



CUY-271/422 – 7.80/10.77  
(PID 102011 & 114409)

CITY OF  
*Beachwood*

June 14, 2022

# Project Location & Description

## CUY-422/271 – 7.80/10.77

### Chagrin Boulevard

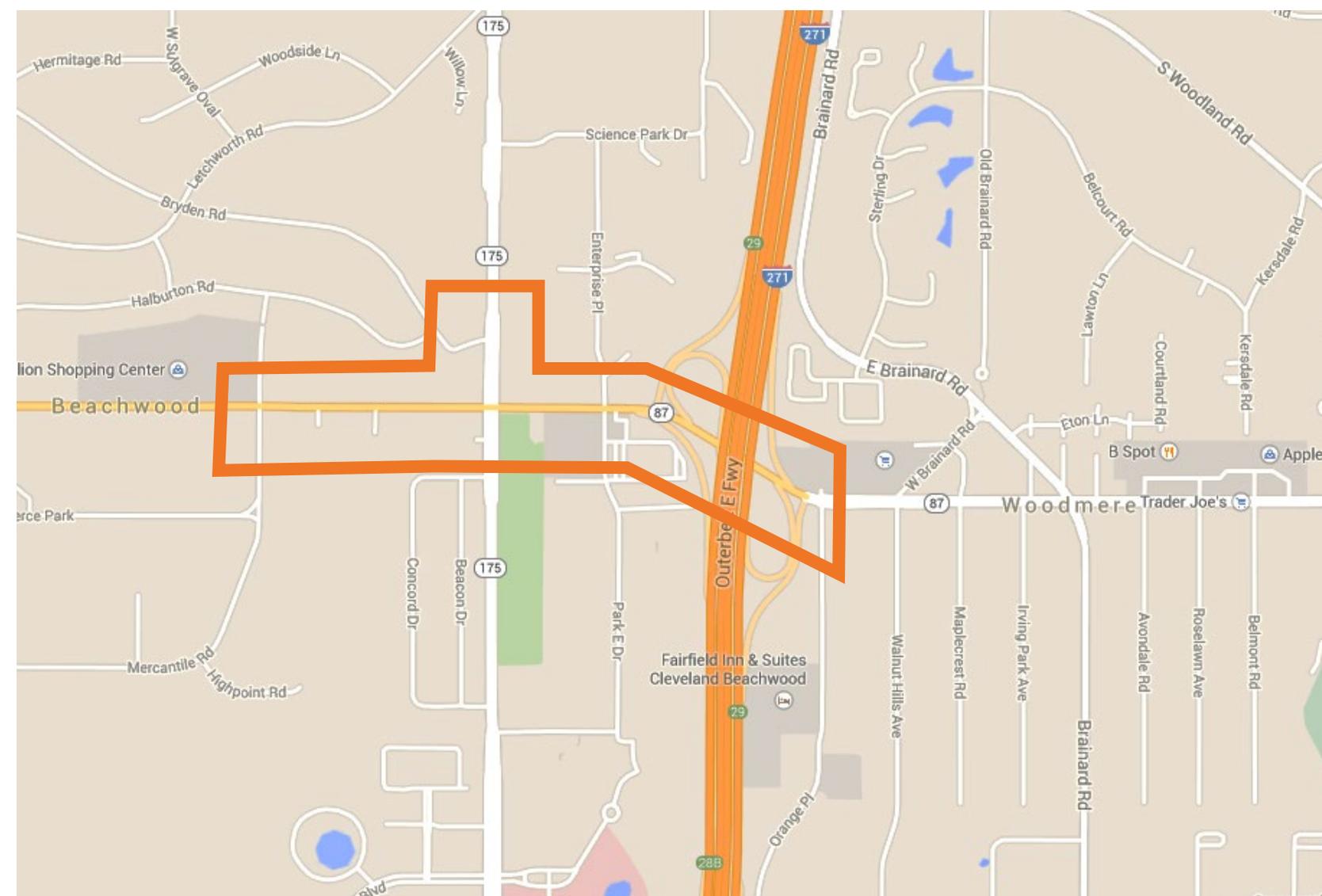
- Commerce Park to Orange Place
- Distance – 0.9 Miles
- Opening Year 2022 ADT – 50,740
- Design Year 2042 ADT – 53,220

### Richmond Road

- Bryden Road to Chagrin Boulevard
- Distance – 0.11 Miles
- Opening Year 2022 ADT – 25,040
- Design Year 2042 ADT – 26,280

### Certified Traffic Plates

- Approved by Central Office on 9/7/18
- 0.25% per year growth rate



# Project History and Status

## TRAFFIC MANAGEMENT MASTER PLAN CHAGRIN BOULEVARD

## SAFETY AND CORRIDOR STUDY Chagrin Boulevard

## TRAFFIC ALTERNATIVES STUDY Chagrin Boulevard CUY-271/422 – 7.80/10.77 (PID 102011)

City of Beachwood, Cuyahoga County, Ohio



### Prepared For:

City of Beachwood  
Engineering Department  
25325 Fairmount Boulevard  
Beachwood, OH 44122

### Prepared By:

GPD Group  
5595 Transportation Boulevard  
Suite 100  
Cleveland, OH 44125

October 2018

## “A Long Time Ago....”

### Chagrin Boulevard Traffic Management Master Plan

- Completed in November 2012
- Identified the need for further study

### Chagrin Boulevard Safety and Corridor Study

- Completed in March 2015
- Secured \$532,000 for detailed traffic and roadway evaluations

### Chagrin Boulevard Traffic Alternatives Study

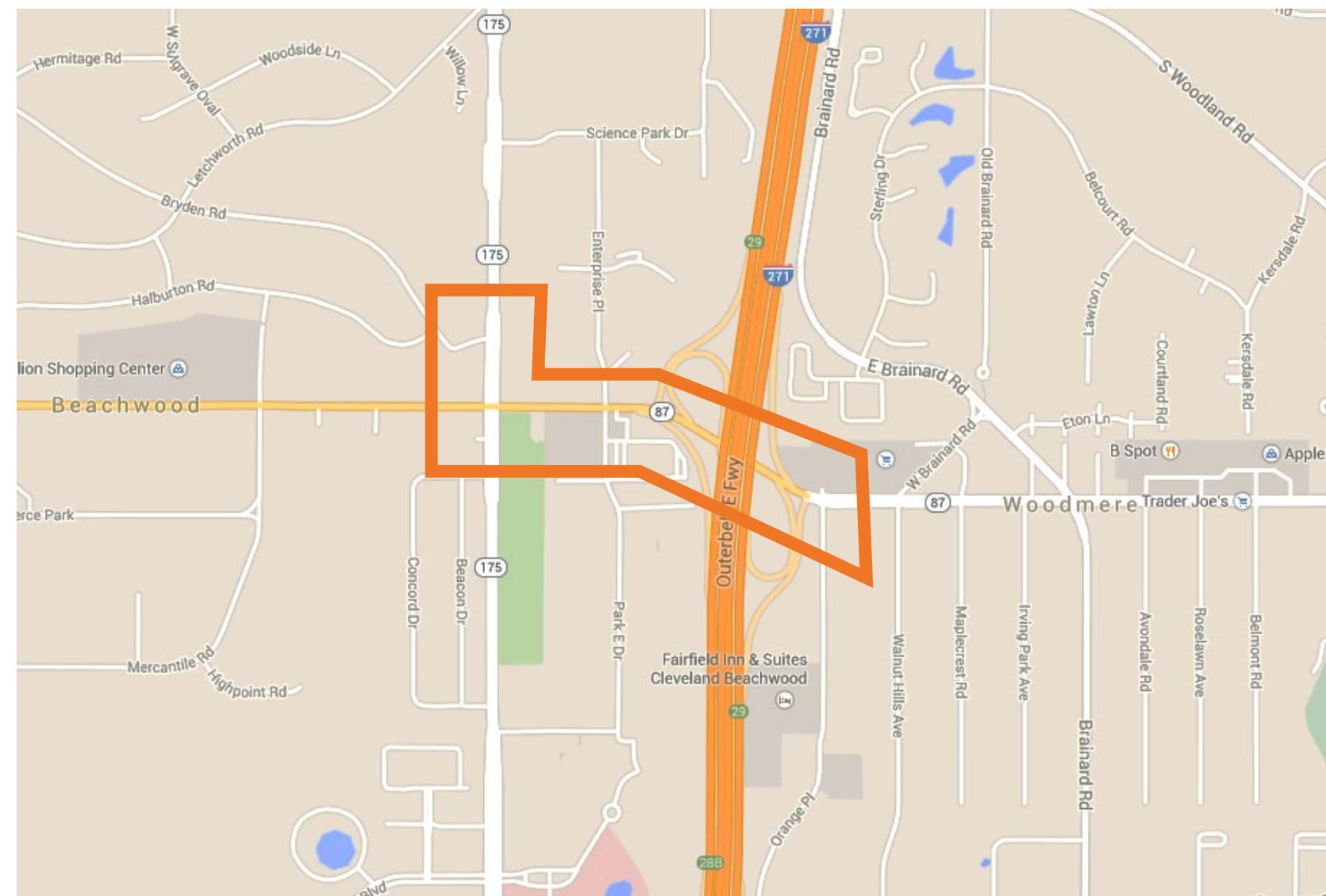
- Completed in October 2018

# Project History and Status

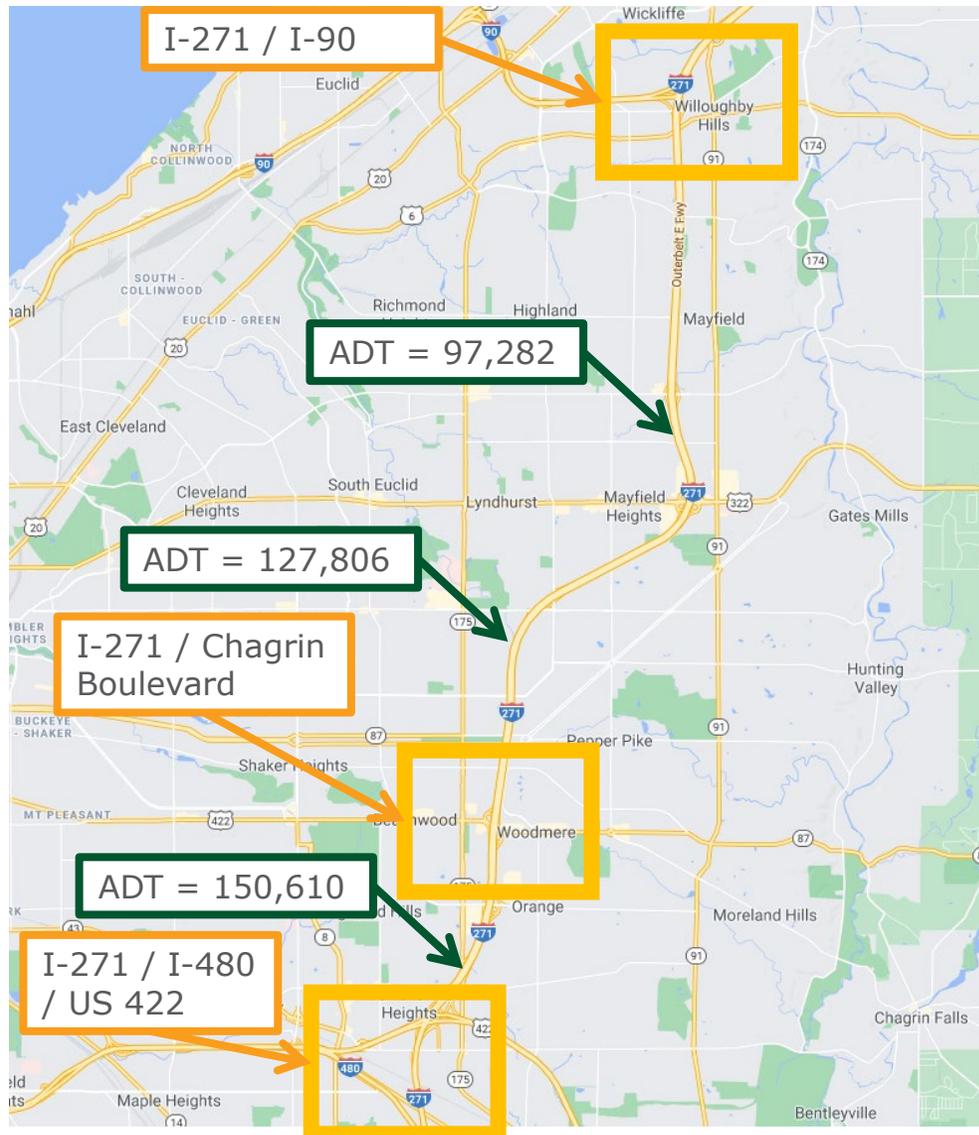
**CUY-422/271 – 7.80/10.77**

## Current Project Development

- Safety Application
  - Awarded \$535,000 in study funding from the HSIP Safety Program 2016.
    - Traffic Alternatives Study
    - Alternatives Evaluation Report
    - Interchange Operations Study
    - Studies completed and approved by ODOT
- Safety Application
  - Awarded \$2,500,000 in construction funding from the HSIP Safety Program in the Spring 2020 funding round.
- ODOT TRAC Funding Application
  - Awarded \$1,000,000 for the design phase of the project



# Regional Significance



## CUY-422/271 – 7.80/10.77

### Regional Roadway Network

- National Highway System
  - I-271 / Chagrin Boulevard interchange located between two major systems interchanges
  - Interchange used by traffic entering Beachwood, Orange Village, Woodmere, Moreland Hills, Chagrin Falls, Shaker Heights and Highland Hills
  - I-271 is one of the busiest freeways in the State of Ohio
    - ADT reaches as high as 150,610 south of the interchange

# Regional Significance

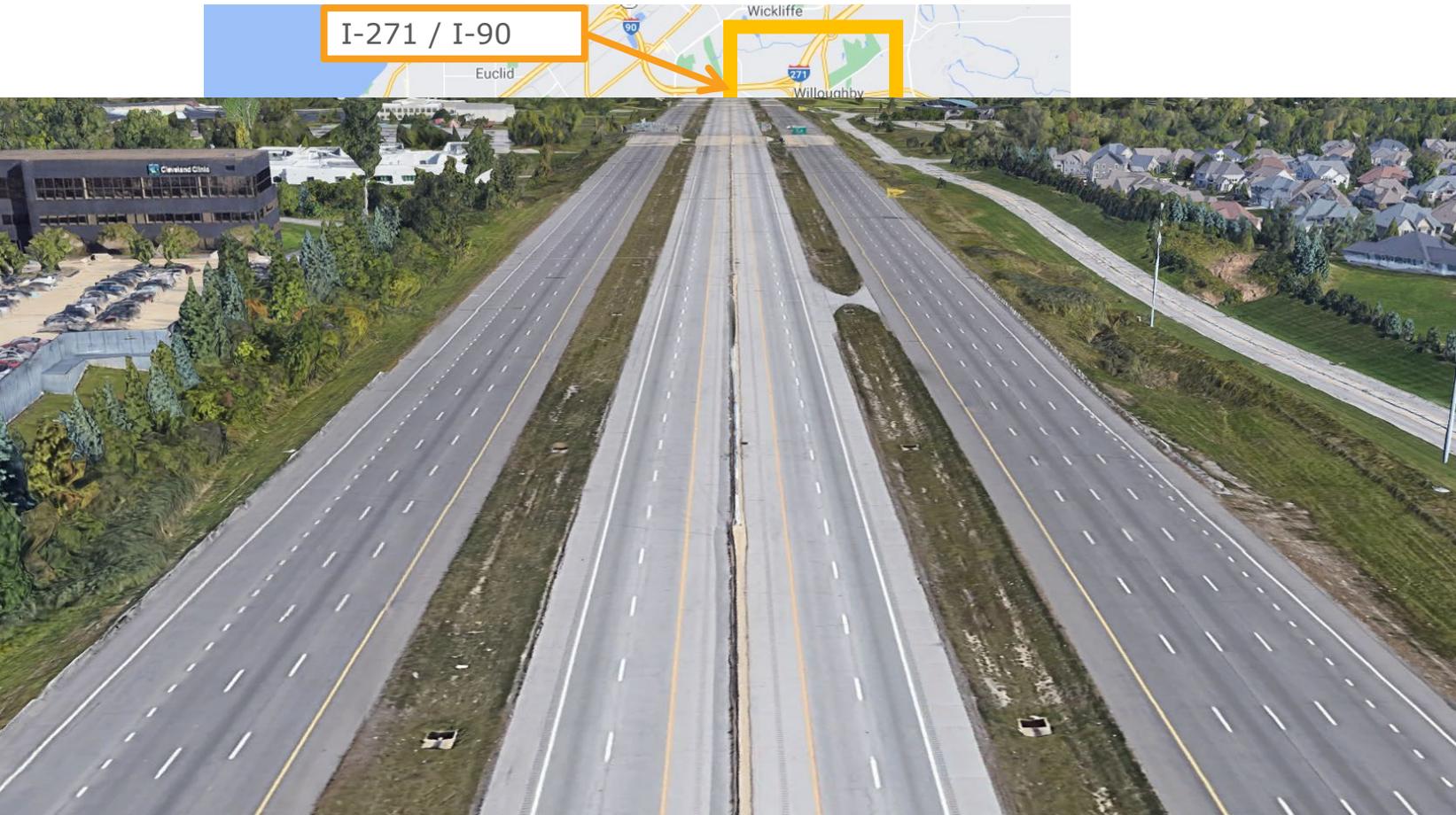
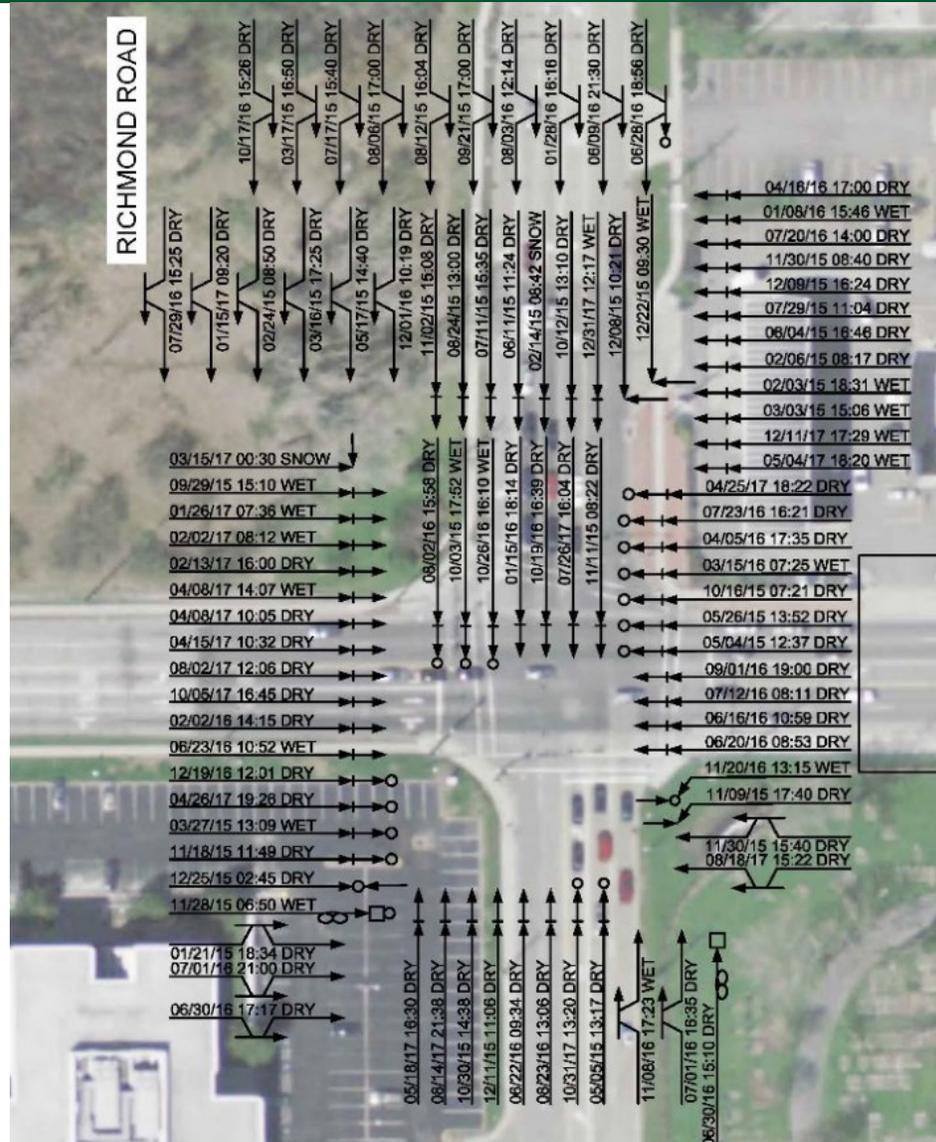


Image from Google Earth  
Looking North from Chagrin Boulevard Overpass

## CUY-422/271 – 7.80/10.77

### Regional Roadway Network

- National Highway System
  - I-271 / Chagrin Boulevard interchange located between two major systems interchanges
  - Interchange used by traffic entering Beachwood, Orange Village, Woodmere, Moreland Hills, Chagrin Falls, Shaker Heights and Highland Hills
  - I-271 is one of the busiest freeways in the State of Ohio
    - ADT reaches as high as 150,610 south of the interchange
  - Typical section of I-271 carries 10 lanes of traffic (5 in each direction)
    - 3 Local Lanes in each direction
    - 2 Express Lanes in each direction
    - Only freeway segment in the state with Local and Express lanes.
  - Crashes occurred on the I-271 mainline from the Chagrin Boulevard exit ramp queuing onto the freeway in the peak hours.
    - These crashes not only impact the operations on one of the busiest Ohio freeways, it also can create high-speed secondary crashes.



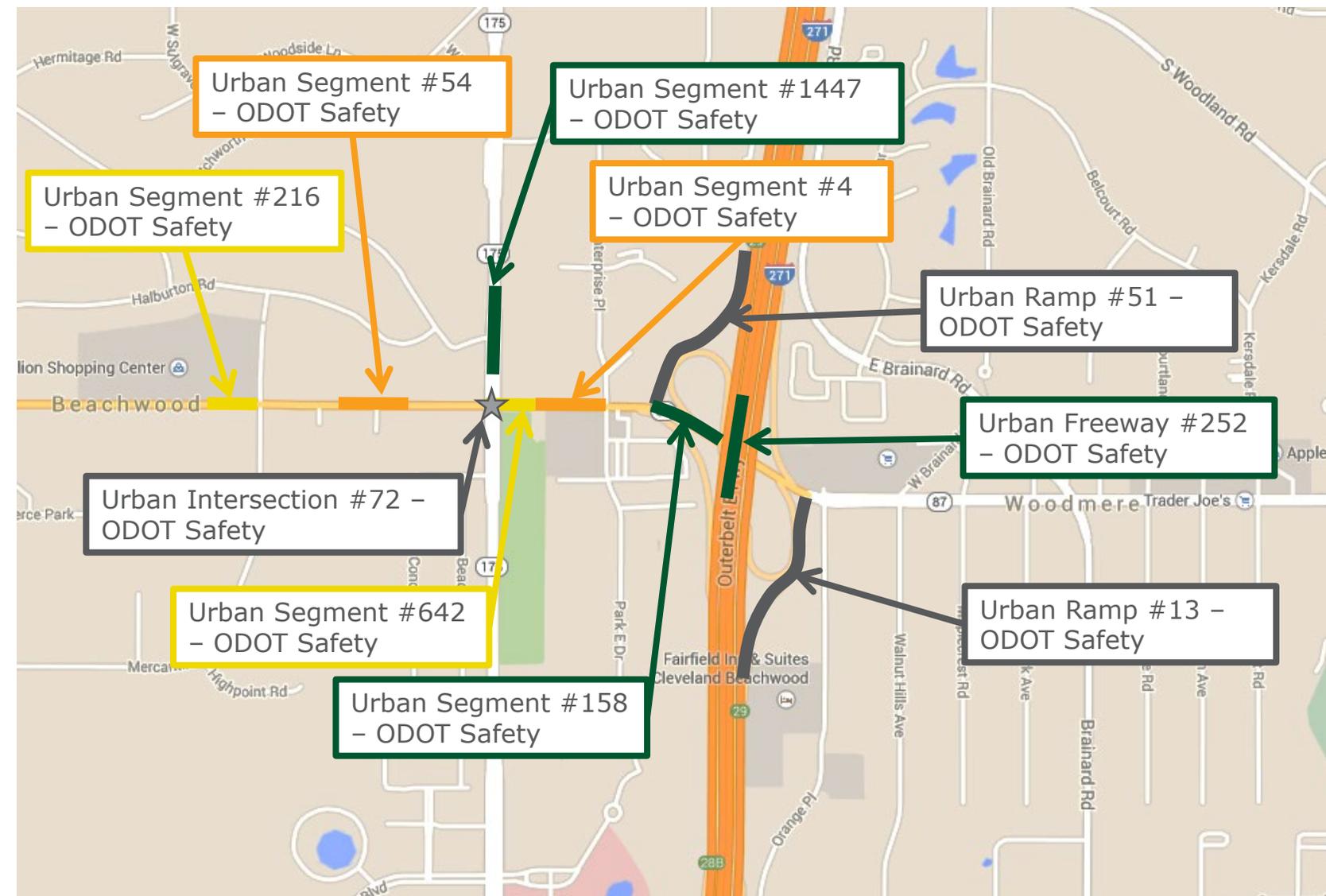
# EXISTING SAFETY ISSUES

# Safety Priority Rankings

**CUY-422/271 – 7.80/10.77**

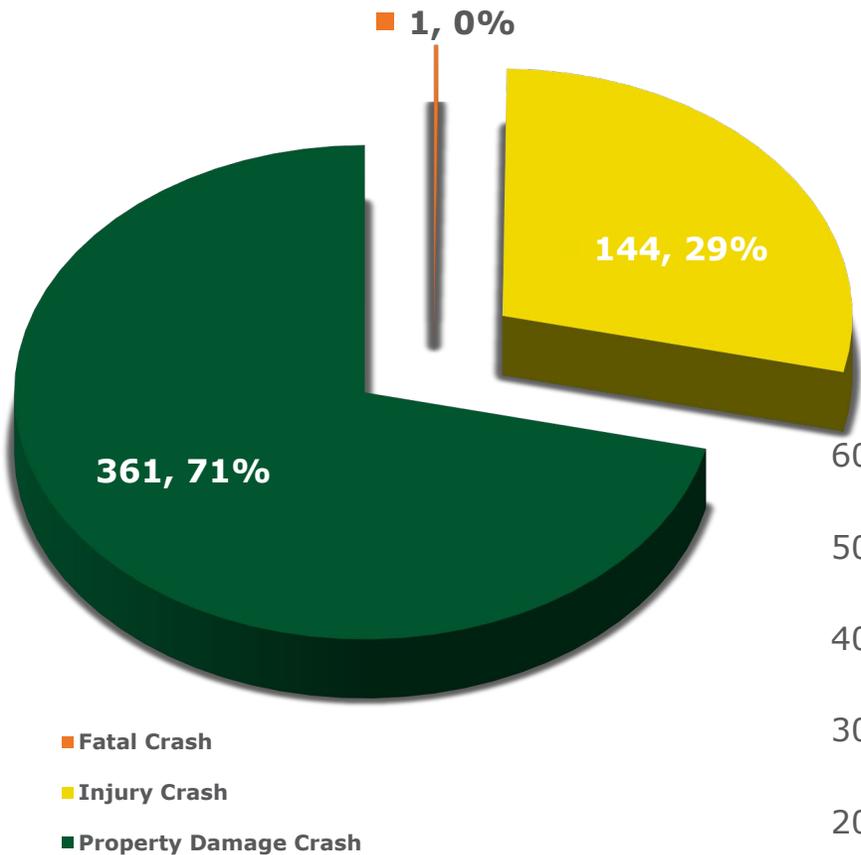
## 2018 ODOT Safety Rankings

- #4 – Segment – Between Crestmont Cadillac and Park East Drive
- #13 – Urban Ramp – I-271 NB Exit Ramp to Chagrin Boulevard
- #51 – Urban Ramp - I-271 SB Exit Ramp to Chagrin Boulevard
- #54 – Segment – Surrounding Signature Square Drive
- #72 – Intersection – Chagrin Blvd. / Richmond Road
- #158 – Segment – Between I-271 SB Ramps and I-271 Bridge
- #216 – Segment – Just West of Commerce Park
- #252 – Freeway – I-271 Under the Chagrin Boulevard Overpass
- #642 – Segment – Between Cemetery Drive and Crestmont Cadillac
- #1447 – Segment – Richmond Road near Bryden Road intersection



# Current Crash Analysis Summary

Frequency of Crashes by Severity

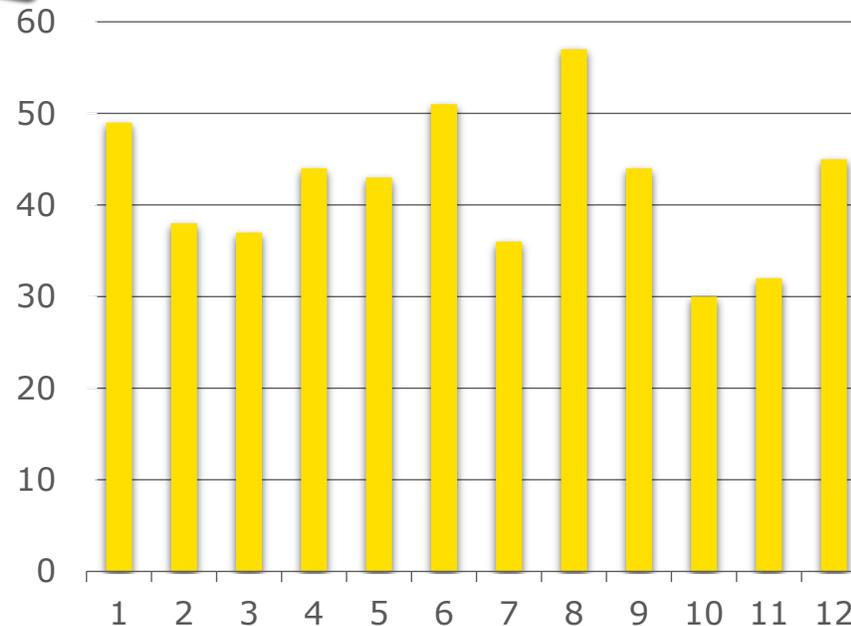


**CUY-422/271 – 7.80/10.77**

**506 Crashes Reported from 2016 – 2018**

- 299 Rear-End
- 93 Sideswipe – Passing
- 53 Angle
- 37 Left Turn
- 20 Fixed Object
- 2 Pedestrian
- 1 Sideswipe – Meeting
- 1 Head On

Frequency of Crashes by Month





# **OBSERVED OPERATIONS**

# Operational Improvements

Downstream lane assignments result in poor lane utilization

Exit lane to 271 NB is too short and is blocked the majority of the time, resulting in unnecessary traffic backups

## CUY-422/271 – 7.80/10.77

### Chagrin Boulevard / Richmond Road Intersection

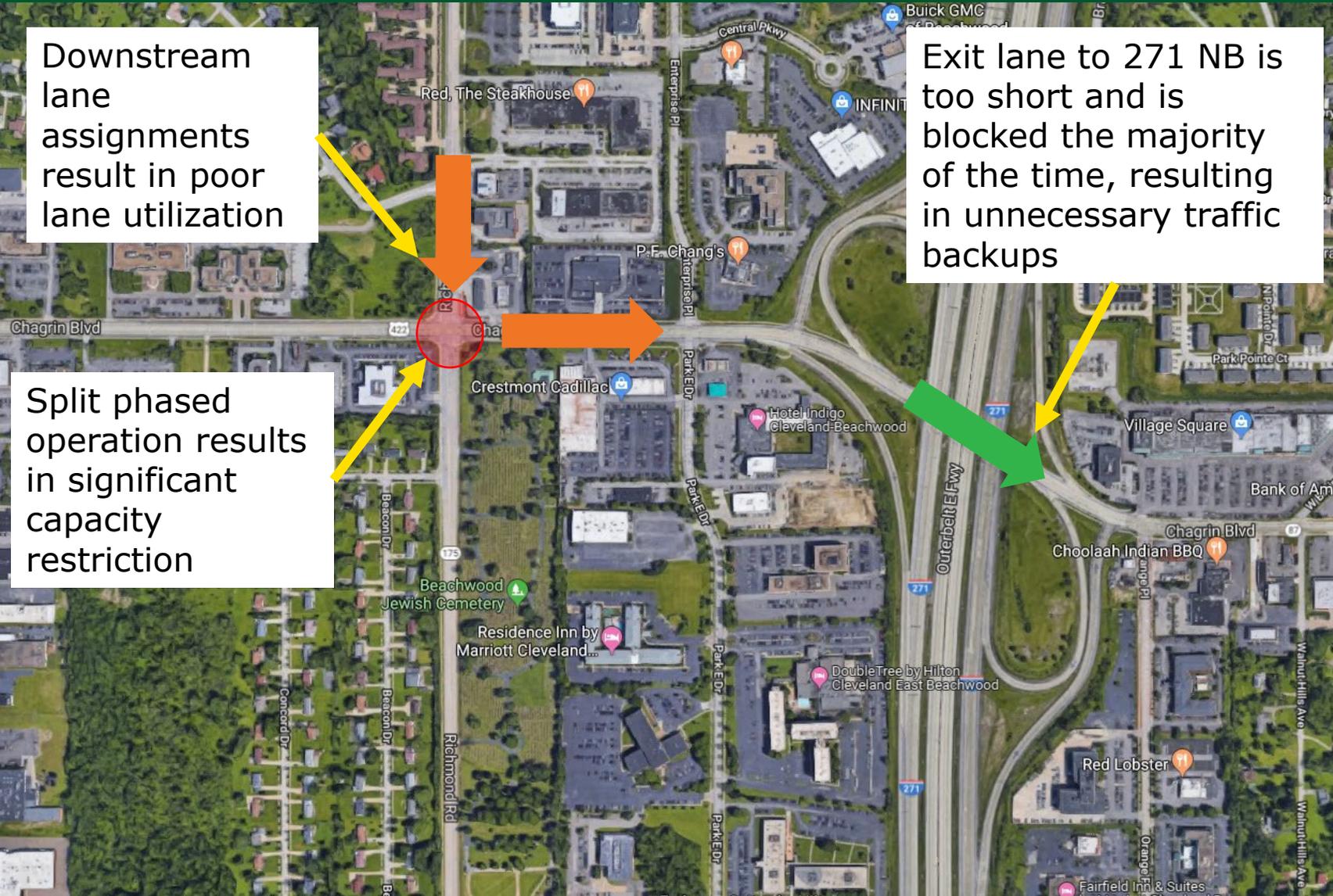
- Split Phased Operation results in Capacity restrictions and inefficient operation

### Richmond Road

- Lane configurations on Richmond Road and Chagrin Boulevard results in poor lane utilization which further limits capacity

### I-271 Interchange

- Short exit lane to I-271 North is blocked which results in excessive and unnecessary traffic backups on Chagrin Boulevard for traffic destined north on I-271



# Operational Concerns



**CUY-422/271 – 7.80/10.77**

## Existing Condition Photos

### Richmond Road at Bryden Road looking South

- Note the Under Utilization of the 'Left' left turn lane – due to downstream lane utilization issues.

# Operational Concerns



## CUY-422/271 – 7.80/10.77

### Existing Condition Photos

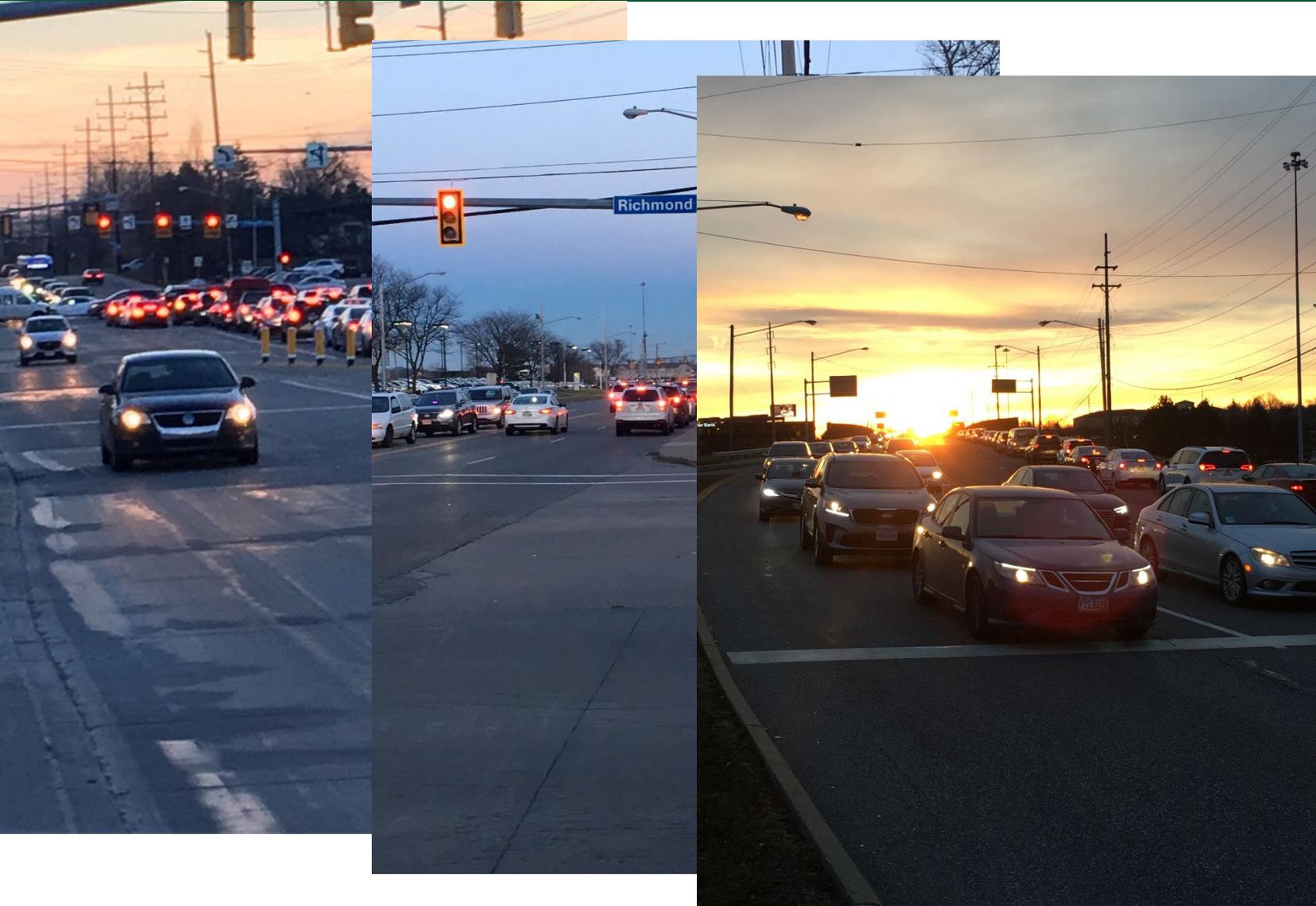
#### Richmond Road at Bryden Road looking South

- Note the Under Utilization of the 'Left' left turn lane – due to downstream lane utilization issues.

#### Chagrin Boulevard at Richmond Road Looking East

- Note the traffic completely blocking the curb lane – traffic destined to I-271 North and South prefer this lane.

# Operational Concerns



**CUY-422/271 – 7.80/10.77**

## Existing Condition Photos

### Richmond Road at Bryden Road looking South

- Note the Under Utilization of the 'Left' left turn lane – due to downstream lane utilization issues.

### Chagrin Boulevard at Richmond Road Looking East

- Note the traffic completely blocking the curb lane – traffic destined to I-271 North and South prefer this lane.

### Chagrin Boulevard at Park East Drive Looking East

- Note the traffic back up in the curb lane – as this is the preferred lane for I-271 North traffic and EB Chagrin Boulevard traffic.

# THE PROPOSED SOLUTIONS



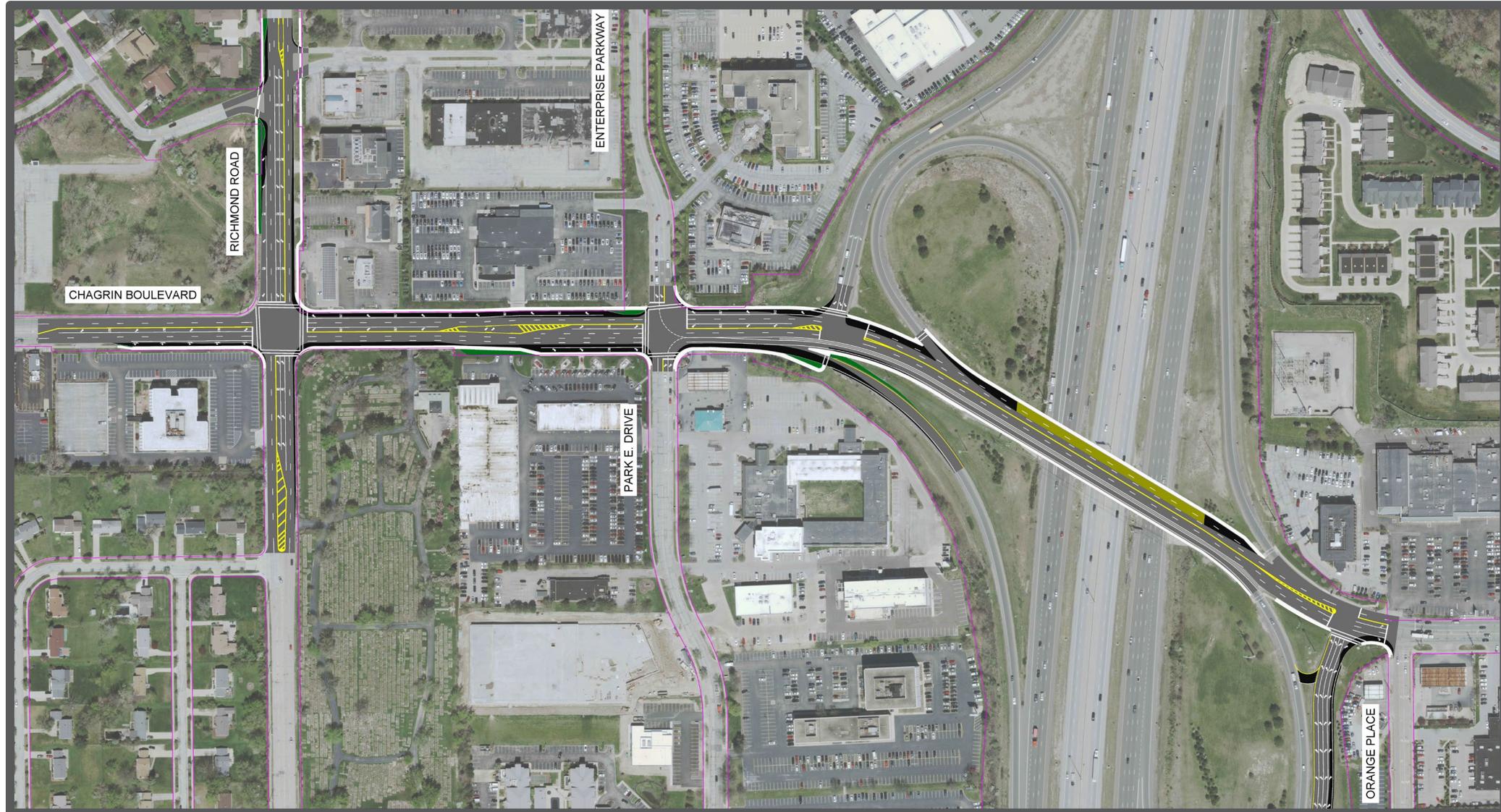
# Proposed Countermeasures

- Remove the traffic signal at the Richmond Road / Bryden Road / Corporate Park Drive intersection & convert the side-street approaches to right-in, right-out.
- Widen the SB approach to the Chagrin Boulevard / Richmond Road intersection to five (5) lanes; left, left, thru, thru, right. Add appropriate destination signage.
- Construct a second NB left turn lane at Chagrin Boulevard / Richmond Road.
- Construct a WB right turn lane at Chagrin Boulevard / Richmond Road
- Extend the 3<sup>rd</sup> EB travel lane west beyond the Richmond Road intersection.
- Widen the I-271 NB exit ramp to four (4) lanes; left, left, right, right. Add appropriate signage.
- Widen EB Chagrin Boulevard just west of Park East Drive to accommodate four thru lanes and a right turn lane.
- Widen WB Chagrin Blvd. to accommodate 3 travel lanes between Park East Drive and I-271 NB.
- Widen the Chagrin Boulevard Bridge over I-271 from four (4) lanes to six (6) lanes.
- Reconstruct all warranted traffic signals that will be impacted by the roadway widening.

# Proposed Countermeasures

## LEGEND

- PROPOSED BRIDGE
- EXISTING PAVEMENT
- PROPOSED CURB AND GUTTER
- PROPOSED SIDEWALK
- PROPOSED PAVEMENT



# Schedule

**CUY-271 / 422 - 7.80 / 10.77  
Chagrin Boulevard Improvement Project  
Anticipated Overall Project Schedule**

Task	Duration	Cal Yr	2018				2019				2020				2021				2022				2023				2024				2025				2026				2027				2028			
			Qtr	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4							
Study Phase	18 months																																													
Scoping / Negotiations	3 months																																													
NOACA TIP Approval	3 months																																													
Detailed Design (up to Stage 2)	12 months																																													
Final Design (Stage 3 - Tracings)	12 months																																													
Environmental Clearance																																														
Apply for TRAC Funding																																														
Right of Way Acquisition	12 months																																													
Utility Relocation	12 months																																													
Bidding																																														
Construction	24 months																																													

**Study Phase Complete - 2019**

- Alternatives Evaluation Report
- Safety Study
- Interchange Operations Study

**TRAC Funding – Design - 2021**

- \$1,000,000 secured

**TRAC Funding – Right of Way - 2022**

- \$570,000 requested

**RAISE Grant – Construction - 2022**

- \$8,600,000 requested

**NOACA TIP Approval - 2022**

- Approved

**Current Activities**

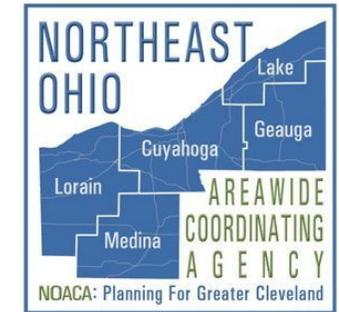
- ODOT Reviewing Scope and Fee
- Seeking City agreement with ODOT

**Upcoming Activities**

- Working towards ODOT release on July 1, 2022 to begin design

# Funding Plan

	Preliminary Engineering	Detailed Design	Right-of-Way	Construction	Total
Local Funding	\$59,111	\$294,500	\$141,148	\$2,364,115	\$2,858,874
ODOT HSIP	\$532,000	\$0	\$0	\$2,500,000	\$3,032,000
NOACA Resurfacing	\$0	\$0	\$0	\$433,850	\$433,850
TRAC Funding	\$0	\$1,000,000	\$564,592	\$0	\$1,564,592
RAISE Grant or TRAC Request	\$0	\$0	\$0	\$8,600,000	\$8,600,000
<b>Total Project Cost</b>					<b>\$16,489,316</b>



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# Q&A

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