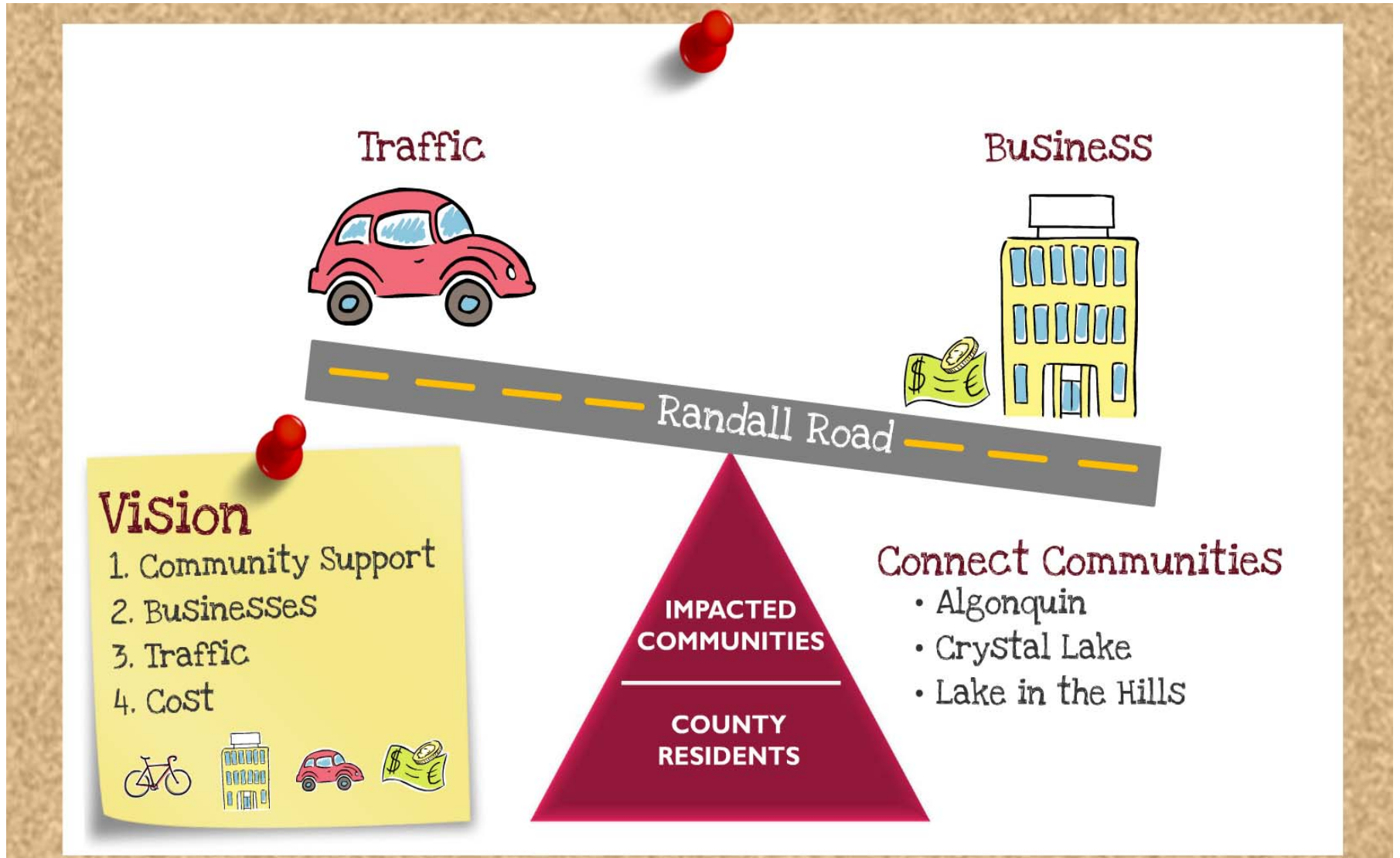


Where did we start?

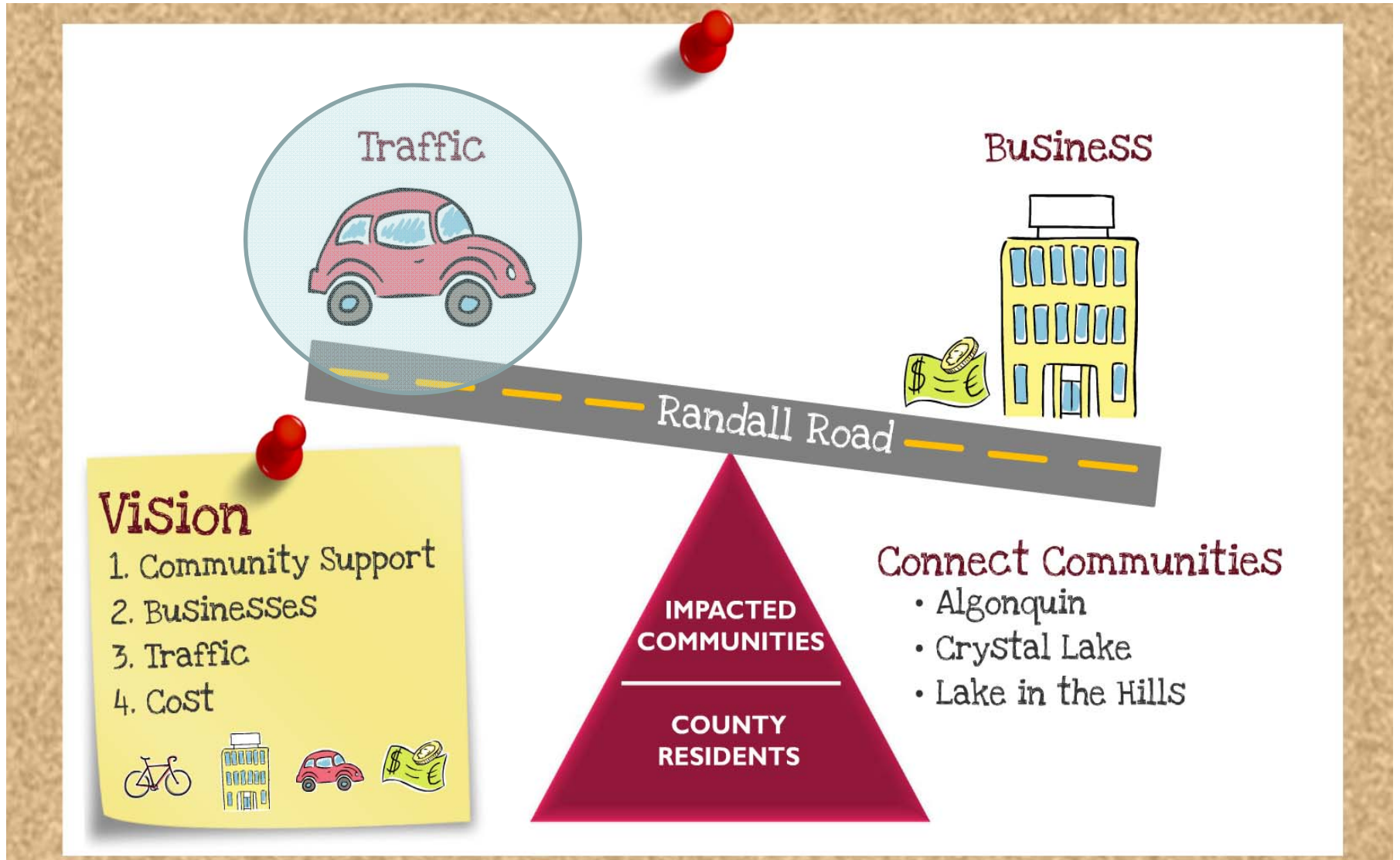


Project Objectives

- ▶ **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

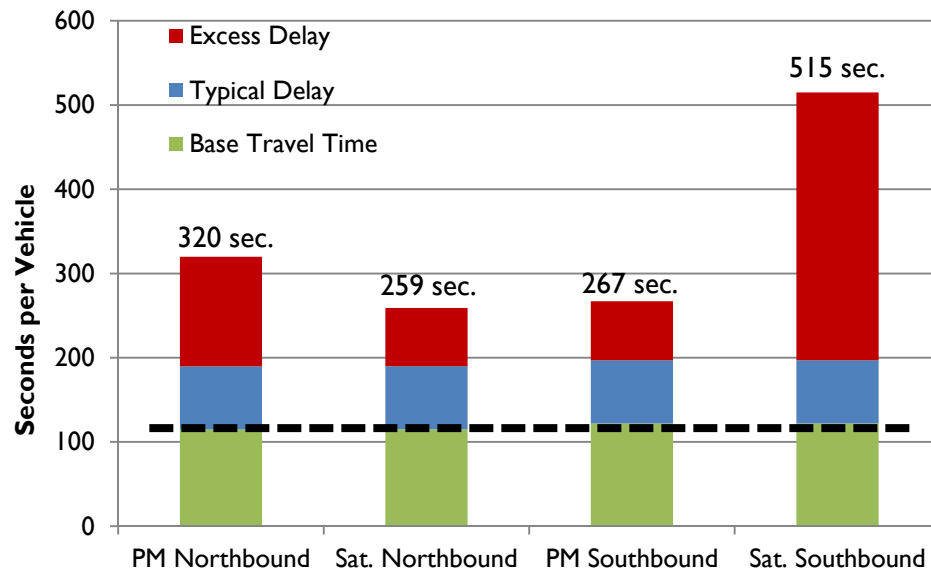
▶ Current Intersection Delay – Level of Service “F”

- Field measured over three days

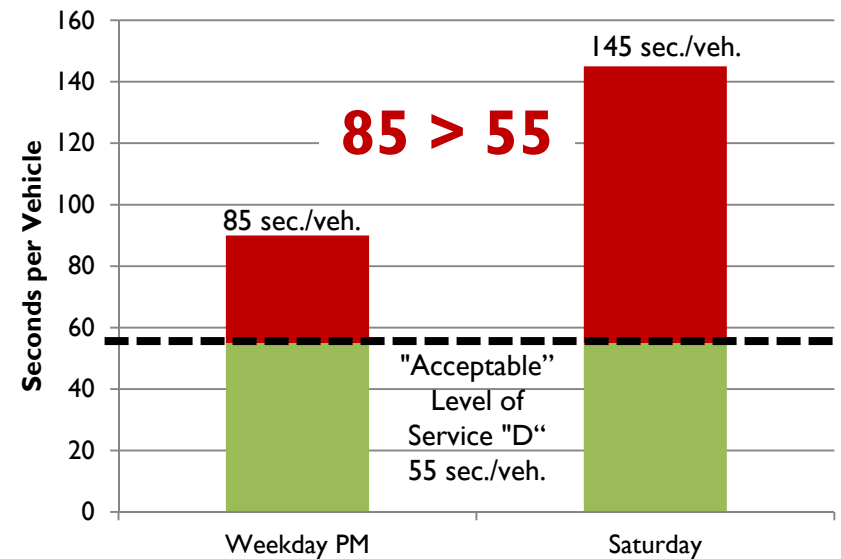
▶ Travel Times

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

Randall Road Travel Times



Existing Intersection Delay



Level of Service Scale

A = < 10 sec	D = 35-55 sec
B = 10-20 sec	E = 55-80 sec
C = 20-35 sec	F = > 80 sec

Negative Impacts of Capacity Deficiencies

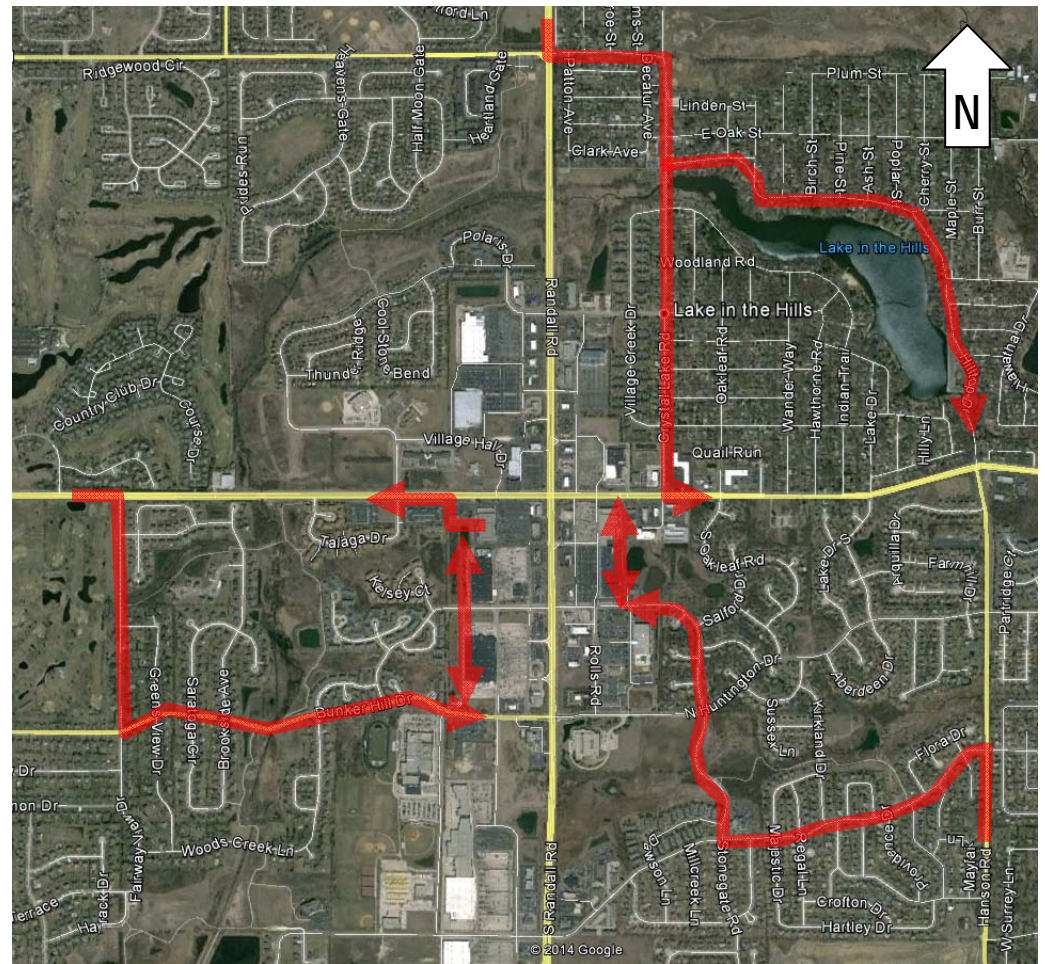
▶ Long Delays/Travel Times

- Frustration
- Harmful Emissions

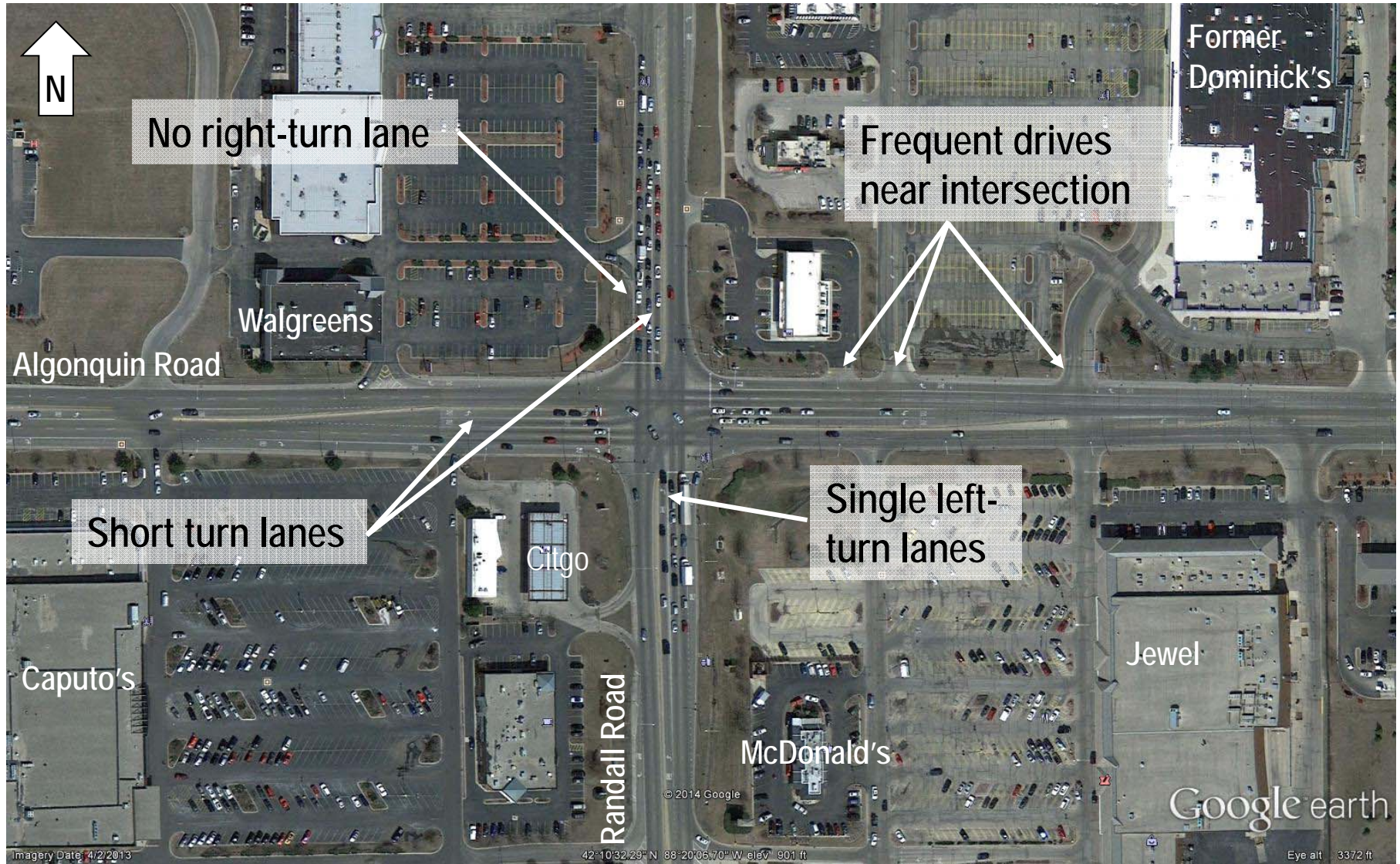
▶ By-Pass Traffic

- Added Congestion on Other Roadways
- Neighborhood Cut-Through
- Parking Lot Cut-Through

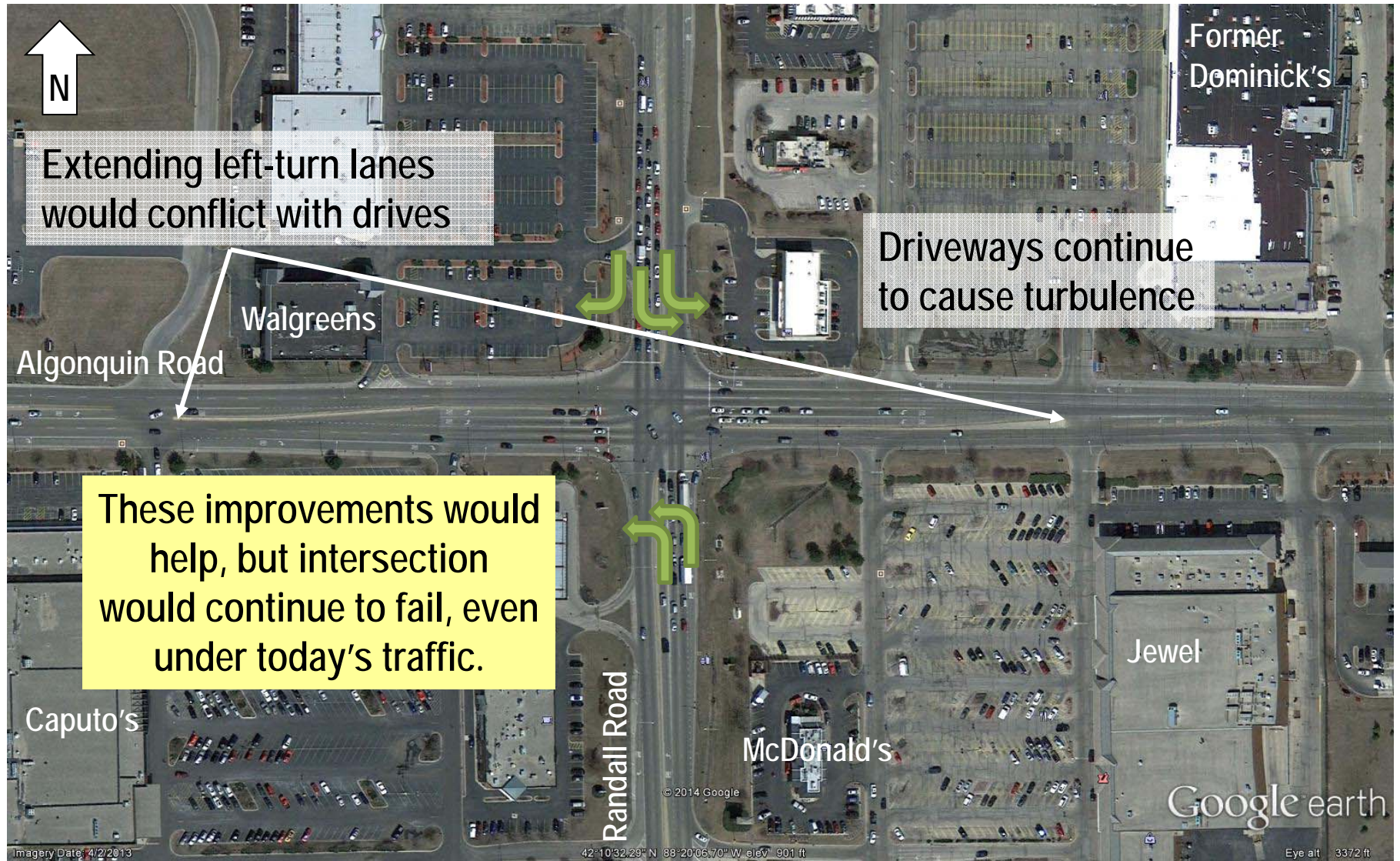
▶ Less Traffic to Businesses



Operational Issues



Why not just add turn lanes?



What is needed?

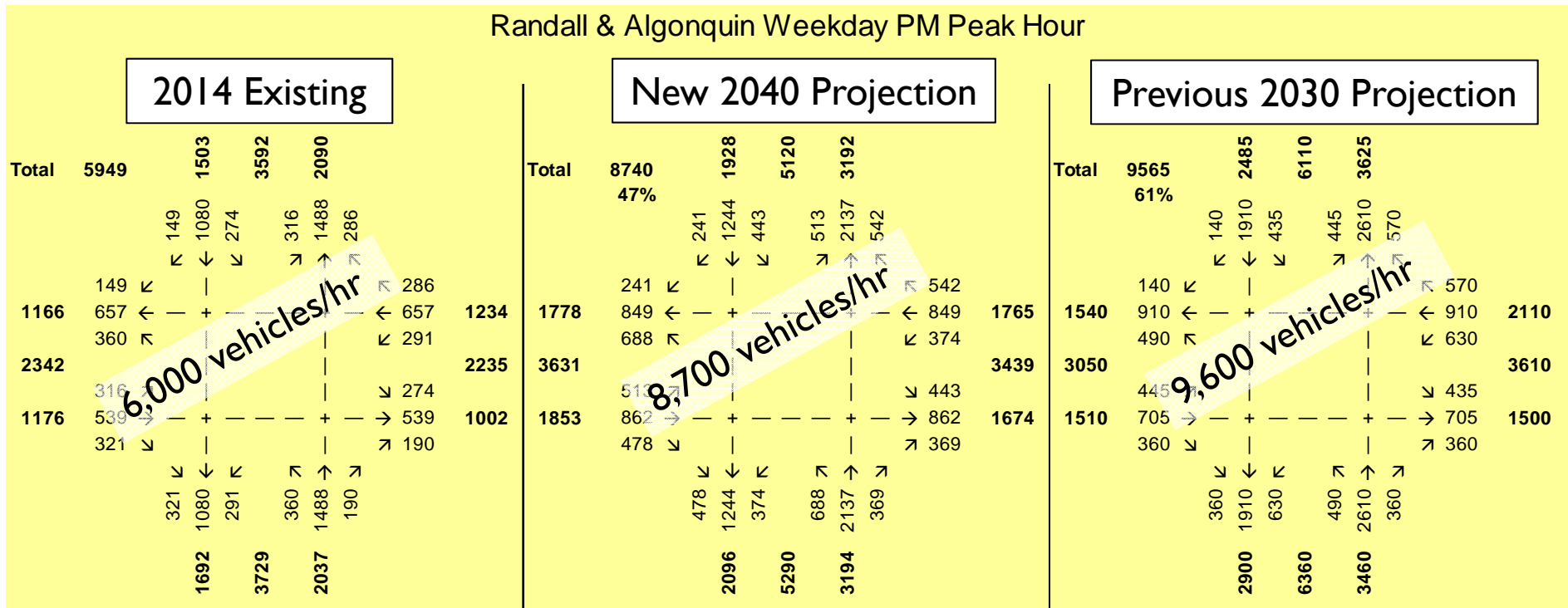
- ▶ To provide acceptable level of service:
 - Additional turn lanes
 - Third through traffic lane in each direction
 - Auxiliary lanes to manage access



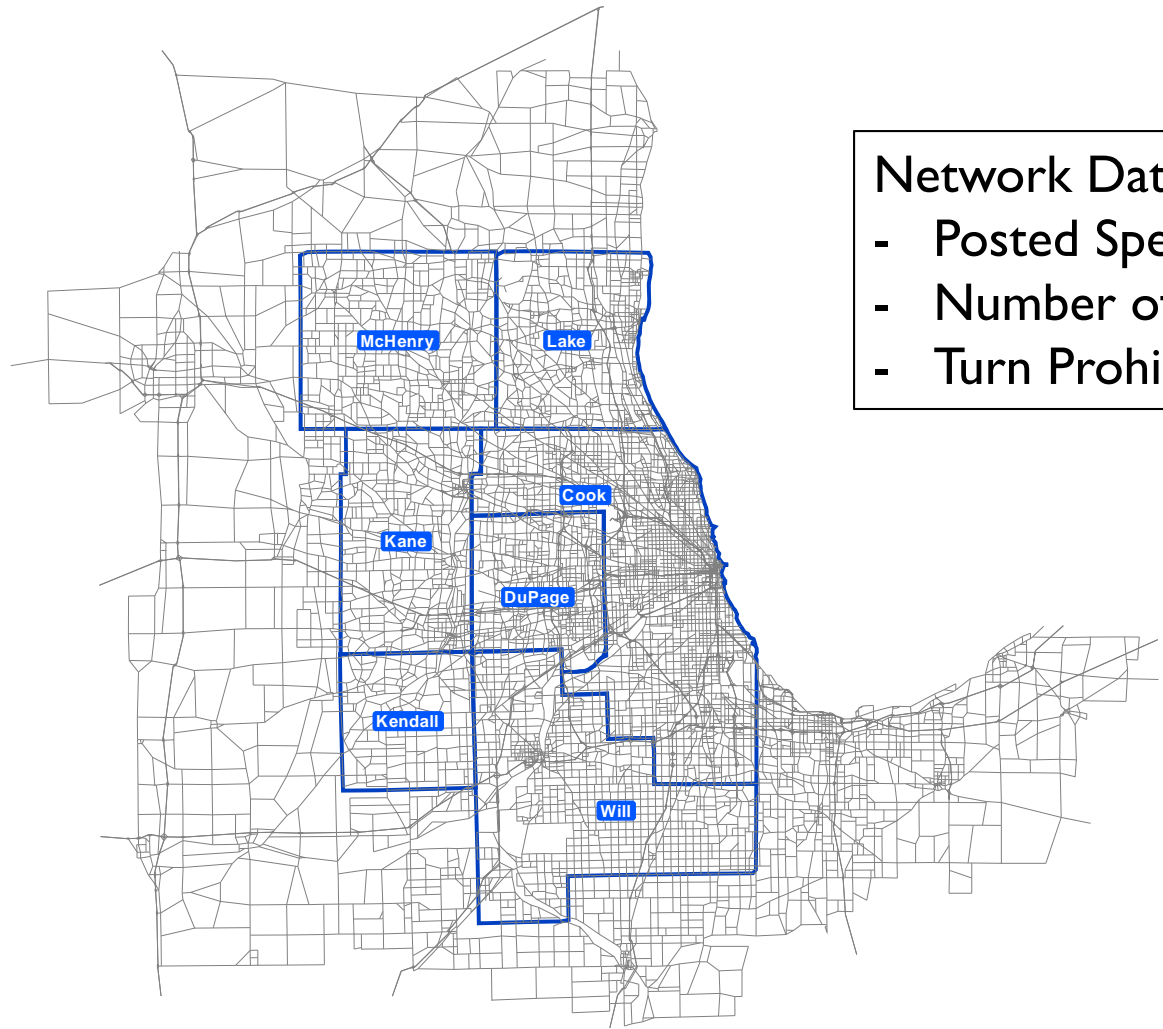
Recently Completed Randall Road at Ackman Road Intersection (Rakow Road Project)

Revised Weekday PM Traffic Forecast

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

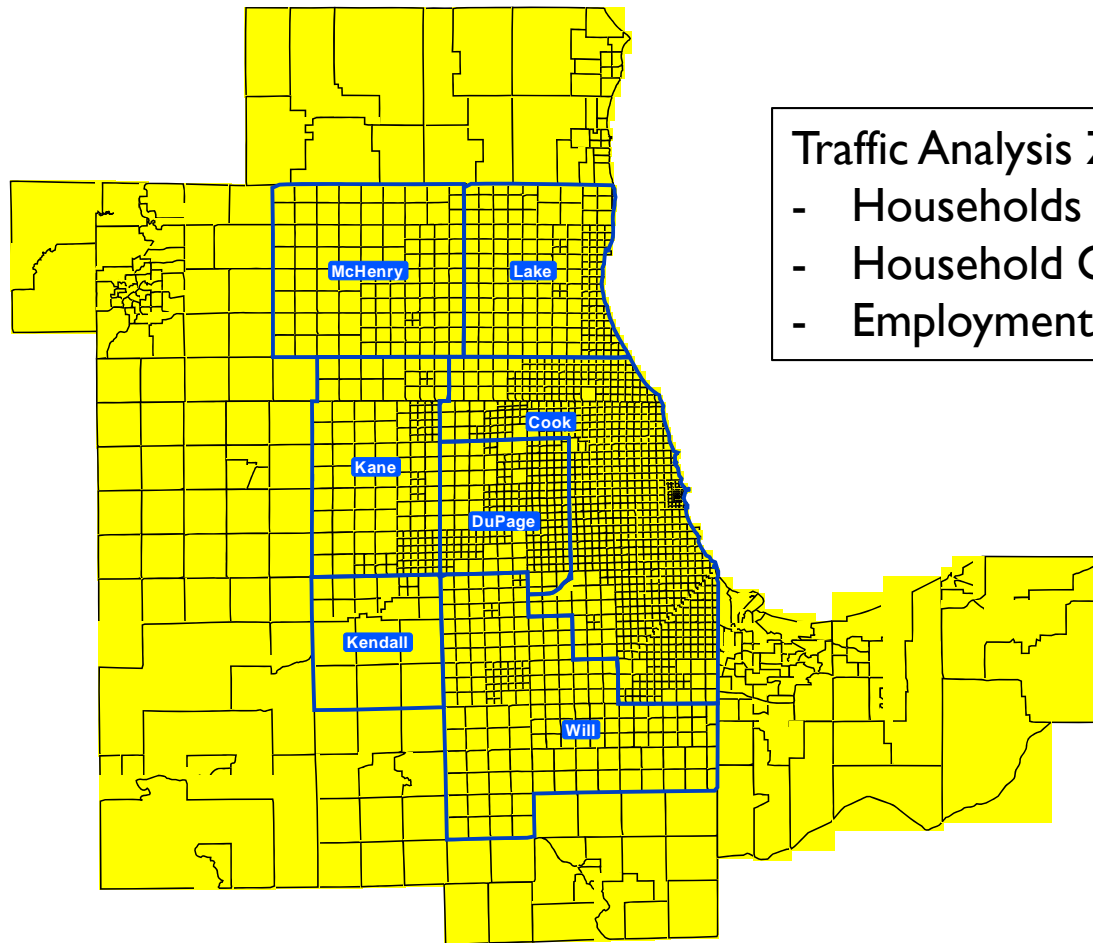


CMAP Process – Regional Network



- Network Data
- Posted Speed
 - Number of Lanes
 - Turn Prohibitions

CMAP Process – TAZ System



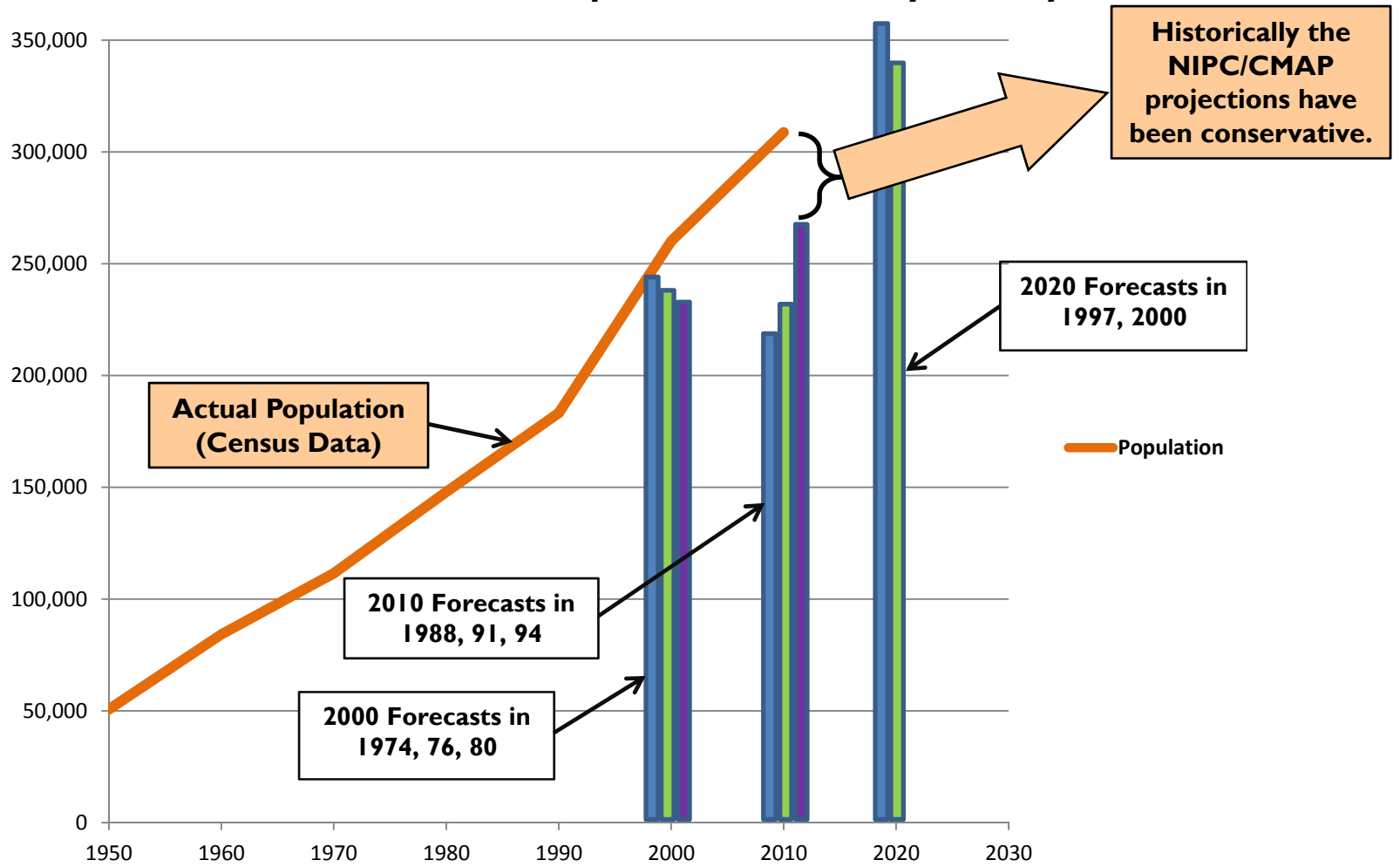
- Traffic Analysis Zone Data:
- Households
 - Household Characteristics
 - Employment

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 Population Forecast Comparison

NIPC/CMAP Forecasts vs. Population - McHenry County



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

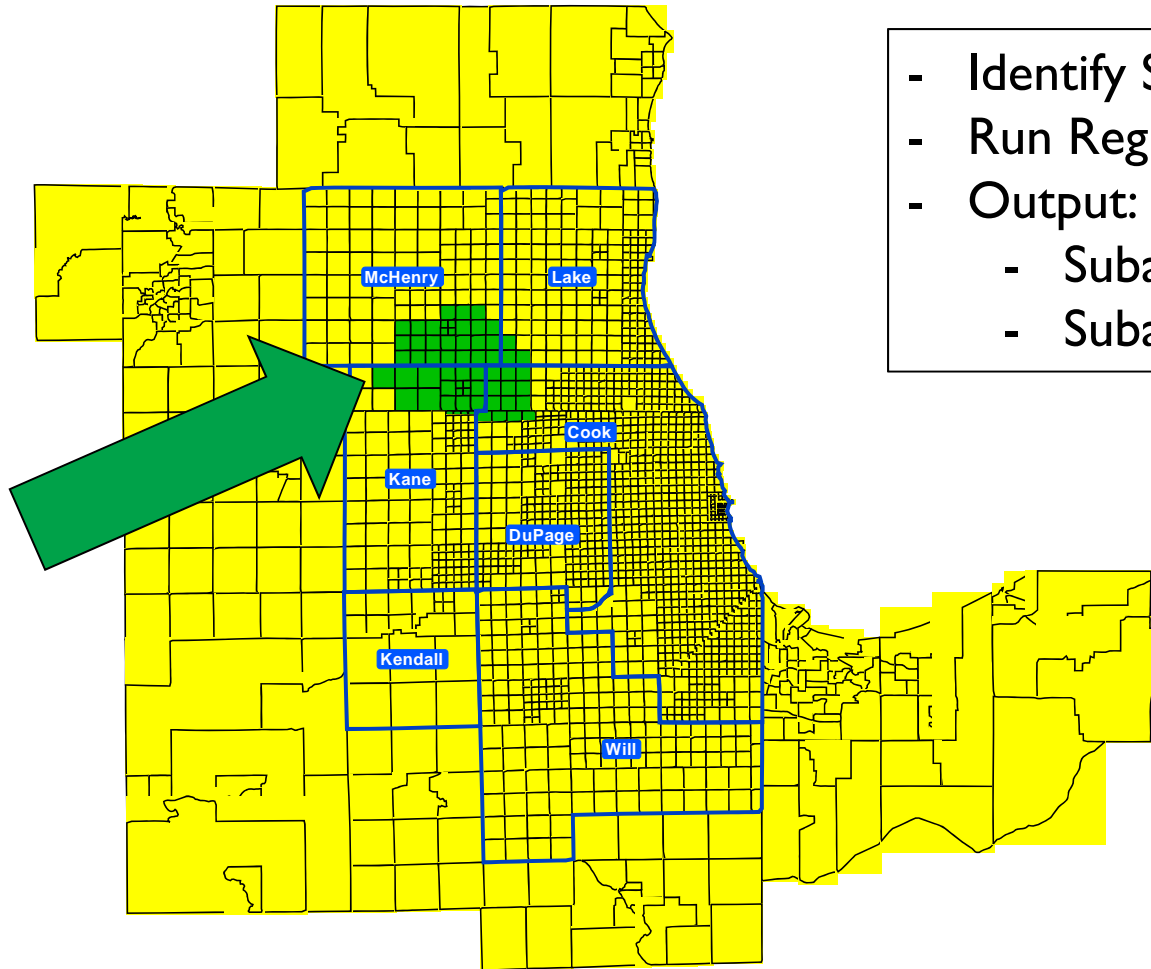
▶ Mode Choice

- 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

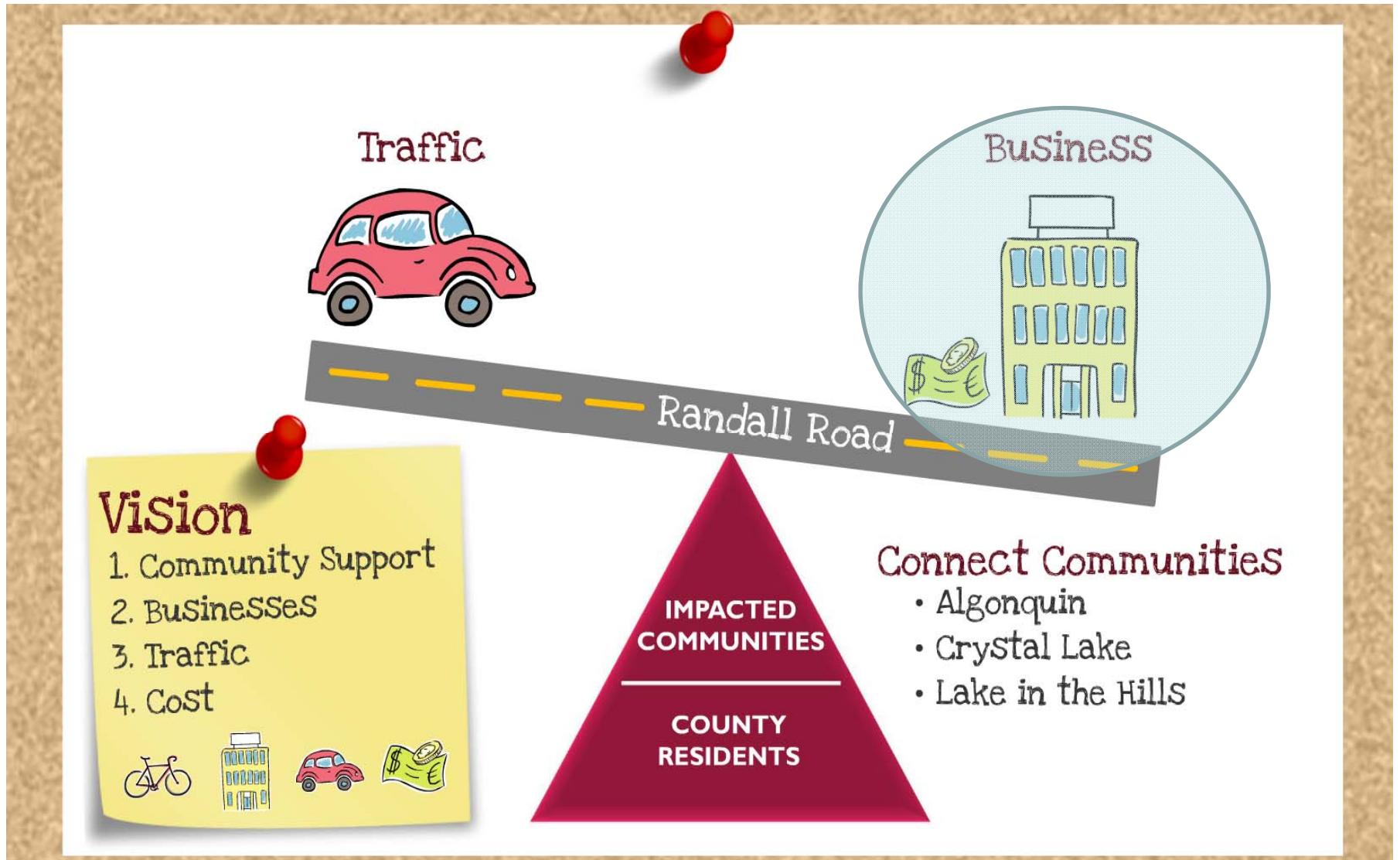
Traffic Analysis - Summary

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 %

Traffic Analysis - Summary

Item	Characteristic	Phase I	Phase II
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 Future Development	Longmeadow Parkway I-90 / IL 47 Full Interchange West Algonquin ByPass Algonquin Road Extension Kruetzer Road Extension Future Development: e.g. Centegra Hospital

Businesses



Randall Road Corridor is an Economic Engine



+/- 125

Businesses

1.75 M

Total SF of Commercial Space
(Bunker Hill to Acorn)

1.36 M

Occupied SF that
Generates Sales Tax

~\$7.3 M

in Estimated Annual Sales Tax
Collections for Algonquin & LITH

~\$3.6 M

in Estimated Annual Sales Tax
Collections for McHenry County

Improved Infrastructure Attracts New Business

▶ Recent Local Example

- South Randall Road
 - Gander Mountain (Algonquin)

▶ Future Opportunities

- Skyridge Apartments
- Former Dominick's
- Former Applebee's
- Vacant/Undeveloped Sites



Fiscal & Economic Impacts

Infrastructure Investment

**Reduced
Travel Times**

**Increased
Traffic Capacity**

1
**Increased
Visibility &
Traffic Counts
for Retailers**

2
**Increased
Retail
Market Reach
& Consumer
Spending
Potential**

3
**Improved
Access for
Labor &
Businesses**

4
**Reduced
Transportation
Costs**

I Increased Visibility & Traffic Counts for Retailers

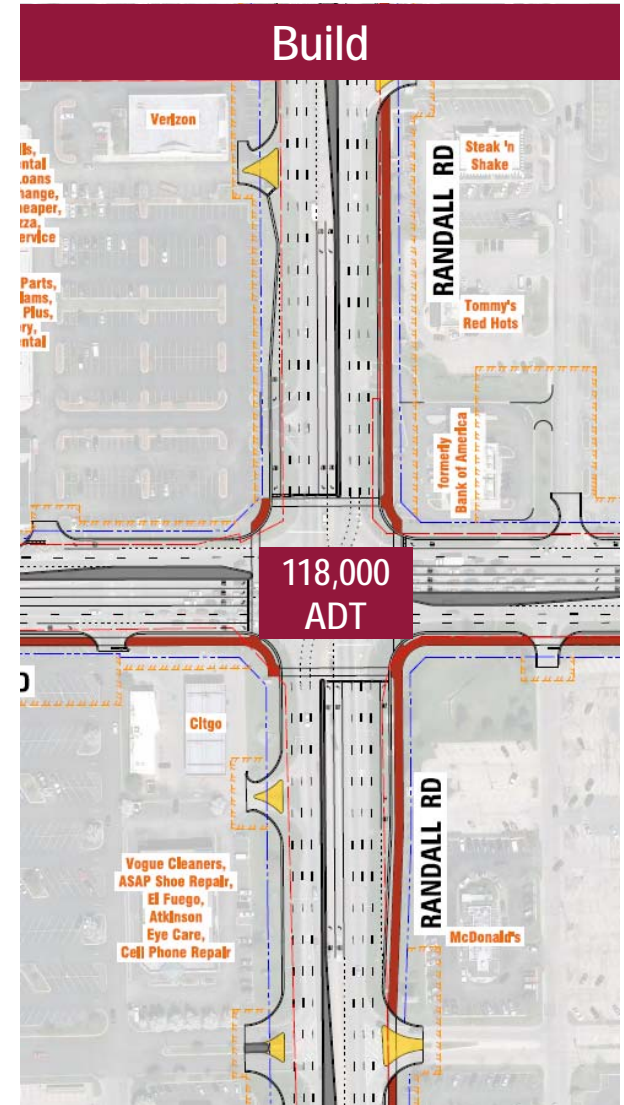


Today
~8.4 M
 Estimated Annual Trips

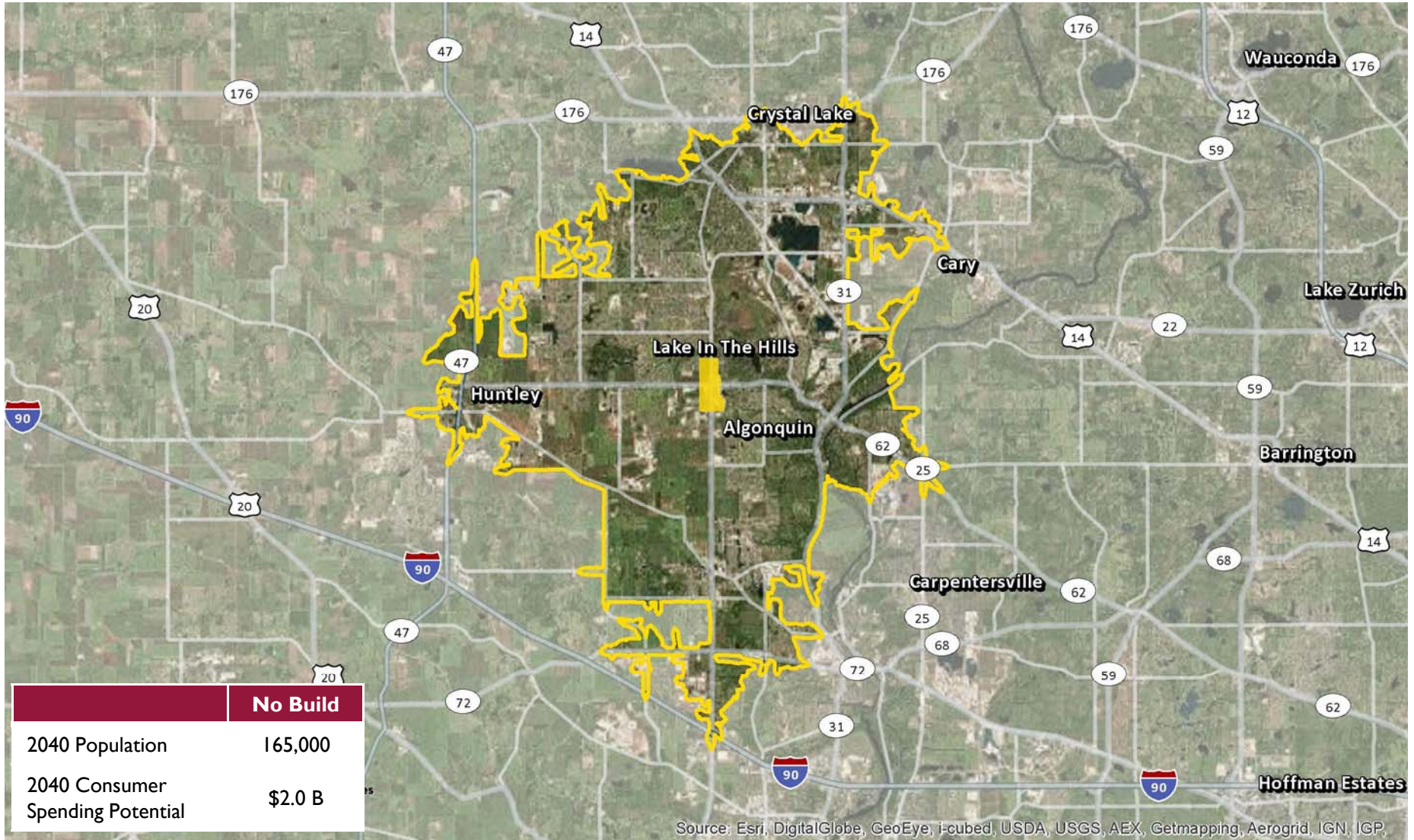
No-Build 2040 Projection
~9.2 M
 Estimated Annual Trips

Build 2040 Projection
~11.7 M
 Projected Annual Trips

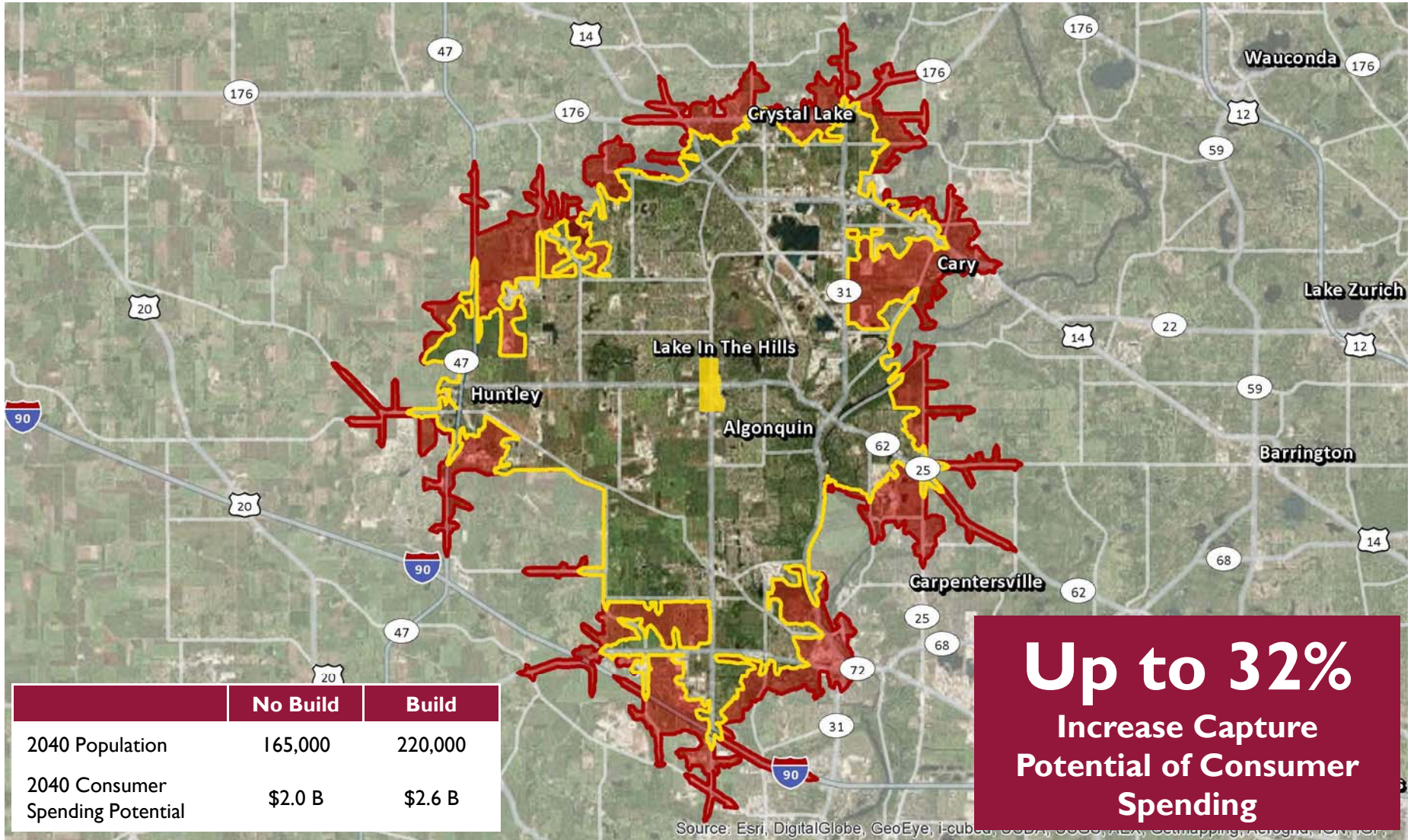
Up to 24%
 Increase in Customer
 Patronage & Sales



2 Increased Retail Market Reach & Spending Potential

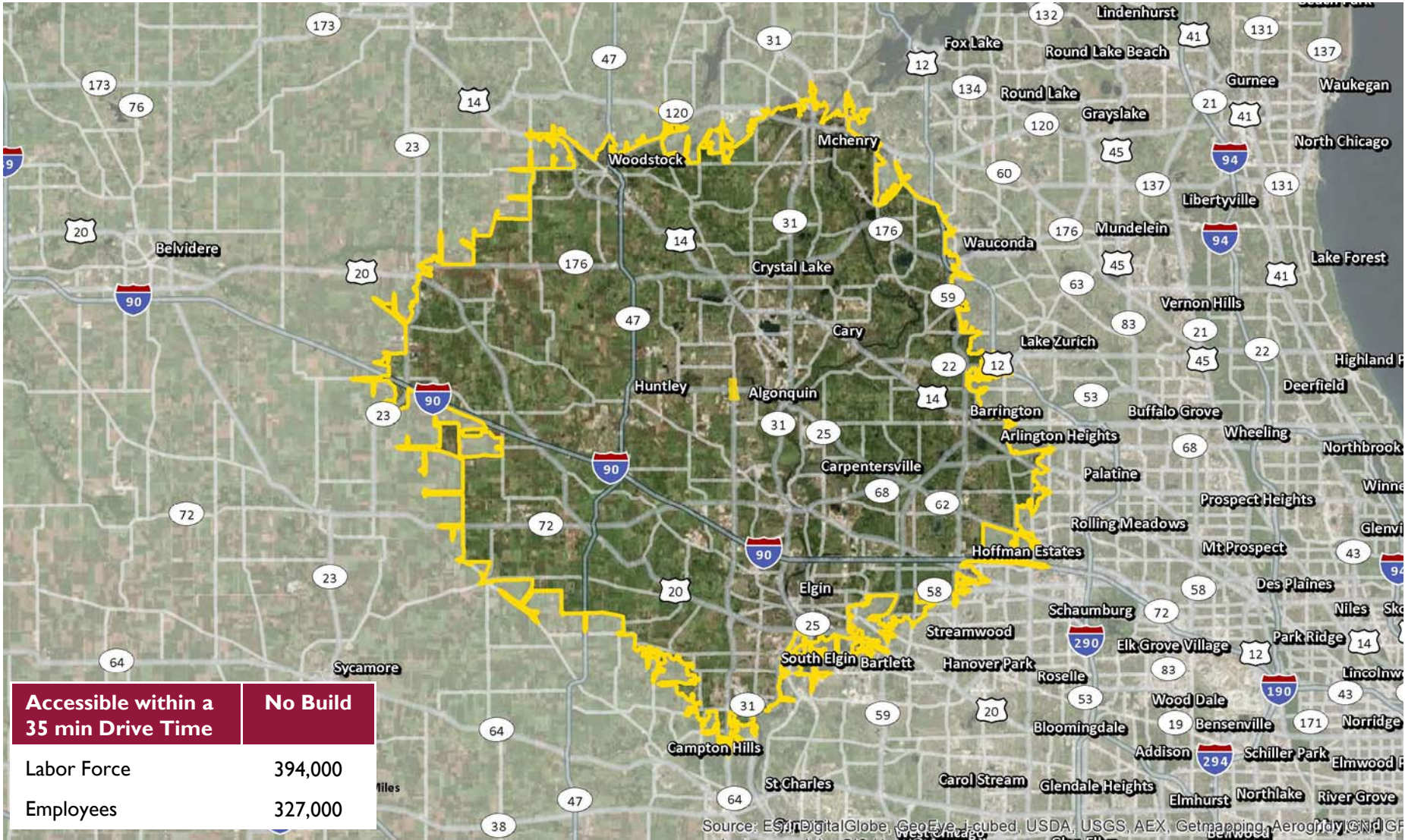


2 Increased Retail Market Reach & Spending Potential



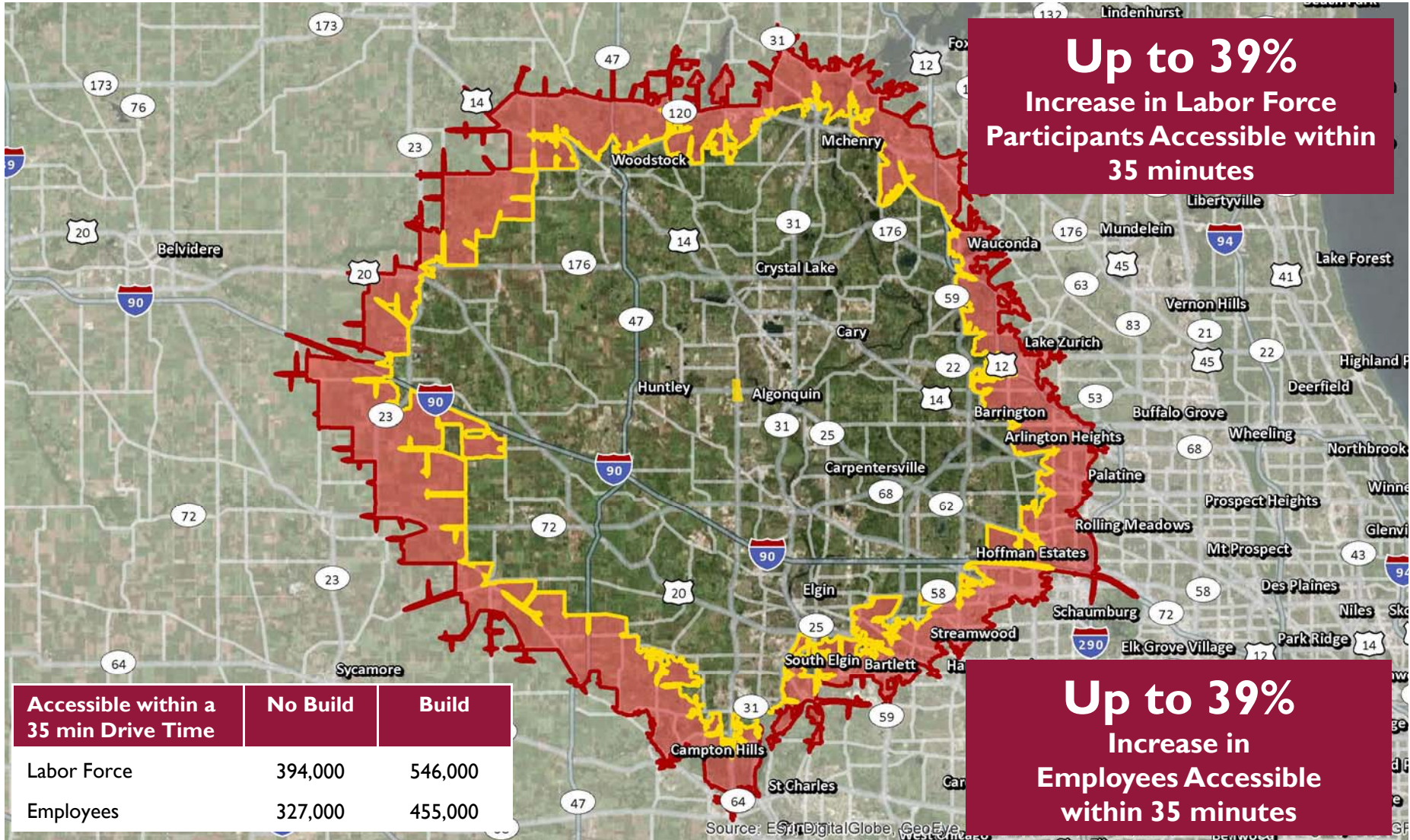
3

Improved Access for Labor & Business



3

Improved Access for Labor & Business



4 Reduced Transportation Costs



USDOT The Value of Travel Time Savings: Departmental Guidance for Conducting Economic Evaluations

	2014 \$s
Personal	\$ 13.00
Business	\$ 24.80
All Purposes **	\$ 13.50

6 min peak hour time savings translates to
780,000 hours/year in delay time savings

780,000 × \$13.50 =

\$10.5 M in Annual Economic Value



Communication and Stakeholder Outreach

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

CORRIDOR OUTREACH

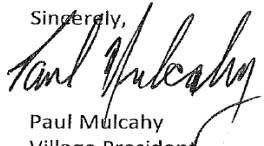


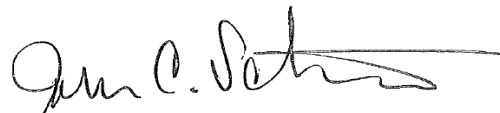
Stakeholder Input from the Businesses/Communities

- ▶ Fix the traffic
(congestion and latent demand)
- ▶ Maintain access
- ▶ Build it right the first time
- ▶ Keep us informed
 - Working Meetings
- ▶ Supportive of the redesign

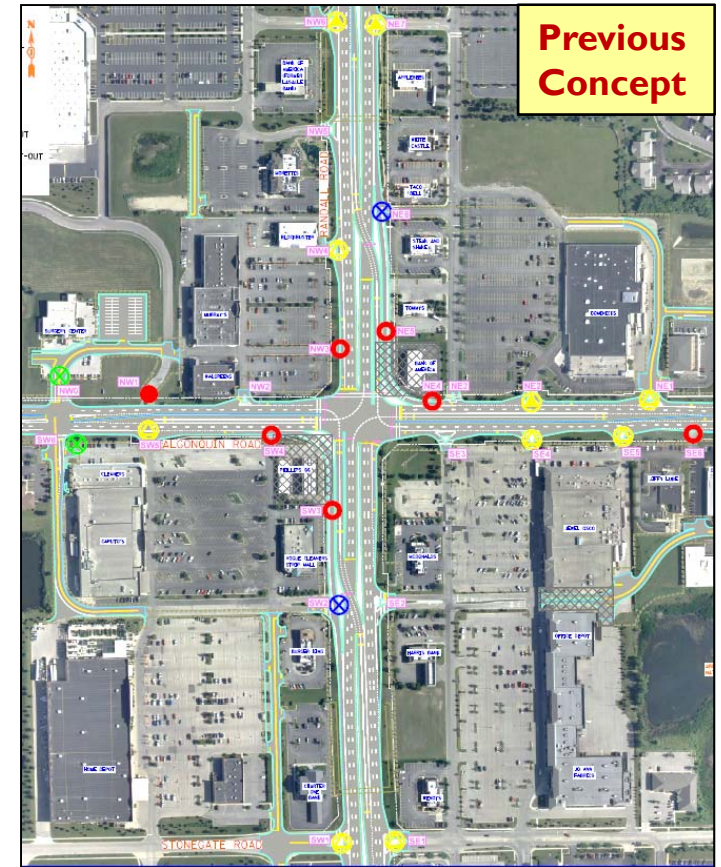
We appreciate the efforts that have been put forth to date by the County Board and Transystems and look forward to the date that this project is completed.

Sincerely,


Paul Mulcahy
Village President
Village of Lake in the Hills

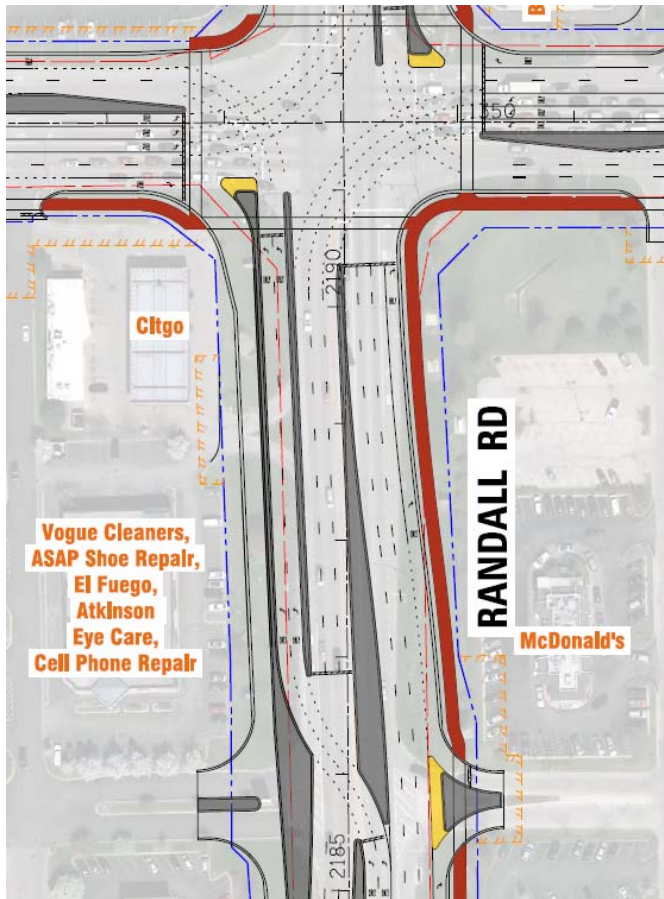

John Schmitt
Village President
Village of Algonquin

cc. Village Board of Lake in the Hills
Village Board of Algonquin
County Board of McHenry County

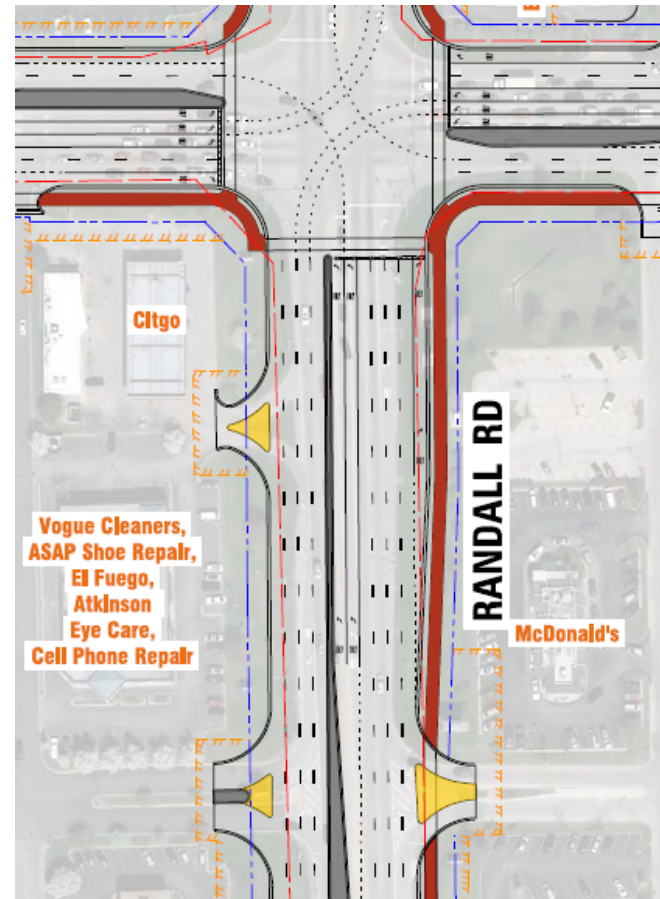


Intersection Options

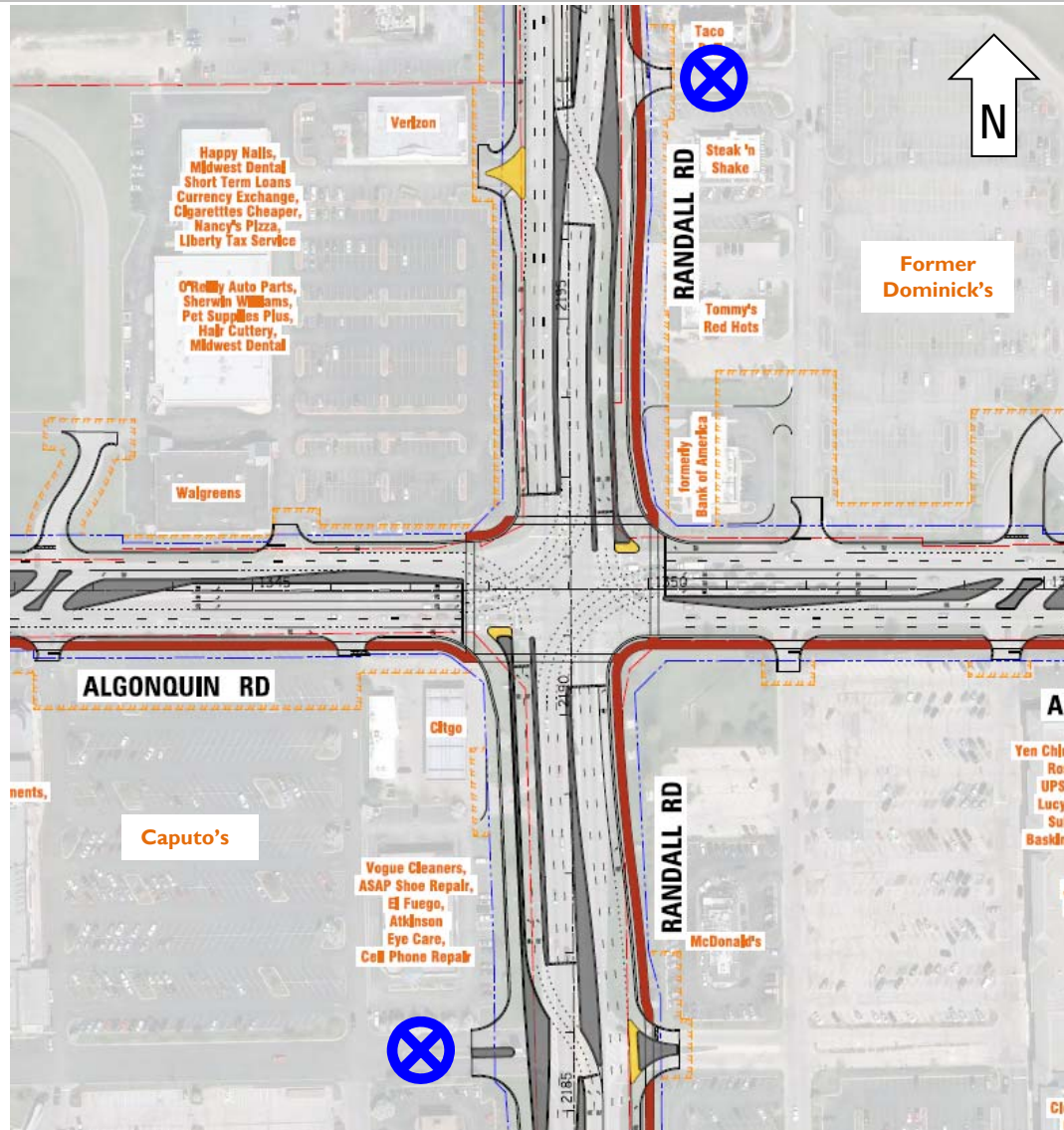
DLT (CFI)



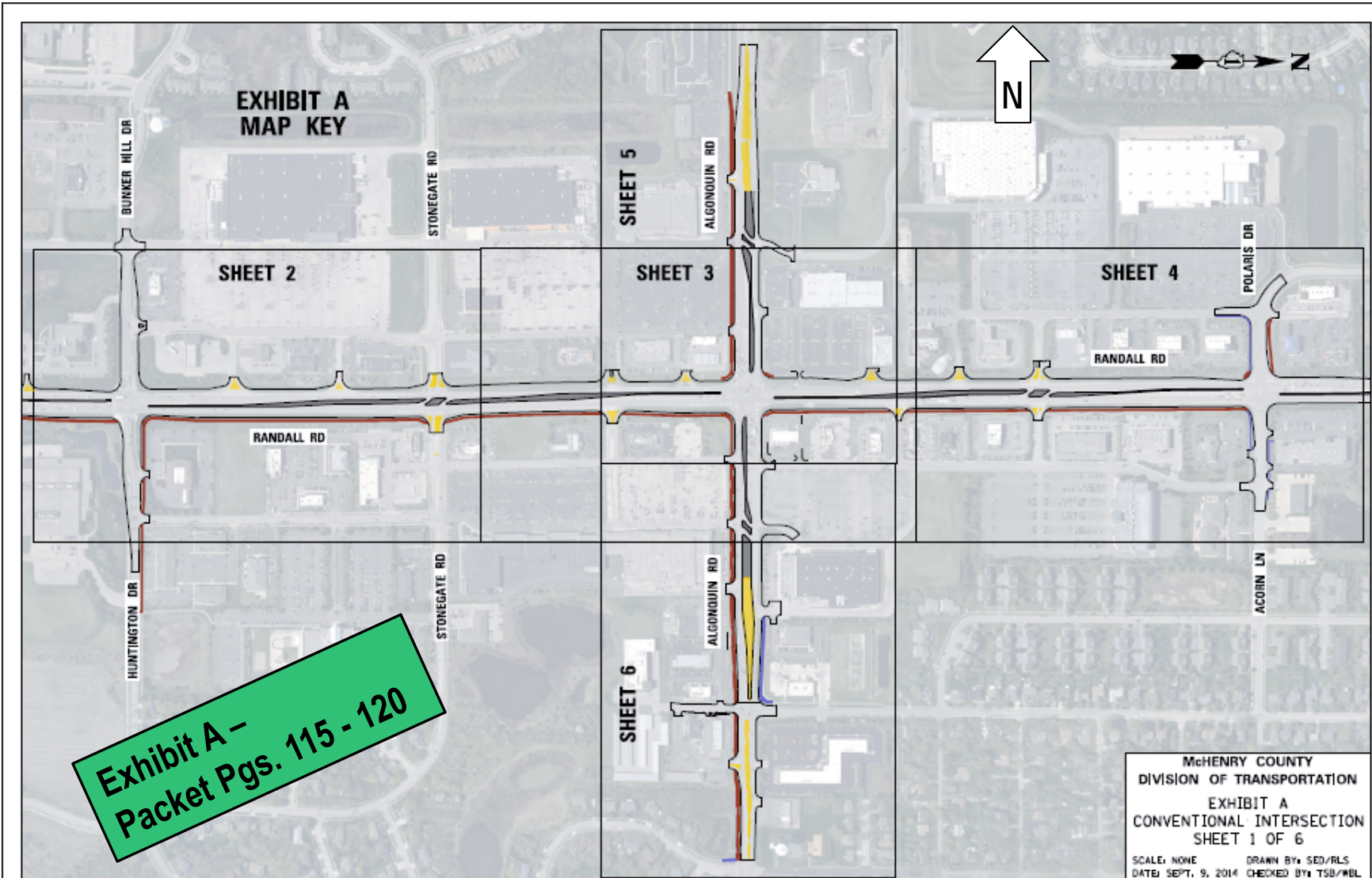
Conventional



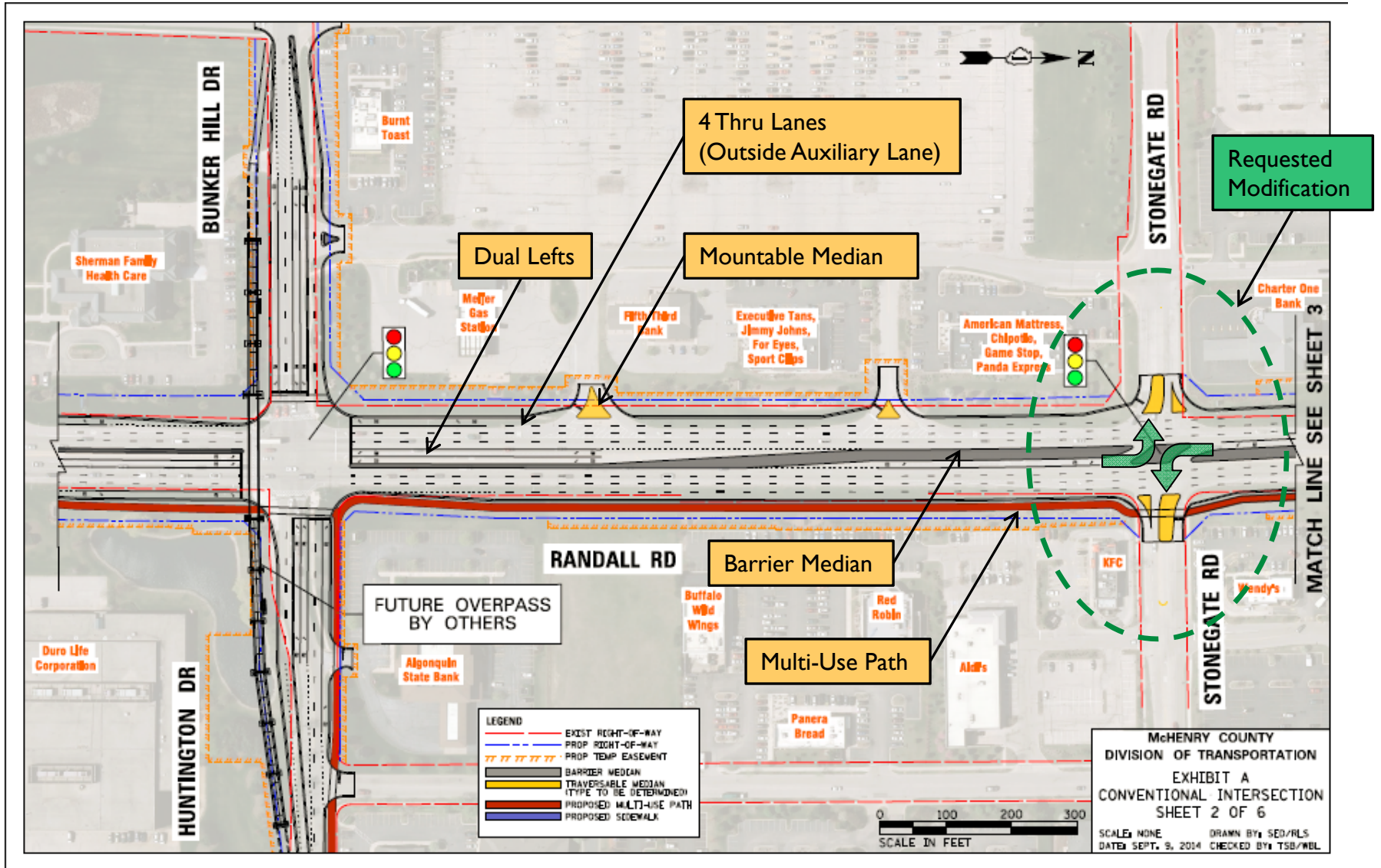
Displaced Left Turn (DLT) Configuration



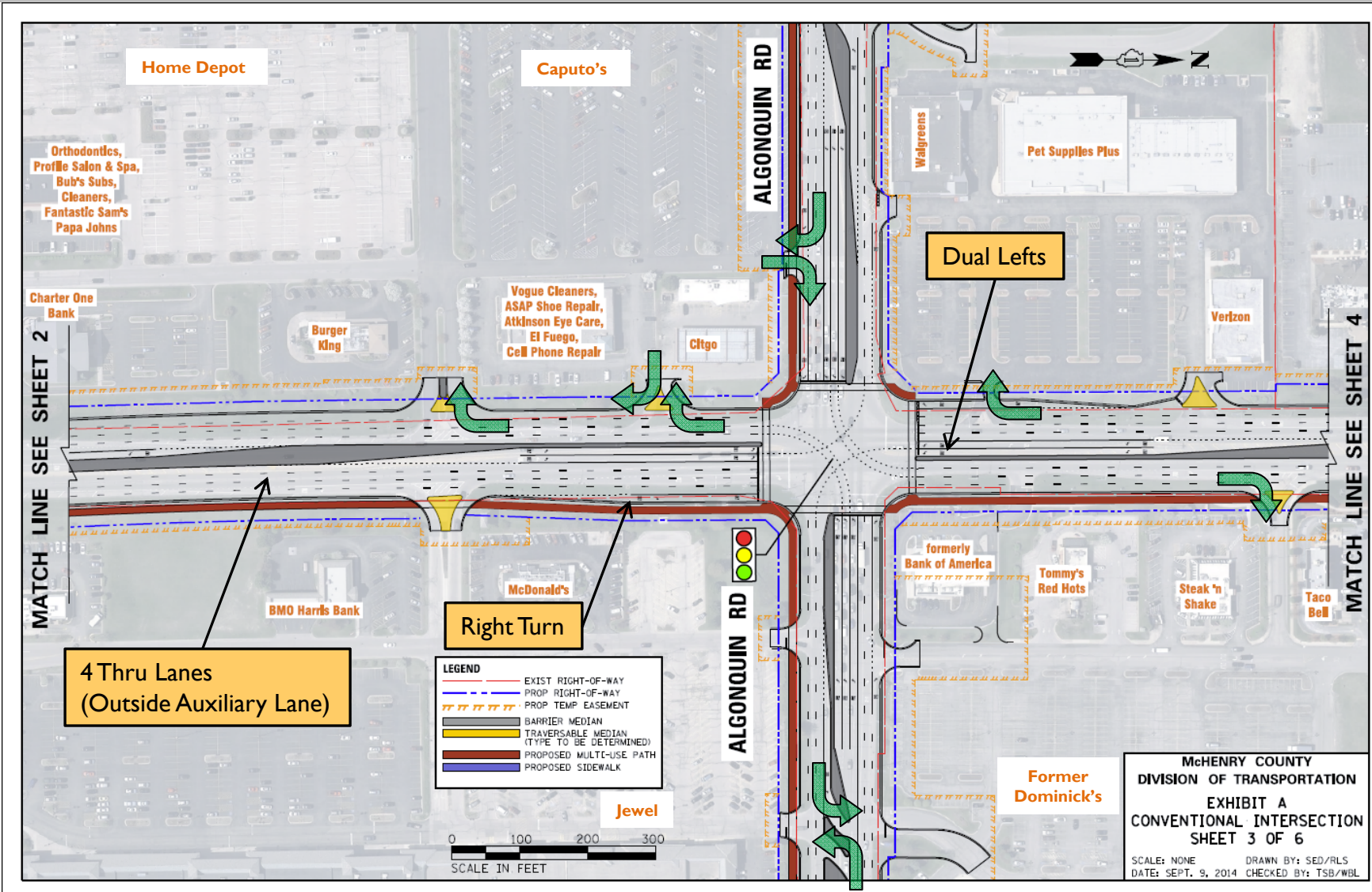
Conventional Configuration



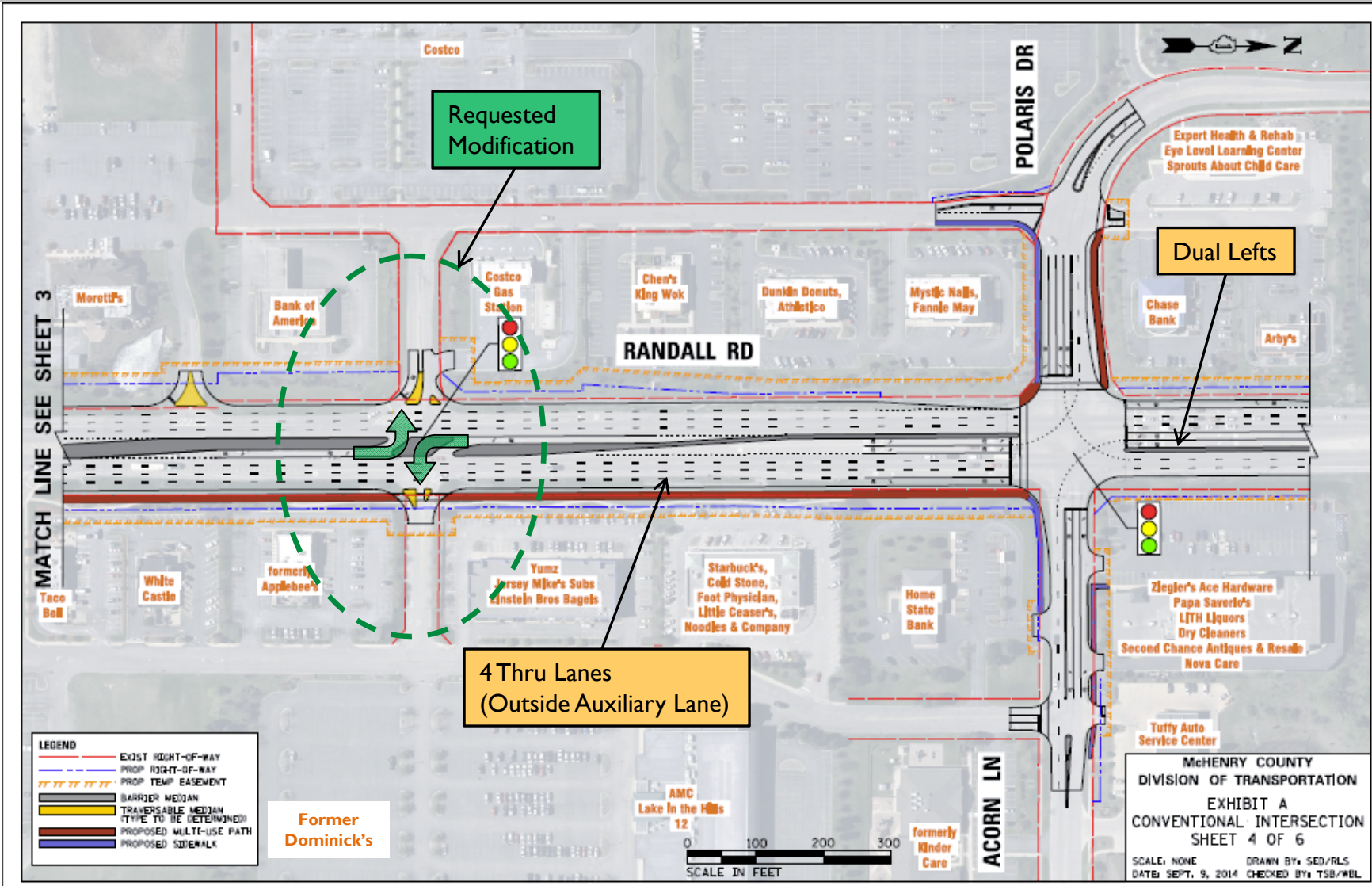
Conventional Configuration – Randall Road



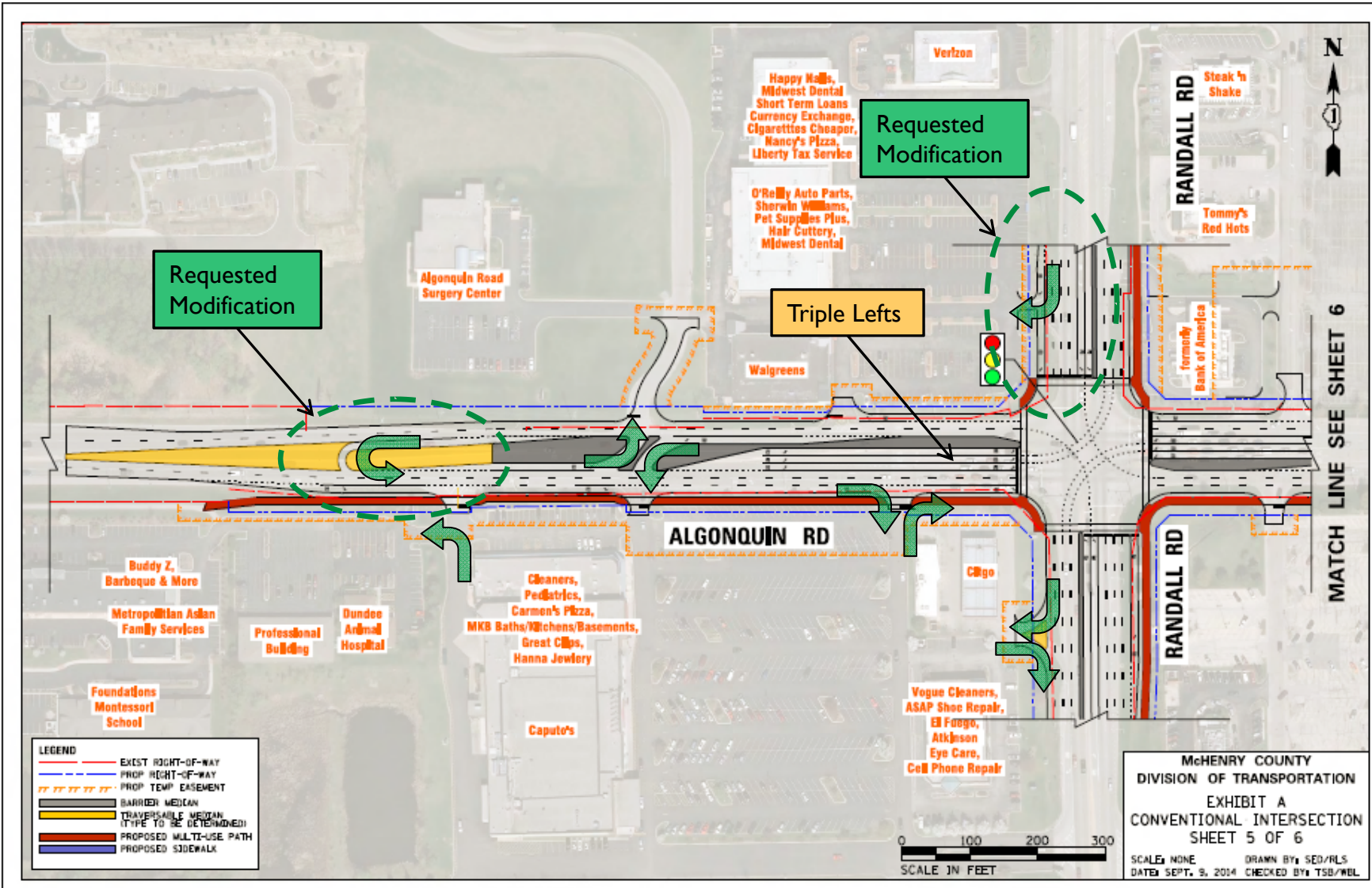
Conventional Configuration - Randall Road



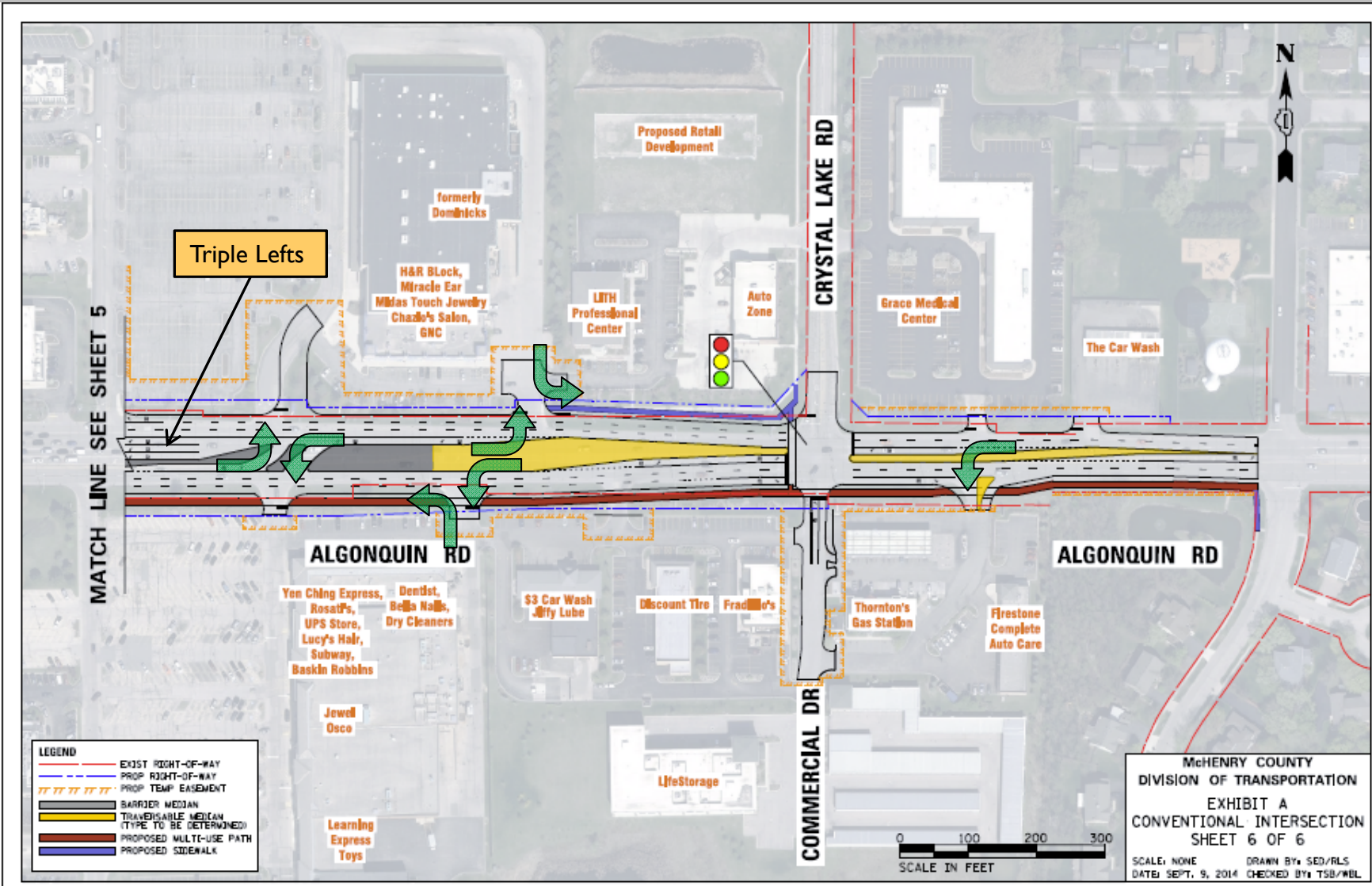
Conventional Configuration – Randall Road



Conventional Configuration – Algonquin Road West

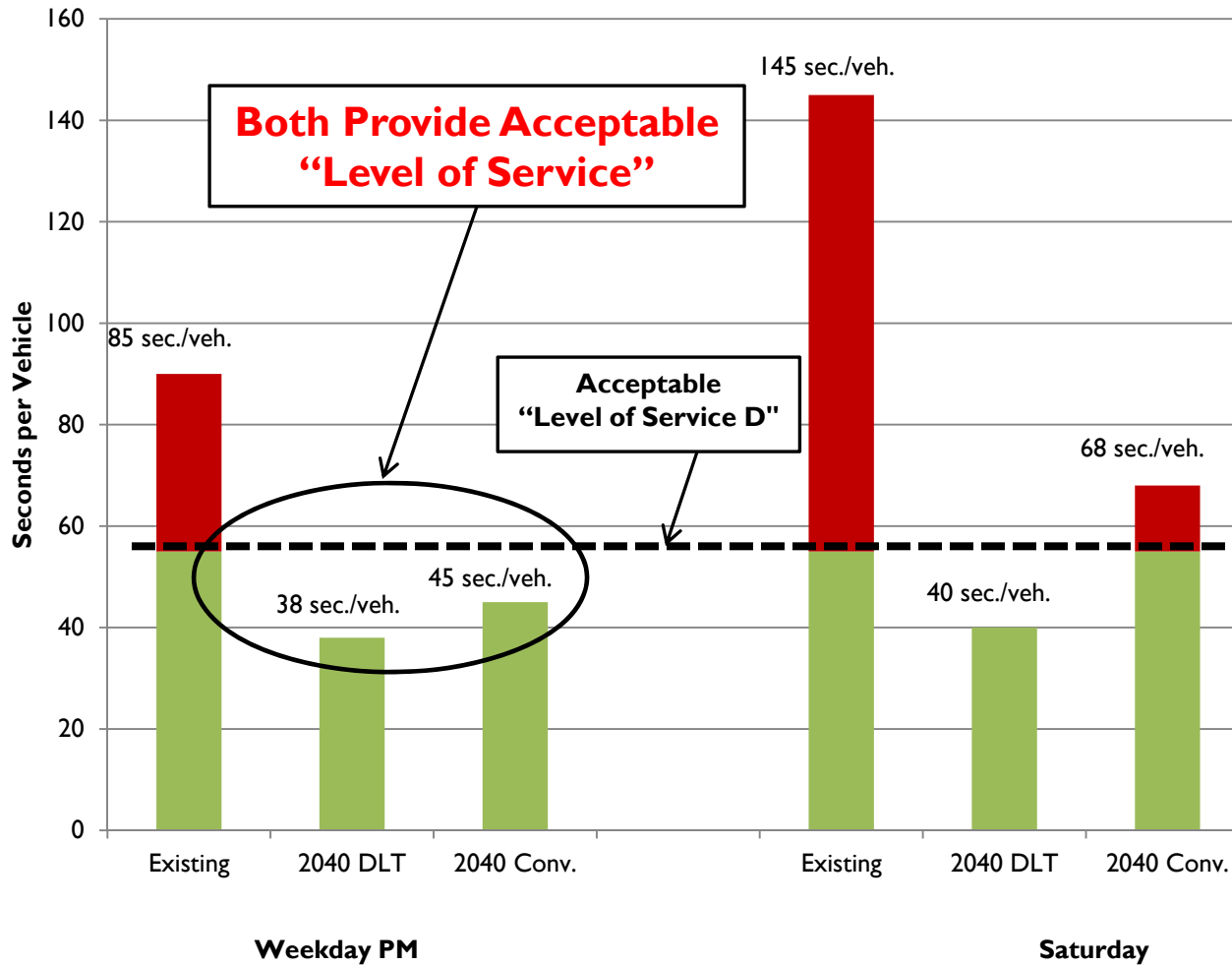


Conventional Configuration - Algonquin Road East



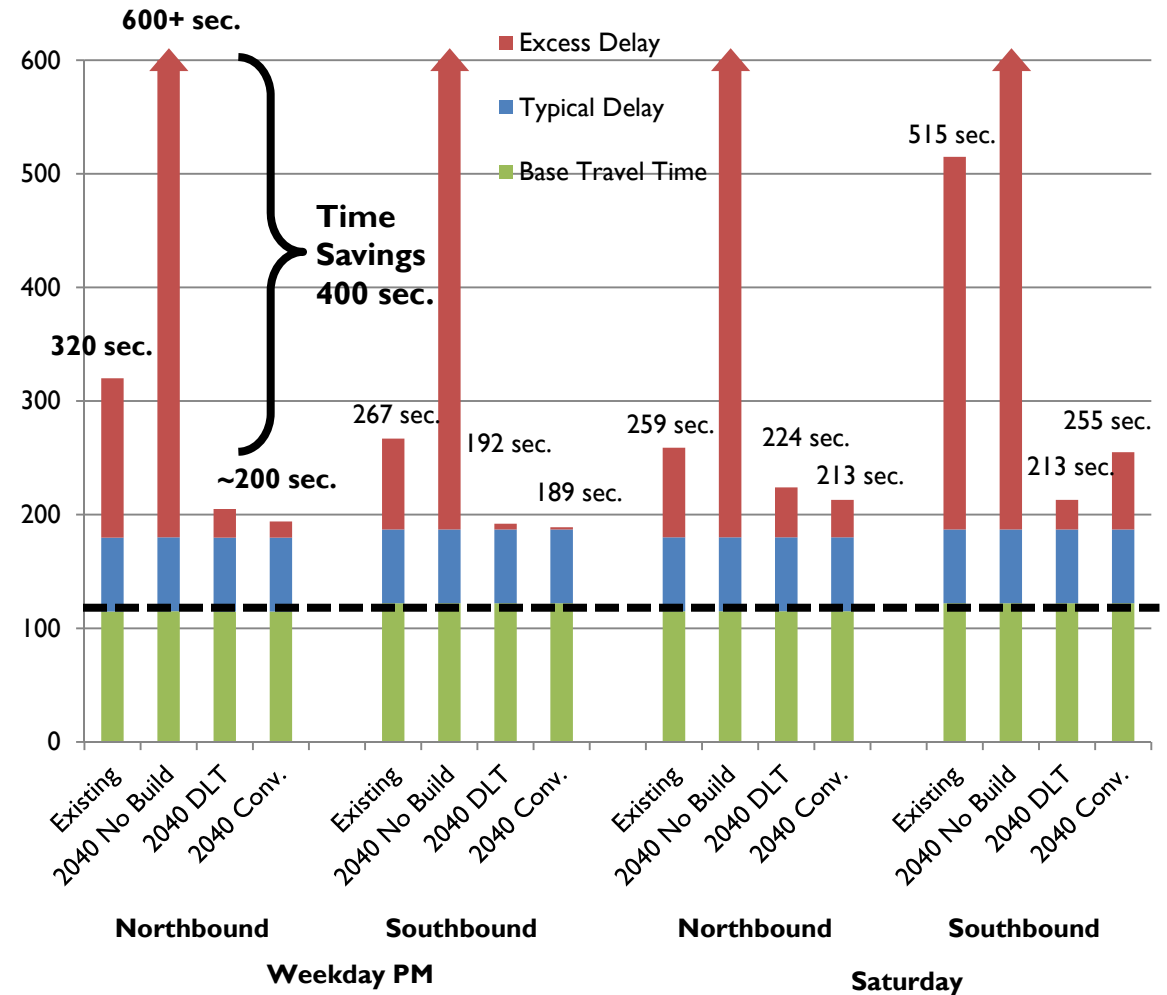
Operational Comparison – Intersection Delay

Randall & Algonquin Intersection Delay



Travel Times (1.5 mile intersection segment)

- Segments
 - NB: Harnish to Acorn
 - SB: Miller to Bunker Hill
- Existing
 - 320 seconds (5 minutes)
- No-Build
 - 600+ seconds (10 minutes)
(congestion threshold)
- With Improvement
 - ~200 seconds (3 minutes)
- Time Savings
 - 400+ seconds (6.5 minutes)
time savings over the
No-Build condition



What does a 6 minute time savings mean?

- ▶ **18% of average 33 minute County Resident Commute**
- ▶ **Time Savings for Typical Commuter**
 - 6 minutes/vehicle x 2 trips/day x 5 days/week = 1 hour/week
 - 1 hour/week = **50 hours/year/commuter**
- ▶ **Time & Money Savings all Users**
 - 6 minutes/vehicle x 6,000 commuters/peak hour x 25 peak hours/week = **780,000 hours saved per year**
 - 780,000 hours x \$13.5/hour = **\$10.5M annual savings**
- ▶ **Environmental Benefits**
 - Less Fuel Consumption
 - Better Air Quality = **780,000 less idling hours**

ROW Impacts

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

Design/Construction Costs

Randall Road Corridor County Line Road to Ackman Road	Displaced Left Turn (DLT)	Conventional 3-Lane plus Auxiliary
<u>Construction Cost</u>		
Construction (Non-Intersection) * length 2.6 miles	\$31,806,623	\$31,878,385
Construction (Intersection) * length 1.5 miles	\$16,215,165	\$16,254,281
Construction Subtotal (Total Length 4.1 mi.)	\$48,021,788	\$48,132,666
<u>Other Costs</u>		
ROW Acquisition (Ph. I Est. w/o damage to remainder)	\$25,300,000	\$25,800,00
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.)	<u>\$2,617,800</u>	<u>\$2,617,800</u>
Total Estimated Cost	\$91,591,685	\$92,213,650

Design/Construction Costs

Randall/Algonquin Intersection Only	Displaced Left Turn (DLT)	Conventional 3-Lane plus Auxiliary
<u>Construction Cost</u>		
Randall: Bunker Hill Drive to Acorn Drive (0.9 miles)		
Algonquin Road (0.6 miles)		
Construction Subtotal (Total Length 1.5 mi.)	\$16,215,165	\$16,254,281
<u>Other Costs</u>		
ROW Acquisition (Ph. I Est. w/o damage to remainder)	\$10,120,000	\$10,320,000
ROW Negotiations	\$700,000	\$700,000
Design Engineering	\$3,639,950	\$3,639,950
Construction Engineering (10%)	\$1,621,517	\$1,625,428
Utility Adjustments (Ph. I Est.)	\$1,047,120	\$1,047,120
Total Estimated Cost	\$33,343,752	\$33,586,780

Funding

IDOT/Federal Approvals	Displaced Left Turn (DLT) with Access	Conventional 3-Lane plus Auxiliary
Geometrics	Approved	Likely
Congestion Mitigation & Air Quality (CMAQ) Funding	Approved (\$10.6M)	TBD

Thank You

