

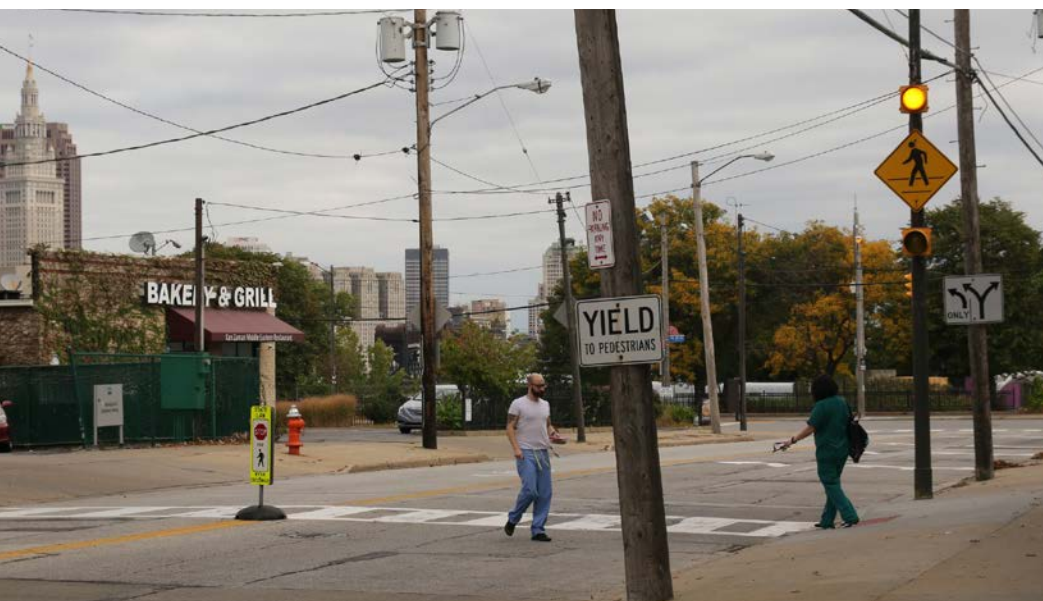
# Franklin Boulevard Traffic Calming Study



City of Cleveland

Prepared by the Northeast Ohio Areawide Coordinating Agency

August 2019

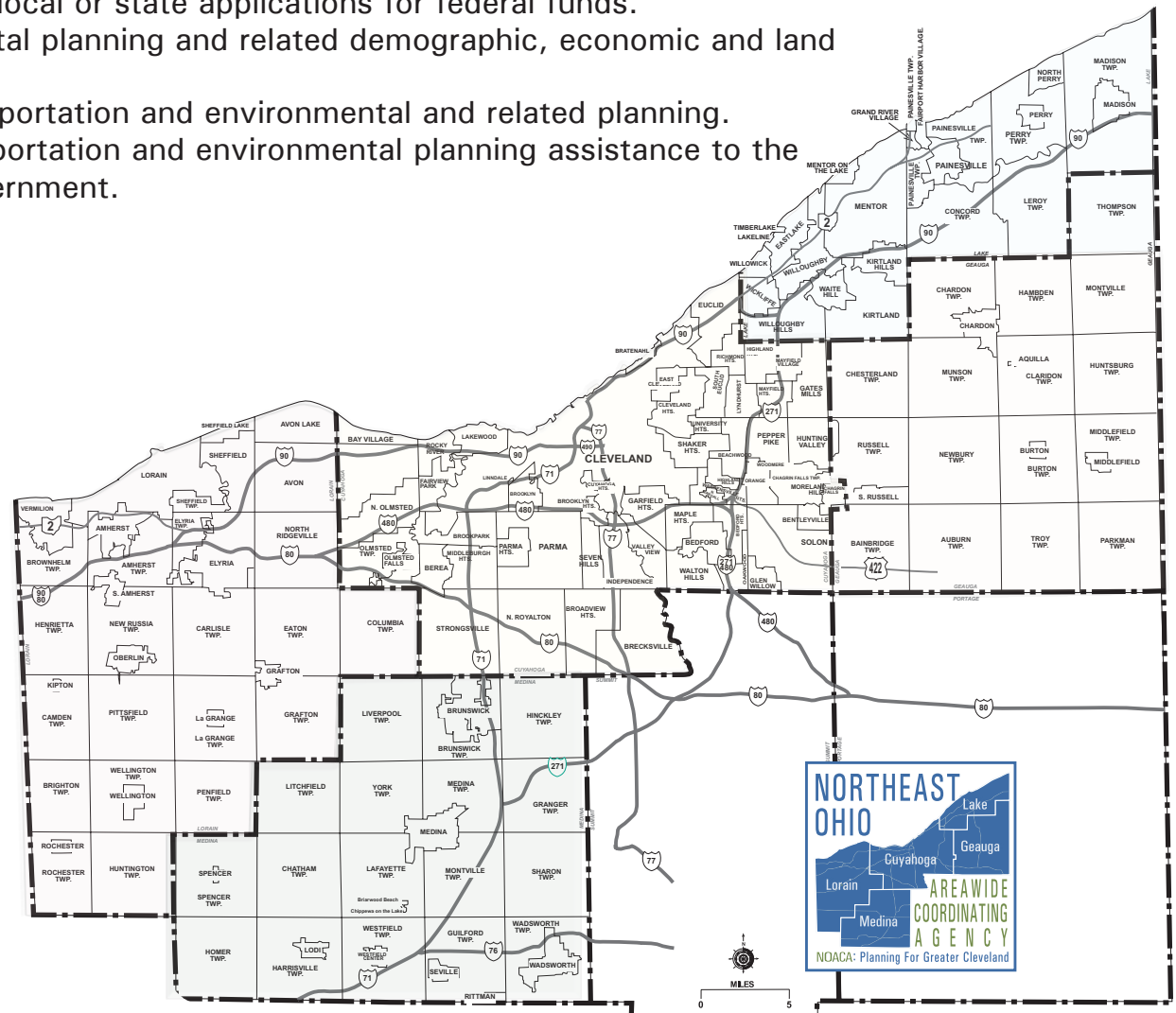


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- Serve as the Metropolitan Planning Organization (MPO), with responsibility for comprehensive, cooperative and continuous planning for highways, public transit, and bikeways, as defined in the current transportation law.
- Perform continuous water quality, transportation-related air quality and other environmental planning functions.
- Administer the area clearinghouse function, which includes providing local government with the opportunity to review a wide variety of local or state applications for federal funds.
- Conduct transportation and environmental planning and related demographic, economic and land use research.
- Serve as an information center for transportation and environmental and related planning.
- As directed by the Board, provide transportation and environmental planning assistance to the 172 units of local, general purpose government.

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# Franklin Boulevard Traffic Calming Study

**City of Cleveland, Ohio**

**August 2019**



**NORTHEAST  
OHIO  
AREAWIDE  
COORDINATING  
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## Stakeholder Committee

### Residents, Business Owners, and Organizations

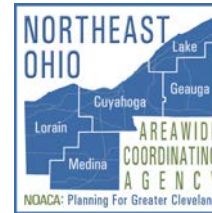
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**detroit shoreway**





# Executive Summary

## Introduction

The purpose of this NOACA Transportation for Livable Communities Initiative (TLCI) study is to identify ways to make Franklin Boulevard safer for all types of traffic, and to make it a more desirable corridor for pedestrians and bicyclists.

The study area is a two-mile section of Franklin Blvd. between W. 25th St. and W. 85th St. in Cleveland, Ohio. This report presents existing conditions along the study corridor, summarizes the planning process and public and stakeholder input and feedback, presents several traffic calming alternatives, and makes final recommendations. The appendix provides additional supplemental data.

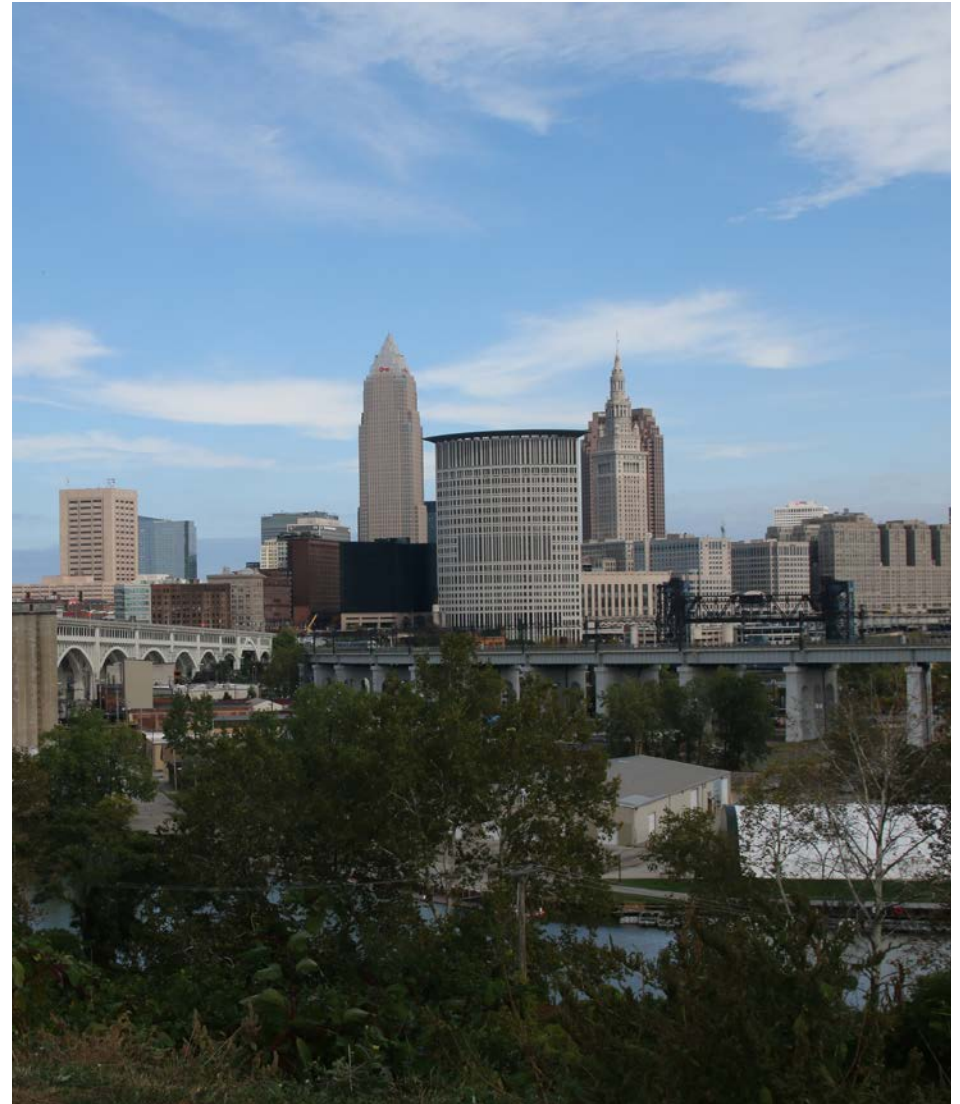
## Existing Conditions

Franklin Boulevard is a primarily single-family residential street just west of Downtown Cleveland and the Cuyahoga River. It is classified as a major collector street and sees an Average Daily Traffic (ADT) volume of approximately 3,900 vehicles. The majority of the corridor has one travel lane in each direction and a speed limit of 35 mph.

Franklin Blvd. traverses a predominately residential area that covers two neighborhoods: Ohio City and Detroit-Shoreway. There are several schools, a hospital, businesses, and other destinations along the corridor. A public school, pharmacy, neighborhood restaurant, and neighborhood health center anchor all four corners of Franklin Blvd. at W. 65th St., making this intersection an important destination for area residents.

## Planning Process

The planning process for this study included three public meetings, four stakeholder meetings, a public online survey, traffic analysis, and a temporary demonstration of traffic diversion. The public meetings were well attended and neighborhood residents were very engaged in the process.



## Alternatives

Two alternatives were presented to stakeholders and the public during the planning process:

### Alternative 1: Traffic Calming

Including neighborhood traffic circles, curb extensions, and new and enhanced pedestrian crossings.

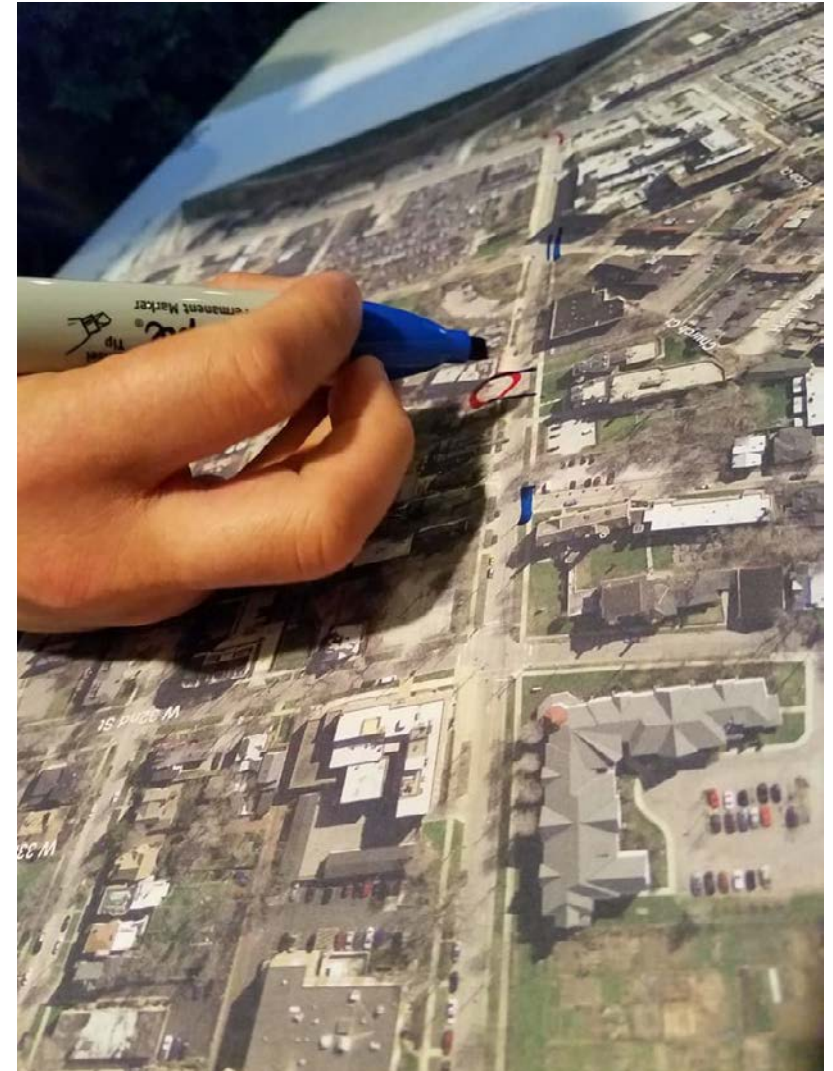
### Alternative 2: Traffic Calming with Traffic Diversion

Including all improvements in Alternative 1, with the addition of partial closure curbs at three locations to divert traffic away from Franklin Blvd.

Feedback on the alternatives was gathered by online survey and at public and stakeholder meetings. In addition, the City of Cleveland temporarily demonstrated, or tested, traffic diversion at three locations during summer 2018. This test resulted in additional public feedback. The majority of public and stakeholder input favored Alternative 1, and that was chosen as the preferred alternative.

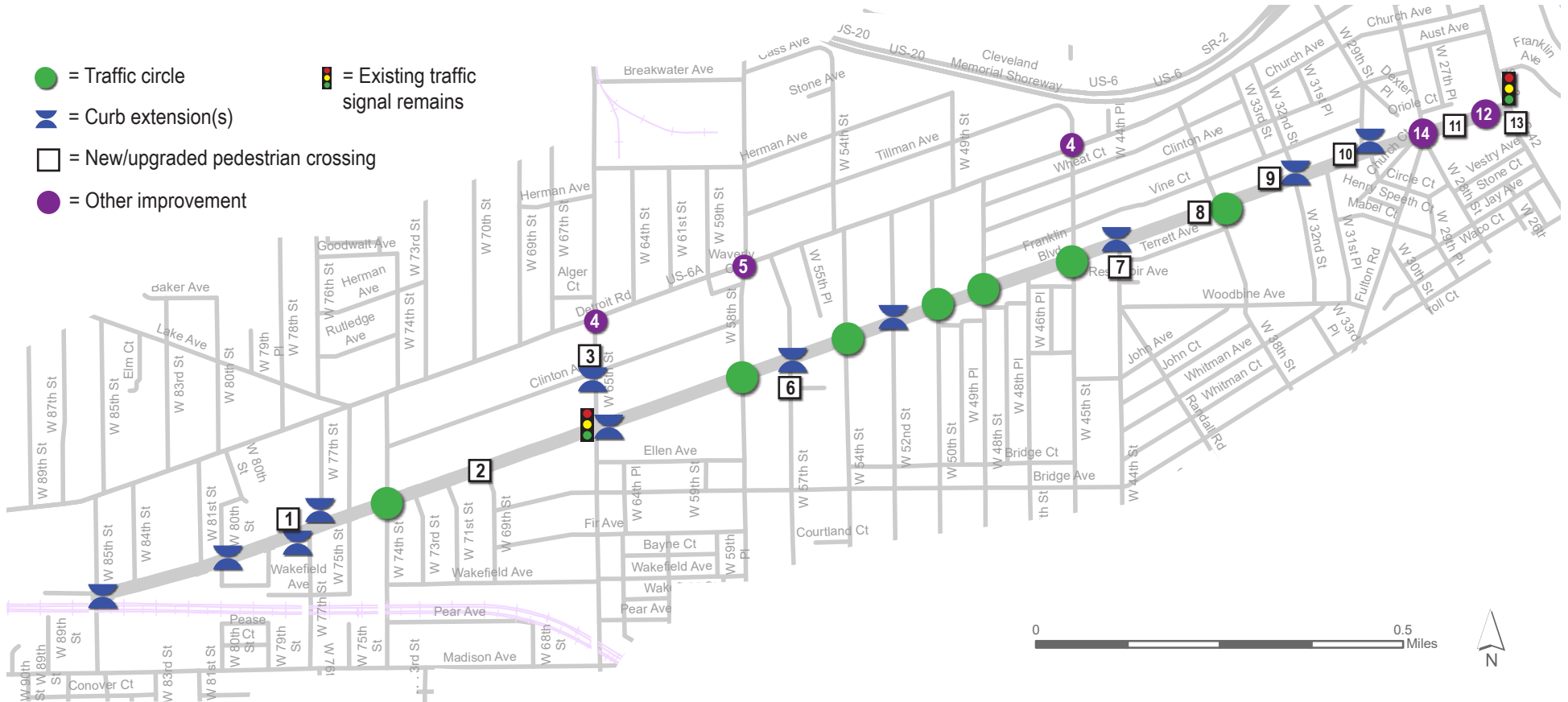
## Recommendations

The recommendations include removal of existing traffic signals, new neighborhood traffic circles, new curb extensions, new and enhanced pedestrian crossings, and other improvements. Recommendations along W. 65th St. and along Detroit Rd., while not within the original study corridor, are included based on public input which identified these locations as areas of concern. They are not intended to preclude additional improvements or replace more thorough study of the W. 65th St. or Detroit Rd. corridors. The recommendations are summarized on the following pages.



## Summary of Recommendations

- = Traffic circle
- ⏏ = Curb extension(s)
- = New/upgraded pedestrian crossing
- = Other improvement
- 🚦 = Existing traffic signal remains



- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"> <li>1. New pedestrian crossing</li> <li>2. Upgraded school crossing</li> <li>3. New pedestrian crossing</li> <li>4. Leading pedestrian intervals at existing signals</li> <li>5. Continue full signal operation late at night</li> <li>6. New school crossing</li> </ul> | <ul style="list-style-type: none"> <li>7. Upgraded pedestrian crossing</li> <li>8. Upgraded school crossing</li> <li>9. Upgraded pedestrian crossing</li> <li>10. New pedestrian crossing</li> <li>11. Upgraded pedestrian crossing</li> <li>12. Reduce to single left turn lane from eastbound Franklin Blvd. to northbound W. 25th St.</li> </ul> | <ul style="list-style-type: none"> <li>13. Leading pedestrian interval and high-visibility marked crosswalk over W. 25th St.</li> <li>14. Future roundabout by City of Cleveland</li> </ul> |
|---|---|---|

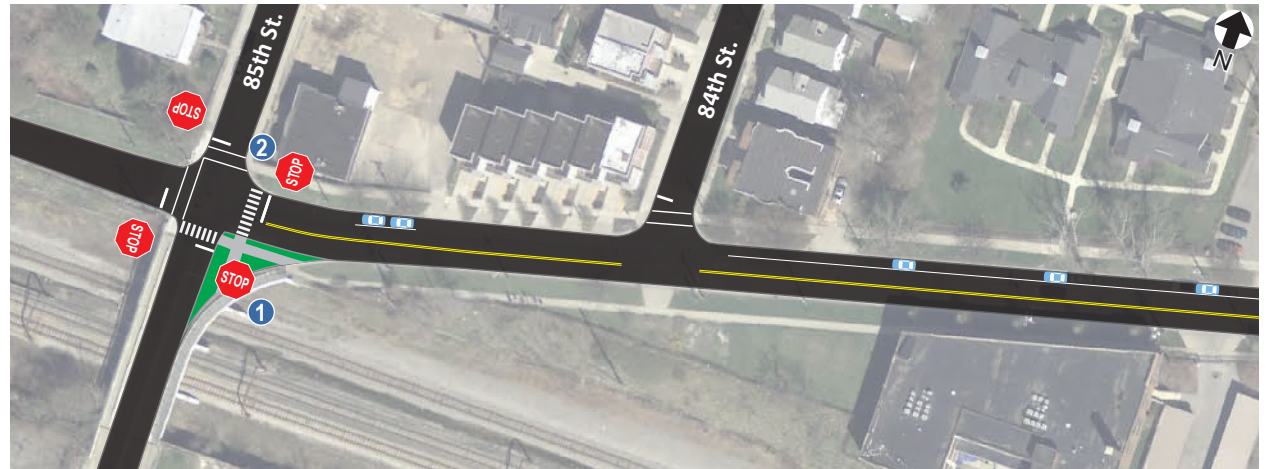
## Detailed Recommendations

### W. 85th Street

**Key Characteristics:** Right-turn slip lane allowing uncontrolled right turns from W. 85th northbound, no crossing of Franklin Blvd. for pedestrians along east side of W. 85th St.

#### Recommendations:

- 1 Removal of right-turn slip lane on W. 85th St. northbound
- 2 New pedestrian crossing at southern approach of W. 85th St. and eastern approach of Franklin Blvd., including high-visibility marked crosswalks

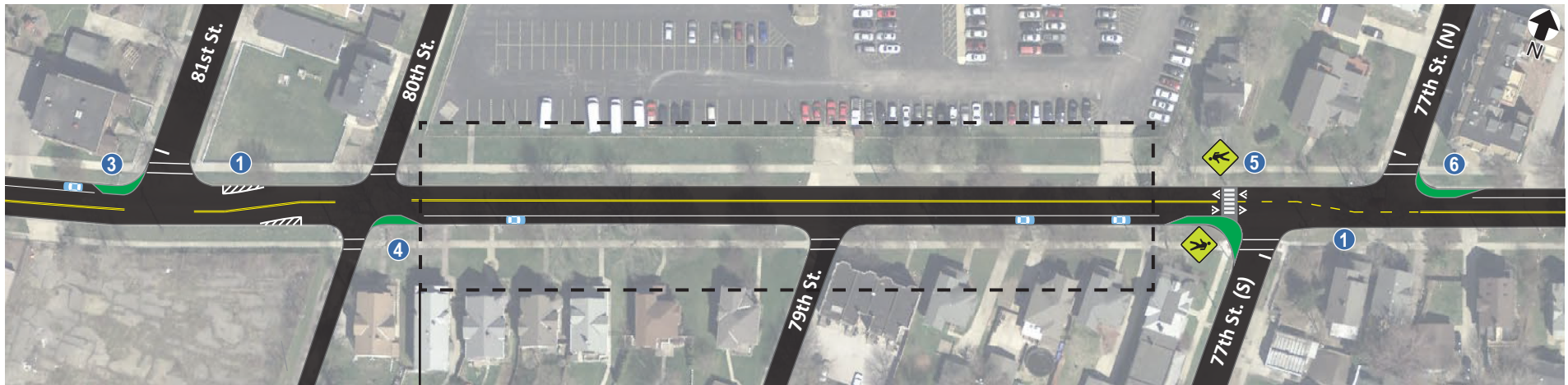


## W. 81st Street to W. 77th Street

**Key Characteristics:** Low use of on-street parking, lack of pedestrian crossings, long unbroken curb line along north side of Franklin Blvd.

### Recommendations:

- 1 New centerline and no-parking paint at W. 80th St. and W. 77th St. to direct shift in travel lanes
- 2 New street parking paint between W. 80th and W. 77th (S) to shift from north side of Franklin Blvd. to south side
- 3 Curb extension at W. 81st St.
- 4 Curb extension at W. 80th St.
- 5 Curb extension and new pedestrian crossing at W. 77th St. (S), including a raised crosswalk and signage
- 6 Curb extension at W. 77th St. (N)



- 2 Street parking shift from north to south side of Franklin Blvd. between W. 80th St. and W. 77th St.

## W. 74th Street and W. 69th Street

**Key Characteristics:** Existing unwarranted signal at W. 74th St., existing school crossing at W. 69th St.

### Recommendations:

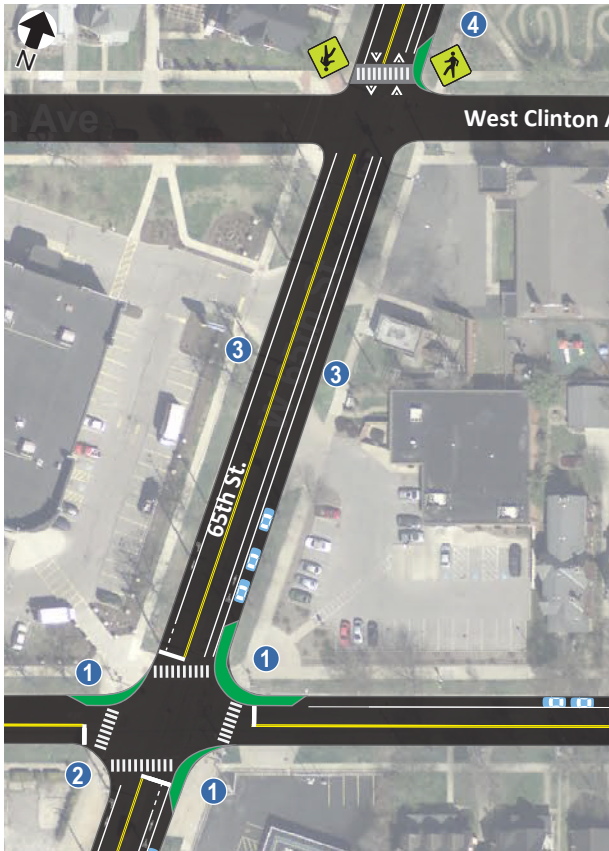
- 1 Removal of traffic signal at W. 74th St. and installation of neighborhood traffic circle with four-way yield control and high-visibility marked crosswalks
- 2 New approach paint and parking restriction paint on W. 74th St. and Franklin Blvd. to direct traffic around traffic circle
- 3 Closure of business entrance along Franklin Blvd. at northeast corner of intersection with W. 74th St.
- 4 Enhanced school crossing, including curb extension, raised crosswalk, and pedestrian-activated Rectangular Rapid Flashing Beacon (RRFB) at school crossing at W. 69th St. Care should be taken with resulting parking restrictions on north side of Franklin Blvd., as this residence has no off-street parking and uses on-street regularly and overnight.

NOTE: Gallagher School has expressed interest in shifting school crossing east of W. 69th St. to front of school. This may be considered as an alternative to the crossing at W. 69th St.



## W. 65th Street

**Key Characteristics:** W. 65th St. is hub of destinations along Franklin Blvd. corridor; existing signal is to remain

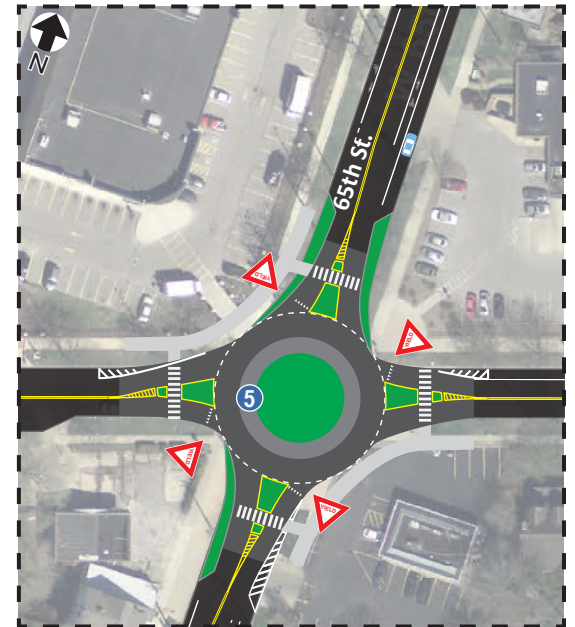


### Recommendations:

- 1 Curb extensions on northeast, southeast, and northwest corners of W. 65th St./Franklin Blvd. intersection
- 2 High-visibility marked crosswalks across all four approaches of W. 65th St./Franklin Blvd. intersection
- 3 Bike lanes along both sides of W. 65th St. (see typical section, lower left)  
NOTE: Further study should be conducted south of Franklin Blvd. to determine feasibility and extent of bike lanes
- 4 New pedestrian crossing across W. 65th St. at Clinton Ave. with raised crosswalk, curb extension, and signage
- 5 **Long-Term Alternative:** Removal of traffic signal, installation of full roundabout with yield control at W. 65th St., bike lanes along W. 65th St.

### Long-Term Alternative:

A full roundabout and removal of the traffic signal at W. 65th St. and Franklin Blvd. is a long-term alternative for a stand-alone project. Although this alternative would achieve traffic calming goals, it is potentially prohibitively expensive due to the need to acquire right-of-way and relocate utility lines. Bike lanes would extend along W. 65th St. north and south of the roundabout, with bikes sharing the roundabout with vehicles or using the sidewalk to cross.

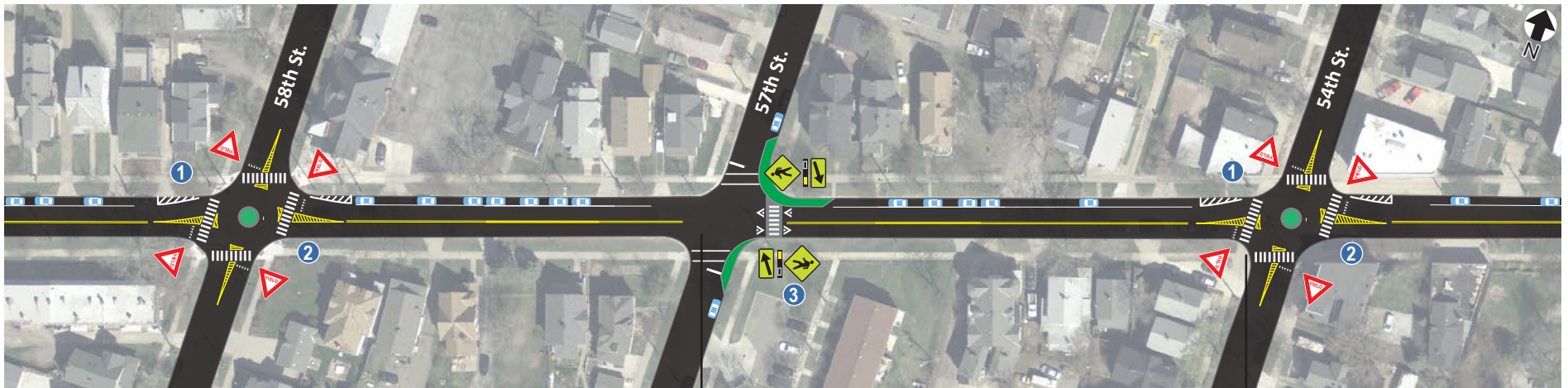


## W. 58th Street to W. 54th Street

**Key Characteristics:** Existing signals at W. 58th St. (unwarranted based on traffic volume) and W. 54th St. (expected to be unwarranted based on traffic volume), relatively high street parking usage, relatively high crash area, new school opening soon 1/2 block south of Franklin Blvd. between W. 54th St. and W. 57th St.

### Recommendations:

- 1 Removal of traffic signals at W. 58th St. and W. 54th St. and installation of neighborhood traffic circles with four-way yield control and high-visibility marked crosswalks
- 2 New approach paint and parking restriction paint on W. 58th St., W. 54th St., and Franklin Blvd. to direct traffic around traffic circle
- 3 New school crossing at W. 57th St. with curb extensions, raised crosswalk, and pedestrian-activated RRFB.



Note: Traffic data should be collected at W. 57th St. and Franklin Blvd. while the new Waverly School is in session, in order to confirm that a new signal is not warranted

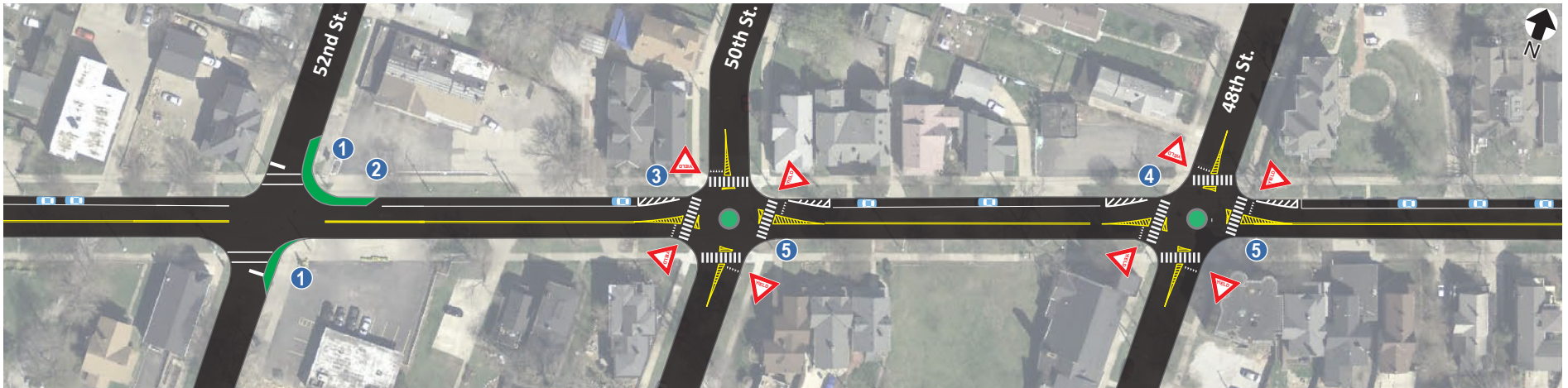
Note: Prior to removal of traffic signal, traffic data should be collected at W. 54th St. and Franklin Blvd. while the new Waverly School is in session, in order to confirm that existing signal is not warranted

## W. 52nd Street to W. 48th Street

**Key Characteristics:** Existing signal at W. 48th St. (expected to be unwarranted based on traffic volume), relatively high crash area, relatively high number of crashes at W. 50th St., relatively high street parking usage, visibility issues due to tree canopy and parked cars on street

### Recommendations:

- 1 Curb extensions on southeast and northeast corners of W. 52nd St. and Franklin Blvd. intersection
- 2 Closure of business entrance along Franklin Blvd. at northeast corner of intersection with W. 52nd St.
- 3 Installation of neighborhood traffic circle at W. 50th St. with four-way yield control and high-visibility marked crosswalks
- 4 Removal of traffic signal at W. 48th St. and installation of neighborhood traffic circle with four-way yield control and high-visibility marked crosswalks
- 5 New approach paint and parking restriction paint on W. 48th St., W. 50th St., and Franklin Blvd. to direct traffic around traffic circle

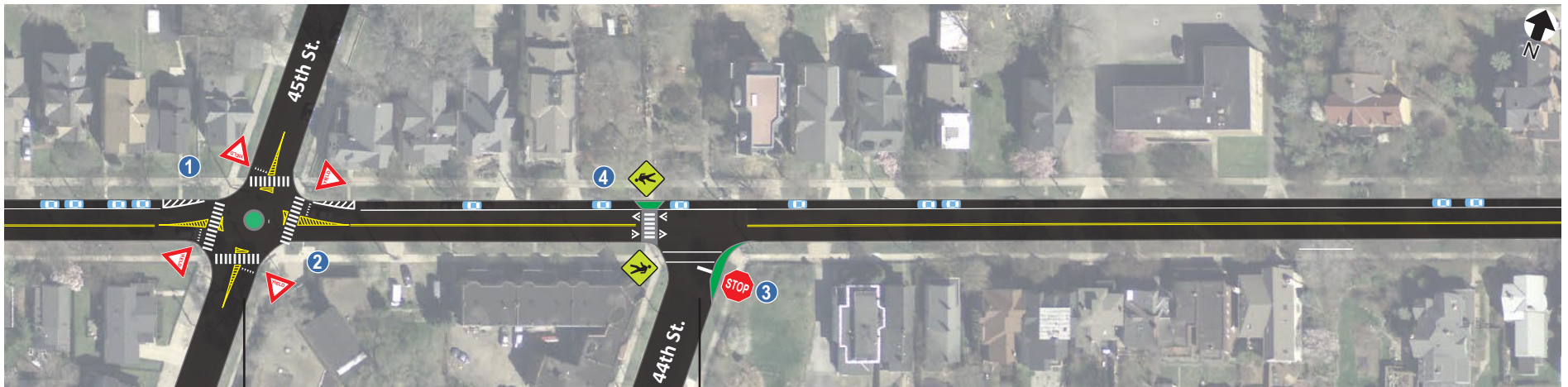


## W. 45th Street and W. 44th Street

**Key Characteristics:** Existing traffic signals at W. 45th St. (unwarranted based on traffic volume) and W. 44th St. (expected to be unwarranted based on traffic volume), relatively high crash area

### Recommendations:

- 1 Removal of traffic signal at W. 45th St. and installation of neighborhood traffic circle with and four-way yield control and high-visibility marked crosswalks
- 2 New approach paint and parking restriction paint on W. 45th St. and Franklin Blvd. to direct traffic around traffic circle
- 3 Removal of traffic signal at W. 44th St. and addition of stop sign and curb extension on W. 44th St.  
NOTE: Signal removal should only proceed with raised crosswalk installation, to slow uncontrolled traffic along Franklin Blvd.
- 4 Enhanced pedestrian crossing at W. 44th St. with raised crosswalk, curb extension, and signage  
NOTE: May consider locating new pedestrian crossing on east side of intersection; turning movement counts and further study of traffic patterns are recommended at this intersection before determining location of crossing



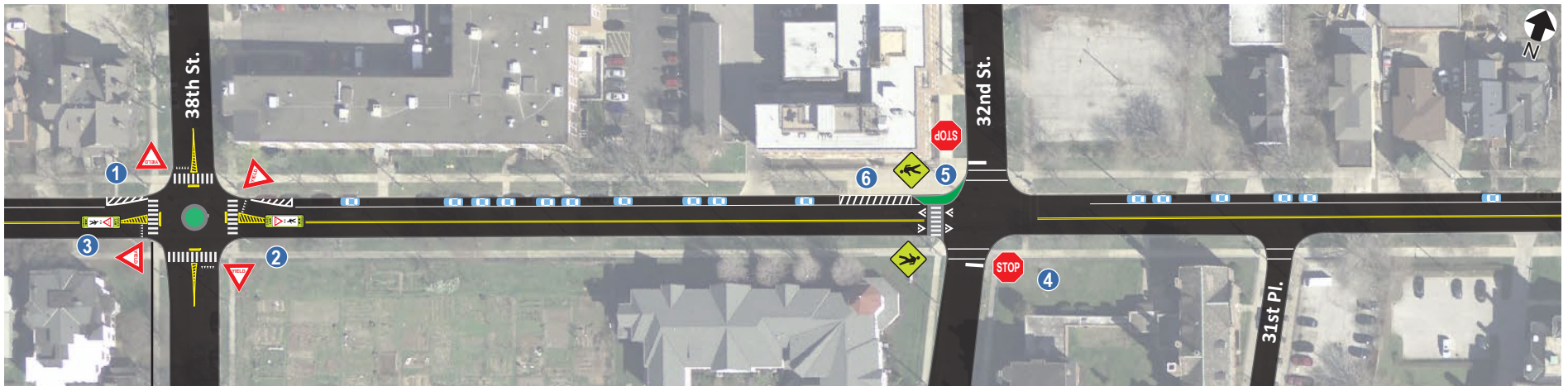
Note: Prior to removal of traffic signals, traffic data should be collected at W. 44th St. and W. 45th St. and Franklin Blvd. after the new West Side High School campus at Detroit Ave. and W. 45th St. has opened, in order to confirm that existing signals are not warranted

## W. 38th Street and W. 32nd Street

**Key Characteristics:** Existing traffic signals at W. 38th St. (unwarranted based on traffic volume) and W. 32nd St. (expected to be unwarranted based on traffic volume), two schools nearby on block southwest of W. 38th St. intersection with Franklin Blvd.

### Recommendations:

- 1 Removal of traffic signal at W. 38th St. and installation of neighborhood traffic circle with four-way yield control, high-visibility marked crosswalks, and in-street pedestrian crossing signs
- 2 New approach paint and parking restriction paint on W. 38th St. and Franklin Blvd. to direct traffic around traffic circle
- 3 In-street pedestrian crossing signs at W. 38th St.
- 4 Removal of traffic signal at W. 32nd St. and addition of stop signs on W. 32nd St.  
NOTE: Signal removal should only proceed with raised crosswalk installation, to slow uncontrolled traffic along Franklin Blvd.
- 5 Enhanced pedestrian crossing at W. 32nd St. with curb extension, raised crosswalk, and signage
- 6 Expanded parking restriction on north side of Franklin Blvd. to ensure adequate intersection sight distance



Note: Additional enhancements may be considered at this school crossing

## W. 29th Street to W. 25th Street

**Key Characteristics:** Gateway to Franklin Blvd. corridor, existing traffic signal at W. 28th St./Fulton Rd. to remain (future roundabout planned), Cleveland Clinic Lutheran Hospital and parking lots, left turns permitted from both eastbound Franklin Blvd. lanes to northbound W. 25th St.—difficult for cyclists

### Recommendations:

- 1 New pedestrian crossing at W. 29th St. with curb extension, raised crosswalk, and signage
- 2 Raised crosswalk at existing crossing to Cleveland Clinic employee parking lot
- 3 Single left-turn lane from eastbound Franklin Blvd. to northbound W. 25th St.
- 4 Leading pedestrian interval and high-visibility crosswalk over W. 25th St.



Future roundabout  
by City of Cleveland

## Summary of Recommendations by Type

### Removal of Existing Traffic Signals on Franklin Blvd.

Intersection	New traffic control
W. 32nd St.	two-way stop
W. 38th St.	Neighborhood traffic circle with four-way yield
W. 44th St.*	two-way stop
W. 45th St.*	Neighborhood traffic circle with four-way yield
W. 48th St.	Neighborhood traffic circle with four-way yield
W. 54th St.**	Neighborhood traffic circle with four-way yield
W. 58th St.	Neighborhood traffic circle with four-way yield
W. 74th St.	Neighborhood traffic circle with four-way yield

### Neighborhood Traffic Circles

Intersection	Existing traffic control	New traffic control
W. 38th St.	signal	four-way yield
W. 45th St.*	signal	four-way yield*
W. 48th St.	signal	four-way yield
W. 50th St.	two-way stop	four-way yield
W. 54th St.**	signal	four-way yield
W. 58th St.	signal	four-way yield
W. 74th St.	signal	four-way yield

### Curb Extensions

Location	Number of curb extensions
W. 29th St.	1
W. 32nd St.	1
W. 44th St.	2
W. 52nd St.	2
W. 57th St.	2
W. 65th St.	3
W. 69th St.	1
W. 77th St. (N)	1
W. 77th St. (S)	1
W. 80th St.	1
W. 81st St.	1
W. 85th St.	1 (closure of right-turn slip lane)

\* Prior to removal of traffic signal and installation of neighborhood traffic circle, traffic data should be collected after new West Side High School campus at Detroit Ave. and W. 45th St. has opened, to confirm that existing signal is not warranted

\*\* Prior to removal of traffic signal and installation of neighborhood traffic circle, traffic data should be collected after new Waverly School has opened, to confirm that existing signal is not warranted

### New and Enhanced Pedestrian Crossings

Location	Crossing Improvement	Existing Condition
Lutheran Hospital between W. 25th St. and W. 28th St.	Raised crosswalk	Existing heavily used midblock crossing between hospital and parking lot
W. 29th St.	Raised crosswalk and signage	No existing crossing; new crossing to connect to Hingetown district and Detroit Rd.
W. 32nd St.	Raised crosswalk and signage	Existing signal is proposed for removal, and senior residences are located here
W. 38th St.	In-street pedestrian crossing signs	Crossing within school zone
W. 44th St.	Raised crosswalk and signage	A designated school crossing where an existing signal is recommended for removal
W. 57th St.	Raised crosswalk and Rectangular Rapid Flashing Beacon (RRFB)	New Waverly Elementary School opening in 2019 between W. 54th St. and W. 57th St. south of intersection
W. 65th St. and W. Clinton Ave.	Raised crosswalk and signage	Heavily used midblock crosswalk identified by stakeholders and public as important
W. 69th St.	Raised crosswalk and signage	Heavily used midblock crossing near Joseph M. Gallagher School
W. 77th St.	Raised crosswalk and signage	No existing crossing within several blocks; vehicle speeds are highest in this section of the corridor

### Other Improvement Recommendations

- Shift parking lane from north side to south side of Franklin Blvd. between W. 80th St. and W. 77th St.
- High-visibility marked crosswalk where crosswalk currently exists over W. 25th St. south of Franklin Blvd.
- Leading pedestrian intervals along Detroit Rd. at W. 65th St. and W. 45th St. for pedestrians crossing Detroit Rd.; and at W. 25th St. and Franklin Blvd. for pedestrians crossing W. 25th St.
- Late-night full signal operation at W. 58th St. and Detroit Rd.
- Repaint eastbound right lane of Franklin Blvd. at W. 25th St. to right turn only (currently right or left turn); signal timing adjustment as necessary
- Upgrade all existing non-compliant curb ramps to be ADA compliant (see Appendix H for locations)
- Lowering of the speed limit to 25 mph
- Consider increasing length of No Parking zones at intersections along north side of Franklin Blvd. to improve lines of sight for drivers

## Conceptual Cost Estimate

The total estimated cost of the recommended improvements, for planning purposes only, is **\$1,154,270**. The estimate includes 30% contingency costs and 15% each for design engineering and construction engineering costs. Cost estimates by improvement type are as follows:

Traffic Circles	\$236,600
Crossing Improvements	\$381,940
Curb Extensions	\$523,900
Other	\$11,830

Detailed cost estimate information can be found in Appendix K.

<b>Recommendation</b>	<b>Item Total Cost</b>
W. 85th St. curve tightening and crosswalks	\$50,000
W. 81st St. and W. 80th St. curb extensions	\$30,000
W. 77th St. (S) crossing enhancements	\$30,000
W. 77th St. (N) curb extension	\$20,000
W. 74th St. neighborhood traffic circle	\$20,000
W. 69th St. school crossing enhancements	\$50,000
Clinton Ave./W. 65th St. new crossing	\$30,000
W. 65th St. enhancements	\$77,000
W. 58th St. neighborhood traffic circle	\$20,000
W. 54th St. neighborhood traffic circle	\$20,000
W. 57th St. school crossing enhancements	\$75,000
W. 52nd St. curb extensions	\$27,000
W. 50th St. neighborhood traffic circle	\$20,000
W. 48th St. neighborhood traffic circle	\$20,000
W. 45th St. neighborhood traffic circle	\$20,000
W. 44th St. crossing enhancements	\$60,000
W. 38th St. neighborhood traffic circle	\$21,000
W. 32nd St. crossing enhancements	\$30,000
W. 29th St. crossing enhancements	\$35,000
Lutheran Hospital crossing enhancement	\$20,000
W. 25th St. Franklin Blvd. lane reconfiguration and crosswalk	\$8,000
<b>SUBTOTAL</b>	<b>\$683,000</b>
30% Contingency	\$204,900
<b>SUBTOTAL</b>	<b>\$887,900</b>
15% Design Engineering Cost	\$133,185
15% Construction Engineering Cost	\$133,185
<b>TOTAL</b>	<b>\$1,154,270</b>

## Introduction

## Introduction

In early 2016 the City of Cleveland applied for and was subsequently awarded a 2016 Transportation for Livable Communities Initiative (TLCI) planning grant to study the Franklin Boulevard corridor. Fifteen planning grant applications totaling more than \$1.1 million in requested funding were received on January 29, 2016. All applications were evaluated based on the criteria established in the TLCI Policy, and the Franklin Boulevard Traffic Calming Study was awarded technical assistance by NOACA based on an \$80,000 funding request. This report is the result of a year-long NOACA-led TLCI planning study that sought to identify ways to make Franklin Blvd. safer for all types of traffic, and to make it a more desirable corridor for pedestrians and bicyclists.

This report presents existing conditions along the Franklin Blvd. corridor, summarizes the planning process and public and stakeholder input and feedback, presents several traffic calming alternatives, and makes final recommendations. The appendix provides additional supplemental data.

## Study Area

The Franklin Blvd. Traffic Calming study covers the two-mile length of Franklin Boulevard between W. 25th St. and W. 85th St. This roadway, just west of Downtown Cleveland and the Cuyahoga River, serves several different functions. As a primarily residential street running east-west through the Detroit-Shoreway and Ohio City neighborhoods, residents use it daily to commute to work or to travel within the neighborhoods. Franklin Blvd. is also home to several important institutions, including Pre-K to 8th Grade schools and a Cleveland Clinic hospital campus. The street serves as a primary thoroughfare to reach these destinations. Franklin Blvd. runs parallel between Detroit Ave. and Lorain Ave., two main commercial corridors, and many west-side commuters see Franklin Blvd. as a quicker alternative to these roads as they travel to and from downtown.



Map 1: Study Area

## Background

A speed zone study of Franklin Blvd. was conducted in March 2016 by Euthenics Inc. Consulting Engineers. This study evaluated the existing speed limits along Franklin Blvd. between W. 25th St. and W. 85th St. and measured actual vehicular speeds at three different locations. The study found that the 85th-percentile speed was 34 mph, and recommended that the speed limit remain as posted.

A crash rate of 17.01 crashes per million vehicle miles along this corridor shows that the overall Franklin Blvd. crash experience is comparable to that of similar nearby roadways such as Madison Ave., W. 65th St., and Bridge Ave. The injury/fatal crash rate along Franklin, however, is higher than most similar roadways in the surrounding neighborhoods, and certain segments of Franklin Blvd. have experienced particularly high overall crash rates and injury/fatal crash rates. Residents along Franklin have also consistently pointed to crashes and cars traveling at high rates of speed as reasons to look into traffic calming measures along Franklin Blvd.



Image 1: Franklin Blvd. at W. 28th St., looking west



Image 2: Franklin Blvd. at W. 28th St., looking east



## Existing Conditions

## Roadway Characteristics and Land Use

Franklin Boulevard is classified as a major collector street. The segment of roadway from W. 25th St. to W. 28th St./Fulton Rd. consists of one travel lane in each direction, with the eastbound lane splitting into two turn lanes as it approaches W. 25th St. (see Image 4). The speed limit in this section is 25 mph, and the pavement width is about 38 feet.

For the majority of the study corridor, from W. 28th St./Fulton Rd. to W. 85th St., the speed limit is 35 mph. There is also a 20 mph school speed limit zone between W. 65th St. and W. 69th St. The roadway consists of one travel lane in each direction and a parking lane on the north side. The pavement width of Franklin Blvd. is 30 feet, with 11.25-foot travel lanes and a 7.5-foot parking lane. Travel lanes are separated by a double yellow line. A solid white line delineates the parking lane and transverse hatch markings denote No Parking zones. Painted sharrow markings are present along the corridor, accompanied by “Share the Road” signage.

There are no transit routes on Franklin Blvd., but several schools along the corridor generate bus traffic, and Lutheran Hospital between W. 28th St. and W. 25th St. generates emergency vehicle traffic in the vicinity. Commercial vehicle traffic is also prohibited from using Franklin Blvd. as a through street.

Franklin Blvd. is a primarily single-family residential street within predominately residential neighborhoods. There are also several institutions such as schools and hospitals along the corridor. The intersection of Franklin Blvd. and W. 65th St. is an important destination for area residents. Joseph M. Gallagher School, Rite Aid Pharmacy, Frank’s Falafel House, and a neighborhood health center occupy the four corners of the intersection. Cleveland Clinic’s Lutheran Hospital campus anchors the eastern terminus of the study corridor at W. 25th St. The Detroit Rd. and Lorain Ave. commercial corridors run parallel to Franklin Blvd. north and south. West 25th St. at the eastern terminus of Franklin Blvd. is also a commercial district that features shops, restaurants, multifamily housing, and the Westside Market.



Image 3: Franklin Blvd. at W. 38th St., looking west



Image 4: Franklin Blvd. at W. 25th St., looking east

## Neighborhood Land Use



— Franklin Blvd. Study Corridor

### Land Use

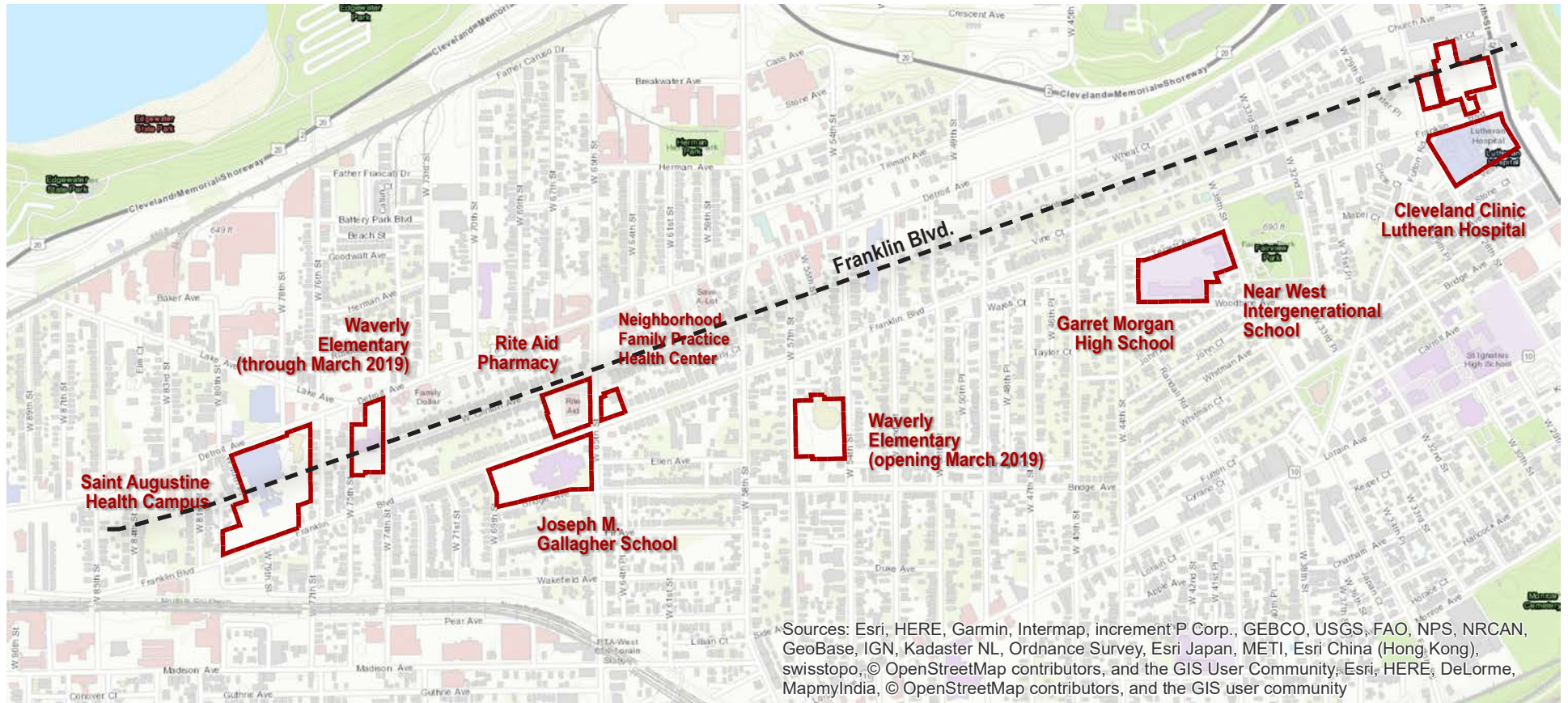
- |   |  |
|---|--|
| <span style="color: green;">■</span> Agricultural                         | <span style="color: grey;">■</span> No Data                        |
| <span style="color: red;">■</span> Business / Commercial                  | <span style="color: green;">■</span> Open Land / Park / Recreation |
| <span style="color: orange;">■</span> Government / Public / Institutional | <span style="color: yellow;">■</span> Residential                  |
| <span style="color: grey;">■</span> Industrial                            | <span style="color: purple;">■</span> Vacant Land                  |



0 0.4 Miles



Map 2: Neighborhood Land Use

## Neighborhood Education and Health Destinations



-  Franklin Blvd. Study Corridor
-  Education and Health Care Destinations

Map 3: Neighborhood Education and Health Destinations



Image 5: Cleveland Clinic Lutheran Hospital, Franklin Blvd. and W. 28th St.



Image 7: Joseph M. Gallagher School, Franklin Blvd. and W. 65th St.



Image 6: Rite Aid Pharmacy, Franklin Blvd. and W. 65th St.



Image 8: Frank's Falafel House, Franklin Blvd. and W. 65th St.

## Area Schools and Safe Routes to Schools Recommendations

The following are previous Safe Routes to School recommendations along Franklin Blvd. along with the current and future locations of public and private schools in the area.

### W. 74th St.

- Improve existing crosswalks
- Install new ADA curb ramps
- Install pedestrian signal if traffic signal is warranted

### W. 65th St.

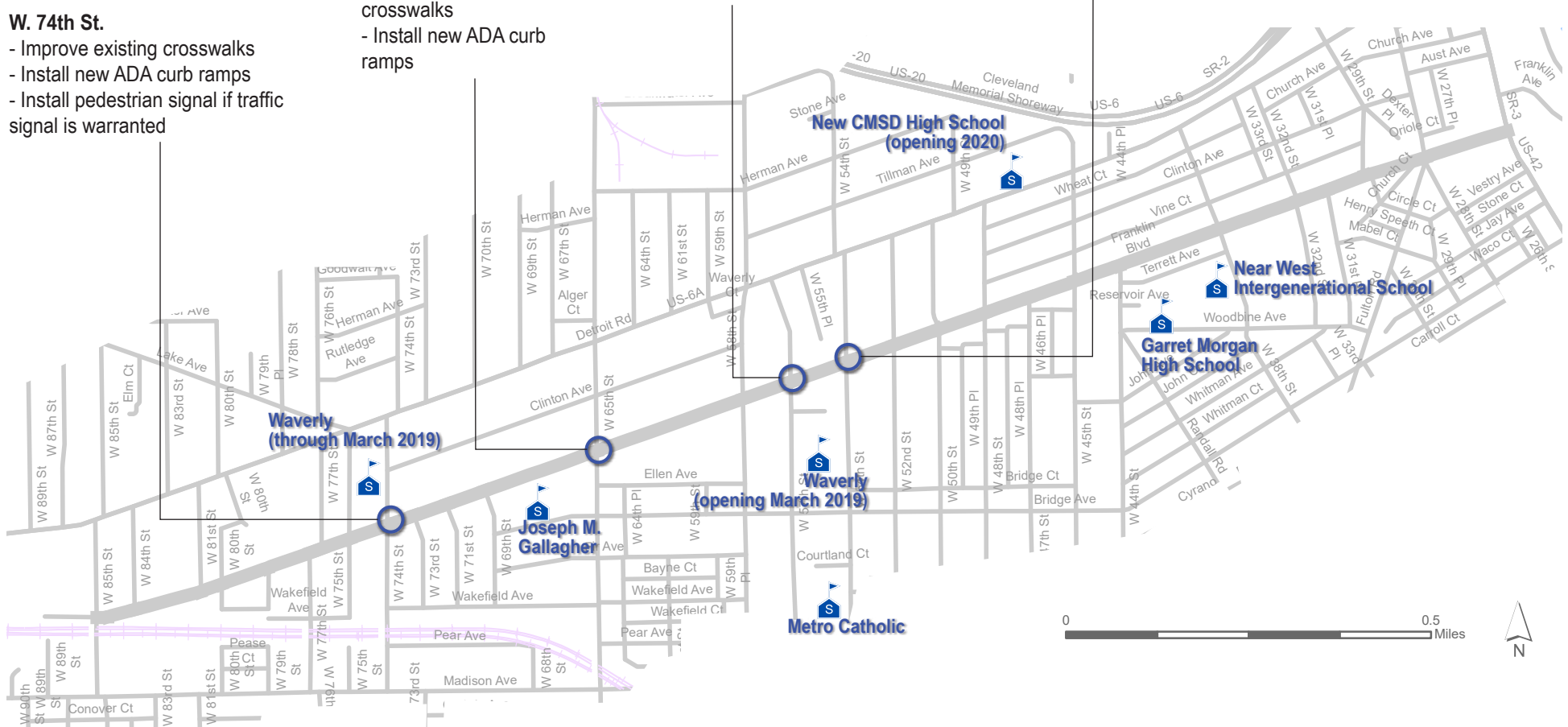
- Improve existing crosswalks
- Install new ADA curb ramps

### W. 57th St.

- Install new enhanced crosswalk over Franklin (east side of intersection)
- Improve existing crosswalks
- Install school crossing and school crossing ahead signs facing Franklin Blvd. approaches

### W. 54th St.

- Improve existing crosswalks
- Install new ADA curb ramps
- Install pedestrian signal if traffic signal is warranted



Map 4: Area Schools and Safe Routes to School Recommendations

## Traffic Volumes

Turning movement counts were taken at five intersections along Franklin Blvd. over three different days—October 6, 2016; October 17, 2017; and October 26, 2017. Volumes were measured from 7 a.m.–9 a.m., 11 a.m.–1 p.m., and 3 p.m.–7 p.m. Traffic volumes overall show travel patterns consistent with daily east-west commuter traffic. Heavier volumes on the minor streets north and south of Franklin Blvd. were generally seen in the PM peak hour. The AM and PM peak hour volumes at each of the intersections are shown in Figures 1 and 2. Additional detailed traffic volume data is also available in Appendix F.

NOACA screenline counts from 2015 indicate that the 24-hour volume along Franklin Blvd. is 3,867 vehicles.

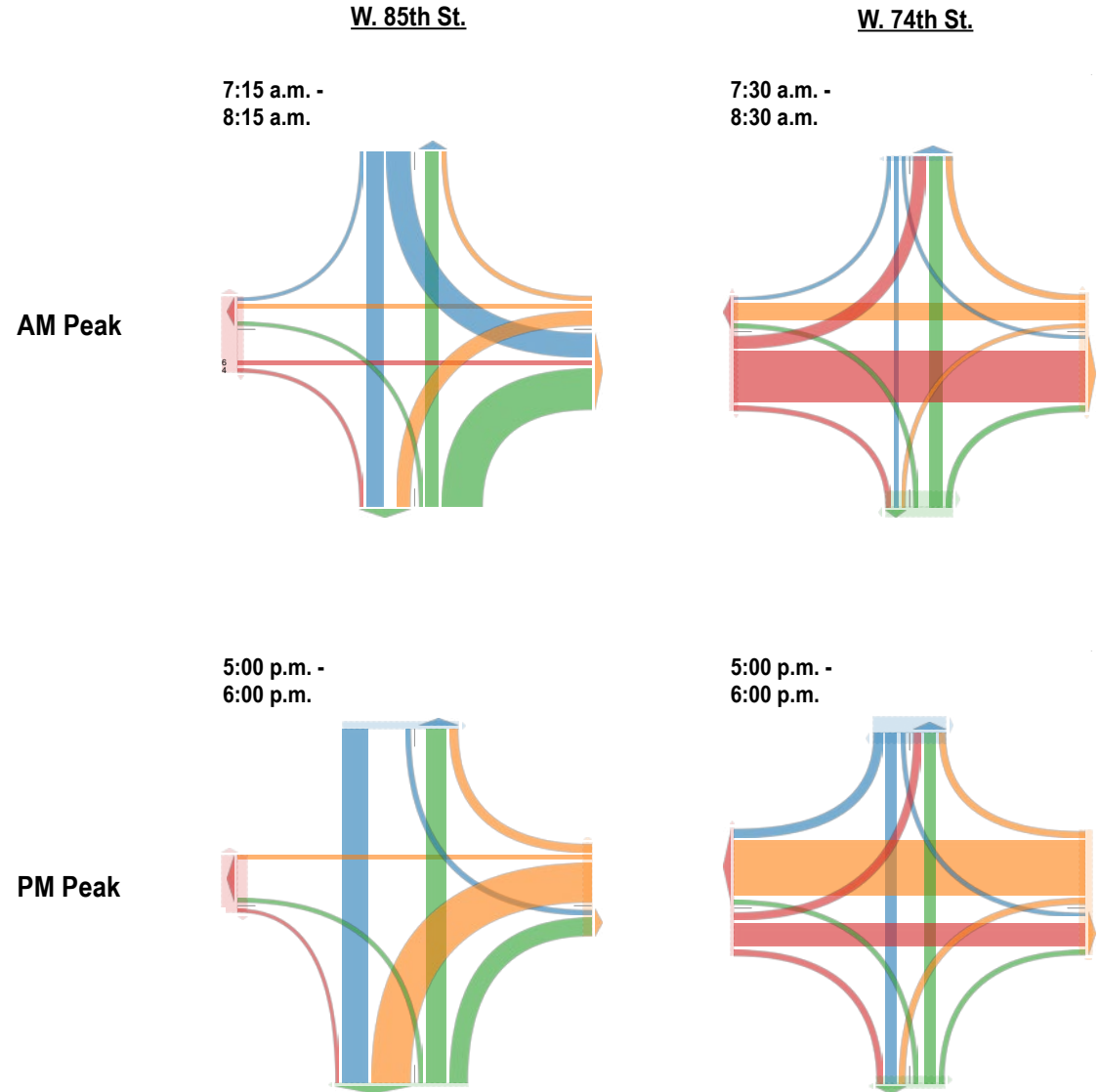


Figure 1: Peak Hour Traffic Volumes, Part 1

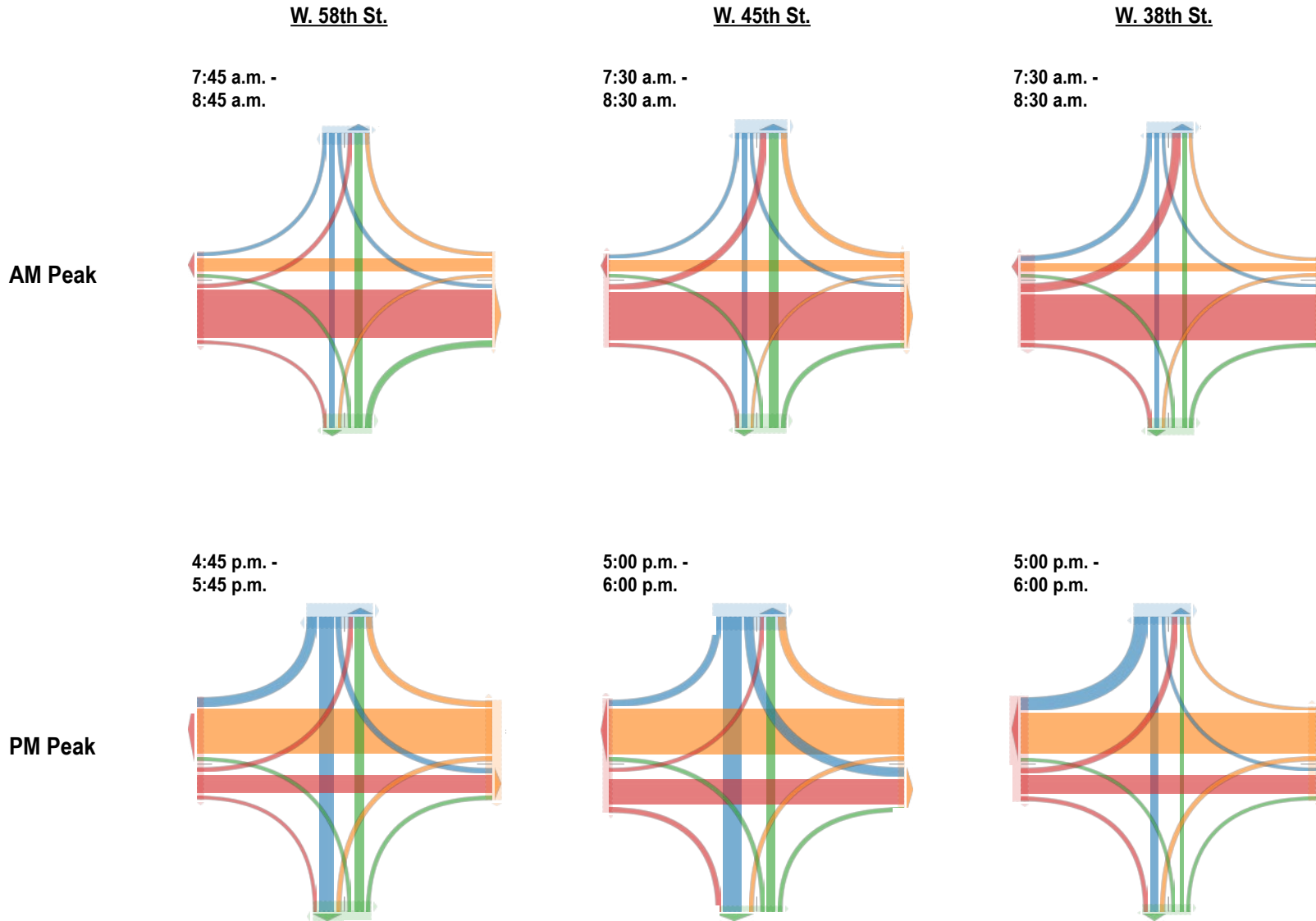
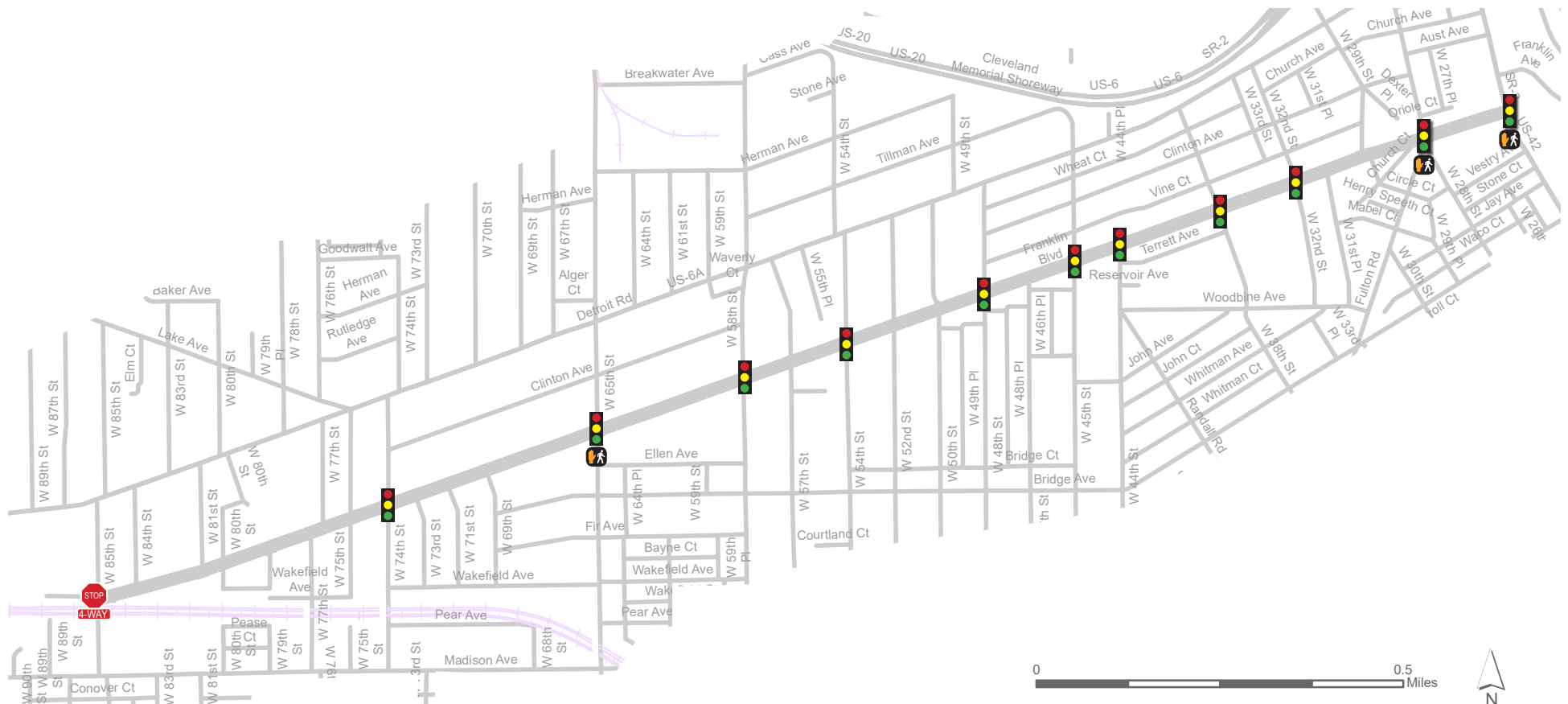


Figure 2: Peak Hour Traffic Volumes, Part 2

## Existing Traffic Control

There are 11 traffic signals along the Franklin Blvd. corridor. Three of them, at W. 25th, W. 28th/Fulton Rd., and W. 65th St., have pedestrian signals. The other intersections are controlled by stop signs on the minor cross-streets, except for the W. 85th St. intersection, which is 4-way stop sign controlled.

This study included a signal warrant analysis of four of the existing signals, at W. 38th St., W. 45th St., W. 58th St., and W. 74th St. A summary of the signal warrants is included on page 25, and more detailed warrant analysis data is included in Appendix G.



Map 5: Existing Traffic Control

## Crash Rates

Table 1 provides a summary of crash rates (overall and injury/fatal based on 2011-2015 data) on Franklin Blvd. as well as similar Major Collector roadways in the surrounding neighborhoods. Several other nearby roadways (W. 65th St., Detroit Ave., and Lorain Ave.) are also included, although they are classified as more significant Minor Arterials. The overall crash rate along Franklin Blvd. is 17.01 crashes per million vehicle miles. Looking at crash rates for similar streets in the area, this is slightly below that of Bridge Ave. (19.27), and higher than Madison Ave. (16.96), Western Ave. (14.89), Fulton Rd. (8.34), and W. 65th St. (16.68). The crash rate for the quarter-mile segment of Franklin Blvd. between W. 48th St. and W. 57th St., however, was 32.49, nearly twice as high as the overall crash rate and highest among all segments of the nearby streets.

The injury/fatal crash rate for the Franklin Blvd. corridor was 4.60, higher than that of Bridge Ave. (3.05) and all other nearby similar streets except W. 65th St. (5.46). The injury crash rate on Franklin Blvd. between W. 48th St. and W. 57th St., however, was 10.83, the highest among all segments on all nearby similar streets. The higher injury crash rates on Franklin Blvd. may be due in part to the higher speed limit and actual speeds compared to the similar nearby streets. See Appendix D for more detailed crash rate data, and see Map 6 showing locations of crashes along Franklin Blvd. by severity.

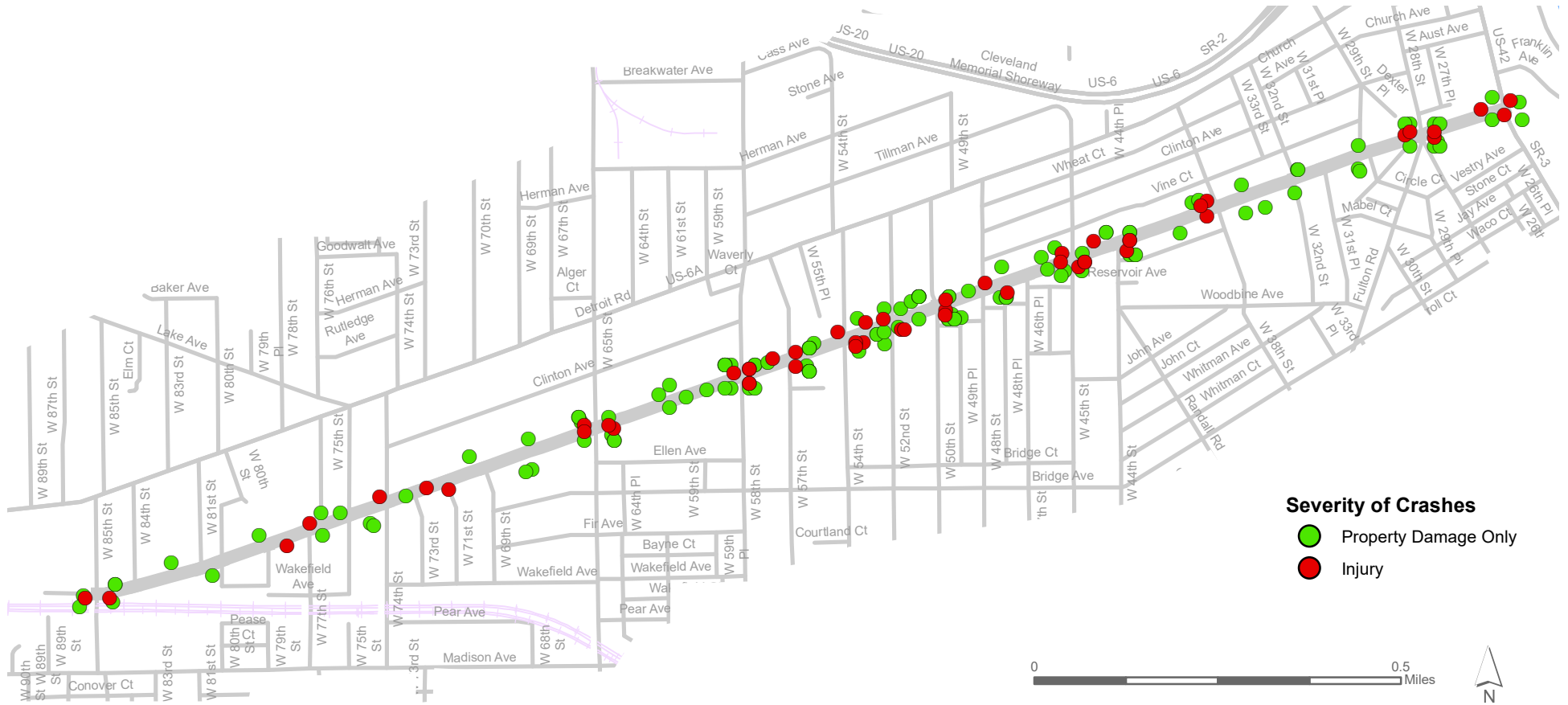
Street	Segment	Segment Length (mi.)	Total Crash Rate	Injury/Fatal Crash Rate	Posted Speed Limit	
Franklin Blvd. (Major Collector)	<b>OVERALL AVG (W. 25th St. to W. 85th St.)</b>	<b>2</b>	<b>17.01</b>	<b>4.60</b>	<b>35 mph</b>	
	<b>Highest Segment</b>	W. 48th St. to W. 57th St.	0.25	32.49	10.83	35 mph
Bridge Ave. (Major Collector)	<b>OVERALL AVG (W. 25th St. to W. 65th St.)</b>	<b>1.5</b>	<b>19.27</b>	<b>3.05</b>	<b>25 mph</b>	
	<b>Highest Injury/Fatal Segment</b>	W. 44th St. to W. 50th St.	0.25	25.61	6.59	25 mph
Madison Ave. (Major Collector)	<b>OVERALL AVG (W. 25th St. to Berea Rd.)</b>	<b>1.75</b>	<b>16.96</b>	<b>4.48</b>	<b>25 mph</b>	
	<b>Highest Segment</b>	W. 100th St. to W. 104th St.	0.25	26.62	8.28	25 mph
Western Ave. (Major Collector)	<b>OVERALL AVG (W. 101st St. to W. 117th St.)</b>	<b>0.75</b>	<b>14.89</b>	<b>4.31</b>	<b>25 mph</b>	
	<b>Highest Total Segment</b>	W. 101st St. to W. 105th St.	0.25	20.57	2.35	25 mph
	<b>Highest Injury/Fatal Segment</b>	W. 105th St. to W. 111th St.	0.25	15.87	6.46	25 mph
Fulton Rd. (Major Collector)	<b>OVERALL AVG (Franklin Blvd. to Walton Ave.)</b>	<b>1.25</b>	<b>8.34</b>	<b>1.94</b>	<b>25 mph</b>	
	<b>Highest Segment</b>	I-90 to Walton Ave.	0.25	16.40	5.11	35 mph
Scranton Rd. (Major Collector)	<b>OVERALL AVG (Parafine Ave. to Sackett Ave.)</b>	<b>1.25</b>	<b>11.87</b>	<b>3.10</b>	<b>25 mph</b>	
	<b>Highest Segment</b>	Agnes Ct. to Holmden Ave.	0.25	17.53	4.78	25 mph
W. 65th St. (Minor Arterial)	<b>OVERALL AVG (Lorain Ave. to Detroit Ave.)</b>	<b>0.75</b>	<b>16.68</b>	<b>5.46</b>	<b>25 mph</b>	
	<b>Highest Segment</b>	Lorain Ave. to Madison Ave.	0.25	21.81	7.47	25 mph
Detroit Ave. (Minor Arterial)	<b>OVERALL AVG (W. 26th St. to W. 85th St.)</b>	<b>0.25</b>	<b>28.18</b>	<b>7.48</b>	<b>25 mph</b>	
	<b>Highest Segment</b>	W. 65th St. to W. 73rd St.	0.25	28.18	7.48	25 mph
Lorain Ave. (Minor Arterial)	<b>OVERALL AVG (W. 24th St. to W. 83rd St.)</b>	<b>2.25</b>	<b>14.71</b>	<b>3.59</b>	<b>25 mph</b>	
	<b>Highest Segment</b>	W. 24th St. to W. 30th St.	0.25	27.59	6.66	25 mph

Table 1: Crash Rate Comparison Summary, 2011-2015

**Note on Crash Rate Summary Table:** Crash rates are based on crashes over the five-year period from 2011-2015. Crashes at intersections where the cross street was listed as the primary street when police report data was entered are excluded from primary corridor crash rates. Average Daily Traffic (ADT) values are found on NOACA's GIS Portal or ODOT's TIMS data portal. ADT values for single years are applied to multiple years of crashes (2011-2015) and are assumed to be acceptable for the purposes of this crash rate analysis.

## Crashes by Severity

Crashes are shown geographically below, with visible clustering toward the middle of the corridor. (Note: No fatal crashes were recorded along Franklin Blvd. between 2012 and 2016.)



Map 6: Crashes by Severity, 2012-2016

## Parking Survey

A parking survey was conducted at four different times on two different days (Wednesday, November 8 and Monday, November 28, 2017). The survey counted the number of cars parked along specific segments of Franklin Blvd. at a given time. While a few areas saw the highest number of parked cars during midday, the results of this survey showed that Franklin Blvd. had the highest number of parked cars after the evening commute—not surprising given the predominately residential nature of the corridor. W. 58th St. to W. 65th St. in particular experienced a high number of parked cars throughout the day, while W. 74th St. to W. 85th St. saw relatively low street parking usage.

Segment	Number of parked cars, by time of day				Average	Max
	9:00 a.m. (11/27/2017)	12:30 p.m. (11/27/2017)	4:00 p.m. (11/8/2017)	7:00 p.m. (11/8/2017)		
W. 25th St. to W. 28th St.	0	0	0	0	0.0	0
W. 28th St. to W. 29th St.	0	1	5	5	2.8	5
W. 29th St. to W. 32nd St.	6	2	3	4	3.8	6
W. 32nd St. to W. 38th St.	1	10	5	3	4.8	10
W. 38th St. to W. 45th St.	8	8	8	6	7.5	8
W. 45th St. to W. 48th St.	3	4	7	14	7.0	14
W. 48th St. to W. 50th St.	3	2	1	2	2.0	3
W. 50th St. to W. 58th St.	3	5	1	16	6.3	16
W. 58th St. to W. 65th St.	17	13	14	20	16.0	20
W. 65th St. to W. 74th St.	11	12	7	6	9.0	12
W. 74th St. to W. 80th St.	1	0	2	2	1.3	2
W. 80th St. to W. 85th St.	2	0	6	6	3.5	6
<b>TOTAL</b>	<b>55</b>	<b>57</b>	<b>59</b>	<b>84</b>	<b>63.8</b>	<b>84</b>

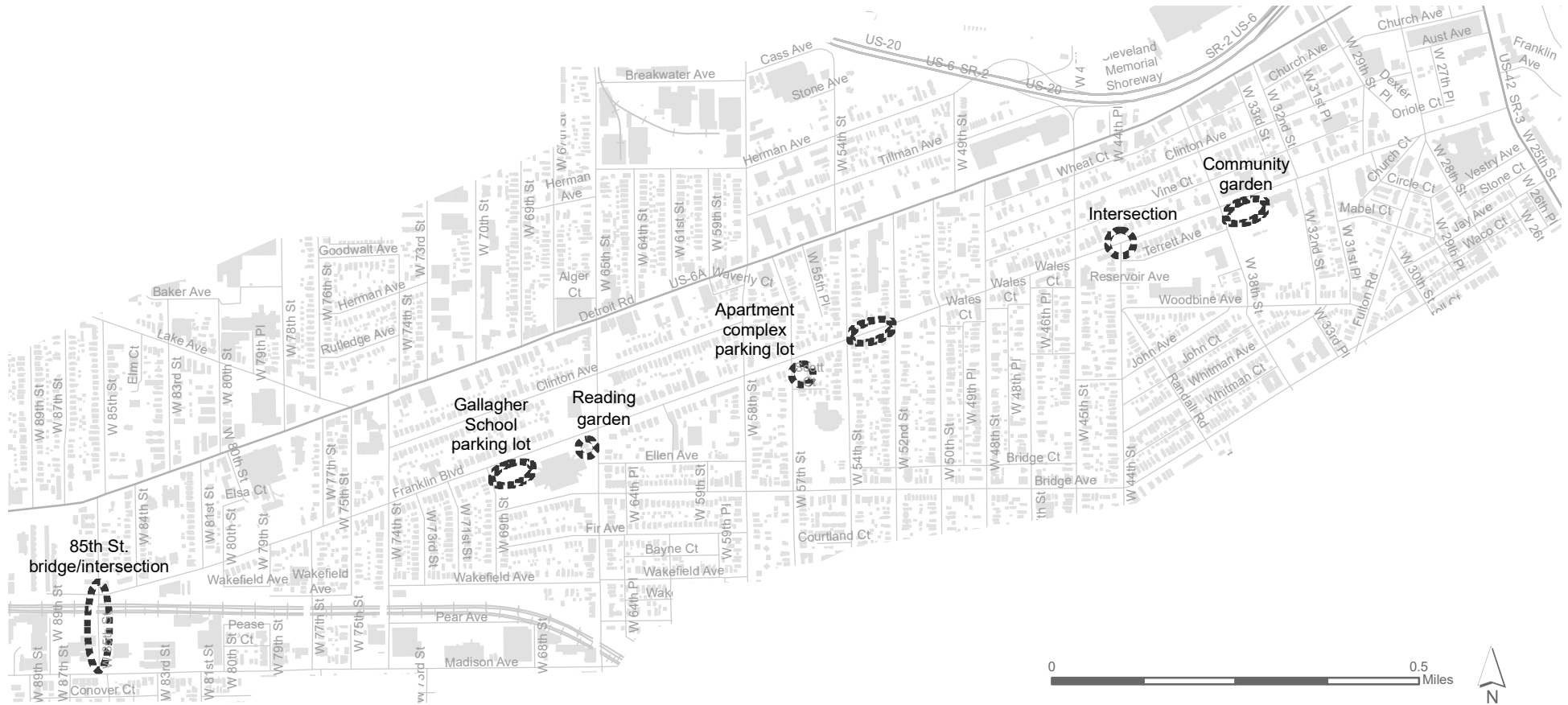
Table 2: Street Parking Survey



Image 9: Franklin Blvd. Between W. 80th St. and W. 77th St., Looking East at 1:00 p.m.

## Street Light Survey

A street light survey was conducted on November 8, 2017, at 7:30 p.m. The survey consisted of vehicular travel up and down the corridor, making note of areas of particularly low light. The map below indicates areas that are poorly lit (circled in black).





## Planning Process

## Public Meeting #1 and Online Public Survey

The planning process for this study involved significant stakeholder and public engagement, vital for gathering information on existing conditions along Franklin Boulevard and feedback on proposed recommendations. Four stakeholder committee meetings and three public meetings were held between September 2017 and August 2018. Various analyses informed the development of alternatives for the public and stakeholders to consider. Feedback from the public, as well as a temporary demonstration of one of the alternatives, was used to select preferred alternatives.

### Stakeholder Committee

A neighborhood Stakeholder Committee was formed at the beginning of the process to gather feedback on project goals and objectives; develop, discuss, and evaluate alternatives; and discuss public issues and concerns. The Stakeholder Committee was made up of key decision makers for the project, representatives of neighborhood and technical/advocacy groups, and individual residents and business owners. The stakeholders met four times: September 20, 2017; January 1, 2018; May 9, 2018; and October 10, 2018.

### Public Meeting #1

Three public meetings were held, starting with the kick-off meeting on October 11, 2017. Outreach for the first public meeting included promotion with flyers, emails, and social media posts. The purpose of this meeting was to introduce residents to the scope and overall goals of the study, to listen to and record residents' concerns and priorities, and to gauge resident interest in a variety of potential traffic calming treatments. Forty-five people attended this meeting. Results of the mapping exercise are shown on Maps 8 and 9.

Attendees were also able to provide input on what potential traffic calming measures they favored. The results of this sticker exercise are shown in Figure 3, while Map 8 indicates the transportation safety issues that attendees perceive along Franklin Blvd. and surrounding streets.

Overall, Public Meeting #1 illuminated resident and stakeholder concerns about speeding, poor visibility, and unsafe school crossings along Franklin Blvd., and a real desire to see design improvements along with any possible speed limit reductions.



Image 10: Public Meeting #1, Traffic Calming Preferences



Image 11: Public Meeting #1

## Public Meeting #1 - Sticker Exercise

The results of the Public Meeting #1 sticker exercise indicate that the most popular traffic calming measures among attendees were Raised Crosswalks, Neighborhood Traffic Circles, and Curb Extensions and Bump-outs. (Note: Stickers of all colors were used, and specific colors did not hold any meaning for this exercise.)

Potential Improvement Examples **4 dots total**

2-way and 4-way Stops

Franklin and W. 300 St. Franklin and W. 80th St.

Potential Improvement Examples **8 dots total**

Bike Boulevard

Avalon Rd., Shaker Heights

Potential Improvement Examples **6 dots total**

Chicanes

Woodward Ave., Lakewood

Potential Improvement Examples **18 dots total**

Curb extensions and bump-outs

Cedar and Lee, Cleveland Heights

Potential Improvement Examples **3 dots total**

Neckdowns

Avalon Rd., Shaker Heights

Potential Improvement Examples **20 dots total**

Neighborhood Traffic Circle

Sycamore and Linwood, Columbus, OH

Potential Improvement Examples **2 dots total**

Rectangular Rapid Flashing Beacon (RRFB)

MLK Blvd., Cleveland

Potential Improvement Examples **22 dots total**

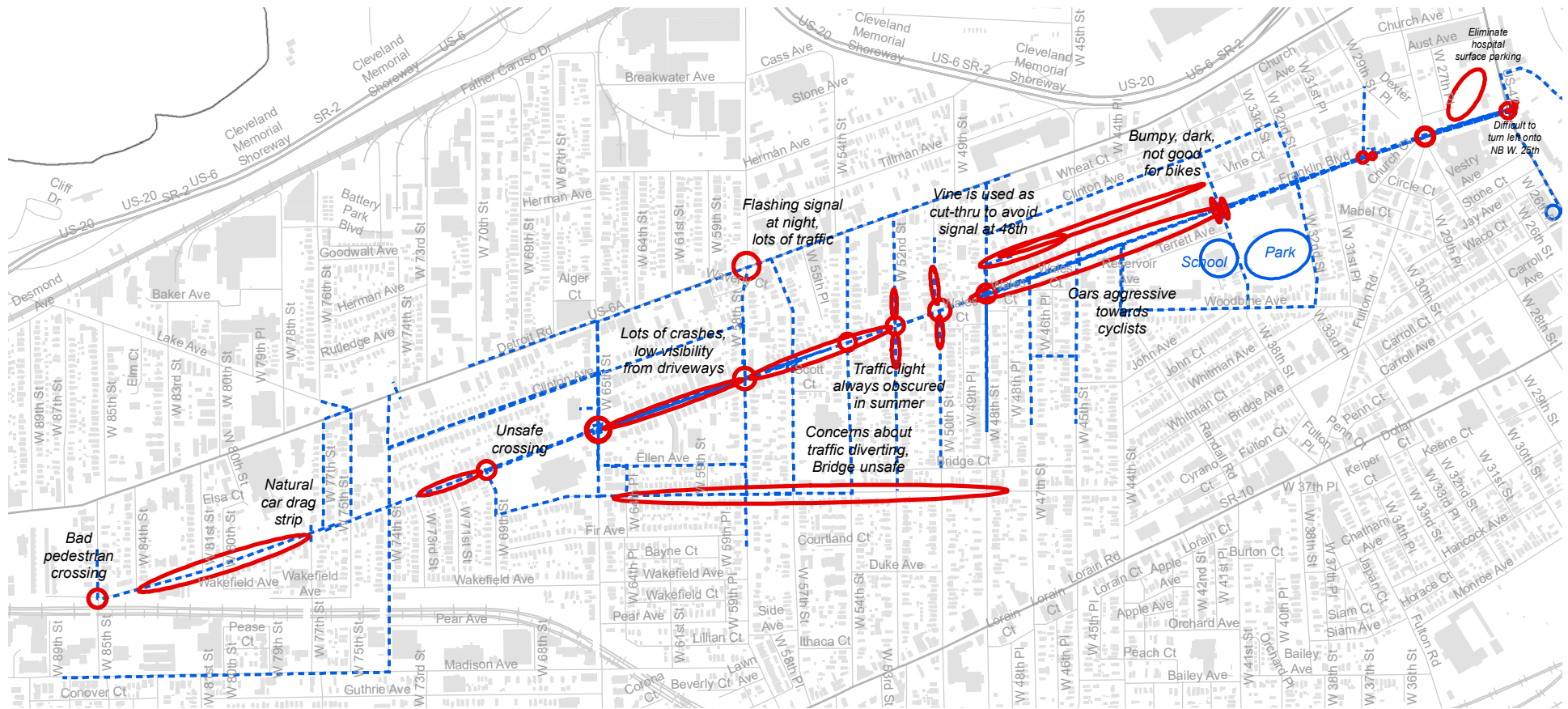
Raised crosswalks

J.C. University, University Heights

Figure 3: Public Meeting #1, Traffic Calming Preferences Summary

## Public Meeting #1: Problem Areas, Travel Paths, and Destinations

Attendees were asked to draw on a large printed map, identifying locations where they felt uncomfortable or unsafe as a road or sidewalk user, as well as typical travel paths and important neighborhood destinations.



### Public Meeting

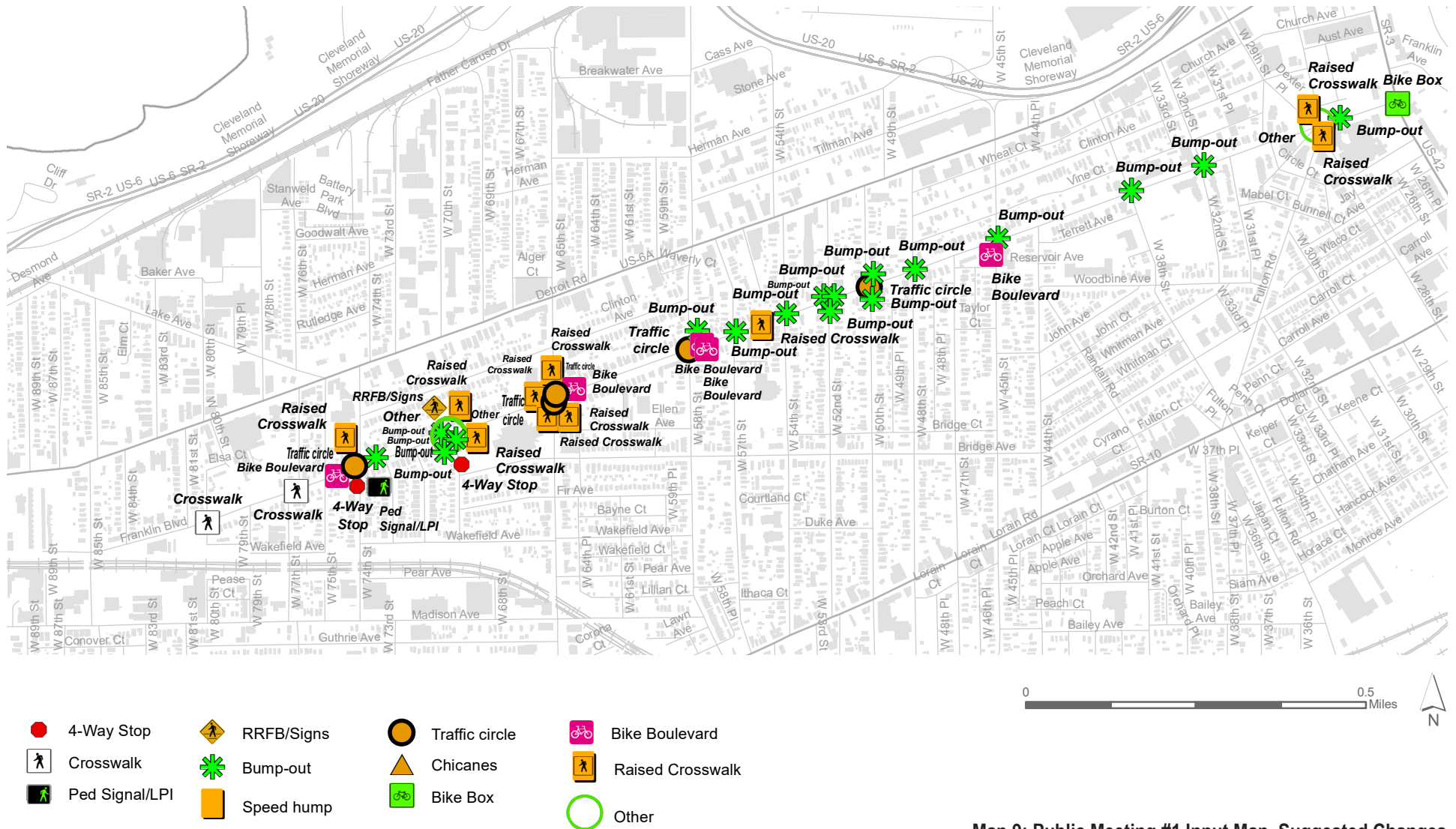
- Identified Problem Area
- - - Identified Travel Path or Crossing
- Identified Destination



Map 8: Public Meeting #1 Input Map, Problem Areas

## Public Meeting #1: Suggested Change or Improvement

Attendees were asked to draw on a large printed map, identifying what specific changes or improvements they would like to see at specific locations.



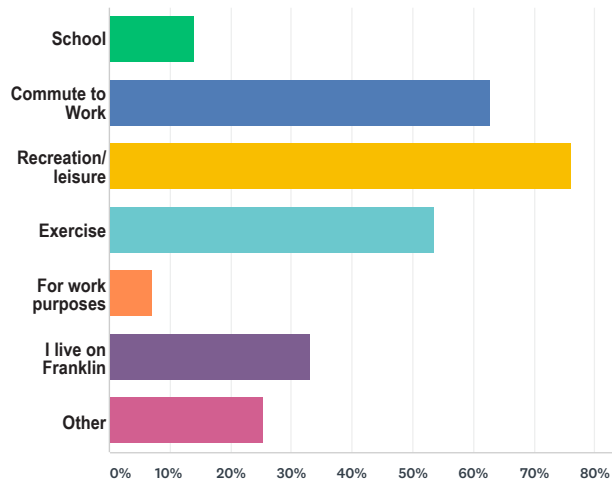
Map 9: Public Meeting #1 Input Map, Suggested Changes

## Online Public Survey

After the first public meeting, an online survey was posted October 4, 2017. It was promoted to gather additional detailed feedback, especially for those unable to attend the public meeting. Paper copies were also made available by Ohio City, Inc., for those unable to access the online survey. The survey was open for about four weeks, through October 31, and 142 online survey responses were received and tabulated. A sample of results is shown on this page, and additional response graphs can be found in Appendix B.

The survey showed that most people use Franklin Blvd. both to move through the neighborhood and to reach destinations within it, and for both commuting and recreation. It also showed that the majority of respondents are uncomfortable biking along or across Franklin Blvd., but that most are comfortable walking along it. Most identified the middle of the corridor as the biggest trouble spot regardless of travel mode.

Why do you travel along or across Franklin?



Graph 1: Online Survey Response, Reason for Travel

Most important Destinations?

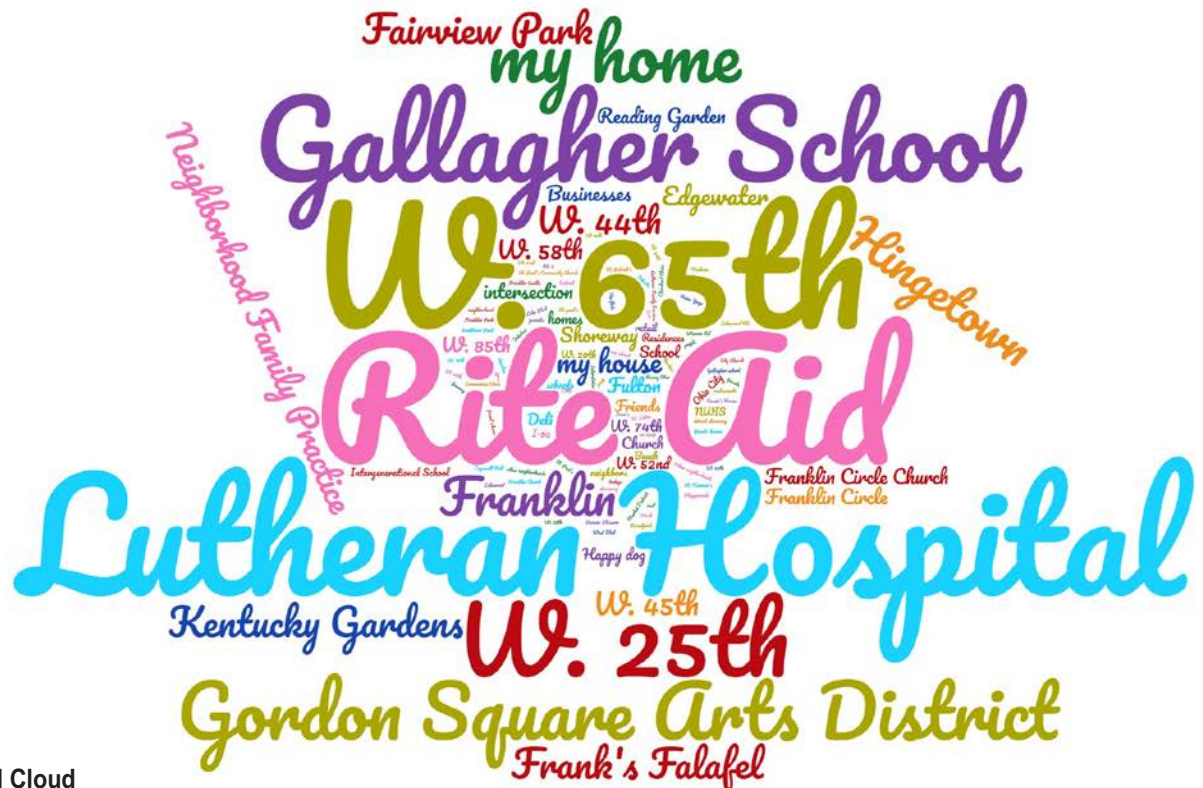


Figure 4: Online Survey Response Word Cloud

## Data Analysis

### Traffic Signal Warrant Analysis

Table 3 summarizes the signal warrant analysis performed for the W. 38th St., W. 45th St., W. 58th St., and W. 74th St. intersections (highlighted in green).

Of the nine warrants that are defined for traffic signals, this study included analysis of the three warrants related to traffic volumes (see Appendix G for methodology and intersection summaries):

- Warrant 1, Eight-Hour Vehicular Volume
- Warrant 2, Four-Hour Vehicular Volume
- Warrant 3, Peak Hour Vehicular Volume

Warrants four through nine were not formally analyzed, though relevant notes are listed on the following page.

### Traffic Signal Warrants

An engineering study of traffic conditions, pedestrian characteristics, and physical characteristics of a location must be performed to determine whether a traffic control signal is justified at a particular location. Nine warrants, or conditions, are described in the Ohio Manual of Uniform Traffic Control Devices and when one of the conditions is satisfied, a signal can be justified. The warrants are as follows:

1. Eight-Hour Vehicular Volume
2. Four-Hour Vehicular Volume
3. Peak Hour
4. Pedestrian Volume
5. School Crossing
6. Coordinated Signal System
7. Crash Experience
8. Roadway Network
9. Intersection Near a Grade Crossing

Intersection	Warrants 1, 2, and 3 satisfied?
W. 25th St.	Assumed Yes
W. 28th St./Fulton Rd.	Roundabout planned by City
W. 32nd St.	Assumed No
<b>W. 38th St.</b>	<b>No</b>
W. 44th St.	Assumed No
<b>W. 45th St.</b>	<b>No</b>
W. 48th St.	Assumed No
W. 54th St.	Assumed No
<b>W. 58th St.</b>	<b>No</b>
W. 65th St.	Assumed Yes
<b>W. 74th St.</b>	<b>No</b>

Table 3: Signal Warrant Summary

## Existing Traffic Signal Warrants

### W. 25th St.

Existing signal is to remain

### W. 28th St./Fulton Ave.

Existing signal is to remain until roundabout planned for this intersection is installed.

### W. 32nd St.

Traffic volume data was not gathered at this intersection for this study, but assuming volumes are similar to those of nearby intersections where volume data is available, this intersection does not satisfy warrants 1, 2, or 3 for a traffic signal.

### W. 38th St.

This intersection does not satisfy warrants 1, 2, or 3 for a traffic signal.

Two schools, Garrett Morgan School of Science and Near West Intergenerational School, are located just south of Franklin Blvd. between W. 38th St. and W. 44th St. A school crossing warrant analysis, which includes a study of the frequency and adequacy of gaps in the vehicular traffic stream as related to the number and size of groups of schoolchildren, was not performed for the signal at W. 38th St.

### W. 44th St.

Traffic volume data was not gathered at this intersection for this study, but assuming volumes are similar to those of nearby intersections where volume data is available, this intersection does not satisfy warrants 1, 2, or 3 for a traffic signal. As with W. 38th St., a school crossing warrant analysis was not performed at this intersection.

### W. 45th St.

This intersection does not satisfy warrants 1, 2, or 3 for a traffic signal.

The new West Side High School campus is expected to open in 2020 at Detroit Rd. and W. 45th St. The potential for an increase in school-related traffic should

be taken into consideration before existing signals on Franklin Blvd. at W. 45th St. and W. 44th St. are removed.

### W. 48th St.

Traffic volume data was not gathered at this intersection for this study, but assuming volumes are similar to those of nearby intersections where volume data is available, this intersection does not satisfy warrants 1, 2, or 3 for a traffic signal.

### W. 54th St.

Traffic volume data was not gathered at this intersection for this study, but assuming volumes are similar to those of nearby intersections where volume data is available, this intersection does not satisfy warrants 1, 2, or 3 for a traffic signal.

A newly renovated school is expected to open in 2019 just south of Franklin Blvd. between W. 54th and W. 57th St. The potential for school-related traffic and an increased number of schoolchildren crossing Franklin Blvd. at W. 54th St. should be taken into consideration when determining whether the existing traffic signal at this intersection is warranted.

### W. 58th St.

This intersection does not satisfy warrants 1, 2, or 3 for a traffic signal.

### W. 65th St.

Existing signal is to remain.

### W. 74th St.

This intersection does not satisfy warrants 1, 2, or 3 for a traffic signal.

### W. 85th St.

This four-way stop-controlled intersection does not satisfy warrants 1, 2, or 3 for a traffic signal.

## Speeds and Speed Limit

A speed zone study of Franklin Blvd. was conducted in March 2016 by Euthenics Inc. Consulting Engineers. The study evaluated the existing speed limits along Franklin Blvd. between W. 25th St. and W. 85th St. and measured actual vehicular speeds at four different locations along Franklin Blvd. (see table 4). The study found that the 85th-percentile speed for the corridor overall was 34 mph, and the highest speed was between W. 81st St. and W. 84th St. on Franklin Blvd. in the westbound direction. The study recommended that the posted speed limits remain unchanged.

Location	Direction	85th Percentile Speed (mph)
8205 Franklin Blvd.	Eastbound	32
	Westbound	36
6016 Franklin Blvd.	Eastbound	34
	Westbound	34
4610 Franklin Blvd.	Eastbound	34
	Westbound	32
3600 Franklin Blvd.	Eastbound	34
	Westbound	34
<b>Corridor Average</b>		<b>34</b>

Table 4: Measured Speeds, 2016 Speed Study

## USLIMITS2 Speed Limit Assessment Tool

The Federal Highway Administration (FHWA) offers a new tool, called USLIMITS2, for assessing the appropriate speed limit of a roadway. This tool was developed to fill a gap in existing speed limit methodology. Traditional tools available rely heavily on motor vehicle speeds and crash data as the primary indicators of an appropriate speed limit, and don't typically consider characteristics of urban environments with high pedestrian, bicycle, and transit use. This can result in speed limits that are higher than is appropriate. In 2017, FHWA added the USLIMITS2 tool to the list of 20 Proven Safety Countermeasures. The Proven Safety Countermeasures program began in 2008 and was updated in 2012 and 2017. FHWA feels that use of these countermeasures will result in improved safety, and encourages their use by state and local agencies.

The tool is web-based and accessible to anyone. The data inputs required to generate a speed limit recommendation include 85th and 50th percentile speeds, traffic volume, roadway classification, corridor length, context, number of access points (intersections and driveways), crash history, and pedestrian and bicycle use. The tool uses algorithms to make a speed limit recommendation based on these data inputs. Using this tool, the suggested speed limit for Franklin Boulevard is 30 mph.

The USLIMITS2 speed limit tool doesn't allow for input of traffic calming roadway improvements that are designed to lower the travel speed. If Franklin Blvd. is improved with traffic calming countermeasures to lower the travel speed, a 25 MPH speed limit is recommended.

FHWA Proven Safety Countermeasures can be found at <https://safety.fhwa.dot.gov/provencountermeasures/>, and the USLIMITS2 tool at <https://safety.fhwa.dot.gov/provencountermeasures/uslimits2/>.

## Intersection and Segment Crash Analysis

Franklin Blvd. saw an average of 52 crashes per year between 2012 and 2016. Of the 258 crashes that occurred during this time period, 75 (29%) resulted in injury. In 2017 there were 44 crashes along the corridor, with 12 resulting in injury.

Comparing crashes along different areas of the corridor, the section between W. 38th St. and W. 65th St. saw 161 total crashes between 2012 and 2016. That is 62% of the total crashes along Franklin Blvd., but only 45% of the total length of the corridor. In 2017 crash distribution followed a similar trend, with 27 crashes (61%) occurring between W. 38th St. and W. 65th St.

Segment	Segment Length (miles)	Total Crashes	% of Total Crashes	Injury Crashes	% of Injury Crashes	Property Damage Only Crashes	% of Property Damage Only Crashes
W. 25th to W. 29th	0.20	25	9.7%	11	14.7%	14	7.7%
W. 29th to W. 38th	0.21	17	6.6%	2	2.7%	15	8.2%
W. 38th to W. 48th	0.34	44	17.1%	14	18.7%	30	16.4%
W. 48th to W. 54th	0.20	44	17.1%	15	20.0%	29	15.8%
W. 54th to W. 65th	0.36	73	28.3%	20	26.7%	53	29.0%
W. 65th to W. 74th	0.30	15	5.8%	3	4.0%	12	6.6%
W. 74th to W. 85th	0.41	40	15.5%	10	13.3%	30	16.4%
Total	2.02	258		75		183	

Table 5: Crashes by Roadway Segment, 2012-2016

There were a total of 150 intersection crashes between 2012 and 2017. Some intersections along the Franklin Blvd. study corridor saw higher numbers of crashes than others. Between 2012 and 2016, the intersection of Franklin Blvd. and W. 58th St. saw the highest number of crashes, 20, followed closely by W. 65th St. with 18 and W. 50th St. with 16. In 2017 these three intersections again had the highest numbers of intersection crashes, along with W. 85th St. While the higher number of crashes at certain intersections can be attributed in part to the higher overall traffic volumes at those intersections, it also may point to intersection characteristics or suggest intersections that may require special attention.

Intersections with 10 or more total crashes (highlighted in red in Table 6) were evaluated further to determine if crash patterns could be corrected with roadway improvements. W. 28th St. was not evaluated because plans already exist to remove the existing traffic signal and construct a roundabout.

Many of these intersections have a high percentage of angle crashes, which are correctable with a 4-way stop or roundabout-style traffic control. In addition, many of the angle crashes occur due to poor visibility from parked cars on Franklin Blvd. Curb extensions on Franklin Blvd. and parking restrictions near the intersections could improve visibility and reduce these types of crashes.

Intersection	Total Crashes	% of Total Crashes	Injury Crashes	% of Injury Crashes	Property Damage Only Crashes	% of Property Damage Only Crashes
W. 25th	6	4.0%	2	3.6%	4	4.3%
W. 28th	14	9.3%	6	10.7%	8	8.5%
W. 29th	1	0.7%	0	0.0%	1	1.1%
W. 32nd	1	0.7%	0	0.0%	1	1.1%
W. 38th	8	5.3%	4	7.1%	4	4.3%
W. 44th	9	6.0%	3	5.4%	6	6.4%
W. 45th	10	6.7%	5	8.9%	5	5.3%
W. 47th	1	0.7%	0	0.0%	1	1.1%
W. 48th	3	2.0%	1	1.8%	2	2.1%
W. 50th	16	10.7%	3	5.4%	13	13.8%
W. 52nd	10	6.7%	5	8.9%	5	5.3%
W. 54th	5	3.3%	4	7.1%	1	1.1%
W. 57th	10	6.7%	2	3.6%	8	8.5%
W. 58th	20	13.3%	8	14.3%	12	12.8%
W. 65th	18	12.0%	5	8.9%	13	13.8%
W. 69th	1	0.7%	0	0.0%	1	1.1%
W. 71st	1	0.7%	1	1.8%	0	0.0%
W. 74th	5	3.3%	3	5.4%	2	2.1%
W. 75th	0	0.0%	0	0.0%	0	0.0%
W. 77th	4	2.7%	2	3.6%	2	2.1%
W. 81st	0	0.0%	0	0.0%	0	0.0%
W. 85th	7	4.7%	2	3.6%	5	5.3%
Total	150		56		94	

Table 6: Intersection Crashes by Intersection, 2012-2016

## Traffic Calming Countermeasures

Several traffic calming measures were presented to stakeholders and then the public for discussion and feedback at the first public meeting. They were subsequently incorporated into alternatives presented to stakeholders and then the public at the second public meeting. Some of these measures are summarized on this page, and the following pages present the alternatives and proposed improvements at specific locations along the study corridor.

### Raised Crosswalks

Raised crosswalks are shown to reduce crashes (Crash Modification Factor of 0.7), are effective at lowering speeds and crash severity, and improve pedestrian and vehicle visibility. They can also improve driver yield rates, particularly when combined with other treatments such as signage and advanced yield lines.



Image 12: Raised Crosswalk, University Heights

### Curb Extensions

Curb extensions improve pedestrian and vehicle visibility, reduce pedestrian crossing distances, and may improve motorist yield rates at pedestrian crossings when combined with other treatments such as signage and advanced yield lines. They also encourage slower turning speeds at corners, prevent parking too close to a crosswalk, and can also give drivers the sense that they are entering a neighborhood area.



Image 13: Curb extension, Cleveland Heights

### Mid-block Curb Extensions (also known as neckdowns or chicanes)

Mid-block curb extensions reduce vehicle speeds by narrowing travel lanes, encouraging more cautious driving at these locations.



Image 14: Mid-block Curb Extensions, Shaker Heights

### Neighborhood Traffic Circles

Neighborhood traffic circles reduce vehicle speeds, reduce crashes, reduce overall delay for users at intersections, and can replace unwarranted traffic signals with 4-way yield or stop control.

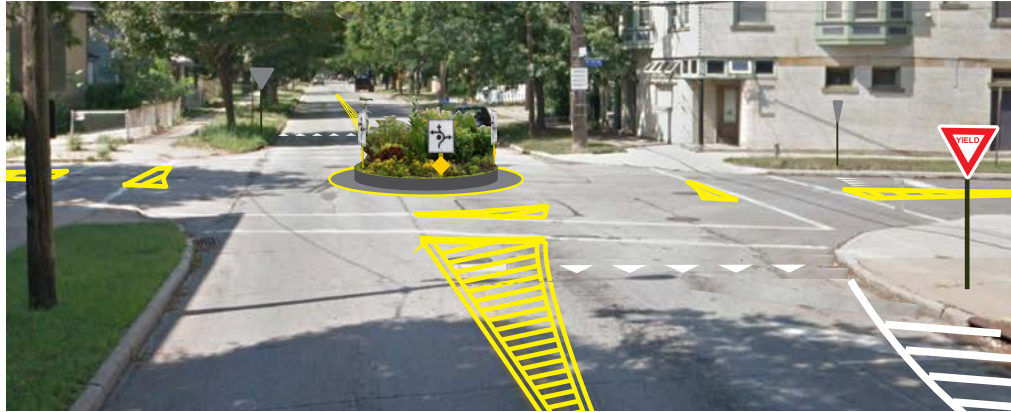


Image 15: Neighborhood Traffic Circle Rendering

### In-Street Pedestrian Crossing Sign

In-street pedestrian crossing yield signs improve motorist yield rates and are relatively inexpensive. They can be damaged by traffic and need to be occasionally replaced.



Image 16: In-Street Pedestrian Crossing Sign

(Source: [www.pedbikeimages.org](http://www.pedbikeimages.org) /Dan Burden)

### Traffic Diversion using Partial Closure Curbs

Partial closures, or traffic diverters, prohibit vehicular traffic movement in certain directions, while maintaining bicycle movement in both directions. These diverters are intended to encourage pass-through traffic to use more appropriate arterial roads, while allowing local access. Lower traffic volumes increase comfort for cyclists and reduce conflicts with vehicles. Closure curbs can be designed to allow for authorized vehicles to run over them (see Images 18 and 19), or be fully curbed islands offering pedestrian refuge.



Image 18: Regulatory Partial Closure



Image 17: Partial Closure Designs



Image 19: Regulatory Partial Closure

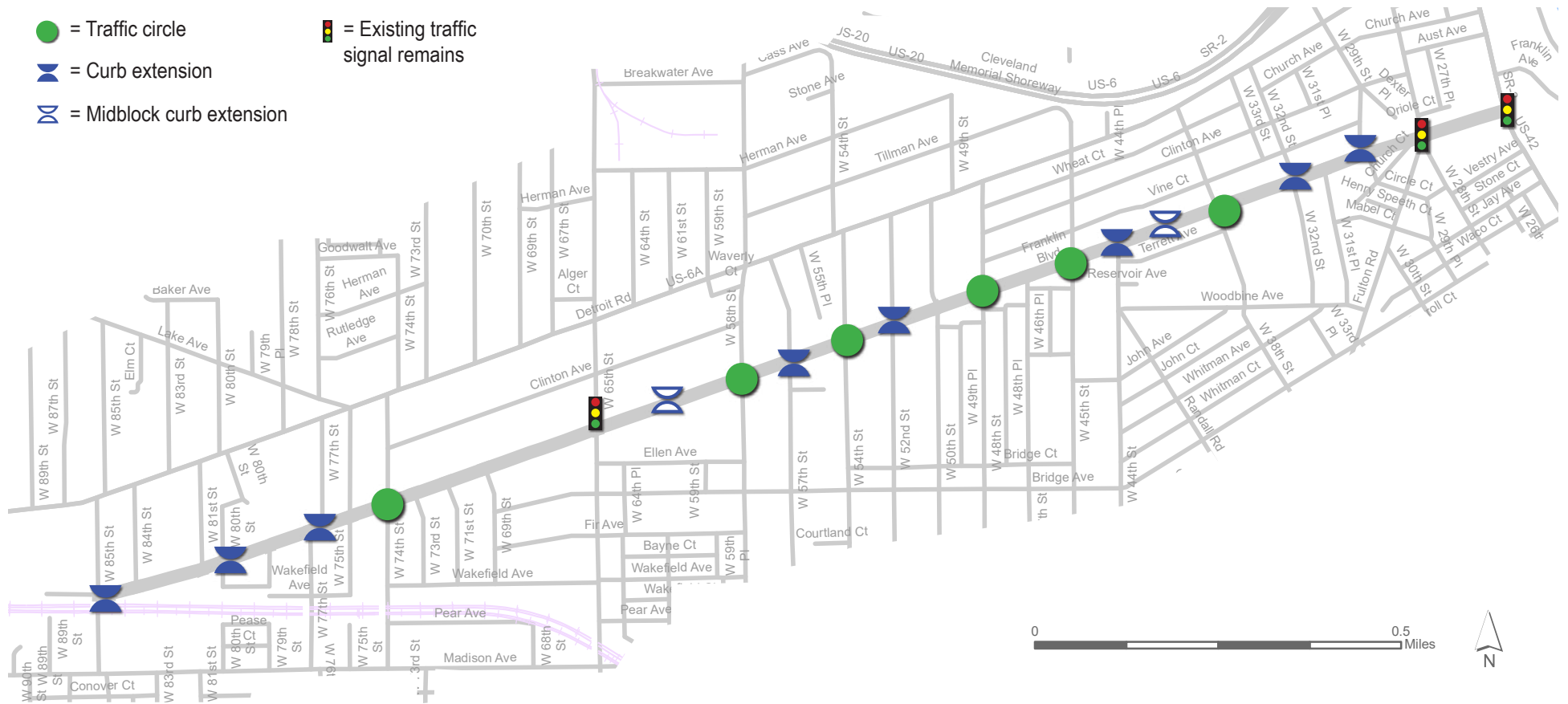
Image Source: NACTO Urban Bikeway Design Guide, <https://nacto.org/publication/urban-bikeway-design-guide/>

## Developing Alternatives

A variety of potential traffic calming treatments were presented to the public at Public Meeting #2, including alternatives for consideration at several locations.

### Alternative 1: Traffic Calming

Alternative 1 proposed replacement of unwarranted existing traffic signals with neighborhood traffic circles, as well as intersection and mid-block curb extensions to calm traffic along Franklin Blvd. Pedestrian crossing and other improvements were also proposed at locations throughout the study corridor for feedback.





## Alternatives at W. 85th St.

### Alternative 1: Traffic Calming

Closure of the slip lane at W. 85th to prevent uncontrolled right turns from W. 85th St. northbound.



Figure 5: Alternative 1, W. 85th St.

### Alternative 2: Traffic Calming with Traffic Diversion

Installation of a traffic diverter at W. 85th in addition to closure of the W. 85th St. right-turn slip lane.

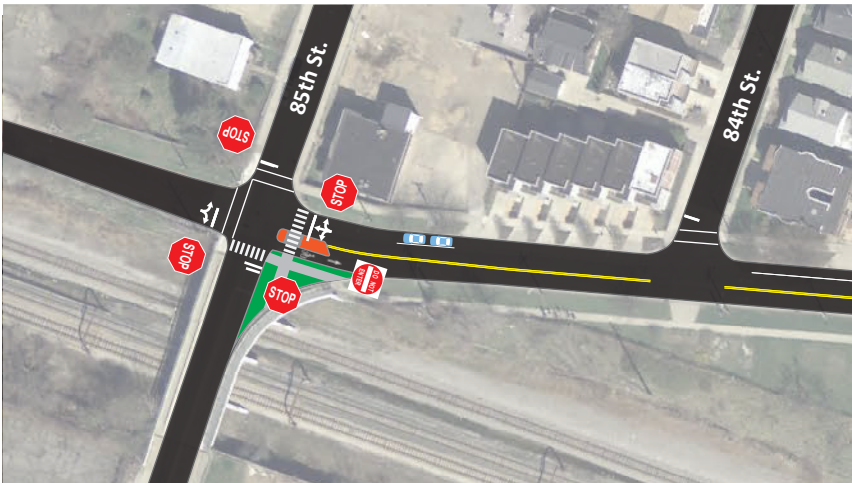


Figure 6: Alternative 2, W. 85th St.

**Alternatives at W. 54th and W. 58th St.**

**Alternative 1: Traffic Calming**

Neighborhood traffic circles at W. 54th St. and W. 58th St.

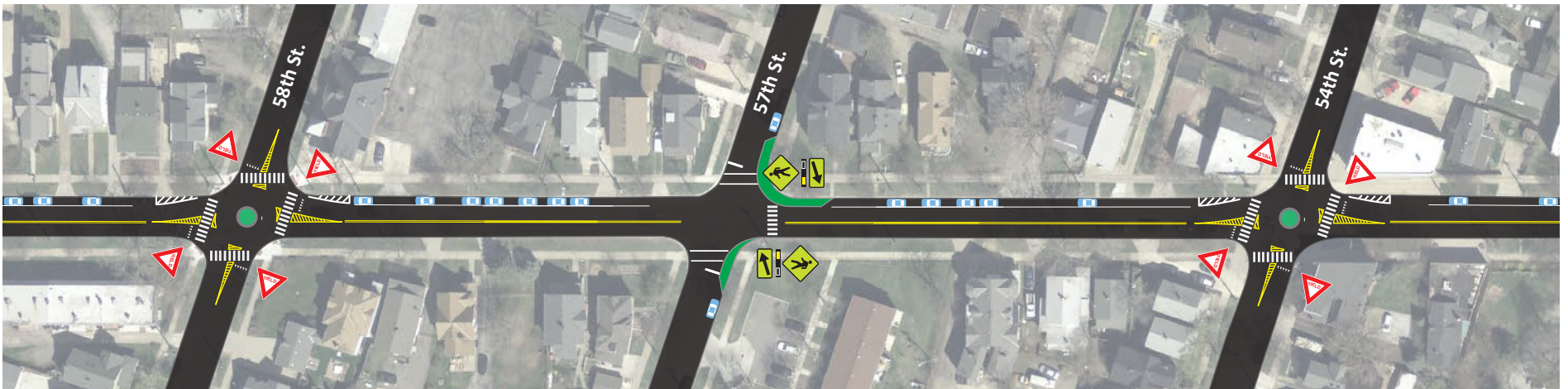


Figure 7: Alternative 1, W. 54th St. and W. 58th St.

**Alternative 2: Traffic Calming with Traffic Diversion**

Traffic diverters at W. 54th St. and W. 58th St.

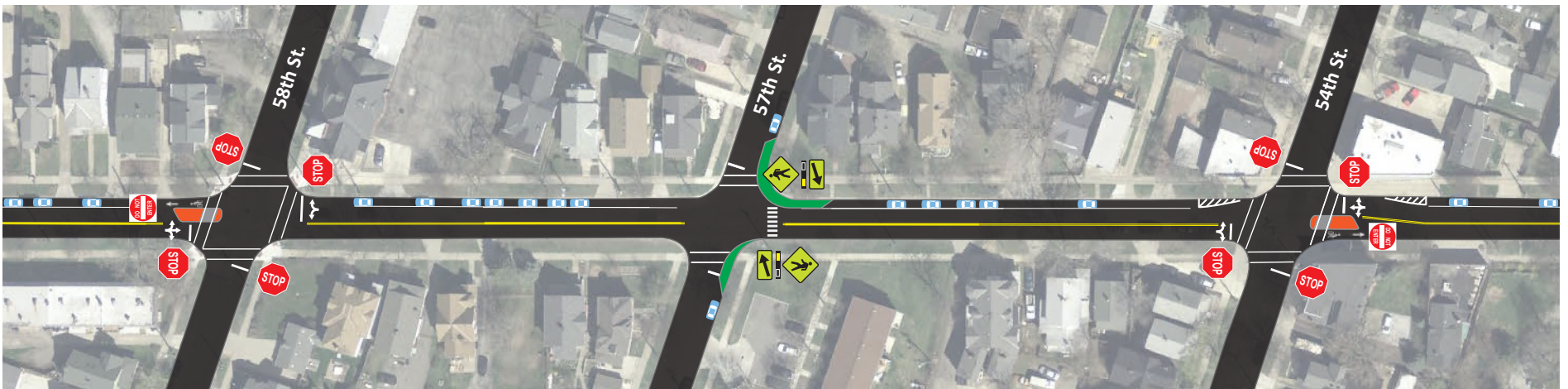


Figure 8: Alternative 2, W. 54th St. and W. 58th St.

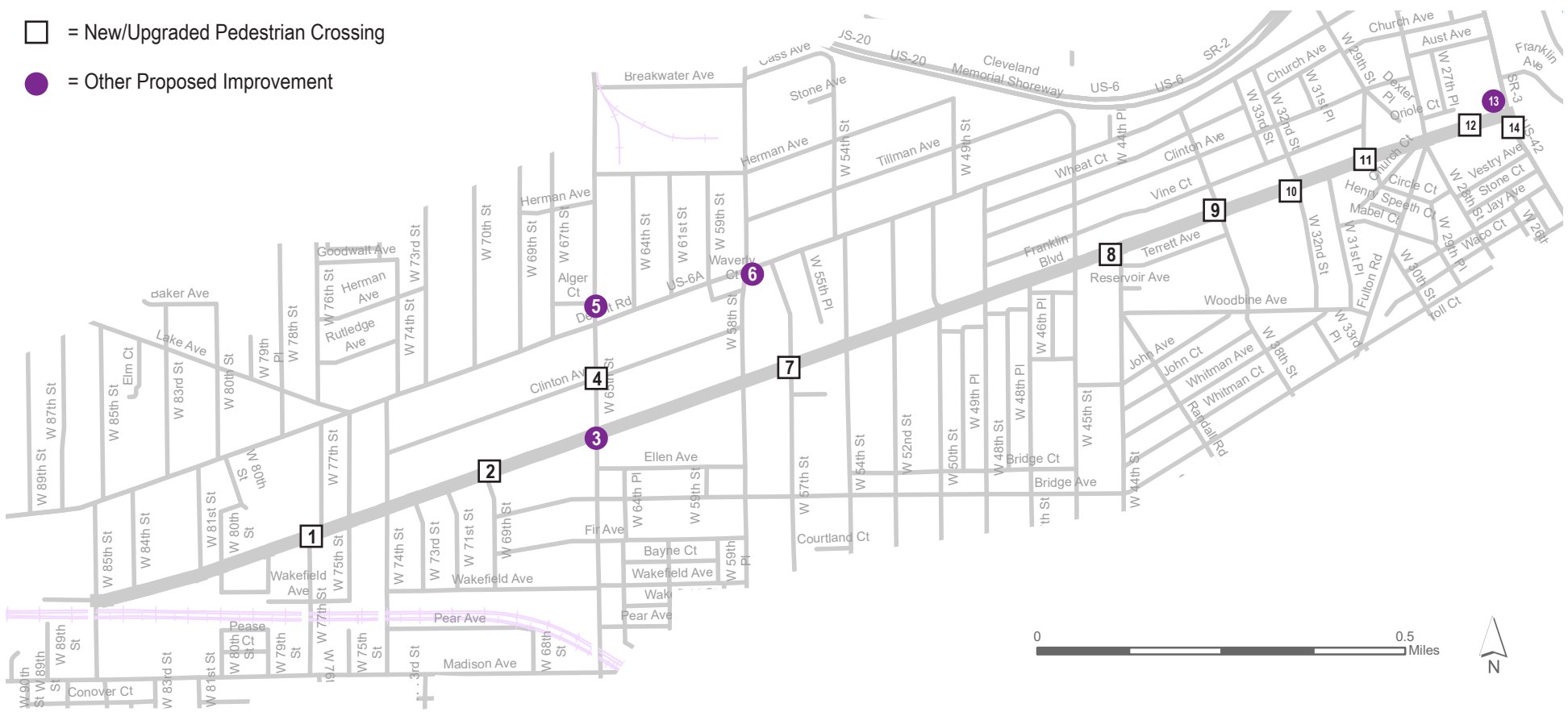
## Alternative 2: Traffic Diversion diagrams

The diagrams at right were presented at Public Meeting #2 to show how traffic flow would be affected by partial closures at W. 54th St. and W. 58th St.



Figure 9: Alternative 2, Traffic Diversion at W. 54th St. and W. 58th St.

## Alternatives 1 and 2 - Pedestrian Crossing and Other Improvements



- |   |   |   |
|---|---|---|
| 1. New pedestrian crossing  | 6. Continue full signal operation late at night | 12. Upgraded pedestrian crossing  |
| 2. Upgraded school crossing   | 7. New school crossing                          | 13. Reduce to single left turn lane from eastbound Franklin Blvd. to northbound W. 25th St. |
| 3. Intersection improvement options: curb extensions/bike lanes/full roundabout | 8. Upgraded pedestrian crossing                 | 14. Leading pedestrian interval and high-visibility marked crosswalk over W. 25th St.       |
| 4. New pedestrian crossing  | 9. Upgraded school crossing                     |   |
| 5. Leading pedestrian intervals at signal                                       | 10. Upgraded pedestrian crossing                |   |
|   | 11. New pedestrian crossing                     |   |

Map 12: Public Meeting #2, Crossings and Other Improvements

### Alternatives 1 and 2 - Improvement Options at W. 65th St.

At Public Meeting #2, three options were presented for the intersection of Franklin Blvd. and W. 65th St., and meeting attendees were asked to share their preferences. The options are shown below, and the results of the public input exercise are shown on Map 13.

**Option A:** Curb Extensions  
(preferred option from previous W.  
65th St. TLCI Study)



**Option B:** Curb Extensions  
+ bike lanes along W. 65th St.



**Option C:** Full Roundabout

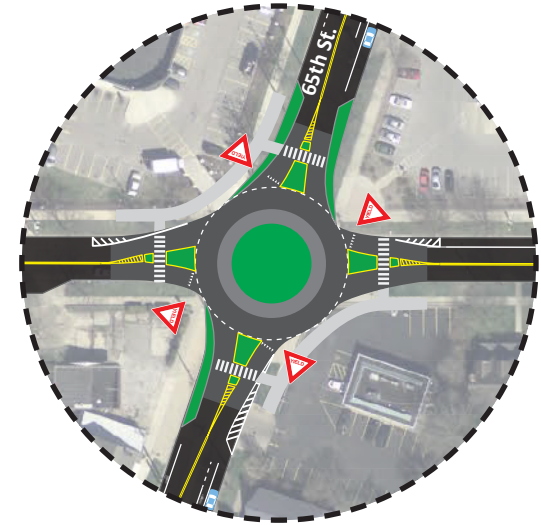


Figure 10: Options A, B, and C at W. 65th St.

## Public Meeting #2

The second public meeting was held on March 6, 2018. Leading up to the second public meeting post-cards were mailed out to neighborhood residents from Bridge Ave. to Detroit Ave. between W. 25th St. and W. 85th St., yard signs promoting the meeting were set up, and the meeting was promoted via email and social media. This meeting was well attended by engaged residents and local stakeholders, with 80 people signing in.

Traffic calming alternatives were presented, and residents were able to show which specific traffic calming treatments they most supported. Every attendee was given 12 green dot stickers and 6 yellow dot stickers. On large maps, attendees were asked to place green dot stickers on specific treatments they liked the most, and yellow dot stickers on specific treatments or locations they felt needed more consideration. Results of this dot exercise are summarized on Map 13. Overall, at the second public meeting attendees expressed a strong desire for traffic calming measures on Franklin Blvd., particularly neighborhood traffic circles, curb extensions, and raised crosswalks. Through the poster dot exercise, the majority of attendees expressed that they were not in favor of the bike boulevard concept using traffic diversion, and that these locations needed more consideration. Larger versions of the public input posters like the example at right can be viewed in Appendix C.



Image 21: Public Meeting #2

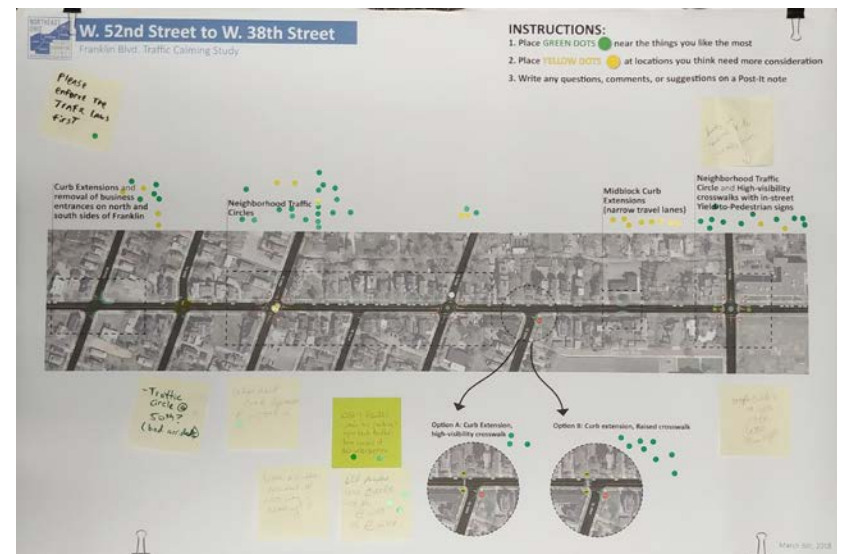


Image 20: Public Meeting #2, Public Input Poster Example



## Temporary Demonstration of Traffic Diverters

Overall, attendees at Public Meeting #2 liked the raised crosswalk, curb extension, and neighborhood traffic circle options, and were consistently unsupportive of the traffic diverter options. Attendees were also unsupportive of mid-block curb extensions.

Concerns about the traffic diverters included:

- That Franklin Blvd. through-traffic would end up on smaller neighborhood streets
- A preference for Franklin Blvd. to remain available as a through street
- The purpose of the diverters being unclear

In light of these concerns, and because the idea of a traffic diverter is somewhat new to the area, the City of Cleveland elected to undertake a three-week trial of the diverter option at three locations. The demonstration took place between July 24 through August 10, 2018, and Franklin Blvd. was partially closed at each of the following locations:

- W. 85th St. (prohibiting eastbound vehicles)
- W. 65th St. (prohibiting eastbound vehicles)
- W. 54th St. (prohibiting westbound vehicles)

Before and during the demonstration, traffic volumes and speeds were measured to help determine the effectiveness of the diverters and to understand the potential changes in traffic patterns on adjacent local streets. Traffic volumes were measured along Franklin Blvd. and several adjacent streets where traffic volumes were expected to be affected. Volunteers counted traffic during morning and evening commutes, and automatic video-based counter equipment was used to gather 24-hour traffic counts at W. 54th St. and W. 65th St. The public was also engaged during and after the temporary demonstration and was an integral part of the final recommendations for the study. Feedback was collected through two on-site question and answer sessions, a voicemail box, and an online survey.



Image 22: Temporary Traffic Diverter at W. 65th St.



Image 23: Temporary Traffic Diverter Signage

## Temporary Demonstration Results

The City of Cleveland prepared a report to document the results of the temporary demonstration of traffic diverters. Highlights of the report findings are quoted below.

- Although traffic volumes decreased along Franklin Boulevard and some adjacent residential streets during the demonstration period, volumes on a few streets (W. 54th Street, West Clinton Avenue, W. 74th Street, and Bridge Avenue) increased markedly, which was counter to City and neighborhood goals for the traffic calming demonstration.
- Speed data indicate that the traffic diverters, as placed during the demonstration, did not measurably change the speed of cars along Franklin Boulevard.
- Although many community members indicated that they felt safer walking or riding a bicycle along Franklin Boulevard during the demonstration period, 69 to 75 percent of survey respondents (depending on intersection location) indicated they were “not at all interested” in permanent traffic diversion at the sites of the three temporary traffic diverters.
- Given the lessons learned through this demonstration, changes in diverter placement along the corridor could potentially yield more desirable impacts on traffic speed and volume. However, due to community feedback, the City of Cleveland recommends that traffic diverters not be included in the final recommendations to calm traffic along Franklin Boulevard.

For more information, or to read the City of Cleveland’s report in full, see Appendix L.

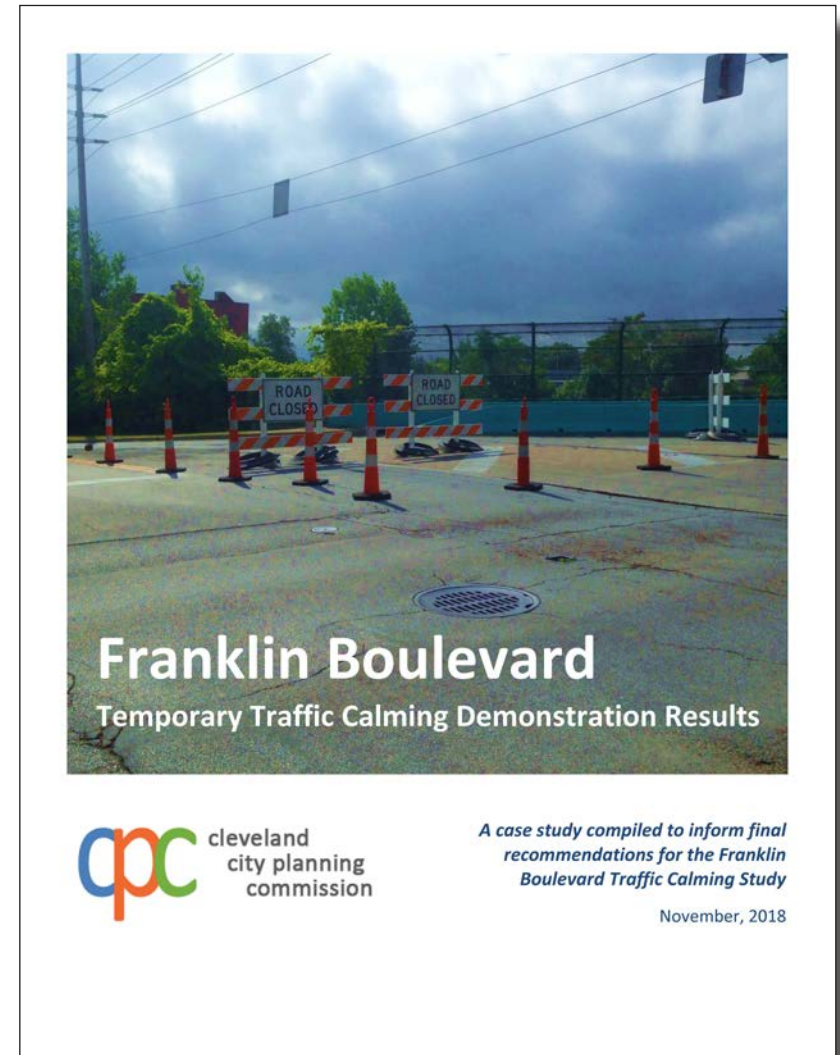


Image 24: Cleveland Temporary Traffic Calming Demonstration Report Cover

### Public Meeting #3

The third and final public meeting was held on November 13, 2018. This meeting was attended by more than 40 people. Final recommendations of this study were presented to the public at this meeting, followed by a question and answer session. Overall, most attendees who spoke were supportive of the project and recommendations. They were also able to ask questions to gain a better understanding of elements of the recommendations such as neighborhood traffic circles, and to express concerns about how the number of changes might be overwhelming to some drivers.

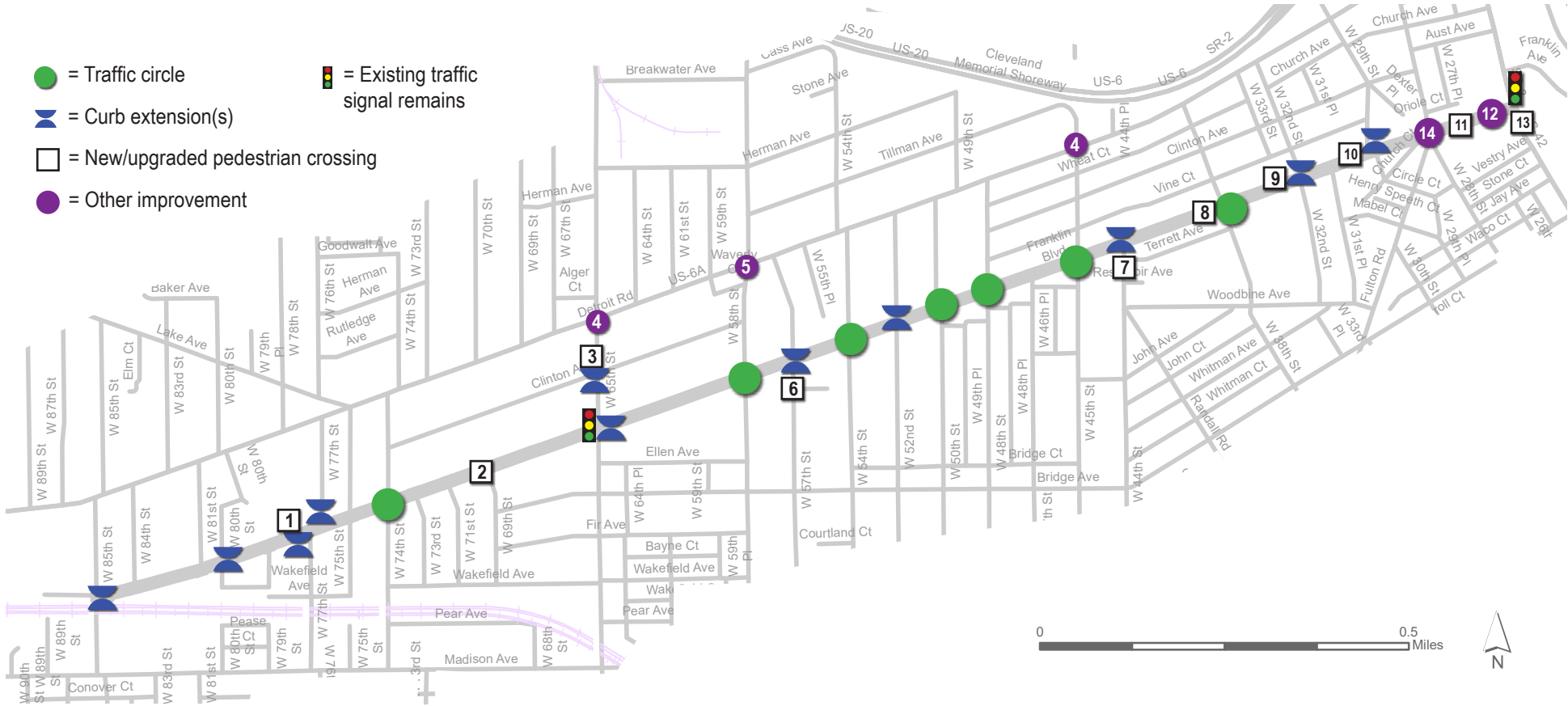


Image 25: Public Meeting #3



## Recommendations

The recommendations presented on this and the following pages are the culmination of an examination of existing conditions, traffic analysis, stakeholder insight, and public input and feedback into the issues along Franklin Blvd. The recommendations include replacement of some existing traffic signals with four-way yield controlled neighborhood traffic circles, new curb extensions, new or enhanced pedestrian crossings, reducing the speed limit to 25 mph, and other improvements. Recommendations along W. 65th St. and along Detroit Rd., while not within the original study corridor, are included based on public input which identified these locations as areas of concern. They are not intended to preclude additional improvements or replace more thorough study of the W. 65th St. or Detroit Rd. corridors.



- |  |  |   |
|--|--|---|
| <ul style="list-style-type: none"> <li>1. New pedestrian crossing</li> <li>2. Upgraded school crossing</li> <li>3. New pedestrian crossing</li> <li>4. Leading pedestrian intervals at existing signals</li> <li>5. Continue full signal operation late at night</li> <li>6. New school crossing</li> <li>7. Upgraded pedestrian crossing</li> </ul> | <ul style="list-style-type: none"> <li>8. Upgraded school crossing</li> <li>9. Upgraded pedestrian crossing</li> <li>10. New pedestrian crossing</li> <li>11. Upgraded pedestrian crossing</li> <li>12. Reduce to single left turn lane from eastbound Franklin Blvd. to northbound W. 25th St.</li> </ul> | <ul style="list-style-type: none"> <li>13. Leading pedestrian interval and high-visibility marked crosswalk over W. 25th St.</li> <li>14. Future roundabout by City of Cleveland</li> </ul> |
|--|--|---|

**Map 14: Summary of Recommendations**

## Detailed Recommendations

### W. 85th Street

**Key Characteristics:** Right-turn slip lane allowing uncontrolled right turns from W. 85th northbound, no crossing of Franklin Blvd. for pedestrians along east side of W. 85th St.

#### Recommendations:

- 1 Removal of right turn slip lane on W. 85th St. northbound
- 2 New pedestrian crossing at southern approach of W. 85th St. and eastern approach of Franklin Blvd., including high-visibility marked crosswalks

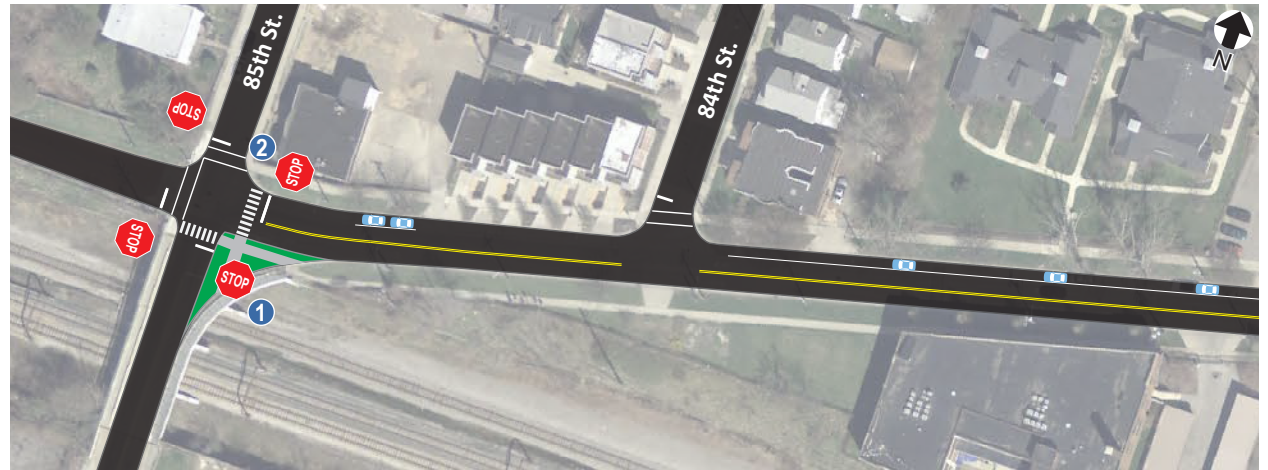


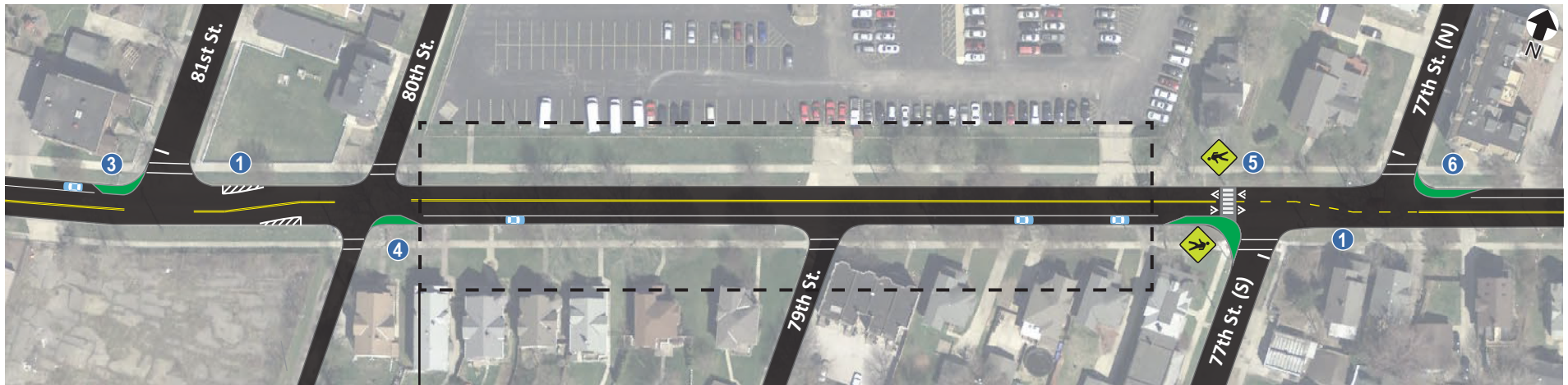
Figure 11: Recommendations, W. 85th St.

## W. 81st Street to W. 77th Street

**Key Characteristics:** Low use of on-street parking, lack of pedestrian crossings, long unbroken curb line along north side of Franklin Blvd.

### Recommendations:

- 1 New centerline and no-parking paint at W. 80th St. and W. 77th St. to direct shift in travel lanes
- 2 New street parking paint between W. 80th and W. 77th (S) to shift from north side of Franklin Blvd. to south side
- 3 Curb extension at W. 81st St.
- 4 Curb extension at W. 80th St.
- 5 Curb extension and new pedestrian crossing at W. 77th St. (S), including raised crosswalk and signage
- 6 Curb extension at W. 77th St. (N)



- 2 Street parking shift from north to south side of Franklin Blvd. between W. 80th St. and W. 77th St.

Figure 12: Recommendations, W. 81st St. to W. 77th St.

## W. 74th Street and W. 69th Street

**Key Characteristics:** Existing unwarranted signal at W. 74th St., existing school crossing at W. 69th St.

### Recommendations:

- 1 Removal of traffic signal at W. 74th St. and installation of neighborhood traffic circle with four-way yield control and high-visibility marked crosswalks
- 2 New approach paint and parking restriction paint on W. 74th St. and Franklin Blvd. to direct traffic around traffic circle
- 3 Closure of business entrance along Franklin Blvd. at northeast corner of intersection with W. 74th St.
- 4 Enhanced school crossing, including curb extension, raised crosswalk, and pedestrian-activated Rectangular Rapid Flashing Beacon (RRFB) at school crossing at W. 69th St. Care should be taken with resulting parking restrictions on north side of Franklin Blvd., as this residence has no off-street parking and uses on-street regularly and overnight.

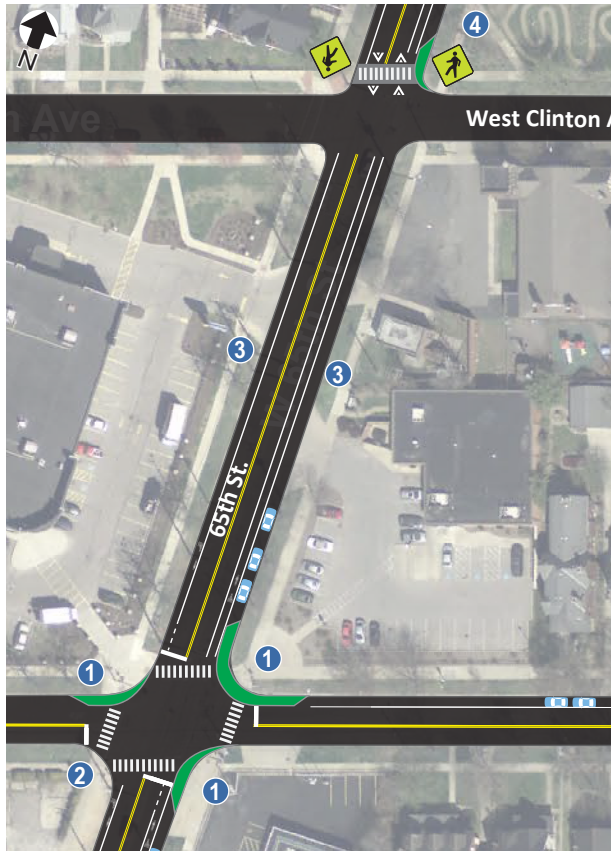
NOTE: Gallagher School has expressed interest in shifting school crossing east of W. 69th St. to front of school. This may be considered as an alternative to the crossing at W. 69th St.



Figure 13: Recommendations, W. 74th St. to W. 69th St.

## W. 65th Street

**Key Characteristics:** W. 65th St. is hub of destinations along Franklin Blvd. corridor; existing signal is to remain



### Recommendations:

- 1 Curb extensions on northeast, southeast, and northwest corners of W. 65th St./Franklin Blvd. intersection
- 2 High-visibility marked crosswalks across all four approaches of W. 65th St./Franklin Blvd. intersection
- 3 Bike lanes along both sides of W. 65th St. (see typical section, Figure 15)  
NOTE: Further study should be conducted south of Franklin Blvd. to determine feasibility and extent of bike lanes
- 4 New pedestrian crossing across W. 65th St. at Clinton Ave. with raised crosswalk, curb extension, and signage
- 5 **Long-Term Alternative:** Removal of traffic signal, installation of full roundabout with yield control at W. 65th St., bike lanes along W. 65th St.

Figure 14: Recommendations, W. 65th St.



Figure 15: Recommended Section, W. 65th St. (made with Streetmix)

**Long-Term Alternative:** A full roundabout and removal of the traffic signal at W. 65th St. and Franklin Blvd. is a long-term alternative for a stand-alone project. Although this alternative would achieve traffic calming goals, it is potentially prohibitively expensive due to the need to acquire right-of-way and relocate utility lines. Bike lanes would extend along W. 65th St. north and south of the roundabout, with bikes sharing the roundabout with vehicles or using the sidewalk to cross.

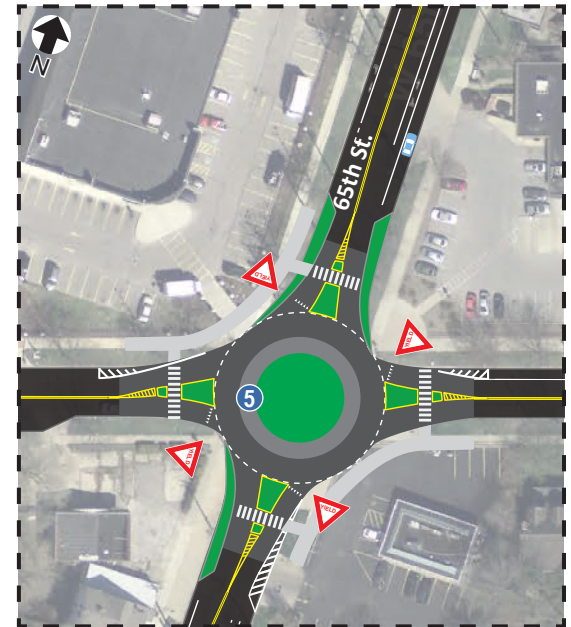


Figure 16: Long-Term Alternative, W. 65th St.

## W. 58th Street to W. 54th Street

**Key Characteristics:** Existing signals at W. 58th St. (unwarranted based on traffic volume) and W. 54th St. (expected to be unwarranted based on traffic volume), relatively high street parking usage, relatively high crash area, new school opening soon half a block south of Franklin Blvd. between W. 54th St. and W. 57th St.

### Recommendations:

- 1 Removal of traffic signals at W. 58th St. and W. 54th St. and installation of neighborhood traffic circles with four-way yield control and high-visibility marked crosswalks
- 2 New approach paint and parking restriction paint on W. 58th St., W. 54th St., and Franklin Blvd. to direct traffic around traffic circle
- 3 New school crossing at W. 57th St. with curb extensions, raised crosswalk, and pedestrian-activated RRFB.

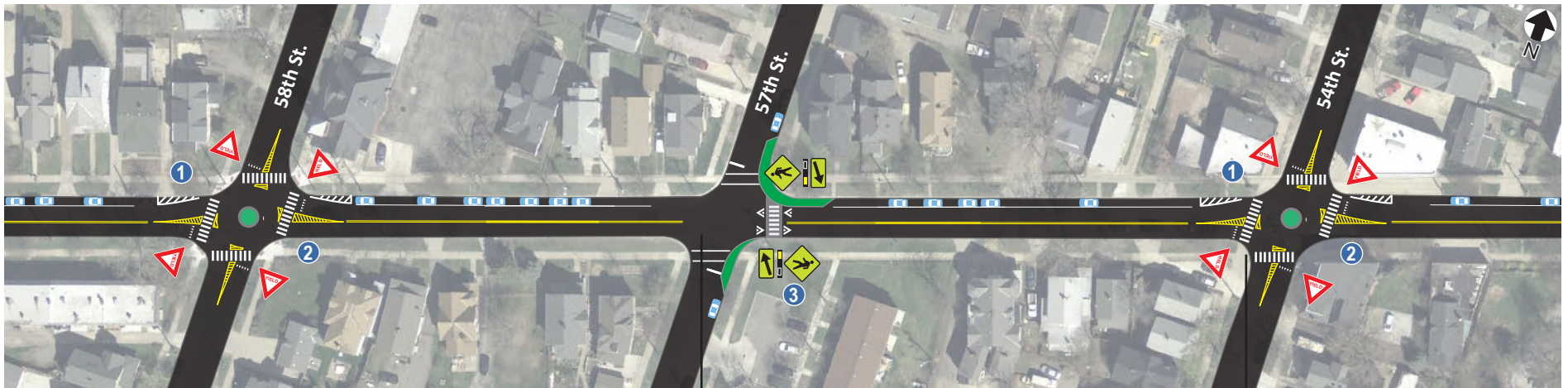


Figure 17: Recommendations, W. 58th St. to W. 54th St.

Note: Traffic data should be collected at W. 57th St. and Franklin Blvd. while the new Waverly School is in session, in order to confirm that a new signal is not warranted

Note: Prior to removal of traffic signal, traffic data should be collected at W. 54th St. and Franklin Blvd. while the new Waverly School is in session, in order to confirm that existing signal is not warranted

## W. 52nd Street to W. 48th Street

**Key Characteristics:** Existing signal at W. 48th St. (expected to be unwarranted based on traffic volume), relatively high crash area, relatively high number of crashes at W. 50th St., relatively high street parking usage, visibility issues due to tree canopy and parked cars on street

### Recommendations:

- 1 Curb extensions on southeast and northeast corners of W. 52nd St. and Franklin Blvd. intersection
- 2 Closure of business entrance along Franklin Blvd. at northeast corner of intersection with W. 52nd St.
- 3 Installation of neighborhood traffic circle at W. 50th St. with four-way yield control and high-visibility marked crosswalks
- 4 Removal of traffic signal at W. 48th St. and installation of neighborhood traffic circle with four-way yield control and high-visibility marked crosswalks
- 5 New approach paint and parking restriction paint on W. 48th St., W. 50th St., and Franklin Blvd. to direct traffic around traffic circle

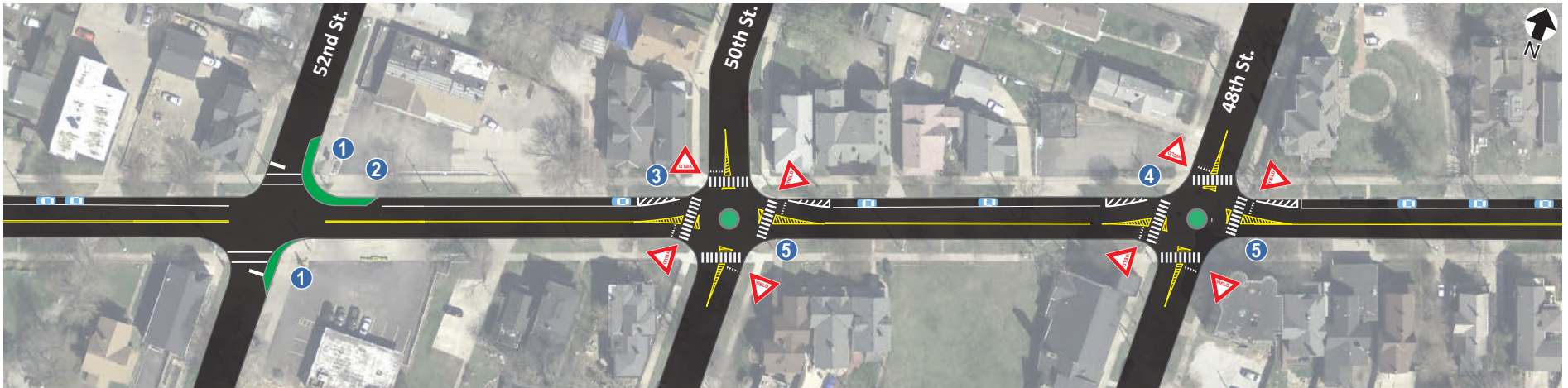


Figure 18: Recommendations, W. 52nd St. to W. 48th St.

## W. 45th Street and W. 44th Street

**Key Characteristics:** Existing traffic signals at W. 45th St. (unwarranted based on traffic volume) and W. 44th St. (expected to be unwarranted based on traffic volume), relatively high crash area

### Recommendations:

- 1 Removal of traffic signal at W. 45th St. and installation of neighborhood traffic circle with and four-way yield control and high-visibility marked crosswalks
- 2 New approach paint and parking restriction paint on W. 45th St. and Franklin Blvd. to direct traffic around traffic circle
- 3 Removal of traffic signal at W. 44th St. and addition of stop sign and curb extension on W. 44th St.  
NOTE: Signal removal should only proceed with raised crosswalk installation, to slow uncontrolled traffic along Franklin Blvd.
- 4 Enhanced pedestrian crossing at W. 44th St. with raised crosswalk, curb extension, and signage  
NOTE: May consider locating new pedestrian crossing on east side of intersection; turning movement counts and further study of traffic patterns are recommended at this intersection before determining location of crossing

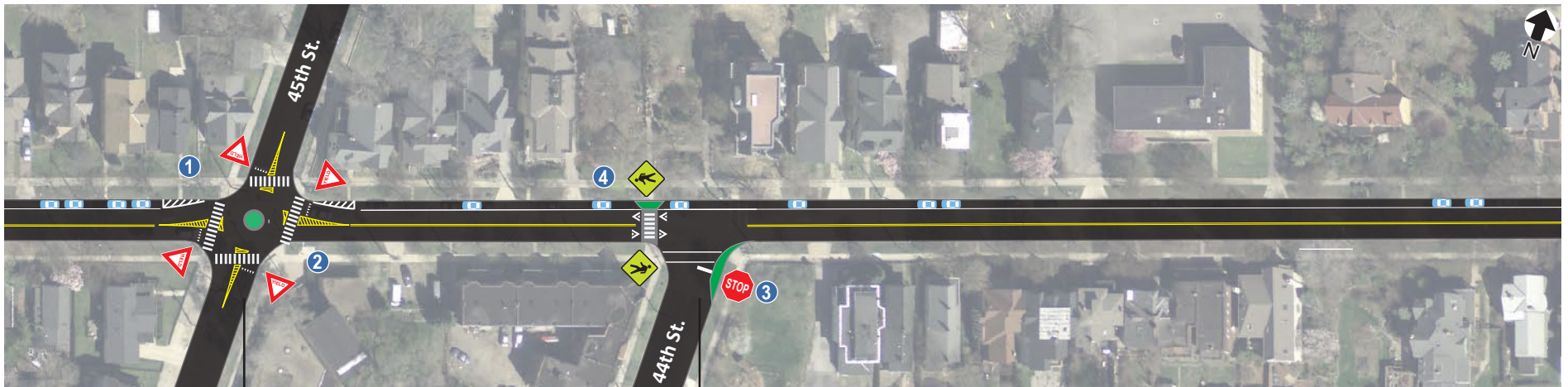


Figure 19: Recommendations, W. 45th St. to W. 44th St.

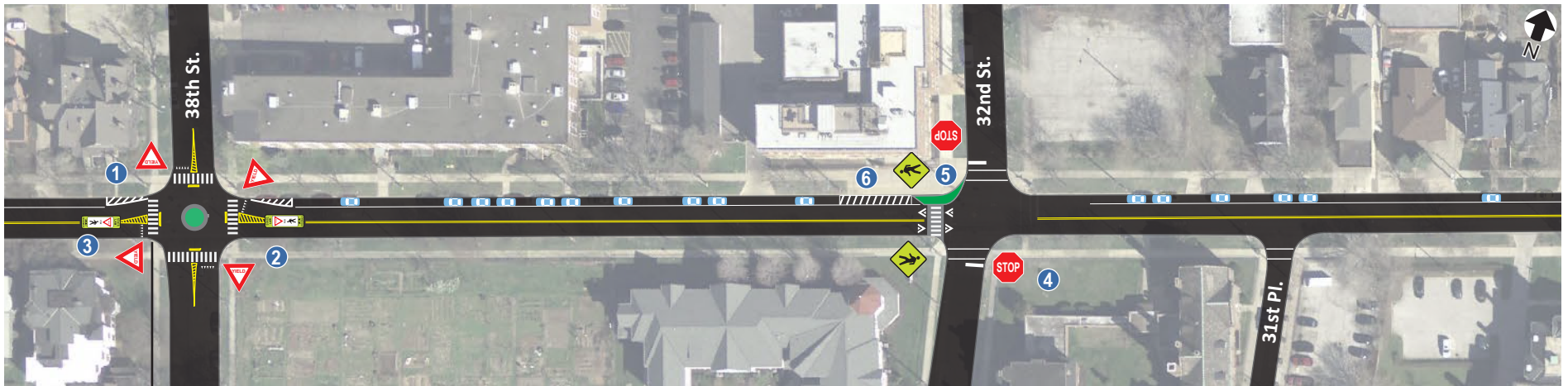
Note: Prior to removal of traffic signals, traffic data should be collected at W. 44th St. and W. 45th St. and Franklin Blvd. after the new West Side High School campus at Detroit Ave. and W. 45th St. has opened, in order to confirm that existing signals are not warranted

### W. 38th Street and W. 32nd Street

**Key Characteristics:** Existing traffic signals at W. 38th St. (unwarranted based on traffic volume) and W. 32nd St. (expected to be unwarranted based on traffic volume), two schools nearby on block southwest of W. 38th St. intersection with Franklin Blvd.

#### Recommendations:

- 1 Removal of traffic signal at W. 38th St. and installation of neighborhood traffic circle with four-way yield control, high-visibility marked crosswalks, and in-street pedestrian crossing signs
- 2 New approach paint and parking restriction paint on W. 38th St. and Franklin Blvd. to direct traffic around traffic circle
- 3 In-street pedestrian crossing signs at W. 38th St.
- 4 Removal of traffic signal at W. 32nd St. and addition of stop signs on W. 32nd St.  
NOTE: Signal removal should only proceed with raised crosswalk installation, to slow uncontrolled traffic along Franklin Blvd.
- 5 Enhanced pedestrian crossing at W. 32nd St. with curb extension, raised crosswalk, and signage
- 6 Expanded parking restriction on north side of Franklin Blvd. to ensure adequate intersection sight distance



Note: Additional enhancements may be considered at this school crossing

Figure 20: Recommendations, W. 38th St. to W. 32nd St.

## W. 29th Street to W. 25th Street

**Key Characteristics:** Gateway to Franklin Blvd. corridor, existing traffic signal at W. 28th St./Fulton Rd. to remain (future roundabout planned), Cleveland Clinic Lutheran Hospital and parking lots, left turns permitted from both eastbound Franklin Blvd. lanes to northbound W. 25th St.—difficult for cyclists

### Recommendations:

- 1 New pedestrian crossing at W. 29th St. with curb extension, raised crosswalk, and signage
- 2 Raised crosswalk at existing crossing to Cleveland Clinic employee parking lot
- 3 Single left-turn lane from eastbound Franklin Blvd. to northbound W. 25th St.
- 4 Leading pedestrian interval and high-visibility crosswalk over W. 25th St.



Figure 21: Recommendations, W. 29th St. to W. 25th St.

Future roundabout  
by City of Cleveland

## Summary of Recommendations

Removal of Existing Traffic Signals on Franklin Blvd.	
Intersection	New traffic control
W. 32nd St.	two-way stop
W. 38th St.	Neighborhood traffic circle with four-way yield
W. 44th St.*	two-way stop
W. 45th St.*	Neighborhood traffic circle with four-way yield
W. 48th St.	Neighborhood traffic circle with four-way yield
W. 54th St.**	Neighborhood traffic circle with four-way yield
W. 58th St.	Neighborhood traffic circle with four-way yield
W. 74th St.	Neighborhood traffic circle with four-way yield

**Table 7: Summary of Signal Removal Recommendations**

\* Prior to removal of traffic signal and installation of neighborhood traffic circle, traffic data should be collected after new West Side High School campus at Detroit Ave. and W. 45th St. has opened, to confirm that existing signal is not warranted

\*\* Prior to removal of traffic signal and installation of neighborhood traffic circle, traffic data should be collected after new Waverly School has opened, to confirm that existing signal is not warranted

Neighborhood Traffic Circles		
Intersection	Existing traffic control	New traffic control
W. 38th St.	signal	four-way yield
W. 45th St.*	signal	four-way yield
W. 48th St.	signal	four-way yield
W. 50th St.	two-way stop	four-way yield
W. 54th St.**	signal	four-way yield
W. 58th St.	signal	four-way yield
W. 74th St.	signal	four-way yield

**Table 8: Summary of Neighborhood Traffic Circle Recommendations**

Curb Extensions	
Location	Number of curb extensions
W. 29th St.	1
W. 32nd St.	1
W. 44th St.	2
W. 52nd St.	2
W. 57th St.	2
W. 65th St.	3
W. 69th St.	1
W. 77th St. (N)	1
W. 77th St. (S)	1
W. 80th St.	1
W. 81st St.	1
W. 85th St.	1 (closure of right turn slip-lane)

**Table 9: Summary of Curb Extension Recommendations**

New and Enhanced Pedestrian Crossings		
Location	Crossing Improvement	Existing Condition
Lutheran Hospital between W. 25th St. and W. 28th St.	Raised crosswalk	Existing heavily used mid-block crossing between hospital and parking lot
W. 29th St.	Raised crosswalk and signage	No existing crossing; new crossing to connect to Hingetown district and Detroit Rd.
W. 32nd St.	Raised crosswalk and signage	Existing signal is proposed for removal, and senior residences are located here
W. 38th St.	In-street pedestrian crossing signs	Crossing within school zone
W. 44th St.	Raised crosswalk and signage	A designated school crossing where an existing signal is recommended for removal
W. 57th St.	Raised crosswalk and Rectangular Rapid Flashing Beacon (RRFB)	New Waverly Elementary School opening in 2019 south of intersection, between W. 54th St. and W. 57th St.
W. 65th St. and W. Clinton Ave.	Raised crosswalk and signage	Heavily used mid-block crosswalk identified by stakeholders and public as important
W. 69th St.	Raised crosswalk and signage	Heavily used mid-block crossing near Joseph M. Gallagher School
W. 77th St.	Raised crosswalk and signage	No existing crossing within several blocks; vehicle speeds are highest in this section of the corridor

**Table 10: Summary of New and Enhanced Pedestrian Crossing Recommendations**

Other Improvement Recommendations
<ul style="list-style-type: none"> <li>• Shift parking lane from north side to south side of Franklin Blvd. between W. 80th St. and W. 77th St.</li> <li>• High-visibility marked crosswalk where crosswalk currently exists over W. 25th St. south of Franklin Blvd.</li> <li>• Leading pedestrian intervals along Detroit Rd. at W. 65th St. and W. 45th St. for pedestrians crossing Detroit Rd.; and at W. 25th St. and Franklin Blvd. for pedestrians crossing W. 25th St.</li> <li>• Late night full signal operation at W. 58th St. and Detroit Rd.</li> <li>• Repaint eastbound right lane of Franklin Blvd. at W. 25th St. to right turn only (currently right or left turn); signal timing adjustment as necessary</li> <li>• Upgrade all existing non-compliant curb ramps to be ADA compliant (see Appendix H for locations).</li> <li>• Lowering of speed Limit to 25 mph</li> <li>• Consider increasing length of No Parking zones at intersections along north side of Franklin Blvd. to improve lines of sight for drivers</li> </ul>

**Table 11: Summary of Other Improvement Recommendations**



## Implementation

## Other Upcoming Projects

Although the simplest and fastest path toward implementation of these recommendations is to use local funding, there are many state and federal funding programs that may be applicable. There are upcoming projects within the project limits that are already funded and listed below. Recommendations from this plan that will be incorporated into these projects are in *purple* italic font.

- **W. 57th St. Pedestrian Crossing (Ohio Department of Transportation Safe Routes to School Grant)**  
*Completion expected in 2020. This project includes RRFB and high-visibility (ladder-style) marked crosswalks.* Curb extensions and a raised crosswalk could also be incorporated, depending on funding availability.
- **Fulton Rd. Roundabout (City of Cleveland GO Bonds)**  
*High-visibility (ladder-style) marked crosswalks will be incorporated.*
- **W. 65th St. Resurfacing (Ohio Public Works Commission funding, pending successful application).** *High-visibility (ladder-style) marked crosswalks and curb extensions at the Franklin Blvd. and W. Clinton Ave. crosswalks will be incorporated into this project.* In addition, the leading pedestrian intervals recommendation at W. 65th St. and Detroit Ave., as well as a raised crosswalk at Clinton Ave., could be incorporated.
- **Bicycle Facility Striping on W. 65th St. (NOACA FY2015 TLCI Implementation Grant).** The scope of this funding includes sharrows and bike boxes. *The City of Cleveland will continue working with NOACA to reallocate the funding towards the bike lane striping recommended in this plan.*
- **Curb Extensions on W. 65th St. (Northeast Ohio Regional Sewer District grant), east side of the road.** The scope of this funding includes curb extensions at various points along W. 65th St. *The City of Cleveland will work with NEORS to include the W. 65th St./Franklin Blvd. intersection as one of those locations.* Curb extensions will be placed only on one side of the street to accommodate the bike lane striping recommended in this plan.

## Potential Funding Sources

### Federal Funding

NOACA's TLCI Implementation Grant is ideal for lower-cost (\$100,000 minimum) multimodal countermeasures that originated from TLCI or similar planning studies. Other relevant federal funding programs that NOACA administers include Congestion Mitigation & Air Quality (CMAQ), Transportation Alternatives (TA), and Surface Transportation Block Grant (STBG). These programs are typically programmed several years in advance, and only cover construction costs.

- **TLCI Implementation Grant:**
  - Appropriate request amount: \$100k-\$400k
  - Relevant recommendations: any recommendations from this plan
  - Application round begins in Fall
  - Funds available annually
- **CMAQ:**
  - Appropriate request amount: \$100k+
  - Relevant recommendations: Roundabout, neighborhood traffic circles
  - Application rounds in odd-numbered years
  - Funds available 2023-2024 (smaller projects could get funded sooner)
- **TA:**
  - Appropriate request amount: \$100k-\$1.5M
  - Relevant recommendations: any multimodal recommendations from this plan
  - Next Application Round: Developing TIP for 2021-2024 by 2020
  - Funds available: 2023-2024
- **STBG:**
  - Appropriate request amount: \$100k+
  - Relevant recommendations: any recommendations from this plan
  - Next Application Round: Developing TIP for 2021-2024 by 2020
  - Funds available: 2023-2024

## State Funding

The Ohio Department of Transportation's (ODOT's) Safe Routes to School (SRTS) grant program and its abbreviated Highway Safety Improvement Program (HSIP) target certain types of lower-cost roadway improvements. SRTS funding is geared toward biking and walking safety improvements within two miles of a K-8 school. HSIP funding is geared toward low-cost safety projects of any type.

- **SRTS:**
  - Appropriate request amount: \$100,000 to \$400,000
  - Relevant recommendations: improved crosswalks and curb ramps at W. 74th St., W. 65th St., W. 54th St.; crosswalk enhancements at W. 57th St.
  - Next application round: January 2020
  - Funds available: typically 3-5 years after award
- **Abbreviated HSIP:**
  - Appropriate request amount: \$100,000 to \$250,000
  - Relevant recommendations: crosswalk improvements
  - Next application round: rolling, coordinate with NOACA
  - Funds available: typically 1-3 years after award, or 3-5 years after award for larger projects (preference is to incorporate abbreviated requests into larger projects)

In 2017, ODOT held a funding round for Active Transportation grants, but another round of that program has not yet been announced.

NOACA has an interactive Funding Resource Guide (<https://funding.noaca.org>) that can help identify possible funding sources for this and other projects. Users can find potential sources by choosing "Project Category" (for these recommendations, "Safety" or "Bike/Pedestrian" are the most applicable) and "Eligible Applicants" (choose "Municipalities"). NOACA staff can also help identify potential funding sources and help develop funding applications if necessary.

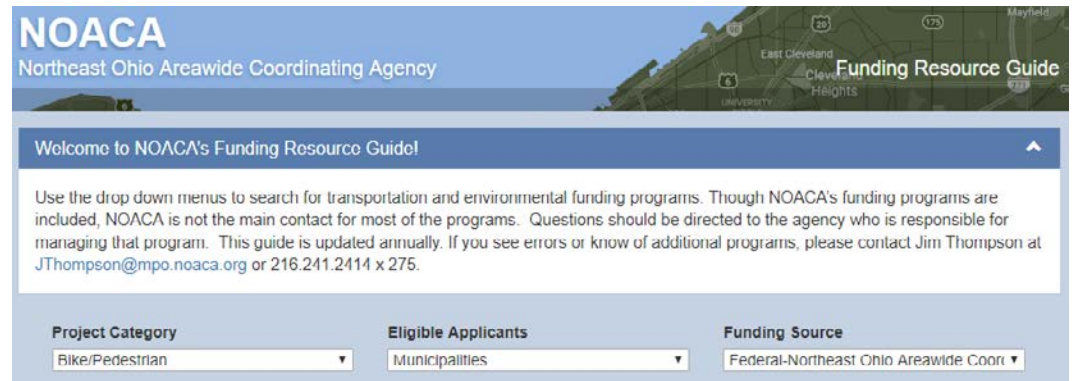


Image 26: NOACA Funding Resource Guide

## Interim or Temporary Installation

Many of the recommendations in this plan could be implemented using interim or temporary measures. This type of project can range in duration from one day to a year. The purpose of this type of installation varies and can include education, fine-tuning a final design, or simply the desire to implement the plan as soon as possible. NOACA's Street Supplies program (<http://noaca.org/streetsupplies>) is a possible resource to obtain the materials and tools for this type of implementation.



Image 27: Street Supplies Temporary Demonstration, City of Euclid, 2018

## Design and Policy Guidance

Some recommendations in this plan, such as neighborhood traffic circles and raised crosswalks, are new for Cleveland. As such, special attention should be paid to the design as these recommendations move toward construction. The design details will affect the effectiveness and success of the recommendations, and the desirability for these countermeasures to be used in future projects.

### Neighborhood Traffic Circles

Neighborhood traffic circles are similar to roundabouts and mini-roundabouts, but have key differences. A neighborhood traffic circle typically maintains the existing curb radii, and the cost is typically less as a result. The diameter of a roundabout is largest, and the diameter of a mini-roundabout can be larger than a neighborhood traffic circle. Mini-roundabouts typically have a traversable central island. These differences make a neighborhood traffic circle most suitable for the task of low-cost traffic calming along a residential corridor with houses close to the intersections.

National design guidance on neighborhood traffic circles is lacking, but many cities have developed their own design guidance. To summarize guidance from a variety of cities, the center island diameter varies to accommodate an "opening width" ranging from 13' to 20'. Many of these cities have standard drawings and other details available on their websites. Links can be found in Appendix I.

Neighborhood traffic circles were drawn to scale in AutoCAD for Franklin Blvd. using a center island diameter of 20' and an opening width of 15'. This geometry was tested using AutoTURN for a passenger vehicle (through and left-turn) and a school bus (through only). These AutoTURN diagrams can be seen in Appendix I.

### **Raised Crosswalks**

Raised crosswalks can be made of concrete or asphalt, and the rise can be as low as 3” or made to match sidewalk elevation. A lower rise can provide a traffic calming benefit without resulting in an abrupt experience for vehicles. A higher rise can also be designed for a smooth ride, but the approaches would need to be longer than typical.

Other U.S. cities have traffic calming policies that include raised crosswalks or speed humps. These policies sometimes also include design guidance. A summary of research conducted for this report is available in Appendix J.

### **Traffic Calming Policy**

Many of the recommendations in this report, such as raised crosswalks, neighborhood traffic circles, and curb extensions are considered to be “traffic calming” countermeasures. The City of Cleveland, via its Vision Zero Task Force, is in the process of developing a traffic calming policy, which may impact the implementation of those elements of this plan. Any traffic calming treatments will be designed to comply with the engineering standards and the City of Cleveland’s traffic calming policy, when adopted.

## Conceptual Cost Estimate

The total estimated cost of the recommended improvements, for planning purposes only, is **\$1,154,270**. The estimate includes 30% contingency costs and 15% each for design engineering and construction engineering costs. Cost estimates by improvement type are as follows:

Traffic Circles:	\$236,600
Crossing Improvements:	\$381,940
Curb Extensions:	\$523,900
Other:	\$11,830

Detailed cost estimate information can be found in Appendix K.

<b>Recommendation</b>	<b>Item Total Cost</b>
W. 85th St. curve tightening and crosswalks	\$50,000
W. 81st St. and W. 80th St. curb extensions	\$30,000
W. 77th St. (S) crossing enhancements	\$30,000
W. 77th St. (N) curb extension	\$20,000
W. 74th St. neighborhood traffic circle	\$20,000
W. 69th St. school crossing enhancements	\$50,000
Clinton Ave./W. 65th St. new crossing	\$30,000
W. 65th St. enhancements	\$77,000
W. 58th St. neighborhood traffic circle	\$20,000
W. 54th St. neighborhood traffic circle	\$20,000
W. 57th St. school crossing enhancements	\$75,000
W. 52nd St. curb extensions	\$27,000
W. 50th St. neighborhood traffic circle	\$20,000
W. 48th St. neighborhood traffic circle	\$20,000
W. 45th St. neighborhood traffic circle	\$20,000
W. 44th St. crossing enhancements	\$60,000
W. 38th St. neighborhood traffic circle	\$21,000
W. 32nd St. crossing enhancements	\$30,000
W. 29th St. crossing enhancements	\$35,000
Lutheran Hospital crossing enhancement	\$20,000
W. 25th St. Franklin Blvd. lane reconfiguration and crosswalk	\$8,000
<b>SUBTOTAL</b>	<b>\$683,000</b>
30% Contingency	\$204,900
<b>SUBTOTAL</b>	<b>\$887,900</b>
15% Design Engineering Cost	\$133,185
15% Construction Engineering Cost	\$133,185
<b>TOTAL</b>	<b>\$1,154,270</b>

Table 12: Conceptual Cost Estimates



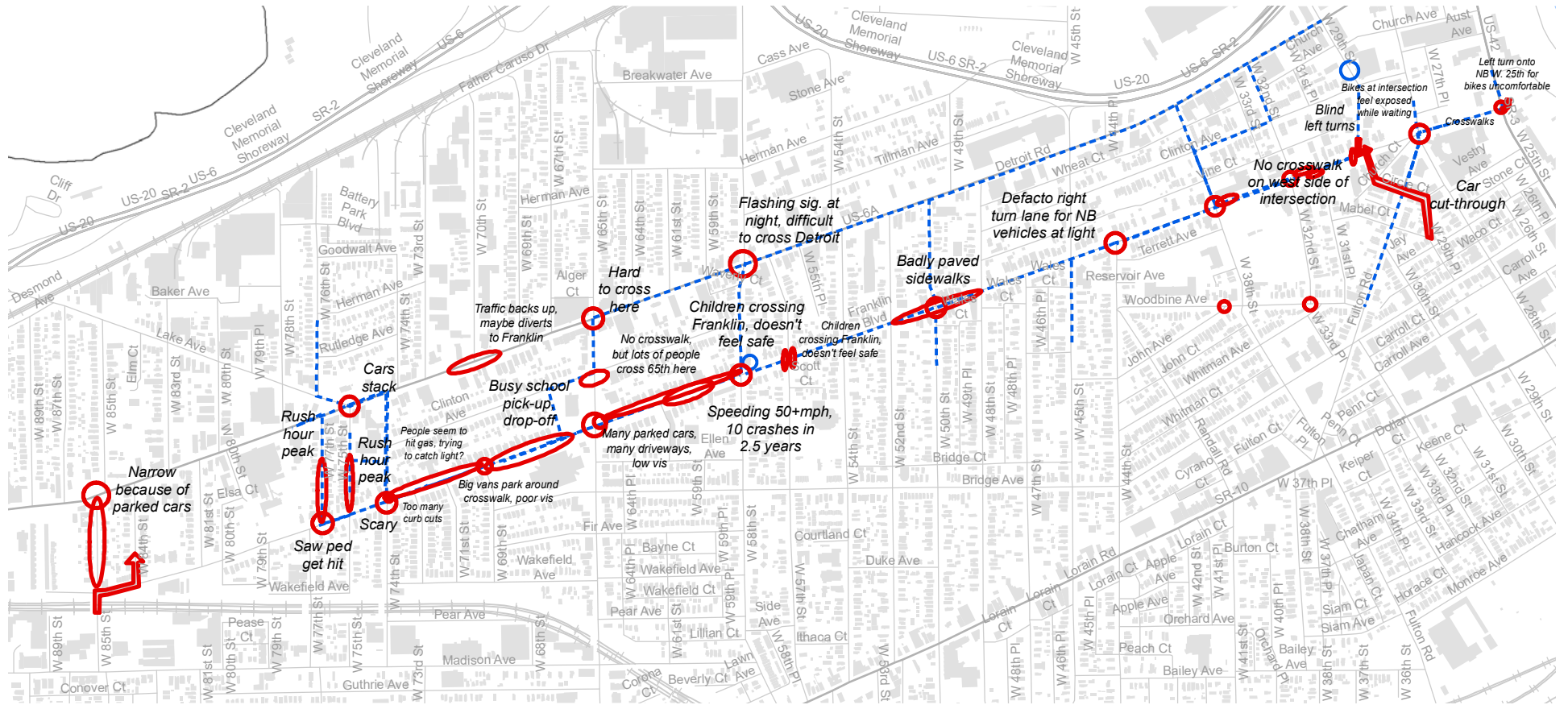


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# Appendix A: Stakeholder Map Exercise

## Stakeholder Map Exercise: Problems and Travel Paths

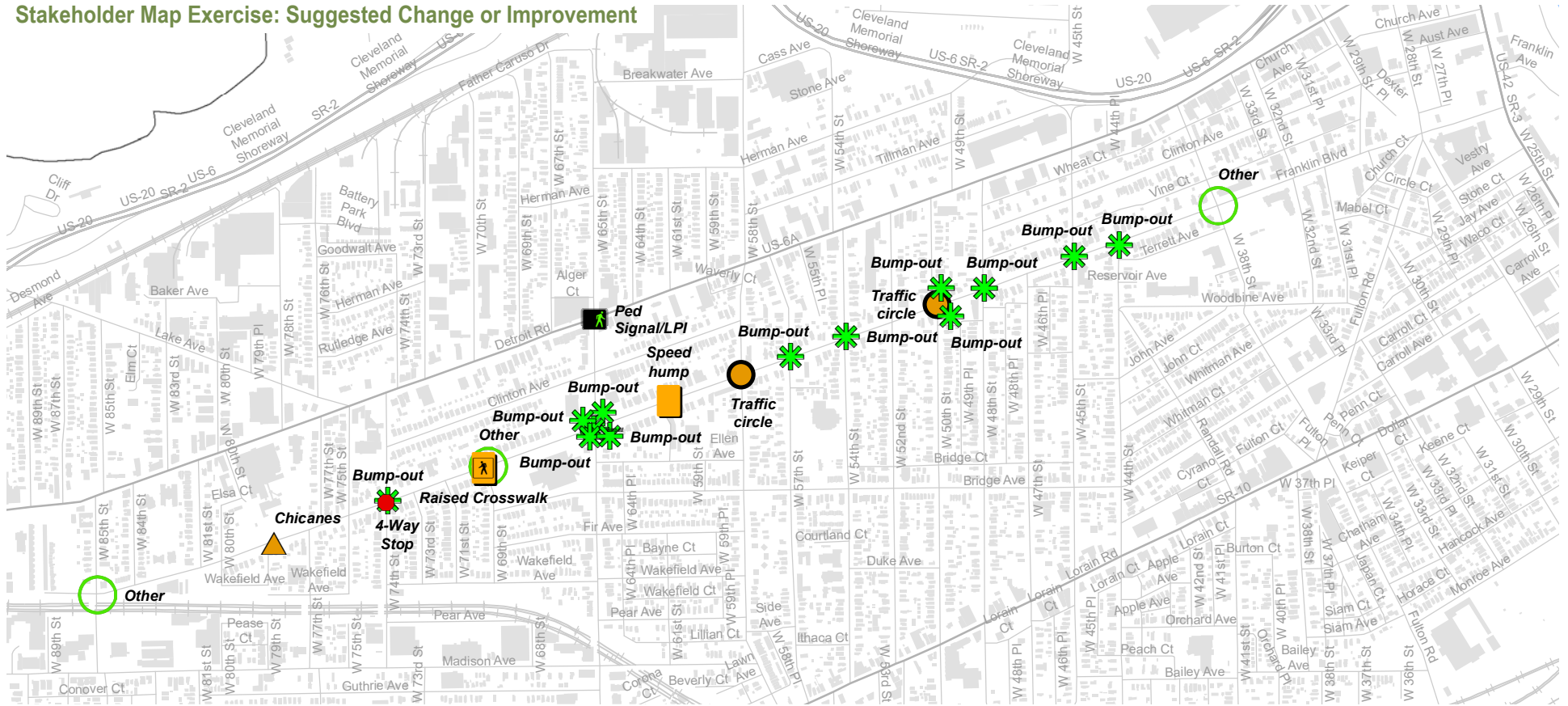


### Stakeholder Meeting

- Identified Problem Area
- Identified travel path or crossing
- Identified Destination



## Stakeholder Map Exercise: Suggested Change or Improvement



## Stakeholder Meeting

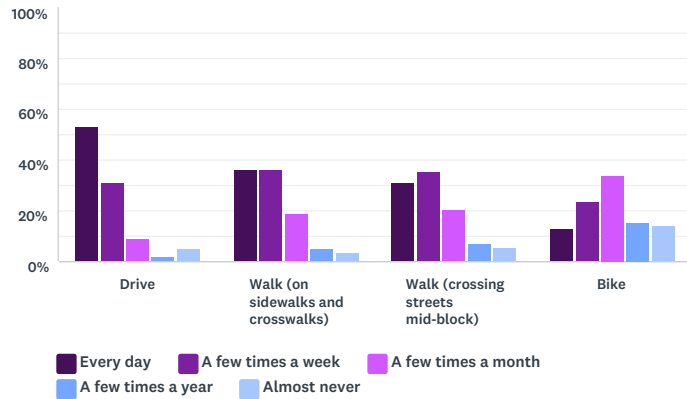
### Suggested Change or Improvement

-  4-Way Stop
-  Crosswalk
-  Ped Signal/LPI
-  RRFB/Signs
-  Bump-out
-  Raised Crosswalk
-  Speed hump
-  Traffic circle
-  Chicanes
-  Bike Box
-  Bike Boulevard
-  Other

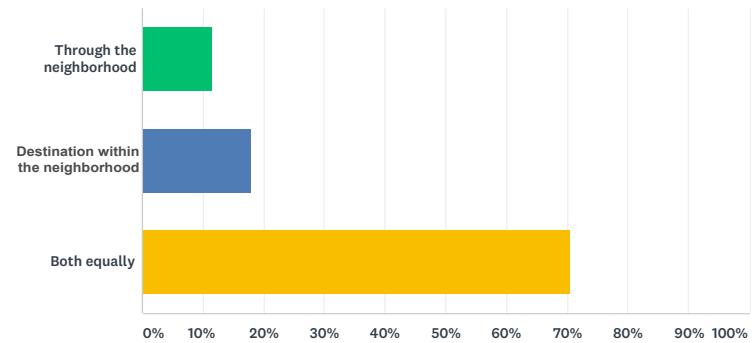


## Appendix B: Public Survey Results

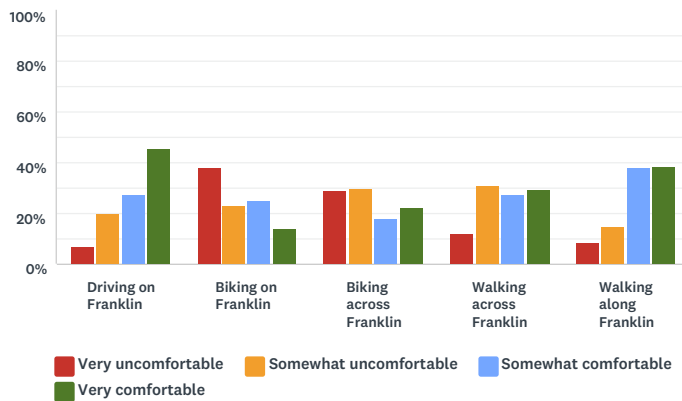
How do you travel along or across Franklin Blvd., and how often?



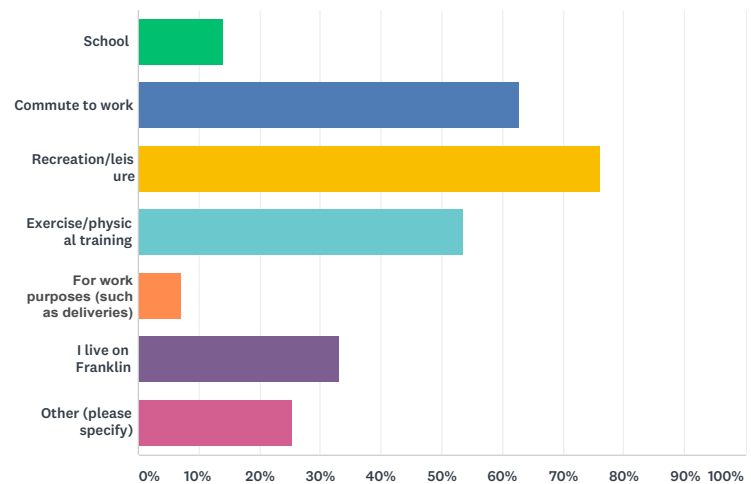
Do you use Franklin Blvd. primarily to get through the neighborhood, or to reach a destination within the neighborhood?



How comfortable are you traveling along on Franklin Blvd.?

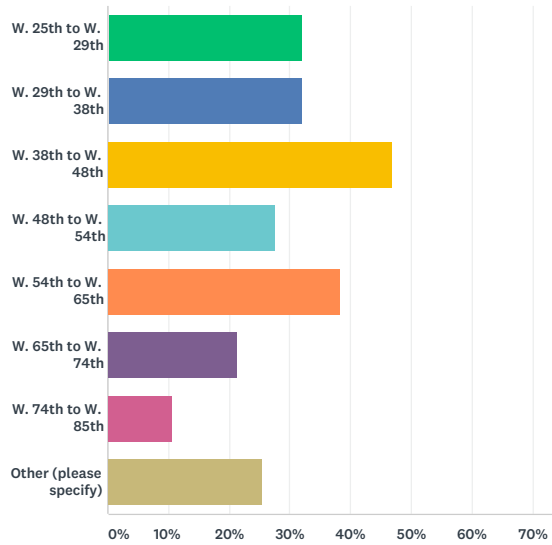


Why do you travel along or across Franklin Blvd.?

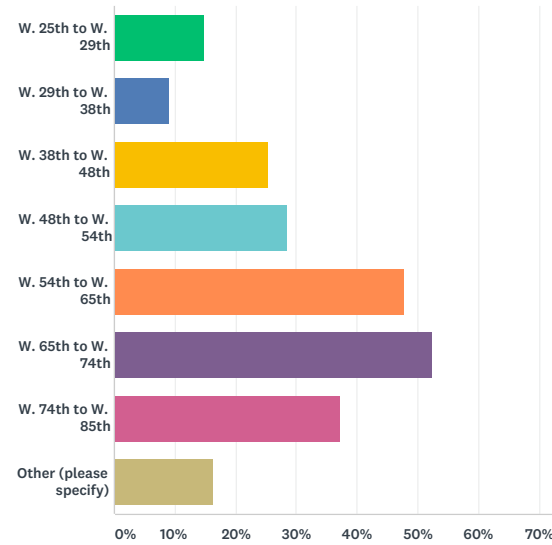


## Where do you feel are the biggest trouble spots along Franklin Blvd.?

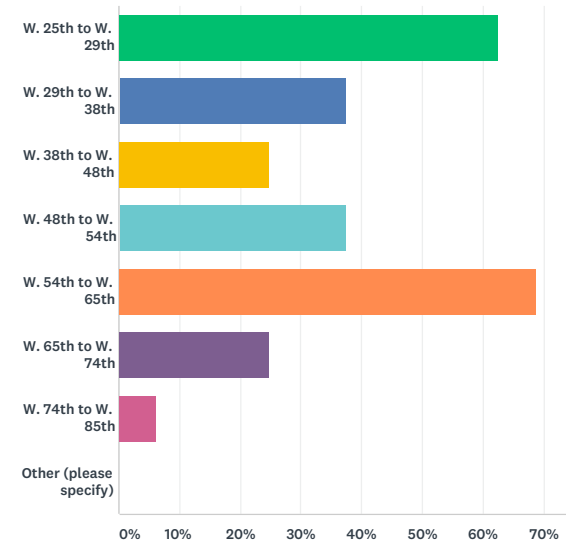
### Ohio City Residents



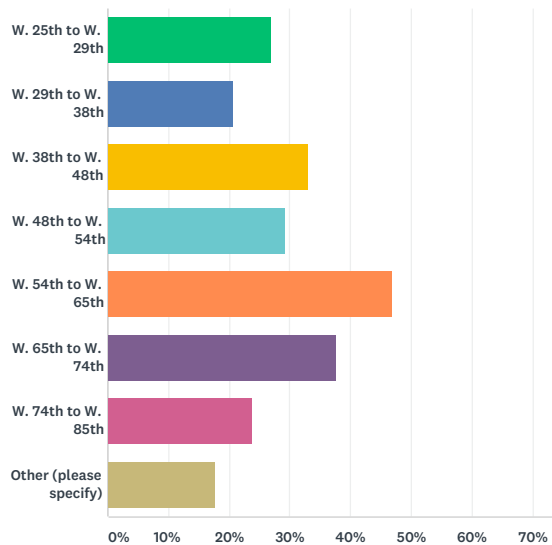
### Detroit-Shoreway Residents



### Other area Residents

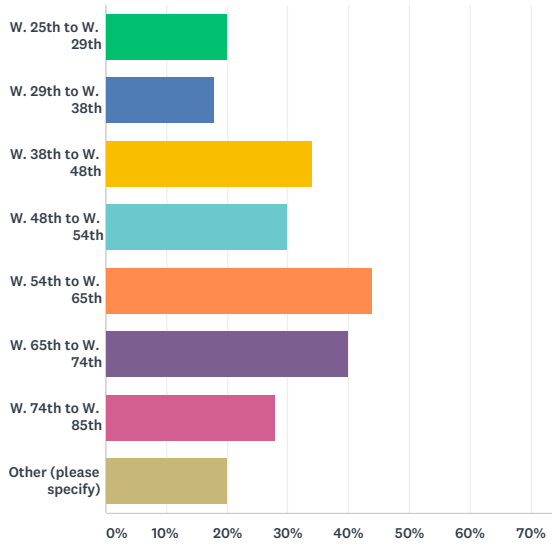


### Overall

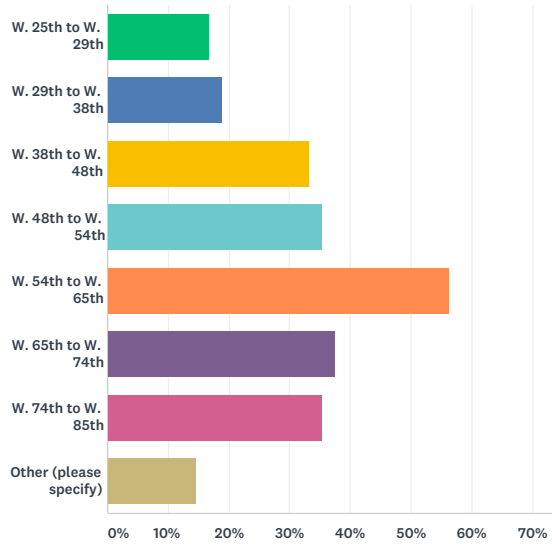


## Where do you feel are the biggest trouble spots along Franklin Blvd.?

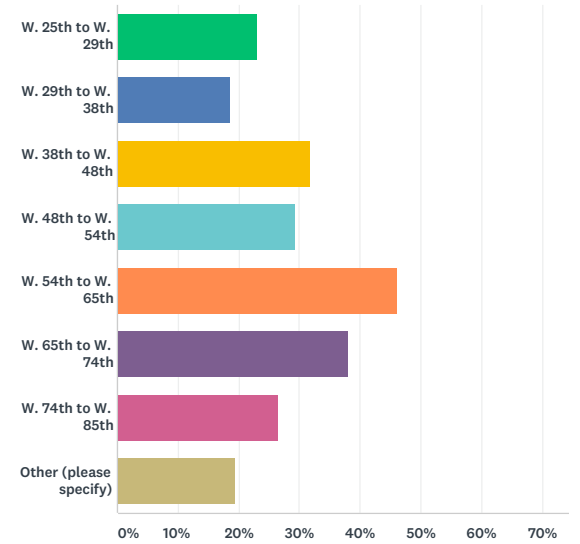
### Daily/Weekly Walkers (along and across Franklin)



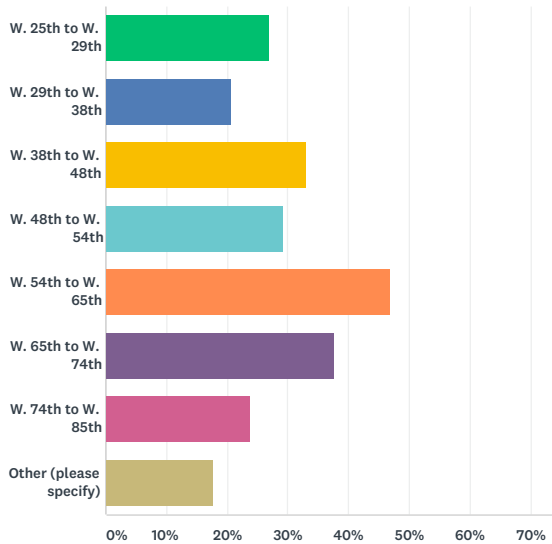
### Daily/Weekly Bikers



### Daily/Weekly Drivers

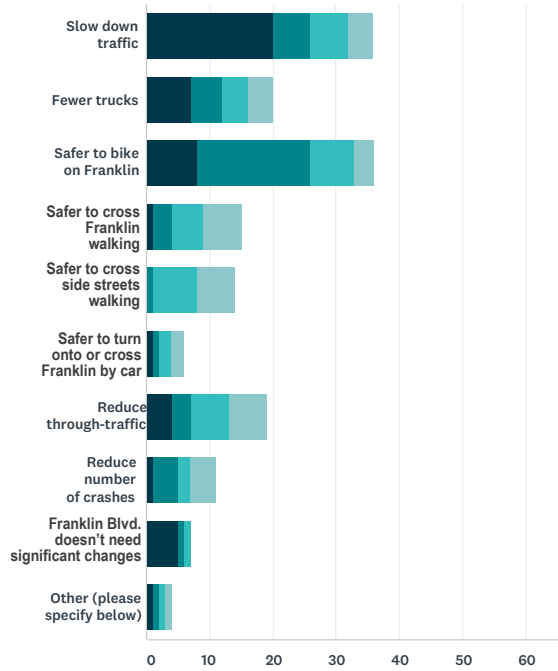


### Overall

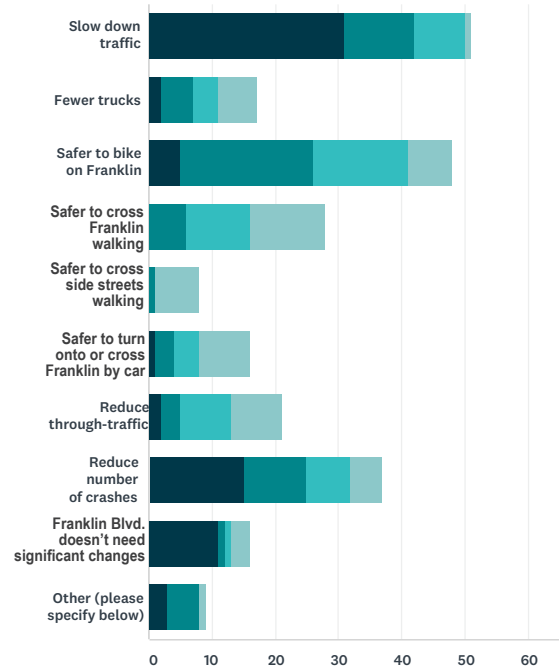


Rank your top 4 most important changes you'd like to see along Franklin Blvd.

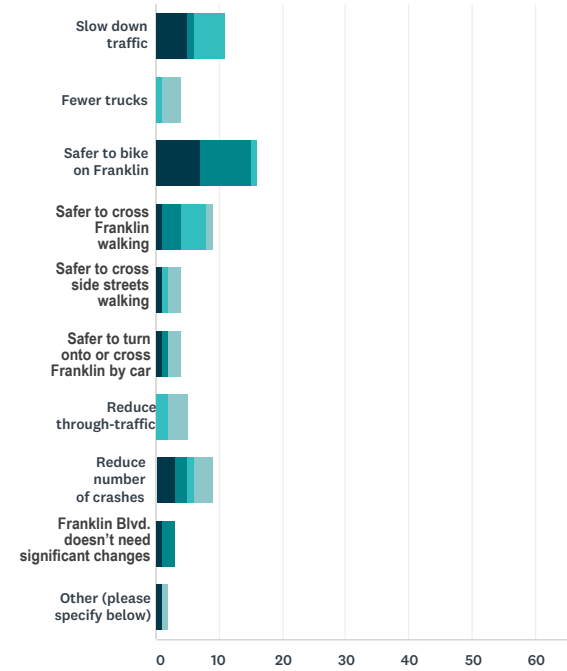
Ohio City Residents



Detroit-Shoreway Residents



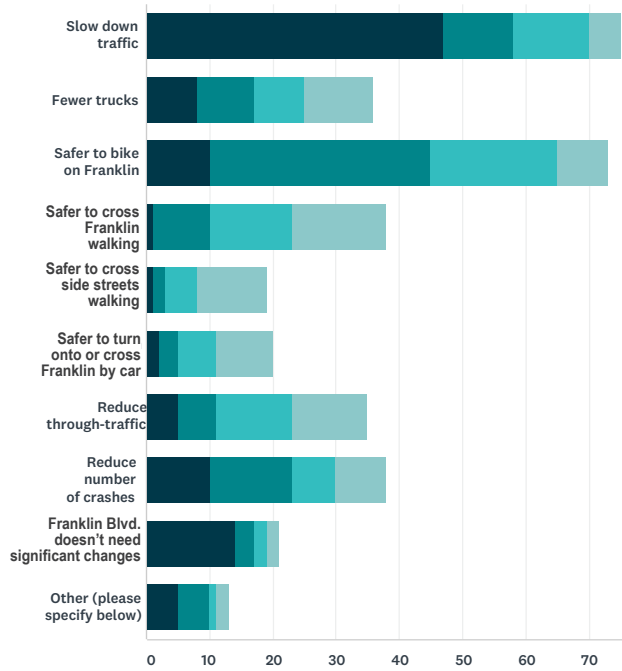
Other area Residents



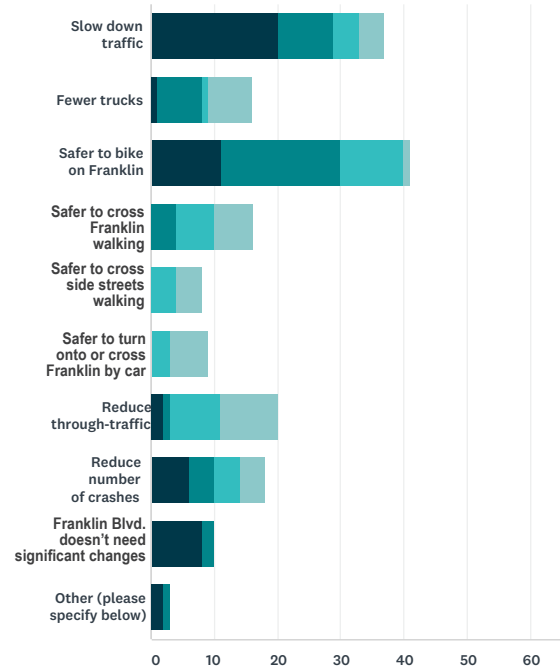
Most Important
  2nd Most Important
  3rd Most Important
  4th Most Important

Rank your top 4 most important changes you'd like to see along Franklin Blvd.

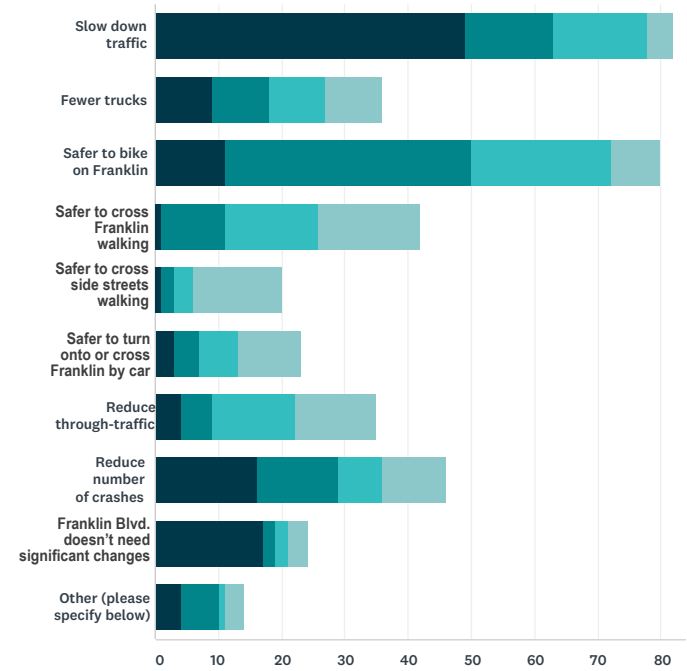
Daily/Weekly Walkers (along and across Franklin)



Daily/Weekly Bikers



Daily/Weekly Drivers



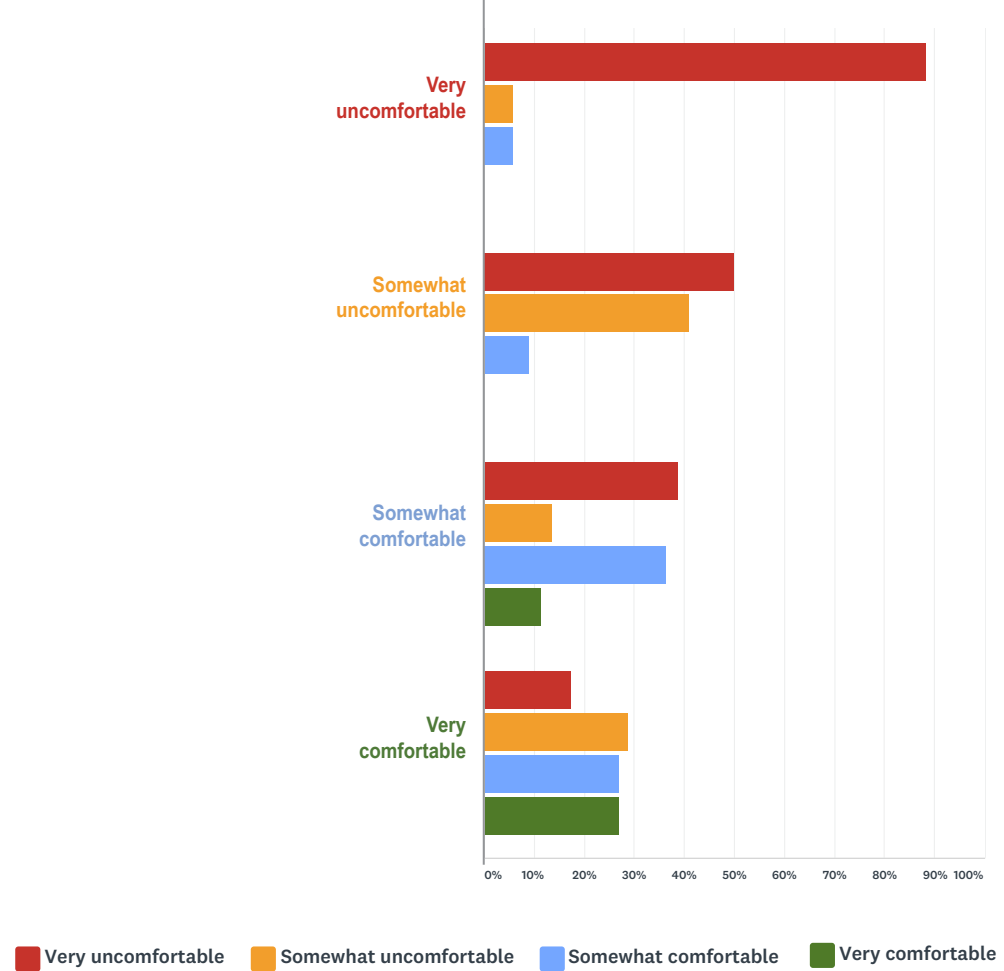
Most Important
  2nd Most Important
  3rd Most Important
  4th Most Important

Generally, survey respondents are less comfortable biking on Franklin Boulevard than they are biking in general. More than half of those who said they were “somewhat comfortable” biking in general were somewhat uncomfortable or very uncomfortable biking on Franklin Blvd.


Of those who said they were “very comfortable” biking in general, more than two-thirds were less comfortable biking on Franklin Blvd.

### How comfortable are you biking in general vs. biking along Franklin Blvd.?

Overall comfort level: Comfort level along Franklin:



## Appendix C: Public Meeting #2 Posters



# W. 85th Street to W. 71st Street

Franklin Blvd. Traffic Calming Study

### INSTRUCTIONS:

1. Place **GREEN DOTS** near the things you like the *most*
2. Place **YELLOW DOTS** at locations you think need more consideration
3. Write any questions, comments, or suggestions on a Post-It note

### Alternative 1

Curb Extension

Curb Extensions (street parking shifts sides)

Neighborhood Traffic Circle and removal of business entrance along north side of Franklin

### Alternative 2

Traffic Diverter

*TRAFFIC Diverters would be a horrible plan*

Option A: High-visibility crosswalk

Option B: Raised Crosswalk

March 6th, 2018



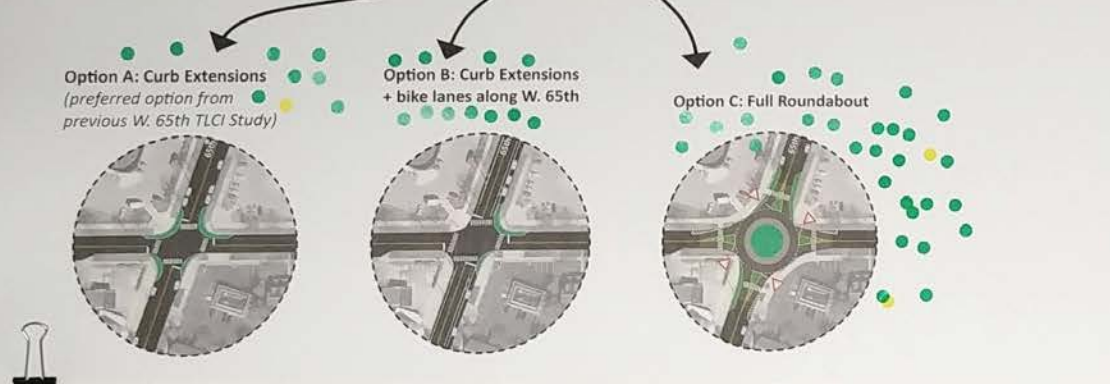
# W. 69th Street to W. 54th Street

Franklin Blvd. Traffic Calming Study

SPEED BUMPS  
ANTICIPATING  
CROSSINGS

## INSTRUCTIONS:

1. Place **GREEN DOTS** near the things you like the most
2. Place **YELLOW DOTS** at locations you think need more consideration
3. Write any questions, comments, or suggestions on a Post-It note



March 6th, 2018



# W. 52nd Street to W. 38th Street

Franklin Blvd. Traffic Calming Study

## INSTRUCTIONS:

1. Place **GREEN DOTS** near the things you like the most
2. Place **YELLOW DOTS** at locations you think need more consideration
3. Write any questions, comments, or suggestions on a Post-It note

Please enforce the TRAFFIC laws first

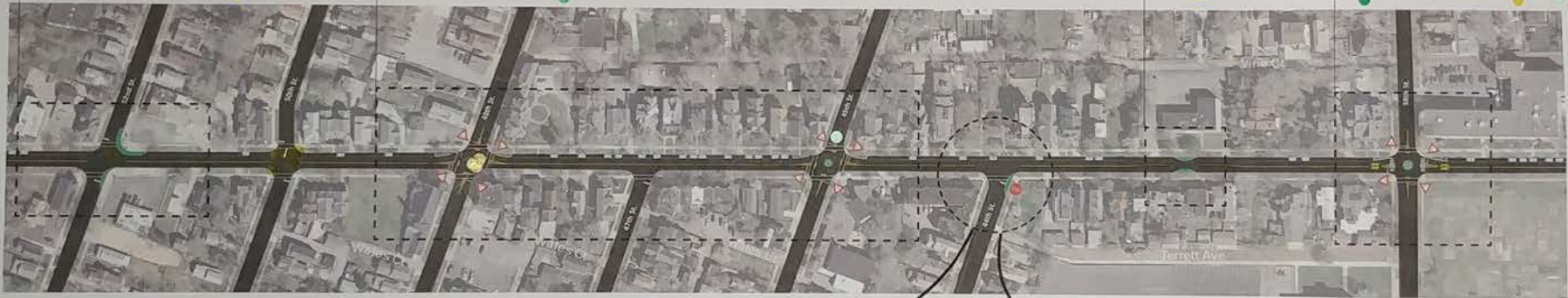
lots of school kids cross here

Curb Extensions and removal of business entrances on north and south sides of Franklin

Neighborhood Traffic Circles

Midblock Curb Extensions (narrow travel lanes)

Neighborhood Traffic Circle and High-visibility crosswalks with in-street Yield-to-Pedestrian signs



-Traffic circle @ 50th? (bad accident)

What about curb extension @ 40th?

250' of Franklin - park no parking zone back further from corner of the intersection

Even all the houses @ 40th why - parking?

Did people use crosswalk @ 40th or 44th or 48th

traffic circles at 40th, 44th, 48th, better than 40th



March 6th, 2018



# W. 32nd Street to W. 25th Street

Franklin Blvd. Traffic Calming Study

## INSTRUCTIONS:

1. Place **GREEN DOTS** near the things you like the most
2. Place **YELLOW DOTS** at locations you think need more consideration
3. Write any questions, comments, or suggestions on a Post-It note

NO DIVERTERS

Any chance to restore historic Franklin Circle?

(Roundabout proposed by City)

Single left turn lane, leading pedestrian intervals, and high-visibility crosswalk over W. 25th St.

1 WAY westbound w/ 2 way protected multi-purpose path by one curb.



Option A: Curb Extension, high-visibility crosswalk



Option B: Curb extension, raised crosswalk



Option A: Curb Extension, high-visibility crosswalk



Option B: Curb extension, Raised crosswalk



Option A: EXISTING (High-visibility crosswalk and Yield-to-Pedestrian signs)



Option B: Raised crosswalk





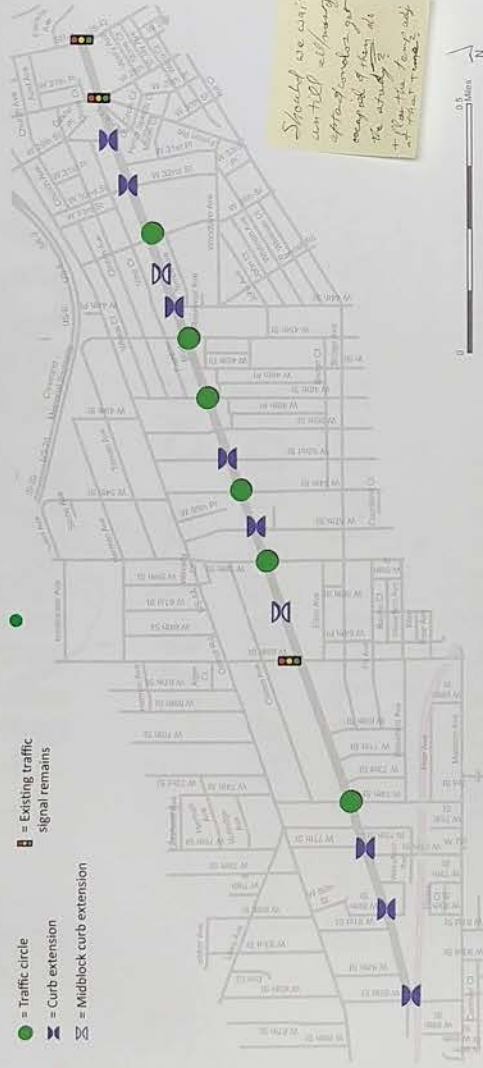
# Summary of Potential Improvements

Franklin Blvd. Traffic Calming Study

March 6th, 2018

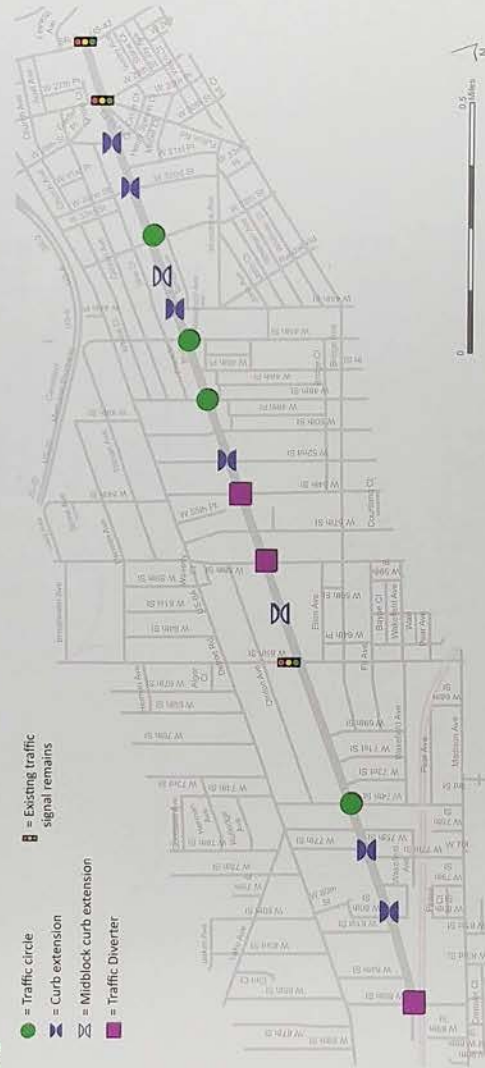
## Alternative 1: Traffic Calming with Curb extensions, neighborhood traffic circles

- = Traffic circle
- ⊞ = Existing traffic signal remains
- ⊞ = Curb extension
- ⊞ = Midblock curb extension



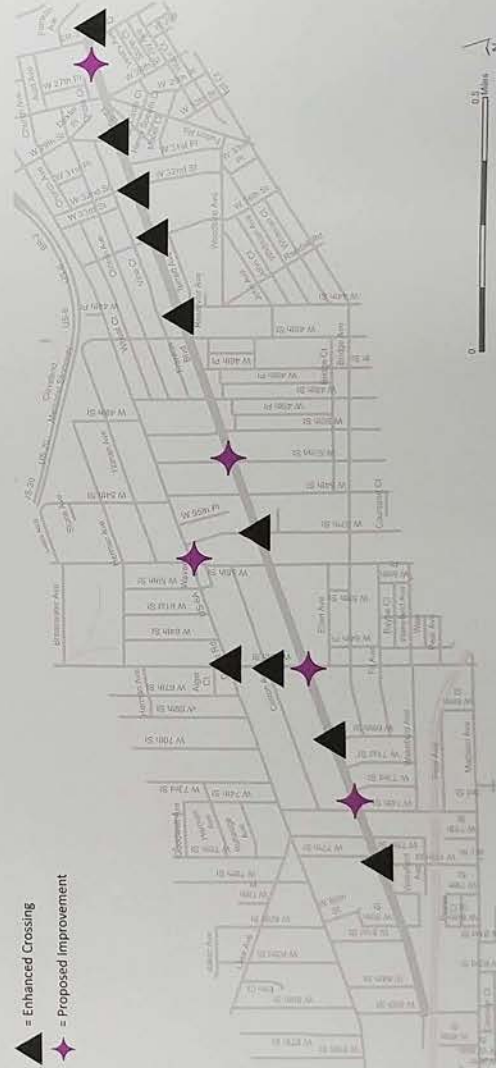
## Alternative 2: Traffic Calming with Traffic diverters, curb extensions, neighborhood traffic circles

- = Traffic circle
- ⊞ = Existing traffic signal remains
- ⊞ = Curb extension
- ⊞ = Midblock curb extension
- = Traffic diverter



## Other Proposed Improvements and Enhanced Crossings

- ▲ = Enhanced Crossing
- ◆ = Proposed Improvement





# Understanding the Traffic Calming Options

Franklin Blvd. Traffic Calming Study

Heavy SUVs  
(RETURN) Franklin  
Low & Tpk  
will not be  
able to  
stream  
through

## Curb Extensions

- Improve pedestrian and vehicle visibility
- Reduce crossing distance
- Encourage slower turning speeds
- Give drivers the sense they are entering a neighborhood area



## Midblock Curb Extensions ("neckdown")

- Reduce vehicle speeds
- Large vehicles may not be able to pass at same time



## Raised Crosswalks

- Discourage speeding
- Reduce crashes
- Improve pedestrian and vehicle visibility



## Neighborhood Traffic Circles

- Discourage speeding
- Reduce crashes
- Reduce delay for all users
- Can replace unwarranted traffic signals with 4-way yield control



on a busy street like Franklin the landscaping needs to be shorter

## Traffic Diverters

- Reduce thru-traffic volume
- Reduce crossing distance
- Discourage speeding
- Allow bicycles to pass, improve bicyclist comfort

Will make it harder for residents to drive down Franklin!



## Traffic Diverters (58th and 54th St.)



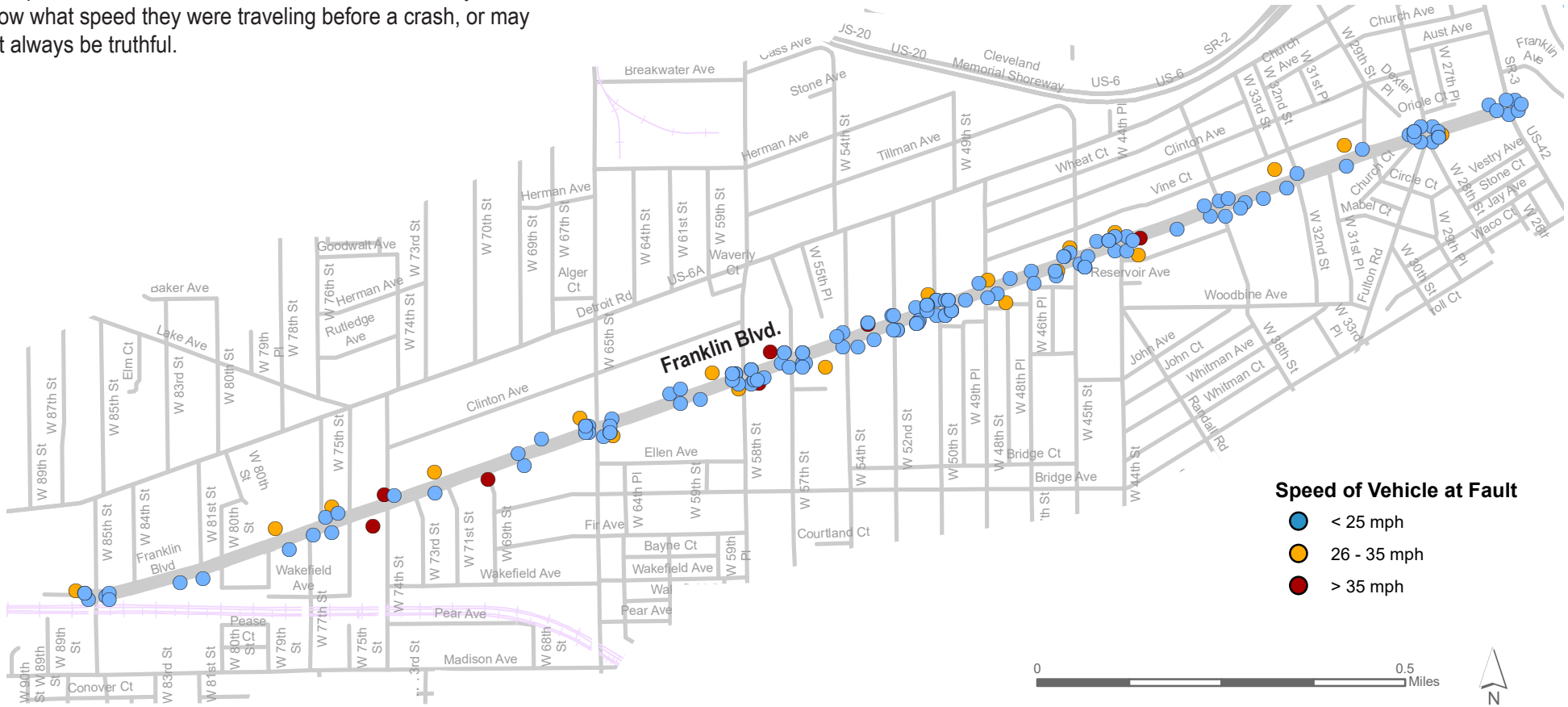
## Appendix D: Detailed Crash Rate Data Table

Note on the Crash Rate Summary Table: Crash rates are based on crashes over the five-year period from 2011-2015. Crashes at intersections where the cross street was listed as the primary street when police report data was entered are excluded from primary corridor crash rates. Average Daily Traffic (ADT) values are found on NOACA GIS Portal or ODOT TIMS data portal. ADT values for single years are applied to multiple years of crashes (2011-2015), and are assumed to be acceptable for the purposes of this crash rate analysis.

Street	Segment	Segment Length (mi.)	Total Crashes (2011-2015)	Fatal Crashes (2011-2015)	Injury Crashes (2011-2015)	Property Damage Crashes (2011-2015)	ADT to Use	Total Crash Rate	Injury/Fatal Crash Rate	Property Damage Crash Rate	Posted Speed Limit
<b>Franklin (Major Collector)</b>	<b>OVERALL AVG (25th to 85th)</b>	<b>2</b>	<b>218</b>	<b>0</b>	<b>59</b>	<b>159</b>	<b>3,510</b>	<b>17.01</b>	<b>4.60</b>	<b>12.41</b>	<b>35 mph</b>
	25th to 32nd	0.25	9	0	4	5	3,873	5.09	2.26	2.83	25-35 mph
	32nd to 44th	0.25	25	0	4	21	3,569	15.35	2.46	12.90	
	44th to 48th	0.25	40	0	10	30	3,440	25.49	6.37	19.11	
	48th to 57th	0.25	51	0	17	34	3,440	32.49	10.83	21.66	
	57th to 65th	0.25	37	0	11	26	3,440	23.57	7.01	16.57	
	65th to 71st	0.25	11	0	4	7	3,440	7.01	2.55	4.46	
	71st to 79th	0.25	28	0	6	22	3,440	17.84	3.82	14.02	
79th to 85th	0.25	17	0	3	14	3,440	10.83	1.91	8.92		
<b>Bridge (Major Collector)</b>	<b>OVERALL AVG (25th to 65th)</b>	<b>1.5</b>	<b>158</b>	<b>0</b>	<b>25</b>	<b>133</b>	<b>2,995</b>	<b>19.27</b>	<b>3.05</b>	<b>16.22</b>	<b>25 mph</b>
	25th to 30th	0.25	32	0	1	31	2,995	23.42	0.73	22.69	
	30th to 38th	0.25	17	0	2	15	2,995	12.44	1.46	10.98	
	38th to 44th	0.25	12	0	1	11	2,995	8.78	0.73	8.05	
	44th to 50th	0.25	35	0	9	26	2,995	25.61	6.59	19.03	
	50th to 58th	0.25	38	0	7	31	2,995	27.81	5.12	22.69	
	58th to 65th	0.25	24	0	5	19	2,995	17.56	3.66	13.90	
	<b>OVERALL AVG (25th to Berea)</b>	<b>1.75</b>	<b>193</b>	<b>0</b>	<b>51</b>	<b>142</b>	<b>3,562</b>	<b>16.96</b>	<b>4.48</b>	<b>12.48</b>	<b>25 mph</b>
65th to 73rd	0.25	8	0	4	4	2,705	6.48	3.24	3.24		
73rd to 79th	0.25	11	0	2	9	3,705	6.51	1.18	5.32		
79th to 85th	0.25	36	0	9	27	3,705	21.30	5.32	15.97		
85th to 95th	0.25	35	0	7	28	3,705	20.71	4.14	16.56		
95th to 100th	0.25	27	0	8	19	3,705	15.97	4.73	11.24		
100th to 104th	0.25	45	0	14	31	3,705	26.62	8.28	18.34		
104th to Berea	0.25	31	0	7	24	3,705	18.34	4.14	14.20		
<b>Western (Major Collector)</b>	<b>OVERALL AVG (101st to 117th)</b>	<b>0.75</b>	<b>76</b>	<b>0</b>	<b>22</b>	<b>54</b>	<b>3,730</b>	<b>14.89</b>	<b>4.31</b>	<b>10.58</b>	<b>25 mph</b>
	101st to 105th	0.25	35	0	4	31	3,730	20.57	2.35	18.22	
	105th to 111th	0.25	27	0	11	16	3,730	15.87	6.46	9.40	
	111th to 117th	0.25	14	0	7	7	3,730	8.23	4.11	4.11	
<b>Fulton (Major Collector)</b>	<b>OVERALL AVG (Franklin to Walton)</b>	<b>1.25</b>	<b>155</b>	<b>0</b>	<b>36</b>	<b>119</b>	<b>8,151</b>	<b>8.34</b>	<b>1.94</b>	<b>6.40</b>	<b>25 mph</b>
	Franklin to Woodbine	0.25	26	0	7	19	8,151	6.99	1.88	5.11	
	Woodbine to Lorain	0.25	32	0	4	28	8,151	8.60	1.08	7.53	
	Lorain to Monroe	0.25	23	0	3	20	8,151	6.18	0.81	5.38	
	Monroe to I-90	0.25	13	0	3	10	8,151	3.50	0.81	2.69	
	I-90 to Walton	0.25	61	0	19	42	8,151	16.40	5.11	11.29	35 mph
<b>Scranton (Major Collector)</b>	<b>OVERALL AVG (Parafine to Sackett)</b>	<b>1.25</b>	<b>138</b>	<b>0</b>	<b>36</b>	<b>102</b>	<b>5,098</b>	<b>11.87</b>	<b>3.10</b>	<b>8.77</b>	<b>25 mph</b>
	Parafine to Starkweather	0.25	12	0	1	11	4,054	6.49	0.54	5.95	
	Starkweather to I-90	0.25	31	0	7	24	5,218	13.02	2.94	10.08	
	I-90 to Agnes	0.25	26	0	9	17	5,218	10.92	3.78	7.14	
	Agnes to Holmden	0.25	44	0	12	32	5,500	17.53	4.78	12.75	
	Holmden to Sackett	0.25	25	0	7	18	5,500	9.96	2.79	7.17	
<b>W. 65th (Minor Arterial)</b>	<b>OVERALL AVG (Lorain to Detroit)</b>	<b>0.75</b>	<b>162</b>	<b>0</b>	<b>53</b>	<b>109</b>	<b>7,094</b>	<b>16.68</b>	<b>5.46</b>	<b>11.23</b>	<b>25 mph</b>
	Lorain to Madison	0.25	73	0	25	48	7,336	21.81	7.47	14.34	
	Madison to Bridge	0.25	39	0	12	27	7,336	11.65	3.59	8.07	
	Bridge to Detroit	0.25	50	0	16	34	6,611	16.58	5.30	11.27	
<b>Detroit (Minor Arterial)</b>	<b>OVERALL AVG (26th to 85th)</b>	<b>2</b>	<b>371</b>	<b>0</b>	<b>104</b>	<b>267</b>	<b>7,387</b>	<b>13.76</b>	<b>3.86</b>	<b>9.90</b>	<b>25 mph</b>
	26th to 32nd	0.25	49	0	10	39	7,621	14.09	2.88	11.22	
	32nd to 45th	0.25	14	0	5	9	7,621	4.03	1.44	2.59	
	45th to 49th	0.25	25	0	11	14	7,621	7.19	3.16	4.03	
	49th to 57th	0.25	19	0	7	12	7,621	5.46	2.01	3.45	
	57th to 65th	0.25	42	0	12	30	7,621	12.08	3.45	8.63	
	65th to 73rd	0.25	98	0	26	72	7,621	28.18	7.48	20.71	
	73rd to 78th	0.25	60	0	15	45	7,621	17.26	4.31	12.94	
	78th to 85th	0.25	64	0	18	46	5,745	24.42	6.87	17.55	
<b>Lorain (Minor Arterial)</b>	<b>OVERALL AVG (24th to 83rd)</b>	<b>2.25</b>	<b>696</b>	<b>0</b>	<b>170</b>	<b>526</b>	<b>11,520</b>	<b>14.71</b>	<b>3.59</b>	<b>11.12</b>	<b>25 mph</b>
	24th to 30th	0.25	145	0	35	110	11,520	27.59	6.66	20.93	
	30th to Fulton	0.25	90	0	19	71	11,520	17.12	3.61	13.51	
	Fulton to 44th	0.25	89	0	23	66	11,520	16.93	4.38	12.56	
	44th to 48th	0.25	71	0	15	56	11,520	13.51	2.85	10.65	
	48th to 55th	0.25	64	0	15	49	11,520	12.18	2.85	9.32	
	55th to 61st	0.25	42	0	12	30	11,520	7.99	2.28	5.71	
	61st to 69th	0.25	76	0	22	54	11,520	14.46	4.19	10.27	
	69th to 78th	0.25	56	0	13	43	11,520	10.65	2.47	8.18	
78th to 83rd	0.25	63	0	16	47	11,520	11.99	3.04	8.94		

## Appendix E: Map of Crashes by At-Fault Speed

Crashes on the map below are classified by the speed of the vehicle at fault. These speeds are taken from police reports, which cannot always accurately assign speed since they rely on imperfect estimates or the word of drivers who may not know what speed they were traveling before a crash, or may not always be truthful.



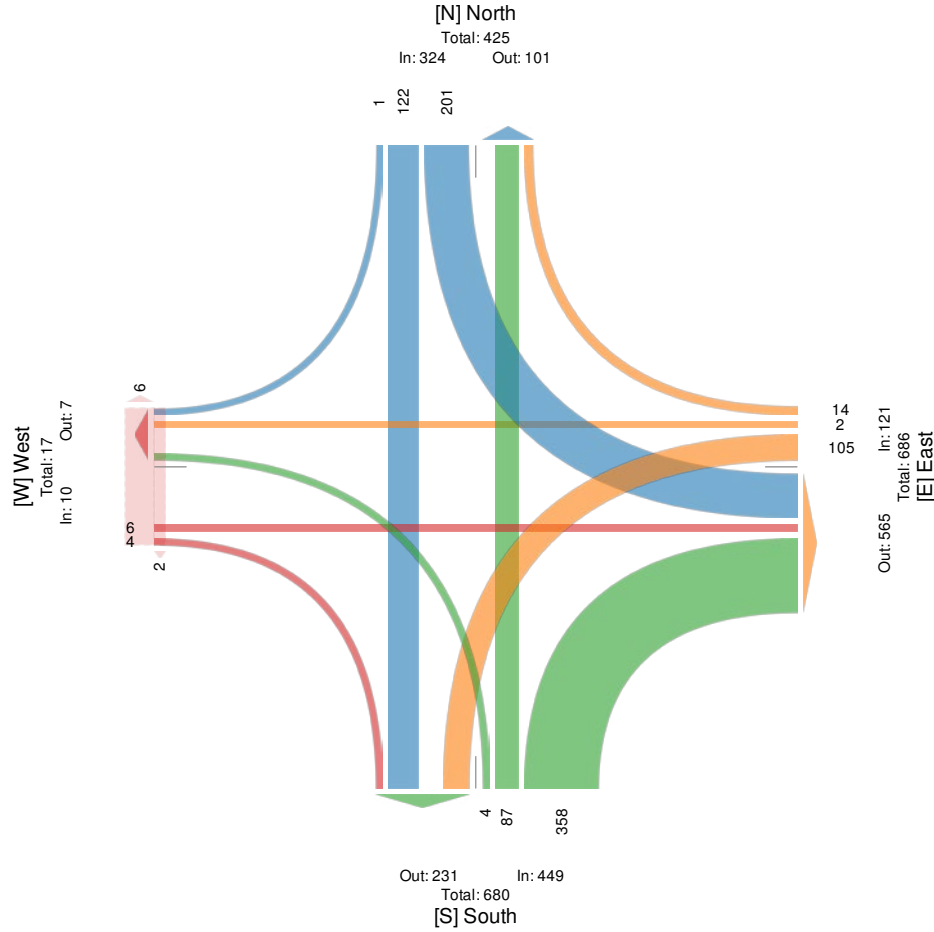
Crashes by speed of at-fault vehicle, 2012-2016

# Appendix F: Traffic Volume Diagrams

## Peak Hour Traffic Volume Diagrams - W. 85th St.

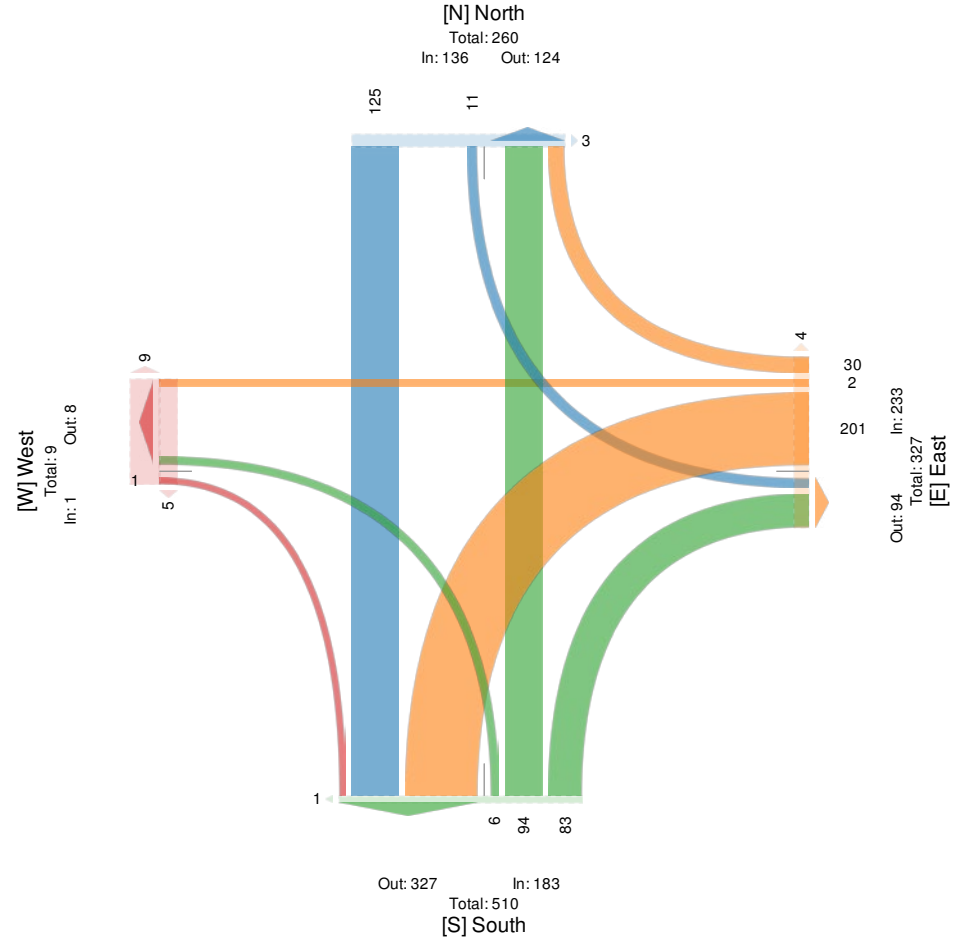
### AM Peak

7:15 a.m. -  
8:15 a.m.



### PM Peak

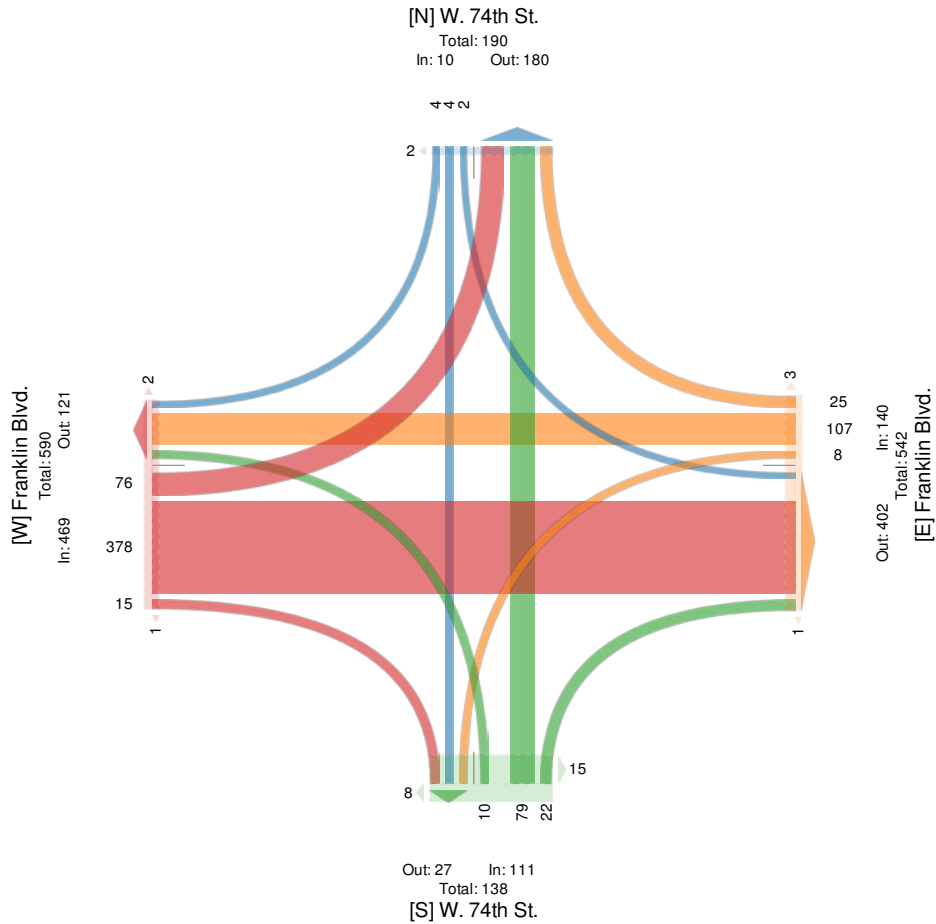
5:00 p.m. -  
6:00 p.m.



## Peak Hour Traffic Volume Diagrams - W. 74th St.

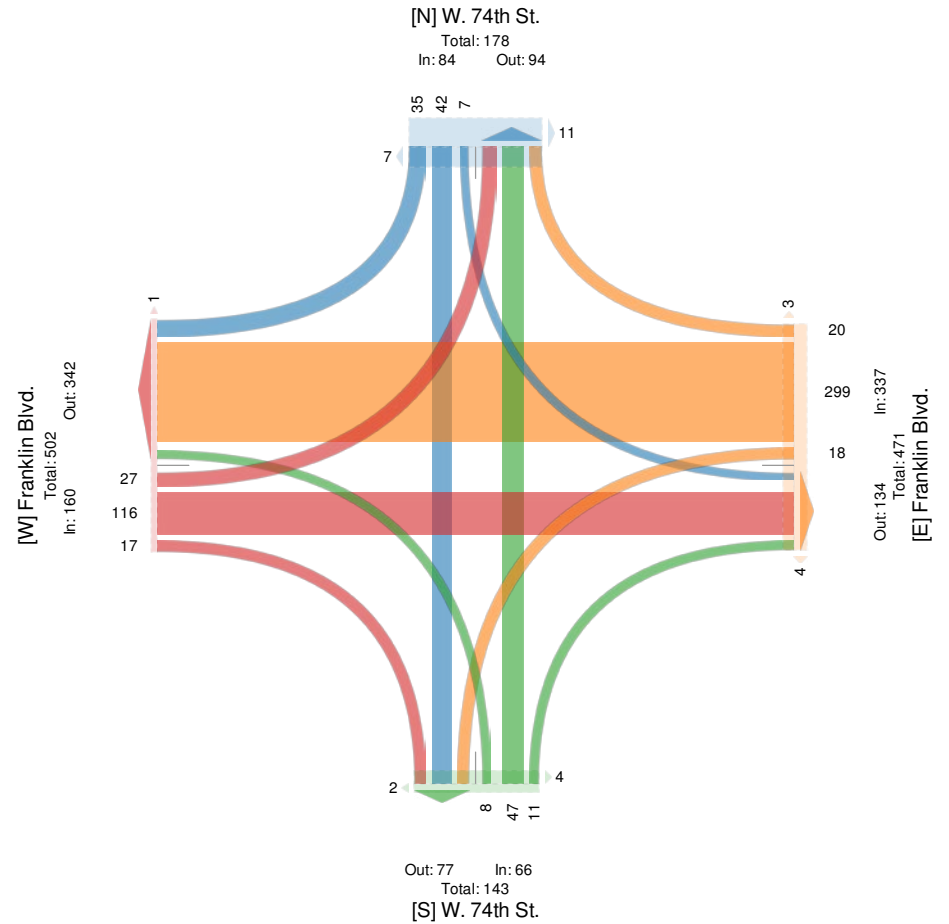
### AM Peak

7:30 a.m. -  
8:30 a.m.



### PM Peak

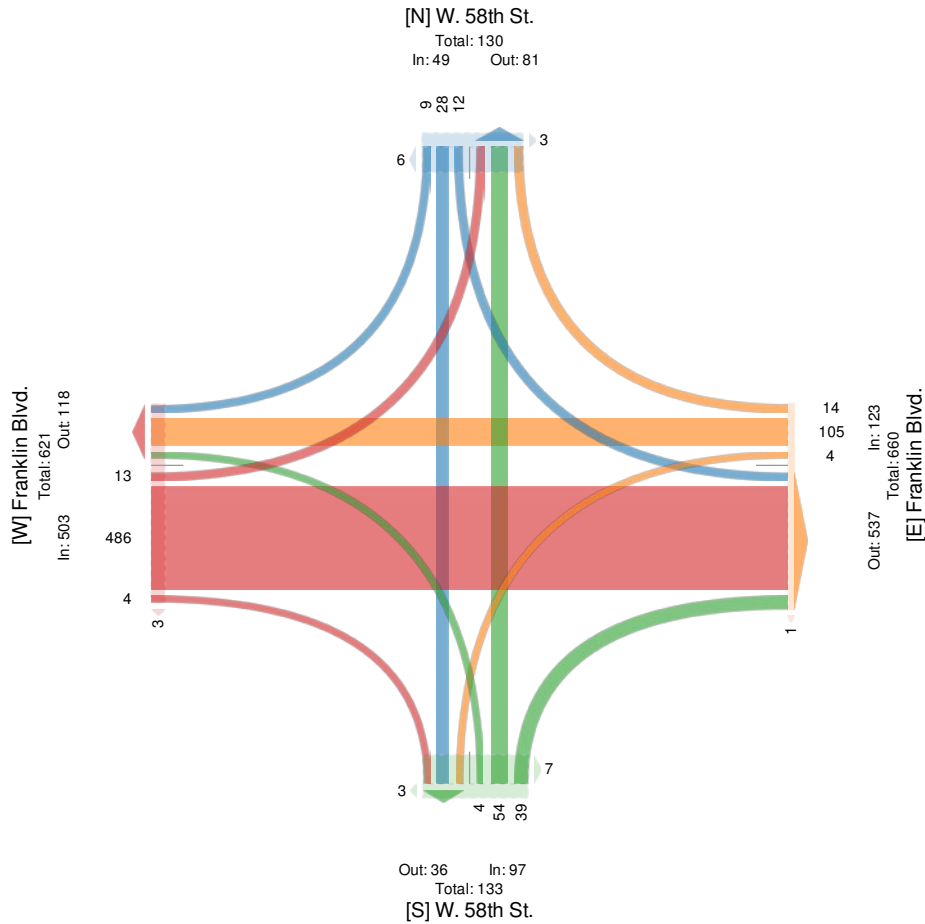
5:00 p.m. -  
6:00 p.m.



## Peak Hour Traffic Volume Diagrams - W. 58th St.

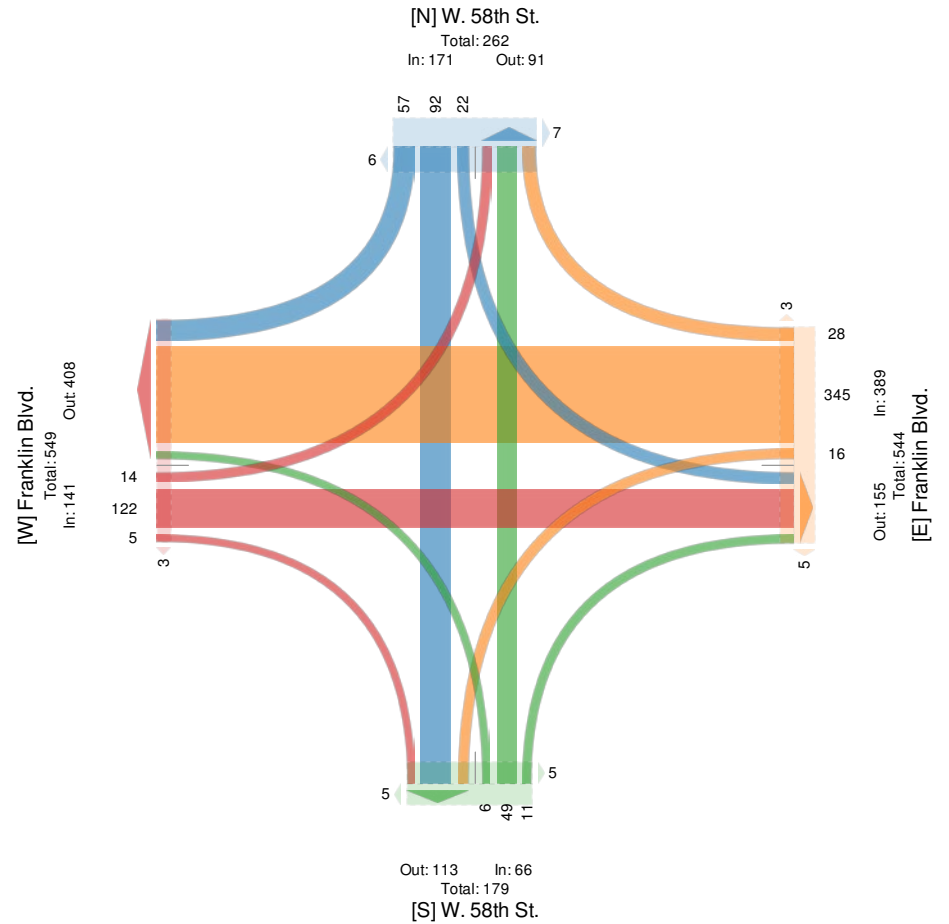
### AM Peak

7:45 a.m. -  
8:45 a.m.



### PM Peak

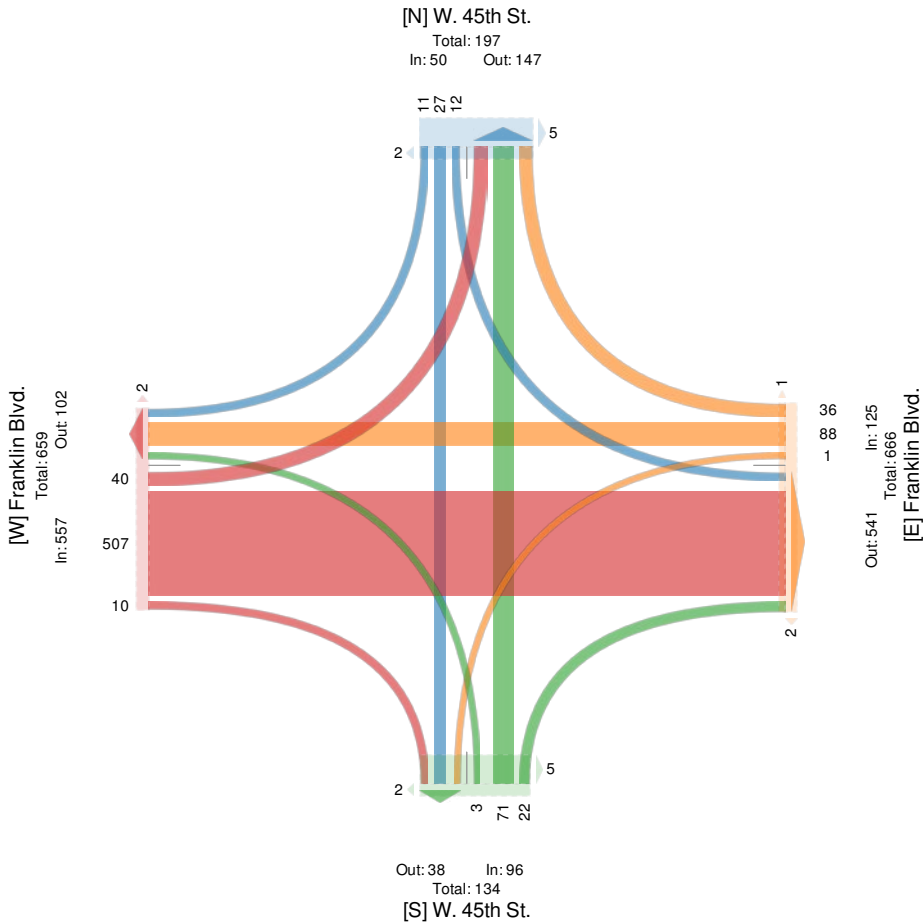
4:45 p.m. -  
5:45 p.m.



## Peak Hour Traffic Volume Diagrams - W. 45th St.

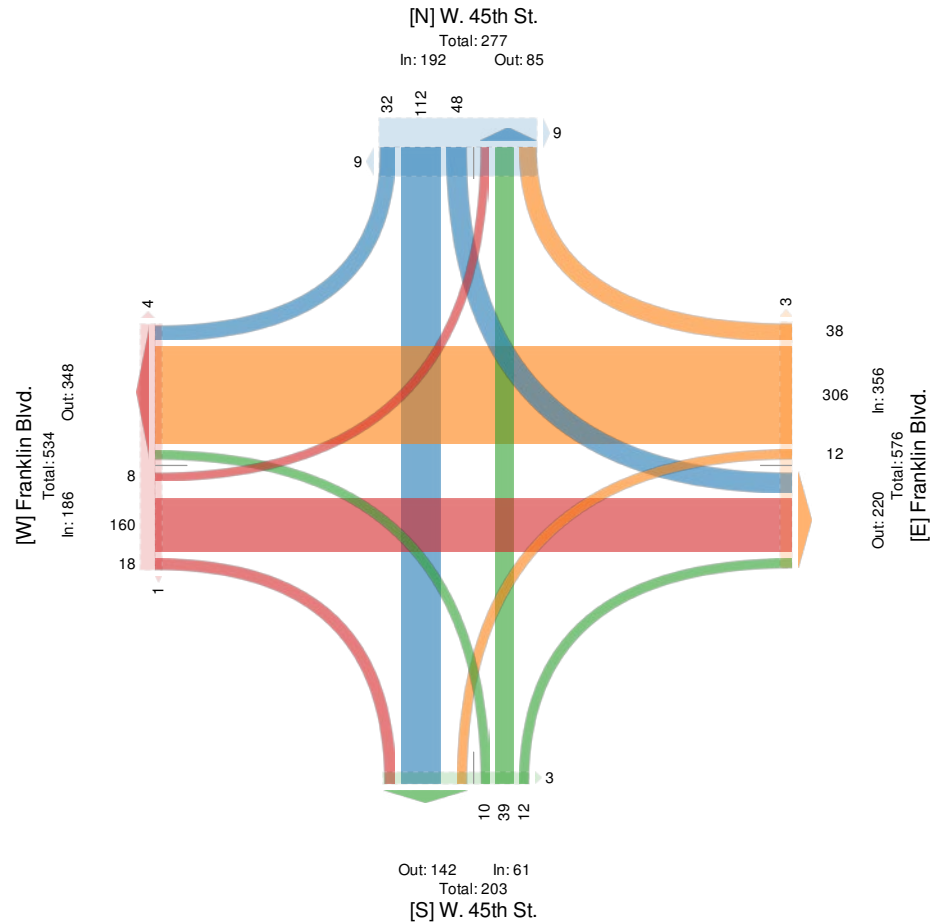
### AM Peak

7:30 a.m. -  
8:30 a.m.



### PM Peak

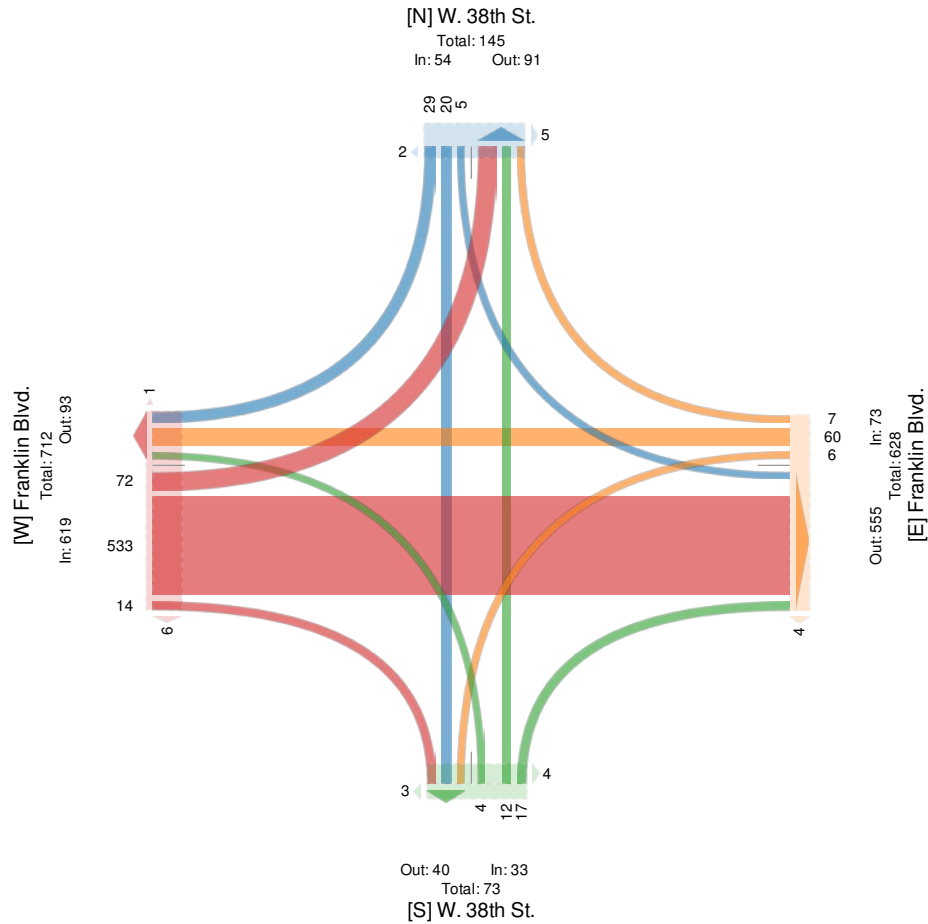
5:00 p.m. -  
6:00 p.m.



## Peak Hour Traffic Volume Diagrams - W. 38th St.

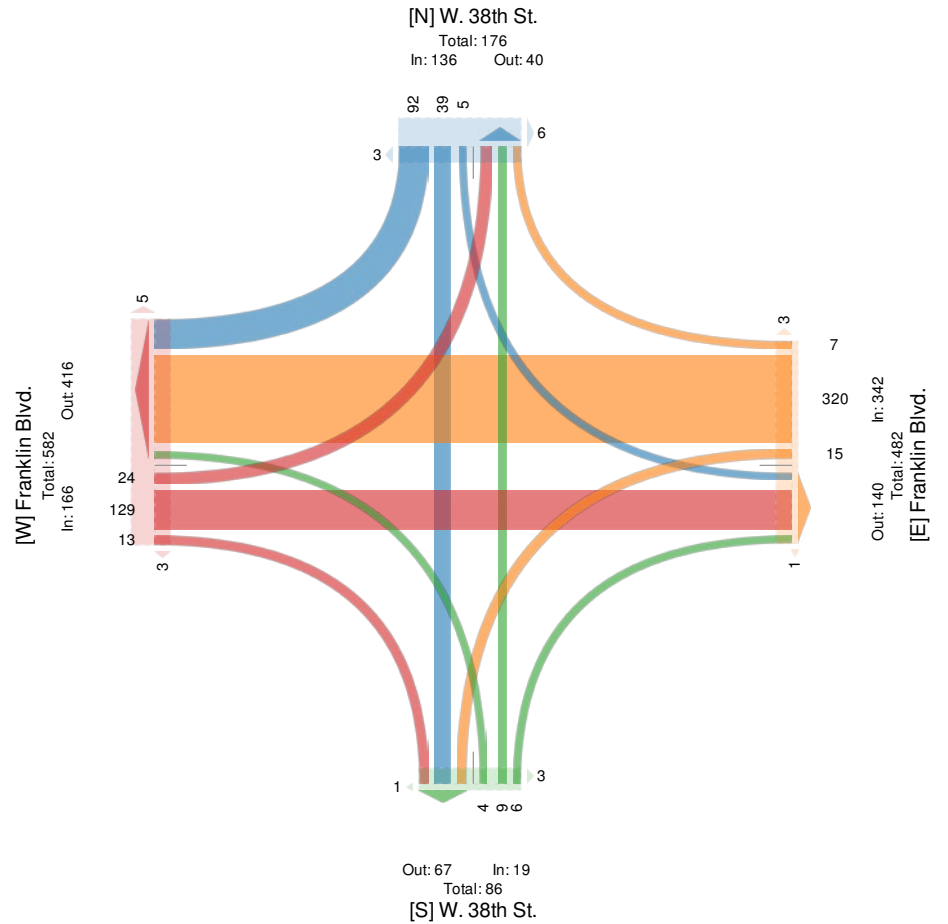
### AM Peak

7:30 a.m. -  
8:30 a.m.



### PM Peak

5:00 p.m. -  
6:00 p.m.



## Appendix G: Signal Warrant Analysis Methodology and Summaries

The Ohio Manual of Uniform Traffic Control Devices (OMUTCD) provides nine possible justifications for a traffic signal. This study addresses the first three of these justifications, described below. Chapter 4C of the Manual notes that meeting one or more is the minimum necessary to justify a traffic signal but that meeting this standard “shall not in itself require the installation of a traffic control signal.”

**Warrant 1:** Eight-Hour Vehicular Volume

**Warrant 2:** Four-Hour Vehicular Volume

**Warrant 3:** Peak Hour

### Warrant 1: Eight-Hour Vehicular Volume

Condition A: Applied at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

Condition B: Applied at locations where condition A is not satisfied and the minor road traffic experiences high delays and conflict in entering or crossing the major road.

At the 100 percent level, either Condition A or B must be met for eight hours. If neither condition is met, then the 80 percent level is analyzed. Both Conditions A and B must be met for the same eight hours at the 80 percent level. For each of any eight hours of an average day, the total volume in vehicles per hour (VPH) of the major road and the higher VPH of the two approaches of the minor road should exceed the minimum threshold traffic volumes defined in the OMUTCD.

The 100 percent traffic volume thresholds can be decreased to the 70 percent level if the posted speed limit exceeds 40 mph, or the intersection is in an isolated community with a population under 10,000.

### Warrant 2: Four-Hour Vehicular Volume

This warrant is applied where the volume of intersecting traffic is the main reason to consider installing a traffic control signal. The volume of at least four hours should exceed the minimum threshold outlined in the OMUTCD to justify this

warrant. The plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) all must fall above the applicable curve from the OMUTCD.

### Warrant 3: Peak Hour

This warrant is applied where traffic conditions are such that for at least one hour, the minor road traffic suffers undue delay. This signal warrant is applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time. The need for a traffic control signal would be considered if either of the following two categories are met:

**Category A:** If all three of the following conditions exist for the same 1 hour:

1. The total stopped time delay experienced by traffic on the minor street approach equals or exceeds OMUTCD thresholds; and
2. The volume on the same minor street approach equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; and
3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

**Category B:** The point representing the VPH (in both directions) on the major street and the corresponding VPH on the higher-volume minor street approach (one direction only) for any one hour of an average day should fall above the applicable OMUTCD thresholds.

**SIGNAL WARRANTS EVALUATION**

Intersection: Franklin Blvd. and W. 38th St.  
 Location : Cleveland, Ohio  
 Number of Lanes per approach: N= 1 S= 1 E= 1 W= 1  
 Does 70% warrant apply? No  
 Major Street speed limit: 35

Analysis By : NOACA  
 Traffic count date : 10/6/2016



		Hourly volumes			WARRANT #1								WARRANT	
		Major St. 2-way	Minor St. 1-way	Minor St. 1-way	Condition A				Condition B				#2	#3
Condition	No. of Lanes				100%		80%		100%		80%			
					Major	Minor	Major	Minor	Major	Minor	Major	Minor		
Normal	1				500	150	400	120	750	75	600	60	FOUR HOUR	PEAK HOUR
	2+				600	200	480	160	900	100	720	80		
70%*	1				350	105	280	84	525	53	420	42		
	2+				420	140	336	112	630	70	504	56		
MID to 1 AM														
1 AM to 2 AM														
2 AM to 3 AM														
3 AM to 4 AM														
4 AM to 5 AM														
5 AM to 6 AM														
6 AM to 7 AM														
7 AM to 8 AM		536	65	20	*		*					*		
8 AM to 9 AM		628	42	31	*		*				*			
9 AM to 10 AM														
10 AM to 11 AM														
11 AM to 12 Noon		227	36	32										
12 Noon to 1 PM		226	39	21										
1 PM to 2 PM														
2 PM to 3 PM														
3 PM to 4 PM		315	71	14								*		
4 PM to 5 PM		417	102	13			*		*		*	*		
5 PM to 6 PM		508	136	19	*		*	*	*		*	*		
6 PM to 7 PM		322	72	13								*		
7 PM to 8 PM														
8 PM to 9 PM														
9 PM to 10 PM														
10 PM to 11 PM														
11 PM to MID														
Hours Met					0		1		0		0		0	0
WARRANT SATISFIED					No		No		No		No		No	No

\* Condition is determined by environment: Use 70% values if the speed limit exceeds 40 mph on the major road or if the location is in a build up area of an isolated community with a population of less than 10,000.

**WARRANT #1 (Combination)**  
 Conditions A & B are each met at the 80% level: No

**WARRANT #4 (Pedestrian Volume)**  
 Hours with 107 or more pedestrians: 0  
 Hours with 133 or more pedestrians: 0  
 Distance to nearest traffic control on major street: 580'(currently)  
 Warrant Satisfied? No

**WARRANT #5 (School Crossing)**  
 At least 20 children crossing during highest volume hour: No  
 Gap analysis made during period: No  
 Pedestrian crossing time (t): N/A  
 Number of gaps greater than (t) during period: N/A  
 Distance to nearest traffic control on major street: 580'(currently)  
 Warrant Satisfied? N/A

**WARRANT #6 (COORDINATED SIGNAL SYSTEM)**  
 Distance to nearest signal in each direction on major street: N/A  
 Time space diagram (attached) shows that this location can be implemented into a system: N/A  
 Warrant Satisfied? N/A

**WARRANT #7 (CRASH EXPERIENCE)**  
 Adequate trial of less restrictive measures: N/A  
 Number of crashes per year which could be prevented: N/A  
 80% of warrant #1 or #2 satisfied: No  
 Warrant Satisfied? N/A

**WARRANT #8 (ROADWAY NETWORK)**  
 Both streets are considered major routes: No  
 At least 1000 V.P.H. during weekday peak hour: No  
 5-Year projection meets Warrant 1, 2, or 3: N/A  
 At least 1000 V.P.H. for any 5 hours on a Saturday or Sunday: N/A  
 Meets Characteristic requirements? N/A  
 Warrant Satisfied? N/A

**Warrant # 9 ( Intersection Near a Grade Crossing)**  
 Distance to nearest crossing on street with existing control: N/A  
 Warrant Satisfied? N/A

**SIGNAL WARRANTS EVALUATION**

Intersection: Franklin Blvd. and W. 45th St.  
 Location : Cleveland, Ohio  
 Number of Lanes per approach: N= 1 S= 1 E= 1 W= 1  
 Does 70% warrant apply? No  
 Major Street speed limit: 35

Analysis By : NOACA  
 Traffic count date : 10/6/2016



		Hourly volumes			WARRANT #1								WARRANT	
Condition	No. of Lanes	Major St. 2-way	Minor St. 1-way	Minor St. 1-way	Condition A				Condition B				#2 FOUR HOUR	#3 PEAK HOUR
					100%		80%		100%		80%			
					Major	Minor	Major	Minor	Major	Minor	Major	Minor		
Normal	1				500	150	400	120	750	75	600	60		
	2+				600	200	480	160	900	100	720	80		
70%*	1				350	105	280	84	525	53	420	42		
	2+				420	140	336	112	630	70	504	56		
MID to 1 AM														
1 AM to 2 AM														
2 AM to 3 AM														
3 AM to 4 AM														
4 AM to 5 AM														
5 AM to 6 AM														
6 AM to 7 AM														
7 AM to 8 AM		498	47	80			*		*		*			
8 AM to 9 AM		604	55	98	*		*		*	*	*			
9 AM to 10 AM														
10 AM to 11 AM														
11 AM to 12 Noon		265	64	29								*		
12 Noon to 1 PM		284	63	42								*		
1 PM to 2 PM														
2 PM to 3 PM														
3 PM to 4 PM		350	123	42				*		*		*		
4 PM to 5 PM		429	178	54		*	*	*		*		*		
5 PM to 6 PM		542	192	61	*	*	*	*		*		*		
6 PM to 7 PM		396	97	62						*		*		
7 PM to 8 PM														
8 PM to 9 PM														
9 PM to 10 PM														
10 PM to 11 PM														
11 PM to MID														
Hours Met					1	2	0	1	0	0	0	0		
WARRANT SATISFIED					No	No	No	No	No	No	No	No		

\* Condition is determined by environment: Use 70% values if the speed limit exceeds 40 mph on the major road or if the location is in a build up area of an isolated community with a population of less than 10,000.

**WARRANT #1 (Combination)**  
 Conditions A & B are each met at the 80% level: No

**WARRANT #4 (Pedestrian Volume)**  
 Hours with 107 or more pedestrians: 0  
 Hours with 133 or more pedestrians: 0  
 Distance to nearest traffic control on major street: 340'(currently)  
 Warrant Satisfied? No

**WARRANT #5 (School Crossing)**  
 At least 20 children crossing during highest volume hour: No  
 Gap analysis made during period: No  
 Pedestrian crossing time (t): N/A  
 Number of gaps greater than (t) during period: N/A  
 Distance to nearest traffic control on major street: 340'(currently)  
 Warrant Satisfied? N/A

**WARRANT #6 (COORDINATED SIGNAL SYSTEM)**  
 Distance to nearest signal in each direction on major street: N/A  
 Time space diagram (attached) shows that this location can be implemented into a system: N/A  
 Warrant Satisfied? N/A

**WARRANT #7 (CRASH EXPERIENCE)**  
 Adequate trial of less restrictive measures: N/A  
 Number of crashes per year which could be prevented: N/A  
 80% of warrant #1 or #2 satisfied: No  
 Warrant Satisfied? N/A

**WARRANT #8 (ROADWAY NETWORK)**  
 Both streets are considered major routes: No  
 At least 1000 V.P.H. during weekday peak hour: No  
 5-Year projection meets Warrant 1, 2, or 3: N/A  
 At least 1000 V.P.H. for any 5 hours on a Saturday or Sunday: N/A  
 Meets Characteristic requirements? N/A  
 Warrant Satisfied? N/A

**Warrant # 9 ( Intersection Near a Grade Crossing)**  
 Distance to nearest crossing on street with existing control: N/A  
 Warrant Satisfied? N/A

**SIGNAL WARRANTS EVALUATION**

Intersection: Franklin Blvd. and W. 58th St.  
 Location : Cleveland, Ohio  
 Number of Lanes per approach: N= 1 S= 1 E= 1 W= 1  
 Does 70% warrant apply? No  
 Major Street speed limit: 35

Analysis By : NOACA  
 Traffic count date : 10/6/2016



		Hourly volumes			WARRANT #1								WARRANT	
		Major St. 2-way	Minor St. 1-way	Minor St. 1-way	Condition A				Condition B				#2 FOUR HOUR	#3 PEAK HOUR
Condition	No. of Lanes				100%		80%		100%		80%			
					Major	Minor	Major	Minor	Major	Minor	Major	Minor		
Normal	1				500	150	400	120	750	75	600	60		
	2+				600	200	480	160	900	100	720	80		
70%*	1				350	105	280	84	525	53	420	42		
	2+				420	140	336	112	630	70	504	56		
MID to 1 AM														
1 AM to 2 AM														
2 AM to 3 AM														
3 AM to 4 AM														
4 AM to 5 AM														
5 AM to 6 AM														
6 AM to 7 AM														
7 AM to 8 AM		456	47	82			*		*		*			
8 AM to 9 AM		571	44	87	*		*		*		*			
9 AM to 10 AM														
10 AM to 11 AM														
11 AM to 12 Noon		230	50	40										
12 Noon to 1 PM		243	58	45										
1 PM to 2 PM														
2 PM to 3 PM														
3 PM to 4 PM		379	111	39					*		*			
4 PM to 5 PM		451	157	51		*	*	*	*		*			
5 PM to 6 PM		523	164	65	*	*	*	*	*		*			
6 PM to 7 PM		341	93	66					*		*			
7 PM to 8 PM														
8 PM to 9 PM														
9 PM to 10 PM														
10 PM to 11 PM														
11 PM to MID														
Hours Met					1		2		0		0		0	0
WARRANT SATISFIED					No		No		No		No		No	No

\* Condition is determined by environment: Use 70% values if the speed limit exceeds 40 mph on the major road or if the location is in a build up area of an isolated community with a population of less than 10,000.

**WARRANT #1 (Combination)**  
 Conditions A & B are each met at the 80% level: No

**WARRANT #4 (Pedestrian Volume)**  
 Hours with 107 or more pedestrians: 0  
 Hours with 133 or more pedestrians: 0  
 Distance to nearest traffic control on major street: 780'(currently)  
 Warrant Satisfied? No

**WARRANT #5 (School Crossing)**  
 At least 20 children crossing during highest volume hour: No  
 Gap analysis made during period: No  
 Pedestrian crossing time (t): N/A  
 Number of gaps greater than (t) during period: N/A  
 Distance to nearest traffic control on major street: 780'(currently)  
 Warrant Satisfied? N/A

**WARRANT #6 (COORDINATED SIGNAL SYSTEM)**  
 Distance to nearest signal in each direction on major street: N/A  
 Time space diagram (attached) shows that this location can be implemented into a system: N/A  
 Warrant Satisfied? N/A

**WARRANT #7 (CRASH EXPERIENCE)**  
 Adequate trial of less restrictive measures: N/A  
 Number of crashes per year which could be prevented: N/A  
 80% of warrant #1 or #2 satisfied: No  
 Warrant Satisfied? N/A

**WARRANT #8 (ROADWAY NETWORK)**  
 Both streets are considered major routes: No  
 At least 1000 V.P.H. during weekday peak hour: No  
 5-Year projection meets Warrant 1, 2, or 3: N/A  
 At least 1000 V.P.H. for any 5 hours on a Saturday or Sunday: N/A  
 Meets Characteristic requirements? N/A  
 Warrant Satisfied? N/A

**Warrant # 9 ( Intersection Near a Grade Crossing)**  
 Distance to nearest crossing on street with existing control: N/A  
 Warrant Satisfied? N/A

**SIGNAL WARRANTS EVALUATION**

Intersection: Franklin Blvd. and W. 74th St.  
 Location : Cleveland, Ohio  
 Number of Lanes per approach: N= 1 S= 1 E= 1 W= 1  
 Does 70% warrant apply? No  
 Major Street speed limit: 35

Analysis By : NOACA  
 Traffic count date : 10/6/2016



		Hourly volumes			WARRANT #1								WARRANT	
Condition	No. of Lanes	Major St. 2-way	Minor St. 1-way	Minor St. 1-way	Condition A				Condition B				#2 FOUR HOUR	#3 PEAK HOUR
					100%		80%		100%		80%			
					Major	Minor	Major	Minor	Major	Minor	Major	Minor		
Normal	1				500	150	400	120	750	75	600	60		
	2+				600	200	480	160	900	100	720	80		
70%*	1				350	105	280	84	525	53	420	42		
	2+				420	140	336	112	630	70	504	56		
MID to 1 AM														
1 AM to 2 AM														
2 AM to 3 AM														
3 AM to 4 AM														
4 AM to 5 AM														
5 AM to 6 AM														
6 AM to 7 AM														
7 AM to 8 AM		428	17	85			*		*		*			
8 AM to 9 AM		568	5	89	*		*		*		*			
9 AM to 10 AM														
10 AM to 11 AM														
11 AM to 12 Noon		232	35	35										
12 Noon to 1 PM		228	49	48										
1 PM to 2 PM														
2 PM to 3 PM														
3 PM to 4 PM		392	23	51										
4 PM to 5 PM		419	57	48			*							
5 PM to 6 PM		497	84	66			*		*		*			
6 PM to 7 PM		304	73	57							*			
7 PM to 8 PM														
8 PM to 9 PM														
9 PM to 10 PM														
10 PM to 11 PM														
11 PM to MID														
Hours Met					0	0	0	0	0	0	0	0	0	0
WARRANT SATISFIED					No	No	No	No	No	No	No	No	No	No

\* Condition is determined by environment: Use 70% values if the speed limit exceeds 40 mph on the major road or if the location is in a build up area of an isolated community with a population of less than 10,000.

**WARRANT #1 (Combination)**  
 Conditions A & B are each met at the 80% level: No

**WARRANT #4 (Pedestrian Volume)**  
 Hours with 107 or more pedestrians: 0  
 Hours with 133 or more pedestrians: 0  
 Distance to nearest traffic control on major street: 1,600'  
 Warrant Satisfied? No

**WARRANT #5 (School Crossing)**  
 At least 20 children crossing during highest volume hour: No  
 Gap analysis made during period: No  
 Pedestrian crossing time (t): N/A  
 Number of gaps greater than (t) during period: N/A  
 Distance to nearest traffic control on major street: 1,600'  
 Warrant Satisfied? N/A

**WARRANT #6 (COORDINATED SIGNAL SYSTEM)**  
 Distance to nearest signal in each direction on major street: N/A  
 Time space diagram (attached) shows that this location can be implemented into a system: N/A  
 Warrant Satisfied? N/A

**WARRANT #7 (CRASH EXPERIENCE)**  
 Adequate trial of less restrictive measures: N/A  
 Number of crashes per year which could be prevented: N/A  
 80% of warrant #1 or #2 satisfied: No  
 Warrant Satisfied? N/A

**WARRANT #8 (ROADWAY NETWORK)**  
 Both streets are considered major routes: No  
 At least 1000 V.P.H. during weekday peak hour: No  
 5-Year projection meets Warrant 1, 2, or 3: N/A  
 At least 1000 V.P.H. for any 5 hours on a Saturday or Sunday: N/A  
 Meets Characteristic requirements? N/A  
 Warrant Satisfied? N/A

**Warrant # 9 ( Intersection Near a Grade Crossing)**  
 Distance to nearest crossing on street with existing control: N/A  
 Warrant Satisfied? N/A

## Appendix H: Existing Curb Ramp Inventory\*

Intersection	Type	Curb Ramp Condition				Potential Ramp Upgrade(s) Needed?
		Northeast	Northwest	Southeast	Southwest	
W. 25th	T		P-TD	P-TD	P-TD	
CLE Clinic Parking	T		C, steep		P-TD, steep	Y
W. 28th St./Fulton Ave.	X	C	C	C	C	Y
W. 29th St.	T	C, steep	C, steep			Y
W. 31st St.	T			C, steep	C	Y
W. 32nd St.	X	C, steep	C	C, steep	C	Y
W. 38th St.	X	P-TD	P-TD	P-TD	P-TD	
W. 44th St.	T	P-TD	P-TD	P-TD	P-TD	
W. 45th St.	X	C-TD, worn	C-TD, worn	C-TD, worn	C-TD, worn	Y
W. 47th St.	T			C	C	Y
W. 48th St.	X	C, steep	C, steep	C	C	Y
W. 50th St.	X	C-TD	C-TD	C-TD	C-TD	
W. 52nd St.	X	C	C	C	C	Y
W. 54th St.	X	C	C	C, steep	C, steep	Y
W. 57th St.	X	C-TD	C-TD	C-TD	C-TD	
W. 58th St.	X	P-TD	P-TD	P-TD	P-TD	
W. 65th St.	X	C	P-TD	C	C	Y
W. 69th St.	T		C-TD, worn		C-TD	Y
W. 71st St.	T			C-TD	C-TD	
W. 73rd St.	T			C-TD	C-TD	
W. 74th St.	X	C-TD	C-TD	C-TD	C-TD	
W. 75th St.	X	P-TD	P-TD	C	C	Y
W. 77th St. (N)	T	P-TD	P-TD			
W. 77th St. (S)	T			P-TD	P-TD	
W. 79th St.	T			P-TD	C	Y
W. 80th St.	X	P-TD	P-TD	P-TD	P-TD	
W. 81st St.	T	C-TD, worn	C-TD, worn			Y
W. 84th St.	T	C-TD, worn	C-TD, worn, steep			Y
W. 85th St.	X	C-TD, worn	C-TD, worn		C-TD, worn	Y

### Condition Key:

P = plastic on ramp (e.g., truncated domes)

C = concrete ramp

TD = truncated dome

steep = ramp appears too steep

worn = ramp is worn down

\* Note: The inventory was conducted in fall 2017; the condition of curb ramps may have changed.

## Appendix I: Neighborhood Traffic Circle Design Resources and Examples

### Arlington, VA

- <https://topics.arlingtonva.us/wp-content/uploads/sites/21/2013/12/H-3.12-Traffic-Circles.pdf>
- Minimum intersection diameter of 41', minimum center island diameter of 9'
- Opening width ranges from 16'-20'
- Typical section included

### Seattle

- <http://www.seattle.gov/transportation/projects-and-programs/safety-first/neighborhood-traffic-operations/traffic-circles>
- No geometric design guidance on the website, but there is a standard detail about the materials

### San Francisco

- [https://www.sf-planning.org/ftp/BetterStreets/docs/FINAL\\_5\\_Street\\_Designs.pdf](https://www.sf-planning.org/ftp/BetterStreets/docs/FINAL_5_Street_Designs.pdf)
- The opening width ranges from 16'-20', and the center island diameter ranges from 12'-20'. The city has standard drawings.

### Portland

- Design guidance specifies a minimum 13' opening width and specifies how to accommodate various design vehicles. Additional detailed guidance is included.

### Madison

- <https://www.cityofmadison.com/trafficEngineering/ntmpfaq.cfm>
- The Neighborhood Traffic Management webpage shows photos of a temporary traffic circle, mocked up with traffic cones, for the purpose of testing navigation by large vehicles (school bus, fire truck, garbage truck).

### Kittelson & Associates

- <http://roundabouts.kittelson.com/>
- The roundabout Inventory specifies roundabouts by type, including neighborhood traffic circles.

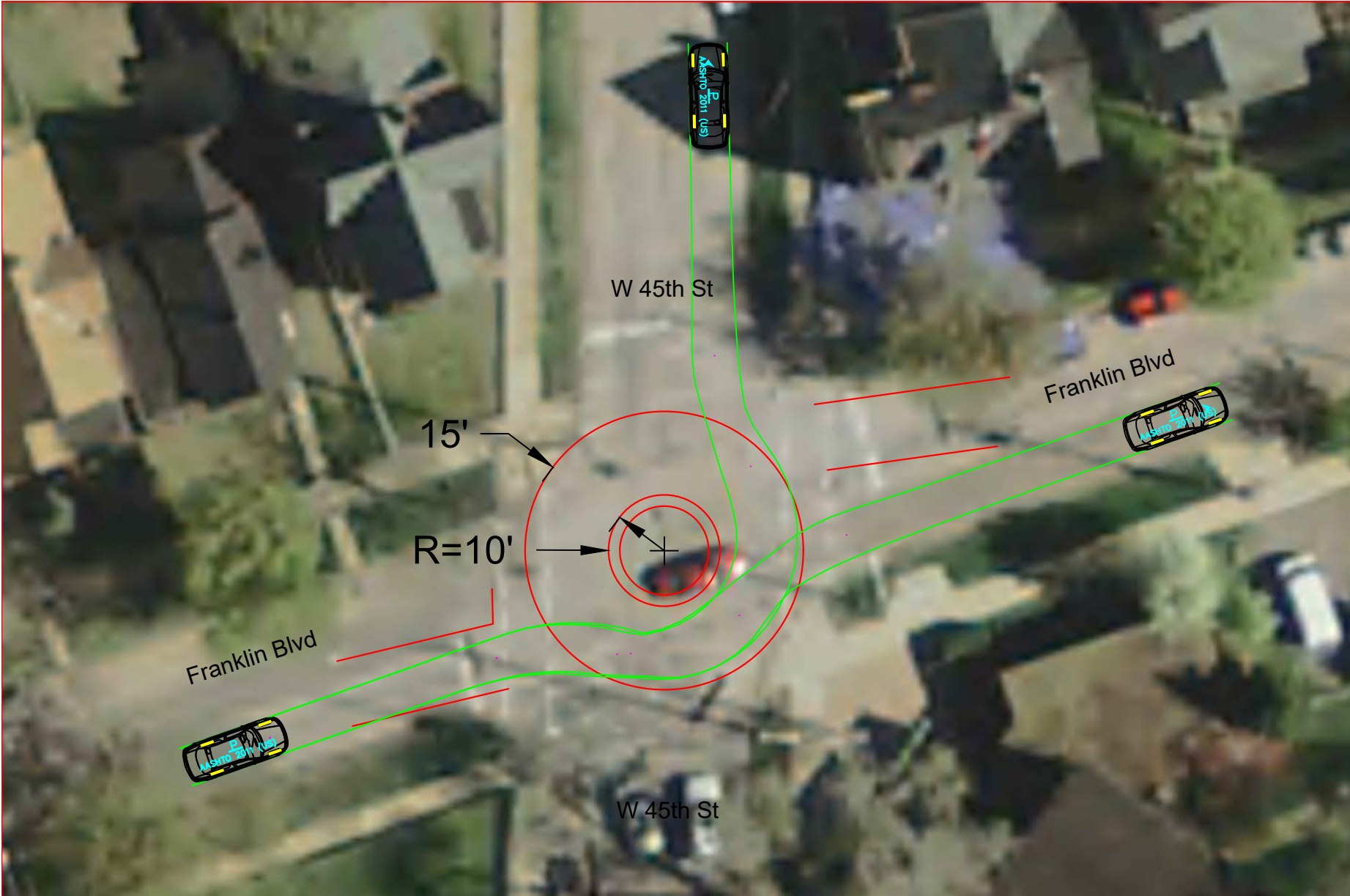
### National Association of City Transportation Officials (NACTO)

- Urban Street Design Guide: Page 99, mini roundabouts or neighborhood traffic circles, a 15' travel lane is recommended, as measured from the street corner to the traffic circle.

### Federal Highway Administration (FHWA)

- [https://nacto.org/wp-content/uploads/2015/04/fhwasa10007\\_MiniRoundabouts.pdf](https://nacto.org/wp-content/uploads/2015/04/fhwasa10007_MiniRoundabouts.pdf)
- Mini-Roundabouts Technical Summary: Guidance on mini-roundabouts, but no guidance on neighborhood traffic circles. Some guidance in this document could be applied to neighborhood traffic circles, such as splitter island geometry.

AutoTURN Passenger Vehicle Output Diagram



AutoTURN School Bus Output Diagram



## Appendix J: Raised Crosswalk and Other Traffic Calming Resources and Examples

### Raised Crosswalk FHWA/ITE Summary

#### Policy:

- Can be placed mid-block or at an intersection
- Generally installed on residential local or collector streets (or low-speed arterial streets through commercial districts)
- Generally installed on streets with 25 to 35 mph speed limits
- Generally not appropriate when 85th percentile speed is 45 mph or more
- Can be installed at high pedestrian volume, high vehicle volume locations
- Bicyclists should not be affected
- Emergency Vehicle Routes typically require special care and coordination
- Typically not installed on bus routes
- Many cities have resident application processes for consideration

#### Design:

- Typically between 3 and 6 inches above the roadway
- Most commonly consists of a 10-foot plateau with 6-foot approaches on either side that can be straight, parabolic, or sinusoidal in profile
- May impact street drainage

Learn more from FHWA: [https://safety.fhwa.dot.gov/speedmgt/ePrimer\\_modules/module3pt2.cfm#mod314](https://safety.fhwa.dot.gov/speedmgt/ePrimer_modules/module3pt2.cfm#mod314)

Learn more from ITE: <https://library.ite.org/pub/2c8edbf0c48-b1f3-c506-9e8e72dd3992>

#### Safety Benefits:

- 30% reduction in all crashes, 36% reduction in fatal/injury crashes
- Lower vehicle speeds; single raised crosswalk reduces 85th percentile speed to 20-30 mph range when crossing—speed reduction effects decline farther away from the crosswalk
- Pedestrians and motorists are more visible to one another
- May improve motorist yield rates

## Example Municipal Guidelines and Programs

Many cities have procedures for residents to request traffic calming on their streets. These processes typically involve submitting a formal request, including proof of resident support, on a street that meets certain requirements. The request is not a guarantee that traffic calming will be implemented. Some cities have a prioritized list and will implement what they are able to. Others will take the location into consideration for an engineering review or study to determine whether and what type of traffic calming should actually be considered. Here are information and links to city programs and guidelines on traffic calming, raised crosswalks, or speed hump installation.

### Boulder, CO

#### *Neighborhood Speed Management Program*

<https://bouldercolorado.gov/transportation/nsmp>

- Traffic Calming Criteria:
  - Residential and collector streets
  - 85th-percentile speeds greater than 3 mph over the speed limit
  - Need signatures of neighbors
  - City staff ranks and prioritizes applications for consideration
- Raised Crosswalk Guidelines:
  - On well-used pedestrian crossing locations
  - Typically 6" high

### Charlotte, NC

#### *Neighborhood Traffic Management Program*

<http://charlottenc.gov/Transportation/Programs/Pages/TrafficCalming.aspx>

- Speed Hump Criteria:
  - A street must be classified as a two-lane, local residential street.
  - Average Weekday Traffic (AAWT) volumes should be greater than 1,000.
  - The speed of 15% of the vehicles should be equal to or greater than five miles over the posted speed limit.
  - Grade is less than or equal to 8%.
  - Horizontal radius of the street is less than or equal to 300.

- Street's current speed limit should be posted as 25 mph if it is a local street, or 30 mph if it is a neighborhood collector.
- Street should not be a primary emergency response route.

### Fairfax, VA

#### *Traffic Calming Program*

<http://www.fairfaxva.gov/government/public-works/transportation-division/neighborhood-traffic-program>

- No Criteria listed. Traffic Calming Study is undertaken after resident petition to include a study of all aspects of the roadway in question.

### New York City

#### *Traffic Calming Design Guidelines*

<http://www.nyc.gov/html/dot/html/pedestrians/traffic-calming.shtml>

- "Raised Speed Reducer" Criteria (document specifies same criteria for raised crosswalk):
  - 85th-percentile speed equal to or greater than 30 mph
  - Street shall not be designated as a Local or Through truck route
  - Street shall not be on bus route
  - Street shall not be on an emergency vehicle route or snow emergency route
  - Street shall not have a Fire Department house or hospital emergency entrance located on the block
  - Two thru-lanes maximum
  - Areas of high pedestrian crossing demand, where demand for stop-controlled crossing exists
  - Not at a critical point in a roadway system (e.g., at a severe horizontal or vertical curvature) or on streets with more than an 8% grade

### Portland, OR

#### *Speed Hump Peer Review*

[https://nacto.org/docs/usdg/speed\\_bumps\\_portland.pdf](https://nacto.org/docs/usdg/speed_bumps_portland.pdf)

- There is also a lot of other information on City of Portland's website

## San Francisco, CA

### *Residential Traffic Calming Program*

- <https://www.sfmta.com/getting-around/walk/residential-traffic-calming-program>
- Residents may submit applications signed by neighbors
- Traffic Calming eligibility criteria:
  - Local residential streets
  - Generally two travel lanes
  - Generally  $\leq 7,500$  ADT
  - 85th percentile speeds greater than 5 mph over speed limit, unless justified by other data (volumes, crash history, land uses, etc.)
- Raised Crosswalk design guidelines (SFBetterStreets.org):
  - As a standard treatment at alleys and shared public ways
  - Where low-volume streets intersect with high-volume streets, such as at alley entrances, neighborhood residential streets, and local access lanes of multi-way boulevards.
  - Where a street changes its function or street type. For example, a commercial thoroughway may become a neighborhood commercial or a residential street as the land uses along it change.
  - At key civic locations
  - Be long enough in the direction of travel to allow both front and rear wheels of a passenger vehicle to be on top of the table at the same time – typically 10 feet. Specific lengths should be determined by using the ITE/FHWA document Traffic Calming: State of the Practice

## San Jose, CA

### *Traffic Calming Toolkit*

<http://www.sanjoseca.gov/DocumentCenter/Home/View/235>

- Road Humps criteria:
  - Residential 2-lane local or minor neighborhood collector roadways

- 30 mph maximum speed limit

## Toronto

### *Traffic Calming*

<https://www.toronto.ca/services-payments/streets-parking-transportation/traffic-management/traffic-calming/>

- Traffic Calming Criteria:
  - 85th-percentile speed at least 6 mph over the speed limit
  - Local Roads ADT: 1,000-8,000
  - Collector Roads ADT: 2,500-8,000
  - No significant impacts on transit or emergency services vehicles

## Washington, D.C.

### *Traffic Calming and Traffic Safety Investigation*

<https://ddot.dc.gov/page/traffic-calming-and-traffic-safety-101>

- Traffic Calming Criteria:
  - Local, residential street
  - 30 mph maximum speed limit
  - Experience speeds higher than the speed limit
  - Minimum ADT of 350

## Appendix K: Detailed Conceptual Cost Estimates

Recommendation	Quantity	Unit Cost	Item Total Cost
W. 85th St. curve tightening and crosswalks			
<i>Curb extension</i>	1	\$40,000	\$40,000
<i>Painted crosswalk</i>	2	\$3,000	\$6,000
<i>Ramps</i>	2	\$2,000	\$4,000
W. 81st St. and W. 80th St. curb extensions			
<i>Curb extension</i>	1	\$10,000	\$10,000
<i>Curb extension</i>	1	\$20,000	\$20,000
W. 77th St. (S) crossing enhancements			
<i>Raised crosswalk</i>	1	\$20,000	\$20,000
<i>Curb extension</i>	1	\$10,000	\$10,000
W. 77th St. (N) curb extension	1	\$20,000	\$20,000
W. 74th St. neighborhood traffic circle	1	\$20,000	\$20,000
W. 69th St. school crossing enhancements			
<i>Raised crosswalk</i>	1	\$20,000	\$20,000
<i>Curb extension</i>	1	\$10,000	\$10,000
<i>Rectangular Rapid Flashing Beacon</i>	1	\$20,000	\$20,000
Clinton/W. 65th St. new crossing			\$0
<i>Raised crosswalk</i>	1	\$20,000	\$20,000
<i>Curb extension</i>	1	\$10,000	\$10,000
W. 65th St. enhancements			
<i>Curb extensions (three corners), allows bike lanes</i>	1	\$65,000	\$65,000
<i>High-visibility marked crosswalk</i>	4	\$3,000	\$12,000
W. 58th St. neighborhood traffic circle	1	\$20,000	\$20,000
W. 54th St. neighborhood traffic circle	1	\$20,000	\$20,000
W. 57th St. school crossing enhancements			
<i>Raised crosswalk</i>	1	\$20,000	\$20,000
<i>Curb extension</i>	1	\$20,000	\$20,000
<i>Curb extension</i>	1	\$15,000	\$15,000
<i>Rectangular Rapid Flashing Beacon</i>	1	\$20,000	\$20,000

Note: More refined cost estimates for use in funding applications should be developed by City of Cleveland departments in coordination.

<b>Recommendation</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>Item Total Cost</b>
W. 52nd St.			
<i>Curb extension</i>	1	\$10,000	\$10,000
<i>Curb extension</i>	1	\$15,000	\$15,000
<i>Access driveway closure at W. 52nd St.</i>	1	\$2,000	\$2,000
W. 50th St. neighborhood traffic circle	1	\$20,000	\$20,000
W. 48th St. neighborhood traffic circle	1	\$20,000	\$20,000
W. 45th St. neighborhood traffic circle	1	\$20,000	\$20,000
W. 44th St.			
<i>Raised crosswalk</i>	1	\$20,000	\$20,000
<i>Curb extension</i>	2	\$20,000	\$40,000
W. 38th St.	1		
<i>Neighborhood traffic circle</i>	1	\$20,000	\$20,000
<i>In-street pedestrian crossing signs</i>	2	\$500	\$1,000
W. 32nd St. crossing enhancements			
<i>Raised crosswalk</i>	1	\$20,000	\$20,000
<i>Curb extension</i>	1	\$10,000	\$10,000
W. 29th St. crossing enhancements			
<i>Raised crosswalk</i>	1	\$20,000	\$20,000
<i>Curb extension</i>	1	\$15,000	\$15,000
Lutheran Hospital crossing enhancement			
<i>Raised crosswalk</i>	1	\$20,000	\$20,000
Franklin Blvd. lane reconfiguration and crosswalk at W. 25th St.			
<i>Lane reconfiguration</i>	1	\$5,000	\$5,000
<i>Crosswalk</i>	1	\$3,000	\$3,000

<b>Neighborhood Traffic Circles Subtotal</b>	\$140,000
30% Contingency	\$42,000
<b>Subtotal</b>	\$182,000
15% Design Engineering Cost	\$27,300
15% Construction Engineering Cost	\$27,300
<b>Total</b>	<b>\$236,600</b>
<hr/>	
<b>Crossing Improvements Subtotal</b>	\$226,000
30% Contingency	\$67,800
<b>Subtotal</b>	\$293,800
15% Design Engineering Cost	\$44,070
15% Construction Engineering Cost	\$44,070
<b>Total</b>	<b>\$381,940</b>
<hr/>	
<b>Curb Extensions Subtotal</b>	\$310,000
30% Contingency	\$93,000
<b>Subtotal</b>	\$403,000
15% Design Engineering Cost	\$60,450
15% Construction Engineering Cost	\$60,450
<b>Total</b>	<b>\$523,900</b>
<hr/>	
<b>Other Subtotal</b>	\$7,000
30% Contingency	\$2,100
<b>Subtotal</b>	\$9,100
15% Design Engineering Cost	\$1,365
15% Construction Engineering Cost	\$1,365
<b>Total</b>	<b>\$11,830</b>
<hr/>	
<b>Total - All Recommendations</b>	<b>\$1,154,270</b>

**Appendix L: Temporary Traffic Calming Demonstration Results Report**  
(Produced by the City of Cleveland Planning Commission)



# Franklin Boulevard

## Temporary Traffic Calming Demonstration Results



*A case study compiled to inform final  
recommendations for the Franklin  
Boulevard Traffic Calming Study*

November, 2018

### *Report Highlights*

- From July 24 through August 10, 2018, the City of Cleveland, Ohio conducted a temporary demonstration of traffic diverters, or half-closures, at three intersections (W. 85th Street, W. 65th Street, and W. 54th Street) along Franklin Boulevard.
- The diverter demonstration was designed to gather data on one specific intervention option (traffic diversion) to inform a broader traffic calming planning process for the corridor led by the metropolitan planning organization for the region, NOACA (Northeast Ohio Area-wide Coordinating Agency).
- Before and during the demonstration, data were collected on traffic volumes along Franklin Boulevard and several adjacent streets, traffic speeds along Franklin Boulevard, and community perceptions of traffic diverters.
- Although traffic volumes decreased along Franklin Boulevard and some adjacent residential streets during the demonstration period, volumes on a few streets (W. 54th Street, West Clinton Avenue, W. 74<sup>th</sup> Street, and Bridge Avenue) increased markedly, which was counter to City and neighborhood goals for the traffic calming demonstration.
- Speed data indicate that the traffic diverters, as placed during the demonstration, did not measurably change the speed of cars along Franklin Boulevard.
- Although many community members indicated that they felt safer walking or riding a bicycle along Franklin Boulevard during the demonstration period, 69 to 75 percent of survey respondents (depending on intersection location) indicated they were “not at all interested” in permanent traffic diversion at the sites of the three temporary traffic diverters.
- Given the lessons learned through this demonstration, changes in diverter placement along the corridor could potentially yield more desirable impacts on traffic speed and volume. **However, due to community feedback, the City of Cleveland recommends that traffic diverters not be included in the final recommendations to calm traffic along Franklin Boulevard.**

## Franklin Boulevard Temporary Traffic Calming Demonstration Results

### *Traffic Diverters/Half-Closures as a Traffic Calming Measure*

Traffic diverters are permanent physical barriers that are installed at certain street intersections to limit turning or through movements in specific directions. Diverters are especially effective in reducing cut-through traffic in residential areas, and are included as an approved traffic calming strategy in guidance from the Federal Highway Administration (FHWA), the American Association of State Highway and

Transportation Officials (AASHTO), and the National Association of City Transportation Officials (NACTO). Traffic diverters have been used successfully in North American cities such as Portland and Seattle to create residential streets that are calmer and safer for people walking, bicycling, living, and playing along the corridor. These street treatments are sometimes referred to as “neighborhood greenways” or “bicycle boulevards” (Figure 1).



**Figure 1.** Half-closure traffic diverter rendering by *Alta Planning + Design* for a Palo Alto bicycle boulevard

Research indicates that although traffic diverters can achieve desired reductions in vehicle volume, they can also cause unintended consequences depending on placement, including the potential to shift traffic issues to adjacent residential streets and to cause inconvenience for local residents. For this reason, best practice guidance recommends careful consideration before permanent implementation.

### *Context of Franklin Boulevard*

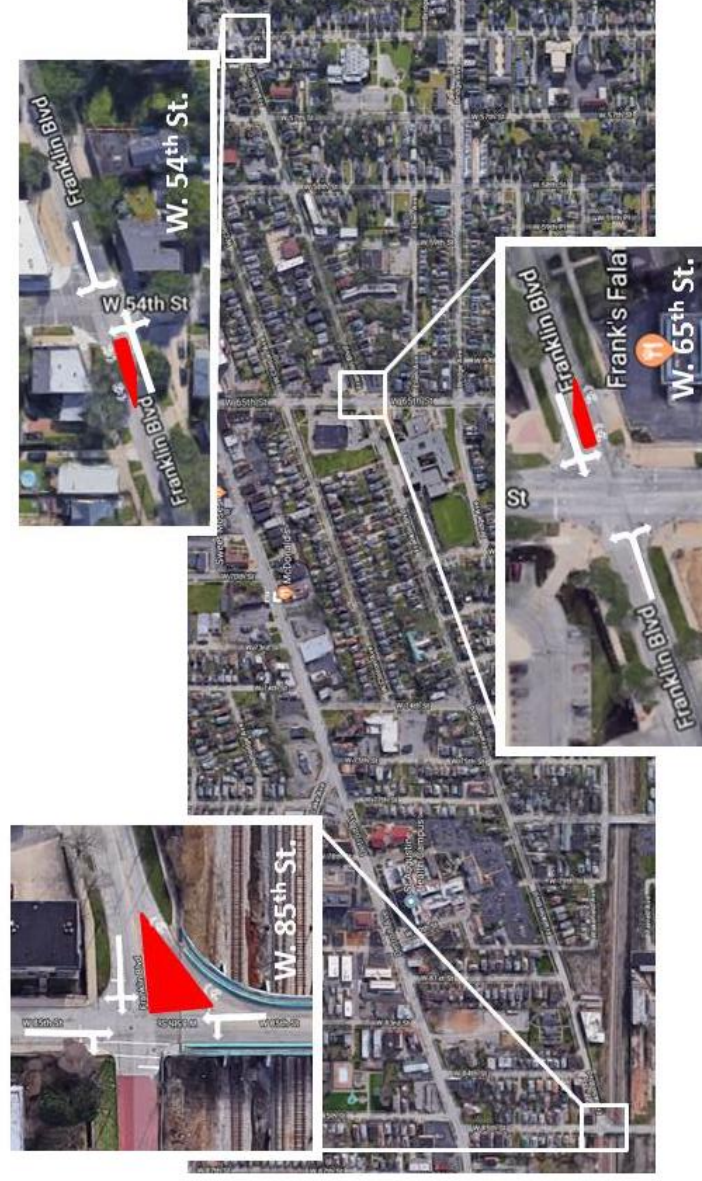
The Northeast Ohio Area-wide Coordinating Agency’s (NOACA) traffic calming study focuses on Franklin Boulevard between W. 85<sup>th</sup> Street and W. 25<sup>th</sup> Street. This 2-mile corridor has a speed limit of 35 miles per hour and is mainly residential with some interspersed schools, churches, and businesses. As one of the main east-west connector streets on the near west side of Cleveland, portions of Franklin Boulevard carry up to 300 or 400 vehicles per hour during peak morning and afternoon travel times. Traffic volume is directional, with the majority of vehicles traveling east in the morning and west in the afternoon. Because of this heavy commute flow and the travel time advantage of a speed limit that is 10 miles per hour higher than surrounding streets, project engineers hypothesized that commuters from both inside and outside the neighborhood were choosing Franklin as a through-route, rather than using major arterial roads (Detroit Avenue or Lorain Avenue, for example) or highways (Route 2 or Interstate 90) to the north and south of this residential corridor. For this reason, the City conducted the temporary traffic diversion demonstration to see if it was possible to effectively move through-traffic from Franklin Boulevard while addressing community concerns about traffic safety and walk- and bikeability with limited inconvenience to residents.

## Franklin Boulevard Temporary Traffic Calming Demonstration Results

### *Diverter Demonstration Structure*

At a public meeting on March 6, 2018, NOACA presented attendees with several physical traffic calming strategies that were being considered for installation along Franklin Boulevard, including raised crosswalks, neighborhood traffic circles, and traffic diversion. Participants were encouraged to mark corridor maps with notes, highlighting areas of concern and places that merited further study. Through this exercise, participants expressed concern about the potential for traffic diverters to shift traffic issues from Franklin to smaller adjacent residential streets and about the impact diverters would have on the ability to conveniently drive to destinations within and outside the neighborhood. Due to these concerns, and because diverters are a unique intervention in their the potential to significantly impact street dynamics beyond Franklin Boulevard, the City elected to conduct a short-term, temporary demonstration to expand neighborhood familiarity with the strategy, robustly engage corridor users, and collect quantitative data on changes in traffic volume and speed.

The three week traffic diverter demonstration along Franklin Boulevard ran from July 24 to August 10, 2018. Type III construction barricades, road closure signs, and traffic cones were installed to prevent eastbound through-traffic on Franklin at W. 85th Street and W. 65th Street, and westbound through-traffic on Franklin at W. 54th Street (Figure 2). A gap of approximately 5 feet between the barricade and curb was maintained to allow bicyclists to pass through the vehicular closure. These traffic diverter locations and directionality were selected with the goal of deterring through-traffic during morning and evening rush periods while preserving intra-neighborhood and residential access as much as possible.



**Figure 2.** Franklin Boulevard temporary diverter configuration

## Franklin Boulevard Temporary Traffic Calming Demonstration Results

Informational pedestrian-scale signage was posted on utility poles at each intersection where a diverter was present. The signage briefly described the purpose of the demonstration, the data that would be collected, and how community members could contribute feedback (Figure 3).

Data collection methods were established to align with the three major goals of the demonstration.

- **Community Engagement:** Residents and other users of Franklin Boulevard were informed of the temporary demonstration through block club emails, social media posts, direct mailers, and signs posted at diverter locations. Several opportunities for engagement and collecting feedback were offered over the course of the demonstration, including a recorded phone line, an electronic survey (also available on paper upon request), and two in-person question and answer sessions on-site at the demonstration location.
- **Traffic Volume:** Both before and during the demonstration, traffic counts were conducted at several points along the study corridor and adjacent streets. Twelve-hour video counts were conducted at the intersection of W. 65th Street and Franklin Boulevard, and at the intersection of W. 54th Street and Franklin Boulevard. Peak hour volunteer screenline counts were conducted from 7:00-9:00 am and 4:00-6:00 pm at all other locations. (Volunteers were instructed to count traffic flow in both directions across an imaginary line perpendicular to the roadway in an assigned location.) Counts were collected on Tuesdays, Wednesdays, and Thursdays, with the assumption that these days represented typical traffic conditions in the neighborhood. Thursdays were avoided for pre-demonstration count collection due to atypical traffic patterns caused by Edgewater Live events. Pre-demonstration data were collected in the two weeks leading up to the demonstration, with final counts conducted in the last week of the demonstration after allowing the maximum user adjustment period permitted by the demonstration timeline.
- **Traffic Speed:** Speed data were collected in the final week of the temporary demonstration by the Cleveland Police Department at various locations between W. 54th Street and W. 78th Street along Franklin Boulevard. Pre-demonstration speed data were extracted from the 2016 speed zone study for Franklin Boulevard commissioned by the City of Cleveland.



**Figure 3:** Informational signage at temporary diverter site

## Demonstration Outcomes

### *Community Engagement*

Because the temporary demonstration caused physical corridor changes that impacted the experience of most Franklin Boulevard users, resident engagement and feedback was more robust than studies of a similar nature without a demonstration component. Over the course of the demonstration, the City

## Franklin Boulevard Temporary Traffic Calming Demonstration Results

documented over 500 instances of community engagement or interaction through established channels (recorded phone line, Q & A sessions, and survey; Table 1). There was also robust conversation among community members about the demonstration on neighborhood Facebook pages and other social media channels.

*Table 1. Number of community engagement instances by type during the temporary demonstration*

Engagement Strategy	Count
Attendance at On-Site Q & A Sessions	34
Messages on Recorded Phone Line	42
Survey Participation	430
<b>TOTAL</b>	<b>506</b>

Engagement counts are not representative of the total number of people engaged, as many contributed feedback across multiple channels.

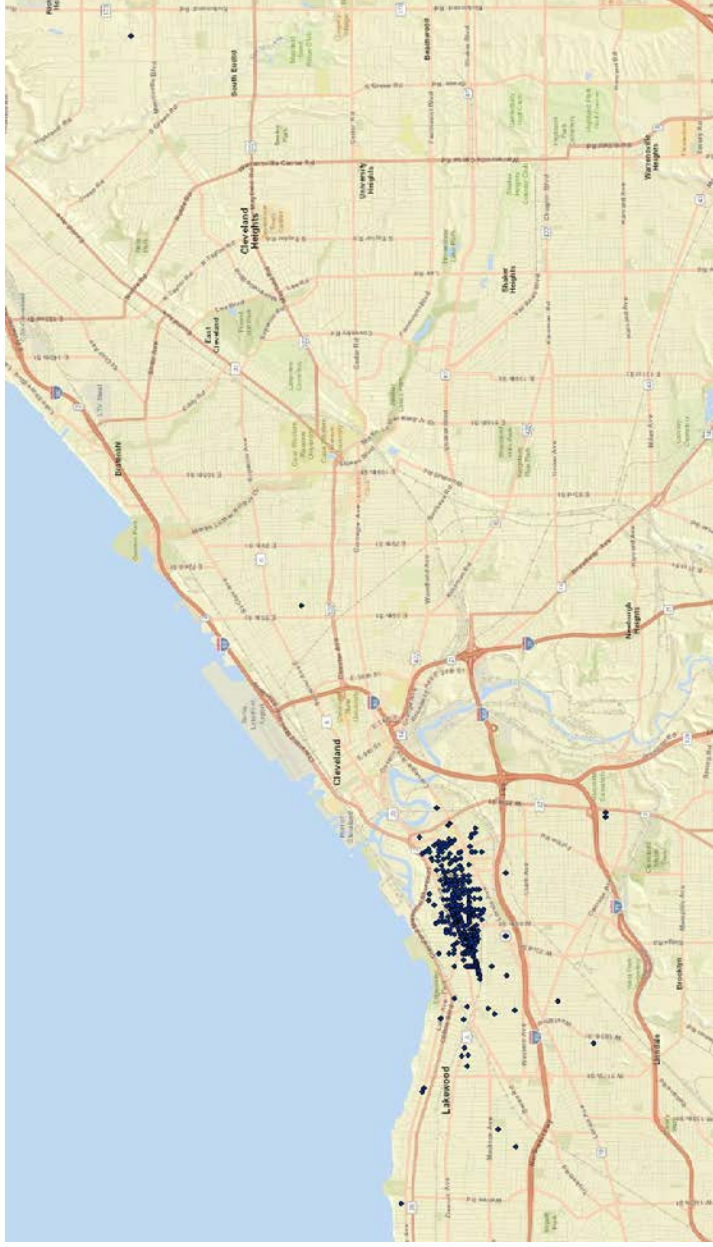
Ten percent of demonstration survey respondents reported attending the first public meeting for the planning study, 13 percent reported attending the second public meeting, and about 22 percent reported participating in the initial online survey in late 2017, indicating broader community engagement throughout the demonstration period.

Throughout the planning study and temporary traffic calming demonstration, the project team utilized several communication methods to share information with residents and corridor users, and to receive feedback. Based on survey responses, the following communication strategies were the most effective:

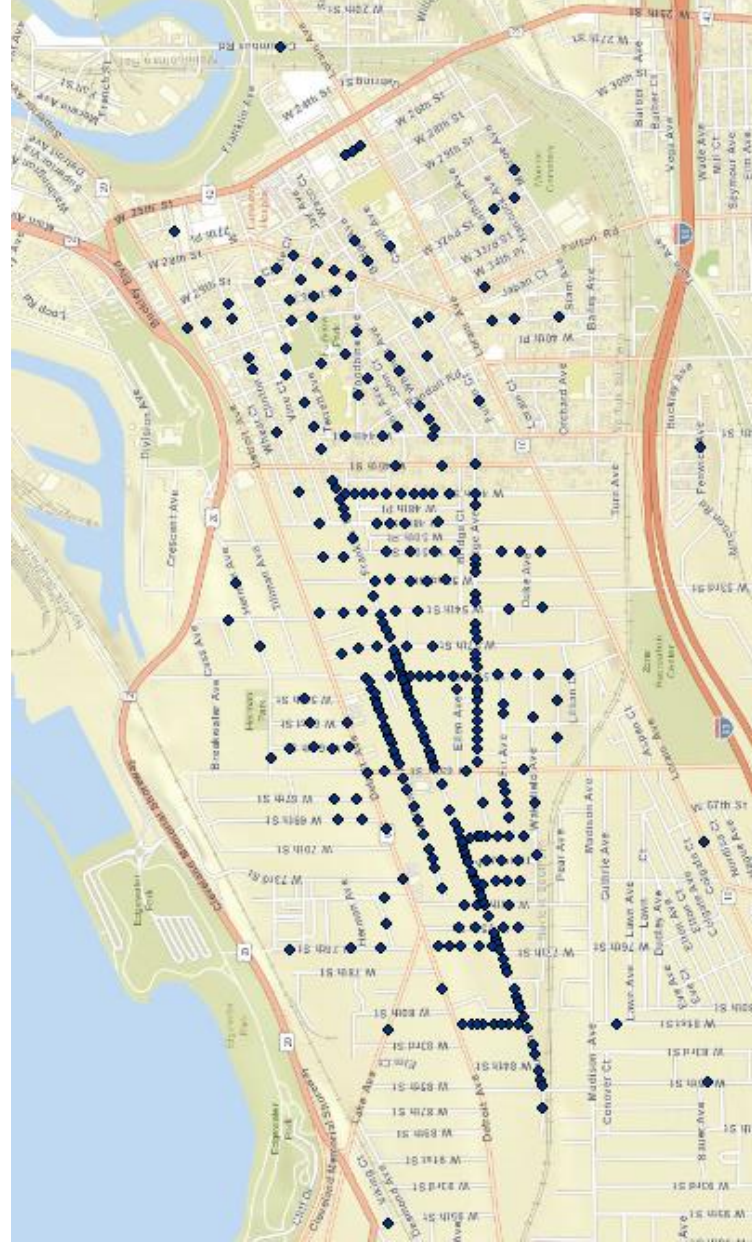
- On-site informational signage—reached 57 percent of survey respondents
- Social media—reached 55 percent of survey respondents
- Direct mailers from Council representative—reached 50 percent of survey respondents
- Interaction with the demonstration as a road user—reached 50 percent of survey respondents
- Block club emails—reached 45 percent of survey respondents

Based on demographic information collected via the survey, approximately 23 percent of responses came from people living on Franklin Boulevard, 67 percent were from people living in the surrounding neighborhood, and 10 percent were from those who live elsewhere but travel through the neighborhood, visit destinations in the neighborhood, or go to work or school in the area (Figure 4 and Figure 5).

# Franklin Boulevard Temporary Traffic Calming Demonstration Results



**Figure 4.** Self-reported residence locations of online survey participants, randomly mapped to the nearest block



**Figure 5.** Self-reported residence locations of online survey participants living along Franklin Boulevard and adjacent streets, randomly mapped to the nearest block

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## Franklin Boulevard Temporary Traffic Calming Demonstration Results

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Based on conversations at on-site Q & A sessions and written comments in surveys, Franklin Boulevard serves as an important corridor for motor vehicle, bicycle, and pedestrian traffic both within and through the neighborhood. For the most part, bicycle riders and pedestrians who contributed feedback reported that they felt the Franklin corridor was safer and more pleasant during the demonstration period. Several mentioned that they intentionally chose to use Franklin during the demonstration when commuting, recreating, and traveling to neighborhood destinations.

In open-ended comments, the most frequently expressed reaction to the diverter demonstration was inconvenience, annoyance, or frustration from having to use alternate, potentially more congested routes to reach desired destinations by motor vehicle. Several respondents (made up of motor vehicle drivers, bicyclists, and pedestrians alike) anecdotally shared that they felt less safe on Franklin Boulevard and surrounding streets due to angry drivers, speeding vehicles, people choosing to go the wrong way around the diverters, and decreased visibility at intersections with barricades. Respondents also mentioned additional travel stress and longer trip times, and some reported that the diverters made it more confusing and difficult to reach their homes, both for themselves and guests.

When asked about interest in considering traffic diverters for permanent installation at the demonstration locations, 75 percent indicated that they were “not at all interested” in a diverter at W. 54th Street, 74 percent were not interested in a diverter at W. 65th Street, and 69 percent were not interested in a diverter at W. 85th Street.

### *Traffic Volume*

Twelve-hour video counts were collected at W. 54th Street and Franklin Boulevard and W. 65th Street and Franklin Boulevard. In all other locations, screenline counts were captured by volunteers during peak morning and afternoon hours. Counts collected prior to the demonstration were compared to counts from the final week of the demonstration to calculate percent change at each location. Percent changes in morning and afternoon peak hours are mapped in Figures 6 and 7, respectively. Data tables for these maps, including the percent change and the rate of change expressed in number of vehicles per hour, are included in Appendix A and Appendix B.

Traffic volumes were reduced during the demonstration on several neighborhood street segments, including Franklin Boulevard, West Clinton Avenue between W. 74th Street and W. 65th Street, and portions of W. 85th Street, W. 77th Street, W. 58th Street, and W. 57th Street. The proximity of the diverters at W. 65th Street and W. 54th Street resulted in drastic reductions in vehicular flow along Franklin Boulevard between these two intersections.

However, counter to the goals of the temporary demonstration, increased vehicular volumes were observed on W. 54th Street, Bridge Avenue, and portions of West Clinton Avenue and W. 74th Street. Were there stronger community interest in diverters as a permanent traffic calming solution, temporary diverter locations could be adjusted and/or augmented with additional design solutions to mitigate these impacts. However, given the general resistance to traffic diverters in the neighborhood, continued diverter demonstrations in the area will not be pursued.

# Franklin Boulevard Temporary Traffic Calming Demonstration Results



**Figure 6. Morning peak (7:00 am to 9:00 am) motor vehicle traffic volume percent change during the temporary demonstration compared to a typical morning peak pre-demonstration**



**Figure 7. Afternoon peak (4:00 pm to 6:00 pm) motor vehicle traffic volume percent change during the temporary demonstration compared to a typical afternoon peak pre-demonstration**

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## Franklin Boulevard Temporary Traffic Calming Demonstration Results

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Compliance with the temporary diverters was a challenge throughout the demonstration, with many residents reporting observations of people in motor vehicles driving around the barricades. During the 12-hour video counts captured the final week of the demonstration, at W. 54th Street 174 people in motor vehicles (17 percent of westbound traffic) used the eastbound travel lane to go around the temporary diverter to continue west on Franklin. At W. 65th Street, 85 people in motor vehicles (11 percent of eastbound traffic) used the westbound travel lane to go around the temporary diverter to continue east on Franklin. The Cleveland Police Department's traffic unit did assist with some spot enforcement for the duration of the temporary demonstration.

### *Vehicular Speed*

During the temporary diverter demonstration, the Cleveland Police Department conducted off-peak hour speed data collection along Franklin Boulevard between W. 54th Street and W. 78th Street. The reporting officer documented very low traffic volumes along Franklin between W. 54th Street and W. 65th Street, and noted that speeds along this segment were slower than the segment of Franklin Boulevard between W. 65th Street and W. 78th Street, where the majority of speed data was collected.

Observed 85th percentile speeds have historically been used as an engineering benchmark for checking the appropriateness of the maximum posted speed limit on a given road. This approach assumes that 85 percent of motor vehicle drivers on a specific roadway will drive at or below a speed that is considered safe for the roadway conditions at that location. During the temporary diverter demonstration along Franklin Boulevard, 101 motor vehicle speeds were collected, with 85th percentile speed between 30 and 35 miles per hour. This distribution is the same as pre-demonstration speed data, indicating that the temporary diverters did not have a measurable impact on slowing traffic along the corridor. This may have been a function of frustrated drivers that were forced to detour off of Franklin Boulevard, as well as less 'friction' from other cars for drivers along Franklin Boulevard due to lower traffic volumes.

### *Demonstration Insights*

Several conclusions can be drawn from the temporary traffic calming demonstration experience along Franklin Boulevard. **Most relevant to the broader traffic calming study, due to community feedback the City of Cleveland recommends that traffic diverters not be included in the final recommendations to calm traffic along the Franklin Boulevard corridor.**

Additionally, the following lessons learned may help inform future temporary demonstration efforts in the city and beyond.

- *Initiation of temporary demonstration:* Project organizers should spend as much time as possible working with the community in advance of the demonstration to share information about what will be tested, why it has been identified for a physical demonstration, and how road users should interact with the demonstration so that community members understand the intent of the demonstration period.
- *Operational needs of public safety, waste, snow removal, and neighborhood schools:* Regardless of the traffic calming strategy selected, the project team should work closely with public safety

## Franklin Boulevard Temporary Traffic Calming Demonstration Results

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forces, waste management, street maintenance, and nearby schools to inform them of the demonstration and to collect information about how the demonstrated traffic calming strategy (or strategies) impacts their function.

- *Diverter placement in the road network:* When testing placement of traffic diverters in residential areas, prioritize placement at intersections with arterial roads (higher capacity roads that can better absorb additional vehicular volumes) rather than residential streets.
  - *Data collection methods:* Investigate automated traffic data collection options to augment the work of volunteer human counters and to allow more robust data collection across the project area.
  - *Community outreach, engagement, and communications:*
    - Although the project team distributed information about the temporary demonstration via advanced direct mailers, corridor signage, and door-to-door flyering, in addition to electronic messages, survey responses indicated that some area employers (and employees) were not aware of the temporary demonstration. Future communications strategies should intentionally target surrounding businesses and employers in addition to neighborhood residents.
    - On-site pedestrian-scale informational signage should be posted no higher than five to six feet off the ground, to be easily viewed and legible to passersby. Temporary installations should also include clear information that can be consumed by people driving by in motor vehicles, and should clearly communicate how different road users (including motorists, bicyclists, and emergency vehicles) should interact with the temporary installation.
    - Although social media is perceived as an informal, unofficial communications medium, given its effectiveness of reaching community members and its ability to facilitate input, consider developing a social media management strategy to share information with community members and to collect productive input to integrate into the planning process.
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Do you have questions, comments, or other insights to share? Please contact City of Cleveland's Bicycle and Pedestrian Coordinator, Calley Mersmann, at [cmersmann@city.cleveland.oh.us](mailto:cmersmann@city.cleveland.oh.us) or (216)664-2952.

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Special thanks to the many community members who volunteered their time to collect the broad spread of traffic count data across the study corridor and adjacent streets. This case study would not have been possible without them.

## Franklin Boulevard Temporary Traffic Calming Demonstration Results

### Appendix A. Franklin Boulevard Traffic Count Data—Morning Peak (7:00am-9:00am)

Location	Pre-demonstration counts AM	During-demonstration counts AM	Percent change	Change in vehicles per hour
W. 85th St. north of Franklin	323	457	41%	67
W. 85th St. south of Franklin	620	539	-13%	-41
Franklin west of W. 79th St.	328	134	-59%	-97
W. 77th St. north of Franklin	96	94	-2%	-1
W. 77th St. south of Franklin	129	146	13%	9
W. 74th St. north of Franklin	159	183	15%	12
W. 74th St. south of Franklin	101	165	63%	32
W. 65th St. north of Franklin	927	826	-11%	-51
W. 65th St. south of Franklin	1027	805	-22%	-111
Franklin west of W. 65th St.	401	197	-51%	-102
Franklin east of W. 65th St.	575	50	-91%	-263
West Clinton west of W. 65th St.*	39	34	-13%	-3
West Clinton east of W. 65th St.	43	100	133%	29
W. 57th St. north of Franklin	97	84	-13%	-7
W. 57th St. south of Franklin	92	98	7%	3
W. 58th St. north of Franklin	185	183	-1%	-1
W. 58th St. south of Franklin	174	180	3%	3
W. 54th St north of Franklin	112	124	11%	6
W. 54th St south of Franklin	81	100	23%	10
Franklin west of W. 54th St.	638	189	-70%	-225
Franklin east of W. 54th St.	649	309	-52%	-170
W. 44th St. south of Franklin	559	557	0%	-1
Franklin east of W. 44th St.	600	552	-8%	-24
Bridge Ave. west of W. 58th St.	197	424	115%	114
Bridge Ave. east of W. 58th St.	254	476	87%	111
Bridge Ave. west of W. 44th St.	368	485	32%	59

\*Data collection period was shortened by 30 minutes due to volunteer availability. Pre- and post-demonstration metrics have been adjusted to be comparable.

## Franklin Boulevard Temporary Traffic Calming Demonstration Results

### Appendix B. Franklin Boulevard Traffic Count Data—Afternoon Peak (4:00pm-6:00pm)

Location	Pre-demonstration counts PM	During-demonstration counts PM	Percent change	Change in vehicles per hour
W. 85th St. north of Franklin	570	618	8%	24
W. 85th St. south of Franklin	927	816	-12%	-56
Franklin west of W. 79th St.	499	267	-46%	-116
W. 77th St. north of Franklin	185	129	-30%	-28
W. 77th St. south of Franklin	183	233	27%	25
W. 74th St. north of Franklin	299	348	16%	25
W. 74th St. south of Franklin	244	312	28%	34
W. 65th St. north of Franklin	1208	1193	-1%	-8
W. 65th St. south of Franklin	1274	1266	-1%	-4
Franklin west of W. 65th St.	631	388	-39%	-122
Franklin east of W. 65th St.	741	123	-83%	-309
West Clinton west of W. 65th St.	79	79	0%	0
West Clinton east of W. 65th St.*	57	67	18%	7
W. 57th St. north of Franklin	100	137	37%	19
W. 57th St. south of Franklin	98	123	26%	13
W. 58th St. north of Franklin	345	259	-25%	-43
W. 58th St. south of Franklin*	158	155	-2%	-2
W. 54th St north of Franklin	155	238	54%	42
W. 54th St south of Franklin	87	239	175%	76
Franklin west of W. 54th St.	747	120	-84%	-314
Franklin east of W. 54th St.	733	387	-47%	-173
W. 44th St. south of Franklin	750	724	-3%	-13
Franklin east of W. 44th St.	797	684	-14%	-57
Bridge Ave. west of W. 58th St.	316	553	75%	119
Bridge Ave. east of W. 58th St.	390	615	58%	113
Bridge Ave. west of W. 44th St.	620	715	15%	48

\*Data collection period was shortened by 30 minutes due to volunteer availability. Pre- and post-demonstration metrics have been adjusted to be comparable.