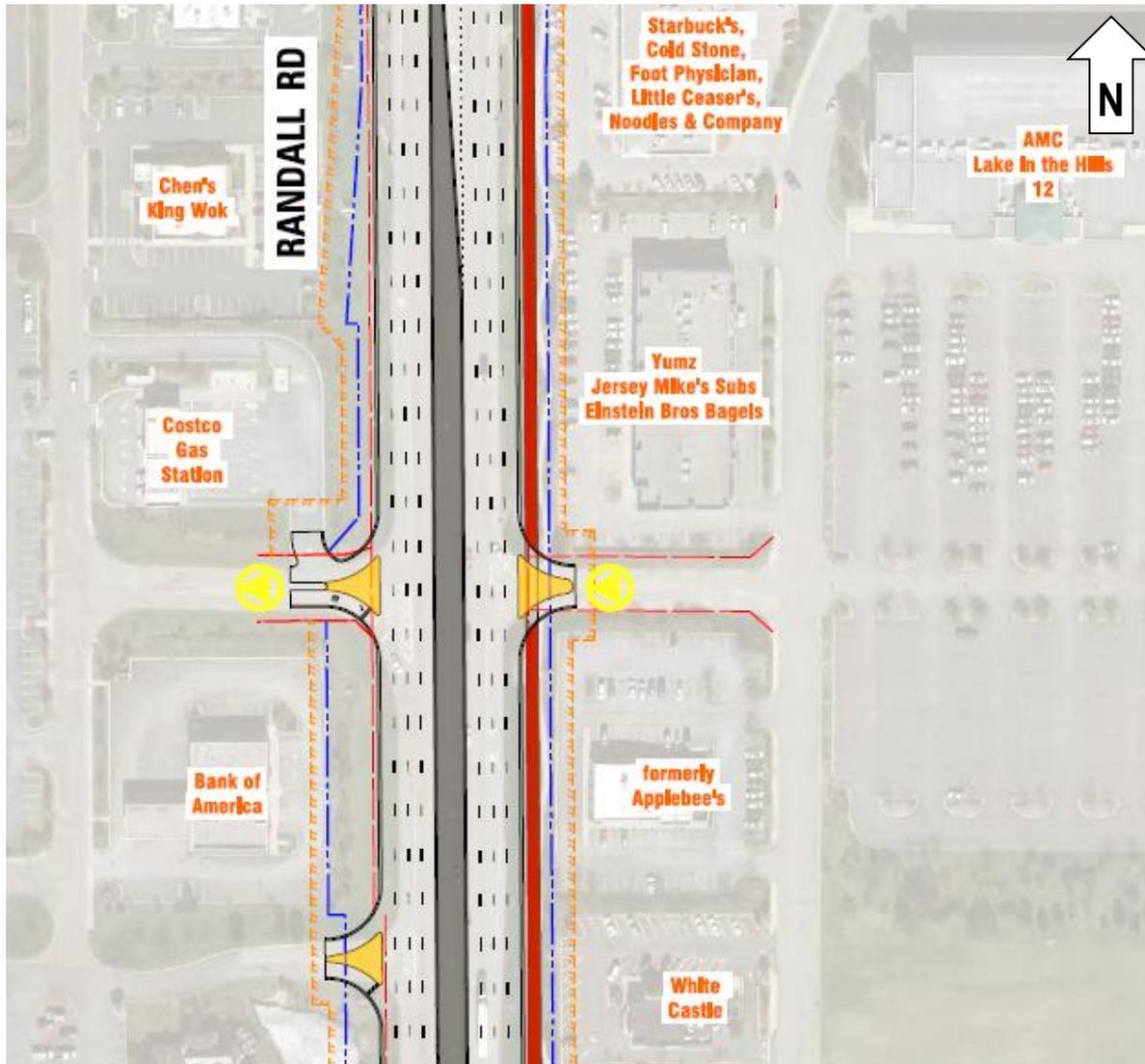
Conventional with Stakeholder Requested Modifications



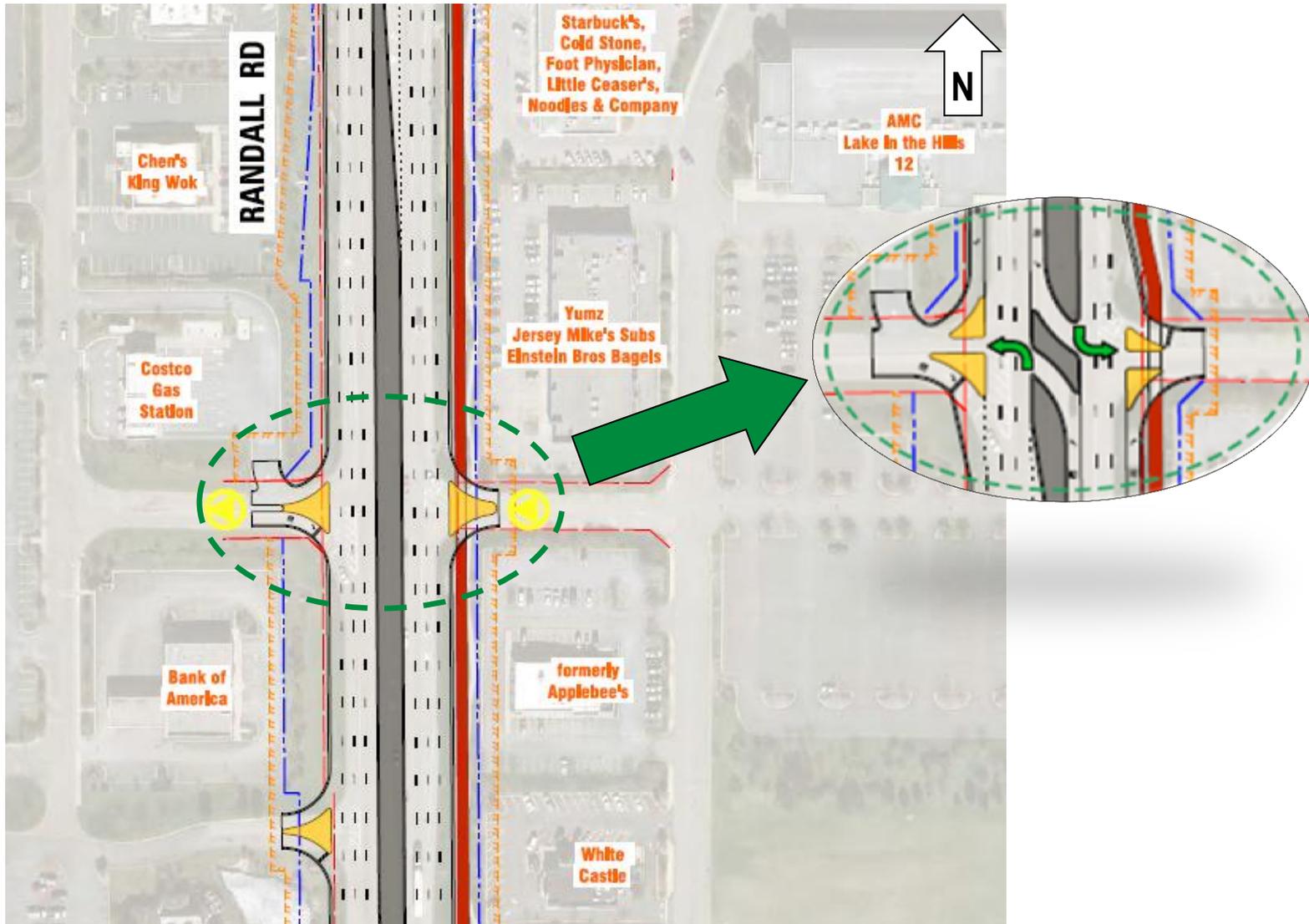
Conventional with Stakeholder Requested Modifications



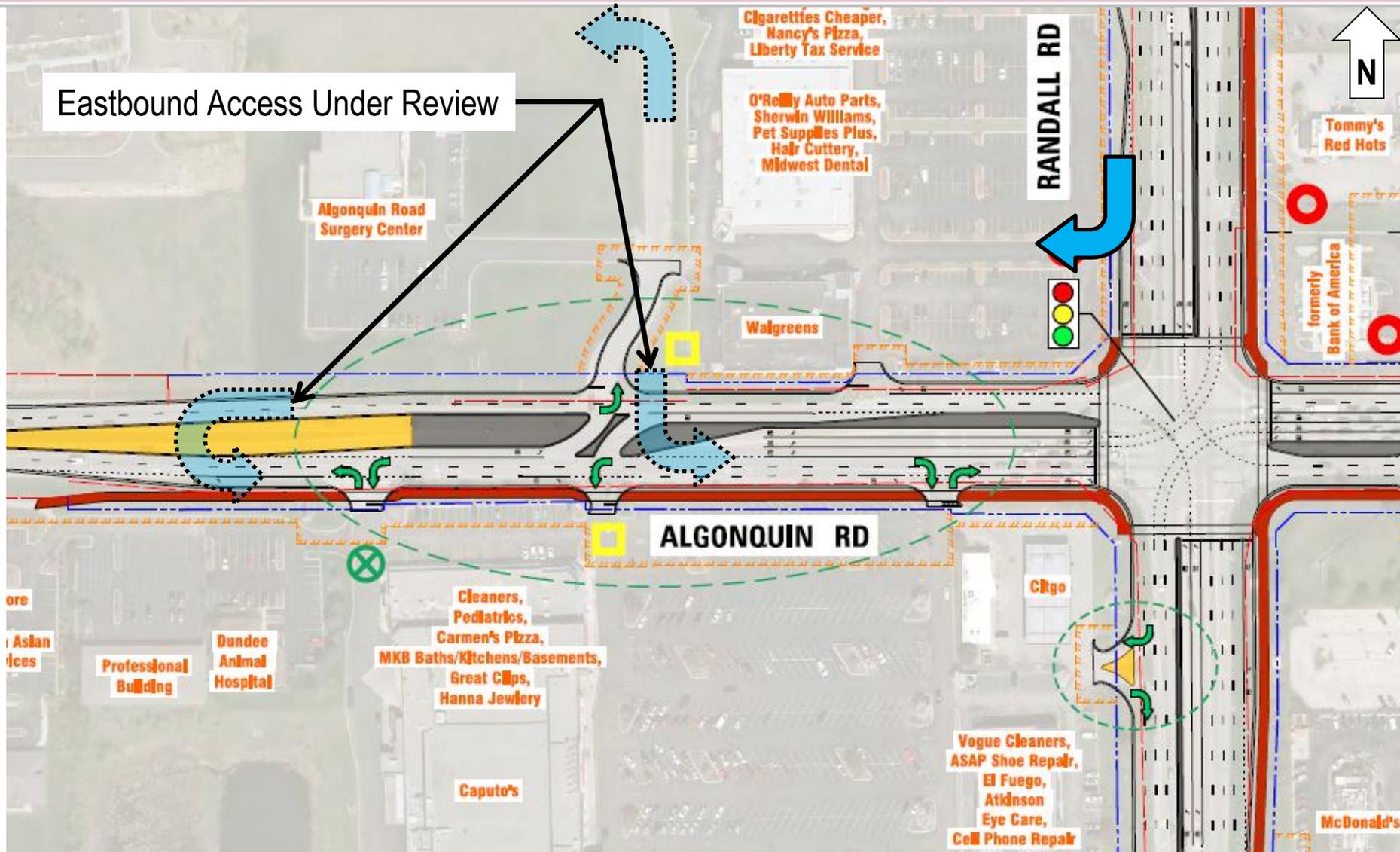
Conventional with Stakeholder Requested Modifications



Conventional with Stakeholder Requested Modifications

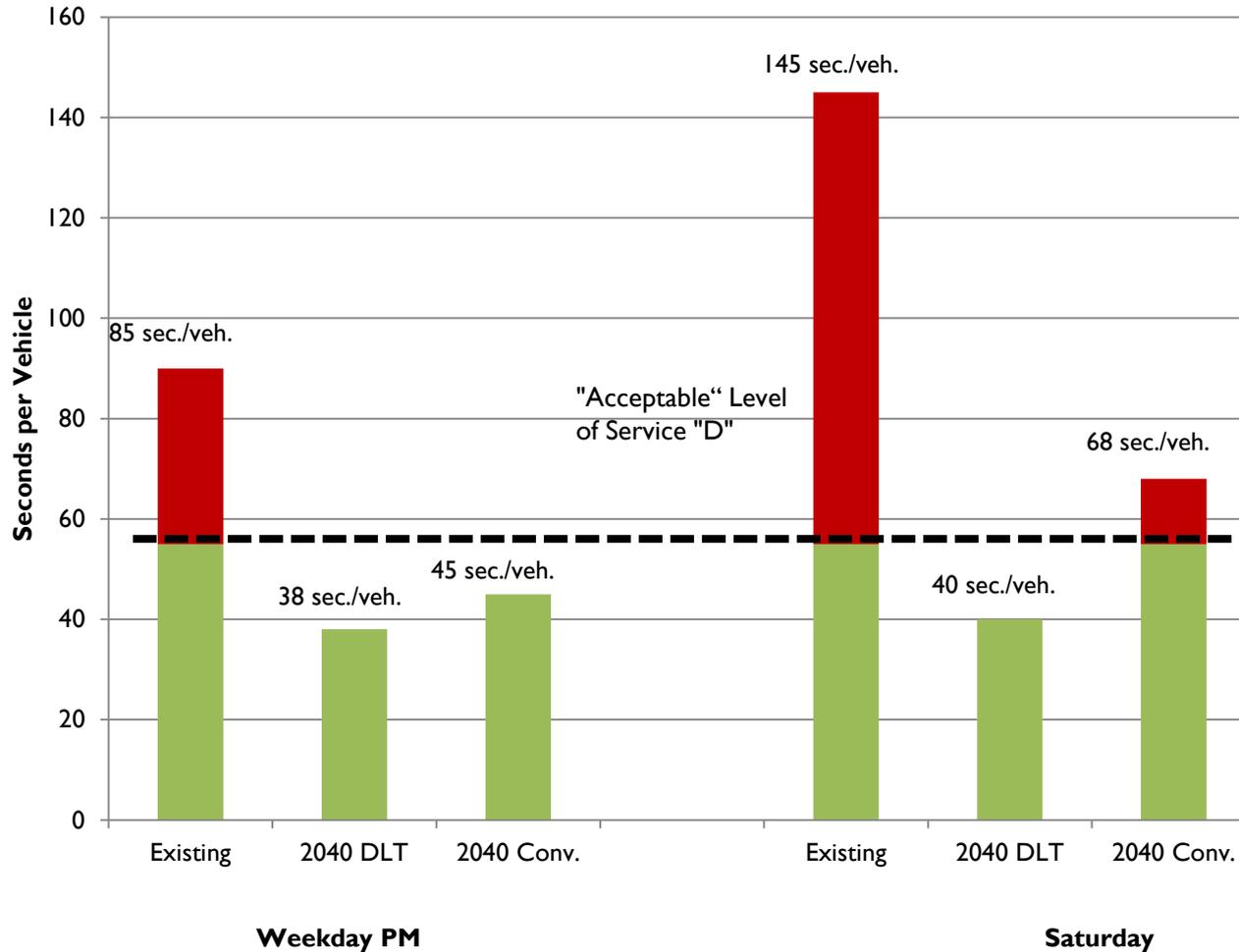


Conventional with Stakeholder Requested Modifications

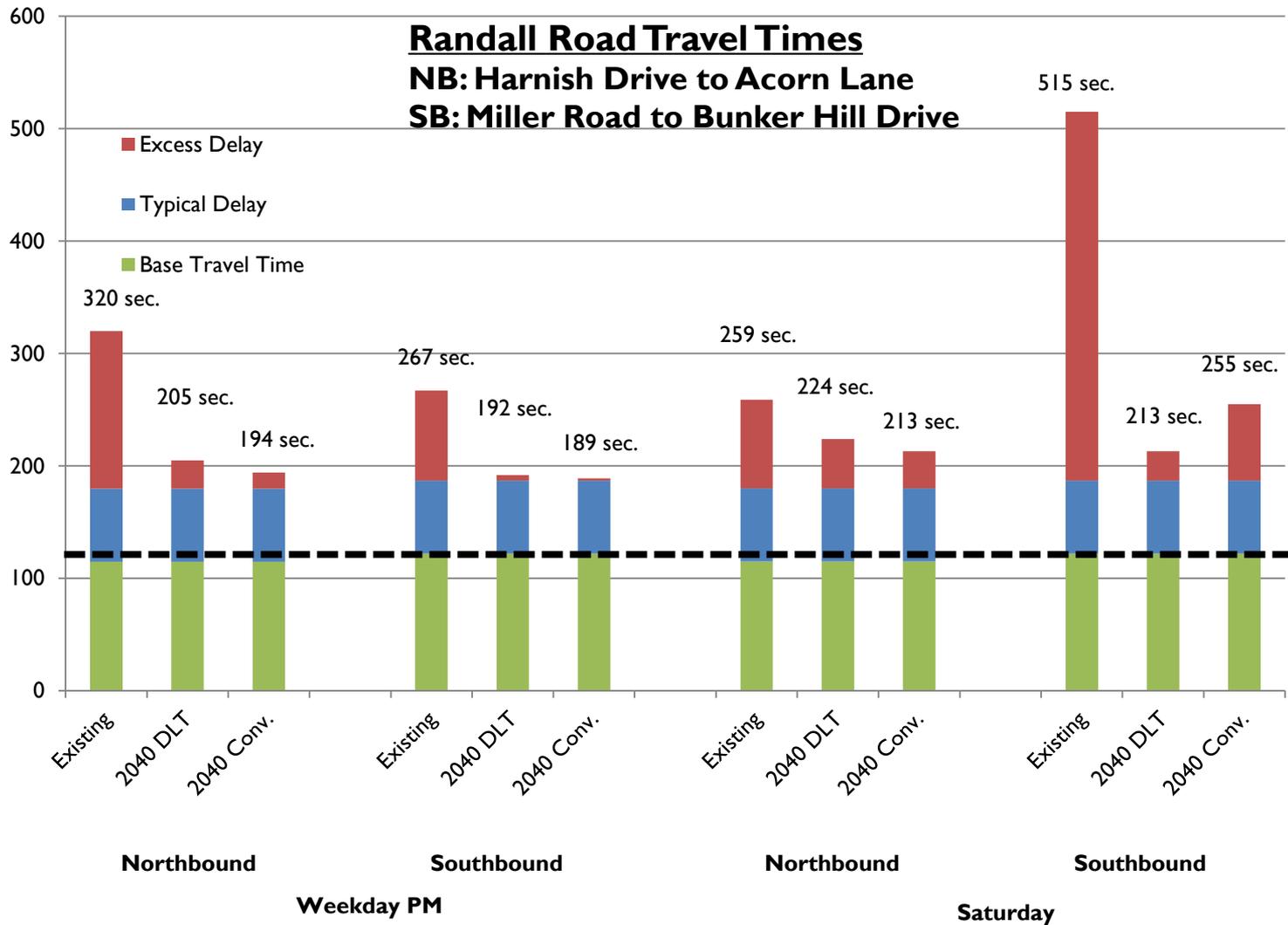


Operational Comparison – Intersection

Randall & Algonquin Intersection Delay



Operational Comparison – Travel Time



ROW Impacts

	Displaced Left Turn (DLT) with Access	Conventional 3-Lane plus Auxiliary
Full Properties Acquired (each)	TBD	0
# of Permanent ROW & Easements	86	86
Partial Permanent ROW (acres)	34.7	34.9
Temporary Easements (acres)	10.4	10.9

Design/Construction Costs

	Displaced Left Turn (DLT)	Conventional 3-Lane plus Auxiliary
<u>Cost</u>		
Construction (Non-Intersection)	\$31,806,623	\$31,878,385
Construction (Intersection)	\$16,215,165	\$16,254,281
Construction Subtotal	\$48,021,788	\$48,132,666
Lane Miles (Exist 18.9 miles)	28.3	28.3
\$ per Lane Mile (Typical \$1.7-\$2.0 M)	\$1.7	\$1.7
ROW Acquisition (Ph. I Est. w/o damage to remainder)	TBD	TBD +\$500k
ROW Negotiations	\$1,750,000	\$1,750,000
Design Engineering	\$9,099,876	\$9,099,876
Construction Engineering (10%)	\$4,802,179	\$4,813,267
Utility Adjustments (Ph. I Est.)	\$2,617,800	\$2,617,800
Total Cost (not including ROW)	\$66,291,673	\$66,413,639

Funding

	Displaced Left Turn (DLT) with Access	Conventional 3-Lane plus Auxiliary
<u>IDOT/Federal Approvals</u>		
Geometrics	Approved	Likely
CMAQ Funding	Approved (\$10.6M)	TBD

Potential Fiscal & Economic Impacts

Impacts of Intersection Improvements	Localized Impacts	Countywide and Regional Impacts
<ul style="list-style-type: none"> • Increased Traffic Capacity • Reduced Travel Times across Network 	<ul style="list-style-type: none"> • Increases visibility and traffic counts for retailers • Increases retail market area, consumer spending potential, store sales, and sales and property tax collections 	<ul style="list-style-type: none"> • Reduces transportation costs for businesses and residents • Increases labor market access (employers have a access to broader, more diverse labor pool) • Broadens access to markets for businesses
<ul style="list-style-type: none"> • Access Changes to Local Businesses • Potential Property Acquisitions • Enhanced Safety 	<ul style="list-style-type: none"> • Reduced access can decrease customer patronage and negatively impact retailers, property owners and municipal sales and property tax collections • Converse is true for improved access and safety 	<ul style="list-style-type: none"> • Unlikely to impact state and RTA sales tax collections

Next Steps
